D-Link®
Building Networks for People

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.

Copyright Statement

 (Service level: August 10, 2007)

Trademarks

Mark Ups

Mark Up	Function	Example
Small caps	Buttons, Links, Name of tabs or pages	NEXT Tab TELEPHONY
Italics	Options	*base* or *expert mode*
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

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 funcionality 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.

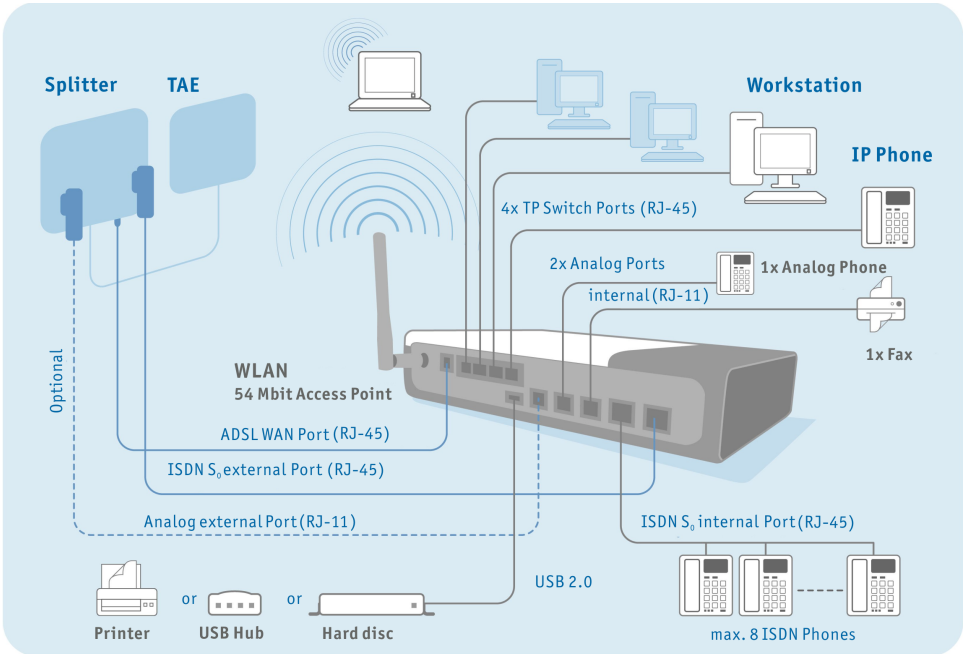
1.4.2. ISDN

The HorstBox Professional provides one port for an ISDN device (internal S_0-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 S_0-Bus.[1] The HorstBox Professional administrates up to 20 different ISDN devices.

Note: For an ISDN line connect the NTBA with the port "S_0 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 NTBA[2]and NTBA to port “S0 Ext” on the HorstBox Professional.

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

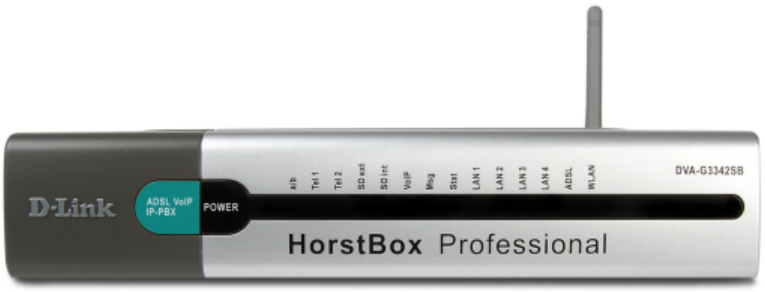


Figure 2.1.: HorstBox Professional Front Panel

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.
S_0 ext	*Communication on external S_0-Bus*	
	Off	No activity on interface.
	Blinking	Activity on interface.
	On	HorstBox connected to ISDN.

Name	LED	Function
S_0 int	*Communication on internal S_0-Bus*	
	Off	No activity on interface.
	Blinking	Activity on interface.
	On	ISDN phone connected to HorstBox.
VoIP	*Communication on VoIP connection*	
	Off	No activity on interface.
	Blinking	Activity on interface.
	On	VoIP account registered successfully or VoIP account online.
Msg		
	Off	
	Blinking	
	On	
Stat	*Status of HorstBox*	
	Off	HorstBox is not ready.
	Blinking	HorstBox is booting up.
	On	HorstBox is ready.
LAN 1-4	*Communication over LAN 1-4*	
	Off	No device(s) connected.
	Blinking	Activity on interface.
	On	Devices connected to interface.
ADSL	*Communication over ADSL*	
	Off	HorstBox not connected to DSL network.
	Blinking	Activity on interface.
	On	HorstBox connected to DSL network.
WLAN	*Communication over WLAN*	
	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.

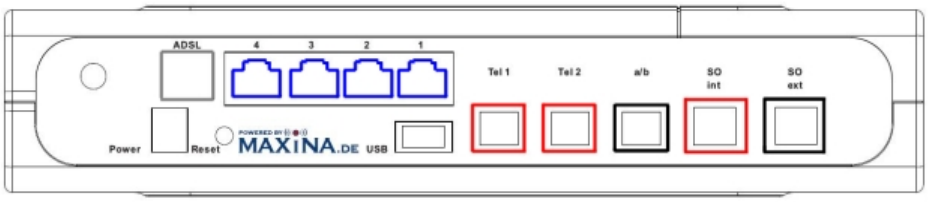


Figure 2.2.: Back Panel of HorstBox Professional

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 Professionalafter 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.

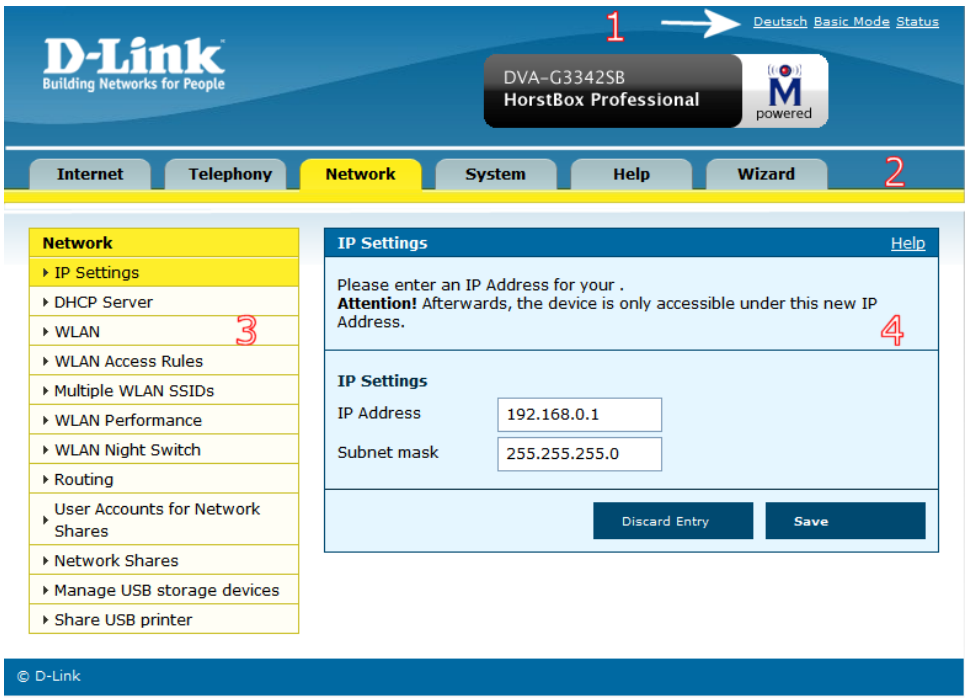


Figure 2.3.: Graphical User Interface

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.

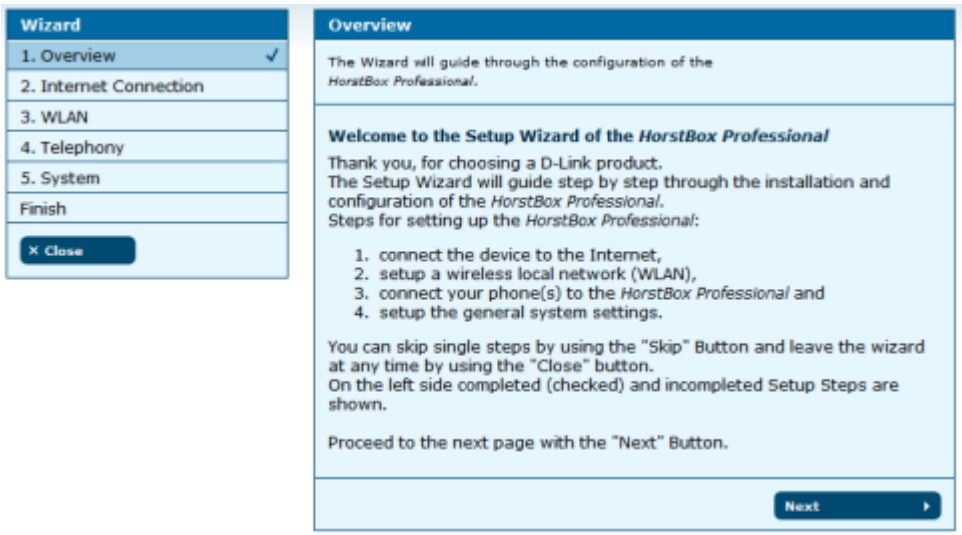


Figure 3.1.: Wizard Overview

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.

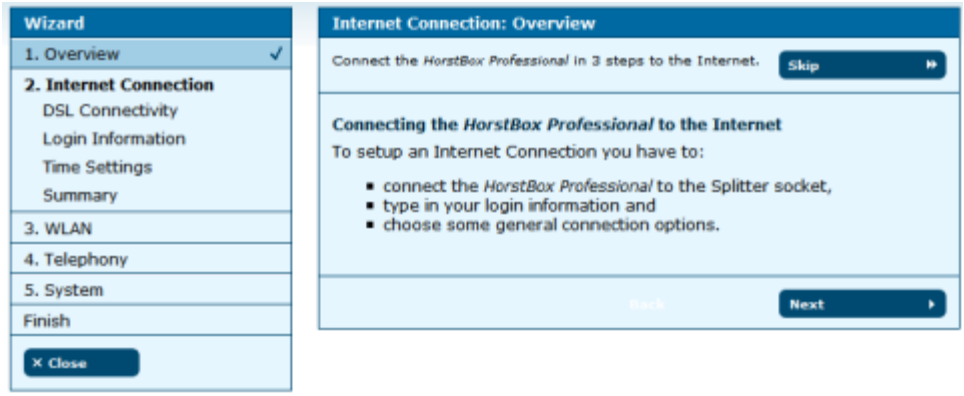


Figure 3.2.: Internet Connection: Overview

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

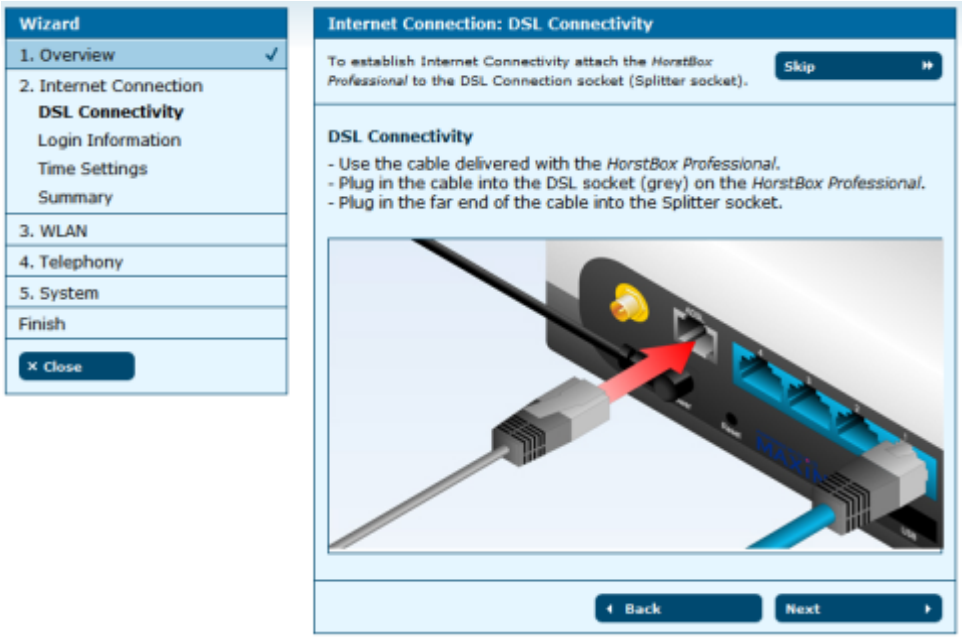


Figure 3.3.: Internet Connection: DSL Connectivity

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.

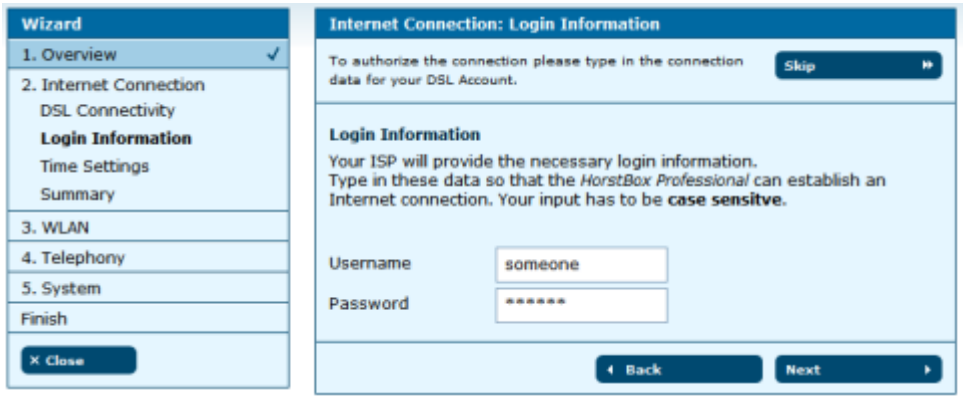


Figure 3.4.: Internet Connection: Login details

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 sensitve.

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

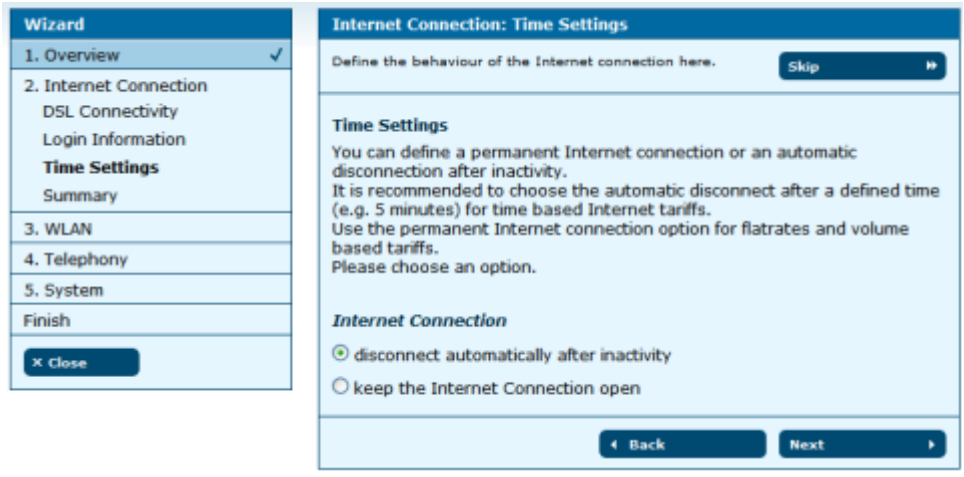


Figure 3.5.: Internet Connection: Time Settings

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.

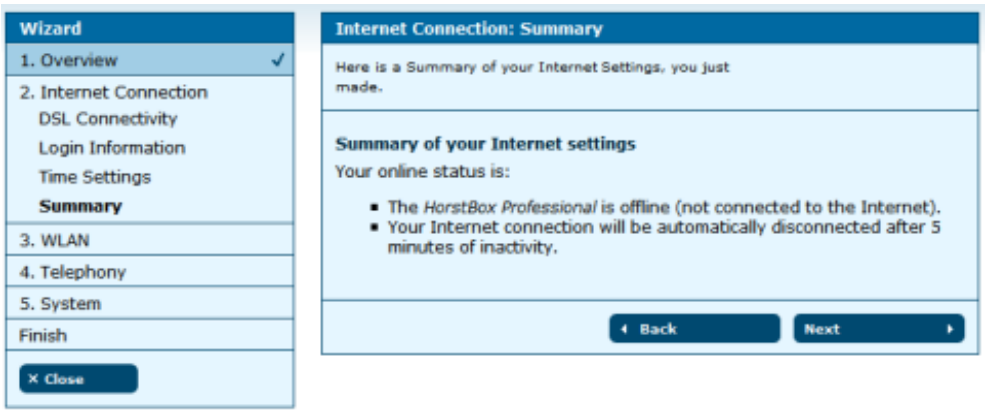


Figure 3.6.: Internet Connection: Summary

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.

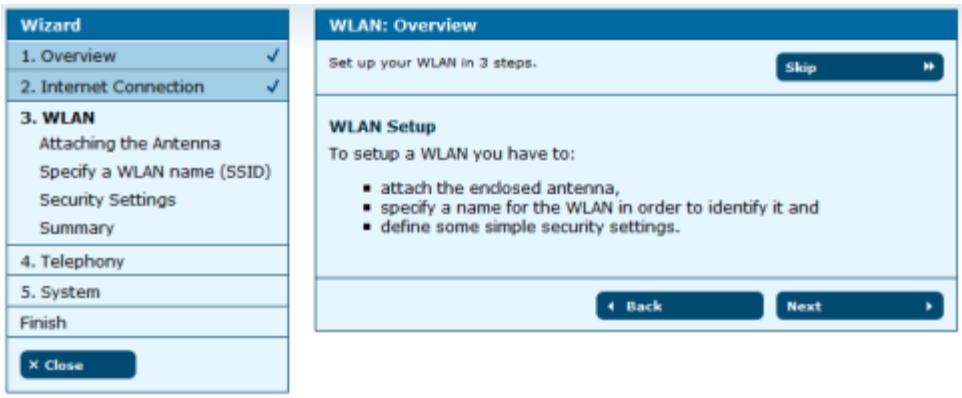


Figure 3.7.: WLAN: Overview

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

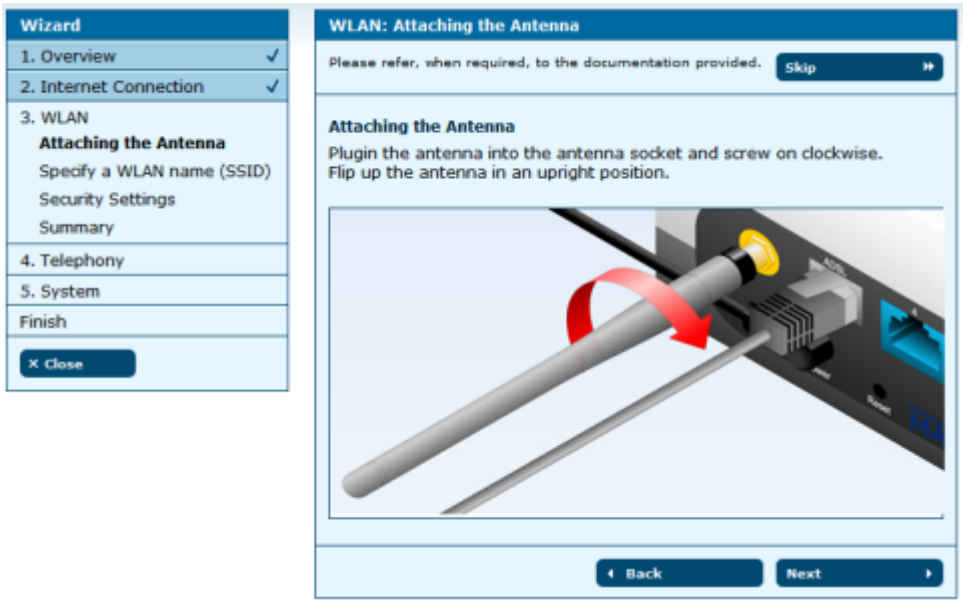


Figure 3.8.: WLAN: Attaching the Antenna

Plugin 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.

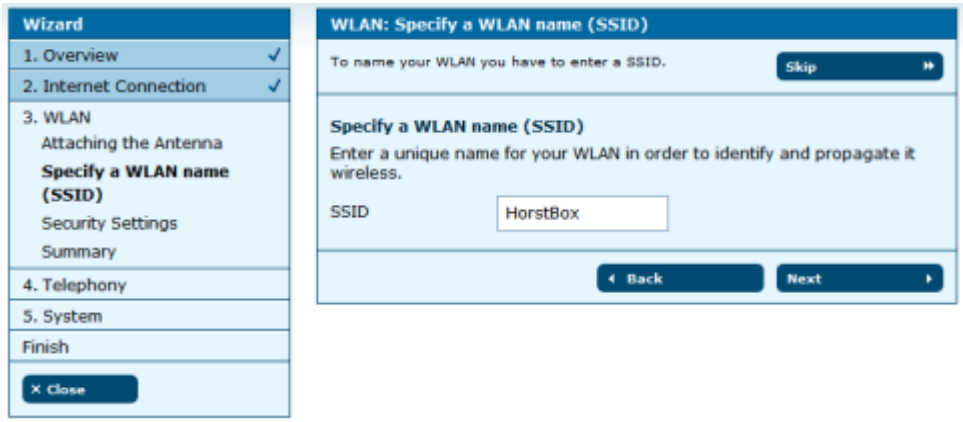


Figure 3.9.: WLAN: Name (SSID)

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 communitcation 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.

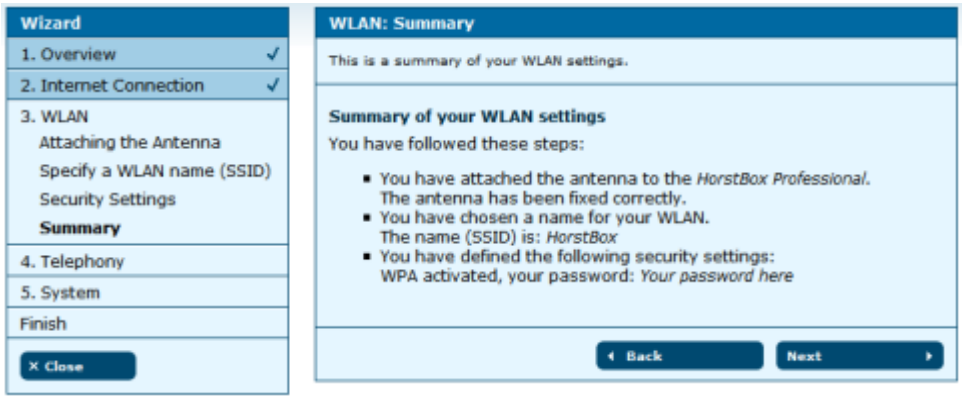


Figure 3.11.: WLAN: Summary

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.

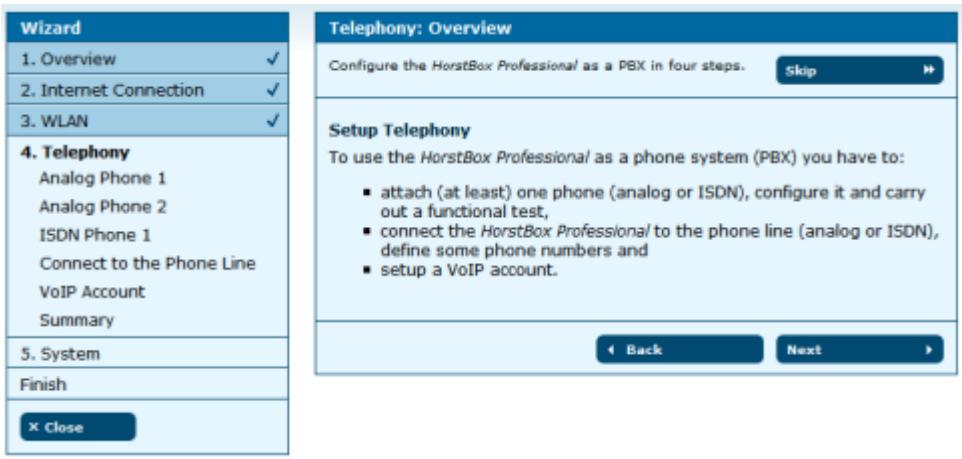


Figure 3.12.: Telephony: Overview

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.

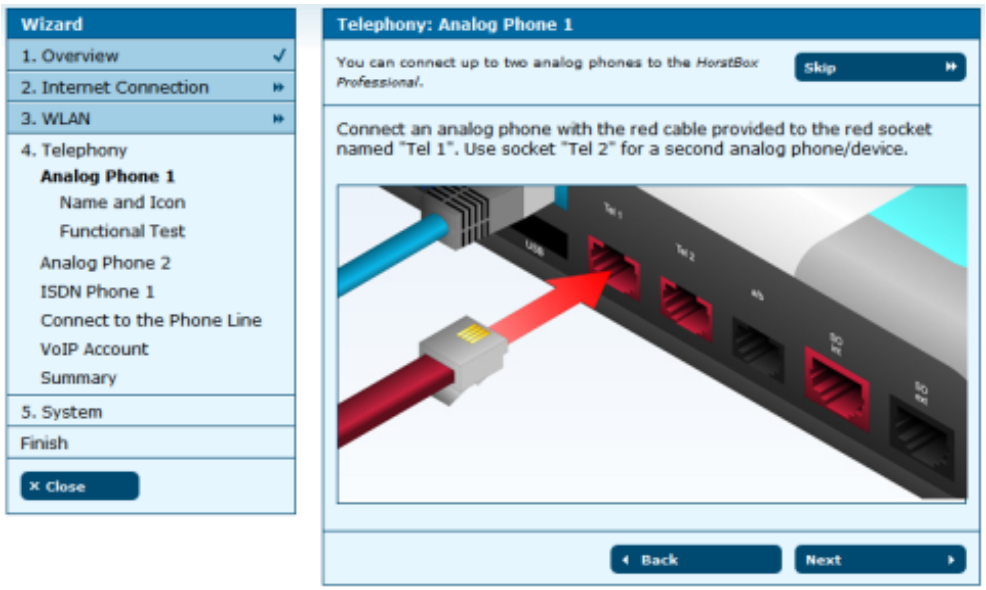


Figure 3.13.: Telephony: Connect an Analog Phone

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

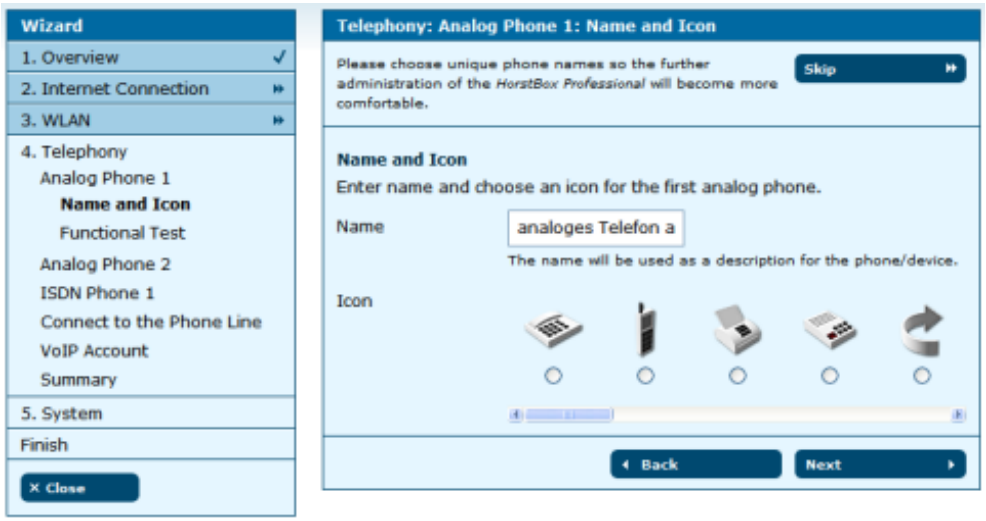


Figure 3.14.: Telephony: Name and Icon

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.

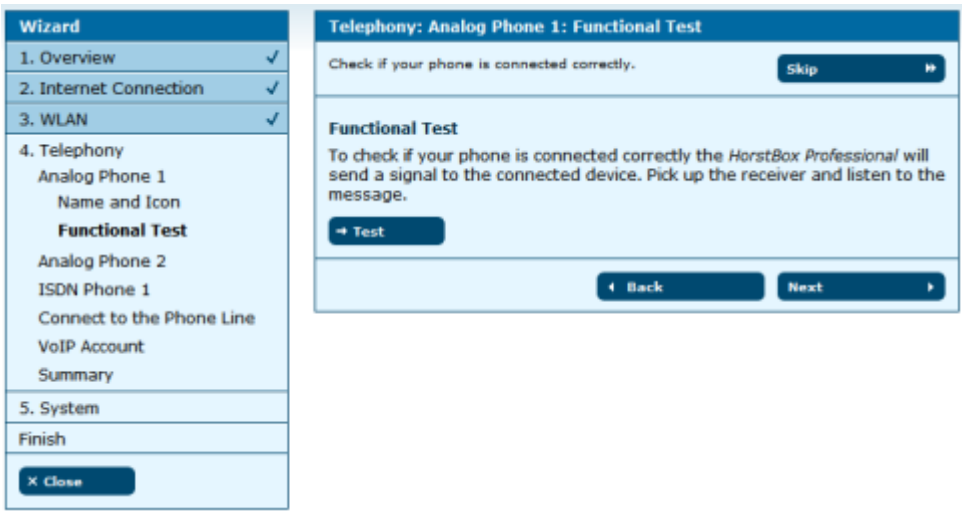


Figure 3.15.: Telephony: Functional Test

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 "S_0 Int" on the HorstBox. Use the red phone cable provided.

