



DVA-G3342SB

Manual

Firmware Version 4.2

DSL WLAN LAN VoIP ISDN Analog

FCC Statement

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

1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
4. Consult the dealer or an experienced radio/TV technician for help.

FCC Caution

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of about eight inches (20cm) between the radiator and your body.

This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

CE Mark Warning

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

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Mark Ups

Mark Up	Function	Example
Small caps	Buttons, Links, Name of tabs or pages	NEXT Tab TELEPHONY
Italics	Options	<i>base</i> or <i>expert mode</i>
Coloured background	Notes	Note:
Typewriter	URLs	http://www.dyndns.org/

Safety Instructions

Please read this section carefully and observe the instructions for your own safety and correct use of the HorstBox Professional.

Observe the warnings and instructions on the device and in the manual.

The HorstBox Professional is built and tested by D-Link Deutschland in accordance with IEC 950/EN60950 and left the works in a perfectly safe condition.

In order to maintain this condition and ensure safe operation, the user must observe the instructions and warnings contained in this manual.

1. The device must be used in accordance with the instructions for use.
2. For transport use the original wrapping or a adequate wrapping. Protect the HorstBox Professional against shocks and blows.
3. To avoid condensation wait until the device has reached room temperature before you put it into operation. The HorstBox Professional has to be dry completely.
4. Consider the information about the environmental conditions in the specification (see section Appendix in the manual). In the manual read section "Installation" and the section "Installation Considerations".
5. Only use the power adaptor supplied. Power adaptor.
6. The electrical installations in the room must correspond to the requirements of the respective regulations.

7. Do not use a main connection in sockets shared by a number of other power consumers. Do not use an extension cable.
8. The unit is complete disconnected from the power source, only when the power cord is disconnected from the power source. Therefore the power cord and its connectors must always remain easily accessible.
9. Take care that there are no cables, particularly power cables, in areas where persons can trip over them. For installation follow the instructions in section "Installation" in the manual.
10. Use only adequate and unbroken power cords and network or telephone cables.
11. Do not connect or disconnect data cable connection during thunderstorms.
12. Clean the HorstBox Professional with a wettish cloth only.
13. Do not set up the device in the proximity of heat sources or in a damp location. Make sure the device has adequate ventilation.
14. Take care that no items or liquids reach into the inside of the housing.
15. In emergencies switch off the device immediately, disconnect the power supply and contact a sales person.
16. Do not open the HorstBox Professional!
17. Repairs should be carried out by qualified service personal only. Unauthorized open ups and unqualified repairs endanger the user(s).
18. Specified normal operation of the HorstBox Professional (according to IEC 950/EN60950) requires the lid to be mounted.
19. The guarantee becomes void, if you add or change parts to the HorstBox Professional.

Contents

1. Introduction	10
1.1. About this manual	11
1.2. Installation Considerations	11
1.3. Standards-Based Technology	13
1.4. Ports	14
1.4.1. Analog	14
1.4.2. ISDN	14
1.4.3. VoIP and Ethernet	14
1.4.4. Example	15
2. Getting Started	16
2.1. Shipment	16
2.2. Description	17
2.2.1. Front Panel	17
2.2.2. Back Panel	19
2.3. Installation	20
2.3.1. Preparations	20
2.3.2. Configuration	21
3. Wizard	23
3.1. Internet Connection	24
3.2. WLAN	27
3.3. Telephony	29
3.4. System	37
4. Telephony	40
4.1. Accounts	40
4.1.1. Edit Analog Account	41
4.1.2. Add Analog Account	43
4.1.3. Add ISDN Account	43
4.1.4. Edit ISDN Account	44
4.1.5. Add VoIP Account	44
4.1.6. Edit VoIP Account	46
4.1.7. Delete Analog Account	46
4.1.8. Delete ISDN Account	46
4.1.9. Delete VoIP Account	47
4.2. Phones and Devices	47

4.2.1. Add Analog Device	47
4.2.2. Edit Analog Device	51
4.2.3. Add ISDN Device	51
4.2.4. Edit ISDN Device	53
4.2.5. Configure ISDN Device	53
4.2.6. Add VoIP Device	54
4.2.7. Edit VoIP Device	55
4.2.8. Configure VoIP Device	57
4.2.9. Add External Call Diversion	57
4.2.10 Edit External Call Diversion	57
4.2.11 Delete Analog Device	59
4.2.12 Delete ISDN Device	59
4.2.13 Delete VoIP Device	59
4.2.14 Delete External Call Diversion	59
4.3. Call Rules	60
4.3.1. Add Call Rule	60
4.3.2. Configure Call Forwarding	62
4.3.3. Edit Call Rule	62
4.3.4. Delete Call Rule	62
4.4. Dial Rules	63
4.4.1. Define Default Account	63
4.4.2. Define or Edit Failover Account	64
4.4.3. Add Dial Rule	64
4.4.4. Edit Dial Rules	66
4.4.5. Delete Dial Rule	66
4.4.6. Least-Cost-Routing	67
4.4.7. Preselection	68
4.5. Speed Dialing	69
4.5.1. Add Speed Dialing/Vanity Number	69
4.5.2. Edit Speed Dialing/Vanity Number	70
4.5.3. Delete Speed Dialing/Vanity Number	71
4.6. TAPI	72
4.6.1. Activate and Configure TAPI	72
4.6.2. Deactivate TAPI	73
4.6.3. Install a TAPI Driver	74
4.6.4. Using TAPI	74
4.7. Phone Log	75
4.7.1. Delete Phone Log	75
4.8. Status	76
4.9. How To Telephone	77
4.9.1. Answering A Call	77
4.9.2. Transferring A Call	77
4.9.3. Park A Call (Phone without Park Function)	77
4.9.4. Park A Call (Phone with Park Function)	77
4.9.5. Unpark A Call	77

4.9.6. Internal Calls	78
4.9.7. External Calls	78
4.9.8. Speed Dialing/Vanity Number	78
4.9.9. Telephone Conference	79
4.9.10 Do Not Disturb (DND)	79
4.9.11 Three-Way Calling (Analog Phone)	80
4.9.12 Call Waiting (Analog Phone)	80
5. Internet	82
5.1. Internet Access	82
5.1.1. Access Type: DSL	83
5.1.2. Additional Settings in Expert Mode	85
5.1.3. Access Type: LAN	85
5.2. DNS	87
5.3. Dynamic DNS	88
5.4. Filter	90
5.4.1. Add Filter	90
5.4.2. Edit Filter	92
5.4.3. Delete Filter	92
5.5. Firewall	93
5.6. DMZ (Exposed Host)	95
5.7. RIP Settings	96
5.8. Virtual Server	97
5.8.1. Add Rule	98
5.8.2. Apply Rules	99
5.8.3. Delete Assignment	101
5.8.4. Delete Rule	101
6. Network	102
6.1. IP Settings	103
6.2. DHCP Server	104
6.2.1. Set up DHCP Server	104
6.2.2. Edit Settings	106
6.3. WLAN	107
6.3.1. Activate WLAN	107
6.3.2. Security Settings	108
6.3.3. Deactivate WLAN	111
6.4. WLAN Access Rules	111
6.4.1. Add Access Rules	111
6.4.2. Edit Access Rules	113
6.4.3. Delete Access Rules	113
6.5. Multiple WLAN SSIDs	114
6.5.1. Add Multiple WLAN SSIDs	114
6.5.2. Edit WLAN Multiple SSIDs	115
6.5.3. Delete WLAN Multiple SSIDs	116

6.6. WLAN Performance	116
6.7. WLAN Night Switch	118
6.8. Routing	120
6.8.1. Add Route	120
6.8.2. Edit Route	121
6.8.3. Delete Route	122
6.9. User Accounts for Network Shares	123
6.9.1. Add User Account	123
6.9.2. Edit User Account	124
6.9.3. Delete User Account	125
6.10 Network Shares	126
6.10.1 Activate Network Shares	126
6.10.2 Add Network Shares	127
6.10.3 Edit Network Shares	128
6.10.4 Delete Network Share	129
6.10.5 Current Shares	130
6.10.6 How To Use Network Shares	130
6.11 Manage USB-Storage devices	131
6.11.1 Unmount USB Storage Device	131
6.12 USB Printer	132
6.12.1 Share USB Printer	132
6.12.2 Do Not Share USB Printer	133
7. System	134
7.1. Administration	134
7.1.1. Password	134
7.1.2. Remote Administration	135
7.2. Time	136
7.2.1. Automatic (Simple Network Time Protocol)	137
7.2.2. Synchronize the clock with your computer	137
7.2.3. Manual	137
7.3. System Settings	138
7.3.1. Save and Reboot	139
7.3.2. Save System Settings	139
7.3.3. Load System Settings	139
7.3.4. Restore Default Settings	139
7.4. Firmware Update	141
7.4.1. Online Update	141
7.4.2. Manuell Update	142
7.5. UPnP	143
7.6. System Log	144
7.7. Status	145
8. Support	146
8.1. Wizard	146

8.2. Online Help	146
A. Troubleshooting	148
A.1. No Access to User Interface	148
A.2. No Connection To Internet in Infrastructure Mode	148
A.3. No Wireless Connectivity	149
A.3.1. How To Avoid Wireless Connectivity Losses	149
A.3.2. Distance Issues	149
A.3.3. Encryption	150
A.3.4. Check WLAN Connection	150
A.3.5. Check Mode	150
A.4. Key For Encryption Lost	150
A.5. An Analog Phone Does Not Work	151
A.6. No Change to Basic or Expert Mode	151
B. Specification	152
B.1. Specification: Hardware	152
B.2. Specification: Software	153
B.3. Specification: Voice Codecs and SoftPbx	153
B.4. Specification: Security and Emission	153
B.5. Environmental	153
C. Technical Support	154
D. D-LINK Limited Product Warranty	155

1. Introduction

Dear Customer,

thank you for choosing a D-Link product.

By choosing the HorstBox Professional you have opted for a high quality product, able to satisfy the requirements for a simple communication infrastructure for data and voice today and in the future. The HorstBox connects D-Link's experience in routing, WLAN, security and telephony over analog and digital lines with the know-how in VoIP.

The HorstBox Professional provides all ports you need today to integrate network and phones efficiently and cost-effectively. Start a gentle migration of standard phones and new technology without the need to renew all equipment at hand at once.

Simply connect the phones to the HorstBox Professional, start the assistant to guide you through the configuration and within minutes you can surf in and phone over the Internet or use the existing phone line.

D-Link claims that all information contained in this installation guide is constantly being updated in line with the technical alterations and improvements made to the HorstBox Professional and thus this installation guide only reflects the technical status of the HorstBox at the time of printing.

Please read the section [1.2 Installation Considerations](#) on p. 11.

1.1. About this manual

In this manual you will be introduced to all settings of the HorstBox Professional.

Starting with the first chapter you will learn about the device and its installation (chapter [2 Getting Started](#) on p.16). The next chapter will guide you through the installation and configuration of the HorstBox Professional DVA-G3342SB (chapter [3 Wizard](#) on p.23).

The next chapters introduce an area of functionality each:

[4 Telephony](#) on p.40;

[5 Internet](#) on p.82;

[6 Network](#) on p.102;

[7 System](#) on p.134;

[8 Support](#) on p.146.

In the appendix you will find some help on troubleshooting ([A Troubleshooting](#) on p.148), the product specification ([B.1 Specification: Hardware](#) on p.152 and the warranty ([D D-LINK Limited Product Warranty](#) on p.155).

Note: All user names, phone numbers or passwords used in this manual are examples only.
Do use your own data only!

1.2. Installation Considerations

Several environmental factors may influence the effectiveness of the radio signal. If you are installing a WLAN device for the first time ever, please take some time to read and consider this section.

The HorstBox Professional lets you access your network using a wireless connection from virtually anywhere within its operating range. Keep in mind, however, that the number, thickness, and location of walls, ceilings, or other objects that the wireless signals must pass through, may limit the range. Typical ranges vary depending on the types of materials and background RF (radio frequency) noise in your home or business. The key to maximizing wireless range is to follow these basic guidelines:

1. **Keep the number of walls and ceilings between the HorstBox Professional and other network devices to a minimum.**
Each wall or ceiling can reduce the radio range from 1-30 meters (3-90 feet). Position your devices so that the number of walls or ceilings is minimized.

2. **Be aware of the direct line between network devices.**

A wall that is 0,5 meters thick (1.5 feet), at a 45-degree angle appears to be almost 1 meter (3 feet) thick. At a 2-degree angle it looks over 14 meters (42 feet) thick! Position devices so that the signal will travel straight through a wall or ceiling (instead of at an angle) for better reception.

3. **Building materials can impede the wireless signal.**

A solid metal door or aluminum studs may have a negative effect on range. Try to position wireless devices and computers with wireless adapters so that the signal passes through drywall or open doorways and not other materials.

4. **Align the antenna for best reception.**

Align and position the antenna until you get best coverage. Some WLAN devices or access points will help you with this task. Sometimes fixing the antenna in a higher position advances the reception.

5. **Keep distance to other devices.**

Keep your product away (at least 1-2 meters or 3-6 feet) from electrical devices or appliances that generate RF noise.

6. **Choose a useful combination of channels.**

To avoid disturbances of radio waves, choose a useful combination of radio channels.

Standard 802.11b/g devices may always use 3 channels at once. It's most effective to use a combination like 2/5/9, as the factory settings of most devices will be 6 or 11. Make sure the distance between the channels is a least 2 to 3 unused channels.

1.3. Standards-Based Technology

D-Link Wireless products utilize the 802.11b and the 802.11g standards. The IEEE 802.11g standard is an extension of the 802.11b standard. It increases the data rate up to 54 Mbps within the 2.4GHz band.

802.11g offers the most advanced network security features available today, including: WPA , TKIP, AES and Pre-Shared Key mode.

D-Link wireless products are based on industry standards to provide easy-to-use and compatible high-speed wireless connectivity within your home, business or public access wireless networks. D-Link wireless products will allow you access to the data you want, when and where you want it. You will be able to enjoy the freedom that wireless networking brings.

A Wireless Local Area Network (WLAN) is a computer network that transmits and receives data with radio signals instead of wires. WLANs are used increasingly in both home and office environments, and public areas such as airports, coffee shops and universities. Innovative ways to utilize WLAN technology are helping people to work and communicate more efficiently. Increased mobility and the absence of cabling and other fixed infrastructure have proven to be beneficial for many users.

Wireless users can use the same applications they use on a wired network. Wireless adapter cards used on laptop and desktop systems support the same protocols as Ethernet adapter cards.

People use WLAN technology for many different purposes:

MOBILITY - Productivity increases when people have access to data in any location within the operating range of the WLAN. Management decisions based on real-time information can significantly improve worker efficiency.

LOW IMPLEMENTATION COSTS - WLANs are easy to set up, manage, change and relocate. Networks that frequently change can benefit from WLANs ease of implementation. WLANs can operate in locations where installation of wiring may be impractical.

INSTALLATION AND NETWORK EXPANSION - Installing a WLAN system can be fast and easy and can eliminate the need to pull cable through walls and ceilings. Wireless technology allows the network to go where wires cannot go - even outside the home or office.

INEXPENSIVE SOLUTION - Wireless network devices are as competitively priced as conventional Ethernet network devices.

SCALABILITY - WLANs can be configured in a variety of ways to meet the needs of specific applications and installations. Configurations are easily changed and range from Peer-to-Peer networks suitable for a small number of users to larger infrastructure networks to accommodate hundreds or thousands of users, depending on the number of wireless devices deployed.

1.4. Ports

1.4.1. Analog

The HorstBox Professional provides two ports for analog devices and one port for the telephone line.

Note: For an analog telephone line connect the socket with the port “a/b” on the HorstBox.

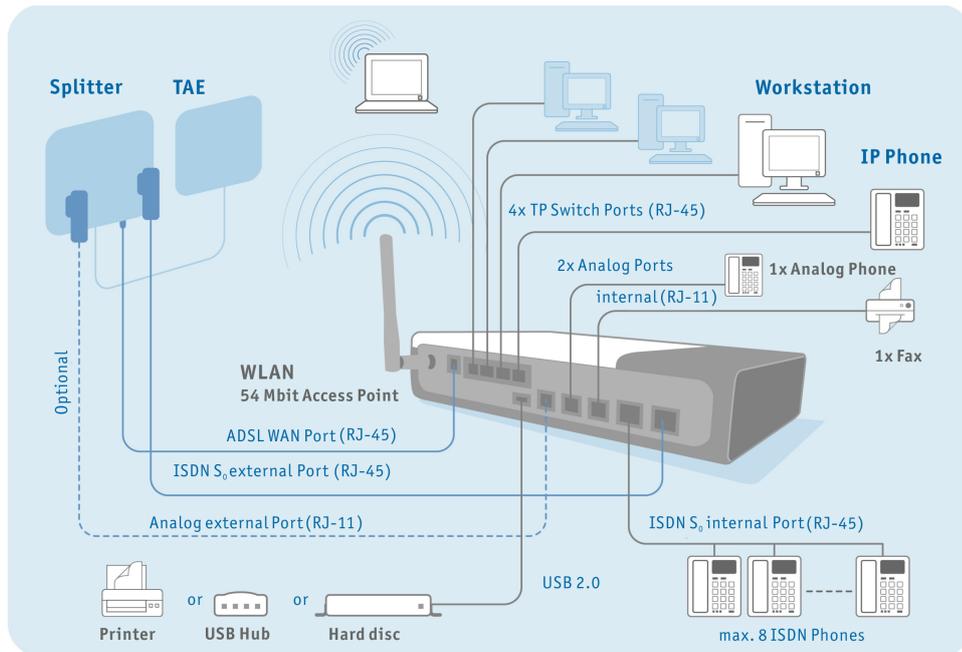
1.4.2. ISDN

The HorstBox Professional provides one port for an ISDN device (internal S₀-Bus) and a port for an ISDN telephone line. To connect 2 or more ISDN devices, use an ISDN distributor (ISDN hub). You may connect a total of 8 ISDN devices to the internal S₀-Bus.¹ The HorstBox Professional administrates up to 20 different ISDN devices.

Note: For an ISDN line connect the NTBA with the port “S₀ ext” on the HorstBox. This is **mandatory!** Connect the NTBA to the wall socket according to your service providers instructions.

1.4.3. VoIP and Ethernet

The HorstBox Professional provides 4 Ethernet ports and one port to connect to the WAN. You may increase the number of Ethernet ports by connecting a hub or switch. The HorstBox Professional administrates up to 30 different VoIP phones.



1.4.4. Example

Note: Analog line: Please connect analog line to port “a/b” on the HorstBox.

ISDN line: Please connect ISDN line to NTBA² and NTBA to port “S0 Ext” on the HorstBox Professional.

¹If you want to connect more than 4 devices, the additional devices will need their own power supply.

²Connecting the ISDN line to NTBA is mandatory!

2. Getting Started

Before you install the HorstBox Professional, check to see whether a network is installed and configured. If necessary, install and configure a network according to the documentation of the operating system of your computer.

2.1. Shipment

HorstBox Professional DVA-G3342SB

1x Power adaptor: 100-240V, 1,2A (Output: 12V, 3,33A) + power cord	
4x Pads (1 bag)	1x WLAN dipol antenna (2,4GHz)
1x Installation guide	1x CD-ROM
1x network cable (CAT-5), blue	1x ADSL cable(RJ11 to RJ45), grey
1x USB cable, grey	1x ISDN cable (RJ45), black
1x ISDN cable (RJ45), red	1x Phone cable (RJ11), red
1x Adaptor: RJ11 plug to 3 TAE ports (NFN) for analog devices	

Table 2.1.: Shipment

Please contact your sales person immediately, if parts are missing or broken.

Note: According to the terms of guarantee the HorstBox Professional must be operated only with the power adaptor provided. Otherwise the guarantee becomes void.

2.2. Description

2.2.1. Front Panel

On the front panel of the HorstBox Professional you will find LEDs, which inform about the status of the device and its ports.

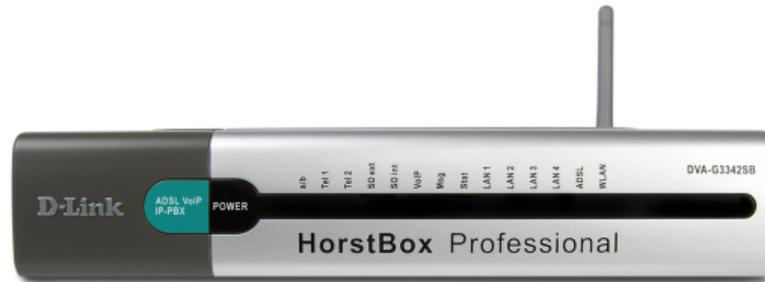


Figure 2.1.: HorstBox Professional Front Panel

Name	LED	Function
Power	Power supply	
	Off	No power.
	LED on	Power.
a/b	Analog port	
	Off	No activity on interface.
	Blinking	Activity on interface.
	On	HorstBox is connected.
Tel 1-2	Analog phone	
	Off	No activity on interface.
	Blinking	Activity on interface.
	On	Analog phone connected to HorstBox.
S₀ ext	Communication on external S ₀ -Bus	
	Off	No activity on interface.
	Blinking	Activity on interface.
	On	HorstBox connected to ISDN.

Name	LED	Function
S₀ int	<i>Communication on internal S₀-Bus</i>	
	Off	No activity on interface.
	Blinking	Activity on interface.
	On	ISDN phone connected to HorstBox.
VoIP	<i>Communication on VoIP connection</i>	
	Off	No activity on interface.
	Blinking	Activity on interface.
	On	VoIP account registered successfully or VoIP account online.
Msg		
	Off	
	Blinking	
	On	
Stat	<i>Status of HorstBox</i>	
	Off	HorstBox is not ready.
	Blinking	HorstBox is booting up.
	On	HorstBox is ready.
LAN 1-4	<i>Communication over LAN 1-4</i>	
	Off	No device(s) connected.
	Blinking	Activity on interface.
	On	Devices connected to interface.
ADSL	<i>Communication over ADSL</i>	
	Off	HorstBox not connected to DSL network.
	Blinking	Activity on interface.
	On	HorstBox connected to DSL network.
WLAN	<i>Communication over WLAN</i>	
	Off	Access Point turned off.
	Blinking	Activity on interface.
	On	Access Point turned on.

Table 2.2.: Front panel / Function of LEDs

2.2.2. Back Panel

The back panel houses all ports of the HorstBox and the reset switch.

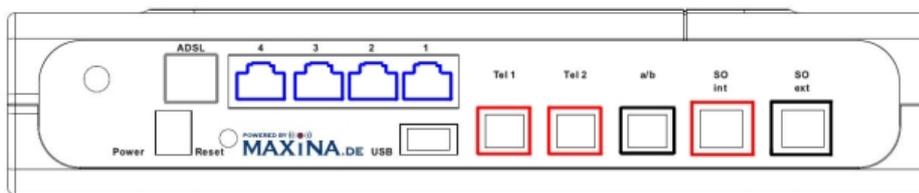


Figure 2.2.: Back Panel of HorstBox Professional

Name	Port type	Function
Order from left to right		
–	Antenna port (round) type: RP-SMA)	adjustable antenna for WLAN
Power	Power port (round)	connect to power adaptor
ADSL	WAN port (RJ45), grey	connect to DSL port on splitter
1 - 4	Ethernet ports, (RJ45), blue	connect ethernet devices
USB	USB port	connect USB devices
Tel 1, Tel 2	Analog phone ports (RJ11), red	connect two analog phones
a/b	Analog phone port (RJ11), black	connect to wall socket
S ₀ int	ISDN port (RJ45), red	connect ISDN devices to S ₀ -Bus internal
S ₀ ext	ISDN port (RJ45), black	connect to ISDN port on splitter

Table 2.3.: Back panel / Colours and functions of ports

2.3. Installation

Please read chapter [1.2 Installation Considerations](#) on p.11 before installing the HorstBox Professional.

2.3.1. Preparations

Before configuring the HorstBox Professional prepare the device as described in this section.

- Put the pads into the slots at the bottom of the device. The HorstBox can be operated in an upright position too.
- Provide for air circulation.
- Connect the HorstBox Professional to your computer. Use the blue network cable provided. Plug it into one of the blue ports of the device. Plug the other end into the port of the network adapter card (NIC) of your computer.
- Plug the power adaptor plug into the power port of the HorstBox Professional.
- Plug the power plug of the power adaptor into a socket. This will make the HorstBox boot up.
- Boot up the computer you want to use for configuring the HorstBox.

All preparations are done now. You can start to configure the HorstBox Professional after the LED reports readiness of the device. These LEDs should be “on” by now: **Power**, **Stat** and at least 1x **LAN**, assumed that the computer connected to a LAN port is ready, too.

Note: If you plan to integrate the HorstBox Professional into an existing network, you may want to disable the DHCP server temporarily as the HorstBox Professional provides another DHCP server as default. Using two DHCP servers uncontrolled in one network may cause severe problems.

The default IP address of the HorstBox Professional is **192.168.0.1**. Make sure that your network is working in the same segment (192.168.0.x).

An easy way to configure the HorstBox is to connect a computer directly and let it get an IP address from the DHCP server of the HorstBox Professional. Start the HorstBox Professional first, the computer second.

2.3.2. Configuration

Note: For security reasons configure the HorstBox via a network cable only. Do not use a WLAN connection.

To configure the HorstBox Professional via its graphic user interface call up the URL **https://192.168.0.1** in a browser.

If you do the first configuration best use the assistant, which will start automatically in the browser.

The assistant helps you through all important settings and within minutes the HorstBox Professional is up and running.

To change settings or install phones later, call up the URL **https://192.168.0.1** again. If you have changed the default IP address of the HorstBox Professional, start the graphical user interface by typing the changed IP address into the browser. Do not forget to type in the protocol **https://** first.

The graphical user interface shows up in the browser. It is structured by several tabs, one for each area of functionality., see [fig.2.3 Graphical User Interface](#) on p.22.

Use the navigation column of each tab to open more pages to set up the HorstBox.

You can switch between basic and expert mode. While the expert mode provides more detailed settings, for most users the settings made in basic mode will be sufficient.

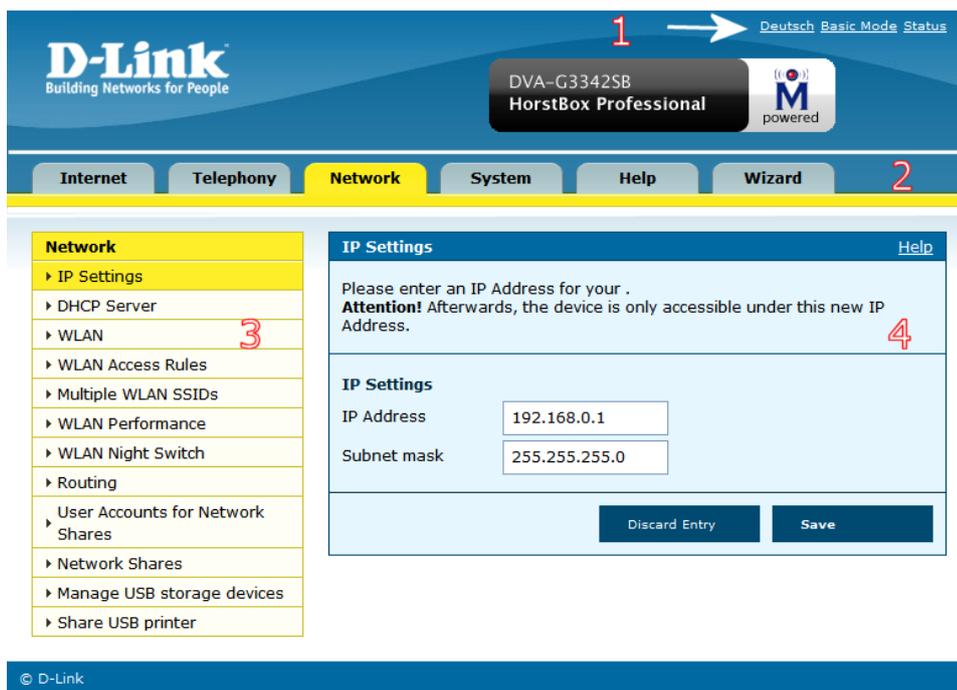


Figure 2.3.: Graphical User Interface

No.	Name	Function
1	Switch	Switch language and modes; status report
2	Tab	Open a new tab by clicking on it
3	Navigation column	Open new page inside a tab for more settings
4	Text	Information / settings / online help

Table 2.4.: Graphical User Interface: Functions

3. Wizard

The Wizard will guide you step-by-step through the installation and configuration of the HorstBox Professional. Within minutes the HorstBox will be ready to go.

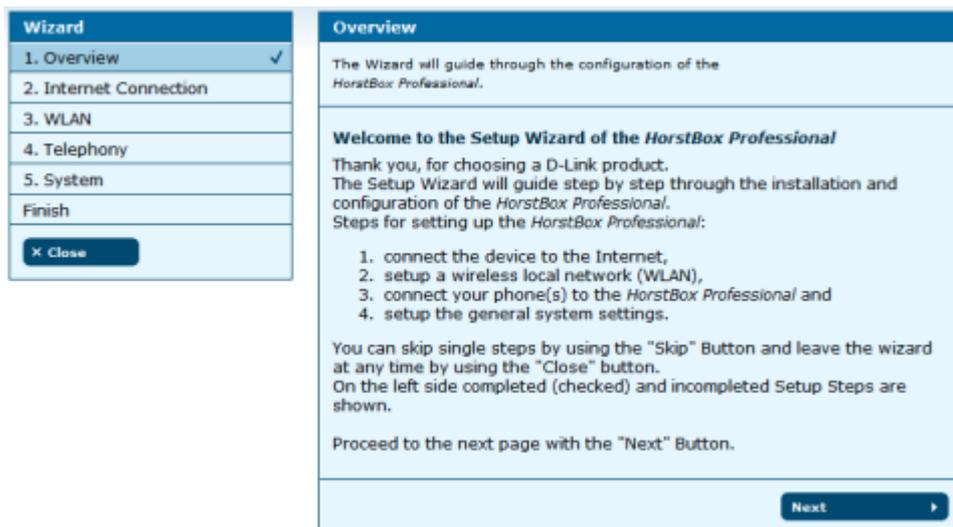


Figure 3.1.: Wizard Overview

Note: For security reasons configure the HorstBox via a network cable only. Do not use a WLAN connection.

The configuration of the HorstBox is arranged in four main steps:

1. **Internet Connection;** 2. **WLAN;** 3. **Telephony;** 4. **System.**

In the left column all main steps are shown. Steps already executed are ticked off.

To end the wizard at any time, click on CLOSE. No settings will be saved then.

Note: All user names, phone numbers or passwords used in this manual are examples only.
Please make sure to use your own data only!

This section will explain all configuration steps. If you do not want e.g. to connect an analog phone, just skip this step. To open the next page, click on NEXT.

3.1. Internet Connection

Here you will set up the Internet connection of the HorstBox. Connect the device to the DSL socket, enter all necessary login details and choose some general connectivity options.

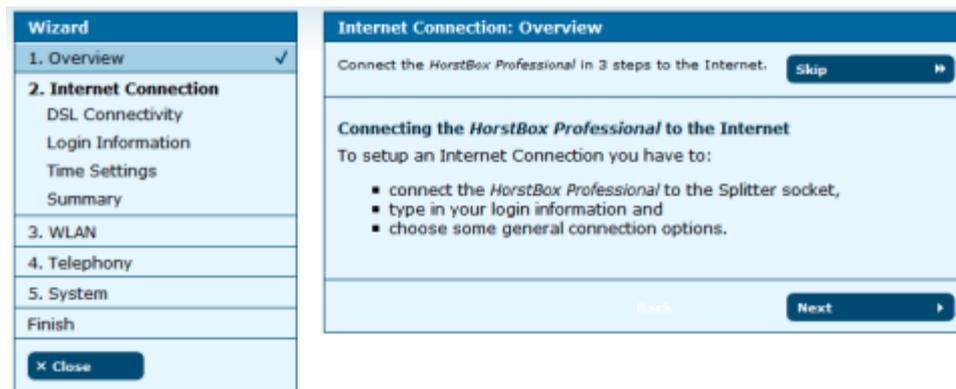


Figure 3.2.: Internet Connection: Overview

The overview shows all steps required to set up the Internet connection.

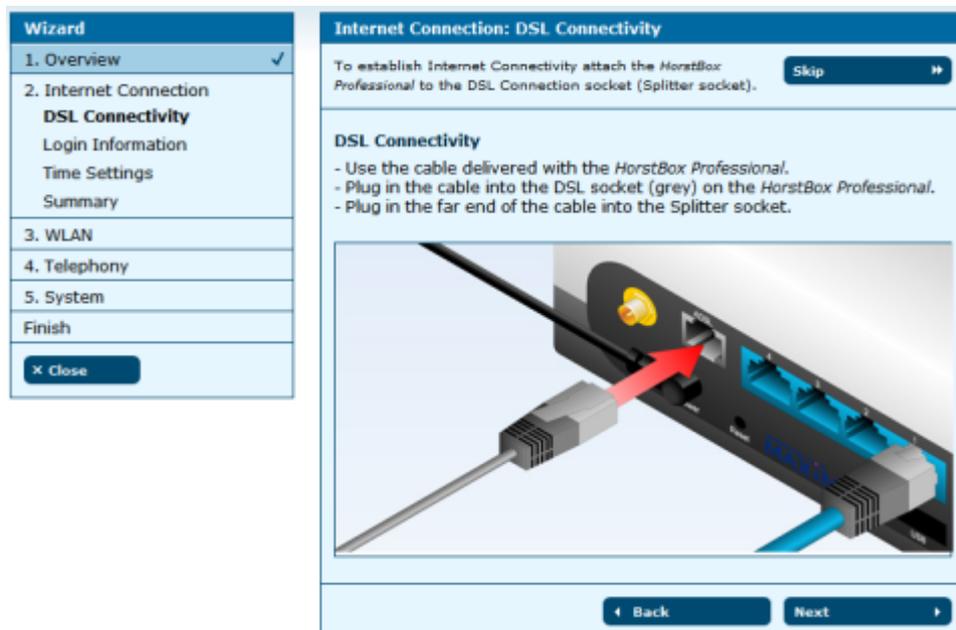


Figure 3.3.: Internet Connection: DSL Connectivity

Use the red network cable delivered with the HorstBox. Put one end into the DSL port (grey), the other end into the DSL port on the splitter.

