FRITZ!Box
7590

Configuration and Operation

Table of Contents

General Remarks

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Safety Instructions

Overview

Before connecting the FRITZ!Box, observe the following security instructions in order to protect yourself, the surroundings, and the FRITZ!Box from harm.

Fires and Electrical Shocks

Overloaded outlets, extension cords and power strips can lead to fires or electric shocks.

- Avoid using socket strips and extension cords if at all possible.

- Do not connect multiple extension cords or socket strips to each other.

Overheating

Heat accumulation can lead to overheating of the FRITZ!Box and subsequently damage the FRITZ!Box.

- Provide for sufficient air circulation around the FRITZ!Box.

- Make sure that the ventilation slits on the FRITZ!Box housing are always unobstructed.

- The FRITZ!Box should not be placed on a carpet or on upholstered furniture.

- Do not cover the FRITZ!Box.

Power Surges Caused by Lightning

During electrical storms, electrical surges caused by lightning present a danger to connected electrical devices.

- Do not install the FRITZ!Box during an electrical storm.

- During a storm, disconnect the FRITZ!Box from the power supply and from the DSL or VDSL line.

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Moisture, Liquids and Vapors

Moisture, liquids and vapors that find their way into the FRITZ!Box can cause electric shocks or short circuits.

•   Only use the FRITZ!Box indoors.

•   Never let liquids get inside the FRITZ!Box.

•   Protect the FRITZ!Box from vapors and moisture.

Improper Cleaning

Improper cleaning with strong detergents and solvents or wet cloths can cause damage to the FRITZ!Box.

•   Please refer to the information about how to clean your FRITZ!Box, see Rules, page 270.

Improper Opening and Repairs

The device contains hazardous components and should only be opened by authorized repair technicians.

•   Do not open the FRITZ!Box housing.

•   If the FRITZ!Box needs to be repaired, please take it to a specialized vendor.

Internet Security

Comprehensive information about how to protect your FRITZ!Box and your home network from access by strangers is presented in the Internet at:

en.avm.de/guide

Radio and Electromagnetic Interference

Radio interference can be generated by every device that emits electromagnetic signals. With so many radio waves from transmitting and receiving devices, interference can occur when radio waves overlap.

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- Do not use the FRITZ!Box in places where the use of radio devices is prohibited.

- Follow any instructions to switch off radio devices – especially in hospitals, outpatient treatment centers, medical practices and other medical facilities – in order to prevent interference with sensitive medical equipment.

- Consult your doctor and the manufacturer of your medical device (pacemaker, hearing aid, electronically controlled implant, etc.) to find out whether it could be affected by interference from your FRITZ!Box.

- If applicable, maintain the recommended minimum distance of 15 cm recommended by the manufacturers of medical devices in order to prevent malfunctions of your medical device.

Potentially Explosive Environments

Under unfavorable conditions, radio waves in the vicinity of explosive environments can cause fires or explosions.

- Do not install and operate your FRITZ!Box in the vicinity of flammable gases, explosive environments, areas in which the air contains chemicals or particles like grain, dust or metal powder, or in the vicinity of detonation grounds.

- In locations with potentially explosive atmospheres, and in the vicinity of detonation grounds, follow the instructions to switch off electronic devices in order to prevent interference with detonation and ignition systems.

Electromagnetic Fields

The FRITZ!Box receives and transmits radio waves during operation.

• The FRITZ!Box was designed and constructed to comply with the threshold values for the exposition of radio waves recommended by the International Commission on Non-ionizing Radiation Protection (ICNIRP).

• This directive was formulated by independent scientific organizations after regular and careful evaluation of scientific studies. It includes a large safety margin in order to ensure the safety of all persons, regardless of their age and health.

• For devices mounted in a fixed position that have their own power connection, like the FRITZ!Box, compliance with the minimum distance of 20 cm defined in the ICNIRP guideline has been certified. The measurements were conducted in accordance with the European EN 50385 standard.