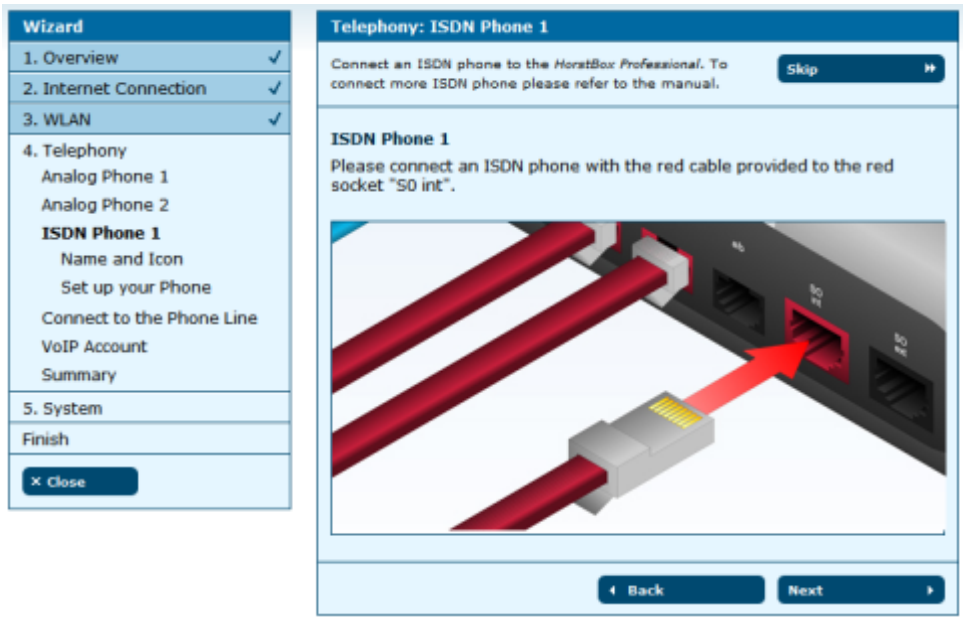


Figure 3.16.: Telephony: ISDN Phone

Click on NEXT.

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

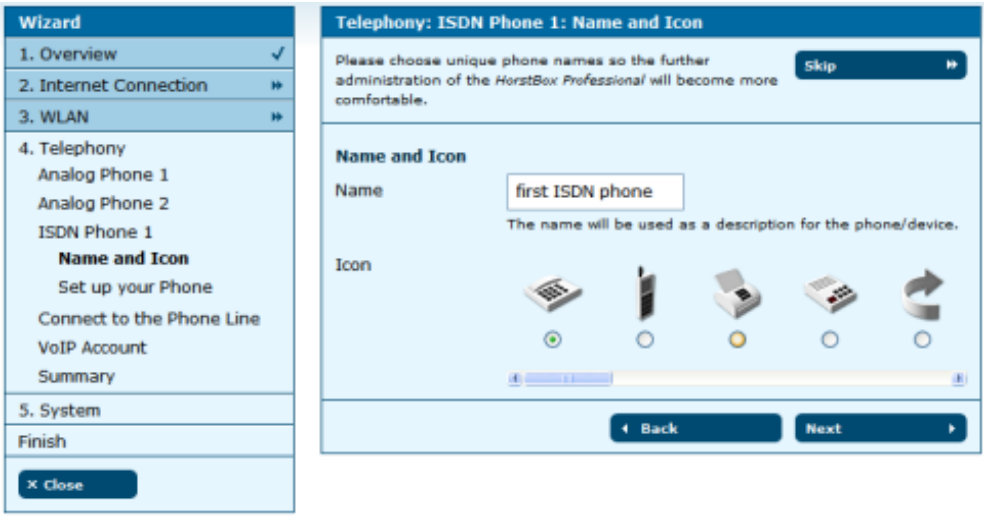


Figure 3.17.: Telephony: Name and Icon

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.

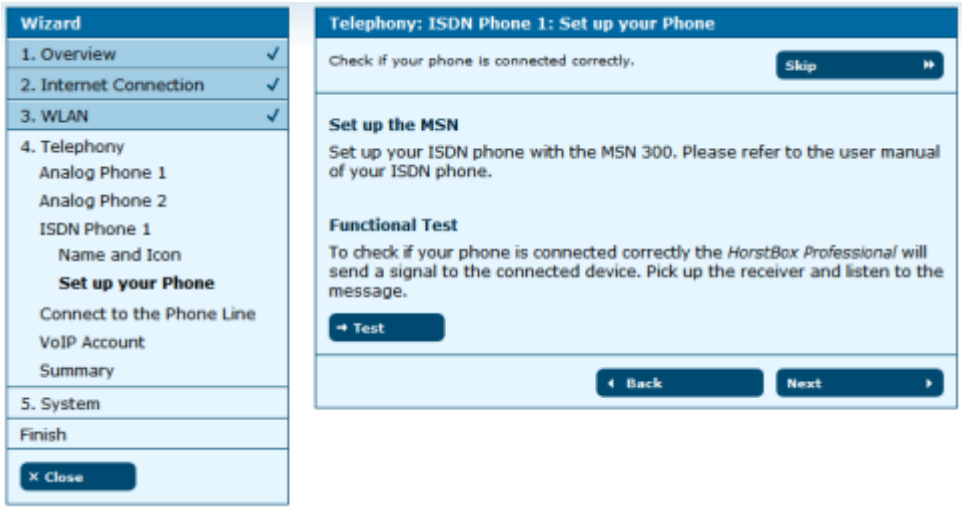


Figure 3.18.: Telephony: Functional Test

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.

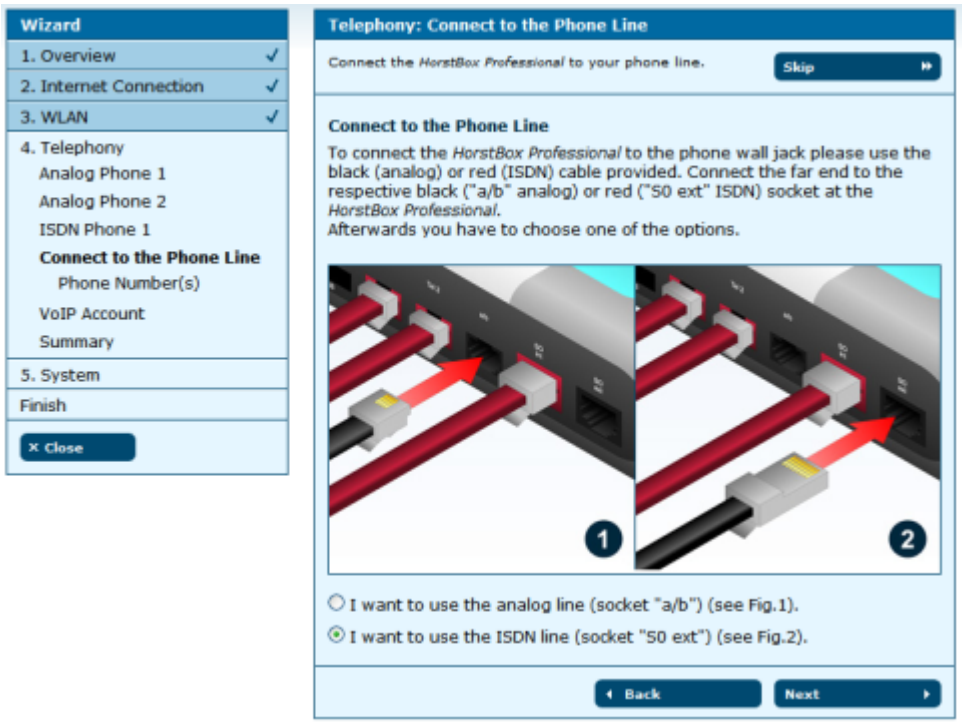


Figure 3.19.: Telephony: External Phone Line

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 (“S0 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 “S0 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).

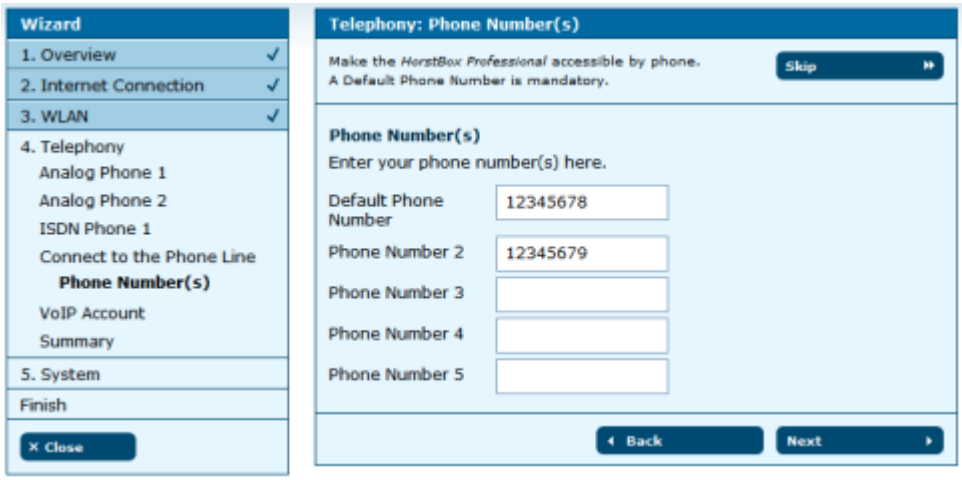


Figure 3.20.: Telephony: Phone Numbers

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.

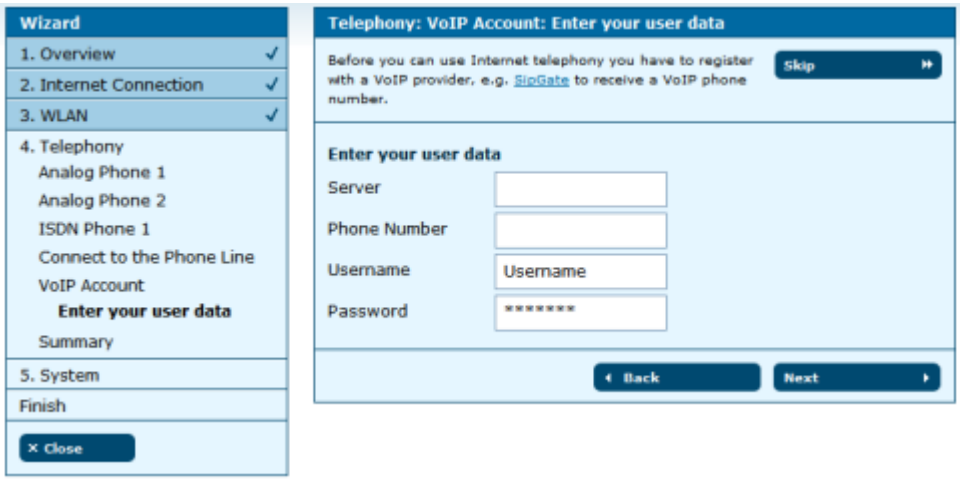


Figure 3.22.: Telephony: VoIP login details

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.

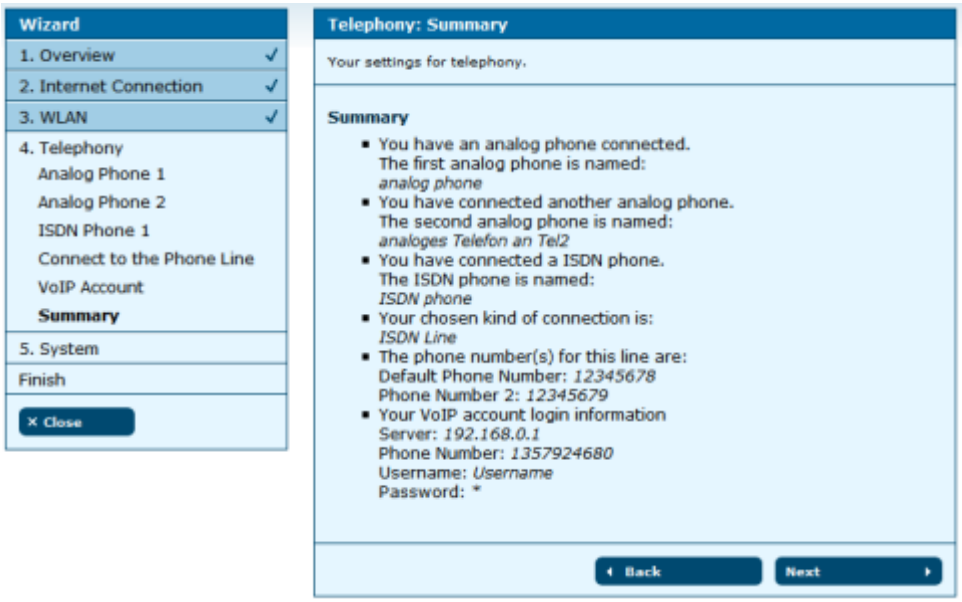


Figure 3.23.: Telephony: Summary

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**.]

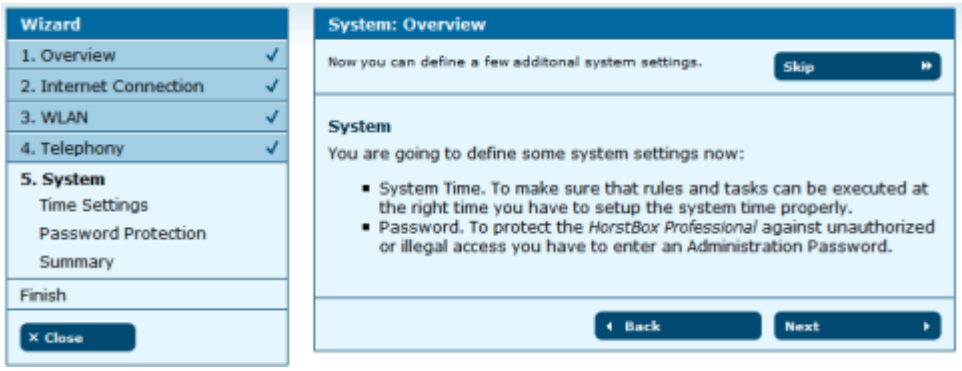


Figure 3.24.: System: Overview

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

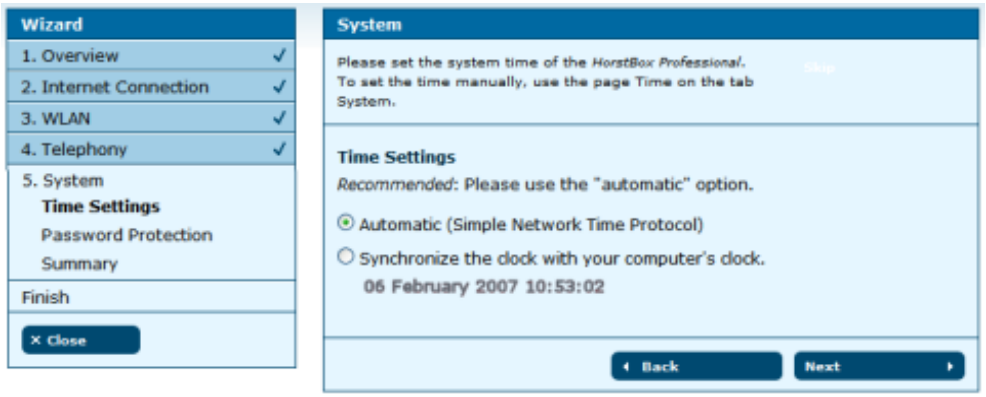


Figure 3.25.: System: Time Settings

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 the 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.

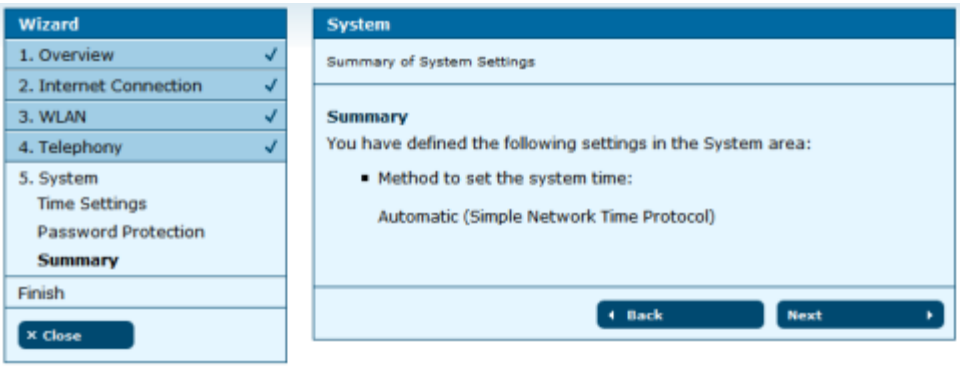


Figure 3.27.: System: Summary

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

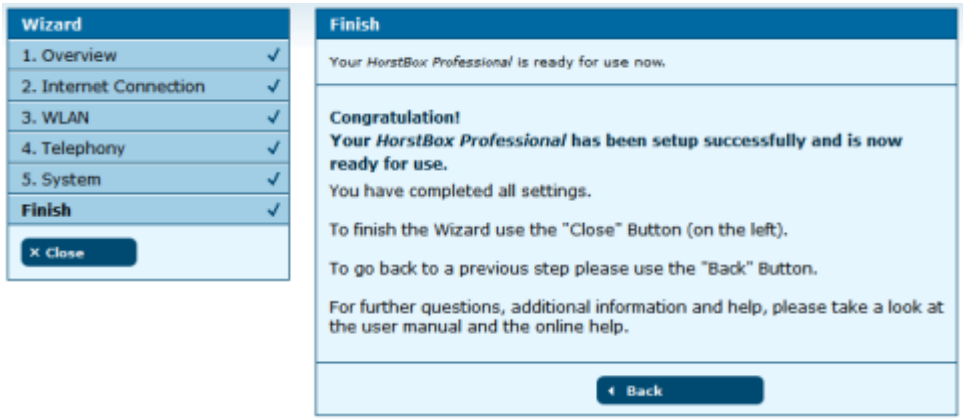


Figure 3.28.: Wizard: Finish

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.

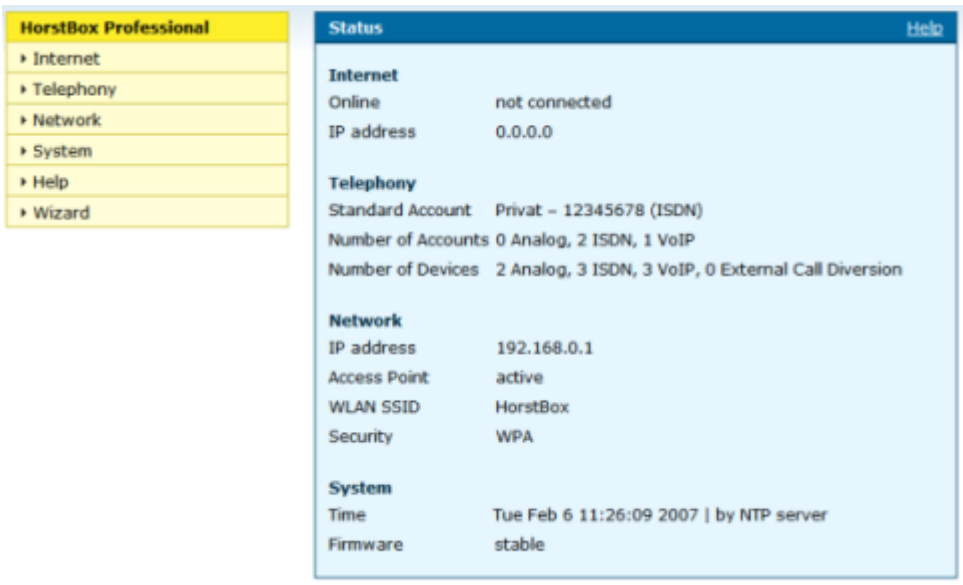


Figure 3.29.: Status page

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.

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).

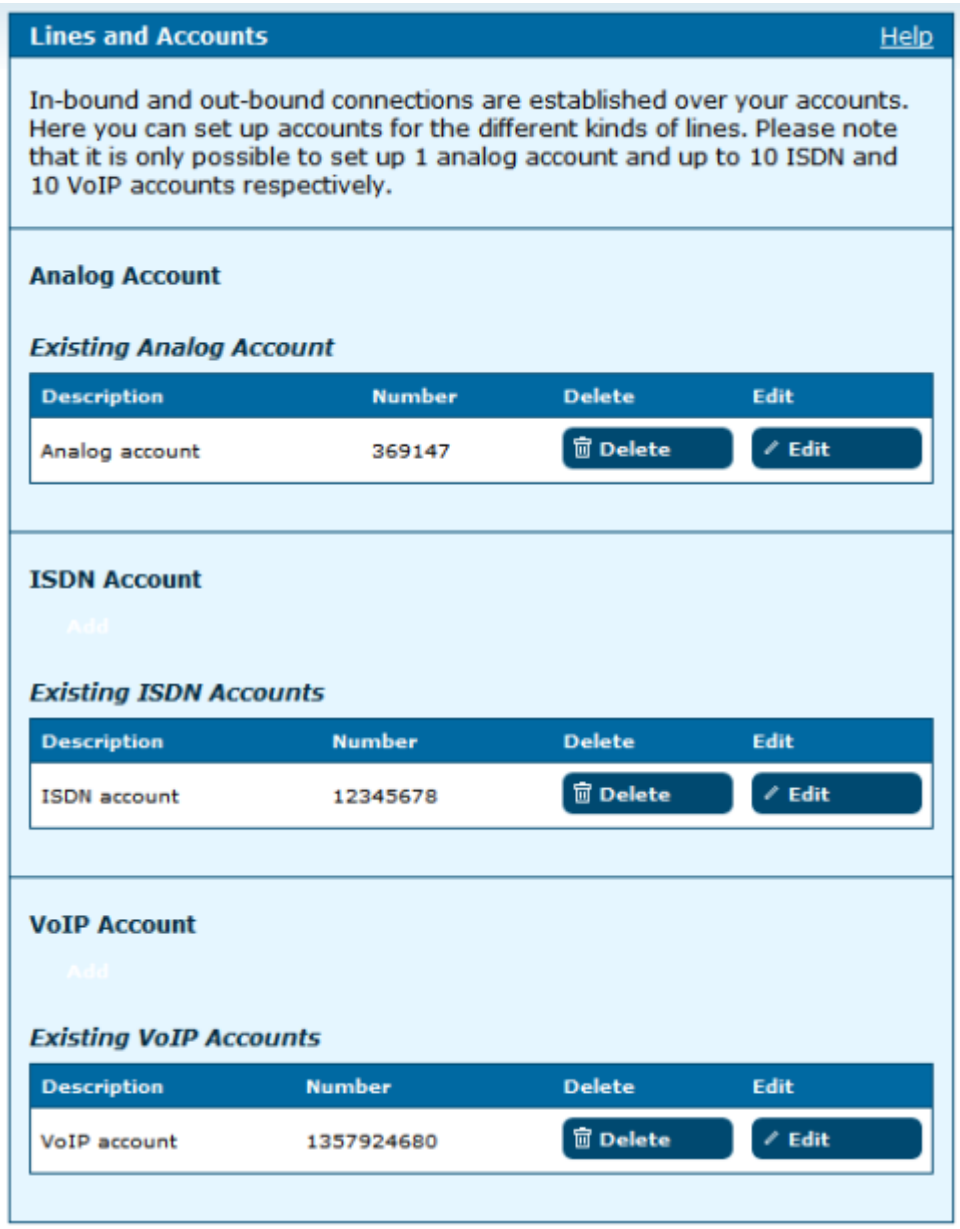


Figure 4.2.: Accounts

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.

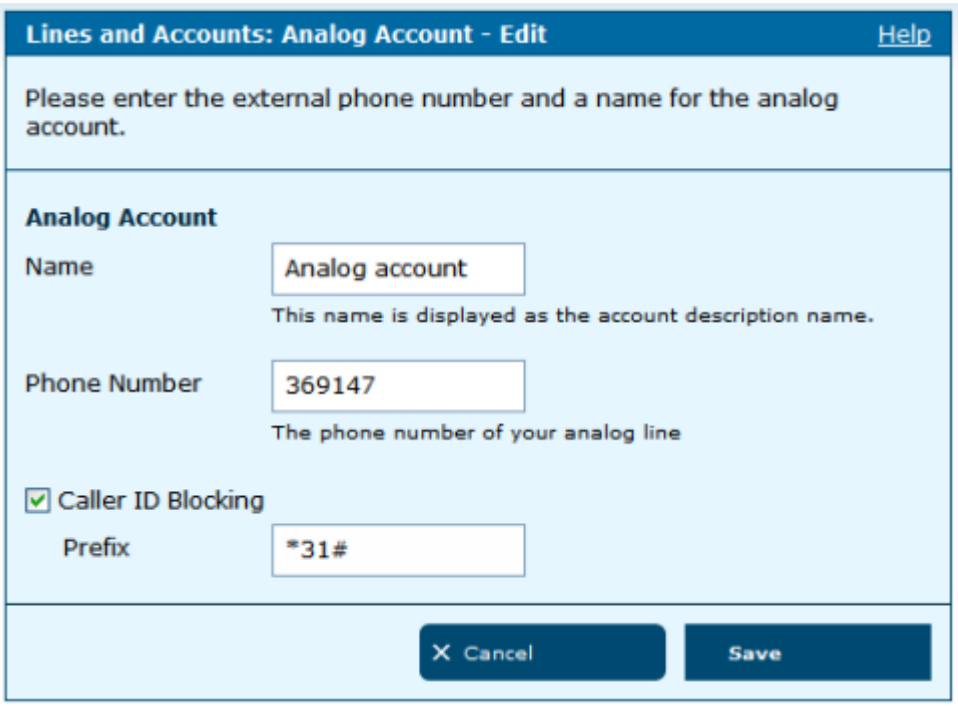


Figure 4.3.: Edit Analog Account

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. * 3 1 #. To block your caller ID for the next call dial * 3 1 # as prefix.

To save the settings click on SAVE.

Saving successfully is reported in a green framed message.

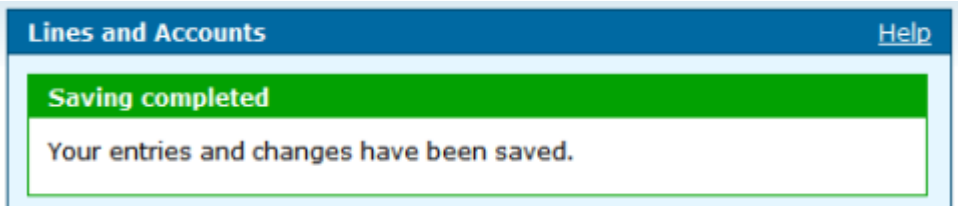


Figure 4.4.: Saving completed

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.

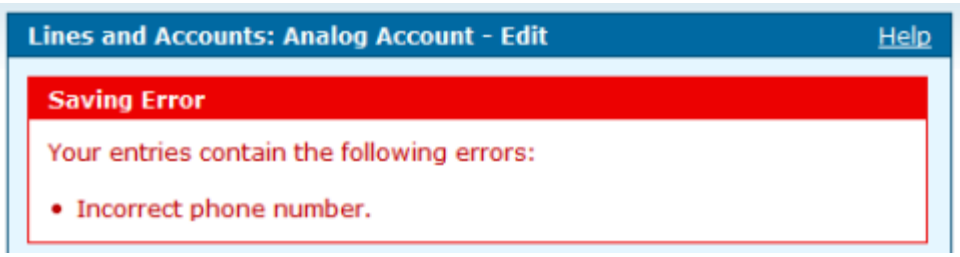


Figure 4.5.: Error message

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.

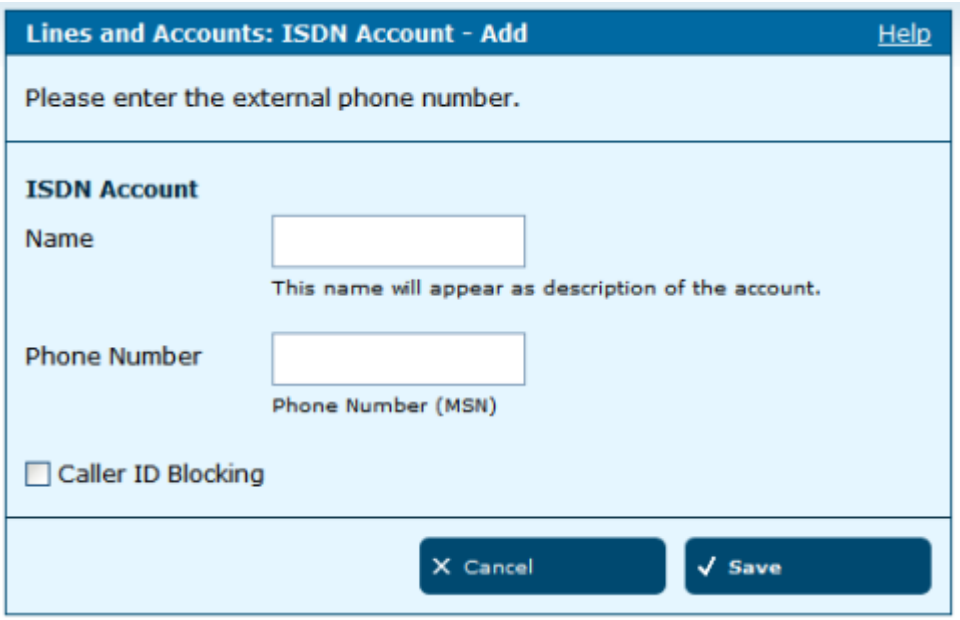


Figure 4.6.: Add ISDN Account

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.