Click on NEXT, to open the next page to enter the login details.

The screenshot shows a two-pane interface. The left pane is a 'Wizard' menu with steps: 1. Overview (checked), 2. Internet Connection (sub-steps: DSL Connectivity, Login Information, Time Settings, Summary), 3. WLAN, 4. Telephony, 5. System, and Finish. A 'Close' button is at the bottom. The right pane is titled 'Internet Connection: Login Information' and contains the text: 'To authorize the connection please type in the connection data for your DSL Account.' with a 'Skip' button. Below is the 'Login Information' section: 'Your ISP will provide the necessary login information. Type in these data so that the HorstBox Professional can establish an Internet connection. Your input has to be case sensitive.' There are two input fields: 'Username' with the text 'someone' and 'Password' with six asterisks. At the bottom are 'Back' and 'Next' buttons.

Figure 3.4.: Internet Connection: Login details

Your Internet Service Provider (ISP) will provide your login details.

Enter Username and Password for the HorstBox to store and to establish an Internet connection. Your input has to be case sensitive.

Click on NEXT, to open the page for the time settings.

The screenshot shows a two-pane interface. The left pane is a 'Wizard' menu with steps: 1. Overview (checked), 2. Internet Connection (sub-steps: DSL Connectivity, Login Information, Time Settings, Summary), 3. WLAN, 4. Telephony, 5. System, and Finish. A 'Close' button is at the bottom. The right pane is titled 'Internet Connection: Time Settings' and contains the text: 'Define the behaviour of the Internet connection here.' with a 'Skip' button. Below is the 'Time Settings' section: 'You can define a permanent Internet connection or an automatic disconnection after inactivity. It is recommended to choose the automatic disconnect after a defined time (e.g. 5 minutes) for time based Internet tariffs. Use the permanent Internet connection option for flatrates and volume based tariffs. Please choose an option.' There are two radio button options: 'disconnect automatically after inactivity' (selected) and 'keep the Internet Connection open'. Below is the 'Internet Connection' section with the same two radio button options. At the bottom are 'Back' and 'Next' buttons.

Figure 3.5.: Internet Connection: Time Settings

You can define a permanent Internet connection or an automatic disconnection after inactivity.

It is recommended to choose the automatic disconnect after a defined time (e.g. 5 minutes) for time based Internet tariffs.

Use the permanent Internet connection option for flatrates and volume based tariffs.

You can change these settings later on the tab INTERNET, page DSL ACCESS (see also section [5.1 Internet Access](#) on p.82).

Choose an option.

Note: If you choose automatic disconnect after certain period of inactivity, the connection will be terminated. No VoIP calls will go through until a new connection is established.

Click on NEXT, to open the summary page for the Internet connection settings.

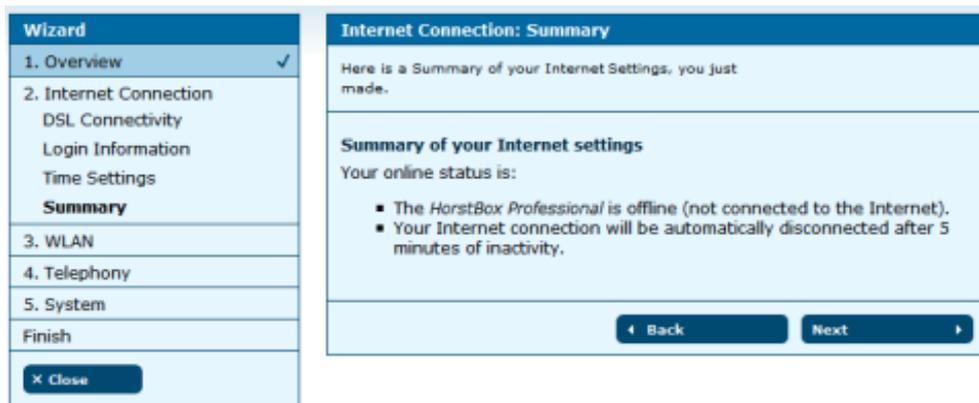


Figure 3.6.: Internet Connection: Summary

Click on NEXT to set up the WLAN in just three simple steps.

3.2. WLAN

Here you will prepare the HorstBox for the WLAN. Attach the antenna to the device, enter a name for your wireless network and choose some simple security options.

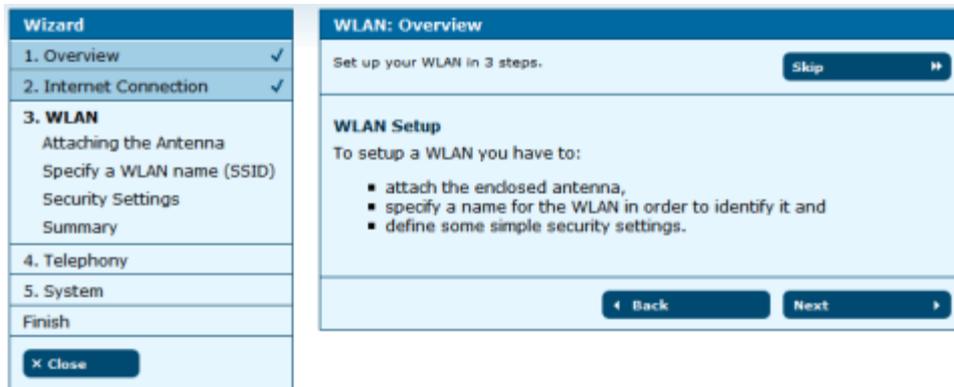


Figure 3.7.: WLAN: Overview

Click on NEXT to get instructions on how to attach the antenna.

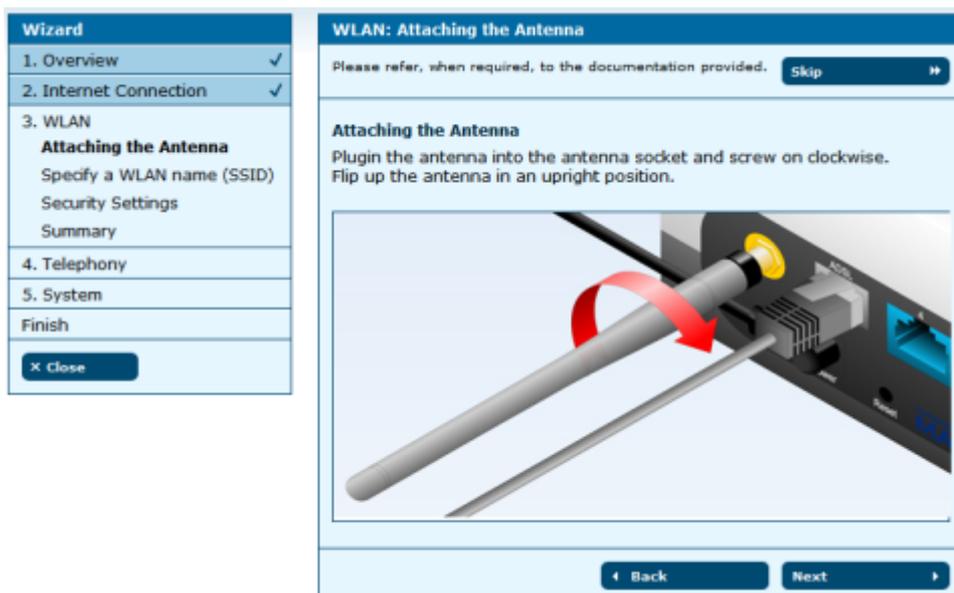


Figure 3.8.: WLAN: Attaching the Antenna

Plug in the antenna into the antenna socket and screw on clockwise. Flip up the antenna in an upright position.

Click on NEXT, to open the page to specify a name (SSID) for your WLAN.

Figure 3.9.: WLAN: Name (SSID)

Enter a unique name for your WLAN in order to identify and propagate it wireless.

Click on NEXT, to open the page for the security settings.

Figure 3.10.: WLAN: Security Settings

Choose a encryption method and a strong password for the communication with and within your WLAN.

Without any security your WLAN will be open for everyone!

Note: Use at least WEP as security standard, better WPA. Check whether all WLAN devices are able to handle WPA.

Click on NEXT, to open the summary page for the WLAN settings.

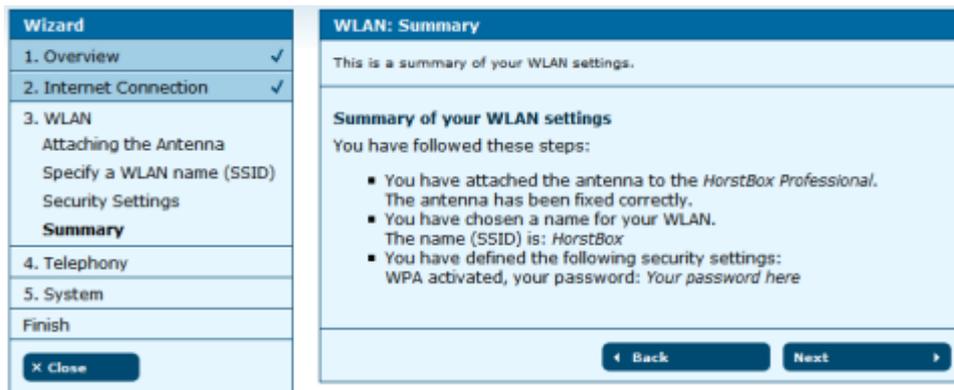


Figure 3.11.: WLAN: Summary

Click on NEXT to configure the HorstBox Professional as a PBX in just four steps.

3.3. Telephony

To use the HorstBox Professional as phone system PBX you must at least connect one phone (analog or ISDN). Configure the HorstBox and do a functional test. You may set up a VoIP account here as well.

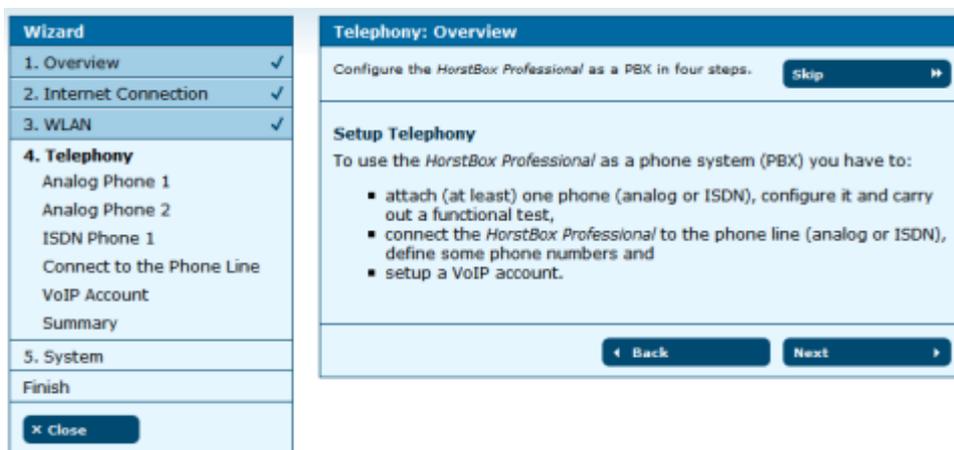


Figure 3.12.: Telephony: Overview

Click on NEXT to learn how to connect an analog phone.

Connect an analog phone to one of the analog ports (red) “Tel 1” or “Tel 2” on the HorstBox. Use the red phone cable provided.

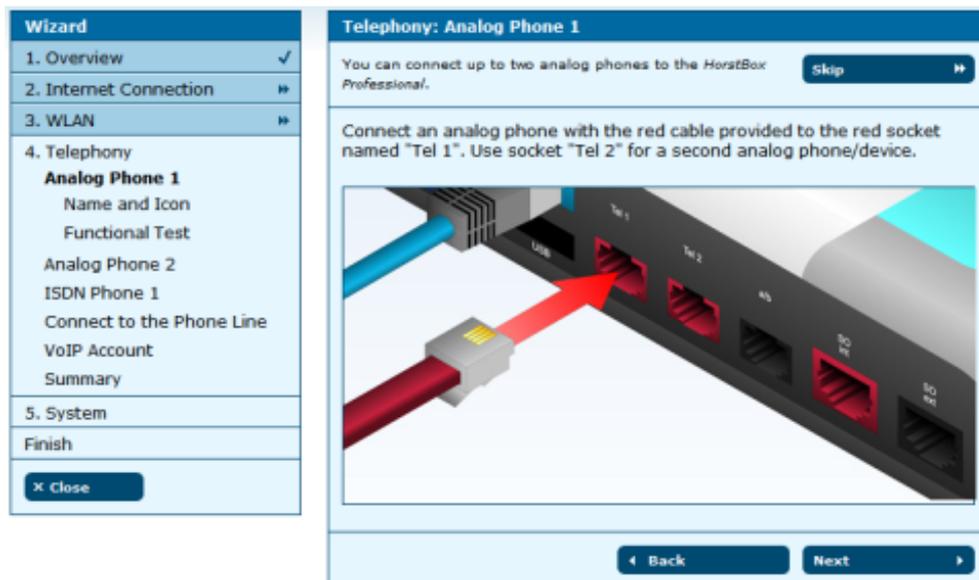


Figure 3.13.: Telephony: Connect an Analog Phone

Click on NEXT, to open the page NAME AND ICON.

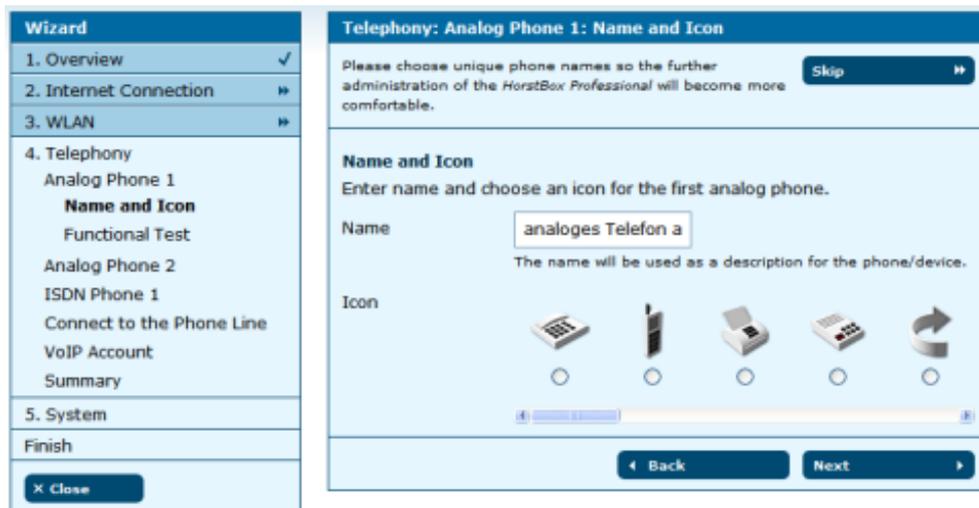


Figure 3.14.: Telephony: Name and Icon

Enter a name and choose an icon for the first analog phone.

Please choose unique phone names so the further administration of the HorstBox Professional will become more comfortable.

Note: The icons provide no further functionality, e.g., choosing the white fax icon will not turn your phone into a fax machine.

Click on NEXT to open the function test page.

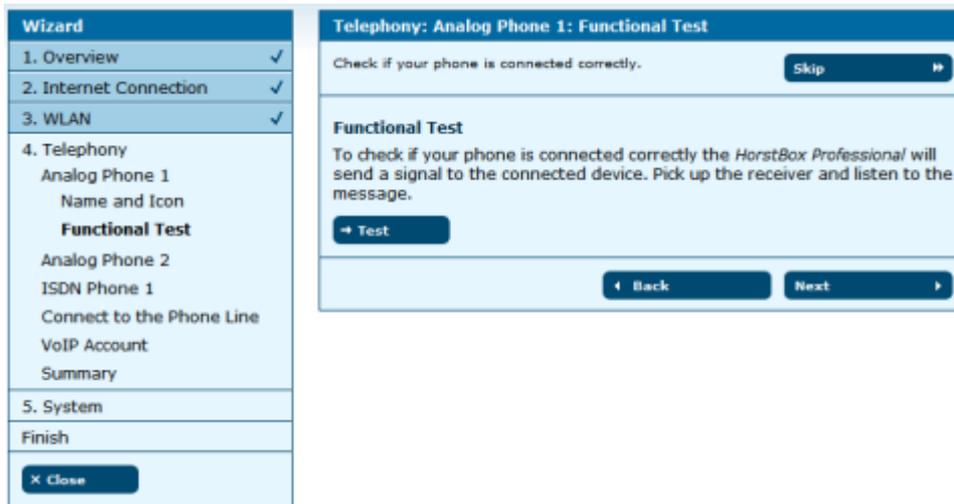


Figure 3.15.: Telephony: Functional Test

The functional test checks whether the phone is properly connected. The HorstBox sends a signal and the phone should ring. Pick up the receiver and listen to the friendly voice: “Congratulations! You have successfully set up your phone.”.

Click on NEXT to continue.

If desired, you may connect and set up a second analog phone. Please repeat the steps described above. Else skip this step.

Now you can connect and set up an ISDN phone. Connect the phone to port “S₀ Int” on the HorstBox. Use the red phone cable provided.



Figure 3.16.: Telephony: ISDN Phone

Click on NEXT.

Enter a name and choose an icon for the ISDN phone.

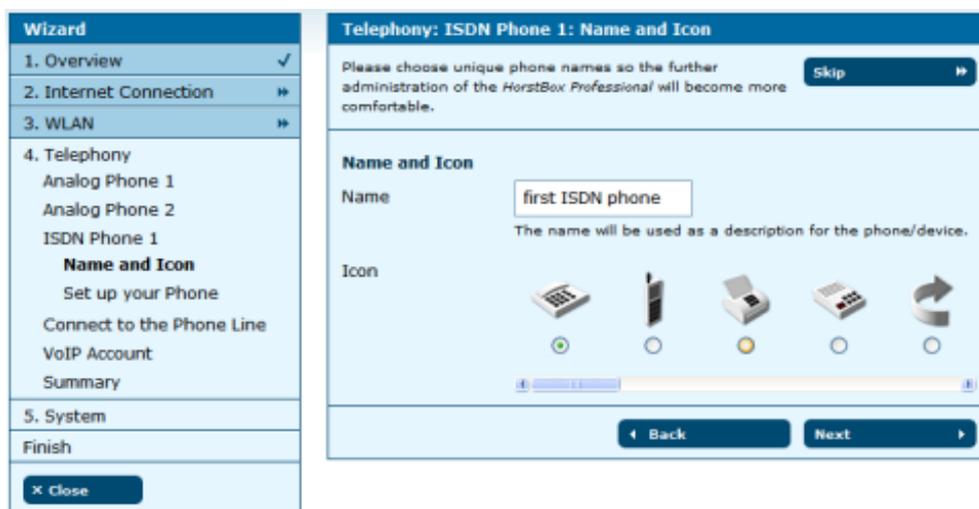


Figure 3.17.: Telephony: Name and Icon

Please choose unique phone names so the further administration of the HorstBox Professional will become more comfortable.

Note: The icons provide no further functionality, e.g., choosing the white fax icon will not turn your phone into a fax machine.

To connect and set up more ISDN phones later, use page PHONES AND DEVICES on the tab TELEPHONY.

Click on NEXT to open the function test page.

Before executing the functional test you have to set up the ISDN phone to the internal MSN 300. Please refer to the documentation of your phone.

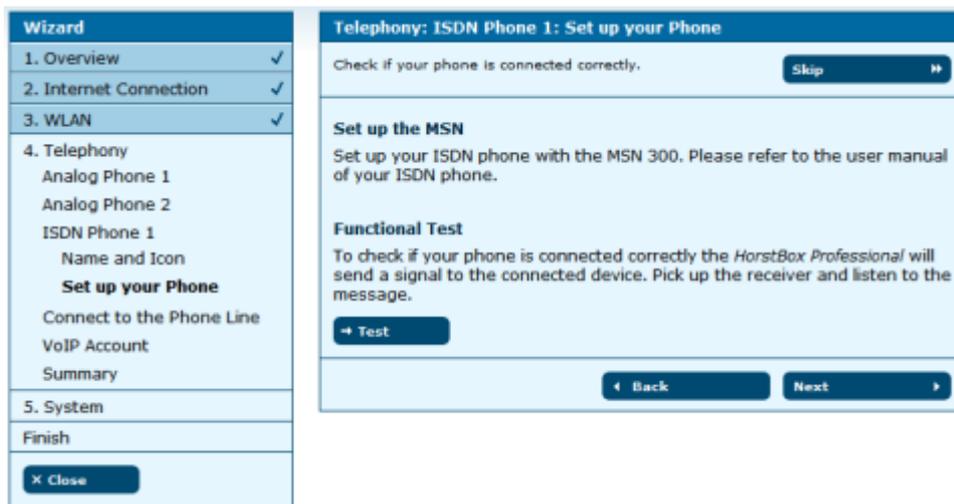


Figure 3.18.: Telephony: Functional Test

The functional test checks whether the phone is properly connected. The HorstBox sends a signal and the phone should ring. Pick up the receiver and listen to the friendly voice: “Congratulations! You have successfully set up your phone.”

Click on NEXT to continue.

Now you will set up the external phone line.

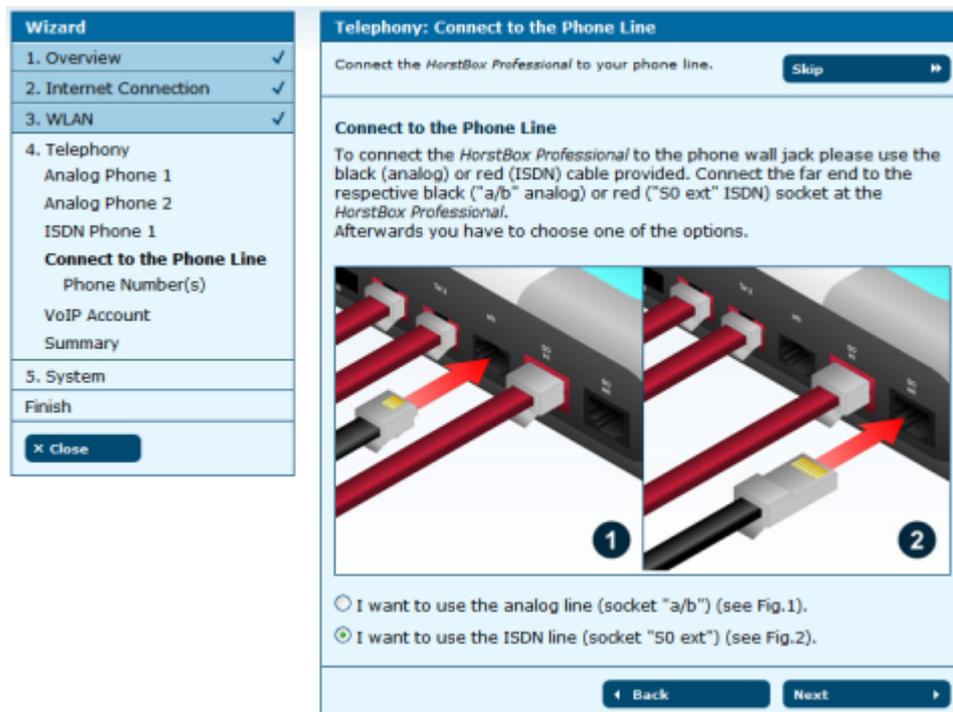


Figure 3.19.: Telephony: External Phone Line

To connect the HorstBox Professional to the phone wall jack please use the black (analog) or red (ISDN) cable provided. Connect the far end to the respective black ("a/b" analog) or red ("SO ext" ISDN) port at the device.

Afterwards you have to choose one of the options: *I want to use the analog line (socket "a/b") (see Fig.1)* or *I want to use the ISDN line (socket "SO ext") (see Fig.2)*.

Click on NEXT, to enter the phone numbers.

Enter the phone number(s). Use the first ISDN phone number respectively the analog phone number as default number. The HorstBox will use the number to handle outgoing calls. This number will be displayed as “Caller ID” (See chapter [4.1.3 Add ISDN Account](#) on p.43 for information on how to set up Caller ID Blocking).

Figure 3.20.: Telephony: Phone Numbers

Click on NEXT.

Figure 3.21.: Telephony: VoIP

Before you can use Internet telephony you have to register with a VoIP provider, e.g. SipGate to receive a VoIP phone number.

In the next step please enter your login details for the VoIP account in order to make phone calls over the Internet.

Click on NEXT.

Wizard	Telephony: VoIP Account: Enter your user data
1. Overview ✓	Before you can use Internet telephony you have to register with a VoIP provider, e.g. SipGate to receive a VoIP phone number. Skip
2. Internet Connection ✓	
3. WLAN ✓	Enter your user data Server: <input type="text"/> Phone Number: <input type="text"/> Username: <input type="text" value="Username"/> Password: <input type="password" value="*****"/>
4. Telephony	
Analog Phone 1	
Analog Phone 2	
ISDN Phone 1	
Connect to the Phone Line	← Back Next →
VoIP Account	
Enter your user data	
Summary	
5. System	
Finish	
× Close	

Figure 3.22.: Telephony: VoIP login details

Enter host name or IP address of the VoIP server into the field SERVER, the VoIP number into the field PHONE NUMBER, username and password into the appropriate fields.

Click on NEXT for the summary of the telephony settings.

Wizard	Telephony: Summary
1. Overview ✓	Your settings for telephony.
2. Internet Connection ✓	
3. WLAN ✓	Summary <ul style="list-style-type: none"> You have an analog phone connected. The first analog phone is named: <i>analog phone</i> You have connected another analog phone. The second analog phone is named: <i>analoges Telefon an Tel2</i> You have connected a ISDN phone. The ISDN phone is named: <i>ISDN phone</i> Your chosen kind of connection is: <i>ISDN Line</i> The phone number(s) for this line are: Default Phone Number: <i>12345678</i> Phone Number 2: <i>12345679</i> Your VoIP account login information Server: <i>192.168.0.1</i> Phone Number: <i>1357924680</i> Username: <i>Username</i> Password: <i>*</i>
4. Telephony	
Analog Phone 1	
Analog Phone 2	
ISDN Phone 1	
Connect to the Phone Line	← Back Next →
VoIP Account	
Summary	
5. System	
Finish	
× Close	

Figure 3.23.: Telephony: Summary

Click again on NEXT for the system settings.

3.4. System

Only some more settings are required now:

1. System Time. To make sure that rules and tasks can be executed at the right time you have to set up the system time properly.
2. Password. To protect the HorstBox Professional against unauthorized or illegal access you have to enter an Administration Password. [Default password **admin**.]

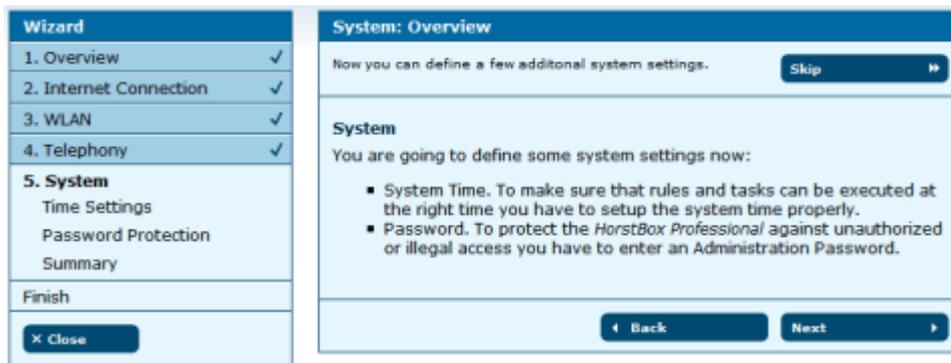


Figure 3.24.: System: Overview

Click on NEXT to set up the time of the HorstBox Professional.

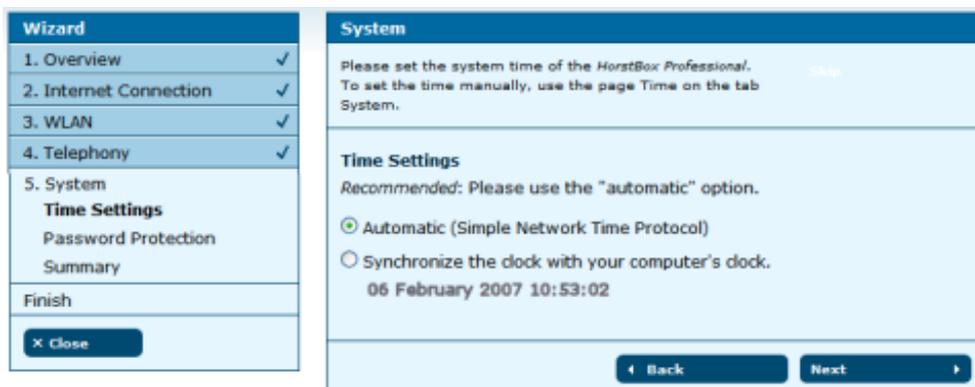


Figure 3.25.: System: Time Settings

Let the HorstBox regulate the system time via Network Time Protocol (NTP) automatically or synchronize the system time with your computer's time.

Note: It's recommended to use the "automatic" option.

To set system time manually, use the page TIME on the tab SYSTEM.

Choose one option and click on NEXT to set up the password protection.

A password protects against unauthorized or illegal access. Change the default password: **admin** at once!



Figure 3.26.: System: Password Protection

Click on NEXT.

A new dialog opens up. Enter **admin** as user name and a new strong password. Click on OK to close the dialog.

Click on NEXT for the summary of the system settings.

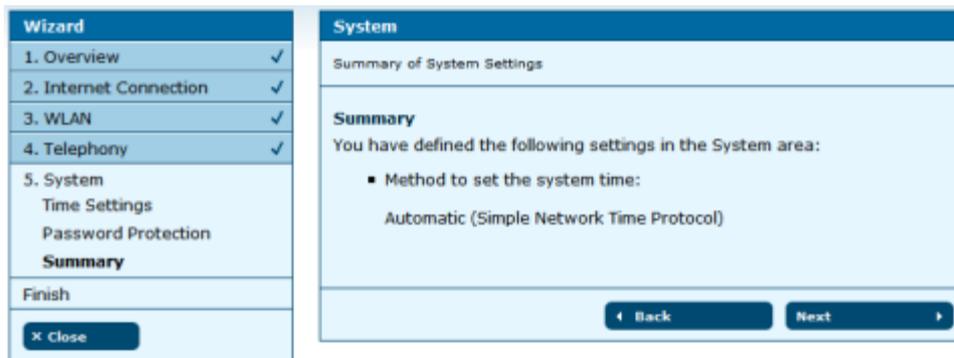


Figure 3.27.: System: Summary

You have completed all settings now. To finish the wizard and to save all settings, click on NEXT in the Summary.

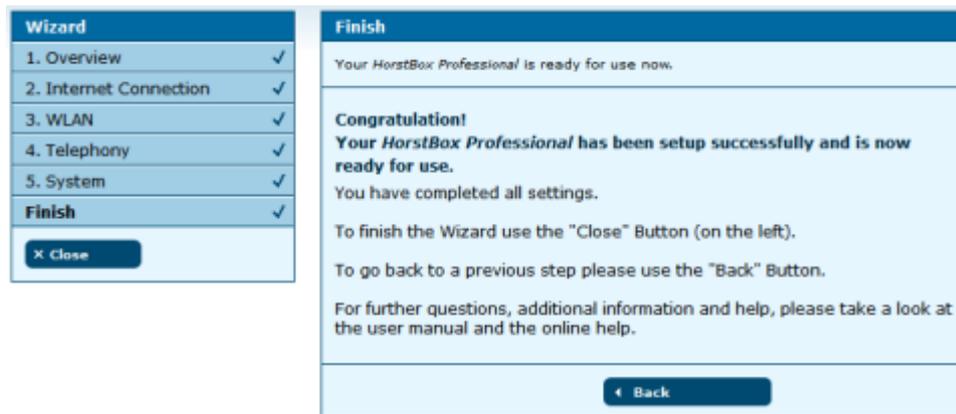


Figure 3.28.: Wizard: Finish

Congratulation! Your HorstBox Professional has been setup successfully and is now ready for use.

To go back to a previous step please use BACK.

To close the Wizard click on CLOSE (on the left).

For further questions, additional information and help, please take a look at the user manual and the online help.

On the status page all important information of your HorstBox Professional (Internet, Telephony, Network and System) can be viewed at a glance.



Figure 3.29.: Status page

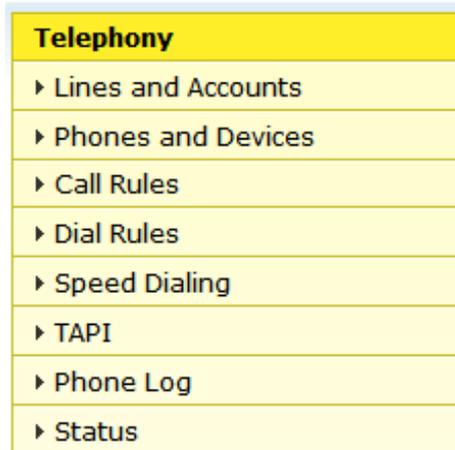
4. Telephony

This chapter introduces all telephony settings.