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About this User's Manual

Parts of the Customer Documentation

The customer documentation of the device is composed of the following kinds of documents:

- User's manual (this book)

- Quick guide

- Online help

- Knowledge Base

Topics in the User's Manual

This manual assists you in connecting, configuring and operating your FRITZ!Box. Its purpose is not only to introduce to you the many functions of the device, but also to familiarize you with some of the technical context.

Topics in the Quick Guide

The quick guide explains the basics of connecting and configuring the FRITZ!Box without dealing with any special cases (for these, please consult the manual). It is included in the device package as a printed document.

Topics in the Online Help

The online help is a comprehensive guide on operating the FRITZ!OS (FRITZ!Box software). It is opened in user interface by clicking the question mark button.

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Topics in the Knowledge Base

The knowledge base is a compilation of solutions to common problems with connecting, configuring and operating the FRITZ!Box. The knowledge base on FRITZ!Box 7590 is located in the "Service" area of the AVM website:

en.avm.de/service

Symbols

The following symbols are used in this manual:

Symbol	Meaning
⚠	Important message that should be complied with in order to prevent material damage, errors or malfunctions
ⓘ	Useful tip for configuring and operating the FRITZ!Box
?	Reference to instructions in the FRITZ!Box online help

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Type Label

Overview

The type label contains important information on your FRITZ!Box, such as the network key and the serial number. The network key is required in order to connect computers and other devices securely with the FRITZ!Box. The serial number must be provided to the Support team when submitting support requests.

Where to Find the Type Label

The type label is located on the bottom.

Structure of the Type Label

No.	Meaning
1	Device name
2	Address of user interface
3	Name of wireless radio network (SSID)
4	Password of user interface
5	Network key
6	Power adapter specification
7	Serial number

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No.	Meaning
8	Article number

Package Contents

Package Contents

Number	Supplied Part	Details
1	FRITZ!Box 7590	
1	Power adapter	white
1	Network cable	also "LAN cable", white
1	DSL/telephone cable	gray-black
1	DSL cable	gray
1	DSL adapter	gray
1	Telephone adapter	black
1	Quick guide	Connecting the FRITZ!Box
1	Service card	FRITZ! Notice: Looking up the FRITZ!Box Factory Settings: • Network key • FRITZ!Box password • Name of the radio network (SSID) • Button and LEDs

Functions and Structure

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Features

Internet Router

The FRITZ!Box can be operated at these DSL connections:

- ADSL line (up to 24)

- VDSL line (up to 100)

- VDSL line (up to 350)

Telephone System

The FRITZ!Box is a telephone system (or PBX: Private Branch Exchange) for landline and for Internet telephony (IP telephony, VoIP). You can operate the FRITZ!Box at an analog telephone line, at an ISDN line, and at an IP-based line (All-IP).

The following devices can be connected to the FRITZ!Box:

- 6 cordless (DECT) telephones

- 2 analog devices (telephone, answering machine, fax)

- ISDN telephones or ISDN telephone system

- 10 IP telephones (FRITZ!App Fon, for instance)

Upon request, an integrated answering machine saves voice messages and sends them by e-mail.

Wireless access point

The FRITZ!Box is a wireless access point for any wireless LAN devices, for instance:

- Notebooks

- Tablets

- Smartphones

- Wireless printers

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DECT Base Station

The FRITZ!Box is a DECT base station that supports the DECT ULE standard. The following DECT devices can be operated simultaneously on the FRITZ!Box:

- Up to 6 cordless (DECT) telephones

- Up to 10 FRITZ!DECT 200/210 outlet switches

- Up to 12 FRITZ!DECT 300/Comet DECT radiator controls

Hub in the Home Network

The FRITZ!Box is the hub in the home network. All of the devices connected with the FRITZ!Box make up the home network. With the FRITZ!Box you can keep track of all devices. The functions available for the home network include:

- A media server for transmission of music, pictures and video to playback device in the home network

- MyFRITZ! makes access to your own FRITZ!Box possible even from the Internet

- 512 MB internal memory, can be expanded with USB devices

- FRITZ!NAS provides for easy access to all files in the network.