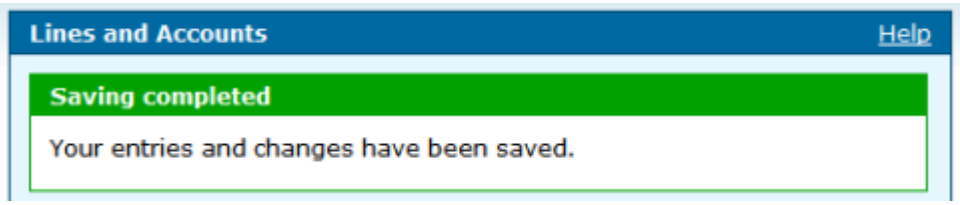


Figure 4.7.: Saving completed

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

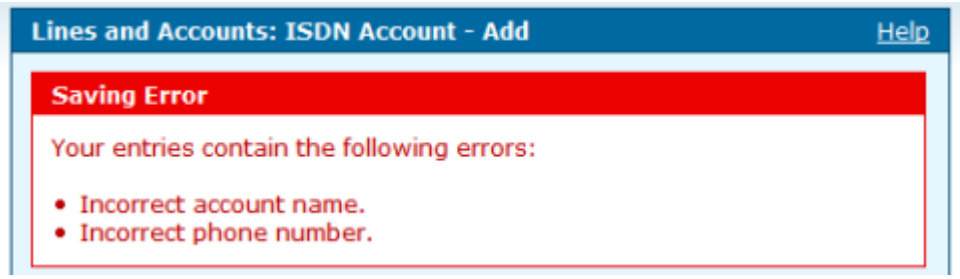


Figure 4.8.: Error message

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.

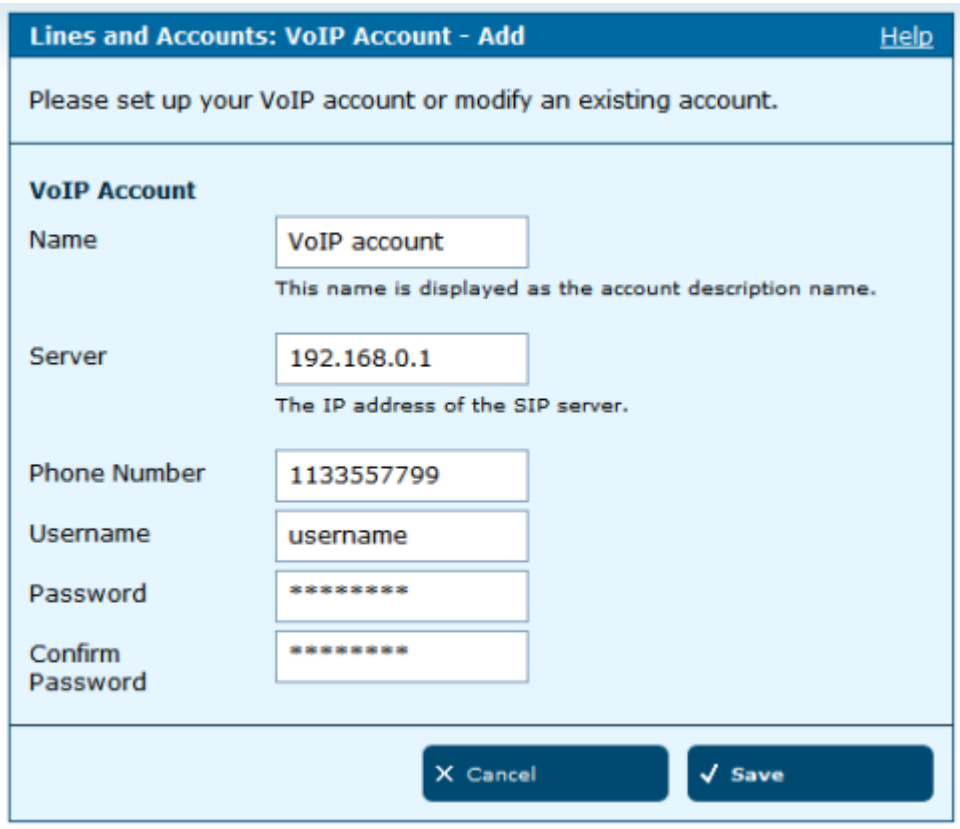


Figure 4.9.: Add VoIP Account

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.

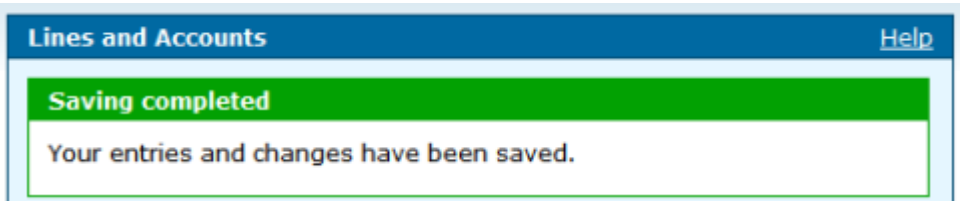


Figure 4.10.: Saving completed

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.

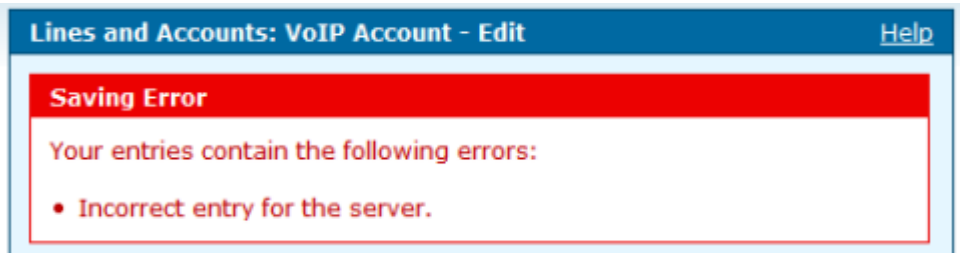


Figure 4.11.: Error message

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.

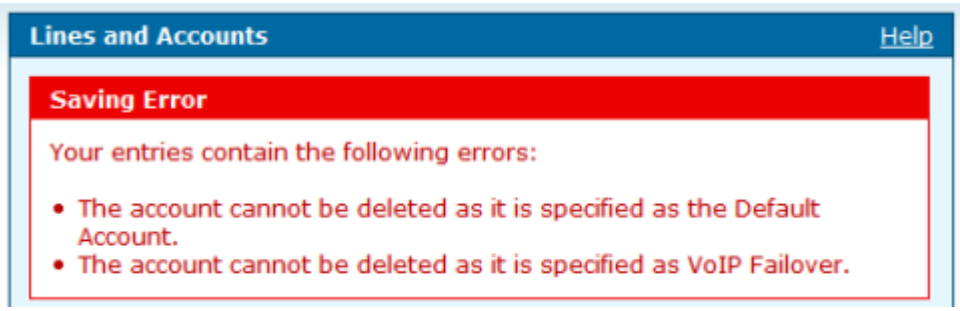


Figure 4.12.: Error message

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 requieres 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.

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 ssimply 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.

Figure 4.14.: Add Analog Device

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

Next choose an icon.

Phone	
Wireless phone	
Answering machine	
Fax machine	
Call diversion	

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.

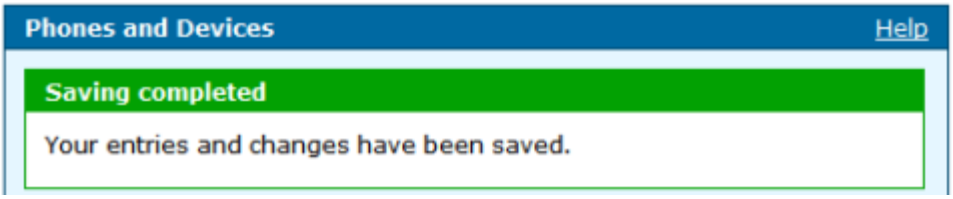


Figure 4.15.: Saving completed

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

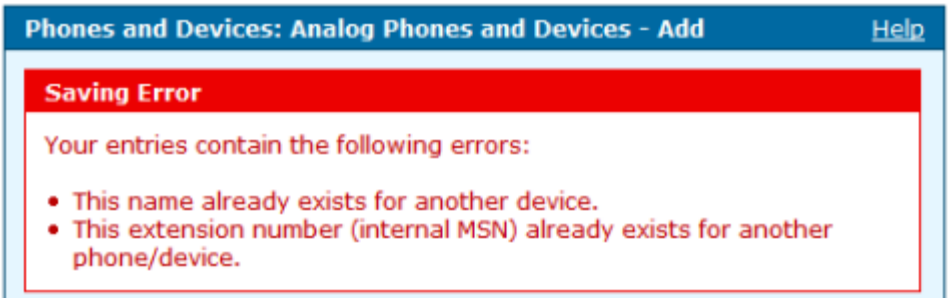


Figure 4.16.: Error message

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.

[1] If 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.

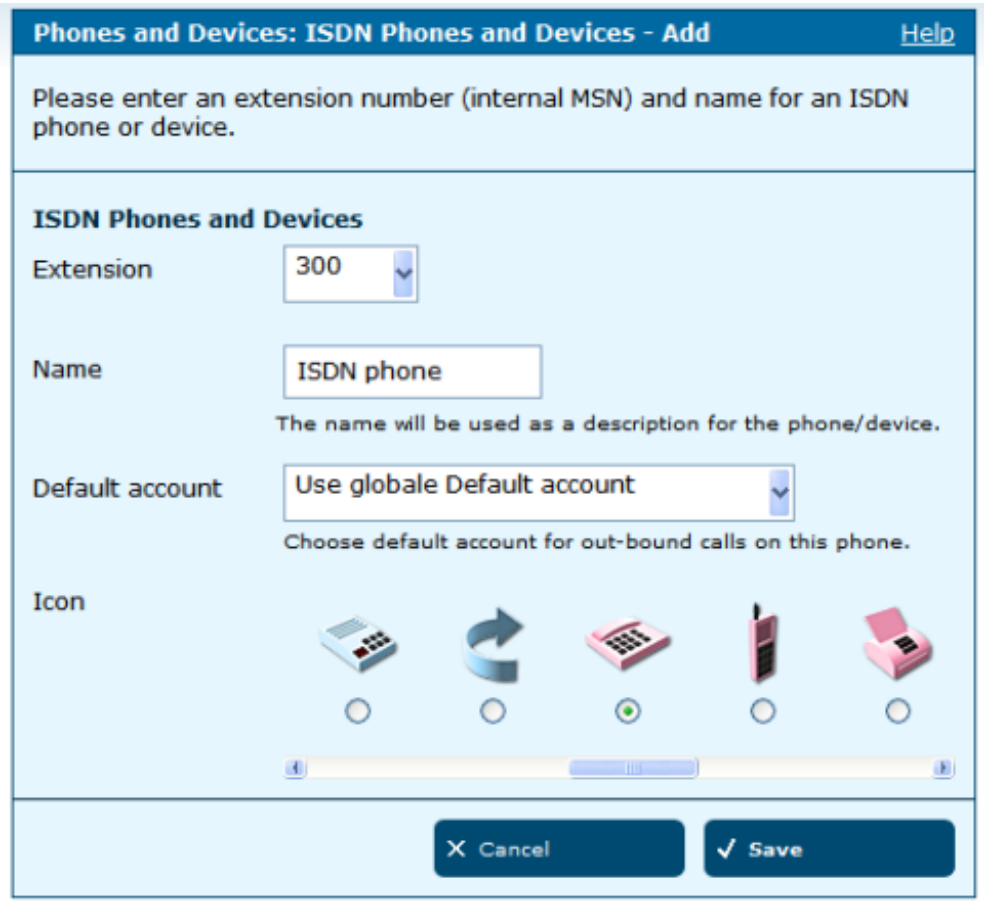


Figure 4.17.: Add ISDN Device

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.

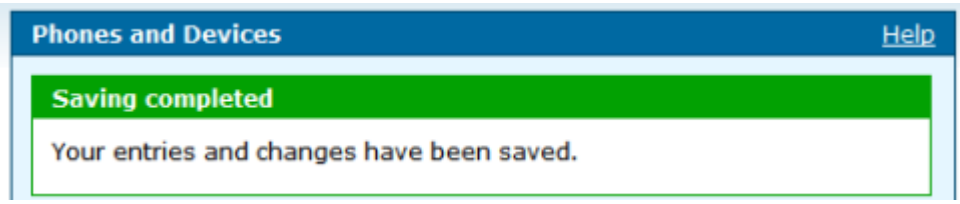


Figure 4.18.: Saving completed

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

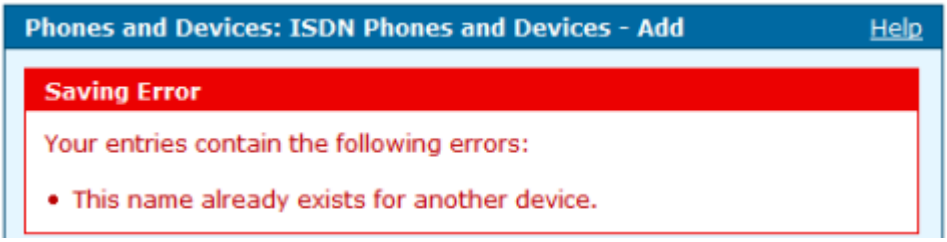


Figure 4.19.: Error message

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.

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. *400 to call the VoIP phone.

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

Note: This passwort 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.

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

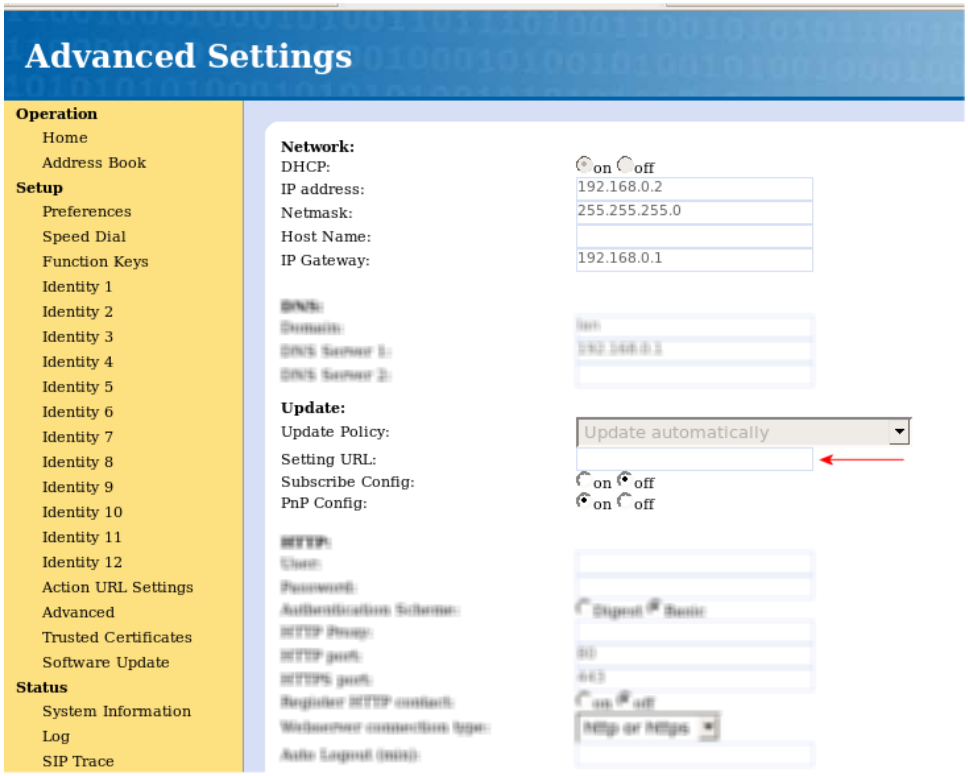


Figure 4.21.: SNOM phone configuration

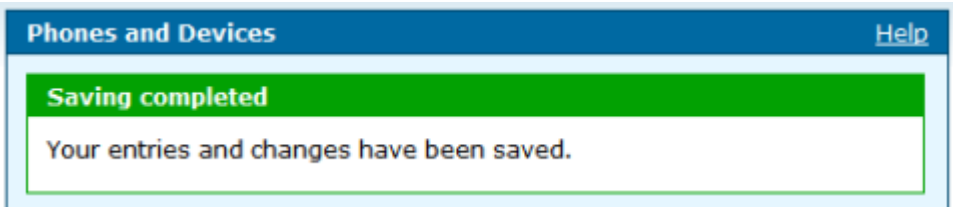


Figure 4.22.: Saving completed

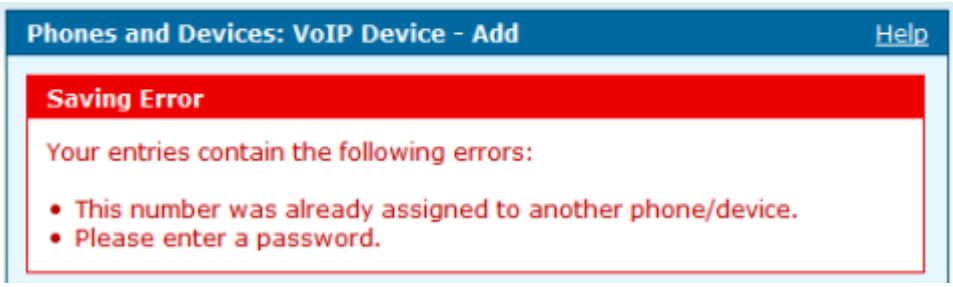


Figure 4.23.: Error message

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 choosen 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.

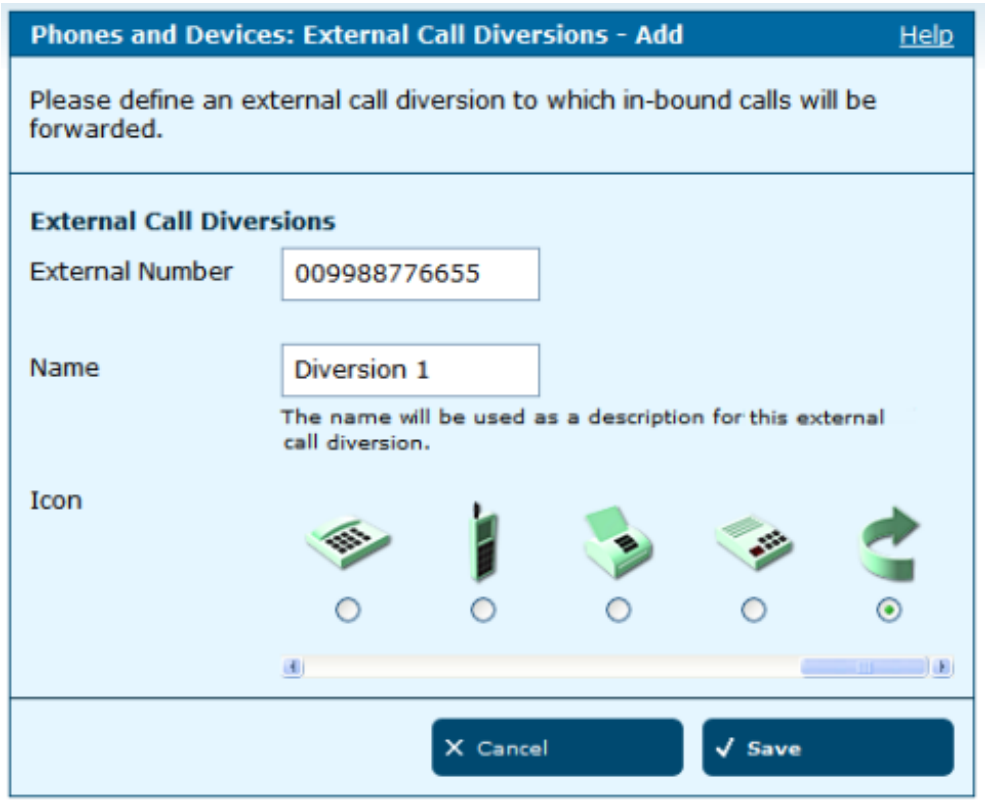


Figure 4.24.: Add Call Diversion

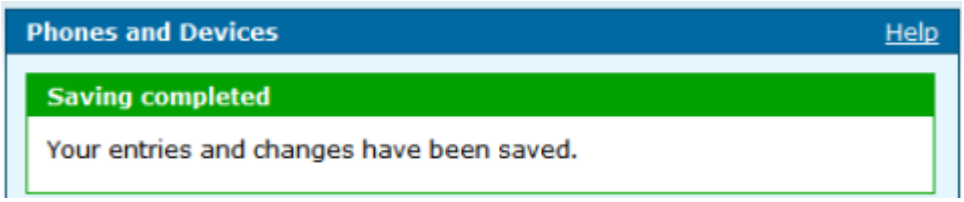


Figure 4.25.: Saving complete

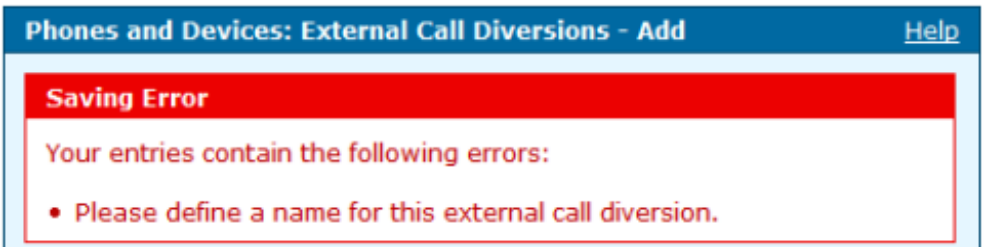


Figure 4.26.: Error message

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).

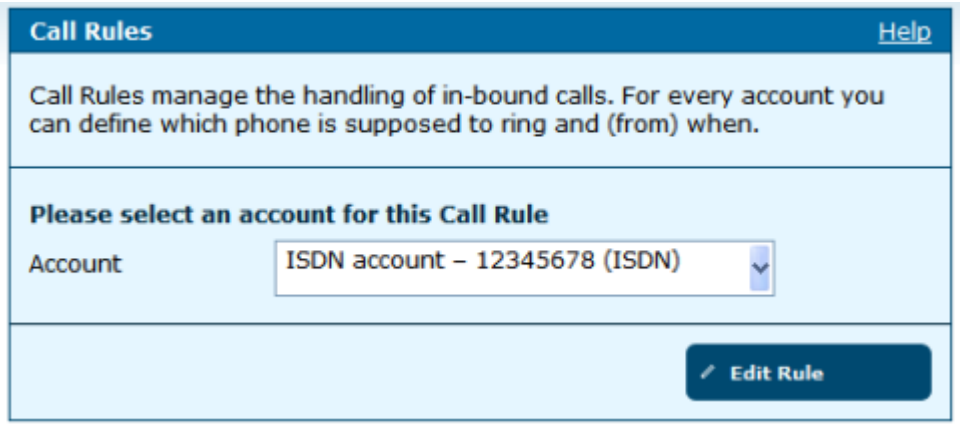


Figure 4.27.: Call Rules

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.

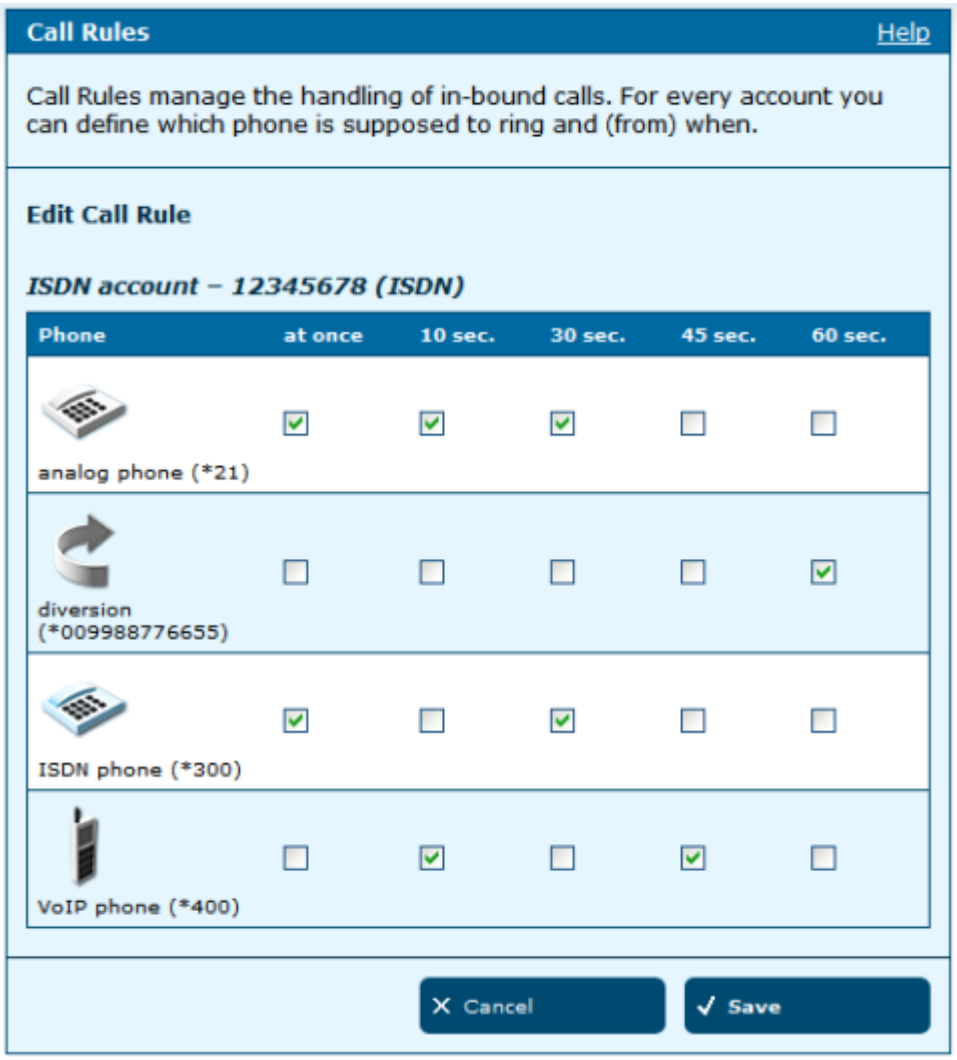


Figure 4.28.: Add/Edit Call Rule

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).

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 exeptions.

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 etablished. 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.

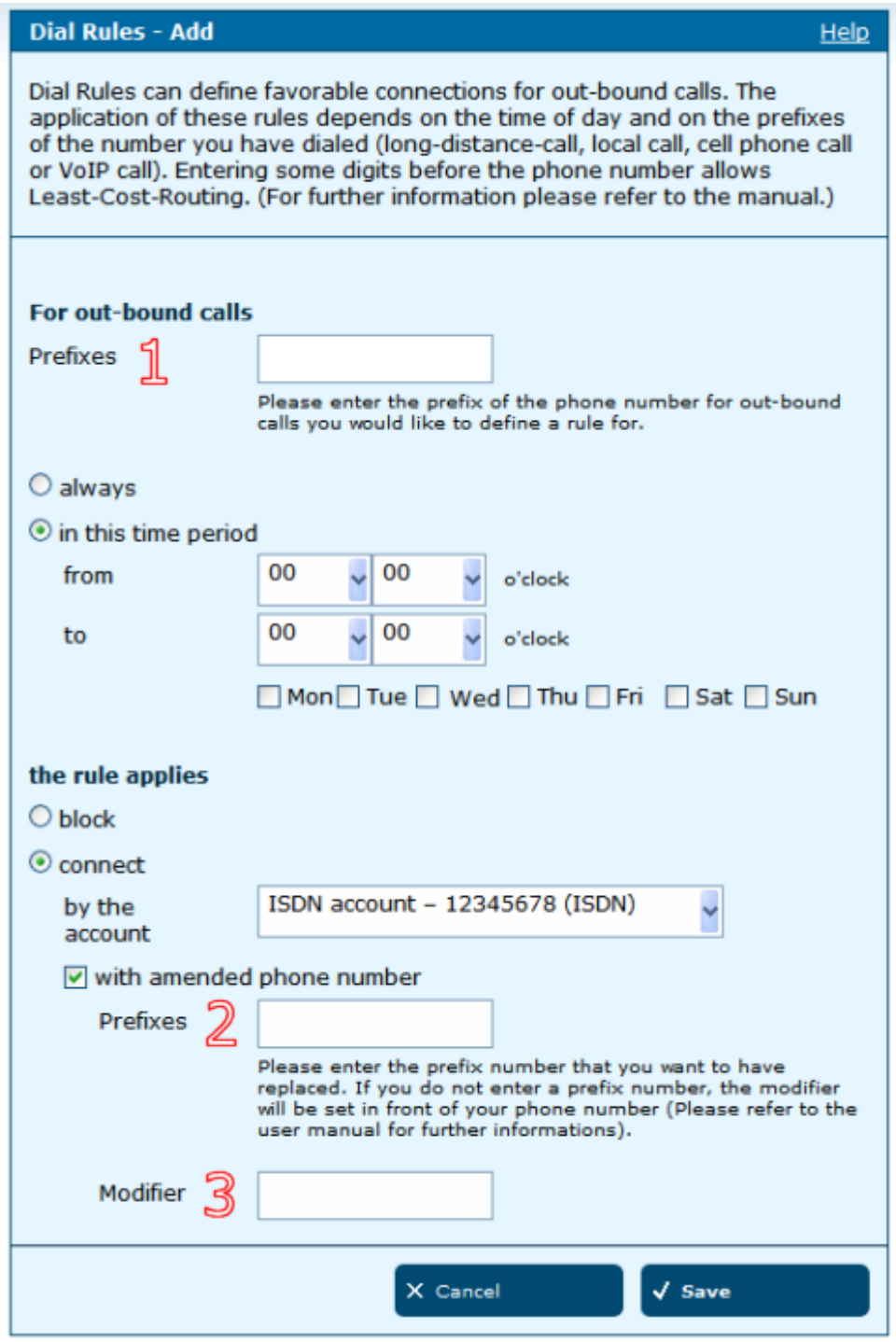


Figure 4.30.: Add/Edit Dial Rule

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.

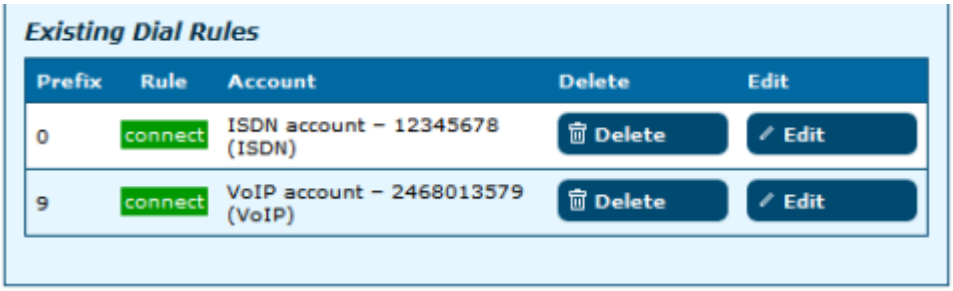


Figure 4.31.: Dial Rules

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.