Additionally you may need:

- *Phone numbers/external MSNs*
as provided by your telephone service provider.
- *Manuals for your phone(s)*

To navigate in the tab TELEPHONY use the navigation column.



Telephony
▸ Lines and Accounts
▸ Phones and Devices
▸ Call Rules
▸ Dial Rules
▸ Speed Dialing
▸ TAPI
▸ Phone Log
▸ Status

Figure 4.1.: Navigation column Telephony

4.1. Accounts

In-bound and out-bound connections are established over phone accounts. Here you can set up accounts for the different kinds of lines. Please note that it is possible to set up only 1 analog account and up to 10 ISDN and 10 VoIP accounts respectively.

On the tab PHONES AND DEVICES you will link accounts to phones or devices.

You can use rules (see tabs CALL RULES and DIAL RULES to preselect which account will use what phone and when).

Lines and Accounts [Help](#)

In-bound and out-bound connections are established over your accounts. Here you can set up accounts for the different kinds of lines. Please note that it is only possible to set up 1 analog account and up to 10 ISDN and 10 VoIP accounts respectively.

Analog Account

[Add](#)

Existing Analog Account

Description	Number	Delete	Edit
Analog account	369147	Delete	Edit

ISDN Account

[Add](#)

Existing ISDN Accounts

Description	Number	Delete	Edit
ISDN account	12345678	Delete	Edit

VoIP Account

[Add](#)

Existing VoIP Accounts

Description	Number	Delete	Edit
VoIP account	1357924680	Delete	Edit

Figure 4.2.: Accounts

4.1.1. Edit Analog Account

To edit the analog account, click on EDIT. The analog account is set up as default. You may delete it after you have added another account.

Enter a name for the account and the phone number. Please choose unique account names so the further administration of the HorstBox Professional will become more comfortable.

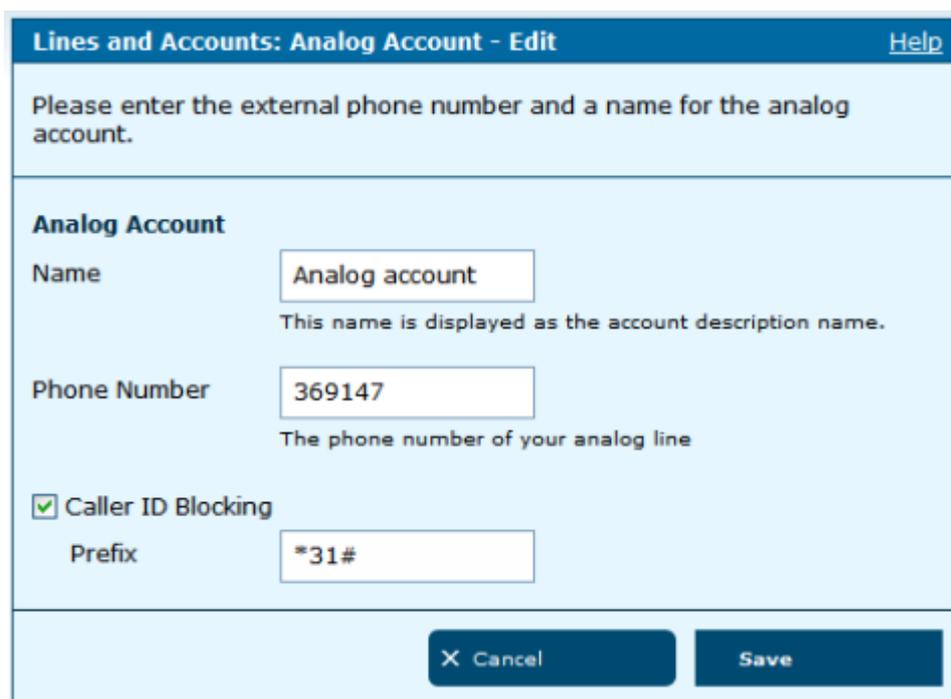


Figure 4.3.: Edit Analog Account

Caller ID Blocking is a feature which may be provided by your phone service provider.

You may block the caller ID by choosing the option *Caller ID Blocking*. Enter a prefix, e.g. *31#. To block your caller ID for the next call dial *31# as prefix.

To save the settings click on SAVE.

Saving successfully is reported in a green framed message.

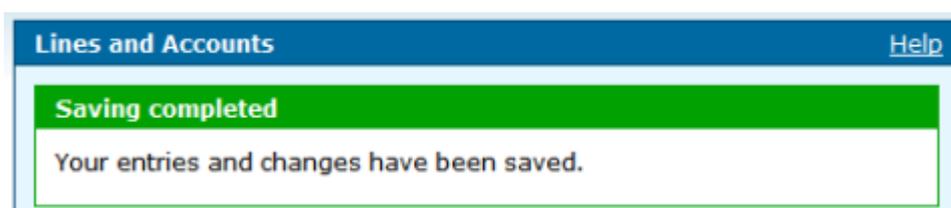


Figure 4.4.: Saving completed

If an error occurs you will see an error message (red frame).

Change the settings in the box with the red frame and again click on SAVE.

To cancel the dialog click on CANCEL. The previous page will be displayed.

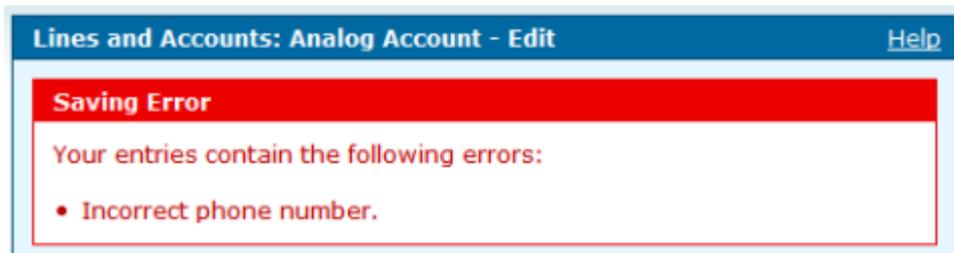


Figure 4.5.: Error message

4.1.2. Add Analog Account

To add an analog account click on ADD. The same dialog as for editing an account opens, but empty. Enter all values and click on SAVE.

4.1.3. Add ISDN Account

To add an ISDN account click on ADD.

Figure 4.6.: Add ISDN Account

Enter a name for the account and the phone number. Please choose unique account names so the further administration of the HorstBox Professional will become more comfortable.

Caller ID Blocking is a feature which may be provided by your phone service provider.

You may block the caller ID by choosing the option *Caller ID Blocking*.

To add the account click on **SAVE**.

Saving successfully is reported in a green framed message.

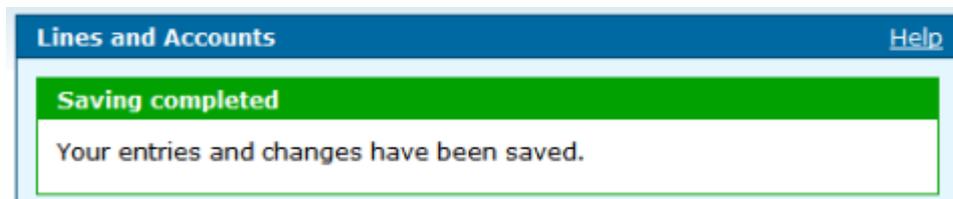


Figure 4.7.: Saving completed

If an error occurs you will see an error message (red frame).

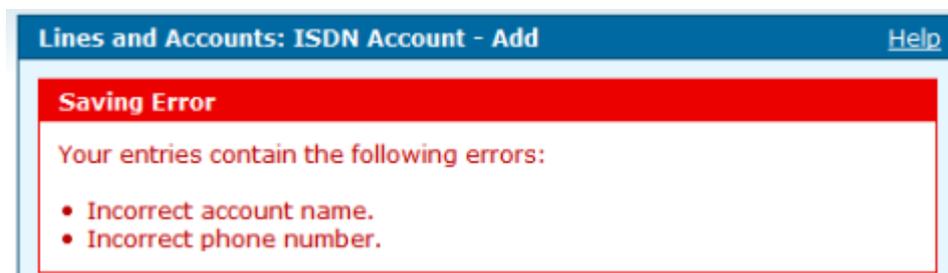


Figure 4.8.: Error message

Change the settings in the box with the red frame and again click on **SAVE**.

To cancel the dialog click on **CANCEL**. The previous page will be displayed.

4.1.4. Edit ISDN Account

To edit an ISDN account click on **EDIT**. The same dialog as for adding an account opens, but this time all fields contain values. Edit the values and click on **SAVE**.

4.1.5. Add VoIP Account

Before you can use Internet telephony you have to register with a VoIP provider, e.g. SipGate to receive a VoIP phone number.

To add a VoIP account click on **ADD**.

Lines and Accounts: VoIP Account - Add [Help](#)

Please set up your VoIP account or modify an existing account.

VoIP Account

Name
This name is displayed as the account description name.

Server
The IP address of the SIP server.

Phone Number

Username

Password

Confirm Password

Figure 4.9.: Add VoIP Account

Enter host name or IP address of the VoIP server into the field **SERVER**, the VoIP number into the field **PHONE NUMBER**, Username and Password into the appropriate fields.

To add the VoIP account click on **SAVE**.

Saving successfully is reported in a green framed message.

Lines and Accounts [Help](#)

Saving completed

Your entries and changes have been saved.

Figure 4.10.: Saving completed

If an error occurs you will see an error message (red frame).

Change the settings in the box with the red frame and again click on **SAVE**.

To cancel the dialog click on **CANCEL**. The previous page will be displayed.

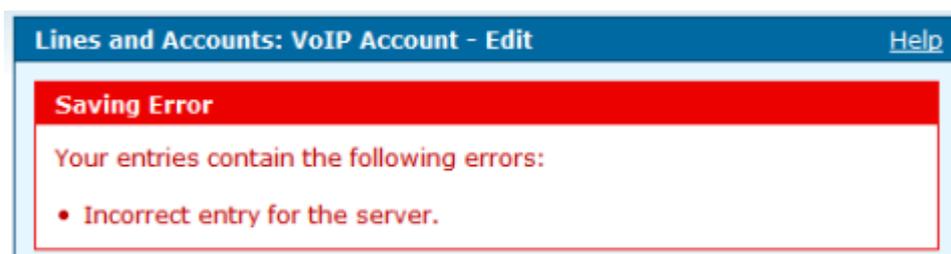


Figure 4.11.: Error message

4.1.6. Edit VoIP Account

To edit a VoIP account click on EDIT. The same dialog as for adding an account opens, but this time all fields contain values. Edit the values and click on SAVE.

4.1.7. Delete Analog Account

To delete an analog account click on DELETE. Confirm the warning by again click on DELETE. The account will be deleted and the page LINES AND ACCOUNTS will open and display a message.

If you try to delete an account, which is a) Default account, b) Failover account or c) linked to Call or Dial rules, an error message appears. Change these settings and then again delete this account.

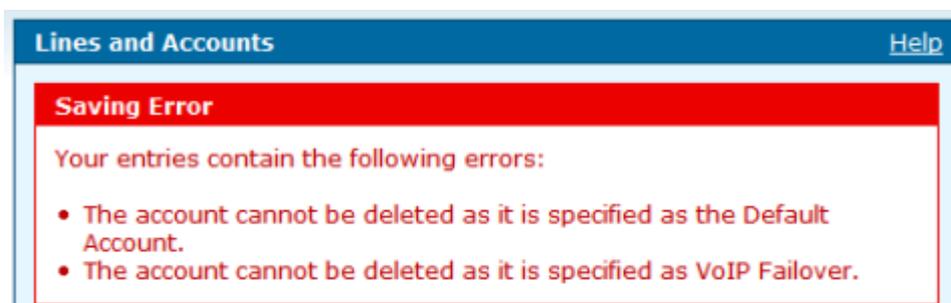


Figure 4.12.: Error message

4.1.8. Delete ISDN Account

To delete an ISDN account click on DELETE. Confirm the warning by again click on DELETE. The account will be deleted and the page LINES AND ACCOUNTS will open and display a message.

If you try to delete an account, which is a) Default account, b) Failover account or c) linked to Call or Dial rules, an error message appears. Change these settings and then again delete this account.

4.1.9. Delete VoIP Account

To delete a VoIP account click on DELETE. Confirm the warning by again click on DELETE. The account will be deleted and the page LINES AND ACCOUNTS will open and display a message.

If you try to delete an account, which is a) Default account, b) Failover account or c) linked to Call or Dial rules, an error message appears. Change these settings and then again delete this account.

4.2. Phones and Devices

Register the connected phones with the HorstBox. You can set up external call diversions. For each connected device Dial and Call rules can be defined.

You can connect up to 2 analog devices, up to 20 ISDN devices (If you want to connect more than 4 devices, the additional devices will need their own power supplies.) and up to 30 VoIP phones and external call diversions.

The HorstBox comes with an integrated Fax T.38 function. If an inbound fax is detected, the HorstBox tries to activate the T.38 protocol. Failing this, the HorstBox switches back to the G.711 protocol. This function requires no further settings.

For internal calls (i.e. from one of your phone to another) dial * (Asterix) as a prefix. For outgoing calls simply dial the phone number.

The HorstBox comes with 2 preconfigured analog devices. You may edit the settings or delete the phones if you do not use analog phones.

4.2.1. Add Analog Device

You can connect up to 2 analog devices to the HorstBox.

To add a new analog device click on ADD. From the drop down list *Extension* choose an internal number. A phone connected to port "Tel 1" will answer to phone number 21, connected to port "Tel 2" to number 22.

Phones and Devices
[Help](#)

Here you can administrate your attached devices.
It is possible to connect and administrate up to 2 analog devices and up to 20 ISDN- or up to 30 VoIP phones and external call forwardings respectively.
For internal calls please press * (asterisk key) before dialing the phone number.

Analog Phones and Devices

Connected analog phones and devices

Icon	Name	Extension (internal MSN)	Delete	Edit
	analog phone	*21	 Delete	 Edit
	analog phone 2	*22	 Delete	 Edit

ISDN Phones and Devices

+ Add

VoIP Phones and Devices

+ Add

External Call Diversions

+ Add

Figure 4.13.: Phones and Devices

Please choose unique phone names so the further administration of the HorstBox Professional will become more comfortable.

Click on SAVE to save the new device.

For internal calls dial * (Asterix) as a prefix, e.g. *22 to call the second analog phone. For outgoing call simply dial the phone number.

Define the phone's default account for the HorstBox Professional to use for outgoing calls. You can choose between all accounts added in the previous chapter.

Phones and Devices: Analog Phones and Devices - Add [Help](#)

Please enter the number and name for the analog phone or device.

Analog Phones and Devices

Extension 
 Please connect the phone with the extension number (internal MSN) 21 to port A and the device with the extension number (internal MSN) 22 to port B.

Name
 The name will be used as a description for the phone/device.

Default account 
 Choose default account for out-bound calls on this phone.

Icon

Figure 4.14.: Add Analog Device

You may define a global account on the page DIAL RULES.

Next choose an icon.

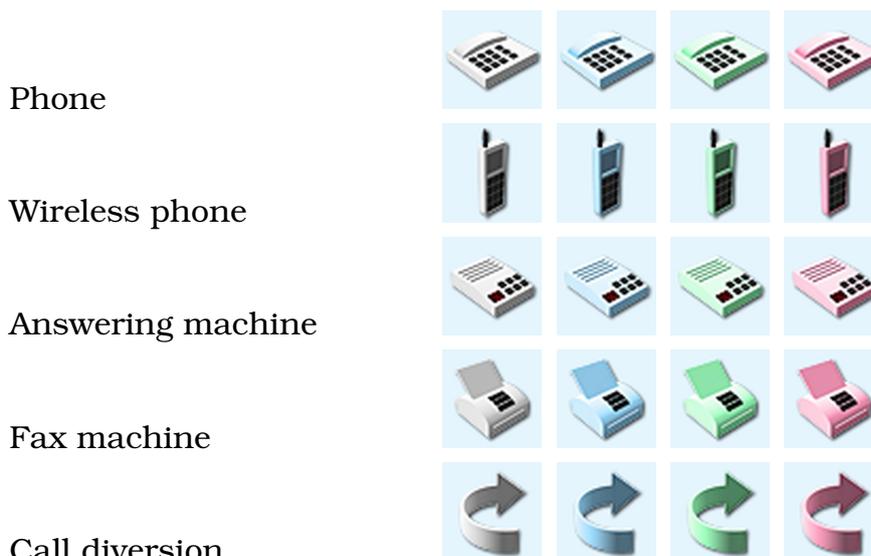


Table 4.1.: Icons

Note: The icons provide no further functionality, e.g., choosing the white fax icon will not turn your phone into a fax machine.

To register the new phone click on **SAVE**.

Saving successfully is reported in a green framed message.

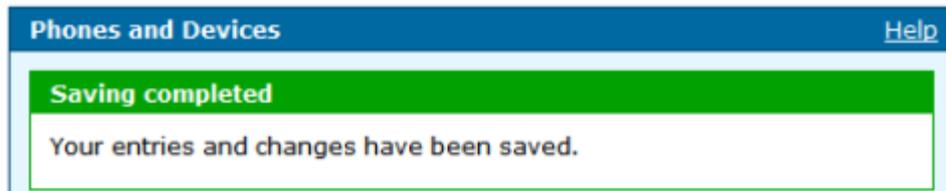


Figure 4.15.: Saving completed

If an error occurs you will see an error message (red frame).

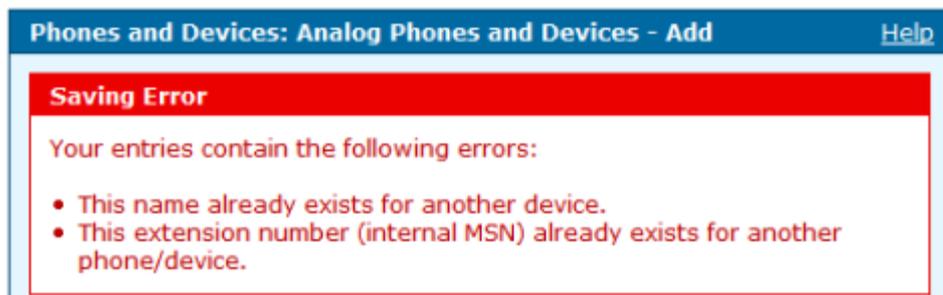


Figure 4.16.: Error message

Change the settings in the box with the red frame and again click on **SAVE**.

To cancel the dialog click on **CANCEL**. The previous page will be displayed.

4.2.2. Edit Analog Device

To edit an analog devices click on **EDIT**. The same dialog as for adding a device opens, but this time all fields contain values. Edit the values and click on **SAVE**.

4.2.3. Add ISDN Device

You may connect up to 8 ISDN devices to the internal S_0 -Bus of the HorstBox. Use an ISDN hub, if you need to connect two or more devices.¹ The HorstBox Professional administrates up to 20 different ISDN devices.

¹If you want to connect more than 4 devices, the additional devices will need their own power supplies.

To add a new ISDN device click on ADD. From the drop down list *Extension* choose an internal number. You can assign internal MSNs between 300 and 319.

Please choose unique phone names so the further administration of the HorstBox Professional will become more comfortable.

For internal calls dial * (Asterix) as a prefix, e.g. *300 to call the ISDN phone.

The screenshot shows a dialog box titled "Phones and Devices: ISDN Phones and Devices - Add". The dialog contains the following fields and options:

- Extension:** A dropdown menu with the value "300".
- Name:** A text input field containing "ISDN phone". Below it is a note: "The name will be used as a description for the phone/device."
- Default account:** A dropdown menu with the value "Use globale Default account". Below it is a note: "Choose default account for out-bound calls on this phone."
- Icon:** A row of five icons with radio buttons below them. The icons are: a white desk phone, a blue circular arrow, a pink desk phone (which is selected), a black mobile phone, and a pink fax machine.

At the bottom of the dialog are two buttons: "Cancel" and "Save".

Figure 4.17.: Add ISDN Device

Define the phone's default account for the HorstBox Professional to use for outgoing calls. You can choose between all accounts added in the previous chapter.

You may define a global account on the page DIAL RULES.

Next choose an icon (see above).

Note: The icons provide no further functionality, e.g., choosing the white fax icon will not turn your phone into a fax machine.

To register the new phone click on **SAVE**.

Saving successfully is reported in a green framed message.



Figure 4.18.: Saving completed

If an error occurs you will see an error message (red frame).



Figure 4.19.: Error message

Change the settings in the box with the red frame and again click on **SAVE**.

To cancel the dialog click on **CANCEL**. The previous page will be displayed.

4.2.4. Edit ISDN Device

To edit the settings of an ISDN device click on **EDIT**. The same dialog as for adding a device opens, but this time all fields contain values. Edit the values and click on **SAVE**.

4.2.5. Configure ISDN Device

Next you have to configure your ISDN device(s) to answer to an internal MSN, as set up before. Please refer to the devices documentation.

One ISDN device may answer to several MSN, likewise may 2 devices answer to the same MSN.

4.2.6. Add VoIP Device

The HorstBox Professional provides 4 Ethernet ports. You may increase the number of Ethernet ports by connecting a hub or switch. The HorstBox Professional administrates up to 30 different VoIP phones.

Phones and Devices: VoIP Device - Add [Help](#)

Please enter an extension number (internal MSN) and name for a VoIP phone or device.

VoIP Device

Extension: 403

Name: VoIP phone
The name will be used as a description for the phone/device.

Password: *****
To protect your phone/device against unauthorized or illegal access, please define a password.

Default account: Use globale Default account
Choose default account for out-bound calls on this phone.

Icon: [Desk Phone] [Mobile Phone] [Fax] [Desk Phone] [Refresh]

Figure 4.20.: Add VoIP Device

To add a new VoIP device click on ADD. From the drop down list *Extension* choose an internal number. You can assign internal MSNs between 400 and 429.

Please choose unique phone names so the further administration of the HorstBox Professional will become more comfortable.

Click on SAVE to save the new device.

For internal calls dial * (Asterix) as a prefix, e.g. *4000 to call the VoIP phone.

To protect your phone/device against unauthorized or illegal access, please define a password.

Note: This password is not the admin's password.²

Define the phone's default account for the HorstBox Professional to use for outgoing calls. You can choose between all accounts added in the previous chapter.

You may define a global account on the page DIAL RULES.

Next choose an icon (see above).

Note: The icons provide no further functionality, e.g., choosing the white fax icon will not turn your phone into a fax machine.

Autoprovisioning

The HorstBox can provide autoconfiguration data for SNOM VoIP phones. Activate the option *Autoprovisioning* and enter the MAC address of the phone.

Connect the phone to the HorstBox and start the SNOM phone configuration program in your browser.

In the section UPDATE of the ADVANCED SETTINGS locate the field SETTING URL and enter this URL: https://192.168.0.1/noauth/phone_autoprovision_snom?phone_devices.mac={mac}.

Save the settings. The SNOM phone now connects to the HorstBox Professional and receives the configuration data.

To register the new phone click on SAVE.

Saving successfully is reported in a green framed message.

If an error occurs you will see an error message (red frame).

Change the settings in the box with the red frame and again click on SAVE.

To cancel the dialog click on CANCEL. The previous page will be displayed.

4.2.7. Edit VoIP Device

To edit the settings of a VoIP device click on EDIT. The same dialog as for adding a device opens, but this time all fields contain values. Edit the values and click on SAVE.

To save the settings click on SAVE.

²Set up or change this password on the tab SYSTEM, page ADMINISTRATION.

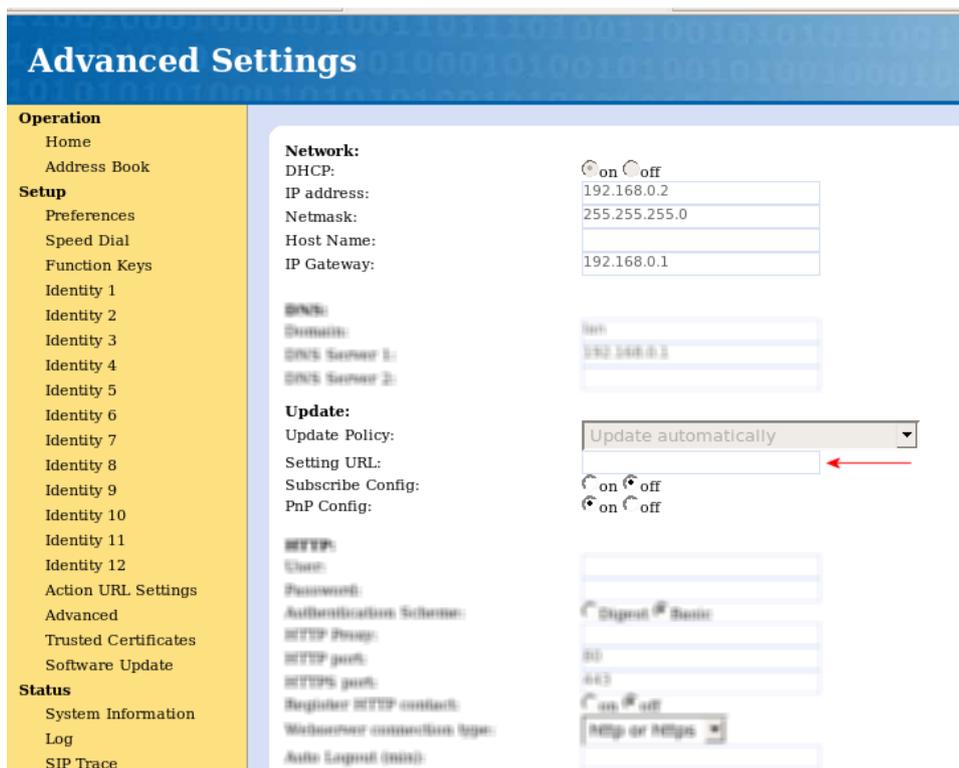


Figure 4.21.: SNOM phone configuration

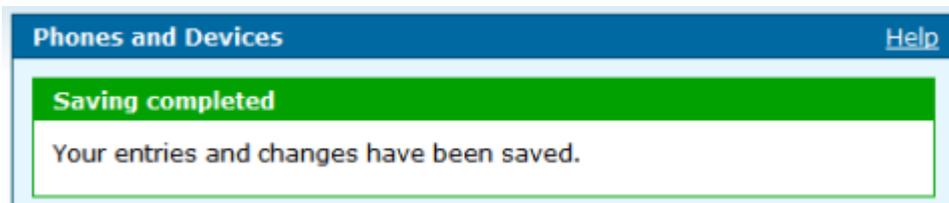


Figure 4.22.: Saving completed

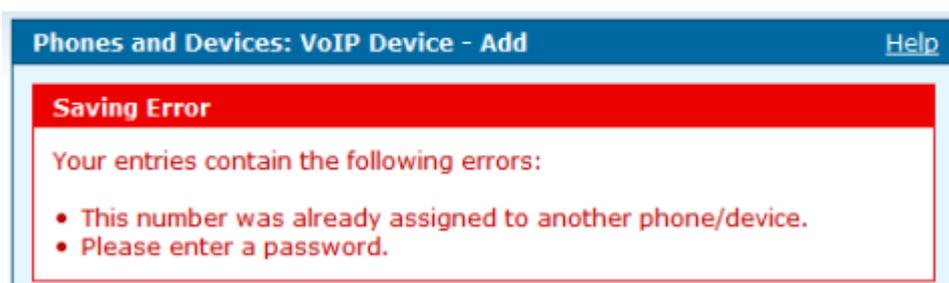


Figure 4.23.: Error message

4.2.8. Configure VoIP Device

Next you have to configure your VoIP device(s) to answer to an internal MSN, as set up before. Please refer to the devices documentation.

As Username enter the internal MSN, as Password the password as chosen before. As Server enter the IP Address of the HorstBox Professional: **192.168.0.1**.

4.2.9. Add External Call Diversion

You may set up external call diversion, e.g. calls to your VoIP number will be diverted to your mobile phone.

Note: Diverting calls to external numbers may cause additional costs.

To register an external call diversion click on ADD.

Enter the external number to call.

Please choose unique phone names so the further administration of the HorstBox Professional will become more comfortable.

Next choose an icon (see above).

Note: The icons provide no further functionality, e.g., choosing the white fax icon will not turn your phone into a fax machine.

To register the new diversion click on SAVE.

Saving successfully is reported in a green framed message.

If an error occurs you will see an error message (red frame).

Change the settings in the box with the red frame and again click on SAVE.

To cancel the dialog click on CANCEL. The previous page will be displayed.

4.2.10. Edit External Call Diversion

To edit the settings of an external call diversion click on EDIT. The same dialog as for adding a device opens, but this time all fields contain values. Edit the values and click on SAVE.

Saving successfully is reported in a green framed message.

Phones and Devices: External Call Diversions - Add [Help](#)

Please define an external call diversion to which in-bound calls will be forwarded.

External Call Diversions

External Number

Name
The name will be used as a description for this external call diversion.

Icon

Figure 4.24.: Add Call Diversion

Phones and Devices [Help](#)

Saving completed

Your entries and changes have been saved.

Figure 4.25.: Saving complete

Phones and Devices: External Call Diversions - Add [Help](#)

Saving Error

Your entries contain the following errors:

- Please define a name for this external call diversion.

Figure 4.26.: Error message

4.2.11. Delete Analog Device

To delete an analog device click on DELETE. Confirm the warning by again click on DELETE. The device will be deleted and the page PHONES AND DEVICES will open and display a message.

4.2.12. Delete ISDN Device

To delete an ISDN device click on DELETE. Confirm the warning by again click on DELETE. The device will be deleted and the page PHONES AND DEVICES will open and display a message.

4.2.13. Delete VoIP Device

To delete a VoIP device click on DELETE. Confirm the warning by again click on DELETE. The device will be deleted and the page PHONES AND DEVICES will open and display a message.

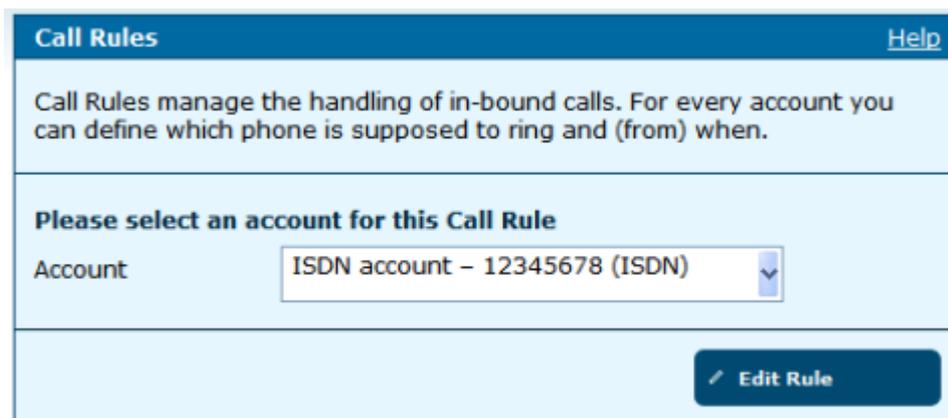
4.2.14. Delete External Call Diversion

To delete an external call diversion click on DELETE. Confirm the warning by again click on DELETE. The diversion will be deleted and the page PHONES AND DEVICES will open.

4.3. Call Rules

Call Rules manage the handling of in-bound calls. For every account you can define which phone is supposed to ring and (from) when. Of course several devices may signal an in-bound call in parallel.

To use Call Rules you have to set up at least one account (see section [4.1 Accounts](#) on p.40) and to register one device (see section [4.2 Phones and Devices](#) on p.47).



The screenshot shows a web interface for configuring Call Rules. At the top, there is a blue header bar with the text "Call Rules" on the left and a "Help" link on the right. Below the header, a light blue box contains the text: "Call Rules manage the handling of in-bound calls. For every account you can define which phone is supposed to ring and (from) when." Below this text, there is a section titled "Please select an account for this Call Rule". Underneath this title, the word "Account" is followed by a dropdown menu. The dropdown menu is currently open, showing the selected option: "ISDN account - 12345678 (ISDN)". At the bottom right of the form, there is a dark blue button with a white pencil icon and the text "Edit Rule".

Figure 4.27.: Call Rules

4.3.1. Add Call Rule

To add a call rule choose an account from the dropdown list *Account*. Click on EDIT RULE.

On the page CALL RULES - EDIT CALL RULE all registered phones and devices are listed.

For each device you can configure the moment when on an in-bound call it should start to ring.

Call Rules [Help](#)

Call Rules manage the handling of in-bound calls. For every account you can define which phone is supposed to ring and (from) when.

Edit Call Rule

ISDN account – 12345678 (ISDN)

Phone	at once	10 sec.	30 sec.	45 sec.	60 sec.
 analog phone (*21)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 diversion (*009988776655)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
 ISDN phone (*300)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 VoIP phone (*400)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Figure 4.28.: Add/Edit Call Rule

Option Function

at once The device rings for about 10 seconds.

10 Sec. The device starts ringing after 10 seconds and will continue ringing for about 20 seconds.

30 Sec. The device starts ringing after 30 seconds and will continue ringing for about 15 seconds.

45 Sec. The device starts ringing after 45 seconds and will continue ringing for about 15 seconds.

60 Sec. The device starts ringing after 60 seconds and will continue ringing for about 15 seconds.

Table 4.2.: Call Rules

Activate the option in column accordingly.

To make a device ring the whole time activate all options.

You may combine different options and phones.

To answer an in-bound call on a non-active phone, pick up the receiver and dial * 8).

To save the settings click on SAVE.

To cancel the dialog click on CANCEL. The previous page will be displayed.