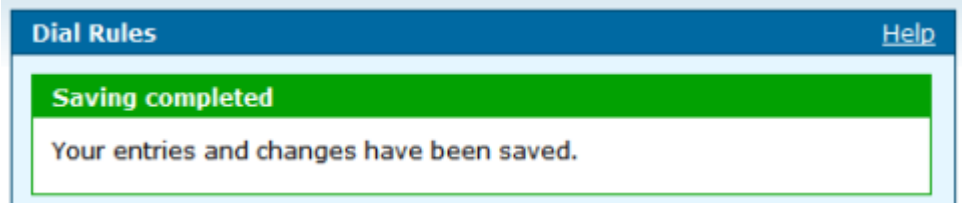


Figure 4.32.: Saving completed

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.

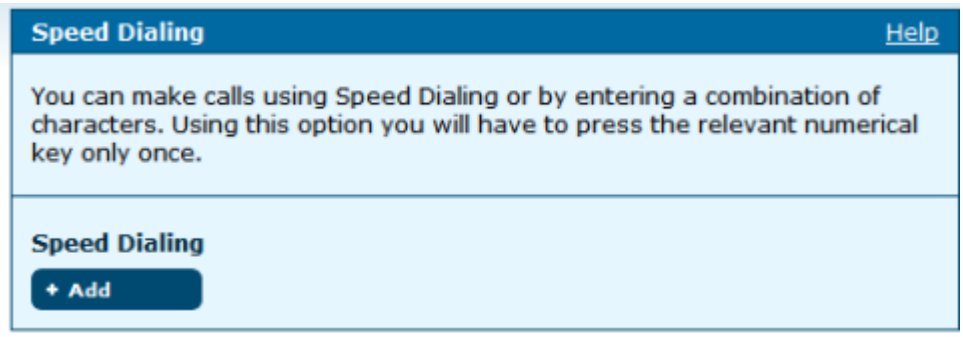


Figure 4.33.: Speed Dialing

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 * * 1 2 3.

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.

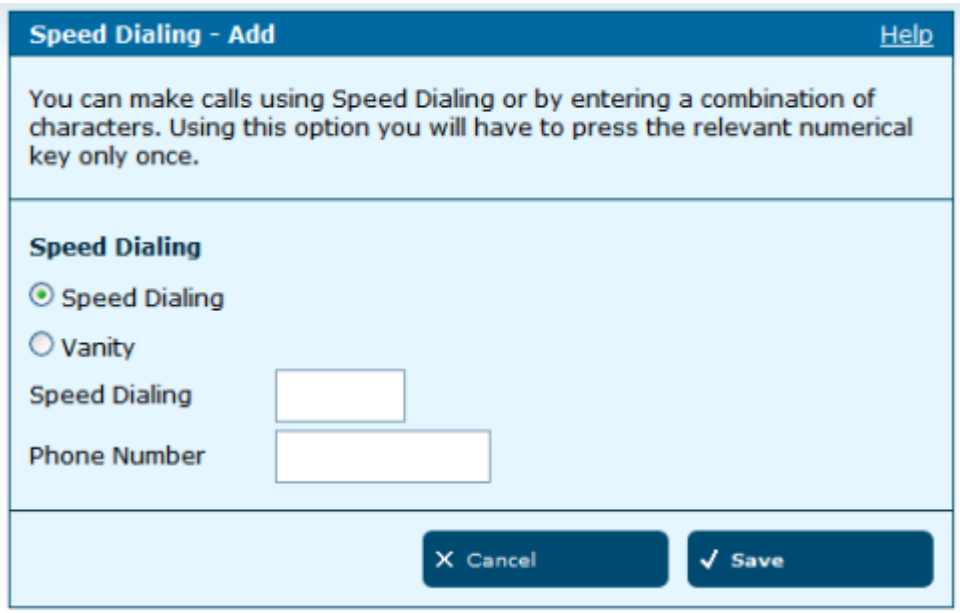


Figure 4.34.: Add Speed Dialing or Vanity Number

To save the new vanity click on SAVE.

To call D-Link just dial: *3546.

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

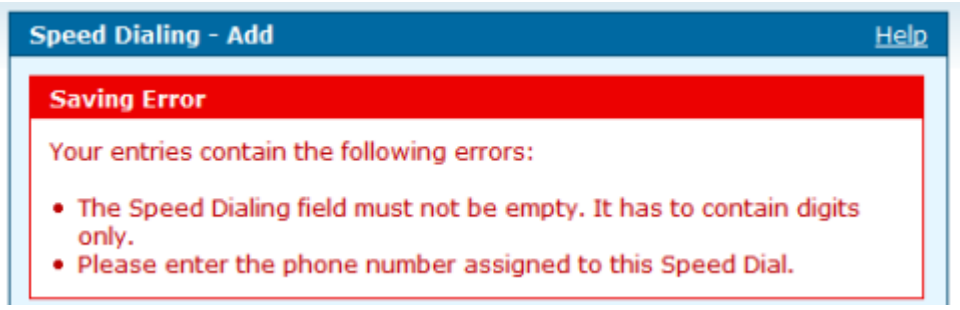


Figure 4.35.: Error message

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.

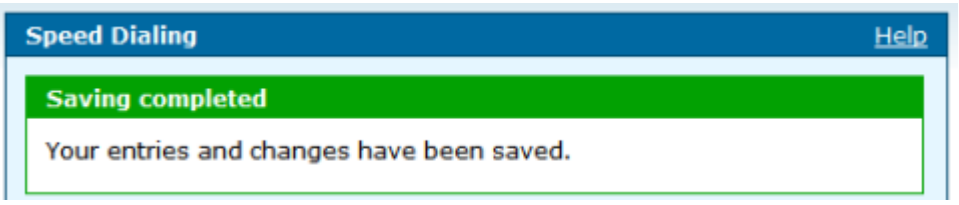


Figure 4.36.: Saving completed

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 establihed 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).

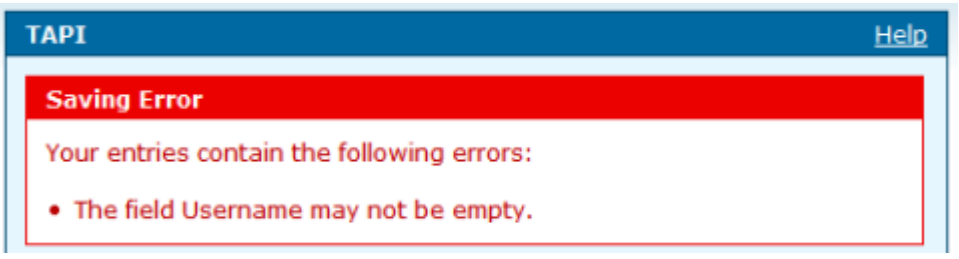


Figure 4.37.: Error message

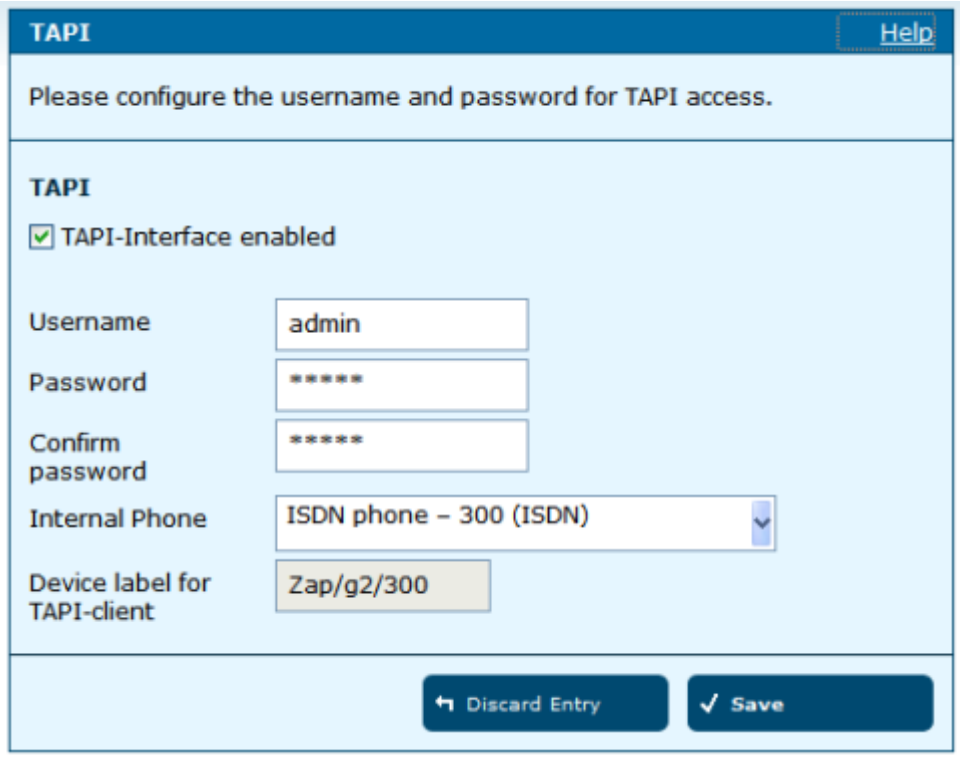


Figure 4.38.: Configure TAPI

Saving successfully is reported in a green framed message.

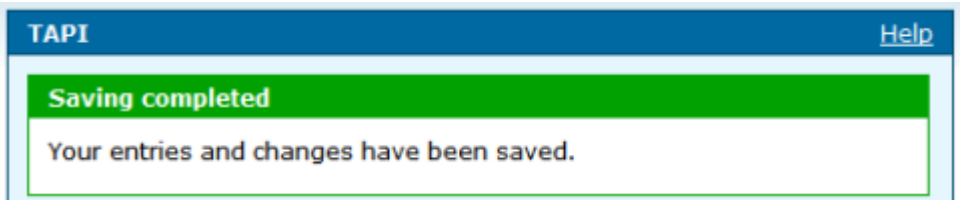


Figure 4.39.: Saving completed

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.

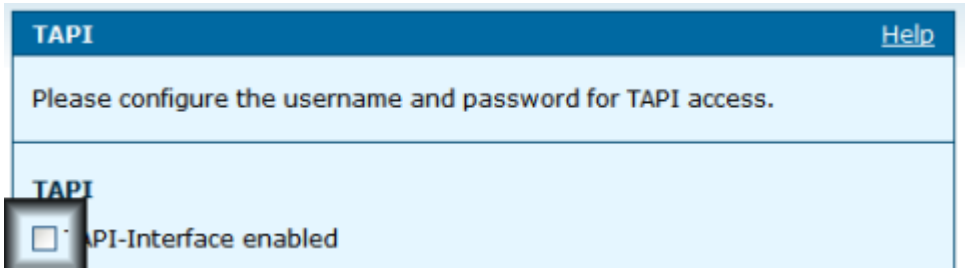


Figure 4.40.: Deactivate TAPI

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]

[3]For 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

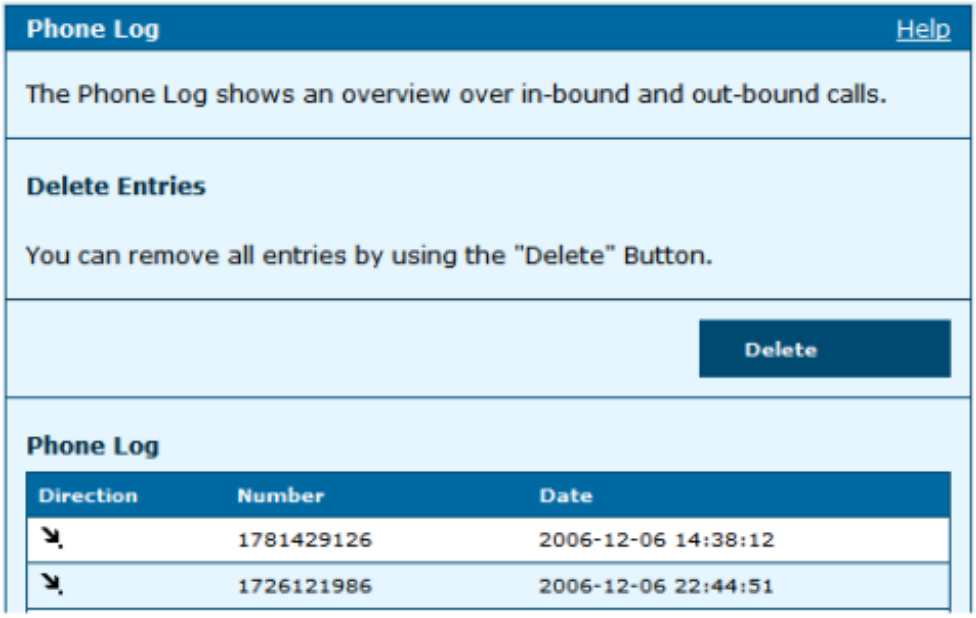


Figure 4.41.: Phone Log

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.

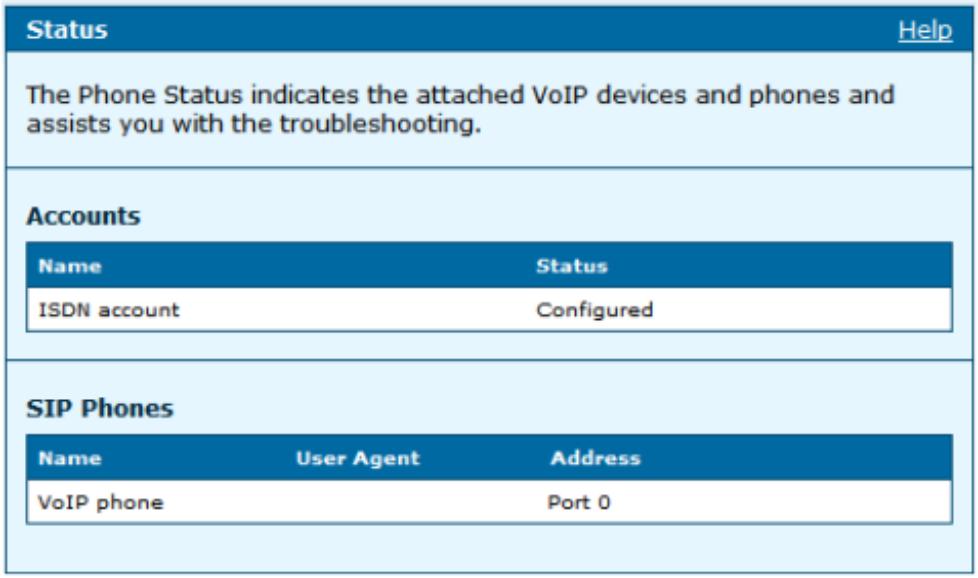


Figure 4.42.: Phone Status

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. Transfering 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 * 8 0. 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 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: *123.

Vanity Number: To call D-Link just dial: *3546465.

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 *91. 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.

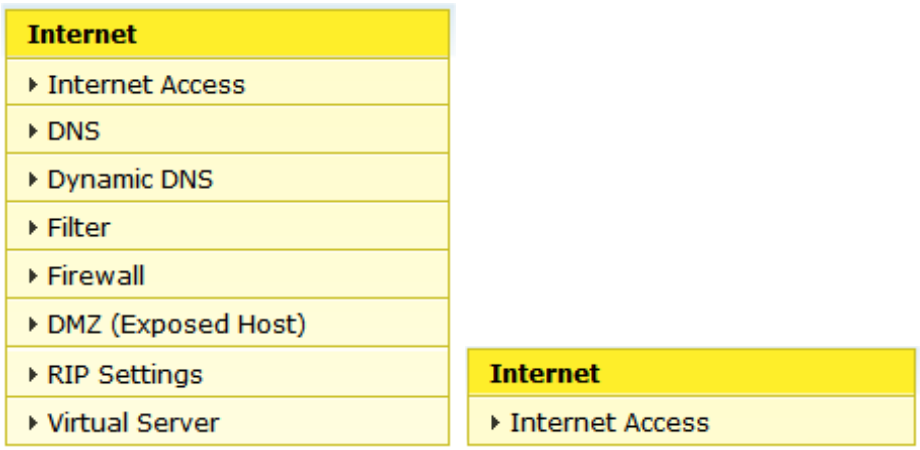


Figure 5.1.: Navigation column Internet (expert and basic mode)

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 Internt 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 while 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 passwort 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 interupt 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.

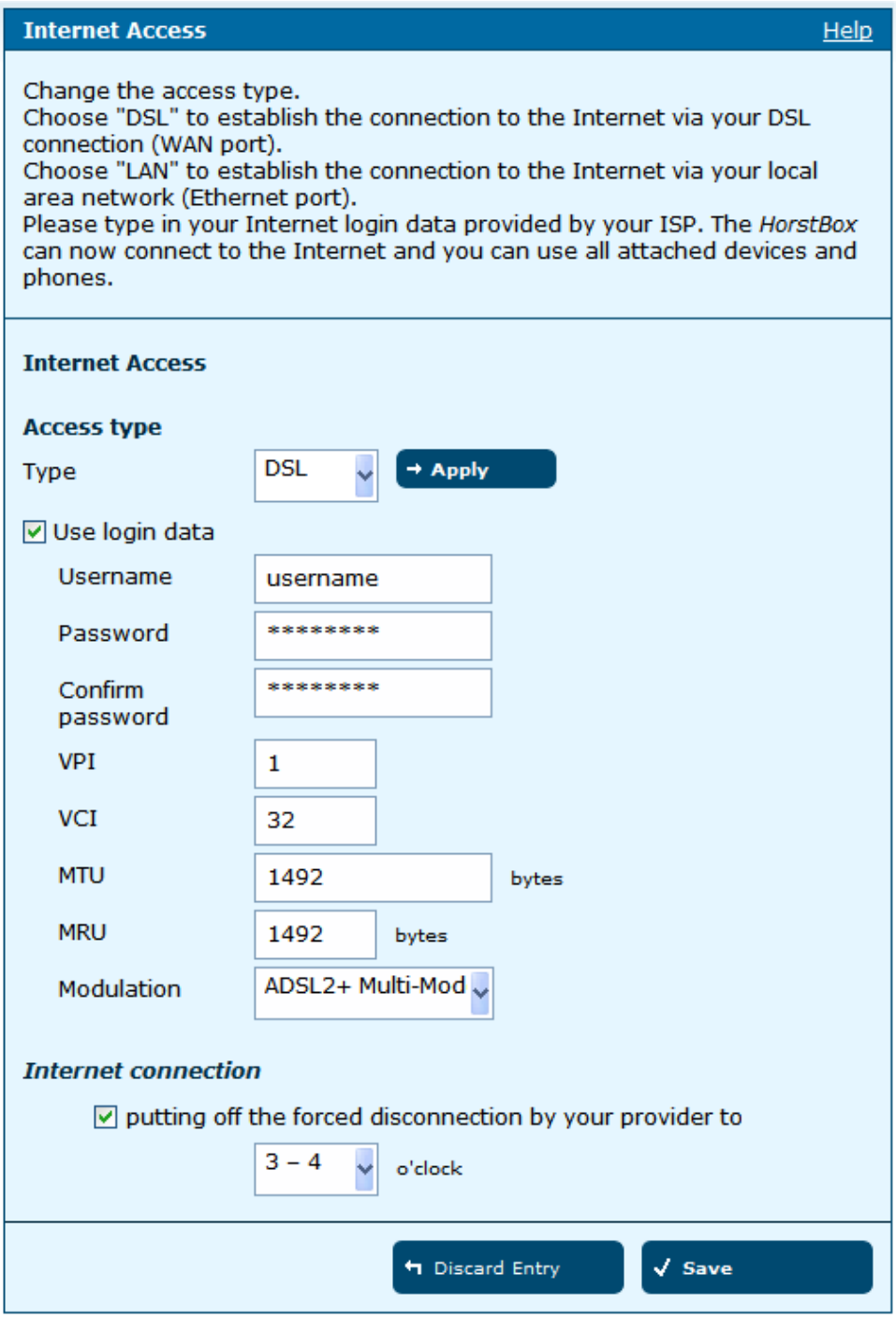


Figure 5.2.: Access type: DSL

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 Identifer	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.

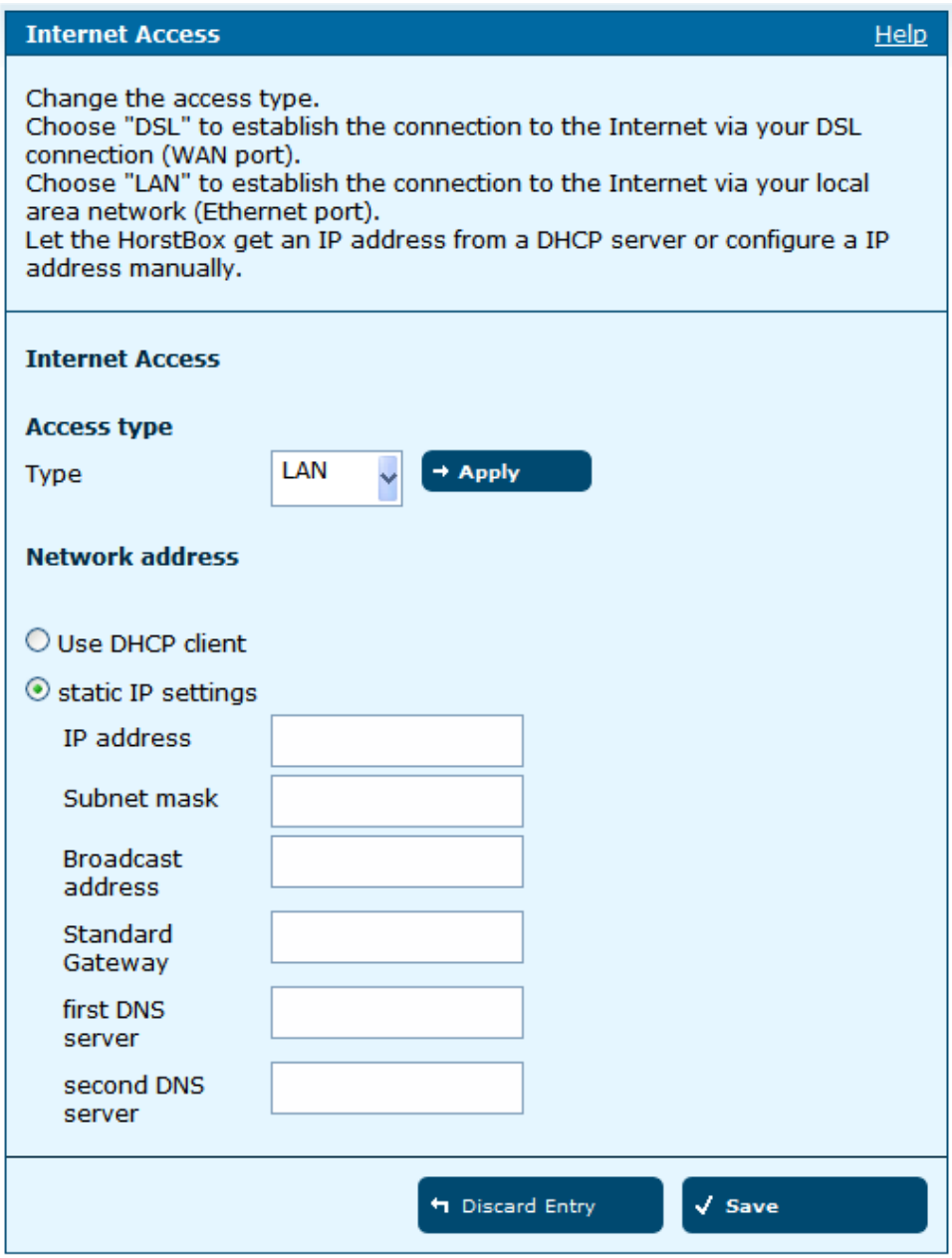


Figure 5.3.: Access type: LAN

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* an 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.

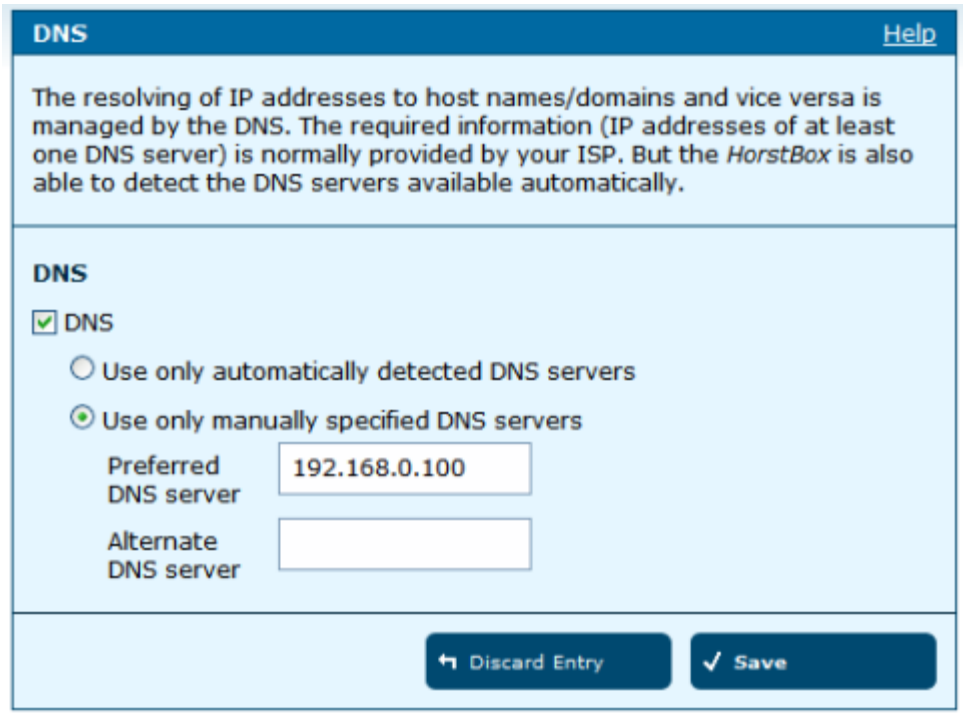


Figure 5.4.: DNS settings

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.

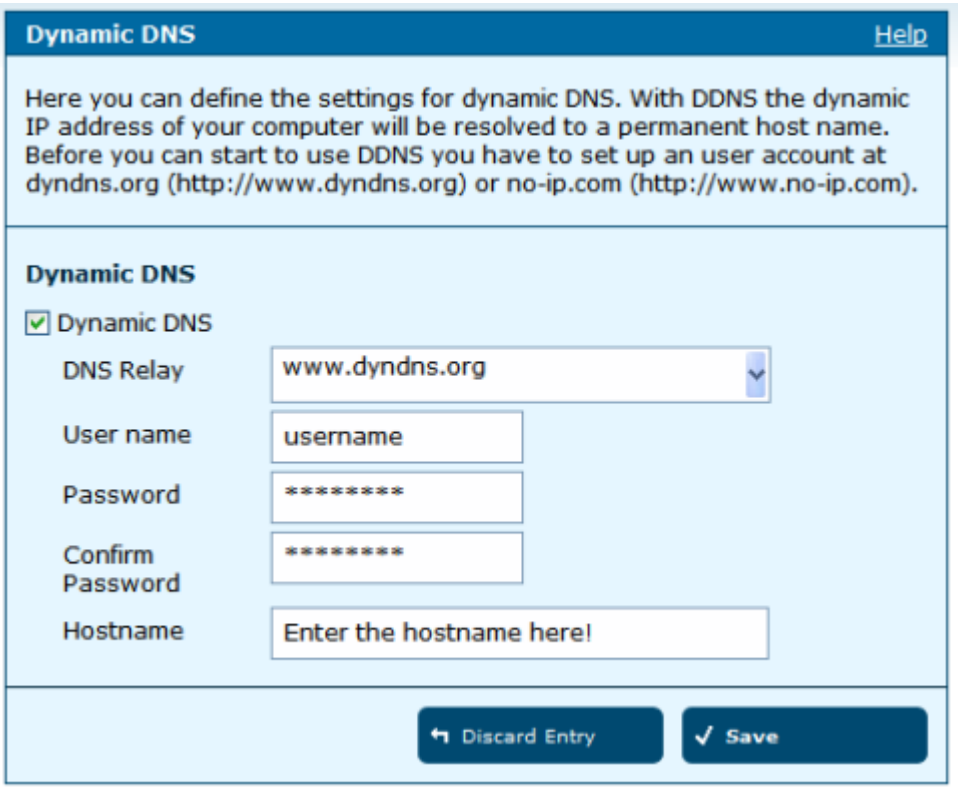


Figure 5.5.: Settings for Dynamic DNS

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.

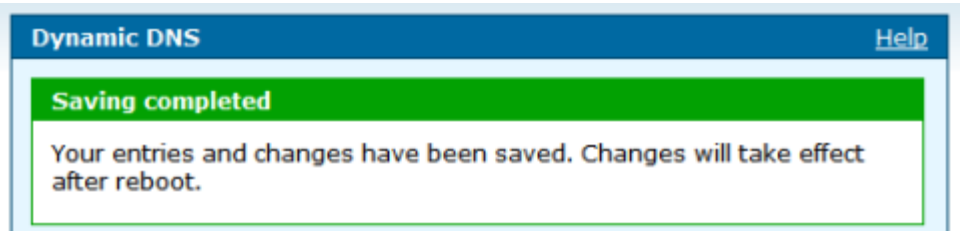


Figure 5.6.: Saving completed

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).

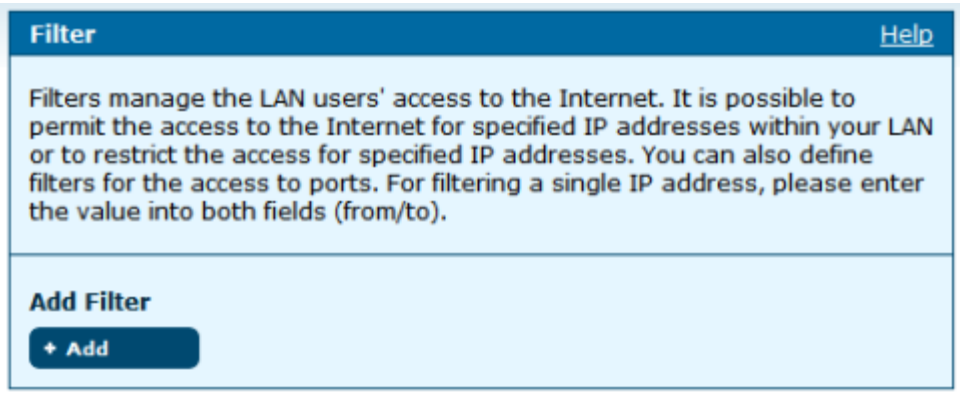


Figure 5.7.: Filter

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

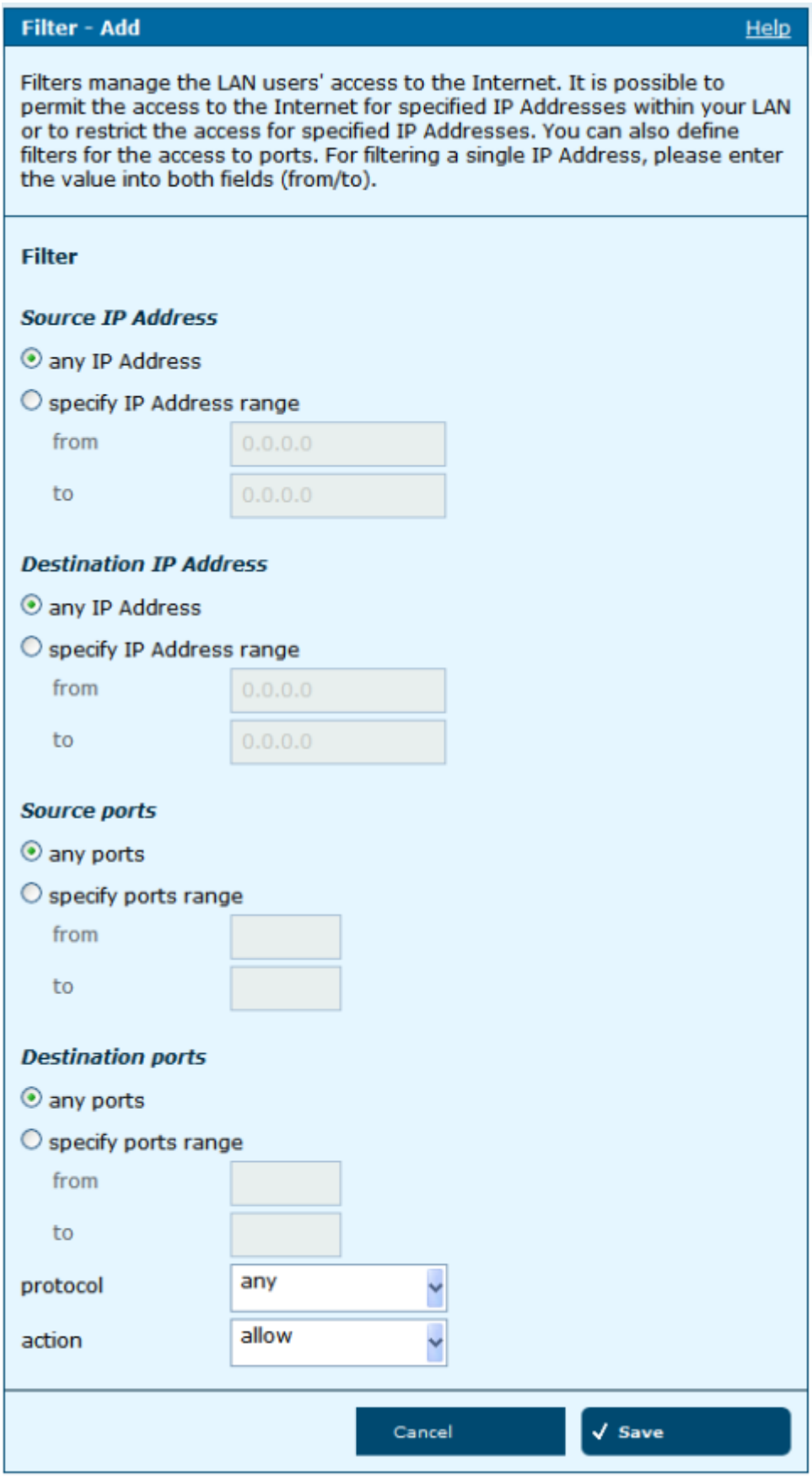


Figure 5.8.: Add filter

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.

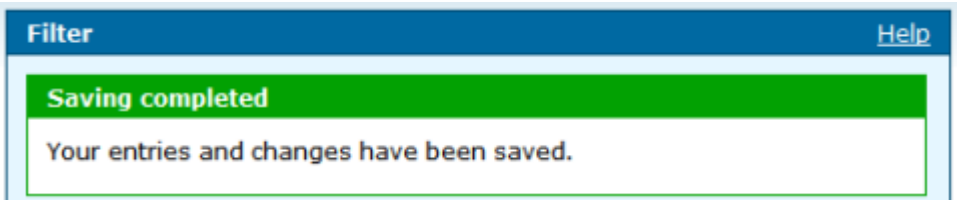


Figure 5.10.: Saving completed

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

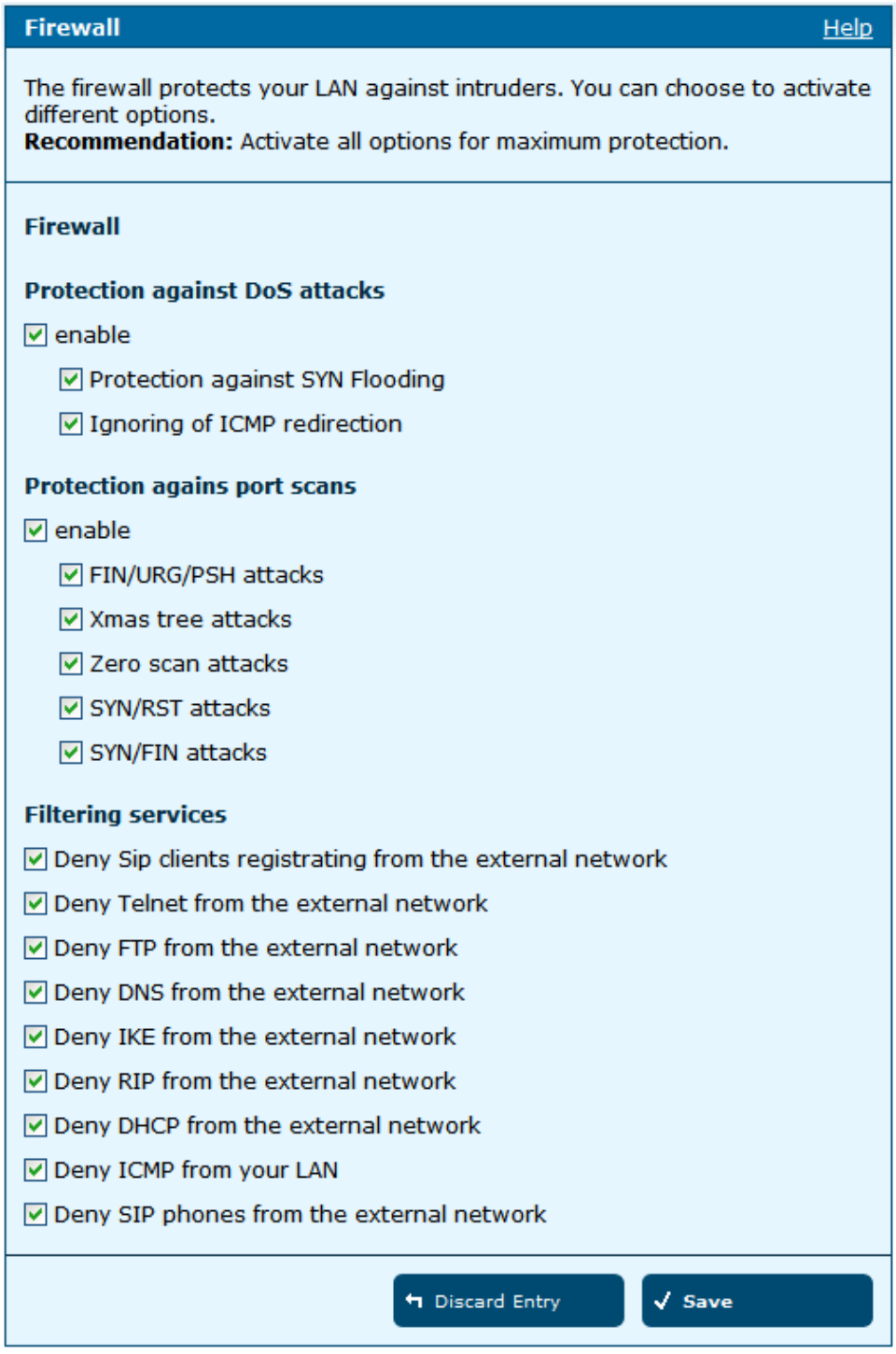


Figure 5.11.: Firewall

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.

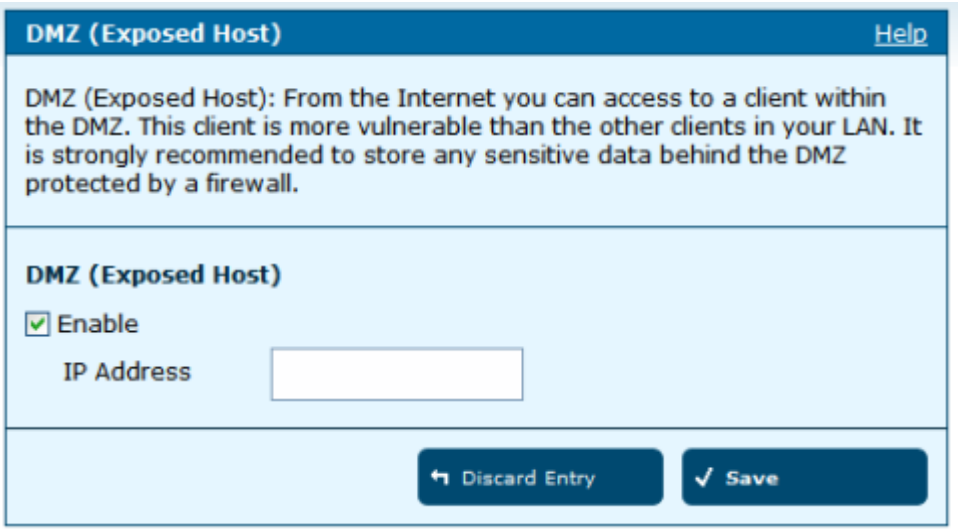


Figure 5.12.: DMZ

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

To save the settings click on SAVE.

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

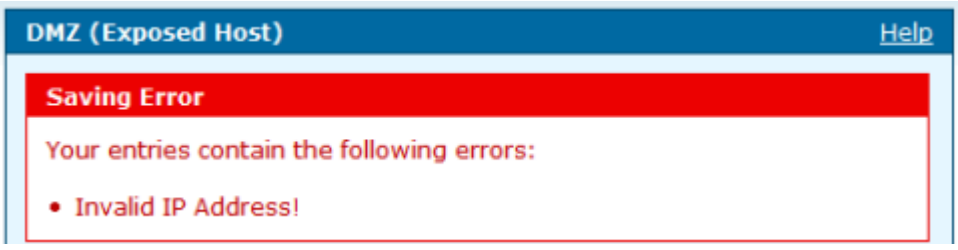


Figure 5.13.: Error message

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.

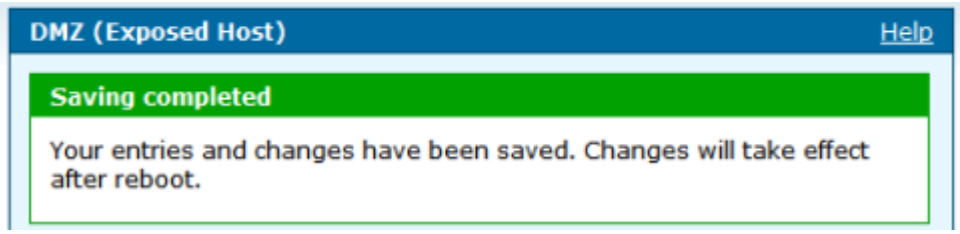


Figure 5.14.: Saving completed

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.

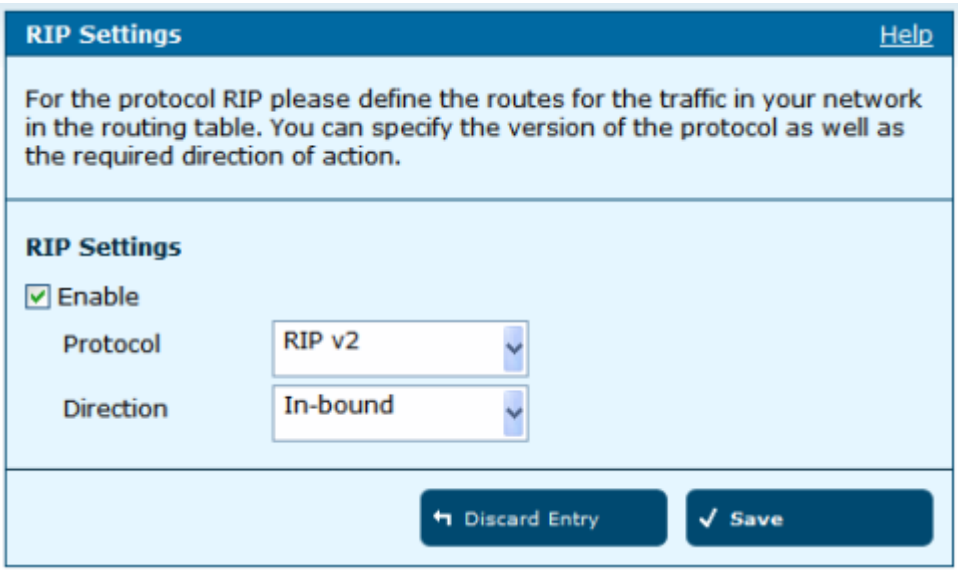


Figure 5.15.: RIP

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

To discard all recent entries click on DISCARD ENTRY.

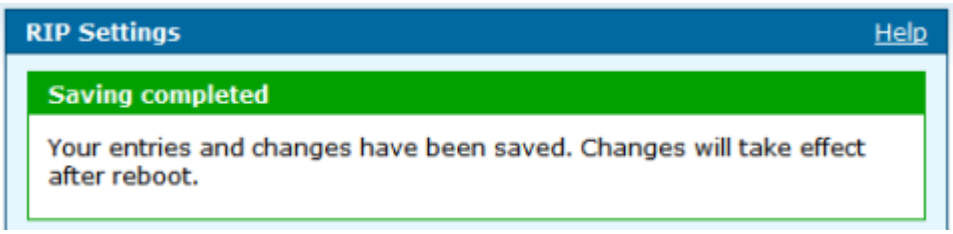


Figure 5.16.: Saving completed

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.

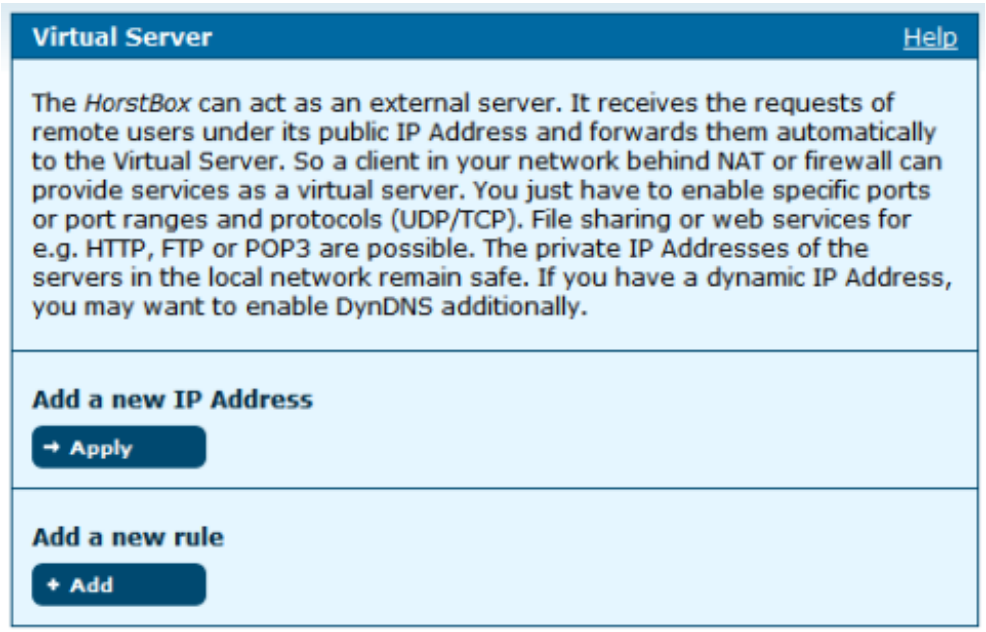


Figure 5.17.: Virtual Server

5.8.1. Add Rule

To add a rule click on ADD.

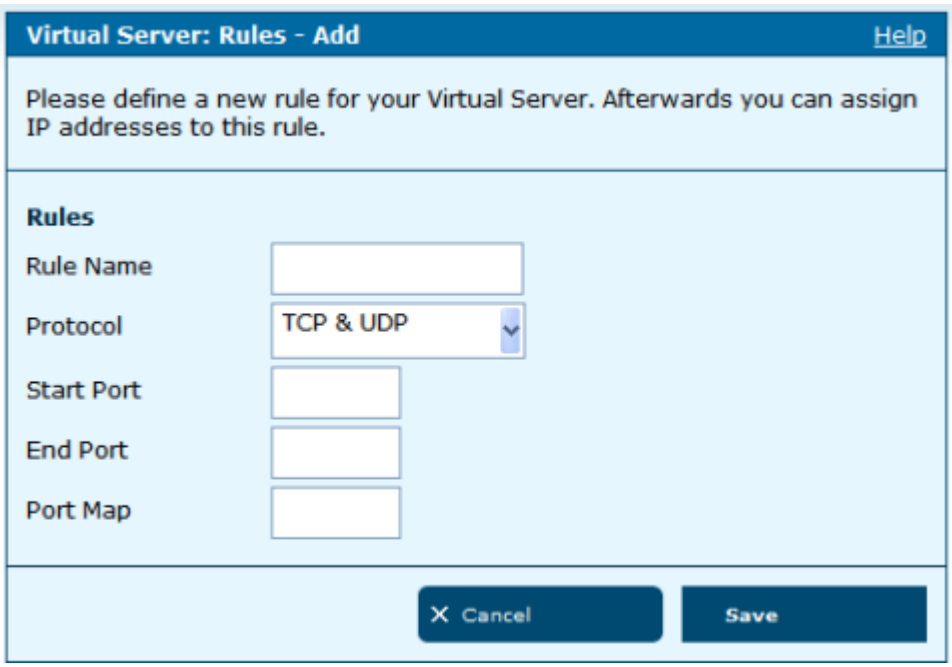


Figure 5.18.: Virtual Server, Add/Edit rules

- 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).

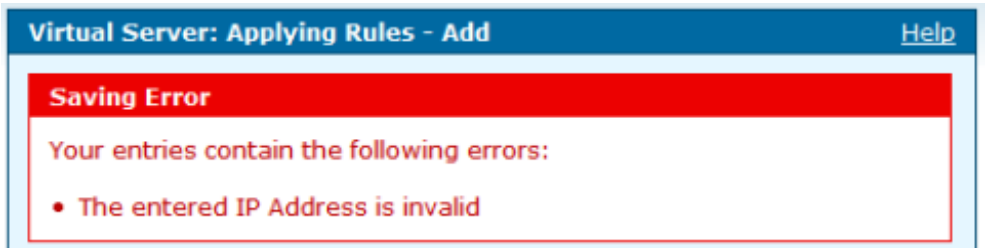


Figure 5.19.: Error message

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

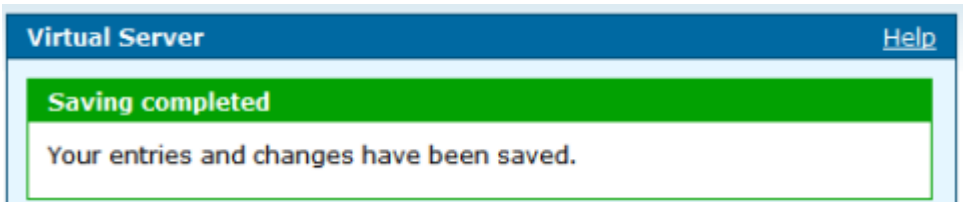


Figure 5.20.: Saving completed

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.

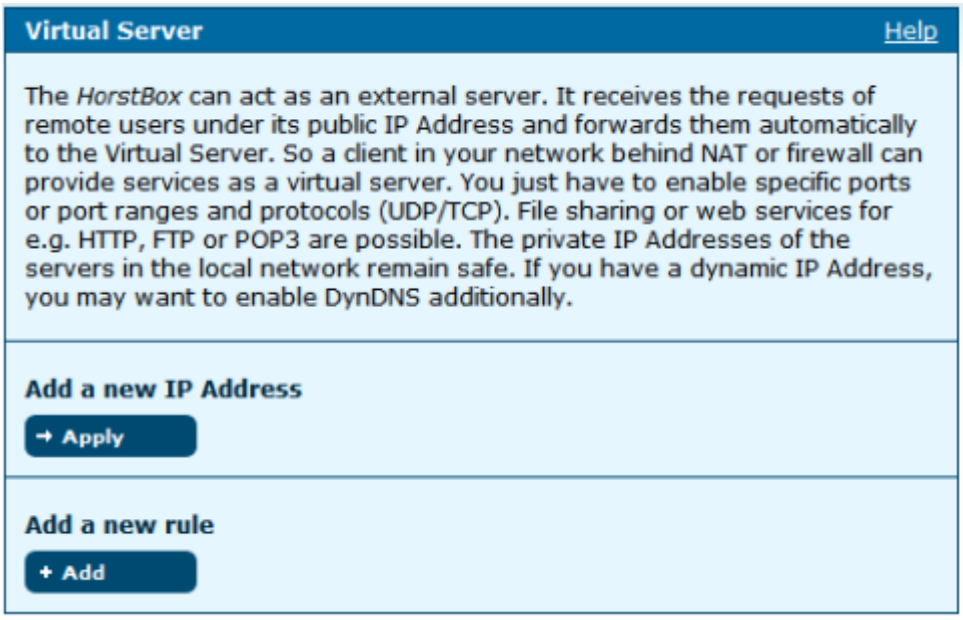


Figure 5.21.: Virtual Server, apply rules

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).

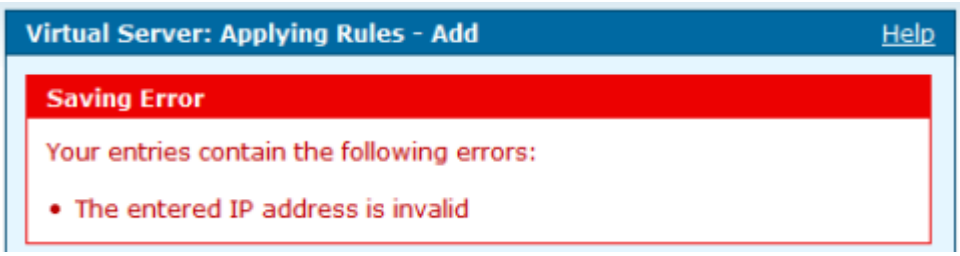


Figure 5.22.: Error message

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 modeBasic 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.

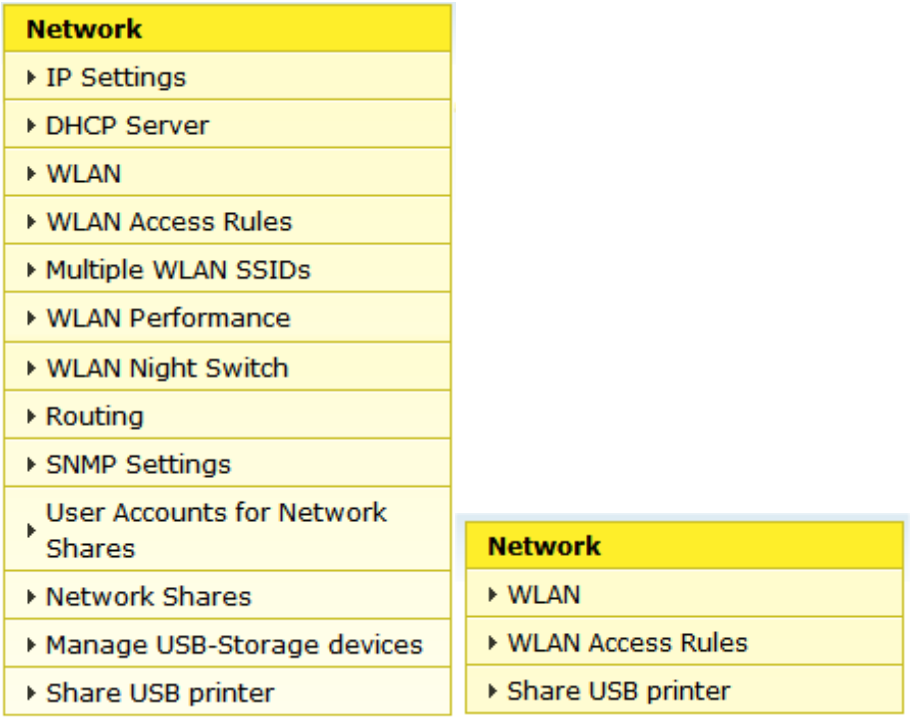


Figure 6.1.: Navigation column Network (expert- and basic mode)

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.

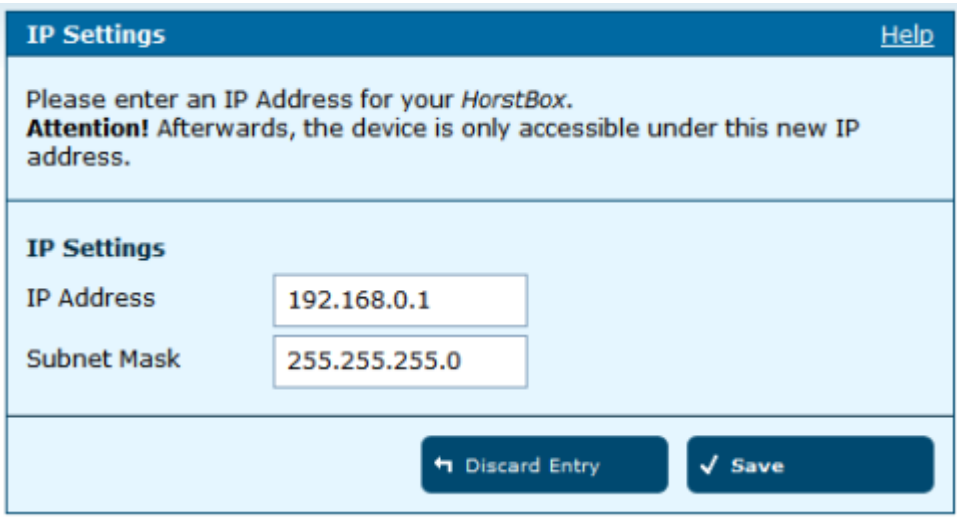


Figure 6.2.: IP Settings

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).

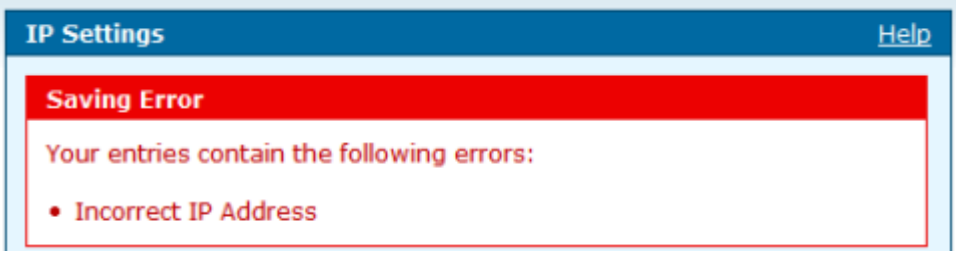


Figure 6.3.: Error message

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

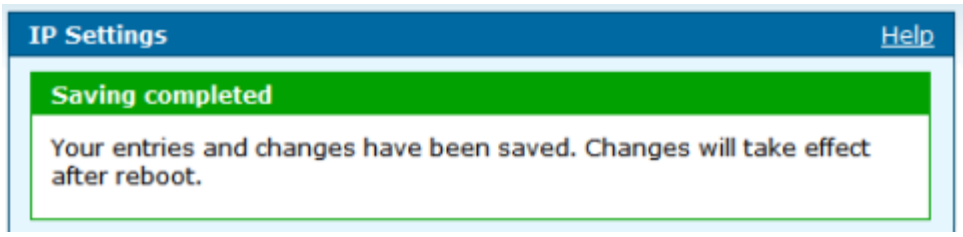


Figure 6.4.: Saving completed

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 DCHP 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 DCHP 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.