4.3.2. Configure Call Forwarding

Using Call Rules it's easy to configure Call Forwarding. Simply forward all in-bound calls after 60 seconds (example) to another device, e.g. your mobile phone.

Do not forget to save the new call rule.

4.3.3. Edit Call Rule

To edit a call rule choose its account and click on EDIT. Change the options.

To save the settings click on SAVE.

To cancel the dialog click on CANCEL. The previous page will be displayed.

4.3.4. Delete Call Rule

Call rules can not be deleted, but you can deactivate all options.

To save the settings click on SAVE.

To cancel the dialog click on CANCEL. The previous page will be displayed.

4.4. Dial Rules

Dial Rules can define favorable connections for out-bound calls. The application of these rules depends on the time of day and on the prefix number of the number you have dialed (e.g. long-distance-call, local call, cell phone call or VoIP call). Dialing specific digits before the phone number allows Least-Cost-Routing (see section [4.4.6 Least-Cost-Routing](#) on p.67).

Dial Rules [Help](#)

Dial Rules can define favorable connections for out-bound calls. The application of these rules depends on the time of day and on the prefix number of the number you have dialed (e.g. long-distance-call, local call, cell phone call or VoIP call). Dialing specific digits before the phone number allows Least-Cost-Routing. (For further information please refer to the manual).

Basic Rules

Default Account: Private line - 135790 (Analog)
 Out-bound calls are normally using the Default Account.

Fallback Account: Work - 246891 (ISDN)
 Please define an account as the Default Account. This account will be used if your HorstBox was not able to connect to a VoIP server for Internet telephony.

Dial Rules

Figure 4.29.: Default Account / Dial Rules

4.4.1. Define Default Account

Each device will do out-bound calls via a default account. Use dial rules to define exceptions.

From the drop down list *Default Account* choose the new default account. To save the settings click on **SAVE**.

Click on **CANCEL** if you do not want to define a new default account.

4.4.2. Define or Edit Failover Account

Define an account as the Failover Account. This account will be used if no connection to a VoIP server for Internet telephony was established. Better do not set up another VoIP account as Fallback Account.

4.4.3. Add Dial Rule

To add a dial rule click on **ADD**.

First define the conditions for the new rule.

Please enter the prefix of the phone number for out-bound calls you would like to define a rule for.

Next define the time period.

temporal condition

always The rule is valid continuously.

time period Set up the time period in 5 minute intervals.
from: hour:minute to: hour:minute

Day of week Choose the day(s) of the week:
Mon Tue Wed Thu Fri Sat Sun

Now define the rule. You can

- block
- connect via this account
- connect via this account with amended phone number and prefix
- connect via this account with amended phone number and modifier

To save the new call rule click on **SAVE**.

Saving successfully is reported in a green framed message.

If an error occurs you will see an error message (red frame).

Change the settings in the box with the red frame and again click on **SAVE**.

To discard all recent entries click on **DISCARD ENTRY**.

Dial Rules - Add [Help](#)

Dial Rules can define favorable connections for out-bound calls. The application of these rules depends on the time of day and on the prefixes of the number you have dialed (long-distance-call, local call, cell phone call or VoIP call). Entering some digits before the phone number allows Least-Cost-Routing. (For further information please refer to the manual.)

For out-bound calls

Prefixes **1**

Please enter the prefix of the phone number for out-bound calls you would like to define a rule for.

always

in this time period

from o'clock

to o'clock

Mon Tue Wed Thu Fri Sat Sun

the rule applies

block

connect

by the account

with amended phone number

Prefixes **2**

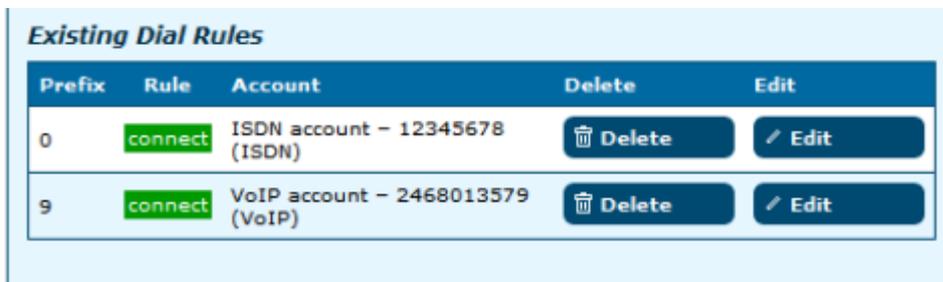
Please enter the prefix number that you want to have replaced. If you do not enter a prefix number, the modifier will be set in front of your phone number (Please refer to the user manual for further informations).

Modifier **3**

Figure 4.30.: Add/Edit Dial Rule

4.4.4. Edit Dial Rules

To edit a dial rule click on **EDIT**. The same dialog as for adding a dial rule opens, but this time all fields contain values. Edit the values and click on **SAVE**.



Prefix	Rule	Account	Delete	Edit
0	connect	ISDN account - 12345678 (ISDN)	Delete	Edit
9	connect	VoIP account - 2468013579 (VoIP)	Delete	Edit

Figure 4.31.: Dial Rules

4.4.5. Delete Dial Rule

To delete a dial rule click on **DELETE**. Confirm the warning by again click on **DELETE**. The dial rule will be deleted and the page **DIAL RULES** will open and display a message.

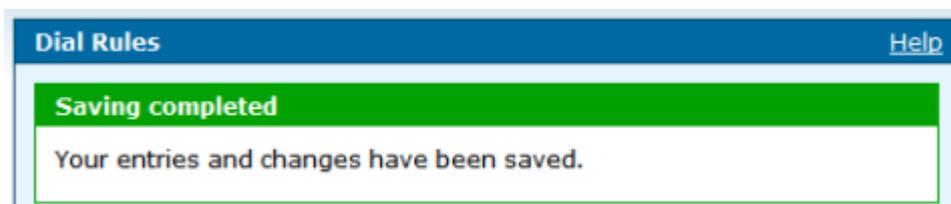


Figure 4.32.: Saving completed

4.4.6. Least-Cost-Routing

For Least Cost Routing (LCR) use the option *with amended phone number*. Use either *Prefix* or *Modifier* to manipulate the phone number (for details see fig.4.30).

Prefix

Leave the field PREFIX (2 in fig.4.30) blank. The value from the field MODIFIER (3 in fig.4.30) will be set in front of your phone number.

You want to call	01234567890
In field PREFIX (1 in fig.4.30) enter:	01234567890
Leave field PREFIX (2 in fig.4.30) blank.	
In field MODIFIER (3 in fig.4.30) enter :	0999
The HorstBox will dial	099901234567890

Table 4.4.: Least Cost Routing: Prefix

Modifier

Enter a value in the field PREFIX (1 in fig.4.30) (one or more digits). These digits will be replaced by the value from the field MODIFIER (3 in fig.4.30).

You want to call	01234567890
In field PREFIX (1 in fig.4.30) enter:	012
Leave field PREFIX (2 in fig.4.30) blank.	
In field MODIFIER (3 in fig.4.30) enter:	0999
The HorstBox will dial	099934567890

Table 4.5.: Least-Cost-Routing: Modifier

To save the new call rule click on SAVE.

You may refine call rules by defining several call rules for different periods of time and various telephone service providers. The HorstBox Professional will choose the appropriate call rule, depending on the day of the week and the current time.

4.4.7. Preselection

You can set up the HorstBox Professional to use a certain telephone service provider for every out-bound call, differentiate even for calls to mobile phone numbers or oversea calls.

Define a new call rule and activate the option *with amended phone number*.

Prefix

Leave the field PREFIX (2 in fig.4.30) blank. The value from the field MODIFIER (3 in fig.4.30) will be set in front of your phone number.

You want to call	01234567890
In the field PREFIX (1 in fig.4.30) enter:	[0-9]
Leave the field PREFIX (2 in fig.4.30) blank.	
In the field MODIFIER (3 in fig.4.30) enter:	0999
The HorstBox will dial	099901234567890

Table 4.6.: Preselection: Prefix

Modifier

Enter a value in the first field PREFIX (one or more digits). These digits will be replaced by the value from the field MODIFIER.

You want to call	01234567890
In the field PREFIX (1 in fig.4.30) enter:	[0-9]
In the field PREFIX (2 in fig.4.30) enter:	012
In the field MODIFIER (3 in fig.4.30) enter:	0999
The HorstBox will dial	099934567890

Table 4.7.: Preselection: Modifier

To save the new call rule click on SAVE.

4.5. Speed Dialing

Speed Dialing saves time when calling to certain numbers regularly.

You can make calls using Speed Dialing or by entering a combination of characters. Using this option you will have to press the relevant numerical key only once.

To use Speed Dialing enter *# as prefix before the speed dialing number.

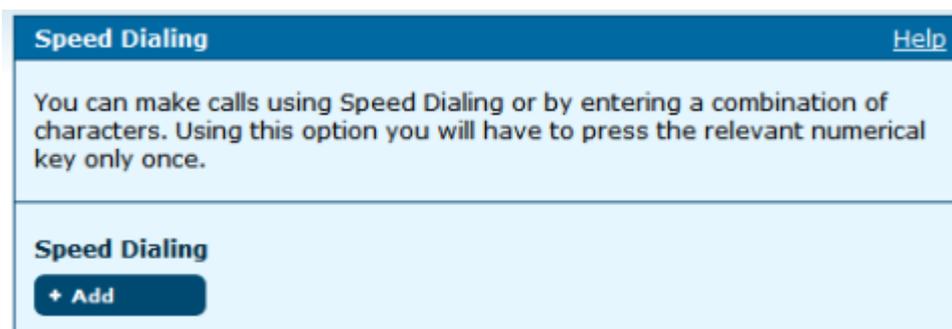


Figure 4.33.: Speed Dialing

4.5.1. Add Speed Dialing/Vanity Number

To add a speed dialing number click on ADD.

Activate one of the options (see examples below).

Enter a speed dialing number or a vanity name and the phone number. To save the settings click on SAVE.

Example: Speed Dialing

To define a speed dialing number for your taylor enter the desired speed dialing number in the field SPEED DIALING, e.g. "123" and the phone number in the field PHONE NUMBER.

To save the new speed dialing number click on SAVE.

To call your taylor just dial *#123.

Example: Vanity Number

To define a Vanity for D-Link enter DLINK in the field SPEED DIALING and D-Link's phone number in the field PHONE NUMBER.

Speed Dialing - Add [Help](#)

You can make calls using Speed Dialing or by entering a combination of characters. Using this option you will have to press the relevant numerical key only once.

Speed Dialing

Speed Dialing
 Vanity

Speed Dialing

Phone Number

Figure 4.34.: Add Speed Dialing or Vanity Number

To save the new vanity click on SAVE.

To call D-Link just dial: * * 3 5 4 6 5.

If an error occurs you will see an error message (red frame).

Speed Dialing - Add [Help](#)

Saving Error

Your entries contain the following errors:

- The Speed Dialing field must not be empty. It has to contain digits only.
- Please enter the phone number assigned to this Speed Dial.

Figure 4.35.: Error message

Change the settings in the box with the red frame and again click on SAVE.

To cancel the dialog click on CANCEL. The previous page will be displayed.

4.5.2. Edit Speed Dialing/Vanity Number

To edit a speed dialing or vanity number click on EDIT. The same dialog as for adding a speed dialing or vanity number opens, but this time all fields contain values. Edit the values and click on SAVE.

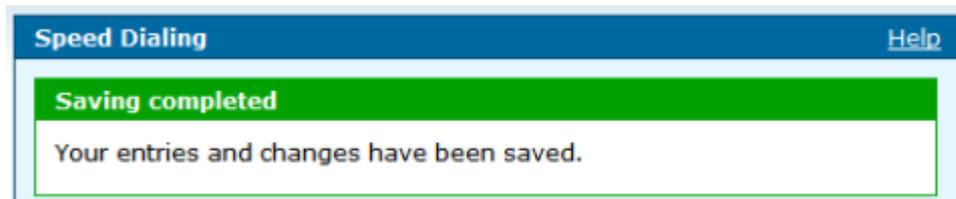


Figure 4.36.: Saving completed

4.5.3. Delete Speed Dialing/Vanity Number

To delete a speed dialing or vanity number click on DELETE. Confirm the warning by again click on DELETE. The dial rule will be deleted and the page SPEED DIALING will open and display a message.

4.6. TAPI

TAPI is short for Telephony Application Programming Interface. TAPI was established in 1993 by Microsoft and Intel for applications like software phones, video conference programs or call center systems.

Note:

1. A TAPI driver is not included in delivery of the HorstBox Professional.
2. You need a TAPI driver for your operating system to use the TAPI functions of the HorstBox Professional.
3. Before installing the driver please activate TAPI for the HorstBox Professional.
Please refer to the documentation of the driver on how to install.

All phones registered at the HorstBox Professional can become TAPI phones.

4.6.1. Activate and Configure TAPI

Activate the option *TAPI-Interface enabled*. Enter a username and a password for the TAPI-User of the HorstBox Professional. You will need both later while configuring the TAPI driver.

Choose one of the registered phones as TAPI phone. You may define several TAPI phones. In the TAPI application choose the desired TAPI phone.

To save the settings click on **SAVE**.

If an error occurs you will see an error message (red frame).

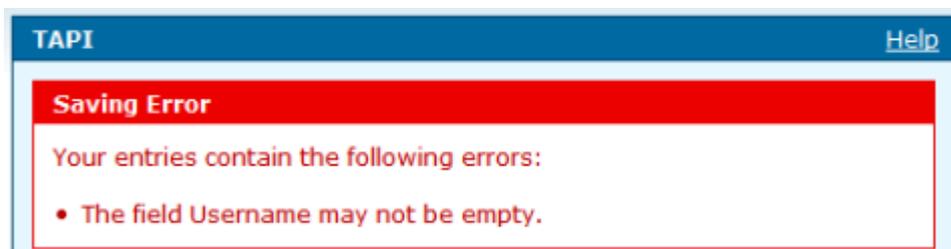


Figure 4.37.: Error message

TAPI [Help](#)

Please configure the username and password for TAPI access.

TAPI

TAPI-Interface enabled

Username

Password

Confirm password

Internal Phone

Device label for TAPI-client

Figure 4.38.: Configure TAPI

Saving successfully is reported in a green framed message.

TAPI [Help](#)

Saving completed

Your entries and changes have been saved.

Figure 4.39.: Saving completed

Write down the device label for the TAPI-client. Use this label while configuring the TAPI client.

To discard all recent entries click on DISCARD ENTRY.

4.6.2. Deactivate TAPI

To deactivate TAPI deactivate the option *TAPI-Interface enabled* and click on SAVE.

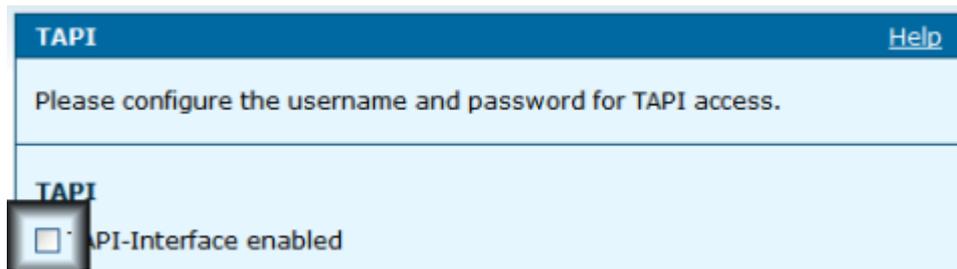


Figure 4.40.: Deactivate TAPI

4.6.3. Install a TAPI Driver

Note: A TAPI driver is not included in delivery of the HorstBox Professional.

For the installation of a TAPI driver please refer to the documentation supplied.

You will need username and password for the TAPI user on the HorstBox Professional, as set up above, and the device label for TAPI-client.

Phone	MSN	Device	Phone	MSN	Device
Analog 1	21	Zap/g3	Analog 2	22	Zap/g4
ISDN	3xx	Zap/g2/3xx	VoIP	4xx	SIP/4xx

xx: ISDN = 00 to 19; VoIP = 00 to 29

Table 4.8.: Name of device for TAPI Client

4.6.4. Using TAPI

After the installation of the TAPI driver and once the option *TAPI-Interface enabled* is activated, you can use your phones from inside any application supporting TAPI calls.³

³For details of TAPI usage please refer to the documentation supplied.

4.7. Phone Log

The phone log shows an overview over all in-bound and out-bound calls.

- ➔ • In-bound call from phone number. No phone number will appear if the phone number was suppressed.
- ➔ • Out-bound call to phone number.

Table 4.9.: Icons in the Phone Log

The screenshot shows the 'Phone Log' interface. At the top, there is a 'Phone Log' header with a 'Help' link. Below the header, a message states: 'The Phone Log shows an overview over in-bound and out-bound calls.' Underneath, there is a section titled 'Delete Entries' with the text: 'You can remove all entries by using the "Delete" Button.' A dark blue 'Delete' button is located to the right of this text. Below the 'Delete Entries' section, there is another 'Phone Log' header above a table. The table has three columns: 'Direction', 'Number', and 'Date'. The first row shows an in-bound call (➔) from number 1781429126 on 2006-12-06 at 14:38:12. The second row shows an in-bound call (➔) from number 1726121986 on 2006-12-06 at 22:44:51.

Direction	Number	Date
➔	1781429126	2006-12-06 14:38:12
➔	1726121986	2006-12-06 22:44:51

Figure 4.41.: Phone Log

4.7.1. Delete Phone Log

To remove all entries click on DELETE.

4.8. Status

The Phone Status indicates the attached VoIP devices and phones and assists you with the troubleshooting.

Status		Help
The Phone Status indicates the attached VoIP devices and phones and assists you with the troubleshooting.		
Accounts		
Name	Status	
ISDN account	Configured	
SIP Phones		
Name	User Agent	Address
VoIP phone		Port 0

Figure 4.42.: Phone Status

4.9. How To Telephone

Note: Diverting calls to external numbers may cause additional costs.

Please refer to the documentation of your phones to find out which features they support. Sometimes your telephone service provider has to (de-)activate certain features.

4.9.1. Answering A Call

You may answer in-bound calls on any registered phone. If due to call rules a phone does not ring, pick up the receiver and dial *8.

4.9.2. Transferring A Call

- During the call press the R key (aka hook flash button) on the phone.
- The caller on hold will listen to music.
- Dial another phone number and conduct the conversation.
- End the second call and talk to the first caller again.

4.9.3. Park A Call on Phones without Park Function

- During the call press the R key on the phone.
- The caller on hold will listen to music.
- Dial *80. The HorstBox will tell the “parking number” (1-9).
- Put down the receiver.

4.9.4. Park A Call on Phones with Park Function

- During the call press the PARK key on your phone. (Please refer to the documentation supplied.)
- On the display you see the “Park number” (1-9).

4.9.5. Unpark A Call

- Lift the receiver.
- Dial *8 and the “Park number” (1-9).

4.9.6. Internal Calls

You can do internal calls between all registered phones,

For internal calls first press *****, then dial the internal phone number (MSN).

The quantity of internal phone numbers depends on how many devices were registered with the HorstBox Professional.

Combination	Device	Port / Internal MSN
* 2 1	Analog 1	Port 1
* 2 2	Analog 2	Port 2
* 3 0 0 - * 3 1 9	ISDN 1 – ISDN 20	MSN 300 – MSN 319
* 4 0 0 - * 4 2 9	VoIP 1 – VoIP 30	MSN 400 = Username, etc.

Table 4.10.: Overview: Combination of *****-phone number for internal calls

4.9.7. External Calls

Out-bound calls are handled by the default account, unless dial rules define a different account. To change the account on demand, press ***** and dial the number of the desired account for the current call.

Combinations depend on set up accounts accordingly.

Combination	use account:
* 5 <Phone number>	analog account
* 6 [0-9] ⁴ <phone number>	ISDN account 1 - 9
* 7 [0-9]<phone number>	VoIP account 1 - 9

Table 4.11.: Overview: Combination *****-phone number for external calls

4.9.8. Speed Dialing/Vanity Number

To use a speed dial or vanity number use *** *** as a prefix.

⁴[0-9]: Dial one of these digits, according to the number of the account. The first account will be 0, the second 1, etc.

Examples

(Numbers to be stored beforehand!)

Speed Dialing: To call your taylor just dial: * * 1 2 3.

Vanity Number: To call D-Link just dial: * * 3 5 4 6 5.

4.9.9. Telephone Conference with 2 Additional Callers

Analog Phone

For a telephone conference with two more participants and an *analog phone*, proceed as follows:

- Call the first participant.
- During the call press **R**.
- The caller on hold will listen to music.
- Dial the other phone number and talk to the second participant.
- Next press **R** again.
- You are connected to both parties now.

ISDN Phone

For a telephone conference with two more participants and an *ISDN phone*, proceed as follows:

- Call the first participant.
- During the call press the TRANSFER key.
- Dial the other phone number and talk to the second participant.
- Press the CONFERENCE key to start the telephone conference.

4.9.10. Do Not Disturb (DND)

Activate Do Not Disturb Function

- Lift the receiver.
- Dial * 9 1. All in-bound calls are blocked now, but you still do out-bound calls.

Deactivate Do Not Disturb Function

- Lift the receiver.
- Dial * 9 2. All in-bound calls are routed through again.

4.9.11. Three-Way Calling (Analog Phone)

While talking to participant A you want to talk to participant B.

During the call press R and dial the phone number.

Participant A is on hold now and will listen to music.

Talk to participant B.

To end the call you have 3 possibilities:

Hold Second Call, Continue First Call

To return to A, press R, then 2. Now B is on hold and you can talk to A.

Start Telephone conference

To start the telephone conference, press R, then 2.

Finish Second Call, Continue First Call

To finish the second call press R, then 0. Afterwards you will talk to caller A again.

4.9.12. Call Waiting (Analog Phone)

To handle another in-bound call while talking already you may answer or reject the second call.

Answer Call

To answer the second call, press R, then 2.

Reject Call

To reject the second call, press R, then 0.

How to control the PBX

You may control the PBX via a phone using key combinations:

Combination	Function
* 2 [1-2] ⁵	internal call to analog devices
* 3 [0-19]	internal call to ISDN devices
* 4 [0-29]	internal call to VoIP devices
* 5 <Phone number>	use analog account
* 6 [0-9]<Phone number>	use ISDN account [0-9]
* 7 [0-9]<Phone number>	use VoIP account [0-9]
* 8	answer call
* 8 0	park call
* 8 [1-9]	unpark call
* 9 1	activate "Do not disturb" function
* 9 2	deactivate "Do not disturb" function
* * <Speed Dialing>	use speed dial number
* * <Vanity Number>	use vanity number

Table 4.12.: Overview: Combinations for controlling the PBX

⁵[0-9]: Enter the next digit: 0 - 9.

5. Internet

This chapter introduces all settings to access the internet and how to set up other useful features of the HorstBox Professional.

The default IP address of the HorstBox is **https://192.168.0.1**. Open this open in a browser to start the graphical user interface.

To navigate in the tab NETWORK use the navigation column.

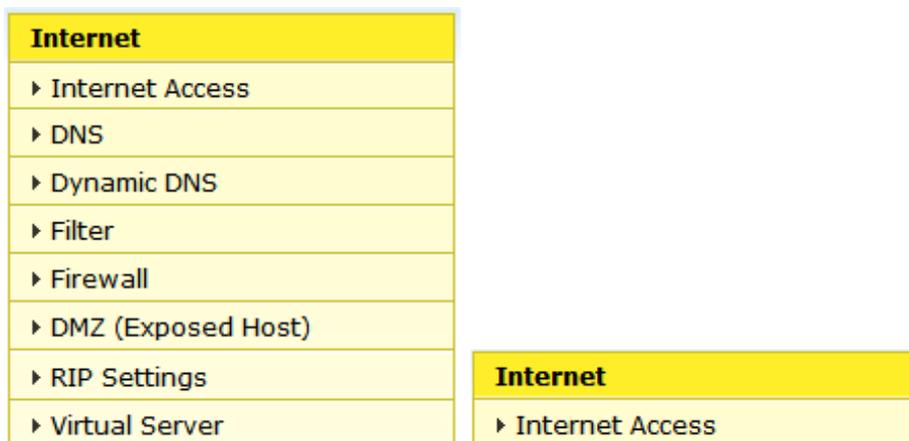


Figure 5.1.: Navigation column Internet (expert and basic mode)

Choosing *LAN* as Internet access type switches the HorstBox to expert mode and only the item *Internet Access* is shown in the navigation column.

5.1. Internet Access

First choose the Internet access type. If the HorstBox Professional connects to the Internet via a DSL line (WAN port used), choose *DSL*. If it connects via a local area network (Ethernet port used), choose *LAN*.

Next click on **APPLY**. The screen will change according to your selection.

5.1.1. Access Type: DSL

Please type in your Internet login data provided by your ISP. The HorstBox can now connect to the Internet and you can use all attached devices and phones.

Please refer to the documentation provided by your ISP before you change the settings for *VPI*, *VCI*, *MTU* or *MRU*.

Changing these value without need may result a bad data transfer rate or no connectivity at all.

Activate the option *Use login data*. Enter username and password (twice) into the appropriate fields.

If you change the password for the DSL access on the IPS's web-site, you have to change it on this page as well. Failing to do so, will result in denied access to the internet.

Choose the option *disconnect automatically after inactivity* if you do not have a for your internet connection. This will help you to save valuable online time.

Define the period of inactivity before disconnecting, e.g. 5 minutes.

Please note: Some programs, e.g. anti-virus software or firewall will connect to the internet periodically.

Whilst a flatrate check the option *keep the Internet Connection open*. The HorstBox Professional will stay online permanently.

Some ISPs will disconnect a permanent internet connection once a day.

By activating the option *Putting off the forced disconnection by your provider* you can put off the forced disconnection to a more suitable point of time, e.g. between 3 and 4 o'clock in the morning.

Disconnecting from the internet will interrupt VoIP, i.e. when disconnected no VoIP calls will come through. For out-bound VoIP calls the HorstBox connects to the internet on demand.

Please note: If the option *automatic* on the tab SYSTEM, page TIME is activated, the HorstBox Professional will connect to a NTP server in the internet in regular intervals to adjust the system time. This may influence volume or time-based tariffs.

To save the settings click on SAVE.

Saving successfully is reported in a green framed message.

To discard all recent entries click on DISCARD ENTRY.

Internet Access [Help](#)

Change the access type.
Choose "DSL" to establish the connection to the Internet via your DSL connection (WAN port).
Choose "LAN" to establish the connection to the Internet via your local area network (Ethernet port).
Please type in your Internet login data provided by your ISP. The *HorstBox* can now connect to the Internet and you can use all attached devices and phones.

Internet Access

Access type

Type

Use login data

Username

Password

Confirm password

VPI

VCI

MTU bytes

MRU bytes

Modulation

Internet connection

putting off the forced disconnection by your provider to o'clock

Figure 5.2.: Access type: DSL

5.1.2. Additional Settings in Expert Mode

Note: Do only change the following values if requested by your ISP. Choosing improper values may causes deterioration of performance and data transfer rate or no internet connectivity at all.

Settings in Expert Mode

VPI	Virtual Path Identifier	Scope: 0-255 - Default: 1
VCI	Virtual Channel Identifier	Scope: 32-65535 - Default: 32
MTU	Maximum Transmission Unit	Scope: 128-65535 - Default: 1492
MRU	für Maximum Receive Unit	Scope: 128-1500 - Default: 1492
Modulation		
Choose a modulation type according to the requirements of your ISP.		Scope: ADSL2+ Multi-Mode

Table 5.1.: Settings in Expert Mode

To save the settings click on **SAVE**.

To discard all recent entries click on **DISCARD ENTRY**.

5.1.3. Access Type: LAN

The HorstBox Professional also supports access to the Internet via a local area network. Connect one of the ethernet ports (see [2.2.2 Back Panel](#) on p.19) to the LAN.

To configure the HorstBox you may need the following information:

- *IP address, Subnet mask, Broadcast address und Gateway for the LAN and IP Addresses for two DNS Servers*

The HorstBox Professional can obtain all necessary configuration data from the DHCP server. To do so, activate the option *Use DHCP client*.

As an alternative you may enter the configuration data manually.

In both case click on **SAVE** to save the configuration. The HorstBox Professional will reboot afterwards.

Internet Access [Help](#)

Change the access type.
Choose "DSL" to establish the connection to the Internet via your DSL connection (WAN port).
Choose "LAN" to establish the connection to the Internet via your local area network (Ethernet port).
Let the HorstBox get an IP address from a DHCP server or configure a IP address manually.

Internet Access

Access type

Type

Network address

Use DHCP client

static IP settings

IP address

Subnet mask

Broadcast address

Standard Gateway

first DNS server

second DNS server

Figure 5.3.: Access type: LAN

Saving successfully is reported in a green framed message. To discard all recent entries click on DISCARD ENTRY.

5.2. DNS

The resolving of IP addresses to host names/domains and vice versa is managed by the DNS. The required information (IP addresses of at least one DNS server) is normally provided by your ISP. But the HorstBox is also able to detect the DNS servers available automatically.

Choose whether to use the Domain Name Service (DNS) and if so, which server to use.

Please note: This option refers to the internet connecting only. It may influence the settings on the tab NETWORK, page DHCP SERVER, option *DNS Mode*.

Choose the option *Use only automatically detected DNS servers* to let the HorstBox Professional detect your ISP's DNS servers automatically.

Choose the option *Use only manually specified DNS servers* and enter the names or IP address of a preferred and an alternate DNS server. You may choose DNS servers other than those of your ISP.

Note: Without a DNS server connections to the internet or the LAN will become unreliable. Domain names can no longer be resolved into IP addresses.

The screenshot shows a window titled "DNS" with a "Help" link in the top right corner. Below the title bar is a light blue header area containing the following text: "The resolving of IP addresses to host names/domains and vice versa is managed by the DNS. The required information (IP addresses of at least one DNS server) is normally provided by your ISP. But the *HorstBox* is also able to detect the DNS servers available automatically." Below this is a section titled "DNS" containing a checked checkbox labeled "DNS". Underneath are two radio button options: "Use only automatically detected DNS servers" (unselected) and "Use only manually specified DNS servers" (selected). Below these are two text input fields: "Preferred DNS server" with the value "192.168.0.100" and "Alternate DNS server" which is empty. At the bottom of the window are two buttons: "Discard Entry" and "Save".

Figure 5.4.: DNS settings

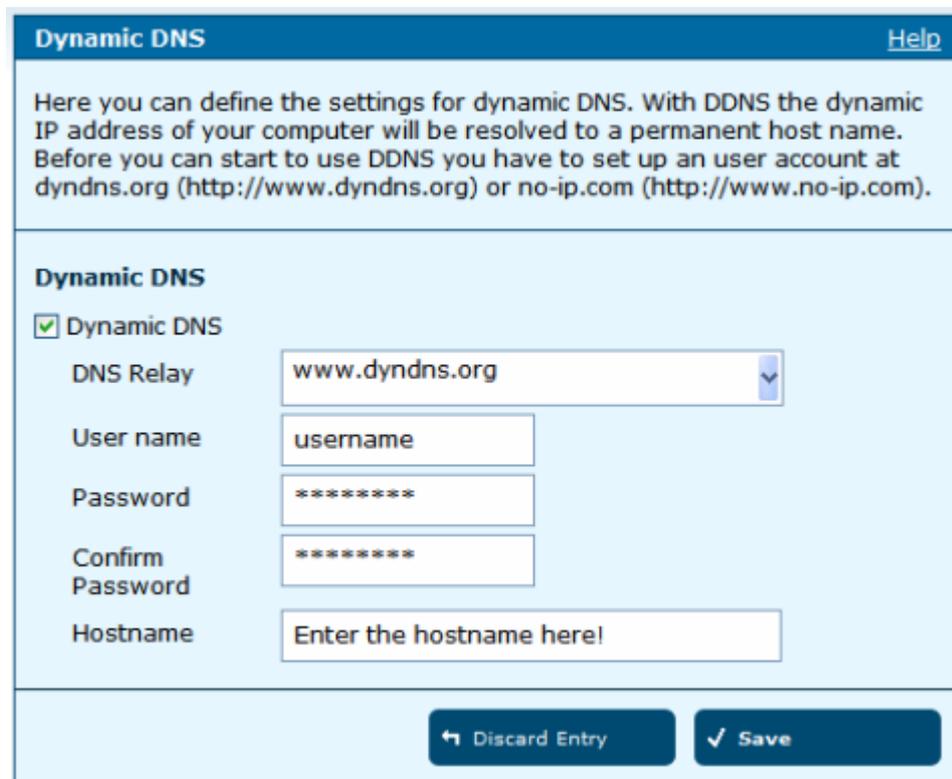
To save the settings click on **SAVE**.

Saving successfully is reported in a green framed message. Changes will take effect after reboot.

To discard all recent entries click on **DISCARD ENTRY**.

5.3. Dynamic DNS

Here you can define the settings for dynamic DNS. With DDNS the dynamic IP address of your computer will be resolved to a permanent host name.



Dynamic DNS [Help](#)

Here you can define the settings for dynamic DNS. With DDNS the dynamic IP address of your computer will be resolved to a permanent host name. Before you can start to use DDNS you have to set up an user account at dyndns.org (<http://www.dyndns.org>) or no-ip.com (<http://www.no-ip.com>).

Dynamic DNS

Dynamic DNS

DNS Relay

User name

Password

Confirm Password

Hostname

Figure 5.5.: Settings for Dynamic DNS

Before you can start to use DDNS you have to set up an user account at dyndns.org (<http://www.dyndns.org>) or no-ip.com (<http://www.no-ip.com>). Please refer to information provided by your DDNS provider too.

With DDNS the dynamic IP address of your computer will be resolved to a permanent host name.