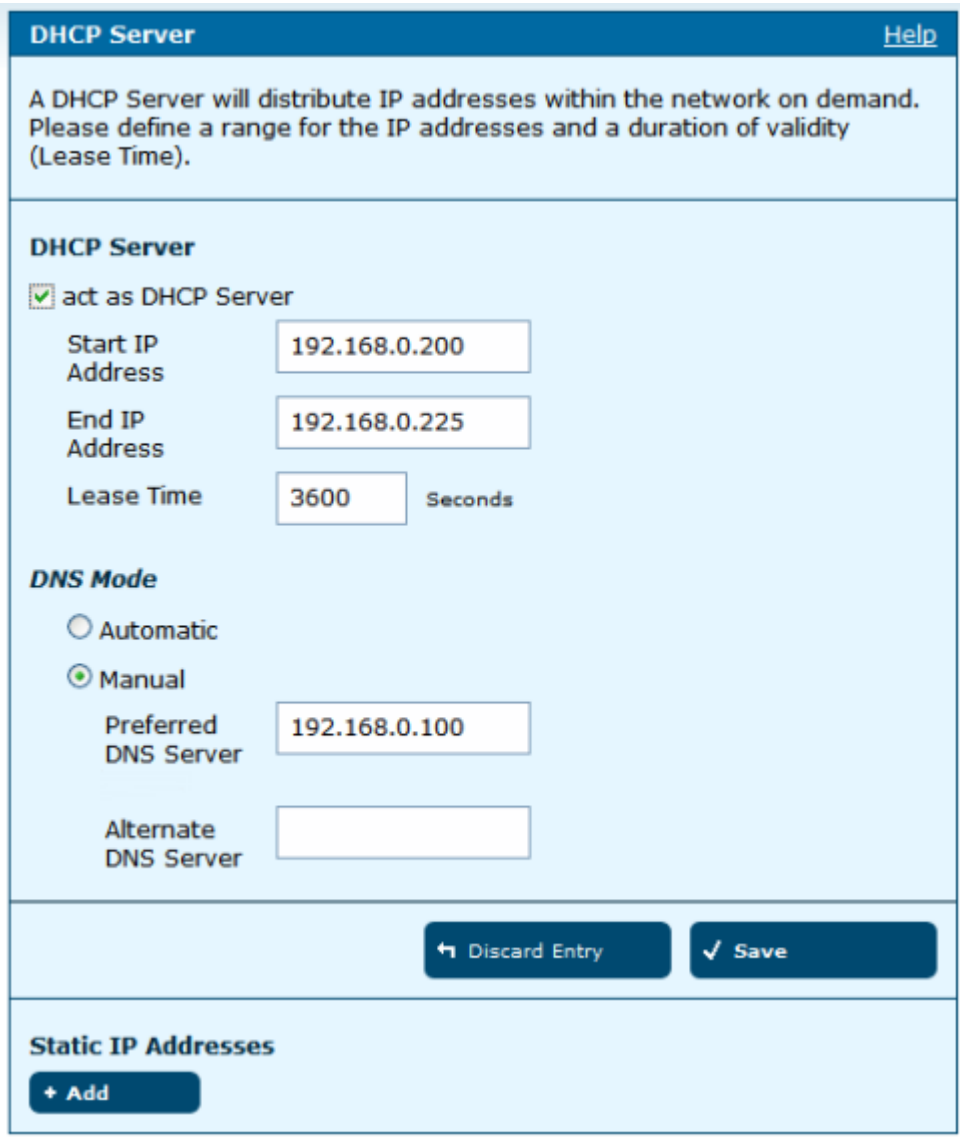


Figure 6.5.: DHCP Server

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 MAX 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.

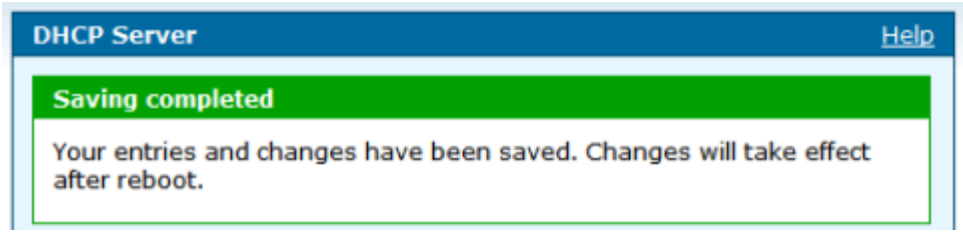


Figure 6.7.: Saving completed

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.

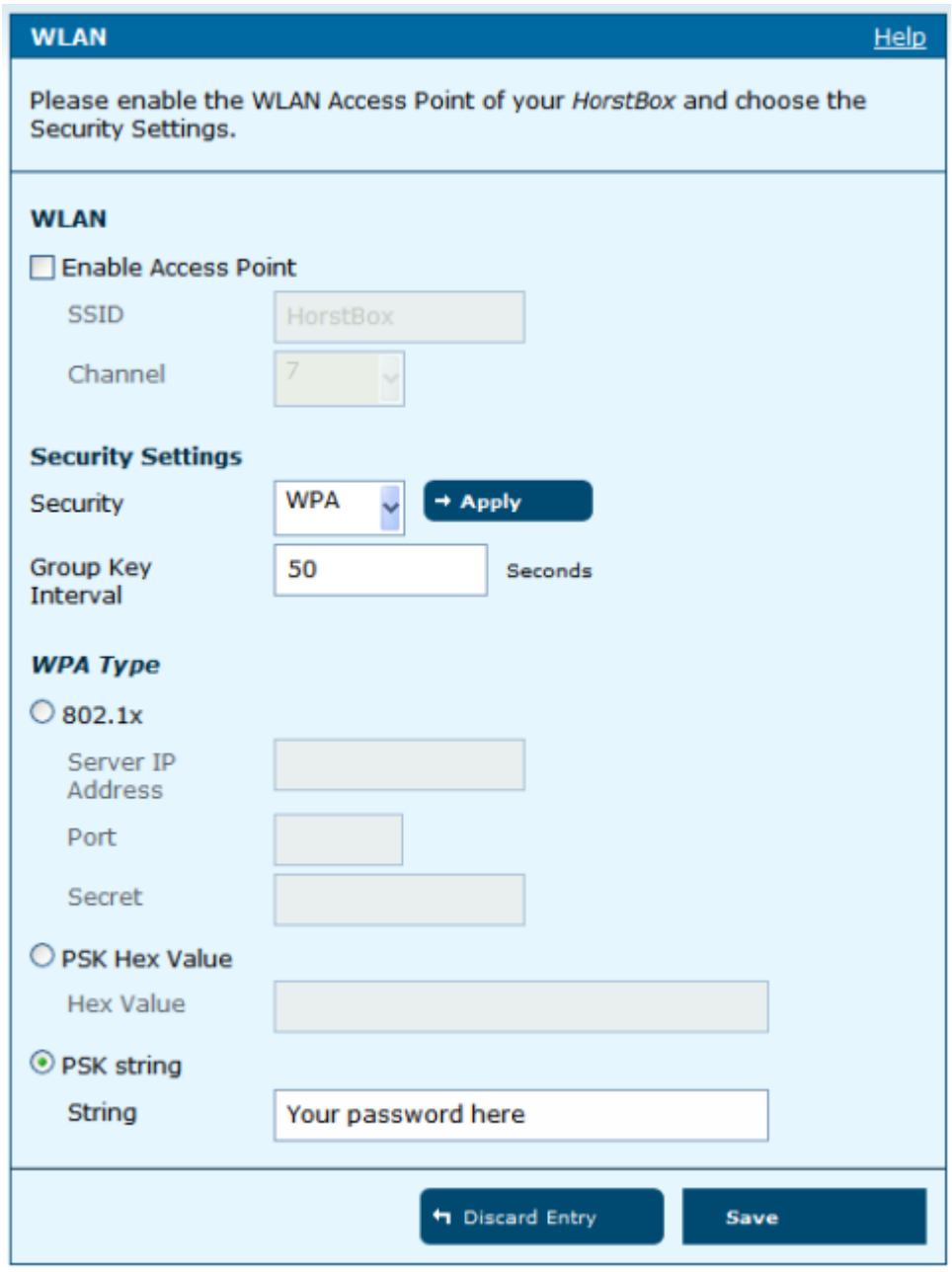


Figure 6.8.: WLAN Settings

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 authentification. 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.

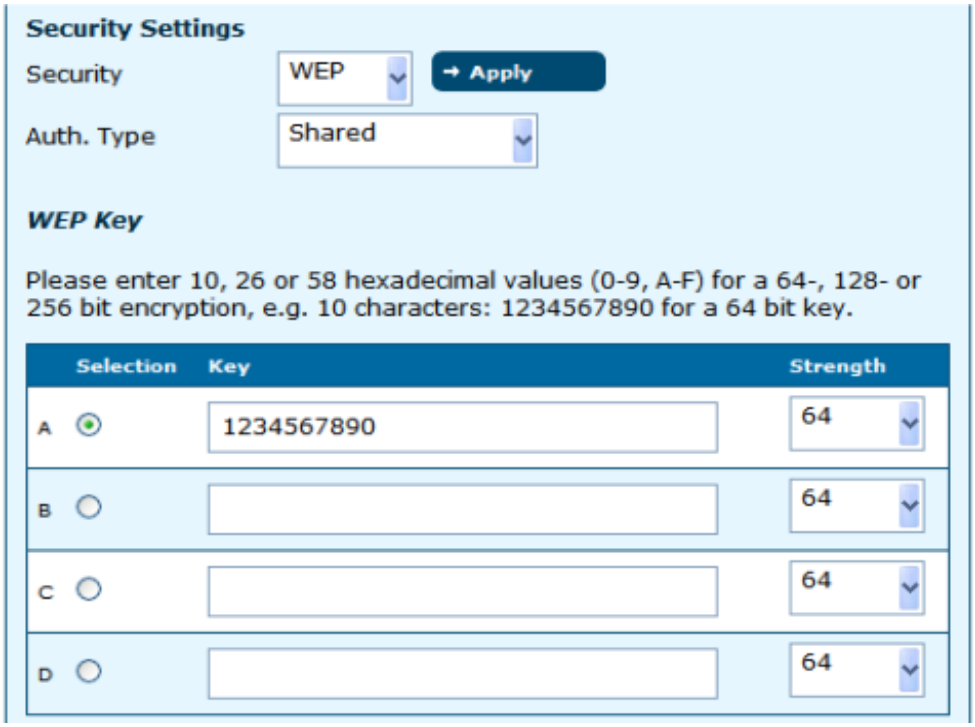


Figure 6.9.: WEP Settings

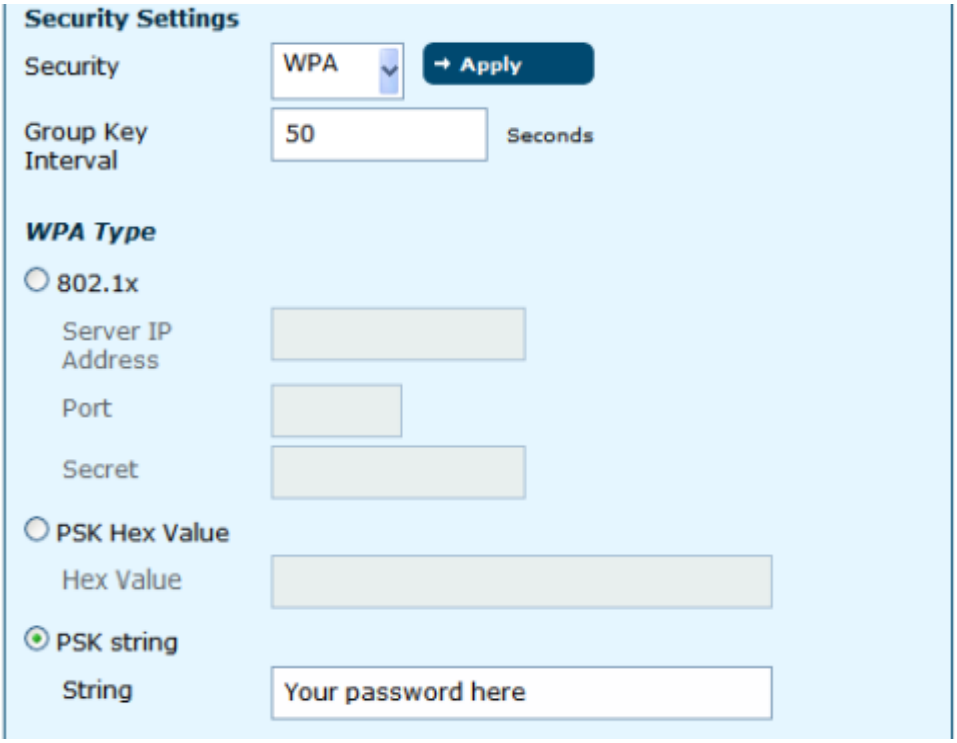


Figure 6.10.: WPA Settings

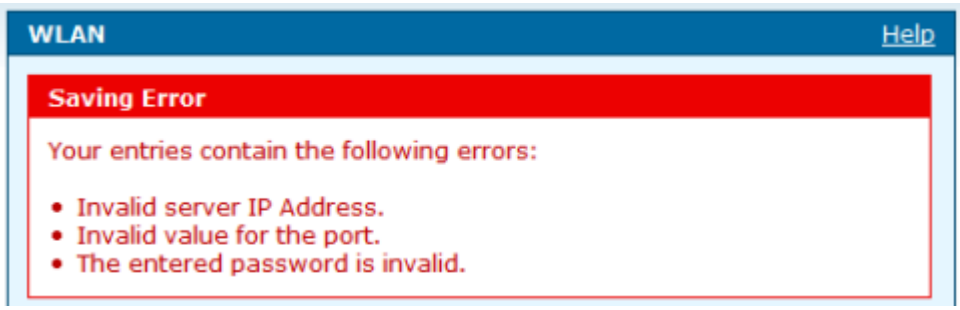


Figure 6.11.: Error message

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.

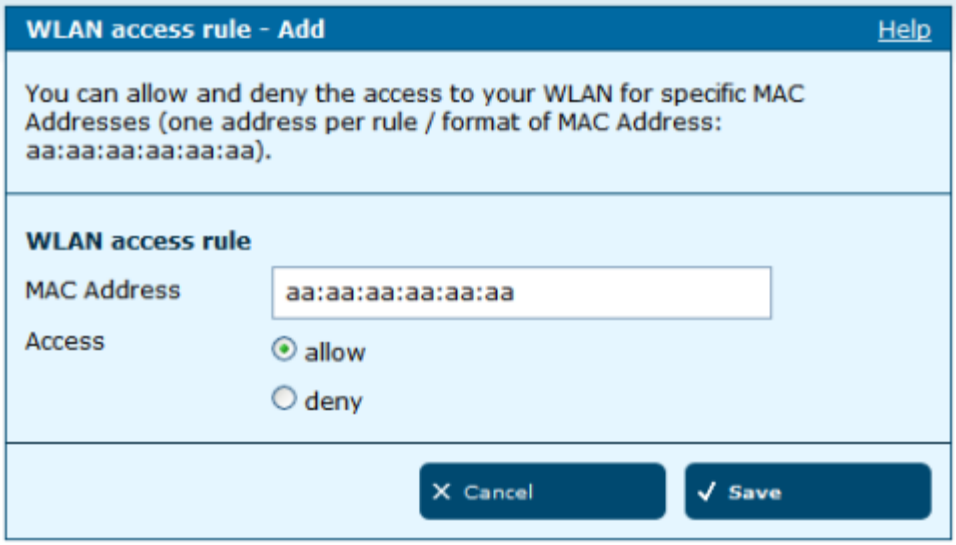


Figure 6.13.: WLAN Access Rules - Add

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).

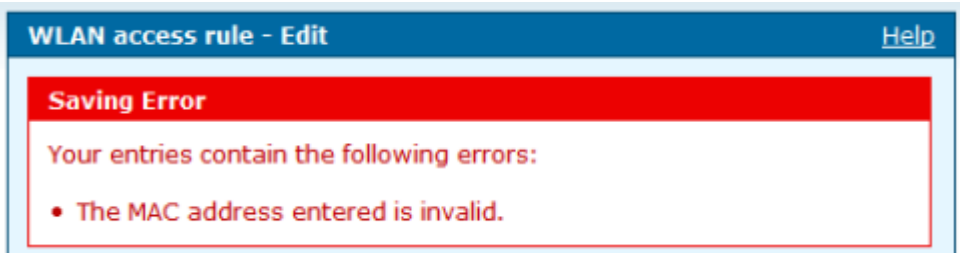


Figure 6.14.: Error message

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

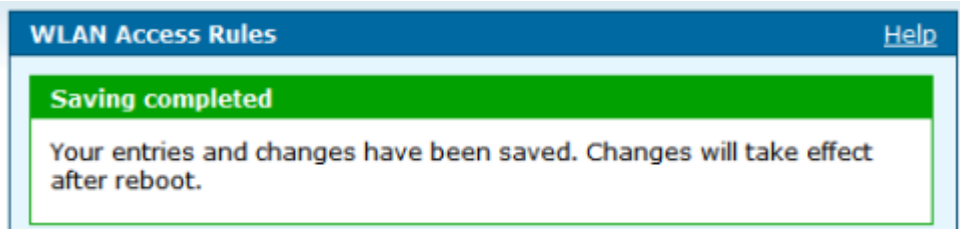


Figure 6.15.: Saving completed

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.

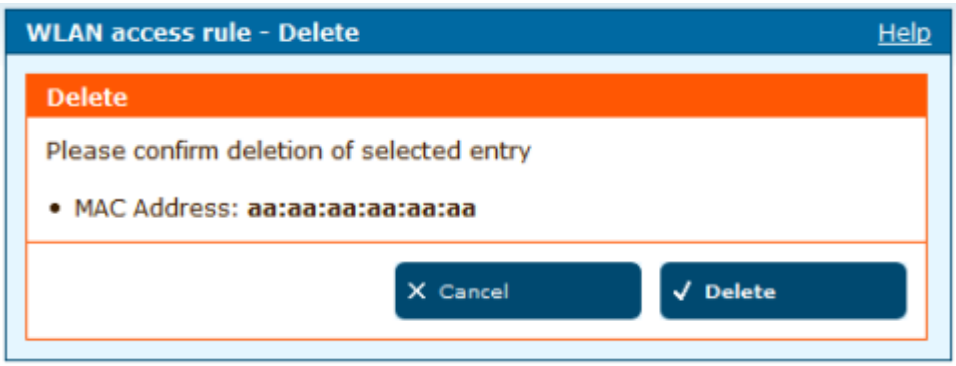


Figure 6.16.: Security warning

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

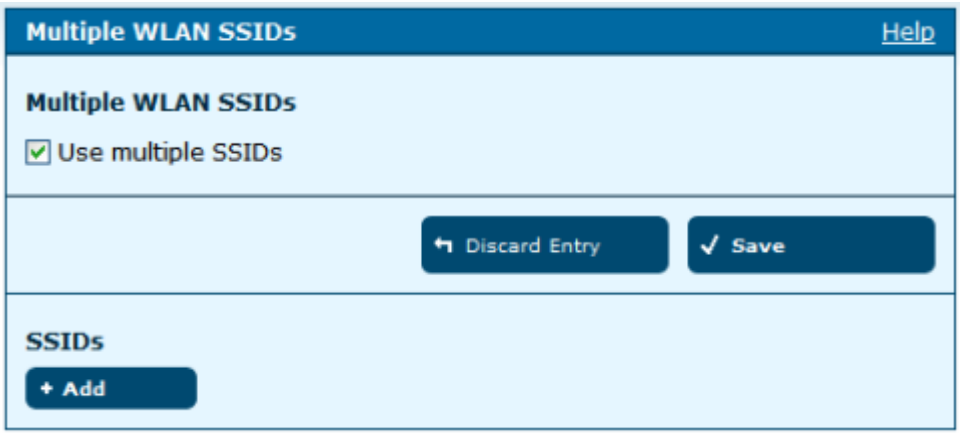


Figure 6.17.: Multiple WLAN SSIDs

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.

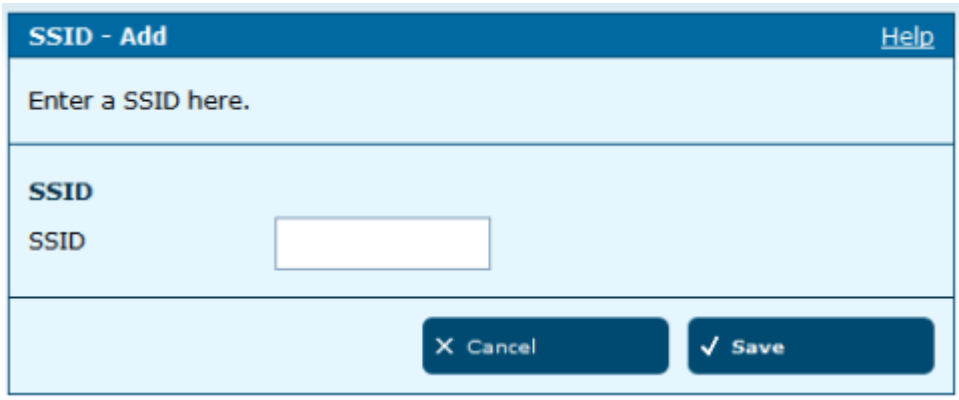


Figure 6.18.: Add SSID

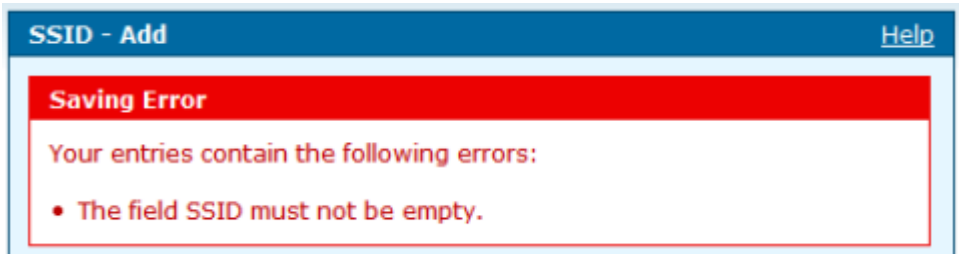


Figure 6.19.: Error message

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

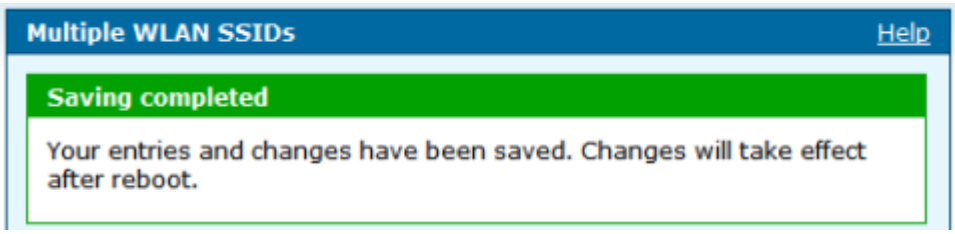


Figure 6.20.: Saving completed

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.

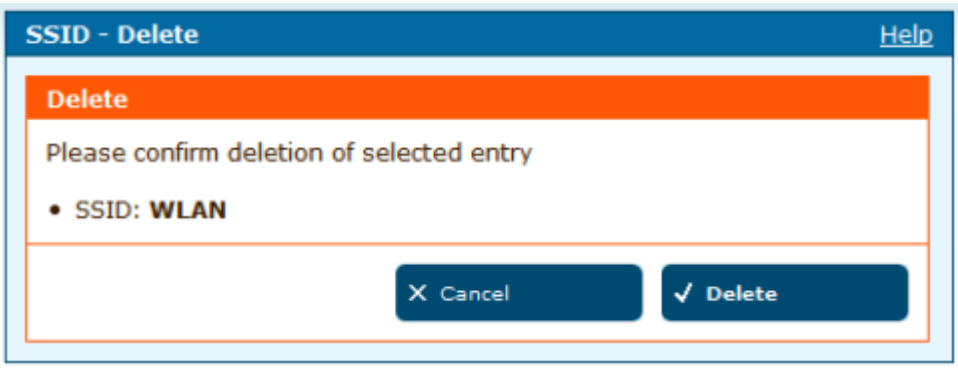


Figure 6.21.: Security warning

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.

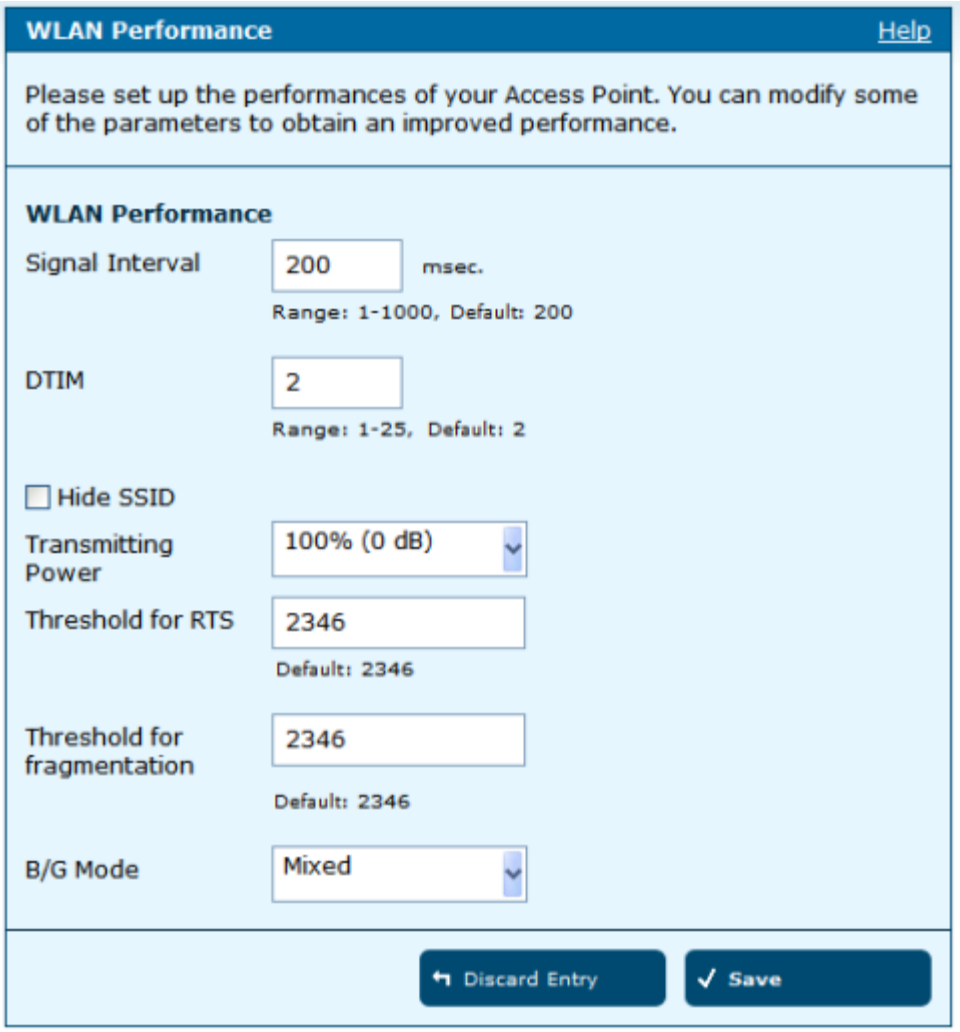


Figure 6.22.: WLAN Performance

Options Values
Signal Interval (Beacon Interval) Time interval for sending a beacon for synchronization. Range of valid values: 20 to 1000. Default: **100**.
DTIM 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**.
Transmitting Power 100%: 0 dB (Max. transmitting power / Default) 50%: -3 dB 12%: -9 dB 6%: -12 dB (Min. transmitting power)
Threshold for RTS 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.
Threshold for Fragmentation Treshold 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, exept for a huge packet error rate. Valid range between 256 and 2,346. Default: **2346** **Note:** Chosing a low value for fragmentation may result in bad data transfer rates.
B/G Mode 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.

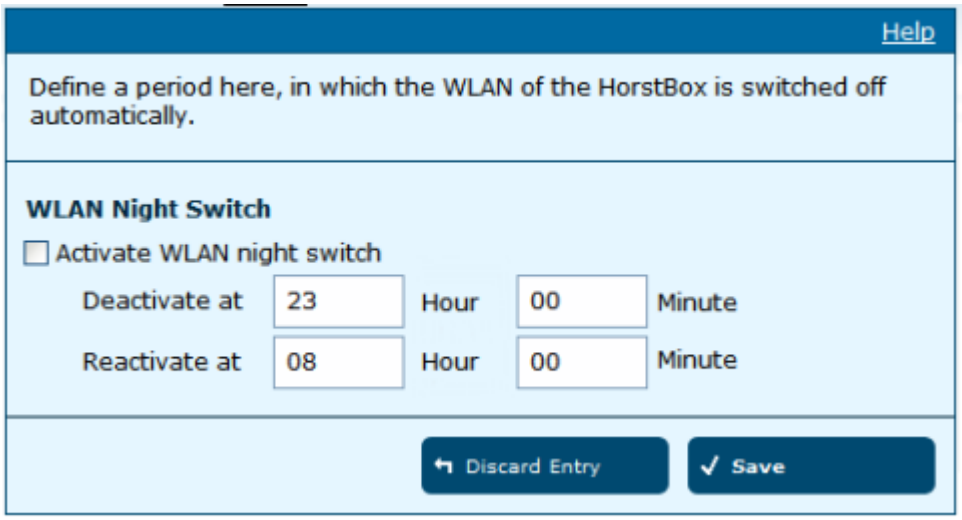


Figure 6.23.: WLAN Night switch

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.

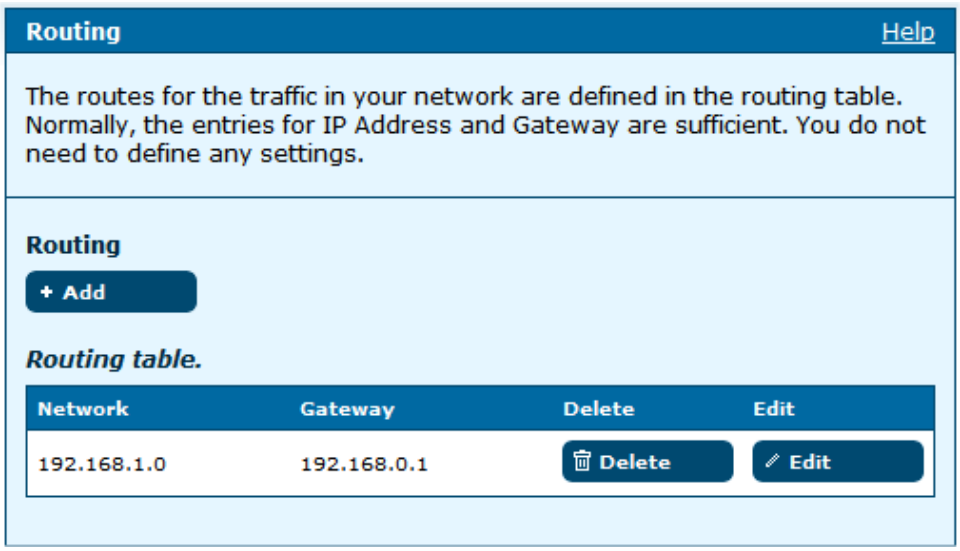


Figure 6.24.: Routing

Default: No settings neccessary 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.

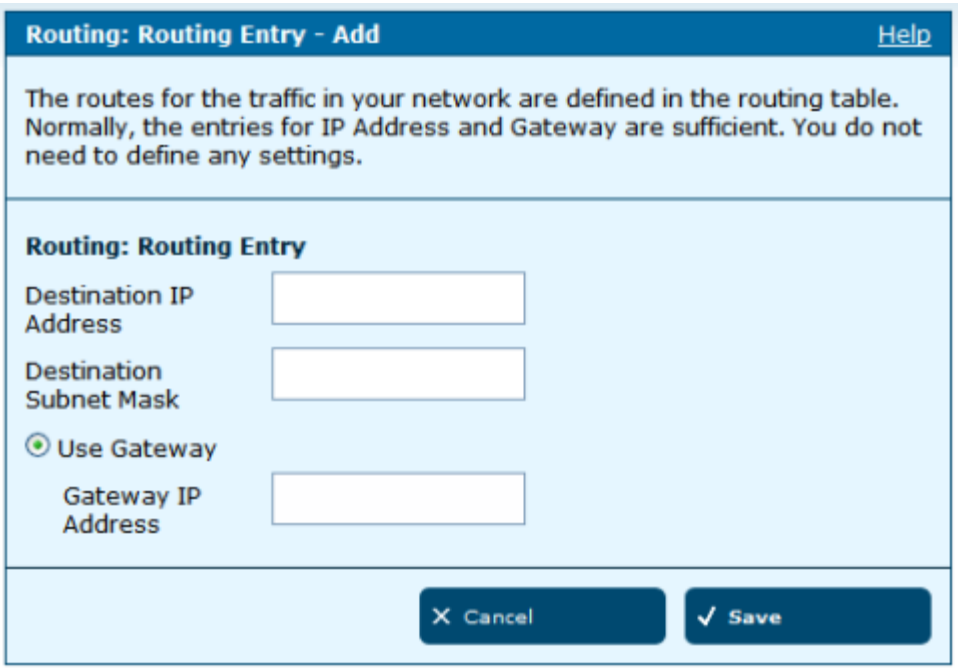


Figure 6.25.: Add Route

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).

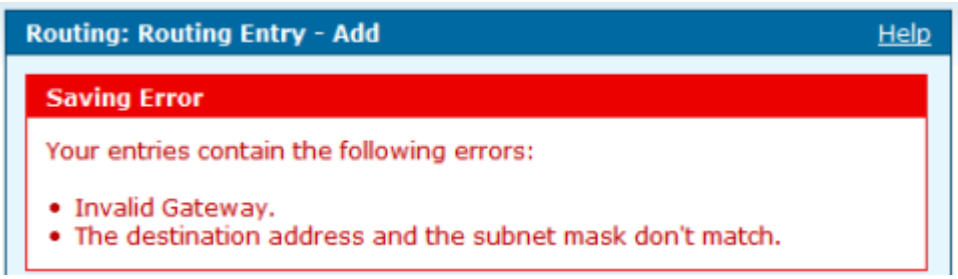


Figure 6.26.: Error message

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.

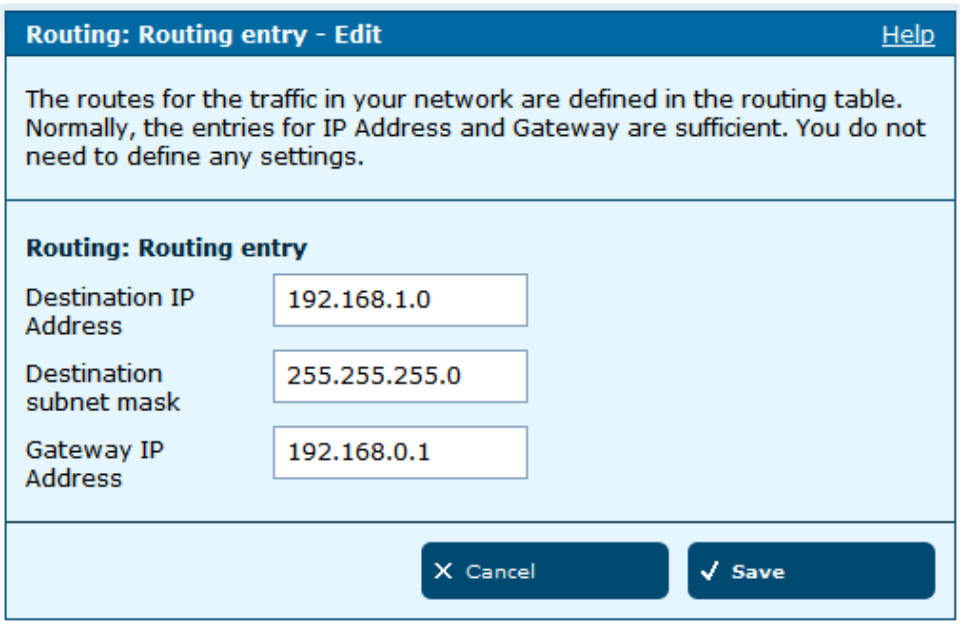


Figure 6.27.: Edit Route

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).

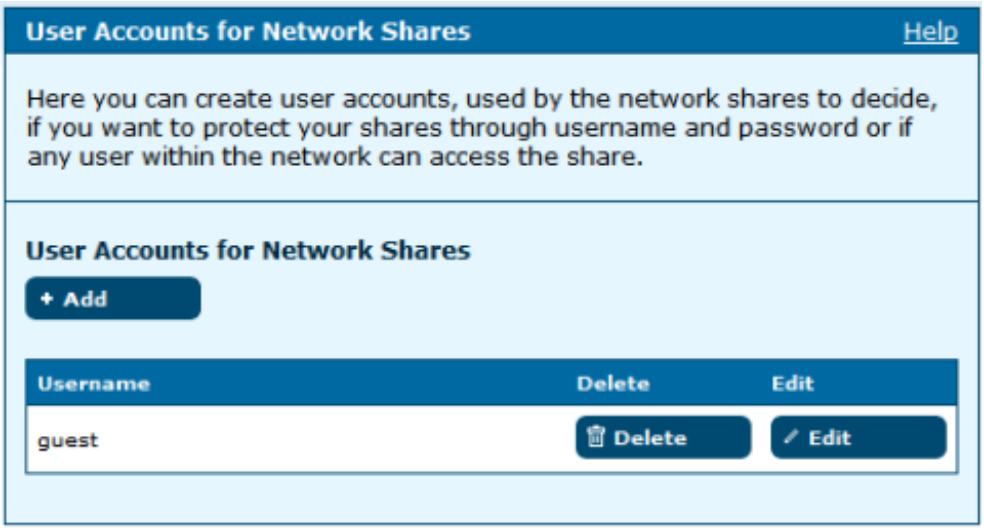


Figure 6.28.: User Accounts for Network Shares

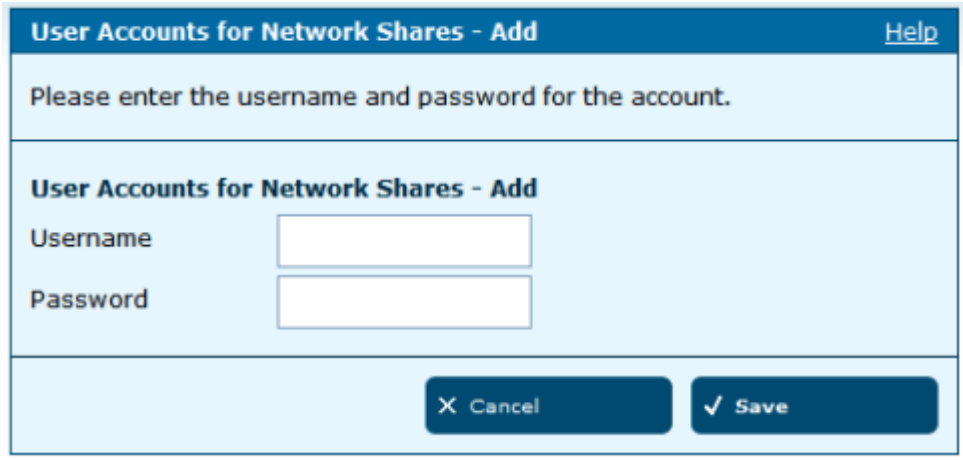


Figure 6.29.: Add user account

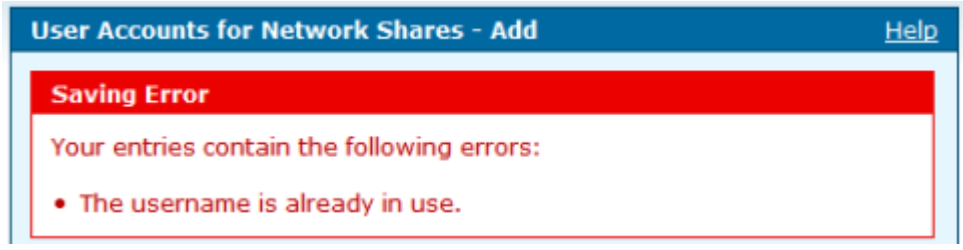


Figure 6.30.: Error message

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.

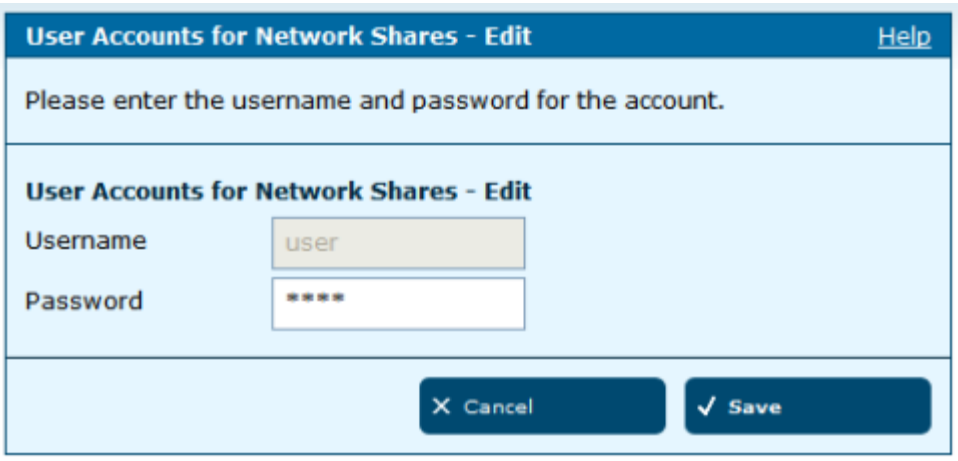


Figure 6.31.: Edit User Account

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.

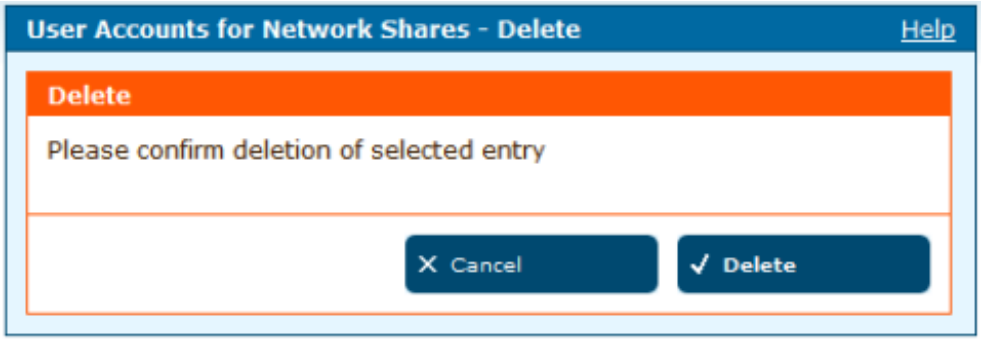


Figure 6.32.: Security warning

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.

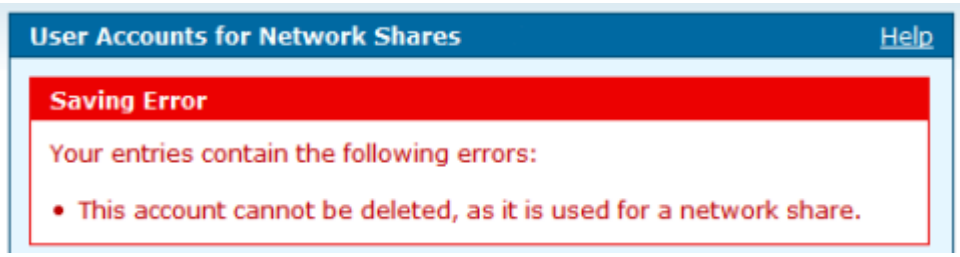


Figure 6.33.: Error message

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.

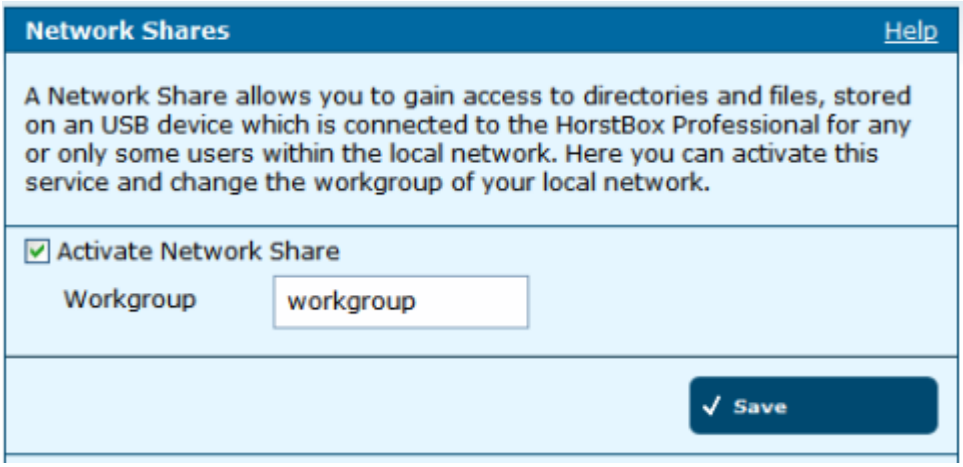


Figure 6.34.: Activate Network Shares

6.10.2. Add Network Shares

To add a new network share click on ADD.

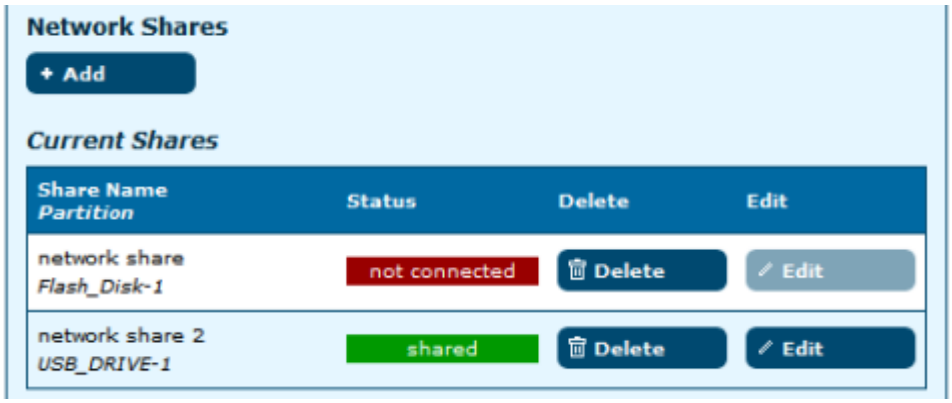


Figure 6.35.: Network Shares

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.

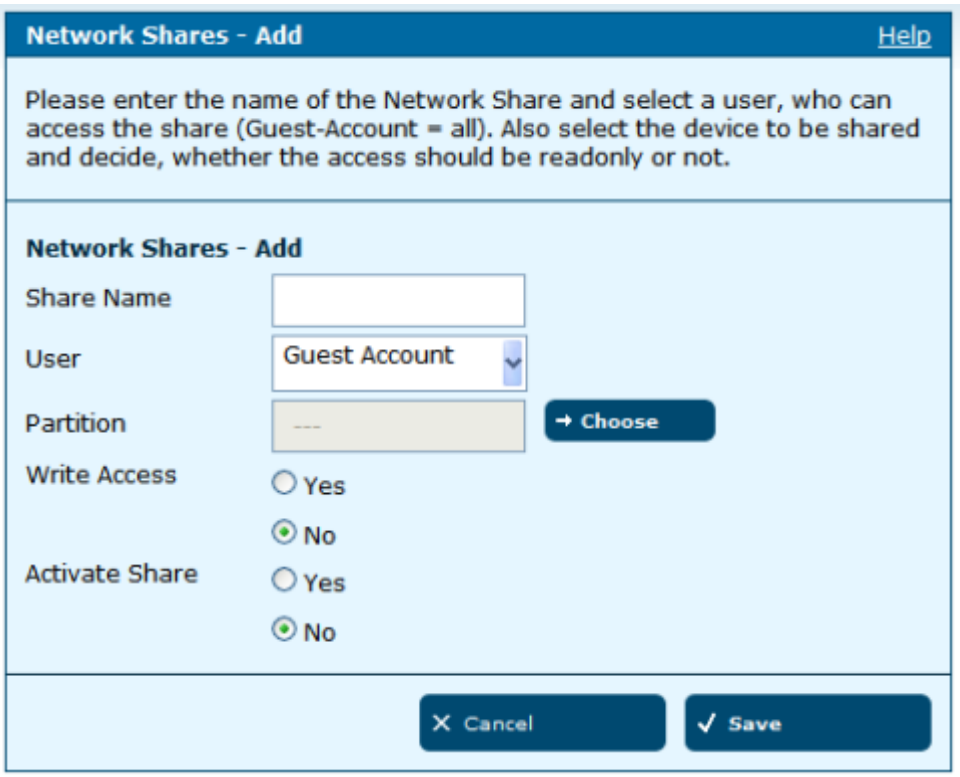


Figure 6.36.: Add Network Shares

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

Click on CHOOSE to choose a partition.

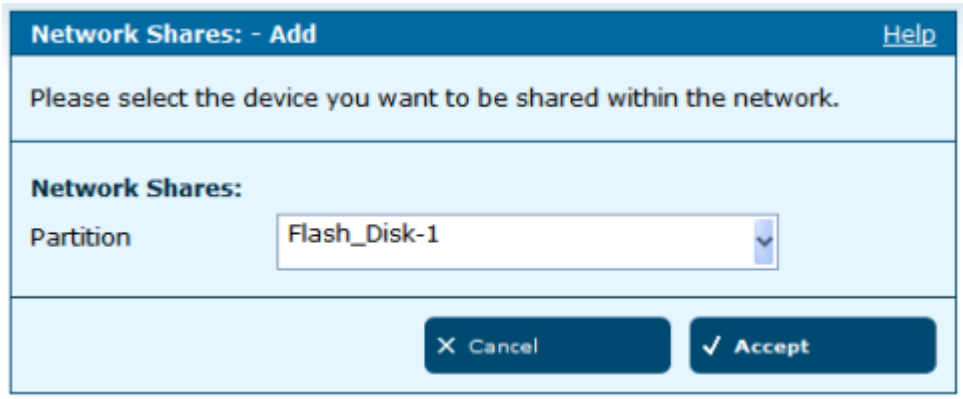


Figure 6.37.: Choose Partition

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 neccessary. 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).

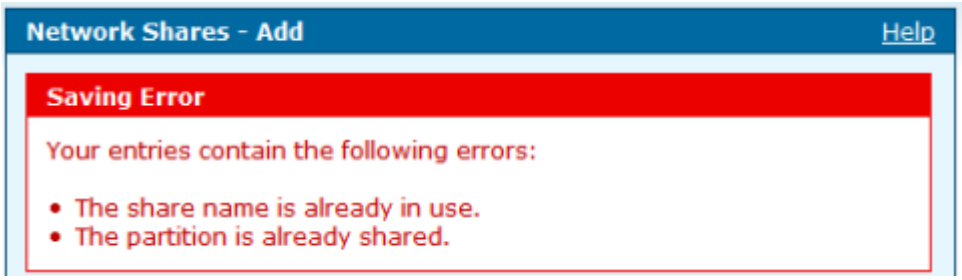


Figure 6.38.: Error message

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.

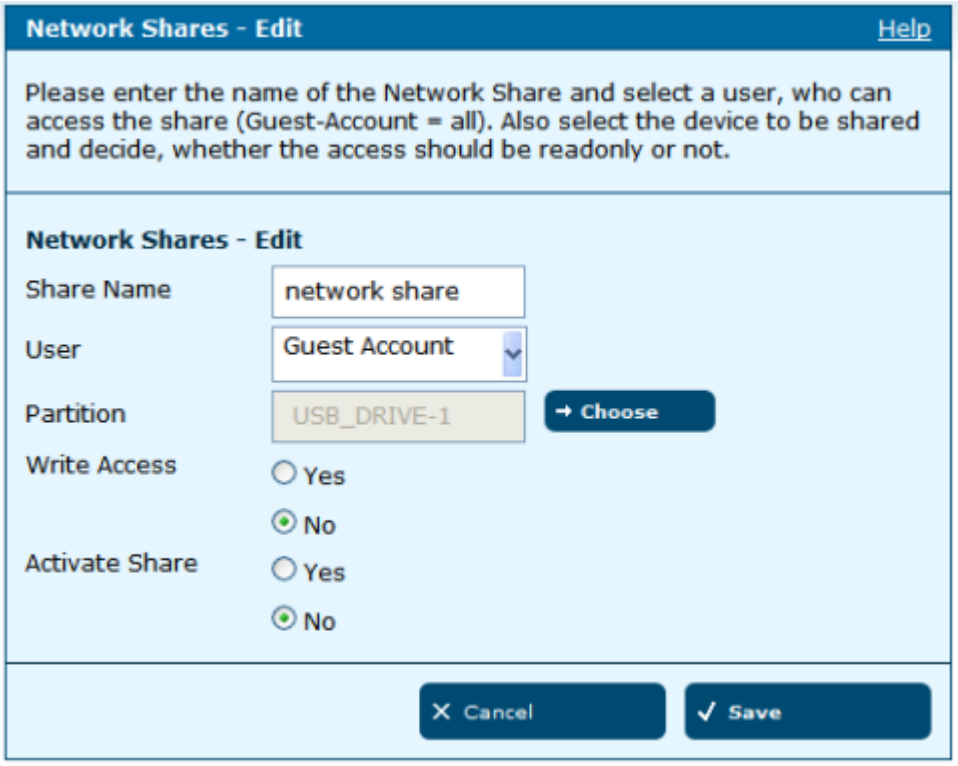


Figure 6.39.: Edit Network Shares

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

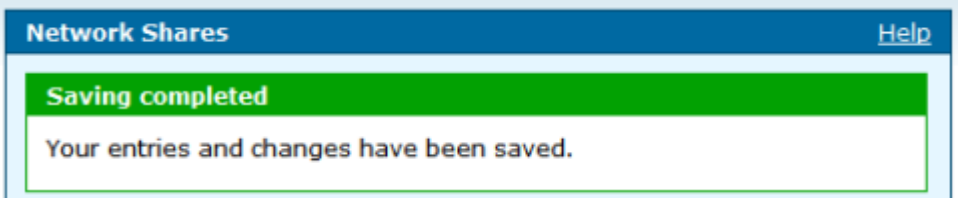


Figure 6.40.: Saving completed

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.

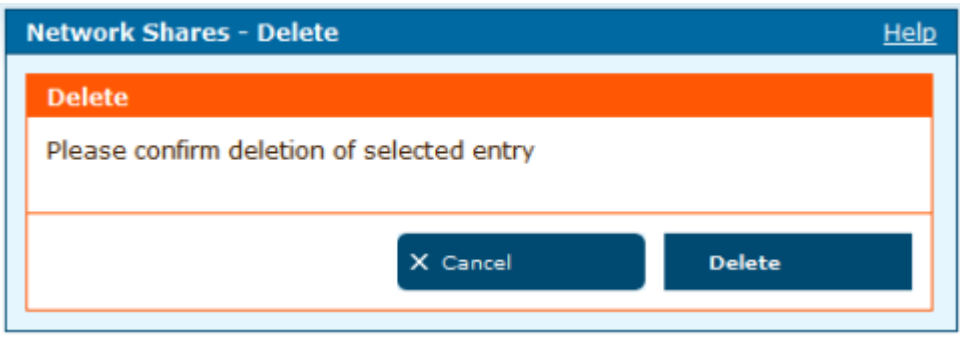


Figure 6.41.: Security warning

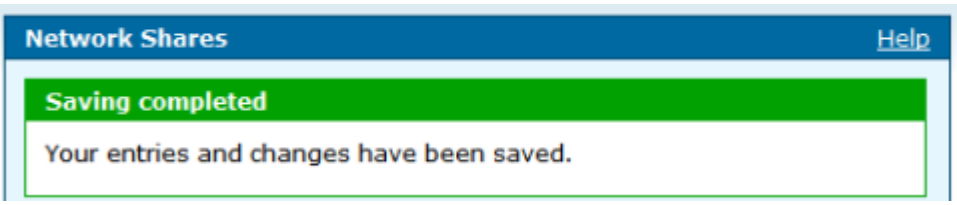


Figure 6.42.: Saving completed

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.

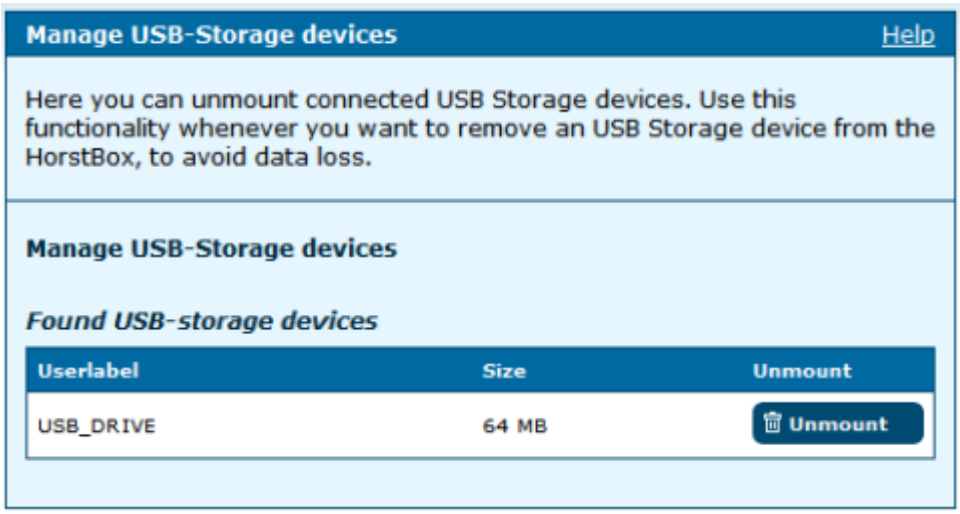


Figure 6.43.: Unmount USB Storage Device

Confirm the warning by again click on UNMOUNT.

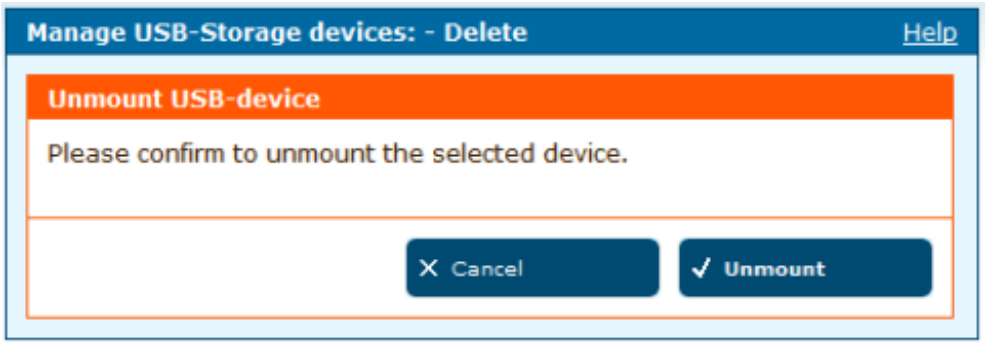


Figure 6.44.: Security warning

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-printers[1] (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”

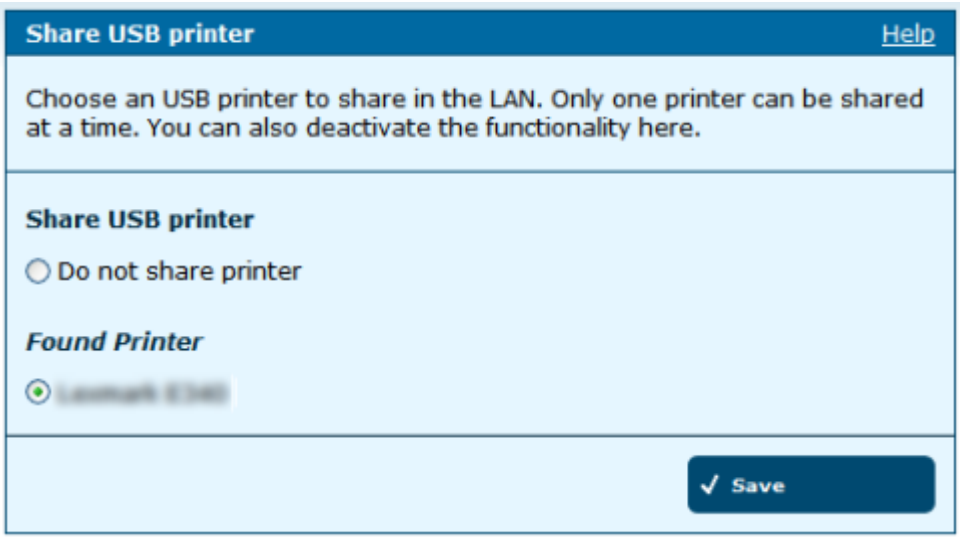


Figure 6.45.: Share USB Printer

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.