- Activate the option *Dynamic DNS*.

- Select the option *DNS Relay*. Right now dydns.org or no-ip.com are supported.
- In the field `USER NAME` enter the user name for your DDNS account.
- In the fields `PASSWORD` and `CONFIRM PASSWORD` enter the password for your DDNS account.
- In the field `HOSTNAME` enter the hostname as set up for your DDNS account.

To save the settings click on `SAVE`.

Saving successfully is reported in a green framed message. Changes will take effect after reboot.

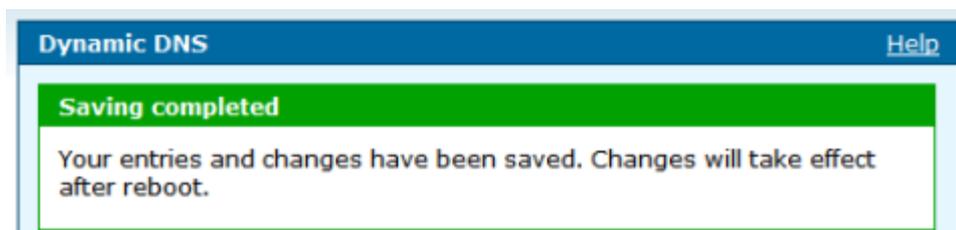


Figure 5.6.: Saving completed

5.4. Filter

Filters manage the LAN users' access to the Internet. It is possible to permit the access to the Internet for specified IP addresses within your LAN or to restrict the access for specified IP addresses. You can also define filters for the access to ports.

For filtering a single IP address or a single port, please enter the value into both fields (from/to).

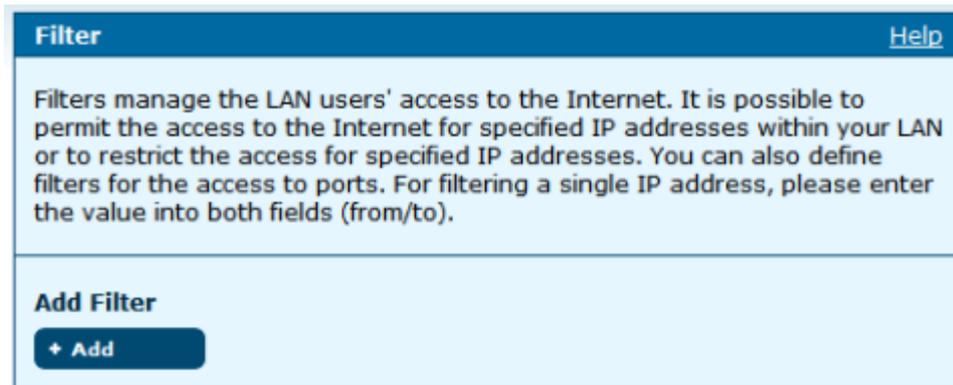


Figure 5.7.: Filter

Allow access to the internet from your LAN for certain IP addresses only or deny access to the internet for other IP addresses.

5.4.1. Add Filter

To add a filter click on ADD. Enter values accordingly.

Option	Filter
Source IP Address	- any IP address or IP address range
Destination IP Address	- any IP address or IP address range
Source Ports	- any port or port range
Destination Ports	- any port or port range
Protocol	- any - TCP/UDP - TCP - UDP
Action	- allow - deny

Table 5.2.: Filter options

Filter - Add [Help](#)

Filters manage the LAN users' access to the Internet. It is possible to permit the access to the Internet for specified IP Addresses within your LAN or to restrict the access for specified IP Addresses. You can also define filters for the access to ports. For filtering a single IP Address, please enter the value into both fields (from/to).

Filter

Source IP Address

any IP Address

specify IP Address range

from

to

Destination IP Address

any IP Address

specify IP Address range

from

to

Source ports

any ports

specify ports range

from

to

Destination ports

any ports

specify ports range

from

to

protocol

action

Figure 5.8.: Add filter

To save the settings click on **SAVE**.

If an error occurs you will see an error message (red frame).



Figure 5.9.: Error message

Change the settings in the box with the red frame and again click on **SAVE**.

Saving successfully is reported in a green framed message.



Figure 5.10.: Saving completed

To discard all recent entries click on **DISCARD ENTRY**.

5.4.2. Edit Filter

To edit a filter click on **EDIT**. The same dialog as for adding a filter opens, but this time all fields contain values. Edit the values and click on **SAVE**.

5.4.3. Delete Filter

To delete a filter click on **DELETE**. Confirm the warning by again click on **DELETE**. The filter will be deleted and the page **FILTER** will open and display a message.

5.5. Firewall

Firewall [Help](#)

The firewall protects your LAN against intruders. You can choose to activate different options.
Recommendation: Activate all options for maximum protection.

Firewall

Protection against DoS attacks

- enable
 - Protection against SYN Flooding
 - Ignoring of ICMP redirection

Protection against port scans

- enable
 - FIN/URG/PSH attacks
 - Xmas tree attacks
 - Zero scan attacks
 - SYN/RST attacks
 - SYN/FIN attacks

Filtering services

- Deny Sip clients registering from the external network
- Deny Telnet from the external network
- Deny FTP from the external network
- Deny DNS from the external network
- Deny IKE from the external network
- Deny RIP from the external network
- Deny DHCP from the external network
- Deny ICMP from your LAN
- Deny SIP phones from the external network

Figure 5.11.: Firewall

The firewall protects your LAN against intruders. You can choose to activate different options.

Hint: It is recommended to activate all options for maximum protection.

Protection against DoS attacks (Denial of Service): *Enable*

DoS protection: Default: enabled.

Enabled this option to make the next two options effective.

- Protection against SYN Flooding
- Ignoring of ICMP redirection

Protection agains port scans: *Enable*

Port scan protection: Default: enabled.

Enabled this option to make the next five options effective.

- FIN/URG/PSH attacks
- Xmas tree attacks
- Zero scan attacks
- SYN/RST attacks
- SYN/FIN attack

Filtering services

- Deny Pings from the external network
 - Deny Telnet from the external network
 - Deny FTP from the external network
 - Deny DNS from the external network
 - Deny IKE from the external network
 - Deny RIP from the external network
 - Deny DHCP from the external network
 - Deny ICMP from your LAN
 - Deny SIP phones from the external network
-

Table 5.3.: Firewall options

If you want allow SIP phone from the external network to connect to your LAN, thus unticking the option, make sure to use strong passwords for the phones. Otherwise your LAN will became partially unprotected and vulnerable.

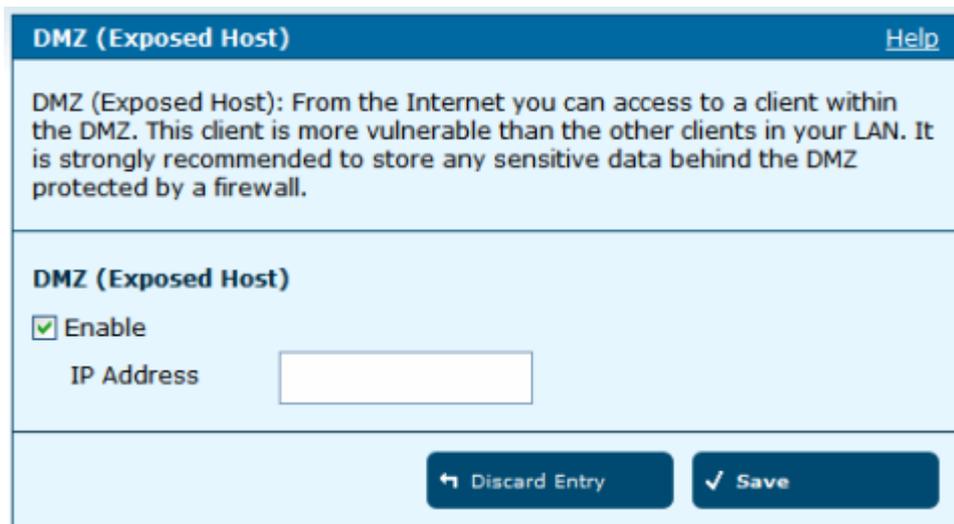
To save the settings click on **SAVE**.

To discard all recent entries click on **DISCARD ENTRY**.

5.6. DMZ (Exposed Host)

From the Internet you can access to a client within the DMZ (Exposed Host). This client is more vulnerable than the other clients in your LAN. It is strongly recommended to store any sensitive data behind the DMZ protected by a firewall.

Default: DMZ deactivated.



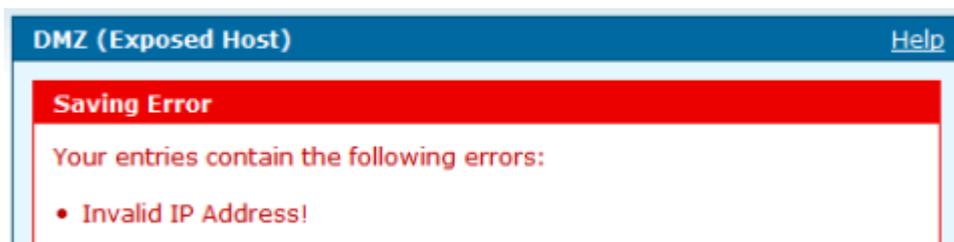
The screenshot shows a configuration window titled "DMZ (Exposed Host)" with a "Help" link in the top right corner. The main text area contains the following text: "DMZ (Exposed Host): From the Internet you can access to a client within the DMZ. This client is more vulnerable than the other clients in your LAN. It is strongly recommended to store any sensitive data behind the DMZ protected by a firewall." Below this text, there is a section titled "DMZ (Exposed Host)" containing a checked checkbox labeled "Enable" and an "IP Address" label next to an empty text input field. At the bottom of the window, there are two buttons: "Discard Entry" with a left-pointing arrow and "Save" with a checkmark.

Figure 5.12.: DMZ

Activate the option *DMZ* and enter the local IP address of the computer to become accessible from the Internet.

To save the settings click on **SAVE**.

If an error occurs you will see an error message (red frame).



The screenshot shows the same configuration window as Figure 5.12, but with a red error message box overlaid. The error message reads: "Saving Error" followed by "Your entries contain the following errors:" and a bulleted list containing "Invalid IP Address!".

Figure 5.13.: Error message

Change the settings in the box with the red frame and again click on **SAVE**.

Saving successfully is reported in a green framed message. Changes will take effect after reboot.

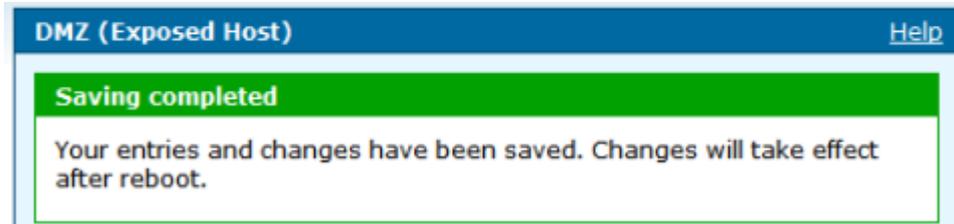


Figure 5.14.: Saving completed

To discard all recent entries click on **DISCARD ENTRY**.

5.7. RIP Settings

The routing information protocol (RIP) is one of the most commonly used interior gateway protocol (IGP) routing protocols on internal networks (and to a lesser extent, networks connected to the Internet), which helps routers dynamically adapt to changes of network connections by communicating information about which networks each router can reach and how far away those networks are.

For the protocol RIP (Routing Information Protocol) please define the routes for the traffic in your network in the routing table. You can specify the version of the protocol as well as the required direction of action.

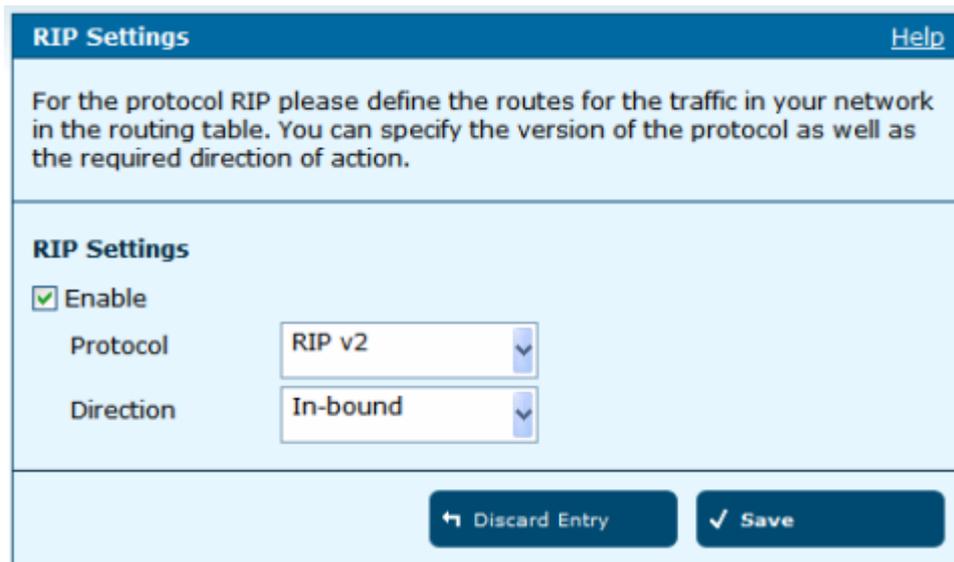
Note: There is no need to enable RIP. Default: disabled.

Enable the option *RIP* and choose a protocol and a direction.

Protocols		
RIP v1	RIP v2	RIP v1 compatible
Direction		
In-Bound, Out-Bound, Both		

Table 5.4.: RIP protocols

To save the settings click on **SAVE**.

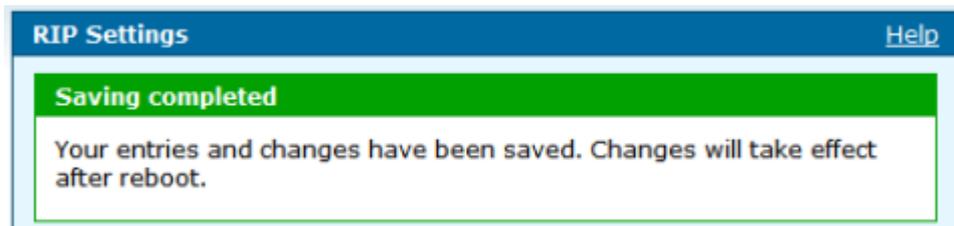


The screenshot shows a window titled "RIP Settings" with a "Help" link in the top right corner. Below the title bar, there is a light blue box containing the text: "For the protocol RIP please define the routes for the traffic in your network in the routing table. You can specify the version of the protocol as well as the required direction of action." Below this box, the "RIP Settings" section includes a checked "Enable" checkbox, a "Protocol" dropdown menu set to "RIP v2", and a "Direction" dropdown menu set to "In-bound". At the bottom of the window, there are two buttons: "Discard Entry" with a left-pointing arrow and "Save" with a checkmark.

Figure 5.15.: RIP

Saving successfully is reported in a green framed message. Changes will take effect after reboot.

To discard all recent entries click on DISCARD ENTRY.



The screenshot shows the "RIP Settings" window with a green message box at the top that says "Saving completed". Below the message box, the text reads: "Your entries and changes have been saved. Changes will take effect after reboot." The rest of the window content is not visible in this view.

Figure 5.16.: Saving completed

5.8. Virtual Server

The HorstBox externally acts as server. It receives the requests of remote users under its public IP address and forwards them automatically to the Virtual Server. So a client in your network behind NAT or firewall can provide services as a Virtual Server. You just have to enable specific ports or port ranges and protocols (UDP/TCP). File sharing or web services for e.g. HTTP, FTP or POP3 are possible. The private IP addresses of the servers in the local network remain safe. If you have a dynamic IP address, you may want to enable DynDNS additionally.

First add a new rule and in a second step assign an IP address to the new rule. You may assign several rules to one IP address, but not the same rule to several IP addresses.

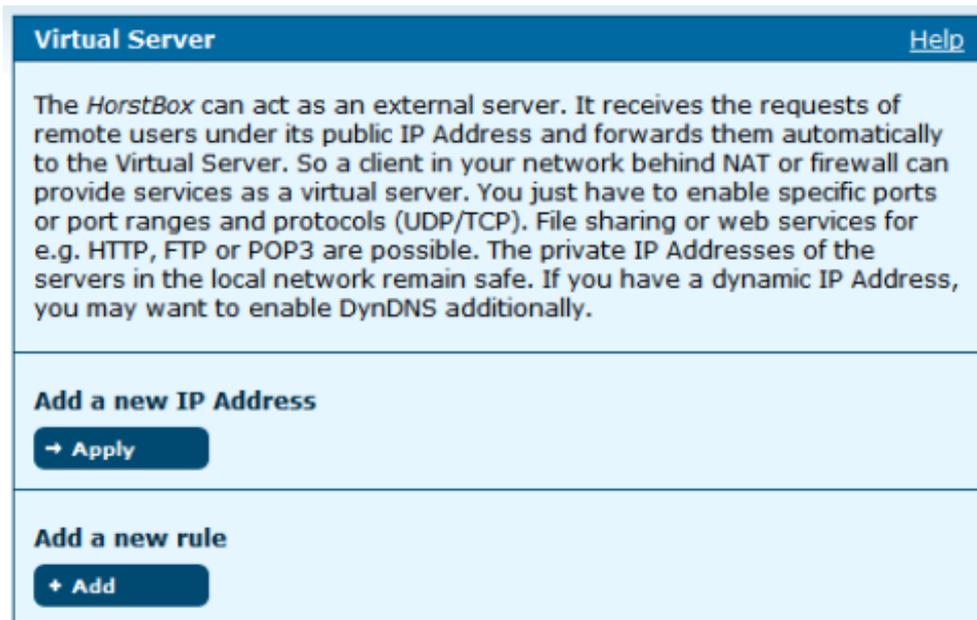


Figure 5.17.: Virtual Server

5.8.1. Add Rule

To add a rule click on ADD.

The screenshot shows a web interface titled "Virtual Server: Rules - Add" with a "Help" link in the top right. The main content area contains a paragraph explaining that the user should define a new rule for their Virtual Server and can assign IP addresses to this rule. Below the text are five input fields: "Rule Name" (text input), "Protocol" (dropdown menu with "TCP & UDP" selected), "Start Port" (text input), "End Port" (text input), and "Port Map" (text input). At the bottom right are two buttons: "Cancel" and "Save".

Figure 5.18.: Virtual Server, Add/Edit rules

- Enter a name for the new rule in the field RULE NAME.

- Choose the protocol in the drop-down list *Protocol*: TCP, UDP or TCP & UDP.
- Define a port range. Use the fields **START PORT** and **END PORT**. For one port enter the same value in both fields.
- Enter the number of the mapped port in the field **PORT MAP**.
- To save the new rule click on the **SAVE**.

To add the new rule click on **SAVE**.

You will find the new rule in the section *User defined rules* when assigning an IP address.

If an error occurs you will see an error message (red frame).

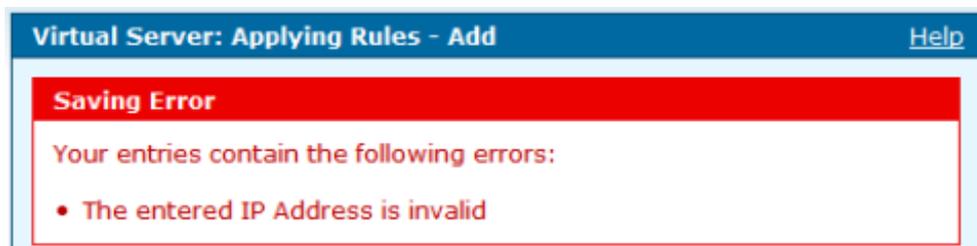


Figure 5.19.: Error message

Change the settings in the box with the red frame and again click on **SAVE**.



Figure 5.20.: Saving completed

To cancel the dialog click on **CANCEL**. The previous page will be displayed.

5.8.2. Apply Rules

To apply a rule click on **APPLY**.

Enter the IP address of the computer you want to assign the rule to.

Choose a rule/rules to assign. Default rules can not be changed or deleted.

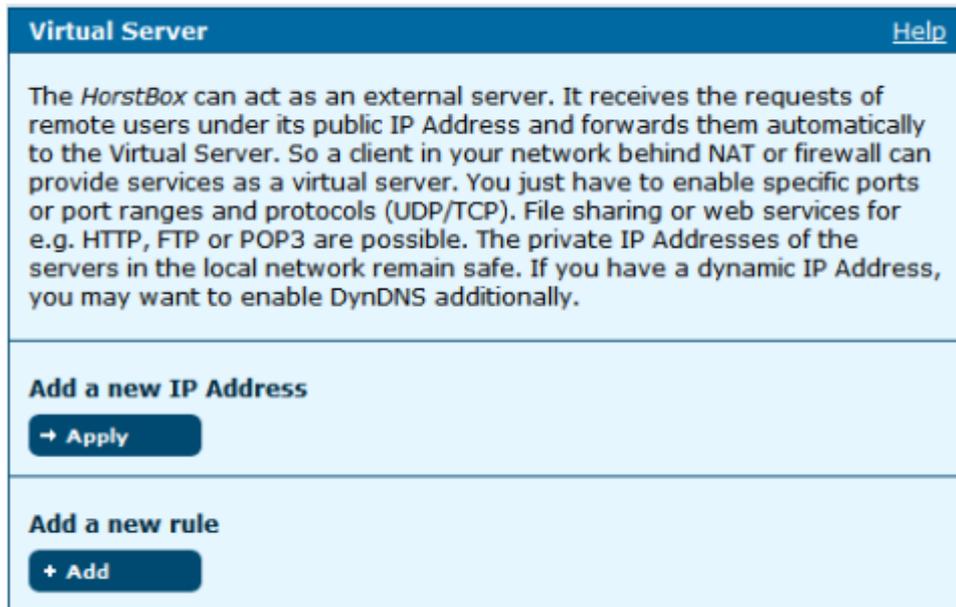


Figure 5.21.: Virtual Server, apply rules

You may assign several rules to one IP address, but not the same rule to several IP addresses.

To allocate a new rule click on **SAVE**.

If an error occurs you will see an error message (red frame).

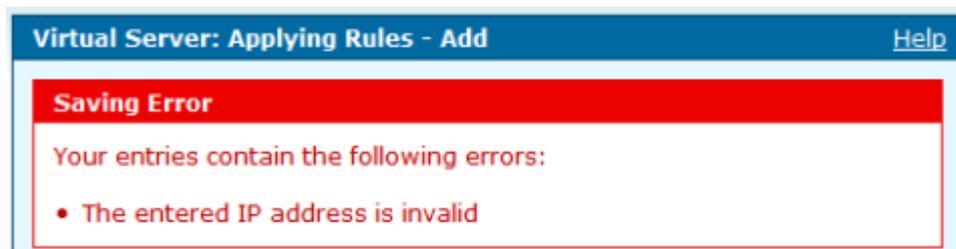


Figure 5.22.: Error message

Change the settings in the box with the red frame and again click on **SAVE**.

To cancel the dialog click on **CANCEL**. The previous page will be displayed.

5.8.3. Delete Assignment

To delete an assignment click on DELETE. Confirm the warning by again click on DELETE. The assignment will be delete and the page VIRTUAL SERVER will open and display a message.

5.8.4. Delete Rule

To delete a rule click on DELETE. Confirm the warning by again click on DELETE. The rule will be deleted an the page VIRTUAL SERVER will open and display a message.

6. Network

This chapter introduces all LAN settings. Configure your own WLAN and setup LAN and USB shares. In the basic mode you can access the pages WLAN, WLAN ACCESS RULES and SHARE USB PRINTER only.

To navigate in the tab NETWORK use the navigation column.

Network	
▶ IP Settings	
▶ DHCP Server	
▶ WLAN	
▶ WLAN Access Rules	
▶ Multiple WLAN SSIDs	
▶ WLAN Performance	
▶ WLAN Night Switch	
▶ Routing	
▶ SNMP Settings	
▶ User Accounts for Network Shares	
▶ Network Shares	
▶ Manage USB-Storage devices	
▶ Share USB printer	

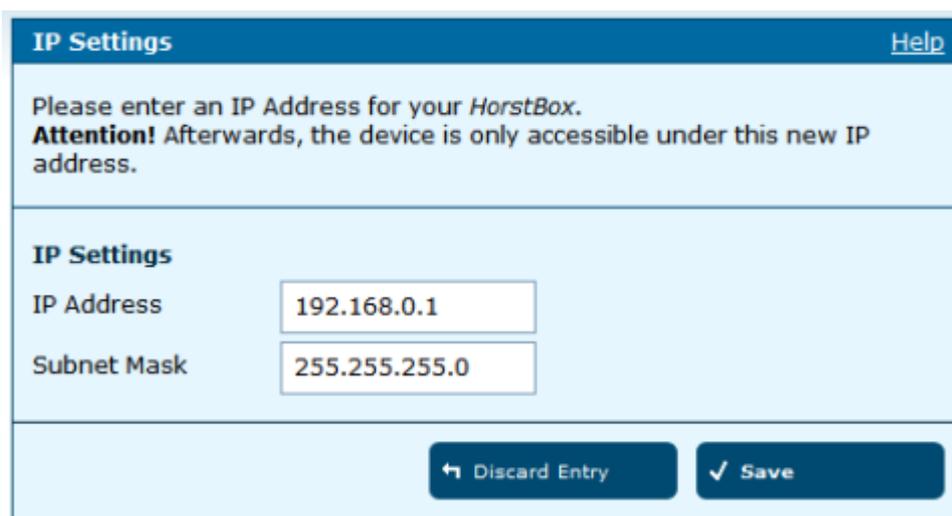
Network	
▶ WLAN	
▶ WLAN Access Rules	
▶ Share USB printer	

Figure 6.1.: Navigation column Network (expert- and basic mode)

6.1. IP Settings

Every device in a LAN has to have a unique IP address to communicate with other devices. The default IP address of the HorstBox is: **192.168.0.1**, and the default value for subnet mask: Subnet mask 255.255.255.0.

Note: All other devices in your LAN should have IP addresses in the same segment, e.g. 192.168.0.1 and the same value for subnet mask.



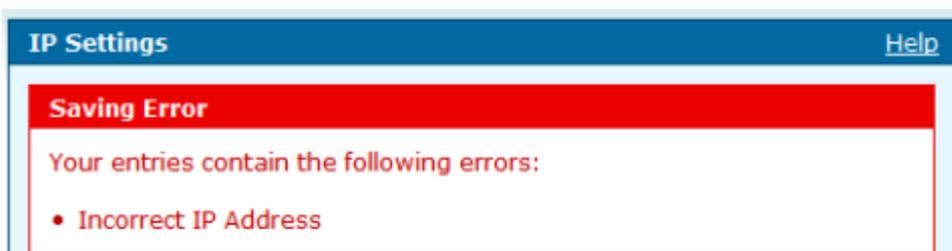
The screenshot shows a web interface titled "IP Settings" with a "Help" link in the top right. Below the title, there is a message: "Please enter an IP Address for your *HorstBox*. **Attention!** Afterwards, the device is only accessible under this new IP address." The form contains two input fields: "IP Address" with the value "192.168.0.1" and "Subnet Mask" with the value "255.255.255.0". At the bottom of the form, there are two buttons: "Discard Entry" and "Save".

Figure 6.2.: IP Settings

Enter values for the IP address and the subnet mask.

To save the settings click on SAVE.

If an error occurs you will see an error message (red frame).



The screenshot shows the same "IP Settings" form as in Figure 6.2, but with an error message displayed. The error message is in a red box and reads: "Saving Error" followed by "Your entries contain the following errors:" and a list containing "• Incorrect IP Address".

Figure 6.3.: Error message

Change the settings in the box with the red frame and again click on SAVE. Changes will take effect after reboot.

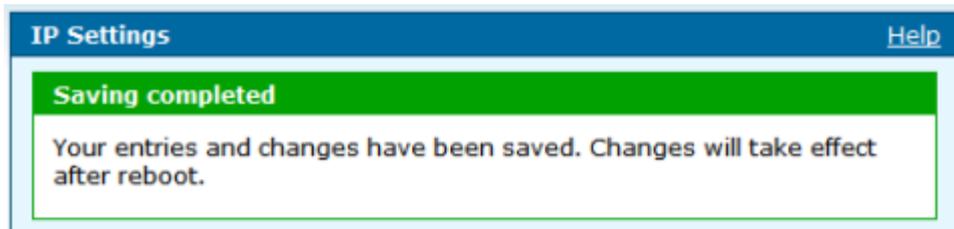


Figure 6.4.: Saving completed

To discard all recent entries click on DISCARD ENTRY.

6.2. DHCP Server

A DHCP Server will distribute IP addresses within the network on demand. Please define a range for the IP addresses and a duration of validity (Lease Time).

The HorstBox is by default set up as DHCP server. This may cause conflicts with another DHCP server already in your LAN. Deactivate one of the servers.

6.2.1. Set up DHCP Server

Enter an IP address range in the fields START IP ADDRESS and END IP ADDRESS.

An IP address issued by the DHCP server is valid for a certain period of time, called "lease time". After expiration a renewal or extension is necessary.

Define the lease time in the field LEASE TIME. Default value: 3600 seconds (= 1 hour).

Each device in a LAN needs to have a unique IP address, comprised by four pairs of numbers. To simplify the handling of IP addresses for humans, all devices have a unique name, called host name. The allocation of IP address to host name and vice versa is done by the Domain Name System (DNS).

The Domain Name System is set up hierarchically. On top are the Top Level Domains (TLDs), e.g. .tw oder .com. One step below you will find Second Level Domains (SLDs, also called Domains), e.g. dlink.tw. Each step in the hierarchy is separated by a "." (dot). Every domain can be registered only once, as it has to stay unique.

DHCP Server [Help](#)

A DHCP Server will distribute IP addresses within the network on demand. Please define a range for the IP addresses and a duration of validity (Lease Time).

DHCP Server

act as DHCP Server

Start IP Address: 192.168.0.200

End IP Address: 192.168.0.225

Lease Time: 3600 Seconds

DNS Mode

Automatic

Manual

Preferred DNS Server: 192.168.0.100

Alternate DNS Server:

Static IP Addresses

Figure 6.5.: DHCP Server

If the HorstBox acts as DHCP server in your LAN, local IP addresses can be handed on in two ways:

1. *Automatic*: Here the HorstBox will pass on the IP addresses of the DNS servers set up on the tab INTERNET, page DNS. This is the default setting. (See section [5.2 DNS](#) on p.87)
2. *Manual*: Type in IP addresses for the preferred and the alternate DNS server. These may differ from the IP addresses for DNS servers set up on the tab INTERNET, page DNS, e.g. because you are running your own internal DNS server.

Sometimes it is useful to assign static IP addresses for certain devices, e.g. for security reasons.

A static IP address is bound to the MAC address of the device. This IP address is not longer handled by the DHCP server.

Enter the MAC address of the network card like this `xx:xx:xx:xx:xx:xx`, and the IP Address: `yyy.yyy.yyy.yyy`.

Example: `00:0C:6E:D5:11:22` and `192.168.0.2`

To save the settings click on **SAVE**.

If an error occurs you will see an error message (red frame).



Figure 6.6.: Error message

Change the settings in the box with the red frame and again click on **SAVE**.

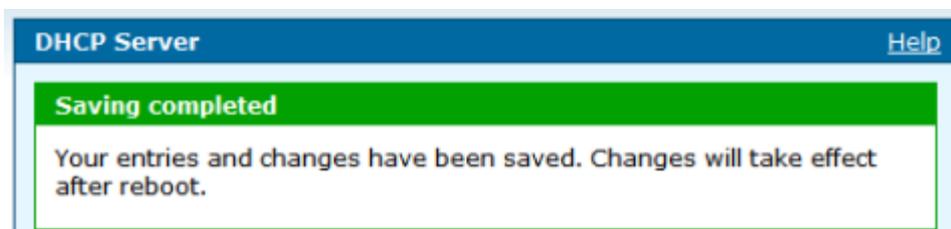


Figure 6.7.: Saving completed

Saving successfully is reported in a green framed message. Changes will take effect after reboot.

To discard all recent entries click on **DISCARD ENTRY**.

6.2.2. Edit Settings

To edit the settings for DHCP Server, DNS or static IP addresses, change the values. To save the changes click on **SAVE**.

6.3. WLAN

To use the HorstBox as a WLAN Access Point enable the option *WLAN Access Point* and choose the Security Settings.

WLAN [Help](#)

Please enable the WLAN Access Point of your *HorstBox* and choose the Security Settings.

WLAN

Enable Access Point

SSID

Channel

Security Settings

Security

Group Key Interval Seconds

WPA Type

802.1x

Server IP Address

Port

Secret

PSK Hex Value

Hex Value

PSK string

String

Figure 6.8.: WLAN Settings

6.3.1. Activate WLAN

Activate the option *Enable Access Point*. Enter a SSID (Network name) for your LAN and choose a channel [Default: 7].

Best not to use a common name like D-Link WLAN or MYWLAN as SSID. Set up all other WLAN devices to use the same SSID.

Note: While using the HorstBox Professional as an Access Point you should keep in mind, that the radio signal can be detected outside the premises. An intruder might be able to misuse your Internet connection or steal sensitive data. You should consider the security settings painstakingly.

6.3.2. Security Settings

1. **None**

No data encryption method will be used.

Use this setting only if the (old) WLAN hardware fails to connect to the Access Point using WEP or WPA. Please think about whether to use such apparently old hardware at all.

Not recommended!

2. **WEP**

Default with Cipher = 64; Key will be the first 10 digits of the WAN-Mac address of the HorstBox Professional (see bottom of device)

Wired Equivalent Privacy (WEP) is the former default encryption algorithm for WLANs. Due to several flaws WEP is considered to be unsafe.

Use this setting only if a device does not support WPA.

3. **WPA**

Wi-Fi Protected Access (WPA) is the new standard encryption method for WLANs.

Strongly recommended!

Click on APPLY to activate the new standard. The display changes.

WEP

Choose the authentication type (field AUTH. TYPE).

Auth. Type	Explanation
Open	The HorstBox is visible to all devices in the WLAN.
Shared	Communication is possible between devices with the same WEP settings only.
Both	The HorstBox is visible to all devices in the WLAN, but communication is possible between devices with the same WEP settings only.

Table 6.1.: Authentication Types

Select a key and enter the pass key. Choose the length of the key accordingly. You may set up up to four keys. The key selected will be the default key.

Key Strength	Number of Digits
64Bit	10
128Bit	26
256Bit	64

Table 6.2.: Key Strength and Number of Digits

A higher key strength makes decrypting of the encrypted communication more difficult.

To save the settings click on **SAVE**.

WPA

WPA is based on the Temporal Key Integrity Protocol (TKIP) and offers Pre-Shared-Keys (PSK) for user authentication. The PSKs are used to generate temporary keys for the WLAN devices.

Enter a time for automatically changing the group keys in the field **GROUP KEY INTERVAL**.

WPA Type	Values
802.1x	Enter IP address of server, port number and password.
PSK Hex Wert	Enter the PSK as Hex Value.
PSK String	Enter the PSK as string. (Minimum length: 8, maximum length: 63 characters)

Table 6.3.: WPA Types and Values

To save the settings click on **SAVE**.

If an error occurs you will see an error message (red frame).

Change the settings in the box with the red frame and again click on **SAVE**.

Security Settings

Security

Auth. Type

WEP Key

Please enter 10, 26 or 58 hexadecimal values (0-9, A-F) for a 64-, 128- or 256 bit encryption, e.g. 10 characters: 1234567890 for a 64 bit key.

Selection	Key	Strength
A <input checked="" type="radio"/>	<input type="text" value="1234567890"/>	64 <input type="text"/>
B <input type="radio"/>	<input type="text"/>	64 <input type="text"/>
C <input type="radio"/>	<input type="text"/>	64 <input type="text"/>
D <input type="radio"/>	<input type="text"/>	64 <input type="text"/>

Figure 6.9.: WEP Settings

Security Settings

Security

Group Key Interval Seconds

WPA Type

802.1x

Server IP Address

Port

Secret

PSK Hex Value

Hex Value

PSK string

String

Figure 6.10.: WPA Settings

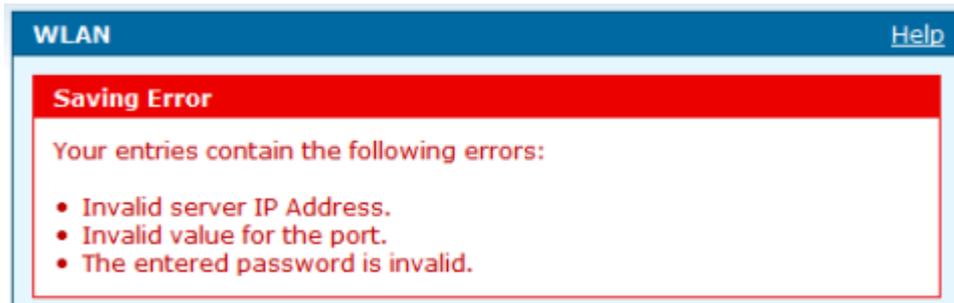


Figure 6.11.: Error message

To discard all recent entries click on DISCARD ENTRY.

6.3.3. Deactivate WLAN

To deactivate the WLAN disable the option *Enable Access Point* and click on SAVE.

6.4. WLAN Access Rules

An access rule is bound to the MAC address of the device. This helps you to seal off your WLAN against unknown WLAN devices.

Default: Access rules are deactivated.

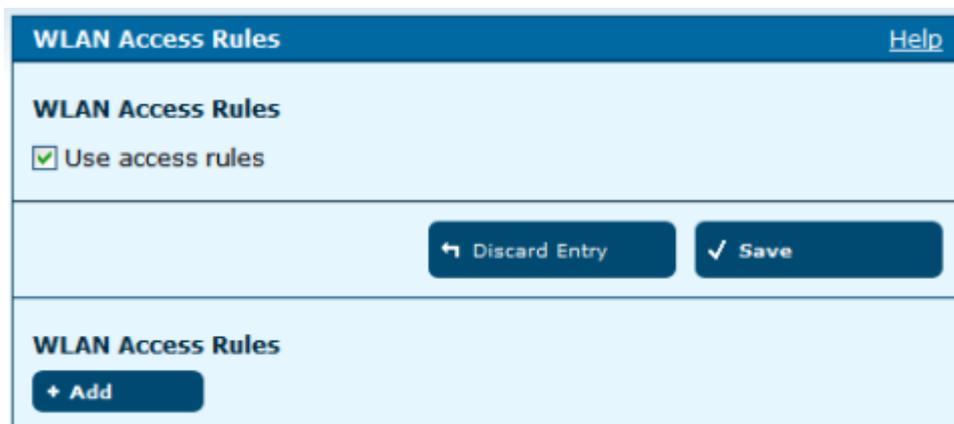


Figure 6.12.: WLAN Access Rules

To use WLAN access rules activate the option *Use access rules*. Now you can add, edit or delete access rules.

6.4.1. Add Access Rules

To add a new WLAN access rule click on ADD.

WLAN access rule - Add [Help](#)

You can allow and deny the access to your WLAN for specific MAC Addresses (one address per rule / format of MAC Address: aa:aa:aa:aa:aa:aa).

WLAN access rule

MAC Address

Access allow deny

Figure 6.13.: WLAN Access Rules - Add

Format for MAC address: aa:aa:aa:aa:aa:aa. To save the settings click on **SAVE**.

To discard all recent entries click on **CANCEL**.

6.4.2. Edit Access Rules

To edit an access rule click on **EDIT**. The same dialog as for adding an access rule opens, but this time all fields contain values. To save the changes click on **SAVE**.

If an error occurs you will see an error message (red frame).

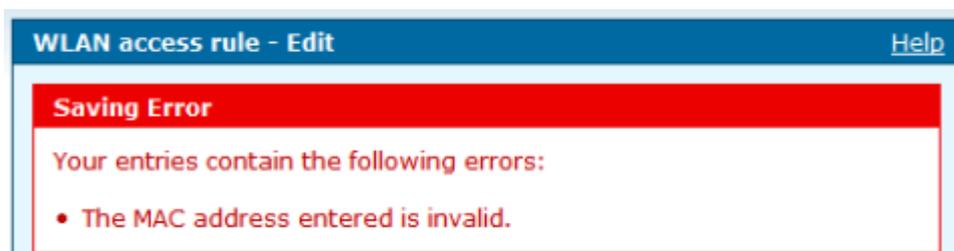


Figure 6.14.: Error message

Change the settings in the box with the red frame and again click on **SAVE**.



Figure 6.15.: Saving completed

6.4.3. Delete Access Rules

To delete an access rule click on **DELETE**. Confirm the warning by again click on **DELETE**. The access rule will be deleted and the page **WLAN ACCESS RULES** will open and display a message.

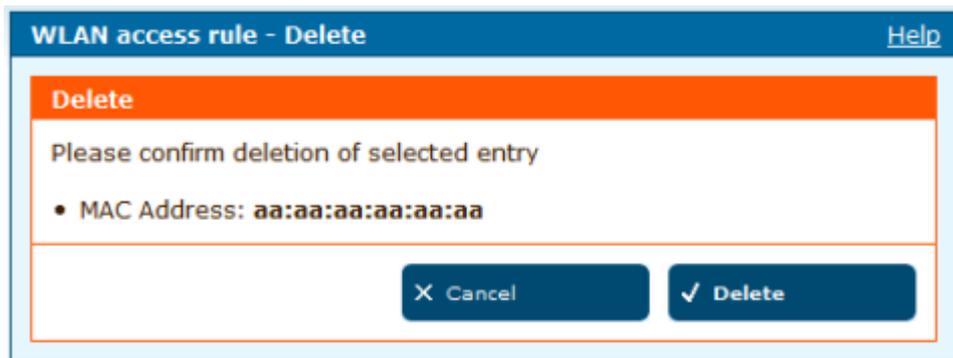


Figure 6.16.: Security warning

6.5. Multiple WLAN SSIDs

The HorstBox Professional supports Multiple SSIDs so you can operate several WLANs in parallel.

Default: Multiple SSIDs deactivated.

To use Multiple SSIDs activate the option *Use multiple SSIDs*. Now you can add, edit or delete SSIDs.

6.5.1. Add Multiple WLAN SSIDs

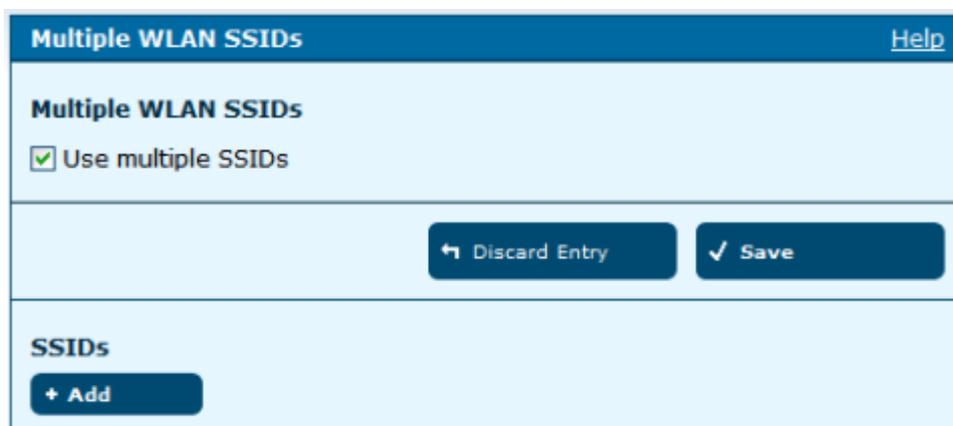


Figure 6.17.: Multiple WLAN SSIDs

To discard all recent entries click on DISCARD ENTRY.

Enter a new SSID and click on SAVE.

If an error occurs you will see an error message (red frame).

To cancel the dialog click on CANCEL. The previous page will be displayed.

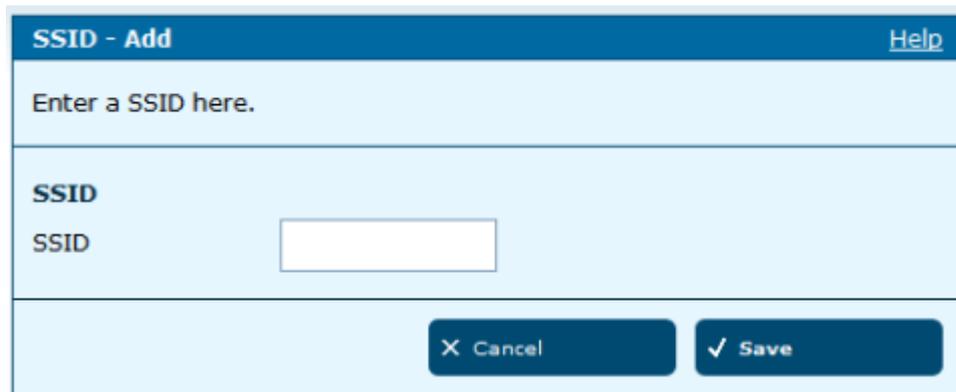


Figure 6.18.: Add SSID

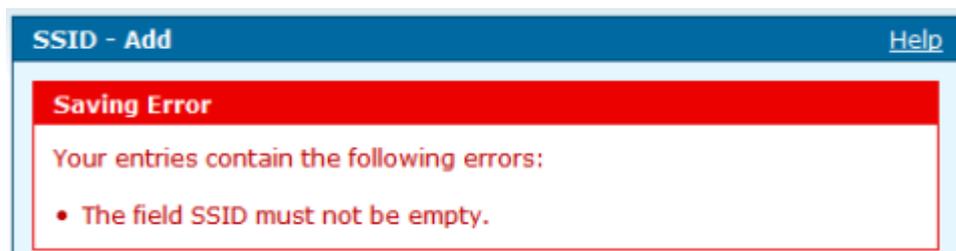


Figure 6.19.: Error message

Change the settings in the box with the red frame and again click on SAVE. Changes will take effect after reboot.



Figure 6.20.: Saving completed

6.5.2. Edit WLAN Multiple SSIDs

To edit an SSID click on EDIT. The same dialog as for adding WLAN Multiple SSIDs opens, but this time all fields contain values. To save the changes click on SAVE.

6.5.3. Delete WLAN Multiple SSIDs

To delete an SSID click on DELETE. Confirm the warning by again click on DELETE. The SSID will be deleted and the page MULTIPLE WLAN SSIDS will open and display a message.

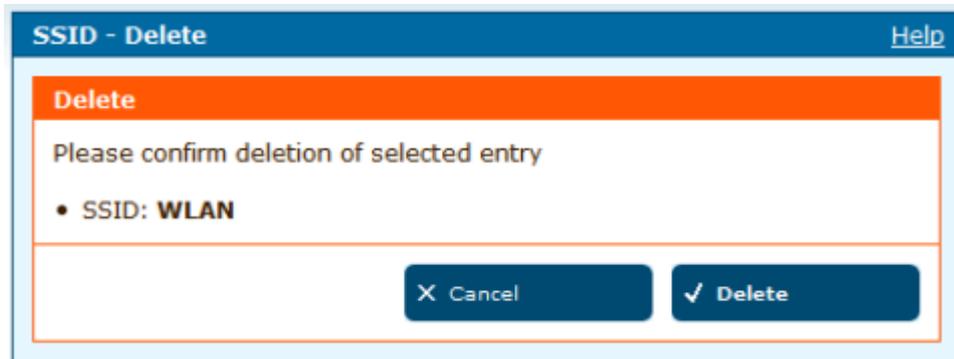


Figure 6.21.: Security warning

6.6. WLAN Performance

Set up the performances of your Access Point here. You can modify some of the parameters to obtain an improved performance. Always change just one parameter and keep track of the effects.

The position of the HorstBox Professional may influence the performance, especially the range of the radio signal. Please refer to section [1.2 Installation Considerations](#) on p.11.

By activating the option *Hide SSID*, the SSID of the HorstBox will be hidden. This offers some protection against intruders. Nevertheless you should always set up access rules based on the MAC addresses of the devices to protect your WLAN.

To save the settings click on SAVE.

To discard all recent entries click on DISCARD ENTRY.

WLAN Performance [Help](#)

Please set up the performances of your Access Point. You can modify some of the parameters to obtain an improved performance.

WLAN Performance

Signal Interval msec.
Range: 1-1000, Default: 200

DTIM
Range: 1-25, Default: 2

Hide SSID

Transmitting Power ▼

Threshold for RTS
Default: 2346

Threshold for fragmentation
Default: 2346

B/G Mode ▼

Figure 6.22.: WLAN Performance

Options Values	
<i>Signal Interval</i> (Beacon Interval)	
Time interval for sending a beacon for synchronization. Range of valid values: 20 to 1000.	Default: 100 .
<i>DTIM</i>	
The Access Point caches deliveries for its clients. Then a Delivery Traffic Indication Message (DTIM) informs the client about the delivery. The client prepares for receiving the messages.	Default: 2 .
<i>Transmitting Power</i>	
100%: 0 dB (Max. transmitting power / Default)	
50%: -3 dB	
12%: -9 dB	
6%: -12 dB (Min. transmitting power)	
<i>Threshold for RTS</i>	
Generally there is no need to change this value. If the flow of traffic becomes inconsistent, change the value within the range between 256 and 2,346. Default: 2346 .	
Note: If you have to change this value, do it in small steps and keep track of the effects.	
<i>Threshold for Fragmentation</i>	
Threshold for breaking down of data packets; measured in bytes. Data packets larger than 2,346 bytes are broken down before transmission. Generally there is no need to change this value, except for a huge packet error rate. Valid range between 256 and 2,346. Default: 2346	
Note: Choosing a low value for fragmentation may result in bad data transfer rates.	
<i>B/G Mode</i>	
Choose between all supported 802.1x standards to adjust the HorstBox as Access Point to all devices in your WLAN.	
- Mixed: All standards (default)	
- 802.11b only: only 802.11b	
- 802.11b+ only: only 802.11b+	
- 802.11g only: only 802.11g	

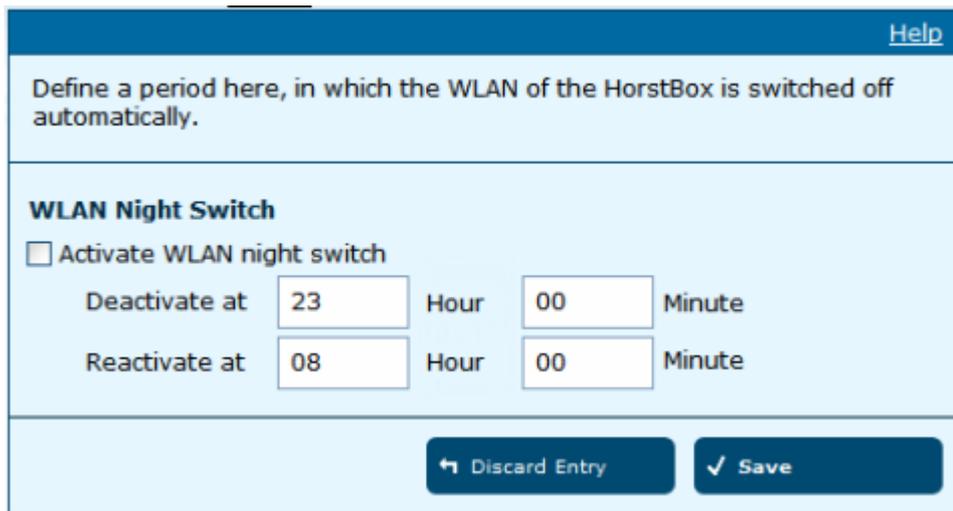
Table 6.4.: Options for WLAN Performance

6.7. WLAN Night Switch

Enter values for hour and minute in the fields DEACTIVATE AT and REACTIVATE AT. The HorstBox Professional will switch off/on the WLAN automatically at the time given.

To save the settings click on SAVE.

To discard all recent entries click on DISCARD ENTRY.



The screenshot shows a configuration page for the WLAN Night Switch. At the top right, there is a "Help" link. Below it, a light blue box contains the instruction: "Define a period here, in which the WLAN of the HorstBox is switched off automatically." The main section is titled "WLAN Night Switch" and contains a checkbox labeled "Activate WLAN night switch" which is currently unchecked. Below the checkbox, there are two rows of time selection controls. The first row is for "Deactivate at" with a "23" in the "Hour" field and "00" in the "Minute" field. The second row is for "Reactivate at" with a "08" in the "Hour" field and "00" in the "Minute" field. At the bottom right, there are two buttons: "Discard Entry" with a left-pointing arrow and "Save" with a checkmark.

Figure 6.23.: WLAN Night switch

Note: Best set the time settings to *Automatic (Simple Network Time Protocol)* on tab SYSTEM at page TIME.

6.8. Routing

Routing is based on the IP addresses of the network devices.

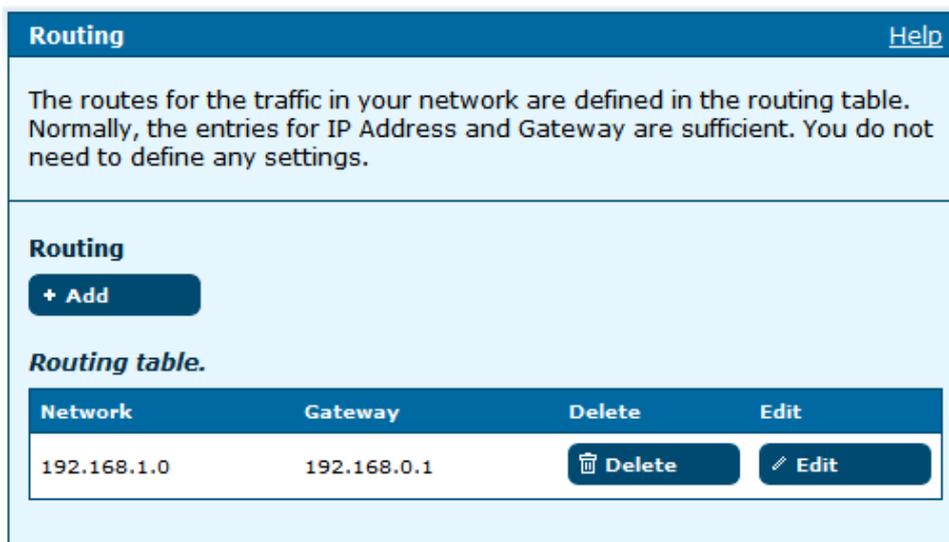


Figure 6.24.: Routing

Default: No settings necessary here.

Routing protocols specify the ways (routes) of data packets in your LAN and in the Internet. Normally all out-bound data packets from your LAN will be sent via a gateway, e.g. the HorstBox, to the server of your ISP and into the Internet accordingly.

As the Internet is based on packet-switching protocols, the way for each data packet is determined on every network knot anew.

Using Routing Tables you can assign routes for data packets into subnetworks of your LAN.

The Static Routing Method is simple and therefore often used. Each knot maintains a table with one line for every possible destination knot. Every line holds information about which connection is best, second, etc. and a weight.

If a data packet has to be routed to a certain destination knot a connection according to the information is chosen, depending on the weight information as a chance to choose especially this connection.

6.8.1. Add Route

To add a new route click on ADD.

Routing: Routing Entry - Add [Help](#)

The routes for the traffic in your network are defined in the routing table. Normally, the entries for IP Address and Gateway are sufficient. You do not need to define any settings.

Routing: Routing Entry

Destination IP Address

Destination Subnet Mask

Use Gateway

Gateway IP Address

Figure 6.25.: Add Route

Enter the destination IP address in the field DESTINATION IP ADDRESS, the subnet mask in the field SUBNET MASK and the IP address of the gateway in the field GATEWAY IP ADDRESS.

To save the new route click on SAVE.

If an error occurs you will see an error message (red frame).

Routing: Routing Entry - Add [Help](#)

Saving Error

Your entries contain the following errors:

- Invalid Gateway.
- The destination address and the subnet mask don't match.

Figure 6.26.: Error message

To cancel the dialog click on CANCEL. The previous page will be displayed.

6.8.2. Edit Route

To edit a route click on EDIT. The same dialog as for adding a route opens, but this time all fields contain values. To save the changes click on SAVE.

To cancel the dialog click on CANCEL. The previous page will be displayed.

Routing: Routing entry - Edit [Help](#)

The routes for the traffic in your network are defined in the routing table. Normally, the entries for IP Address and Gateway are sufficient. You do not need to define any settings.

Routing: Routing entry

Destination IP Address	<input type="text" value="192.168.1.0"/>
Destination subnet mask	<input type="text" value="255.255.255.0"/>
Gateway IP Address	<input type="text" value="192.168.0.1"/>

Figure 6.27.: Edit Route

6.8.3. Delete Route

To delete a route click on DELETE. Confirm the warning by again click on DELETE. The route will be deleted and the page ROUTING will open and display a message.

6.9. User Accounts for Network Shares

The HorstBox Professional is equipped with an USB master port at the back panel. You can attach any USB storage device, such as USB Memory Sticks or USB hard drives. Using a Card Reader memory cards like Compact Flash (CF) or Secure Digital (SD) will be recognized also. Even MP3 players, PDAs, digital cameras or mobile phones can be used as long as they operate as USB storage device. Supported file systems: FAT, FAT32 and EXT2.

Using an USB hub with an additional power supply (such as D-Link's DUB-H7) several devices can be attached concurrently.

Please be patient for a short moment while the HorstBox Professional detects and initialises the attached USB device.

Create user accounts for the *network shares* and decide, if you want to protect some shares through username and password or if any user within the LAN can access the share(s).

Network shares enable users to access folders and files on USB devices.

6.9.1. Add User Account

It is best to set up the users for the network shares according to the user management in your LAN.

To protect a network share set up a password.

To assign one network share to one user, set up this user (and a password).

To allow access for all users assign the guest account to this network share.

To add a new user account click on ADD.

Enter a user name and a password.

Note: You do not have to enter a password yet, but this share will be open to any user in your LAN who knows the user name for this share.

To save the settings click on SAVE.

To cancel the dialog click on CANCEL. The previous page will be displayed.

If an error occurs you will see an error message (red frame).

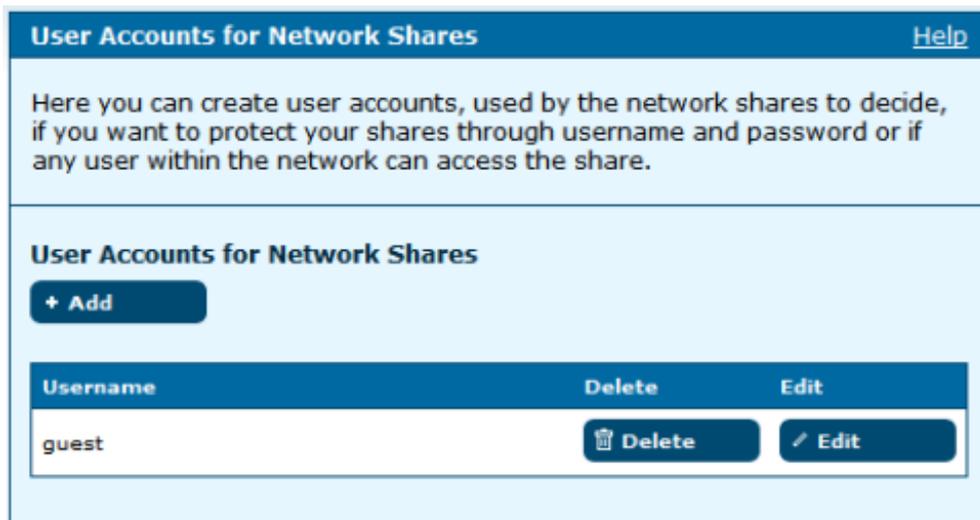


Figure 6.28.: User Accounts for Network Shares

User Accounts for Network Shares - Add [Help](#)

Please enter the username and password for the account.

User Accounts for Network Shares - Add

Username

Password

[X Cancel](#) [✓ Save](#)

Figure 6.29.: Add user account

User Accounts for Network Shares - Add [Help](#)

Saving Error

Your entries contain the following errors:

- The username is already in use.

Figure 6.30.: Error message

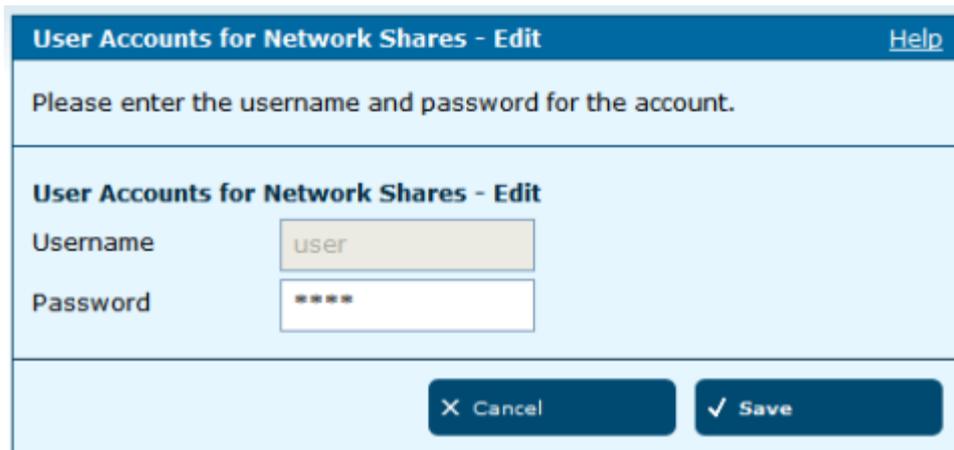
6.9.2. Edit User Account

To edit a user account, e.g. to change the password click on EDIT.

Change the password. The user name cannot be changed.

To save the settings click on SAVE.

To cancel the dialog click on CANCEL. The previous page will be displayed.



User Accounts for Network Shares - Edit [Help](#)

Please enter the username and password for the account.

User Accounts for Network Shares - Edit

Username

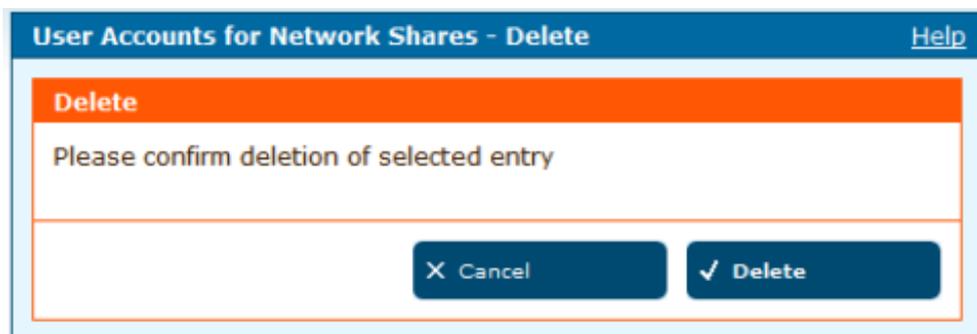
Password

Figure 6.31.: Edit User Account

Note: You do not have to enter a password yet, but this share will be open to any user in your LAN who knows the user name for this share.

6.9.3. Delete User Account

To delete a user account click on DELETE. Confirm the warning by again click on DELETE.



User Accounts for Network Shares - Delete [Help](#)

Delete

Please confirm deletion of selected entry

Figure 6.32.: Security warning

An error message occurs if a network share is still assigned to this user account.

Edit/Change the network share and delete the user account afterwards.

To cancel the dialog click on CANCEL. The previous page will be displayed.



Figure 6.33.: Error message

6.10. Network Shares

For more information about network shares and the HorstBox Professional see section [6.9 User Accounts for Network Shares](#) on p.123.

Attach the USB cable provided to the USB master port at the back panel of the HorstBox Professional.

To connect a USB device simply plug it into the connector of the cable. Please be patient for a short moment while the HorstBox detects and initialises the attached USB device.

6.10.1. Activate Network Shares

Before you can add network shares you have to activate the option *Activate Network Share* and to enter the name of your LAN workgroup. To save the settings click on **SAVE**.

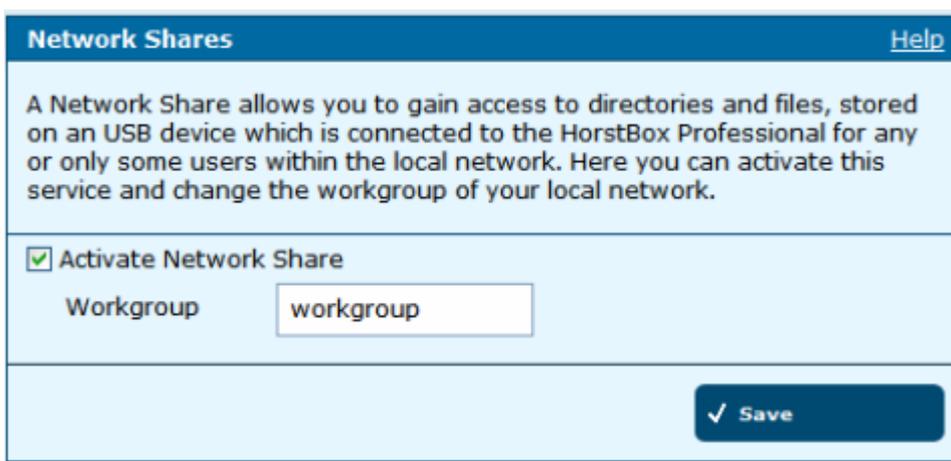


Figure 6.34.: Activate Network Shares

6.10.2. Add Network Shares

To add a new network share click on ADD.

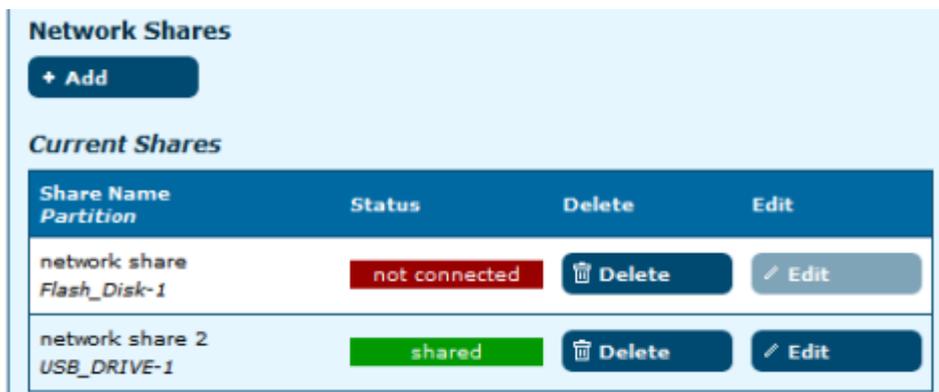


Figure 6.35.: Network Shares

Enter a name for the network share into the field SHARE NAME. This name will appear in the list Current Shares once the network share is set up.

Network Shares - Add [Help](#)

Please enter the name of the Network Share and select a user, who can access the share (Guest-Account = all). Also select the device to be shared and decide, whether the access should be readonly or not.

Network Shares - Add

Share Name

User

Partition

Write Access Yes No

Activate Share Yes No

Figure 6.36.: Add Network Shares

Choose a user from the drop-down list *User*.