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

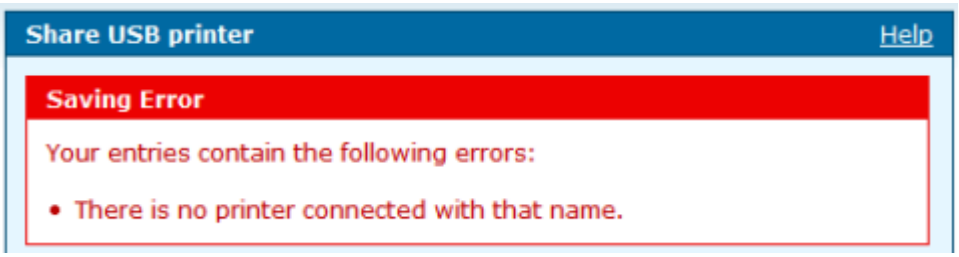


Figure 6.46.: Error message

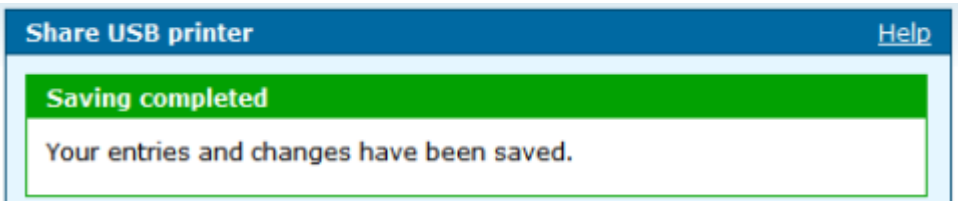


Figure 6.47.: Saving completed

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.

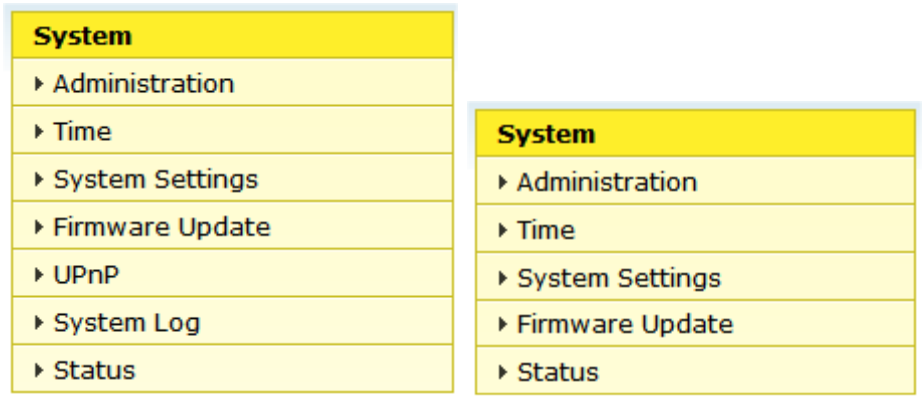


Figure 7.1.: Navigation column System (expert and basic mode)

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.

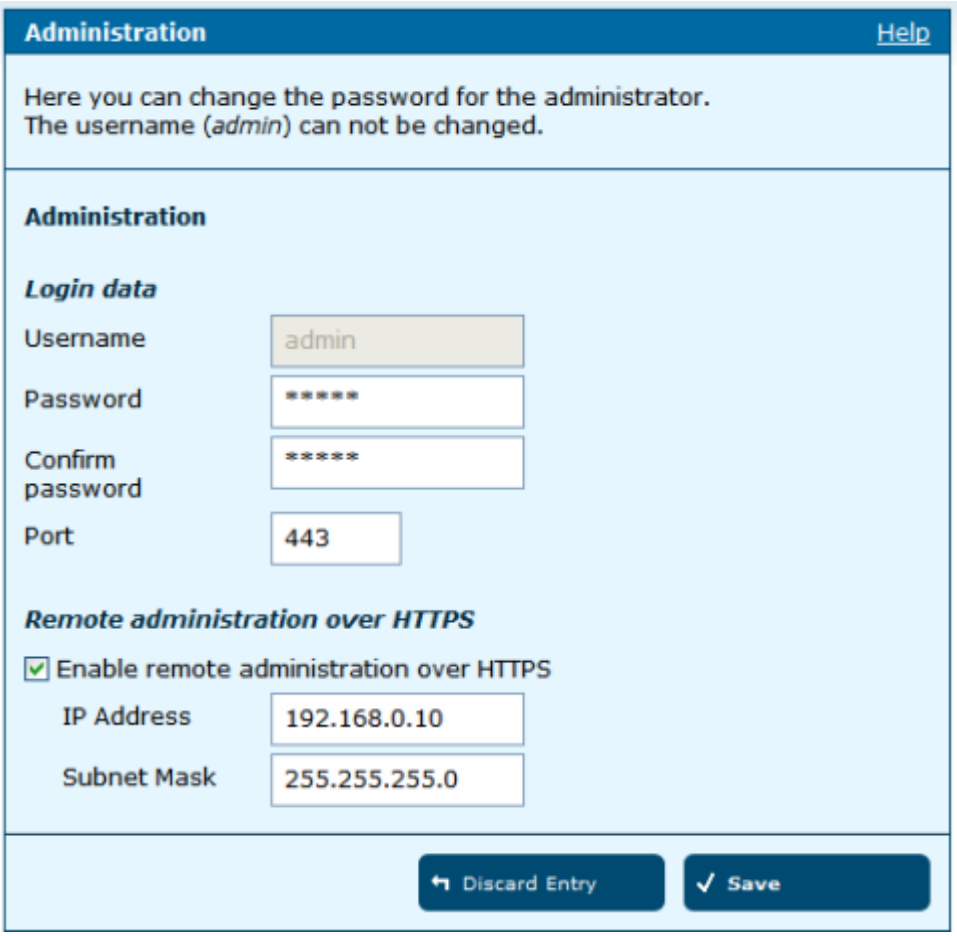


Figure 7.2.: Administration

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 neccessary enter the required data and click on SAVE.

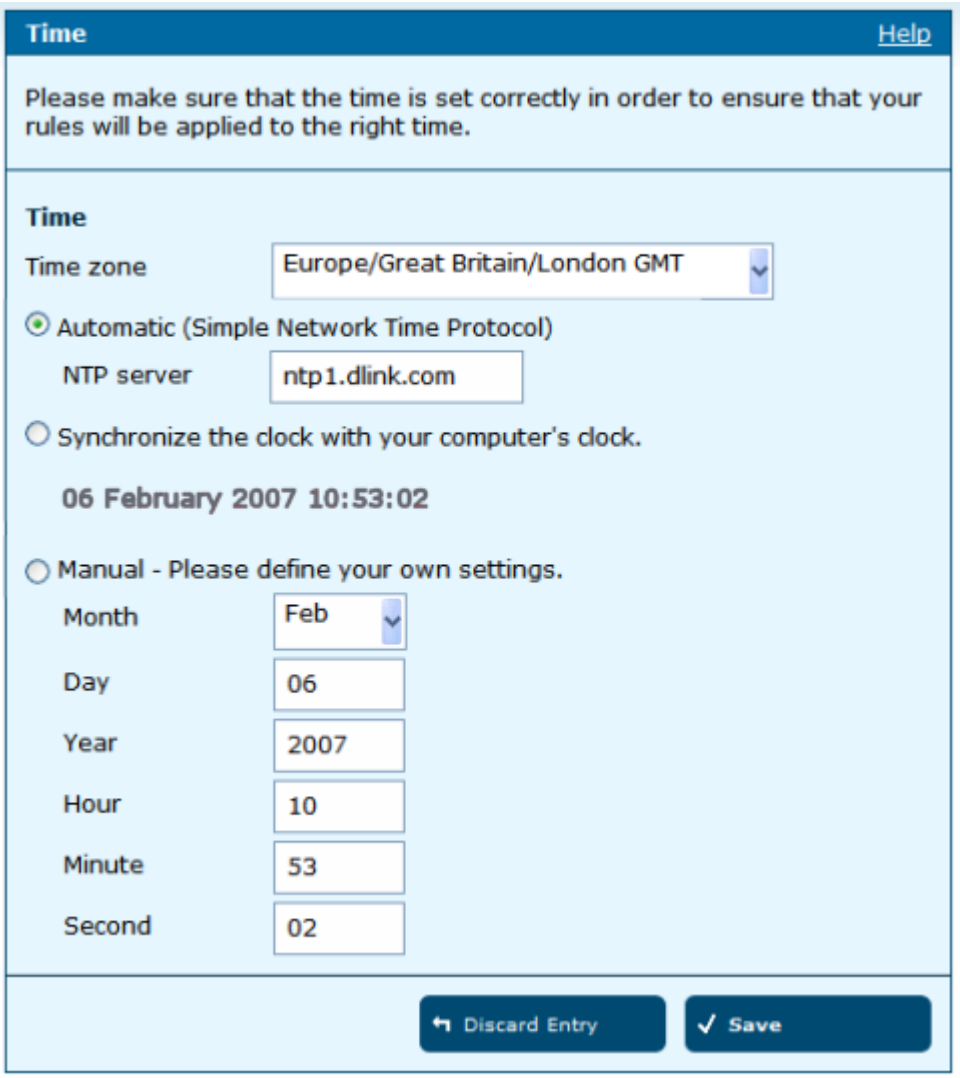


Figure 7.3.: Time Settings

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 neccessary 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.

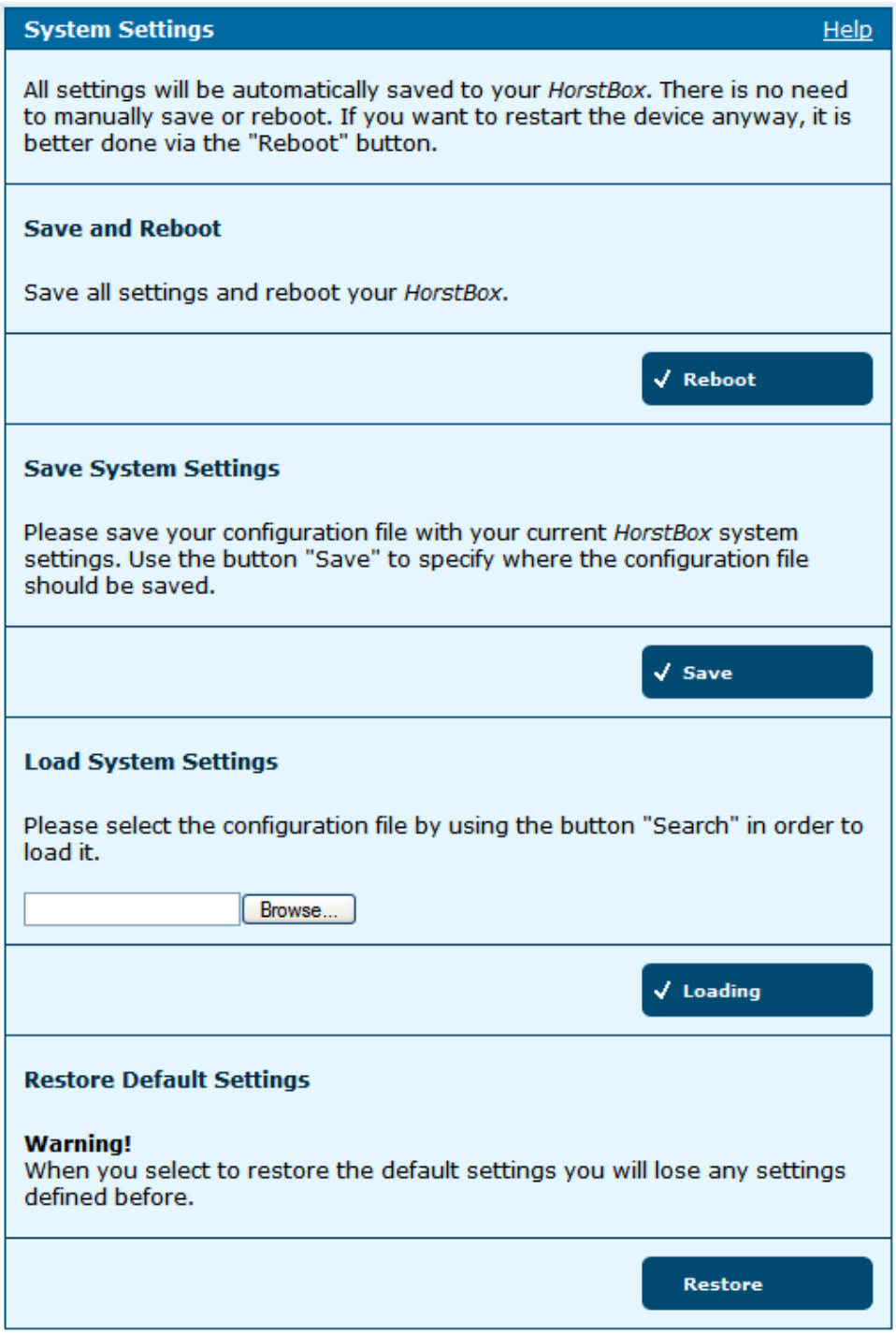


Figure 7.4.: System Settings

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 whilest 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.

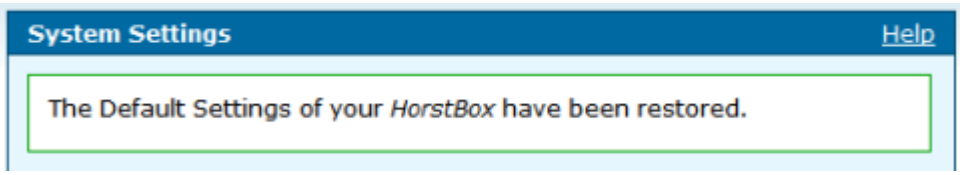


Figure 7.5.: Restore completed

If the admin's passwort 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 neccessary 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.

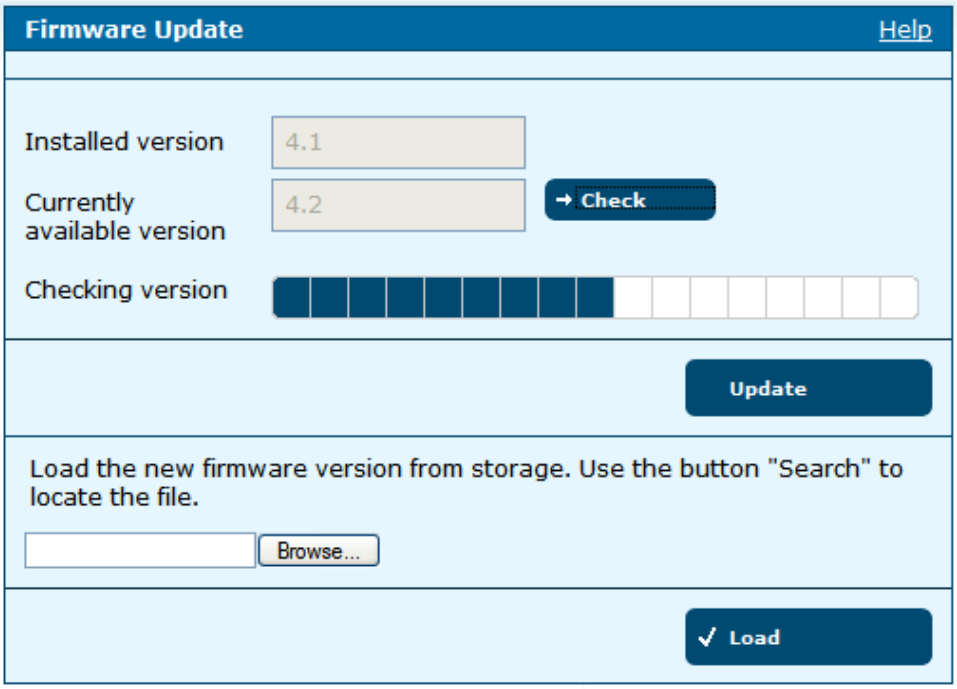


Figure 7.6.: Firmware Update

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.

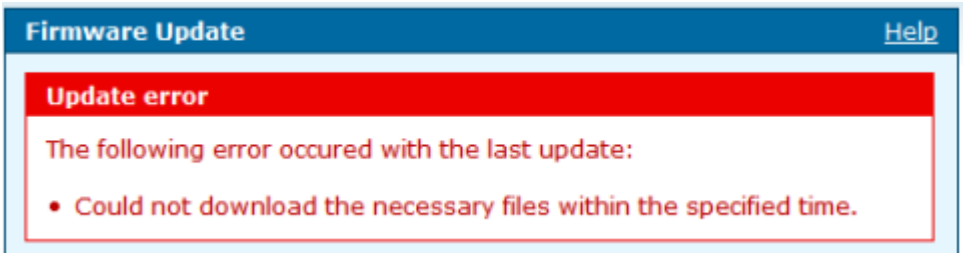


Figure 7.7.: Error message

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 BROWSE[1] to locate the new firmware file stored on your system. In the next dialog choose the firmware file. Click on OPEN.

[1]The 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

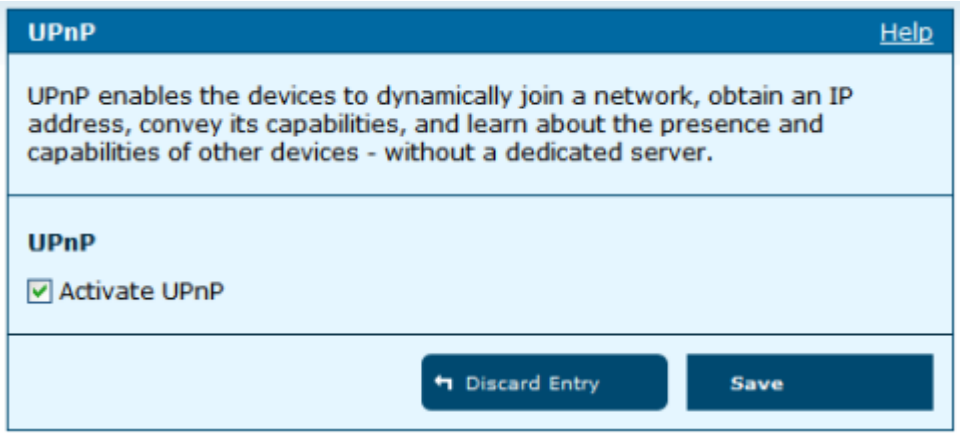


Figure 7.8.: Activate UPnP

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.

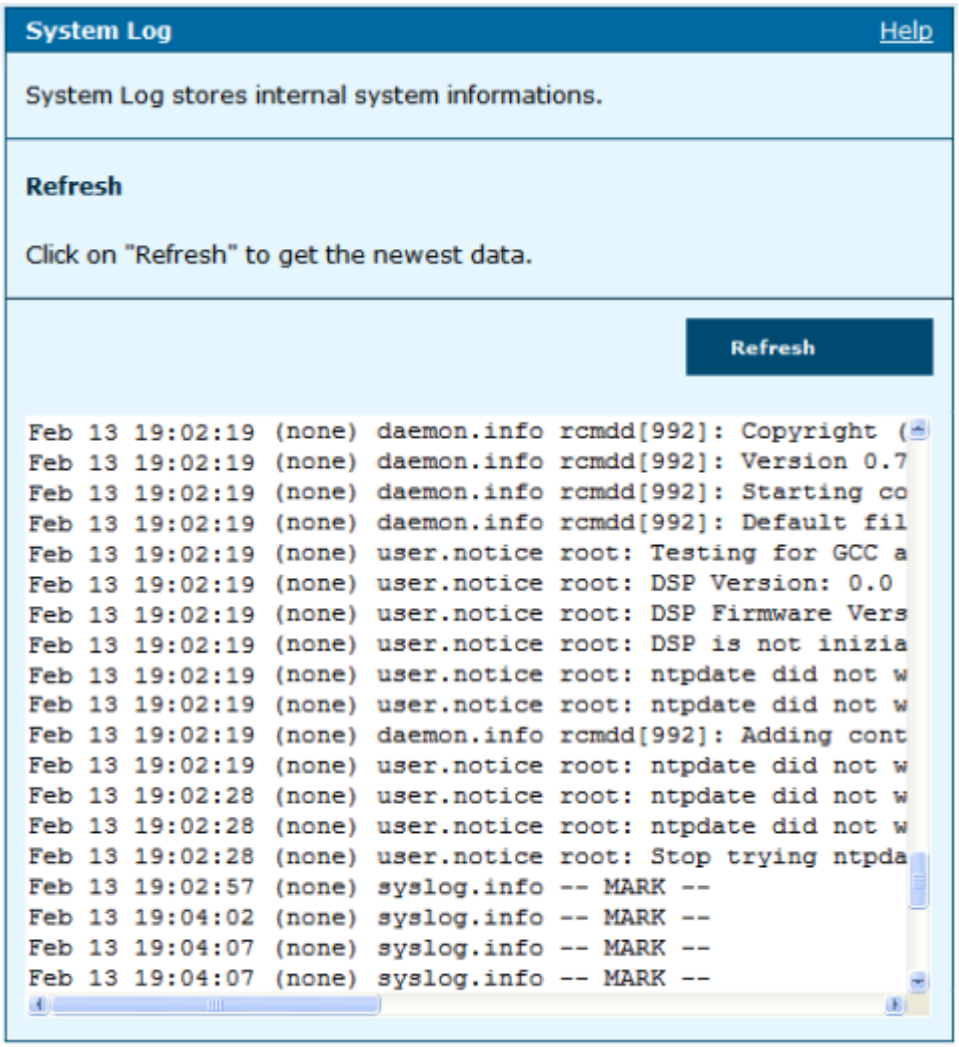


Figure 7.9.: System Log

7.7. Status

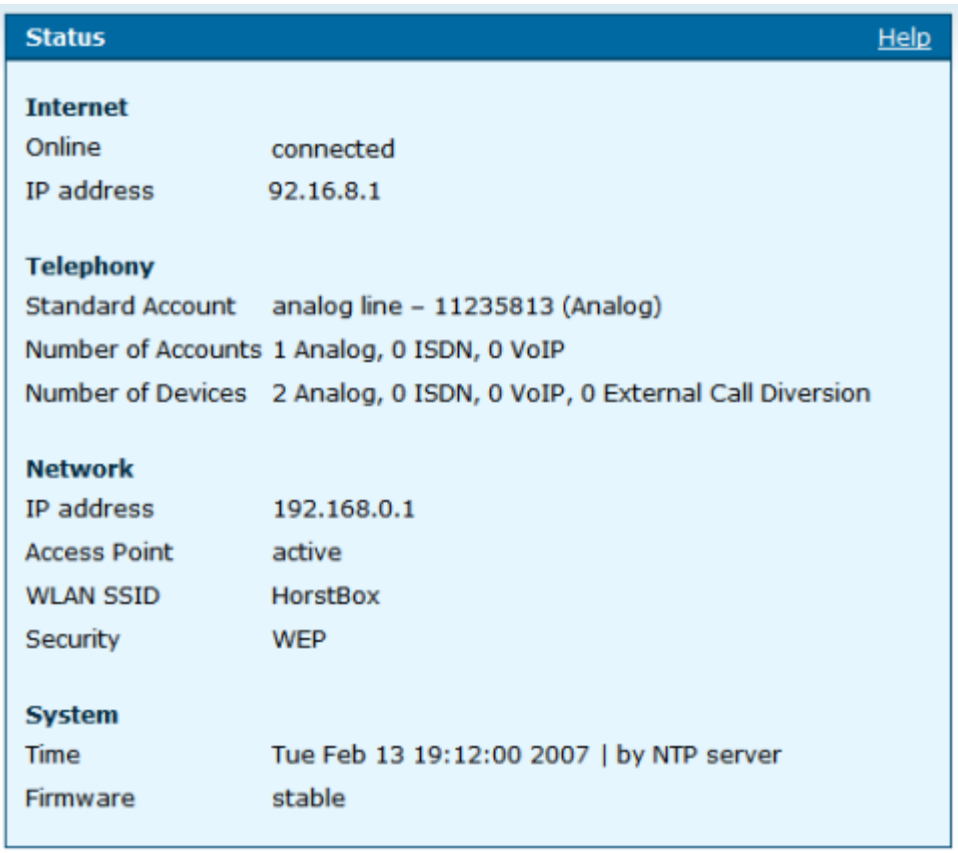


Figure 7.10.: System Status

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 trafic.

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 neccessary 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 neccessary 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 disappered.

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 acces type to *DSL*.

B. Specification

B.1. Specification: Hardware

Hardware

WAN
- ADSL, ADSL2, ADSL2+
- Downstream: bis zu 24MBit/s
- Upstream : bis zu 1MBit/s
- Standards:

ANSI T1.413 Issue 2
ITU G.992.1 (G.dmt) Annex B
ITU G.992.2 (G.lite) Annex B
ITU G.994.1 (G.hs)
ITU G.992.3 (G.dmt.bis) Annex B
ITU G.992.4 (G.lite.bis) Annex B
ITU G.992.5 Annex B

LAN
- 4 Port 10/100 MBits/s
- MDI/MDX Auto sensing

USB
- 1 Port USB 2.0 Master

WLAN
- 54 Mbit WLAN
- 802.11b
- 802.11g

ATM/ADSL
- Multiple PVC
- ATM Cell format
- ATM Adaptation Layer
- ATM Signaling
- OAM Support
- ATM QoS (Traffic Shaping)

Routing
- Transparent Bridging
- Dynamic Learning
- Encapsulation
- IPv4:
  - TCP/UDP
  - ARP
  - RARP
  - ICMP
- IP Routing
  - RiP v1
  - IP Static Routing
- DHCP: Sever & Client
- DNS

PPP Support
- Point-to-Point Protocol
- PPP over ATM
- PPP over Ethernet
- User Authentication

WLAN-AP Functiones
- ESS-ID
- MAC Address Filter
- 802.1x
- WEP (Wired Equivalent Privacy)

Security
- Filtering
- SPI
- DOS Protection
- QoS

NAT
- NAT/NAPT
- Port Forwarding
- NAT ALGs
- VPN Passthrough
- DMZ

Configuration/Management
- Access Control
- WEB-based Management
- HTTPS
- SNMP v.1 and v.2c
- SNTP
- Reset to Factory Defaults
- UPnP 1.0
- Diagnose
- Configuration Backup/Restore

Special Applications
- IGMP Proxy
- IGMP Snooping

Voice Features

CallControl for VoIP:
- SIP (RFC 3261)
- H.323[1]
- MGCP[1]
- SCCP[1]
- IAX[2]

[1] Optional Codecs

B.2. Specifikation: Software

Software	
- Linux Kernel 2.6	- Asterisk Version 1.2

B.3. Specification: Voice Codecs and SoftPbx

Voice Codecs	**SoftPbx**	
- G.711 (a-Law, μ-Law)	- Blind Transfer	- Do Not Disturb
- G.726	- Call Detail Records	- Fax Transmit and Receive
- GSM	- Call Forward on Busy	- Music On Transfer
- iLBC	- Call Forward on No Answer	- Protocol Conversion
	- Call Forward Variable	- Remote Call Pickup
	- Call Transfer	- Three-way Calling
	- Call Waiting	- Time and Date
	- Caller ID	- Transcoding
	- Caller ID Blocking	- MF and DTMF Support
	- Caller ID on Call Waiting	- Dial by Name

B.4. Specification: Security and Emission

Certificates			
- EN60950	- CE Class B	- UL1950	- IEC60950
- FCC Part15 Subpart C	CE 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.

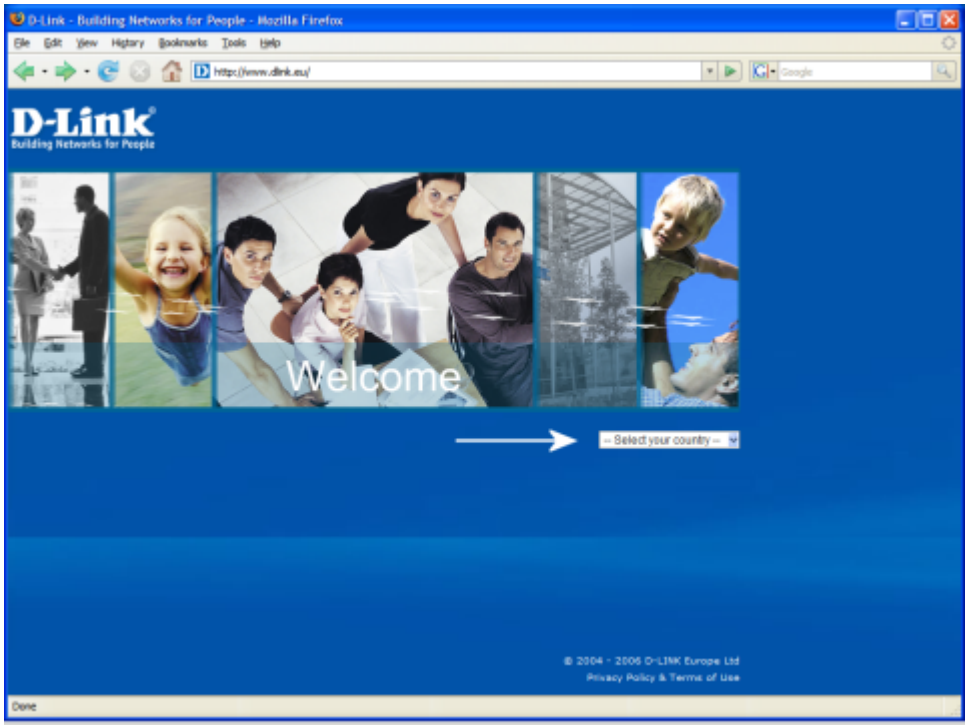


Figure C.1.: http://www.dlink.eu/

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.

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Warrantor

D-Link (Europe) Ltd.
D-Link House
Abbey Road
Park Royal ☎ +44-0 20-89 55-90 00
London NW10 7BX 🖷 +44-0 20-89 55-90 01
Großbritannien ℹ http://www.dlink.eu/

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