Click on CHOOSE to choose a partition.

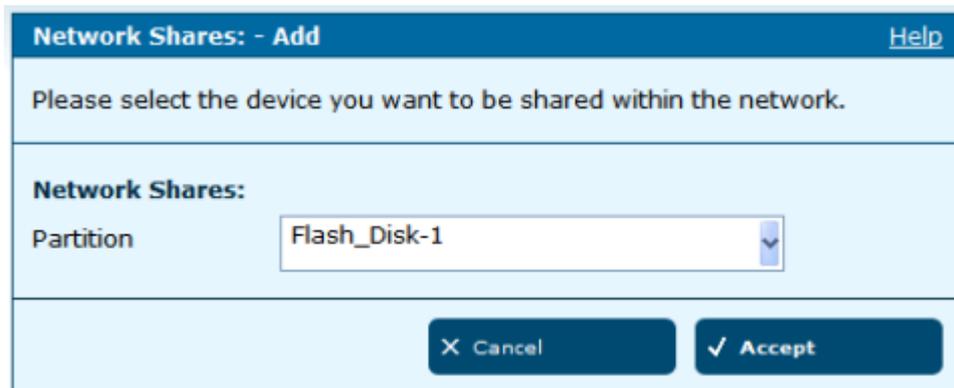


Figure 6.37.: Choose Partition

From the drop-down list *Partition* choose a device or a partition if several partitions are shown.

Click on ACCEPT.

Back on the previous page assign *Write Access*, if necessary. Otherwise users can only read the files.

Next decide whether to activate the share. You may set up network shares and enable them later.

To save the settings click on SAVE.

If an error occurs you will see an error message (red frame).

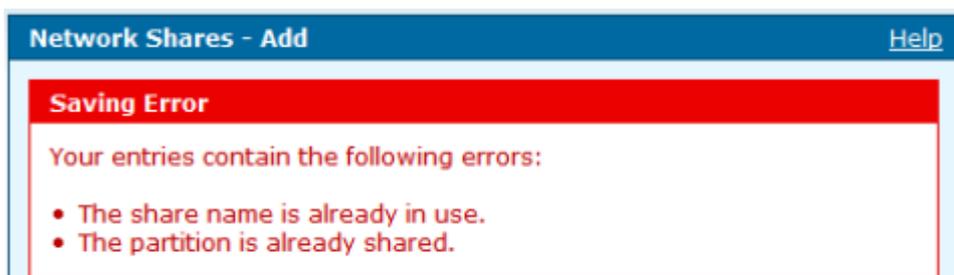


Figure 6.38.: Error message

Change the settings in the box with the red frame and again click on SAVE.

6.10.3. Edit Network Shares

To edit a network share click on EDIT.

Note: Network status with status “not connected” cannot be edited.

Network Shares - Edit [Help](#)

Please enter the name of the Network Share and select a user, who can access the share (Guest-Account = all). Also select the device to be shared and decide, whether the access should be readonly or not.

Network Shares - Edit

Share Name

User

Partition

Write Access Yes No

Activate Share Yes No

Figure 6.39.: Edit Network Shares

Edit the settings. To save the changes click on SAVE.

Network Shares [Help](#)

Saving completed

Your entries and changes have been saved.

Figure 6.40.: Saving completed

6.10.4. Delete Network Share

To delete a network share click on delete. Confirm the warning by again click on DELETE.

Saving successfully is reported in a green framed message.

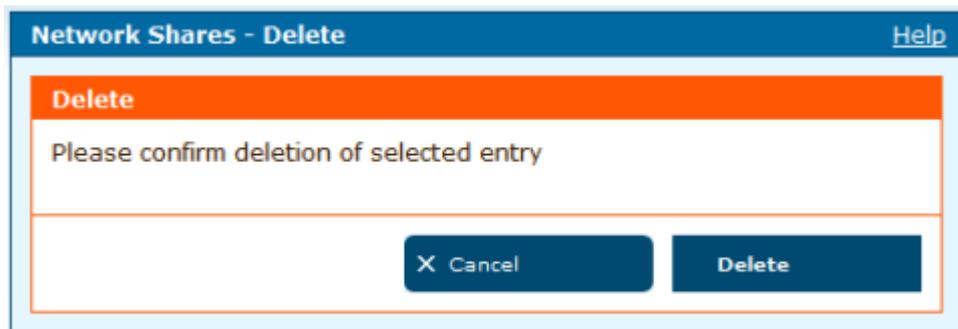


Figure 6.41.: Security warning



Figure 6.42.: Saving completed

6.10.5. Current Shares

This section shows all current shares, their share name and the partition and the status (not connected [red], not shared [yellow] or shared [green]). After each entry you may find DELETE and EDIT.

Note: Network shares with status “not connected” cannot be edited, but deleted.

6.10.6. How To Use Network Shares

Please refer to the documentation and/or online help on how to use network shares. You may attach a network share as a network drive or as a network resource.

6.11. Manage USB-Storage devices

6.11.1. Unmount USB Storage Device

Removing a USB device without unmounting it first may result in data losses, as the operating system may not have finished writing onto the device yet.

To unmount a USB device click on UNMOUNT.

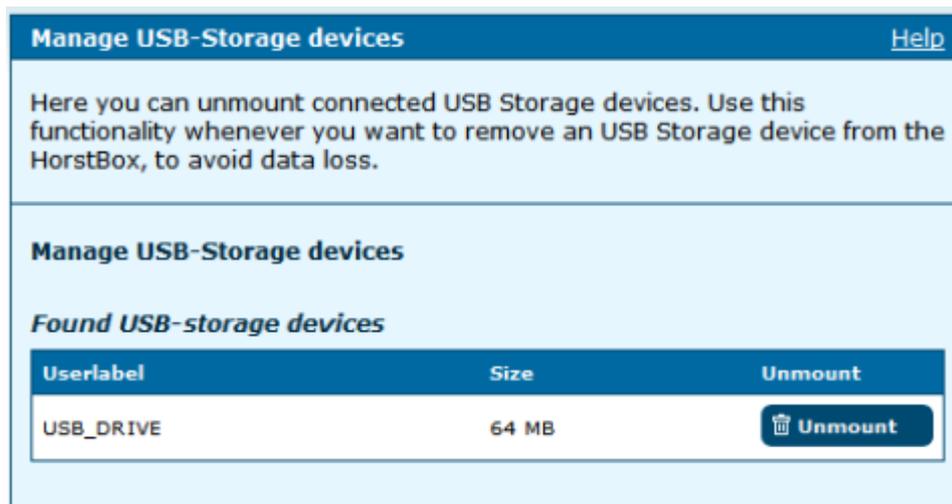


Figure 6.43.: Unmount USB Storage Device

Confirm the warning by again click on UNMOUNT.

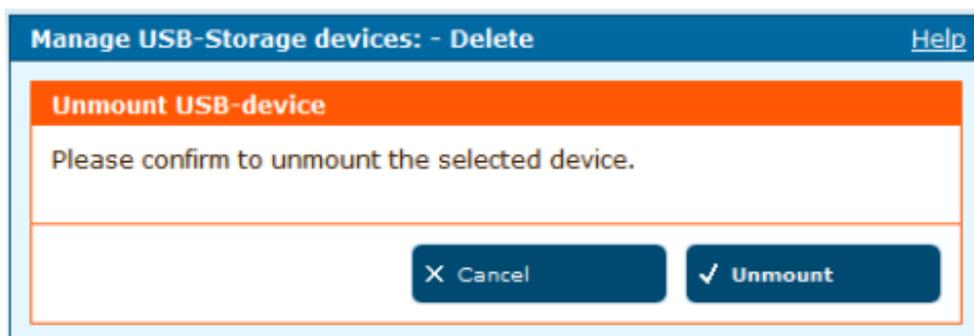


Figure 6.44.: Security warning

You may remove the USB device now.

6.12. USB Printer

The HorstBox Professional comes with a build-in printer server to share one printer in a LAN. This printer server supports most printers connected to the USB port, except GDI-printers¹ (host-based printers).

You may connect several USB printers via a USB hub.

Note: Only one USB printer may be shared at once.

6.12.1. Share USB Printer

Connect the USB printer to the USB port on the back panel of the HorstBox Professional. Please be patient for a short moment while the HorstBox Professional detects and initialises the attached USB printer.

Refresh the page SHARE USB PRINTER.

The printer will be shown in the section “Found Printer”

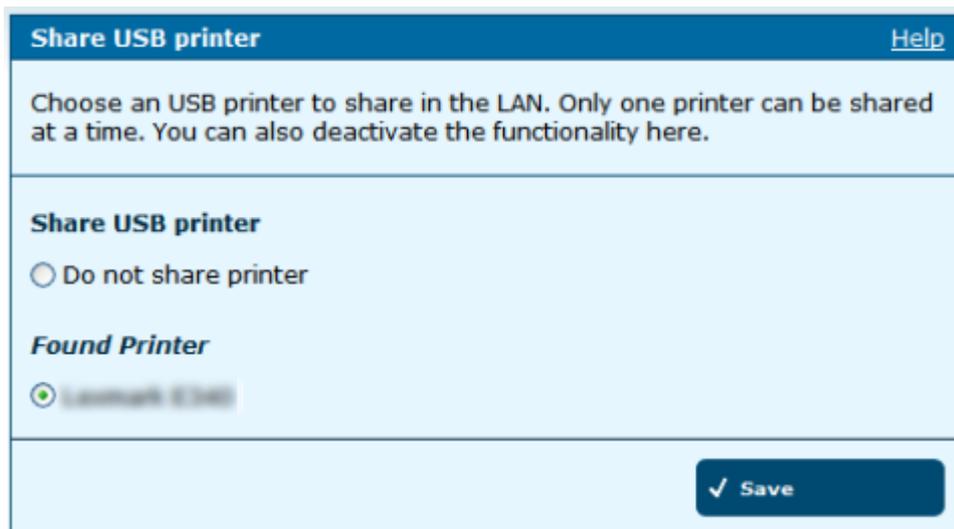


Figure 6.45.: Share USB Printer

Activate the printer and click on SAVE.

Note: Only one USB printer may be shared at once.

To save the settings click on SAVE.

If an error occurs you will see an error message (red frame).

Saving successfully is reported in a green framed message.

¹This printer uses a Windows API to preprocess the data.

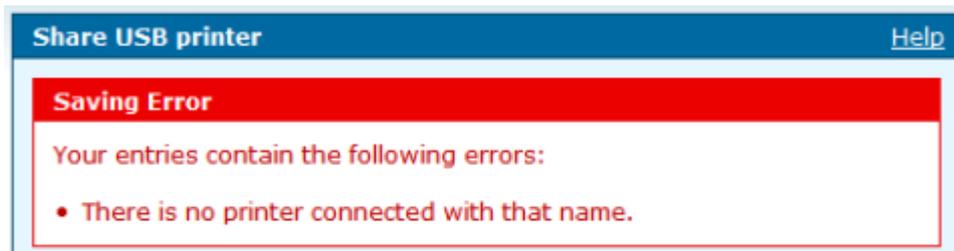


Figure 6.46.: Error message

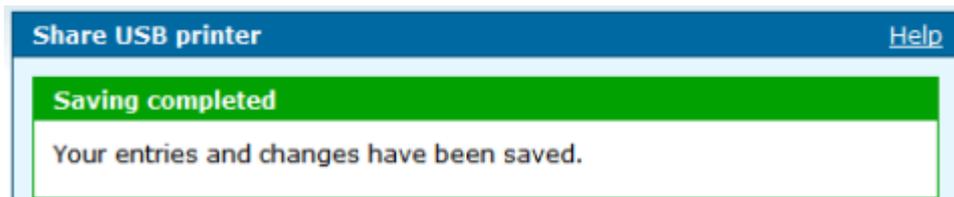


Figure 6.47.: Saving completed

6.12.2. Do Not Share USB Printer

If you just want to set up a USB printer now activate the option *Do not share printer*.

Note: Only one USB printer may be shared at once.

To save the settings click on SAVE.

7. System

Note: First thing to do: Change the password for the default user “admin”. Do not operate the HorstBox with the default password “admin”.

To navigate in the tab SYSTEM use the navigation column.

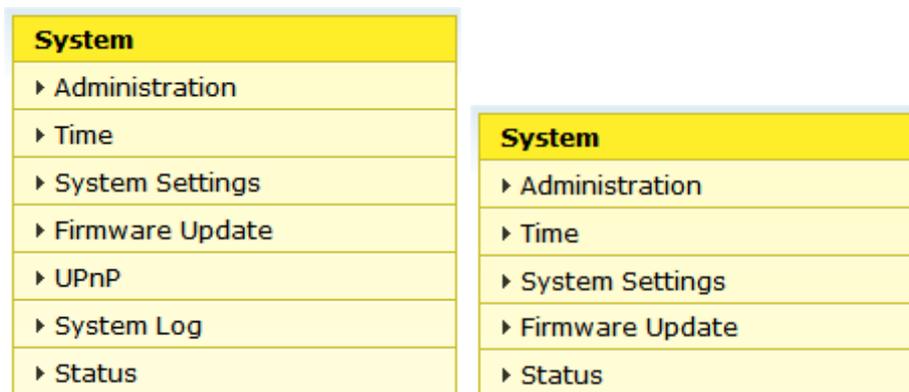


Figure 7.1.: Navigation column System (expert and basic mode)

7.1. Administration

7.1.1. Password

Without a valid password you can not manage the HorstBox. Resetting the device to the factory settings may solve the problem.

Enter a new password in the field PASSWORD and confirm it in the field CONFIRM.

A password will protect the HorstBox against unauthorized usage.

To save the settings click on SAVE.

To discard all recent entries click on DISCARD ENTRY.

Administration [Help](#)

Here you can change the password for the administrator.
The username (*admin*) can not be changed.

Administration

Login data

Username

Password

Confirm password

Port

Remote administration over HTTPS

Enable remote administration over HTTPS

IP Address

Subnet Mask

Figure 7.2.: Administration

7.1.2. Remote Administration

To administrate the HorstBox Professional via remote access activate the option *Enable remote administration over HTTPS*, enter the IP address and the subnet mask of the remote host.

To save the settings click on SAVE.

To discard all recent entries click on DISCARD ENTRY.

7.2. Time

Please make sure that the time is set correctly in order to ensure that your rules will be applied at the right time.

Note: It may happen that after a reboot all settings for date and time are lost. With the option *Automatic* activated, date and time will be set automatically. Otherwise you may have to change the settings manually.

Choose an option, if necessary enter the required data and click on **SAVE**.

Time [Help](#)

Please make sure that the time is set correctly in order to ensure that your rules will be applied to the right time.

Time

Time zone: Europe/Great Britain/London GMT

Automatic (Simple Network Time Protocol)
NTP server: ntp1.dlink.com

Synchronize the clock with your computer's clock.

06 February 2007 10:53:02

Manual - Please define your own settings.

Month: Feb
Day: 06
Year: 2007
Hour: 10
Minute: 53
Second: 02

[← Discard Entry](#) [✓ Save](#)

Figure 7.3.: Time Settings

To discard all recent entries click on **DISCARD ENTRY**. The option *Automatic* will (again) be activated.

7.2.1. Automatic (Simple Network Time Protocol)

Choose this option to synchronize date and time via a NTP server in the Internet. You may use the predefined NTP server `ntp1.dlink.com` or enter the name of another NTP server, e.g. `ntp.dlink.com.tw`.

7.2.2. Synchronize the clock with your computer

The recent date and time of your computer's clock is displayed. Activate this option to accept the values and synchronize the HorstBox with your computer.

7.2.3. Manual

Activate this option and enter the necessary values into the according field.

7.3. System Settings

All settings will be automatically saved to your HorstBox. There is no need to manually save or reboot. If you want to restart the device anyway, it is better done via the REBOOT.

System Settings Help	
<p>All settings will be automatically saved to your <i>HorstBox</i>. There is no need to manually save or reboot. If you want to restart the device anyway, it is better done via the "Reboot" button.</p>	
Save and Reboot	
Save all settings and reboot your <i>HorstBox</i> .	
<input type="button" value="✓ Reboot"/>	
Save System Settings	
Please save your configuration file with your current <i>HorstBox</i> system settings. Use the button "Save" to specify where the configuration file should be saved.	
<input type="button" value="✓ Save"/>	
Load System Settings	
Please select the configuration file by using the button "Search" in order to load it.	
<input type="text"/>	<input type="button" value="Browse..."/>
<input type="button" value="✓ Loading"/>	
Restore Default Settings	
Warning! When you select to restore the default settings you will lose any settings defined before.	
<input type="button" value="Restore"/>	

Figure 7.4.: System Settings

7.3.1. Save and Reboot

Click on REBOOT to save all recent changes and to reboot the HorstBox Professional.

7.3.2. Save System Settings

You may save the current system settings of your HorstBox Professional in a file on a hard disk (or another storage device). Use SAVE to specify where the configuration file should be saved.

7.3.3. Load System Settings

You may want to restore the settings you saved before. To do so, click on CHOOSE and in the next dialog choose a configuration file. Click on OPEN.

To load the configuration file into the HorstBox, click on LOAD.

The HorstBox now checks the chosen configuration file. Please note: Only configuration files saved whilst using the same firmware version can be restored.

Next the device reboots twice and loads the configuration file. Please be patient as the procedure may take up to 2 minutes.

7.3.4. Restore Default Settings

Restore the default settings if the HorstBox does not work properly after an abortive configuration.

Click on RESTORE.

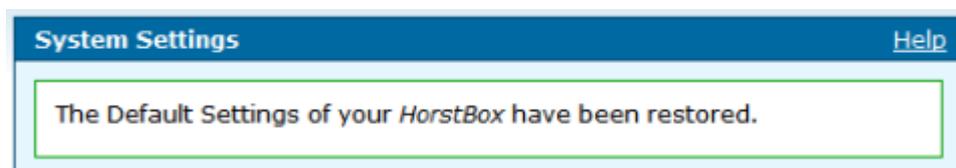


Figure 7.5.: Restore completed

If the admin's password is lost you no longer can manage the HorstBox. To reset the HorstBox use the reset switch at the back of the device.

- Press the reset switch for 5 seconds (see [fig.2.2 Back Panel of HorstBox Professional](#) on p. 19 for details).
- Release the switch.
- The HorstBox will reboot. This may take some minutes.
- Once the reboot is finished all settings are restored.
- To change the settings start the user interface in a browser, default IP address: **https://192.168.0.1**.
- Default user: *admin*
- Default password: *admin*

Note: When you select to restore the Default Settings you will lose any settings defined before. Take notes of all necessary settings before.

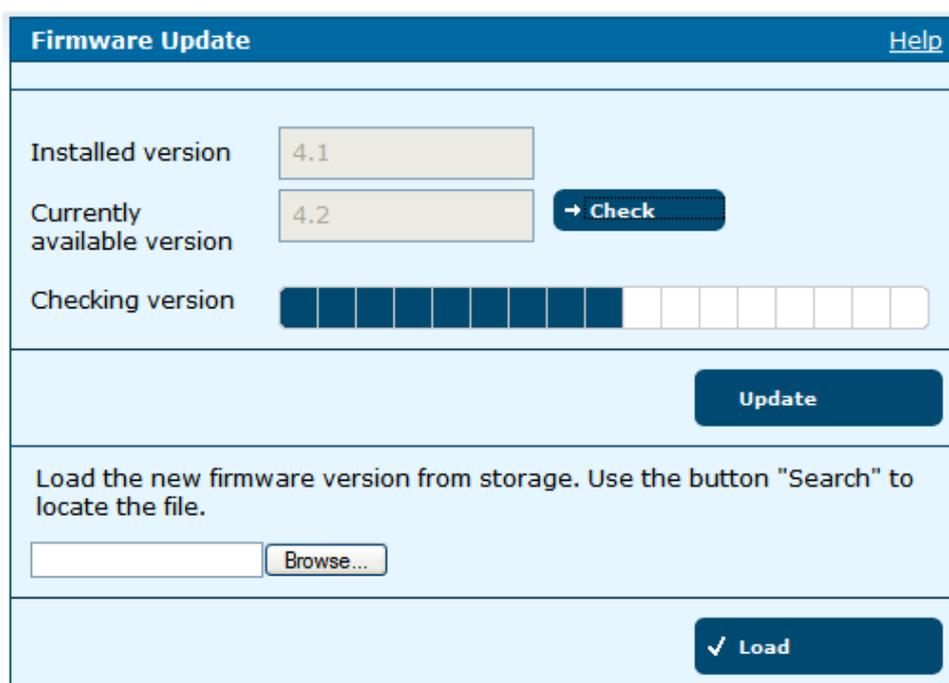
7.4. Firmware Update

You can update the firmware of the HorstBox Professional online or manually.

Note: Update the firmware at your own risk!
Do not interrupt the update procedure!

After the firmware update check the settings on the tab INTERNET, page DSL ACCESS. Keep track of the behaviour of the HorstBox Professional while online.

For security reasons always update the firmware via an ethernet connection (cable) only.



The screenshot displays the 'Firmware Update' web interface. At the top, there is a blue header with the title 'Firmware Update' and a 'Help' link. Below the header, the interface is divided into several sections. The first section shows 'Installed version' as 4.1 and 'Currently available version' as 4.2, with a '→ Check' button to the right. Below this is a 'Checking version' progress bar consisting of 10 segments, with the first 8 segments filled in dark blue. The second section contains an 'Update' button. The third section provides instructions: 'Load the new firmware version from storage. Use the button "Search" to locate the file.' Below the instructions is a text input field and a 'Browse...' button. The final section at the bottom features a '✓ Load' button.

Figure 7.6.: Firmware Update

7.4.1. Online Update

For an online firmware update you need an active internet connection.

Check Firmware Update

To check for a new version for the HorstBox click on the CHECK.

A new firmware version will have a higher version number than the installed version.

Run Firmware-Update

To update the firmware click on the UPDATE. The HorstBox will download and install the new firmware now.

Warning!
Never switch off the HorstBox Professional during a firmware update.

An error message occurs if no connection to the firmware server in the Internet could be established.

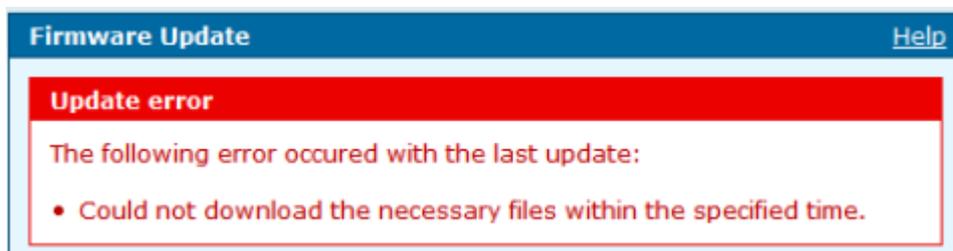


Figure 7.7.: Error message

7.4.2. Manuell Update

For a manual firmware update you need to download a firmware file first. Please obtain this file from D-Link's Web-Site only!

Locate Firmware File

Use SEARCH or BROWSE¹ to locate the new firmware file stored on your system. In the next dialog choose the firmware file. Click on OPEN.

¹The name of the button may vary, depending on the browser used.

Update Firmware

To update the firmware, click on **LOAD**. The HorstBox Professional first verifies the file and then starts the update procedure. This may take some minutes.

Warning!

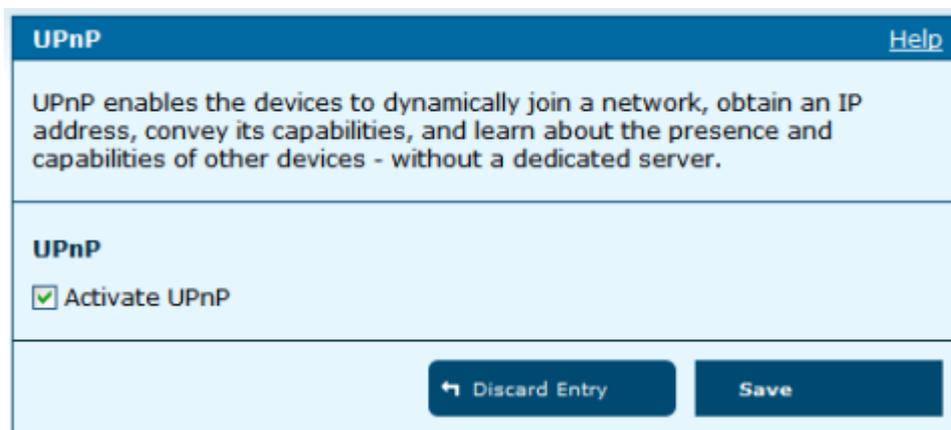
Never switch off the HorstBox Professional during a firmware update.

Once the firmware update is finished, the HorstBox Professional reboots to start the new firmware.

7.5. UPnP

UPnP (short for Universal Plug and Play) is based on a series of standard network protocols and file formats. Via UPnP various devices, e.g. stereo system, router, printer, can be controlled manufacturer spanning over an IP based network.

Default: deactivated



UPnP	Help
UPnP enables the devices to dynamically join a network, obtain an IP address, convey its capabilities, and learn about the presence and capabilities of other devices - without a dedicated server.	
UPnP	
<input checked="" type="checkbox"/> Activate UPnP	
<input type="button" value="Discard Entry"/> <input type="button" value="Save"/>	

Figure 7.8.: Activate UPnP

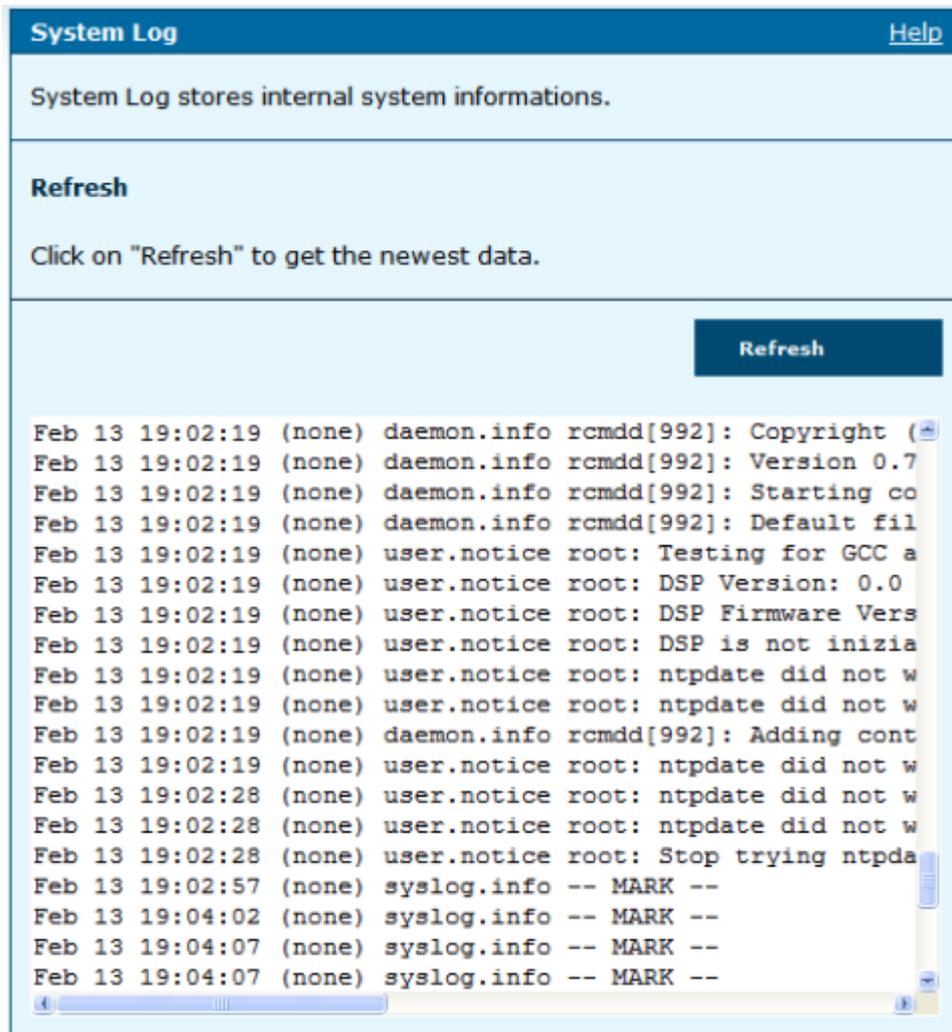
To use UPnP activate the option *Activate UPnP*. To save the settings click on **SAVE**.

The HorstBox Professional now acts as an UPnP device in your network.

7.6. System Log

System Log stores internal system informations. The messages may be helpful when trouble shooting or calling the support hotline.

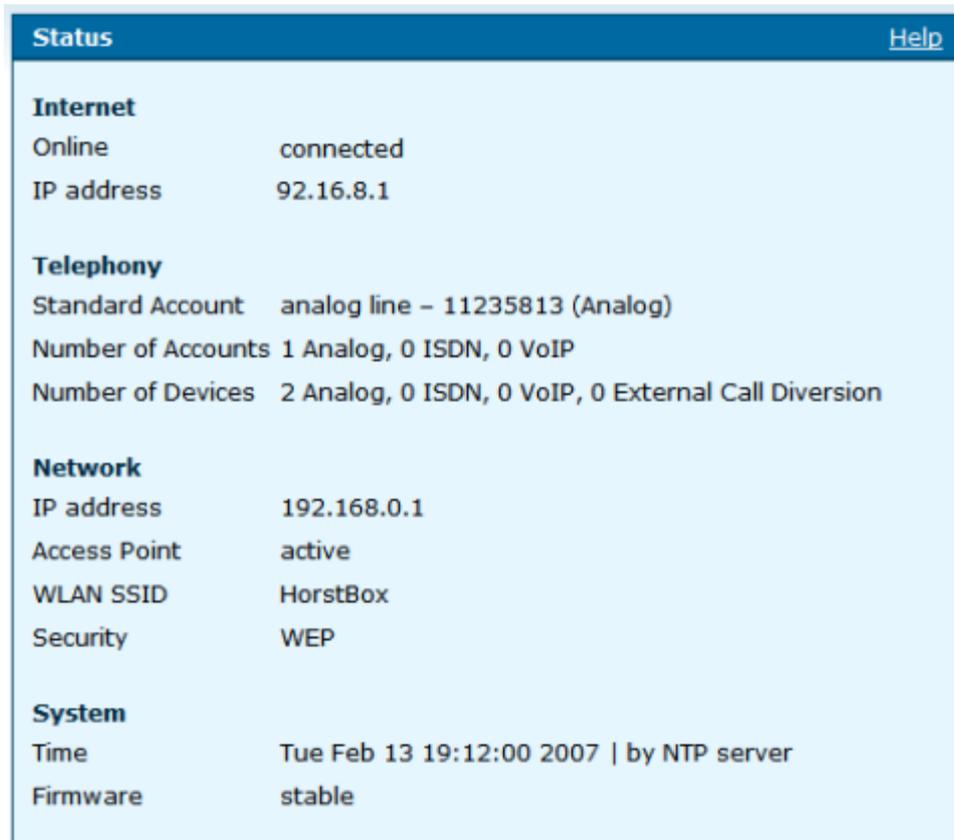
Click on REFRESH to get the newest data.



The screenshot shows a web-based interface for the System Log. At the top, there is a blue header bar with the text "System Log" on the left and a "Help" link on the right. Below the header, the main content area is divided into three sections. The first section contains the text "System Log stores internal system informations." The second section is titled "Refresh" and contains the instruction "Click on 'Refresh' to get the newest data." The third section features a dark blue "Refresh" button. Below the button is a scrollable text area displaying a list of log entries. Each entry follows the format: "Feb 13 19:02:19 (none) daemon.info rcmd[992]: Copyright (", "Feb 13 19:02:19 (none) daemon.info rcmd[992]: Version 0.7", "Feb 13 19:02:19 (none) daemon.info rcmd[992]: Starting co", "Feb 13 19:02:19 (none) daemon.info rcmd[992]: Default fil", "Feb 13 19:02:19 (none) user.notice root: Testing for GCC a", "Feb 13 19:02:19 (none) user.notice root: DSP Version: 0.0", "Feb 13 19:02:19 (none) user.notice root: DSP Firmware Vers", "Feb 13 19:02:19 (none) user.notice root: DSP is not inizia", "Feb 13 19:02:19 (none) user.notice root: ntpdate did not w", "Feb 13 19:02:19 (none) user.notice root: ntpdate did not w", "Feb 13 19:02:19 (none) daemon.info rcmd[992]: Adding cont", "Feb 13 19:02:19 (none) user.notice root: ntpdate did not w", "Feb 13 19:02:28 (none) user.notice root: ntpdate did not w", "Feb 13 19:02:28 (none) user.notice root: ntpdate did not w", "Feb 13 19:02:28 (none) user.notice root: Stop trying ntpda", "Feb 13 19:02:57 (none) syslog.info -- MARK --", "Feb 13 19:04:02 (none) syslog.info -- MARK --", "Feb 13 19:04:07 (none) syslog.info -- MARK --", "Feb 13 19:04:07 (none) syslog.info -- MARK --". The scrollable area has a vertical scrollbar on the right side.

Figure 7.9.: System Log

7.7. Status



Status		Help
Internet		
Online	connected	
IP address	92.16.8.1	
Telephony		
Standard Account	analog line – 11235813 (Analog)	
Number of Accounts	1 Analog, 0 ISDN, 0 VoIP	
Number of Devices	2 Analog, 0 ISDN, 0 VoIP, 0 External Call Diversion	
Network		
IP address	192.168.0.1	
Access Point	active	
WLAN SSID	HorstBox	
Security	WEP	
System		
Time	Tue Feb 13 19:12:00 2007 by NTP server	
Firmware	stable	

Figure 7.10.: System Status

The page STATUS offers information about your HorstBox Professional in four sections:

1. Internet: current connectivity status and external IP address;
2. Telephony: default accounts and devices;
3. Network: internal IP address, WLAN status, SSID and security settings;
4. System: current date and time, synchronization method and firmware version.

Note: To open the status page, click on the link in the top right corner or click on the D-Link logo.

8. Support

8.1. Wizard

The Wizard (see chapter [3 Wizard](#) on p.23) guides you step-by-step through the configuration of the HorstBox Professional.

8.2. Online Help

In the Online Help you can find some information about the settings on tabs and pages.

Clicking on the HELP tab opens an overview page of the Online Help. Choose a topic from the navigation column.



Figure 8.1.: Online Help: Overview

On each page you find a link to the online help in the topic header line.



Figure 8.2.: Link to Online Help on settings page

Clicking on the *Help* link on a single page will drop down the help topic for this page. Click on a header to get more information.

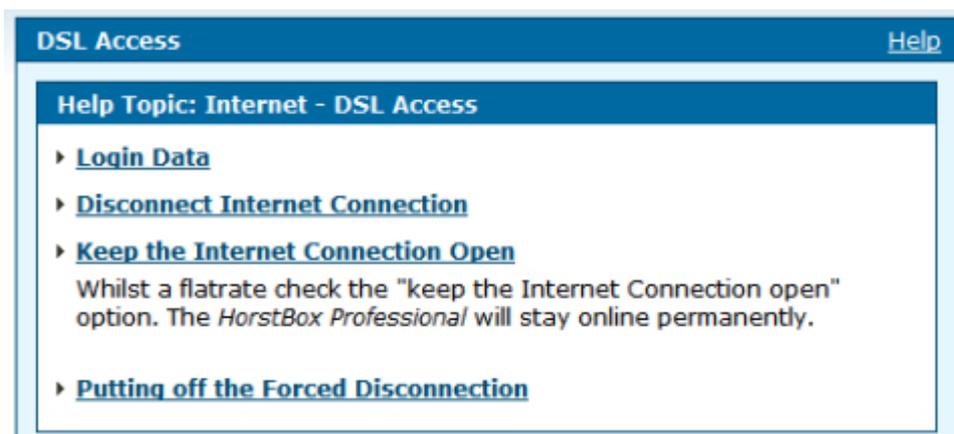


Figure 8.3.: Online Help: Text extended

A. Troubleshooting

This chapter provides solutions to problems that can occur during the installation and operation of the HorstBox Professional. For problems with your operating system please refer to the documentation provided.

Note: For security reasons configure the HorstBox via a network cable only. Do not use a WLAN connection.

A.1. No Access to User Interface

Check the power supply for the HorstBox. The *Power* LED should be on.

Check the LEDs for *LAN*. At least the port connected to the active computer should be on. Check whether the network cables are plugged in correctly.

Check whether the network card (NIC) is working.

Check the IP addresses and subnet masks. All IP addresses should belong to the same network segment, e.g. 192.168.0.x.

Note: Default IP address: <https://192.168.0.1>.

Two computers in a LAN using the same IP address will interfere each another and disturb the network traffic.

Try to ping all computers in your network.

Note: If the IP address of the HorstBox was changed, please ping the new IP address.

A.2. No Connection To Internet in Infrastructure Mode

Check the IP address of the WLAN client(s). Check IP address and subnet mask of the access point. Subnet mask All IP addresses must belong to the same network segment, e.g. 192.168.0.x.

Check that the WLAN client connects to the right access point and the desired WLAN.

Note: Default IP address of the HorstBox: <https://192.168.0.1>.

For how to set up a WLAN device to use a static IP address please refer to the documentation of the device.

When using a DNS server do not forget to enter the IP address of the default gateway. You may use the HorstBox as a DHCP server and assign IP addresses for the devices automatically.

Check router, default gateway and DNS server by sending ping commands. Please refer to the documentation provided by your ISP for the necessary IP addresses.

A.3. No Wireless Connectivity

Using D-Link (WLAN) products enables you to access your LAN and the Internet from almost any place. Please read the section [1.2 Installation Considerations](#) on p.11 and learn how to avoid certain circumstances that may lead to the loss of wireless connectivity.

A.3.1. How To Avoid Wireless Connectivity Losses

Reposition the antenna of the HorstBox. Keep at least a distance of 15cm to the next wall or big objects.

If you are using 2.4GHz cordless phones, X-10 equipment or other home security systems, ceiling fans, and lights, your wireless connection will degrade dramatically or drop altogether. Try changing the channel on your HorstBox, access point and wireless adapter to a different channel to avoid interference.

Keep your HorstBox Professional at least 1-2 metres (3-6 feet) away from electrical devices that generate RF noise, like microwaves, monitors, electric motors, etc.

A.3.2. Distance Issues

- Move the HorstBox and WLAN device into the same room and then test the wireless connection.
- Change the channels.
- Move the WLAN devices within the line of sight of the HorstBox.

A.3.3. Encryption

If you have enabled encryption on the HorstBox, you must also enable encryption on all wireless devices in the network in order to establish a wireless connection.

- The encryption settings are: 64-, 128- or 152-bit. Make sure that the encryption bit level is the same on the HorstBox and the WLAN client.
- Make sure that the SSID of the HorstBox and the WLAN device are exactly the same. If they are not, wireless connection will not be established.

A.3.4. Check WLAN Connection

- Make sure that the SSID on the HorstBox is exactly the same as the SSID on the WLAN device.
- Move the HorstBox and the WLAN device into the same room and then test the wireless connection.
- Disable all security settings. (WEP, WPA, MAC Address Control)
- Turn off your HorstBox and the WLAN device.
- Turn on the HorstBox, and then turn on the WLAN device.

A.3.5. Check Mode

- Check that all devices operate in *Infrastructure mode*.
- Check for correct IP address, subnet mask and gateway settings.

A.4. Key For Encryption Lost

Reset the HorstBox Professional to its factory default settings (See section [7.3.4 Restore Default Settings](#) on p.139). Reset the WLAN device(s) to the default settings.

Note: When you select to restore the Default Settings you will lose any settings defined before. Take notes of all necessary settings before.

A.5. An Analog Phone Does Not Work

Problem: An analog phone is connected to the HorstBox Professional, but the functional test of the wizard produces neither ringing, nor the voice message.

Solution: Some analog phones or answering machines come with their own set of cables, because the pins inside the socket are non-standard.

Use the adaptor (RJ11 plug to TAE sockets) provided to connect the original cable to the HorstBox Professional.

A.6. No Change to Basic or Expert Mode

Problem: After changing the Internet access type to *LAN* the link to change to basic mode disappeared.

Solution: The Internet access type *LAN* is only available in expert mode. So no change to basic mode is necessary.

To restore to basic mode, first change the Internet access type to *DSL*.

B. Specification

B.1. Specification: Hardware

Hardware		
WAN <ul style="list-style-type: none">- ADSL, ADSL2, ADSL2+- Downstream: bis zu 24MBit/s- Upstream : bis zu 1MBit/s- Standards:<ul style="list-style-type: none">ANSI T1.413 Issue 2ITU G.992.1 (G.dmt) Annex BITU G.992.2 (G.lite) Annex BITU G.994.1 (G.hs)ITU G.992.3 (G.dmt.bis) Annex BITU G.992.4 (G.lite.bis) Annex BITU G.992.5 Annex B	Routing <ul style="list-style-type: none">- Transparent Bridging- Dynamic Learning- Encapsulation- IPv4:<ul style="list-style-type: none">TCP/UDPARPRARPICMP- IP Routing- RiP v1- IP Static Routing- DHCP: Sever & Client- DNS	NAT <ul style="list-style-type: none">- NAT/NAPT- Port Forwarding- NAT ALGs- VPN Passthrough- DMZ
LAN <ul style="list-style-type: none">- 4 Port 10/100 MBits/s- MDI/MDX Auto sensing	PPP Support <ul style="list-style-type: none">- Point-to-Point Protocol- PPP over ATM- PPP over Ethernet- User Authentication	Configuration/Management <ul style="list-style-type: none">- Access Control- WEB-based Management- HTTPS- SNMP v.1 and v.2c- Sntp- Reset to Factory Defaults- UPnP 1.0- Diagnose- Configuration Backup/Restore
USB <ul style="list-style-type: none">- 1 Port USB 2.0 Master		
WLAN <ul style="list-style-type: none">- 54 Mbit WLAN- 802.11b- 802.11g	WLAN-AP Functiones <ul style="list-style-type: none">- ESS-ID- MAC Address Filter- 802.1x- WEP (Wired Equivalent Privacy)	Special Applications <ul style="list-style-type: none">- IGMP Proxy- IGMP Snooping
ATM/ADSL <ul style="list-style-type: none">- Multiple PVC- ATM Cell format- ATM Adaptation Layer- ATM Signaling- OAM Support- ATM QoS (Traffic Shaping)	Security <ul style="list-style-type: none">- Filtering- SPI- DOS Protection- QoS	Voice Features <ul style="list-style-type: none">CallControl for VoIP:<ul style="list-style-type: none">- SIP (RFC 3261)- H.323¹- MGCP¹- SCCP¹- IAX²

¹ Optional Codex

B.2. Spezifikation: Software

Software

- Linux Kernel 2.6 - Asterisk Version 1.2

B.3. Specification: Voice Codecs and SoftPbx

Voice Codecs

- G.711 (a-Law, μ -Law)
 - G.726
 - GSM
 - iLBC

SoftPbx

- Blind Transfer
 - Call Detail Records
 - Call Forward on Busy
 - Call Forward on No Answer
 - Call Forward Variable
 - Call Transfer
 - Call Waiting
 - Caller ID
 - Caller ID Blocking
 - Caller ID on Call Waiting
 - Do Not Disturb
 - Fax Transmit and Receive
 - Music On Transfer
 - Protocol Conversion
 - Remote Call Pickup
 - Three-way Calling
 - Time and Date
 - Transcoding
 - MF and DTMF Support
 - Dial by Name

B.4. Specification: Security and Emission

Certificates

- EN60950 - CE Class B - UL1950 - IEC60950
 - FCC Part15 Subpart CCE EN 300 328 - EMC Specification

B.5. Environmental

Environmental

- Operating temperature: 0°C to 40°C - Storage temperature: -20°C to 70°C
 - Humidity: 5% to 95% non-condensing

C. Technical Support

For technical support, updated documentation and recent firmware please visit D-Link's Web-Site in the Internet: <http://www.dlink.eu/>.

In the drop-down list select your country to be transfer to your national D-Link Web-Site.



Figure C.1.: <http://www.dlink.eu/>

Requesting technical support you need to have the following information ready:

- Model or Product name
- Serial number of device
- Firmware version
- Software type / Version number
- Hardware revision number
- Date of purchase

D. D-LINK Limited Product Warranty

General Terms

Nothing in this Limited Product Warranty affects your statutory rights as a consumer.

The Limited Product Warranty set forth below is given by D-LINK (Europe) Ltd. (herein referred to as "D-LINK"). This Limited Product Warranty is only effective upon presentation of the proof of purchase. Upon further request by D-LINK, this warranty card has to be presented, too.

EXCEPT AS EXPRESSLY SET FORTH IN THIS LIMITED WARRANTY, D-LINK MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. D-LINK EXPRESSLY DISCLAIMS ALL WARRANTIES NOT STATED IN THIS LIMITED WARRANTY. ANY IMPLIED WARRANTIES THAT MAY BE IMPOSED BY LAW ARE LIMITED IN DURATION TO THE LIMITED WARRANTY PERIOD.

TO THE EXTENT ALLOWED BY LOCAL LAW, THE REMEDIES IN THIS WARRANTY STATEMENT ARE CUSTOMER'S SOLE AND EXCLUSIVE REMEDIES. IN NO EVENT WILL D-LINK BE LIABLE FOR LOSS OF DATA OR FOR INDIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL (INCLUDING LOST PROFIT OR DATA), OR OTHER DAMAGE, WHETHER BASED IN CONTRACT, TORT, OR OTHERWISE. HOWEVER, NOTHING IN THIS AGREEMENT LIMITS D-LINK'S LIABILITY TO YOU (I) IN THE EVENT OF DEATH OR PERSONAL INJURY TO THE EXTENT RESULTING FROM D-LINK'S NEGLIGENCE, OR (II) TO THE EXTENT RESULTING FROM ANY FRAUDULENT MISREPRESENTATION ON THE PART OF D-LINK, OR (III) TO THE EXTENT ARISING UNDER PART 1 OF THE CONSUMER PROTECTION ACT 1987 OF THE UNITED KINGDOM.

SOME STATES OR COUNTRIES DO NOT ALLOW: (1) A DISCLAIMER OF IMPLIED WARRANTIES; (2) A LIMITATION ON HOW LONG AN IMPLIED WARRANTY LASTS OR THE EXCLUSION; OR (3) LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR CONSUMER PRODUCTS. IN SUCH STATES OR COUNTRIES, SOME EXCLUSIONS OR LIMITATIONS OF THIS LIMITED WARRANTY MAY NOT APPLY TO YOU. THIS LIMITED WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS. YOU MAY ALSO HAVE OTHER RIGHTS THAT MAY VARY FROM STATE TO STATE OR FROM COUNTRY TO COUNTRY. YOU ARE ADVISED TO CONSULT APPLICABLE STATE OR COUNTRY LAWS FOR A FULL DETERMINATION OF YOUR RIGHTS.

This Limited Product Warranty applies to D-LINK branded hardware products (collectively referred to as "D-LINK Hardware Products") sold by D-LINK (Europe) Ltd., its worldwide subsidiaries, affiliates, authorized resellers, or country distributors (collectively referred to as "D-LINK Resellers") with this Limited Product Warranty. The term "D-LINK Hardware Product" is limited to the hardware components and all its internal components including firmware. The term "D-LINK Hardware Product" DOES NOT include any software applications or programs.

Geographical Scope of the Limited Product Warranty

This Limited Product Warranty is applicable to Hardware Products sold by D-Link Resellers in all European Countries as listed in the addendum "European Countries for D-LINK Limited Product Warranty". The term "European Countries" in this D-LINK Limited Product Warranty only includes the countries as listed in this addendum. The Limited Product Warranty will be honoured in any country where D-LINK or its authorized service providers offer warranty service subject to the terms and conditions set forth in this Limited Product Warranty. However, warranty service availability and response times may vary from country to country and may also be subject to registration requirements.

Limitation of Product Warranty

D-LINK warrants that the products described below under normal use are free from material defects in materials and workmanship during the Limited Product Warranty Period set forth below ("Limited Product Warranty Period"), if the product is used and serviced in accordance with the user manual and other documentation provided to the purchaser at the time of purchase (or as amended from time to time). D-LINK does not warrant that the products will operate uninterrupted or error-free or that all deficiencies, errors, defects or non-conformities will be corrected.

This warranty shall not apply to problems resulting from: (a) unauthorised alterations or attachments; (b) negligence, abuse or misuse, including failure to operate the product in accordance with specifications or interface requirements; (c) improper handling; (d) failure of goods or services not obtained from D-LINK or not subject to a then-effective D-LINK warranty or maintenance agreement; (e) improper use or storage; or (f) fire, water, acts of God or other catastrophic events. This warranty shall also not apply to any particular product if any D-LINK serial number has been removed or defaced in any way.

D-LINK IS NOT RESPONSIBLE FOR DAMAGE THAT OCCURS AS A RESULT OF YOUR FAILURE TO FOLLOW THE INSTRUCTIONS FOR THE D-LINK HARDWARE PRODUCT.

Limited Product Warranty Period

The Limited Product Warranty Period starts on the date of purchase from D-LINK. Your dated sales or delivery receipt, showing the date of purchase of the product, is your proof of the purchase date. You may be required to provide proof of purchase as a condition of receiving warranty service. You are entitled to warranty service according to the terms and conditions of this document if a repair to your D-LINK branded hardware is required within the Limited Product Warranty Period.

This Limited Product Warranty extends only to the original end-user purchaser of this D-LINK Hardware Product and is not transferable to anyone who obtains ownership of the D-LINK Hardware Product from the original end-user purchaser.

Product Warranty Period Table

The warranty period stated in this Table supersedes and replaces the warranty period as stated in the user's manual for the relevant products.

Where products were purchased before 1 April 2007 please refer to footnotes in the table.

Product Type	Product Warranty Period
(where a 'Product Type' is discontinued during the 'Product Warranty Period' identified below, the Product Warranty Period shall be a maximum of two (2) years after the date of discontinuation.)	
Wireless Routers and Adapters with Built-in IEEE 802.11n Technology (excluding power supplies, internal fans and accessories) ⁴	Eleven (11) years
Smart Switches (excluding external power supplies, internal fans and accessories) ¹ Managed Switches (i.e. switches with built in SNMP agent, including modules and management software but excluding external power supplies, internal fans and accessories) Business Wireless Products (i.e. wireless switch family, outdoor wireless, metal chassis access points) (excluding external power supplies, internal fans and accessories) ¹ Firewall Security Appliances (excluding external power supplies, internal fans and accessories) DVA-G3342SD/DE (HorstBox) ²	Five (5) years
All other products (excluding external power supplies, internal fans and accessories) ³	Two (2) years
External power supplies, internal fans, adapters and accessories	One (1) year

Footnotes:

¹ All products within this category sold in European Countries by D-LINK Resellers from 1st January 2004 to 31st October 2006 carry 2 years warranty and those sold in any other period will carry 5 years warranty.

² All products within this category sold in European Countries by D-LINK Resellers prior to 1 April 2007 carry 2 years warranty.

³ All products within this category sold in European Countries by D-LINK Resellers after 1st January 2004 carry 2 years warranty and those sold before 1st January 2004 carry 5 years warranty.

⁴ All products within this category sold in European Countries by D-LINK Resellers carry 11 years warranty.

Performance of the Limited Product Warranty

If a product defect occurs, D-LINK's sole obligation shall be to repair or replace any defective D-Link Hardware Product free of charge to the original purchaser provided it is returned to an Authorized D-LINK Service Centre during the Limited Warranty Period. Such repair or replacement will be rendered by D-LINK at an Authorized D-LINK Service Centre. All component parts or hardware products that are replaced under this Limited Product Warranty become the property of D-LINK. The replacement part or product takes on the **remaining** Limited Warranty Period of the replaced part or product. The replacement product need not be new or of an identical make, model or part; D-LINK may in its discretion replace the defective product (or any part thereof) with any reconditioned equivalent (or superior) product in all material respects to the defective product.

Version level: Warranty Guide_v13a

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European Countries for D-LINK Limited Product Warranty

Albania	Andorra	Austria	Belarus
Belgium	Bosnia Herzegovina	Bulgaria	Croatia
Cyprus	Czech Republic	Denmark	Germany
Estonia	Finland	France	Greece
Great Britain	Hungary	Iceland	Italy
Latvia	Liechtenstein	Lithuania	Luxemburg
Malta	Macedonia	Moldova	Monaco
Netherlands	Norway	Poland	Portugal
Romania	Russia	San Marino	Serbia and Montenegro
Slovakia	Spain	Sweden	Switzerland
Turkey	Ukraine	Vatican	

Index

- A**
- Access Point..... 107
 - Access Type
 - DSL..... 83
 - LAN..... 85
 - Account..... 40–47
 - Add
 - analog..... 43
 - ISDN..... 43
 - VoIP..... 44
 - Analog
 - add..... 43
 - delete..... 46
 - edit..... 41
 - Define
 - Failover..... 64
 - Delete
 - analog..... 46
 - ISDN..... 46
 - VoIP..... 47
 - Edit
 - analog..... 41
 - Failover..... 64
 - ISDN..... 44
 - VoIP..... 46
 - Failover
 - define..... 64
 - edit..... 64
 - ISDN
 - add..... 43
 - delete..... 46
 - edit..... 44
 - VoIP
 - add..... 44
 - delete..... 47
 - edit..... 46
 - Add Analog Device..... 49
 - Administration..... 134–135
 - Password..... 134
 - Remote Administration..... 135
 - Analog Phone
 - Conference..... 79
 - No function..... 151
 - Analog phone port..... 19
 - Answer Call..... 80
 - Antenna port..... 19
- B**
- B/G Mode..... 118
 - Back Panel..... 19, 85
 - Basic Mode
 - No change..... 151
 - Basic mode..... 21, 82, 102, 134
 - Beacon Interval..... 118
 - Broadcast address..... 85
- C**
- Call
 - Answering..... 77
 - Parking..... 77
 - Transferring..... 77
 - Unpark..... 77
 - Call Rule
 - Add..... 60
 - Delete..... 62
 - Edit..... 62
 - Call Rules..... 60–62
 - Call Waiting..... 80
 - Caller ID Blocking..... 42, 44
 - CE Mark Warning..... 2
 - CF..... 123
 - Compact Flash..... 123
 - Conference
 - Telephone..... 79
 - Configuration..... 21, 146
 - Load..... 139
 - Save..... 139
 - Configure ISDN Device..... 53
 - Configure VoIP Device..... 57
 - Connections
 - In-bound..... 40
 - Out-bound..... 40
 - Connectivity..... 149
 - Connectivity status..... 145
 - Connectors..... 14
 - Copyright Statement..... 2
- D**
- Date..... 145
 - DDNS..... 88–89
 - DDNS account..... 89
 - Default Account..... 63
 - Change..... 63
 - Define..... 63
 - Default gateway..... 149, 150
 - Default IP address..... 20, 82, 103, 148, 149
 - Default password..... 134, 140
 - Default settings..... 150
 - Default subnet mask..... 103
 - Default user..... 140
 - Delivery Traffic Indication Message..... 118
 - Deny DHCP..... 94
 - Deny DNS..... 94
 - Deny FTP..... 94
 - Deny ICMP..... 94
 - Deny IKE..... 94
 - Deny Pings..... 94
 - Deny RIP..... 94
 - Deny SIP phones..... 94
 - Deny Telnet..... 94
 - Description..... 17
 - Device
 - Add

- analog 47
 - external diversion 57
 - ISDN 51
 - VoIP 54
 - Analog
 - add 47
 - delete 59
 - edit 51
 - Call Diversion
 - add 57
 - delete 59
 - edit 57
 - Configure
 - ISDN 53
 - VoIP 57
 - Delete
 - analog 59
 - Call diversion 59
 - ISDN 59
 - VoIP 59
 - Edit
 - analog 51
 - Call diversion 57
 - ISDN 53
 - VoIP 55
 - ISDN
 - add 51
 - configure 53
 - delete 59
 - edit 53
 - VoIP
 - add 54
 - autoprovisionierung 55
 - configure 57
 - delete 59
 - edit 55
 - Devices 47–59
 - DHCP 85
 - DHCP Server 104–106
 - Edit settings 106
 - Set up 104
 - DHCP server 20, 149
 - Dial Rule
 - Add 64
 - Delete 66
 - Dial Rules 63–69
 - Edit 66
 - Distance issues 149
 - DMZ 95–96
 - DND 79
 - DNS 87, 88
 - DNS Relay 89
 - DNS server 149
 - DNS-Server 85
 - Do Not Disturb 79
 - Domain Name Service 87
 - DoS attacks 94
 - DoS protection 94
 - DSL port 19
 - DTIM 118
 - Dynamic DNS 88
 - Dynamic IP address 88
- E**
- Emission 153
 - Encryption 150
 - Environmental 153
 - Ethernet port 19
 - Expert Mode 85
 - No change 151
 - Expert mode 21, 82, 85, 134
 - Additional settings 85
 - Exposed Host (DMZ) 95
 - EXT2 123
 - External Calls 78
 - External IP address 145
 - External MSN 40
 - External network
 - Deny DHCP 94
 - Deny DNS 94
 - Deny IKE 94
 - Deny Pings 94
 - Deny RIP 94
 - Deny SIP 94
 - Deny Telnet 94
- F**
- FAT 123
 - FAT32 123
 - FCC Caution 2
 - FCC Radiation Exposure Statement 2
 - FCC Statement 2
 - File system 123
 - Filter 90–92
 - Add 90
 - Delete 92
 - Edit 92
 - Filtering services 94
 - FIN/URG/PSH attacks 94
 - Firewall 93–94
 - DoS protection 94
 - Filtering services 94
 - deny DHCP 94
 - deny DNS 94
 - deny FTP 94
 - deny ICMP 94
 - deny IKE 94
 - deny Pings 94
 - deny RIP 94
 - deny SIP 94
 - deny Telnet 94
 - FIN/URG/PSH attacks 94
 - ICMP redirection 94
 - Port scan 94
 - SYN Flooding 94
 - SYN/FIN attack 94
 - SYN/RST attacks 94
 - Xmas tree attacks 94
 - Zero scan attacks 94
 - Firmware Update 141
 - Check 141
 - Load 143
 - Locate 142
 - Manuell 142
 - Online 141
 - Run 142
 - Firmware update 143
 - Firmware version 145
 - Fragmentation threshold 118
 - Front Panel 17

- G**
- Gateway 85, 149, 150
 - IP address 121
 - Getting Started 16–22
 - Group Key Interval 109
 - Guest account 123
- H**
- Hex Value 109
 - How To Avoid Wireless Connectivity Losses... 149
 - How To Telephone 77–81
 - Answering 77
 - Call Waiting 80
 - Control
 - PBX 81
 - DND 79
 - Do Not Disturb 79
 - activate 79
 - deactivate 80
 - External Calls 78
 - Internal Calls 78
 - Parking Call 77
 - Speed Dialing 78
 - Telephone Conference 79
 - Three-Way Calling 80
 - Transferring 77
 - Unpark Call 77
 - Vanity Number 78
- I**
- ICMP redirection 94
 - Icon 49
 - In-bound connections 40
 - Infrastructure mode 148, 150
 - Installation 20–22
 - Installation Considerations.. 10, 11, 20, 116, 149
 - Internal Calls 78
 - Internal IP address 145
 - Internal MSN 52–54, 57, 74, 78
 - Internal network
 - Deny ICMP 94
 - Internet 82–101, 145
 - Internet Access 82–86
 - IP address 21, 85, 99, 109, 148, 150
 - Default 103, 149
 - Dynamic 88
 - External 145
 - Gateway 121
 - Internal 145
 - Local 95
 - Same 148
 - Static 106, 149
 - Unique 103
 - IP settings 103–104
 - ISDN
 - MSN 52, 53, 78
 - ISDN Phone
 - Conference 79
 - ISDN port 19
- K**
- Key combinations 81
 - Key Strength 109
- L**
- Lease Time 104
- Least-Cost-Routing 63, 67
 - Modifier 67
 - Prefix 67
 - Limited Lifetime Warranty 158
 - Limited Product Warranty 155
 - Local IP address 95
 - Log
 - Phone 75
 - System 144
 - Login data 83
 - Login details 25
 - Lost key 150
 - Lost radio connectivity 149
- M**
- MAC Address Control 150
 - Mode
 - B/G 118
 - Basic 21, 82, 102, 134
 - DNS 87
 - Expert 21, 82, 85, 102, 134
 - Infrastructure 148, 150
 - No change 151
 - Modulation 85
 - MRU 83, 85
 - MSN
 - External 40
 - Internal 52–54, 57, 74, 78
 - ISDN 52, 53, 78
 - TAPI 74
 - VoIP 54, 57, 78
 - MTU 83, 85
 - Multiple SSID 114
- N**
- Navigation column 21
 - Help 146
 - Internet 82
 - Network 102
 - System 134
 - Telephony 40
 - Network 102–133, 145
 - Network interface card 20
 - Network name 107
 - Network segment 148
 - Network shares 126–130
 - Activate 126
 - Add 127
 - Delete 129
 - Edit 128
 - User account 123
 - add 123
 - delete 125
 - edit 124
 - NIC 20
 - Night switch 118
 - No analog phone 151
 - No Internet (Infrastructure Mode) 148
 - No User Interface 148
 - No wireless connection 149
 - None 108
 - NTBA 15
 - NTP server 83, 137
- O**
- Online Help 146

- Out-bound connections 40
- P**
- Packet error rate 118
- Page
 - Administration 55
 - Call Rules 60
 - DHCP Server 87
 - Dial Rules 49, 52, 55, 66
 - DNS 105
 - DSL Access 141
 - Filter 92
 - Lines and Accounts 46, 47
 - Multiple WLAN SSIDs 116
 - Phones and Devices 59
 - Routing 122
 - Share USB Printer 102, 132
 - Speed Dialing 71
 - Status 76, 145
 - Time 83
 - Virtual Server 101
 - WLAN 102
 - WLAN Access Rules 102, 113
- Password 25, 45, 83, 89, 109, 123, 134
- Password protection 38
- PBX 29, 81
- Phone
 - Manual 40
 - No function 151
- Phone Log 75
 - Delete 75
- Phone Number 69
- Phone Status 76
- Phones 47-59
- Port 14-15
 - Analog phone 14, 19
 - Antenna 19
 - DSL 19
 - Ethernet 14, 19
 - ISDN 14
 - ISN 19
 - Power 19
 - USB 19
 - VoIP 14
 - WAN 14, 19
- Port number 109
- Port scan protection 94
- Port scans 94
- Power adaptor 3
- Power port 19
- Pre-Shared-Key 109
- Preparations 20
- Preselection 68
 - Modifier 68
 - Prefix 68
- Printer server 132
- Protocol 99
- PSK 109
- R**
- Reboot 88, 89, 96, 97, 104, 106, 115, 139
- Reject Call 80
- Remote Administration 135
- Reset switch 19, 140
- Restore Default Settings 139, 150
- RIP 96-97
- RJ11 19
- RJ45 19
- Routing 120-122
 - Add route 120
 - Delete route 122
 - Edit route 121
- Routing Information Protocol 96
- RP-SMA 19
- RTS threshold 118
- S**
- Safety Instructions 3-4
- Save and Reboot 139
- SD 123
- Secure Digital 123
- Security 153
- Security settings
 - None 108
 - WEP 108
 - WPA 108
- Shipment 16
- Signal Interval 118
- Simple Network Time Protocol 137
- SNOM 55
- Specification
 - Hardware 152
 - SoftPbx 153
 - Software 153
 - Voice Codecs 153
- Speed Dialing 69-71, 78
 - Add 69
 - Delete 71
 - Edit 70
- SSID 107, 145
- Static IP address 106, 149
- Status 76, 145
- Status page 39, 145
- Subnet mask 85, 103, 148, 150
- Support 146-147
 - Online Help 146
- SYN Flooding 94
- SYN/FIN attack 94
- SYN/RST attacks 94
- Synchronization method 145
- System 134-145
- System log 144
- System settings 138-140
 - Load 139
 - Reboot 139
 - Restore default settings 139
 - Save 139
- System time 83
- T**
- Tab
 - Call Rules 40
 - Dial Rules 40
 - Help 146
 - Internet 105, 141
 - Network 82, 87, 102
 - Phones and Devices 40
 - System 55, 83, 134
 - Telephony 40
- TAPI 72-74

- Activate 72
 - Configure 72
 - Deactivate 73
 - MSN 74
 - Using 74
 - TAPI client 74
 - Device label 73
 - TAPI Driver
 - Install 74
 - TAPI phone 72
 - TAPI-Interface enabled 72, 73
 - Technical Data 153
 - Technical Support 154
 - Telephone conference 79
 - Analog 79
 - ISDN 79
 - Telephony 40–81, 145
 - Telephony Application Programming Interface 72
 - Temporal Key Integrity Protocol 109
 - Three-Way Calling 80
 - Threshold
 - Fragmentation 118
 - RTS 118
 - Time 136–137, 145
 - TKIP 109
 - Trademarks 3
 - Transmitting Power 118
 - Troubleshooting 148–151
- U**
- Unique IP address 103
 - Universal Plug and Play 143
 - UPnP 143
 - USB
 - File system 123
 - USB cable 126
 - USB device 123, 126
 - USB hard drives 123
 - USB master port 123, 126
 - USB Memory Sticks 123
 - USB port 19, 132
 - USB printer 132–133
 - No share 133
 - Share 132–133
 - USB storage device 123, 131
 - Delete 131
 - Manage 131
 - Unmount 131
 - User accounts for network shares 123–125
 - User authentication 109
 - Username 25, 45, 83, 89
- V**
- Vanity Number 69–71, 78
 - Add 69
 - Delete 71
 - Edit 70
 - VCI 83, 85
 - Virtual Server 97–101
 - Add rule 98
 - Apply rules 99
 - Delete assignment 101
 - Delete rule 101
 - VoIP
 - Autoprovisionierung 55
 - MSN 54, 57, 78
 - VPI 83, 85
- W**
- WAN port 19
 - Warrantor 158
 - Warranty 155
 - WEP 108, 150
 - Wizard 23–39, 146
 - Antenna 27
 - External phone line 34
 - Finish 39
 - Internet connection 24
 - Login details 25
 - Overview 23
 - Password protection 38
 - Phone numbers 35
 - Security settings 28
 - SSID 27
 - System 37
 - Telephony 29
 - Time settings 26
 - VoIP 35
 - WLAN 27
 - WLAN name 27
 - WLAN 107–119, 148
 - Access rule 111
 - add 111
 - delete 113
 - edit 113
 - Activate 107
 - B/G Mode 118
 - Beacon Interval 118
 - Deactivate 111
 - DTIM 118
 - Fragmentation 118
 - Multiple SSID 114
 - add 114
 - delete 116
 - edit 115
 - Night switch 118
 - Performance 116
 - RTS 118
 - Security settings 108
 - None 108
 - WEP 108
 - WPA 108, 109
 - Settings 107
 - Signal Interval 118
 - Transmitting power 118
 - WLAN Access Point 107
 - WLAN client 148
 - WLAN connection 149
 - Check 150
 - WLAN device 149
 - WLAN settings 107
 - WLAN status 145
 - WPA 108, 150
- X**
- Xmas tree attacks 94
- Z**
- Zero scan attacks 94