USB Ports

The FRITZ!Box has two USB 3.0 ports to which you can connect the following devices:

- USB storage devices (for example, flash drives. external hard drives, card readers)

- USB printers, USB all-in-one printers, USB scanners

- USB modems

- USB hubs

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Smart Home

The following Smart Home devices can be registered with the FRITZ!Box at the same time and configured and controlled via the FRITZ!Box:

Type of Device	Maximum Number	Features
FRITZ!DECT 200/210 smart plugs	10	• Control the power supply to connected devices • Measure the power consumption of connected devices • Configuration and operation on the computer, tablet or smartphone, even via the Internet from on the go
FRITZ!DECT 300/Comet DECT radiator controls	12	• Control the room temperature automatically and save energy costs • Configuration and operation on the computer, tablet or smartphone, even via the Internet from on the go

Connection Ports

Back of the Device
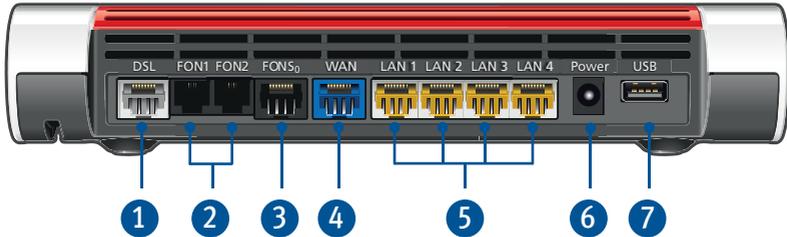
No.	Name	Function
1	DSL	Port for connecting to DSL (ADSL2+/VDSL) and to the telephone network (analog/ISDN)
2	FON 1 and FON 2	RJ11 sockets for connecting analog telephones, fax machines and answering machines
3	FON S_0	RJ45 socket for connecting ISDN telephones and telephone systems (PBXs)
4	WAN	• RJ45 socket for connecting to a modem or a router for Internet access. • For connecting the FRITZ!Box to DSL via the "DSL" port: additional gigabit Ethernet port to connect computers and other network-compatible devices
5	LAN 1 to LAN 4	Ports for connecting computers and other network-compatible devices like hubs and game consoles
6	Power	Socket for plugging in the power supply

No.	Name	Function
7	USB	USB 3.0 port for connecting USB devices like printers or storage media

Left Side

No.	Name	Function
1	USB	USB port for connecting USB devices like printers or storage media

Keys

Button Functions
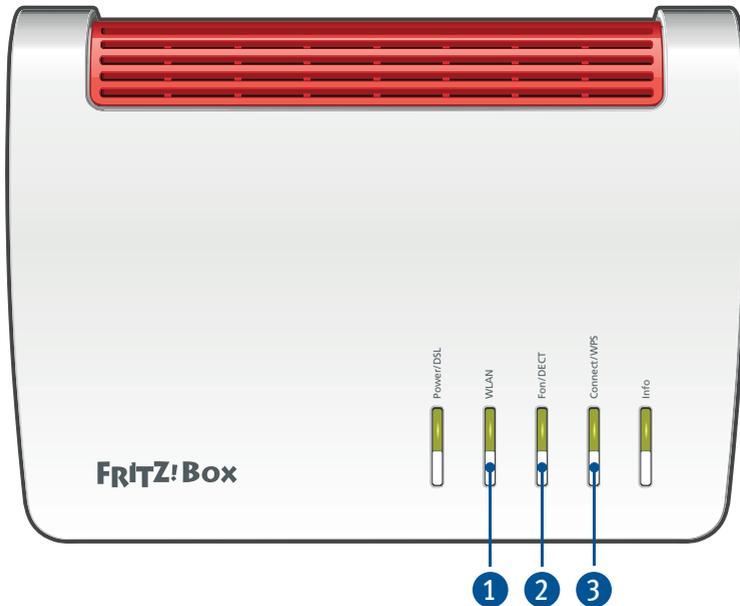
No.	Name	Function
1	WLAN	Switch wireless LAN of the FRITZ!Box on and off
2	Fon/DECT	Search for cordless telephones (paging call)
3	Connect/WPS	• Register cordless telephones with the FRITZ!Box; see page 52
		• Register wireless devices with the FRITZ!Box via WPS, see page 51

LEDs

Meaning of the LEDs
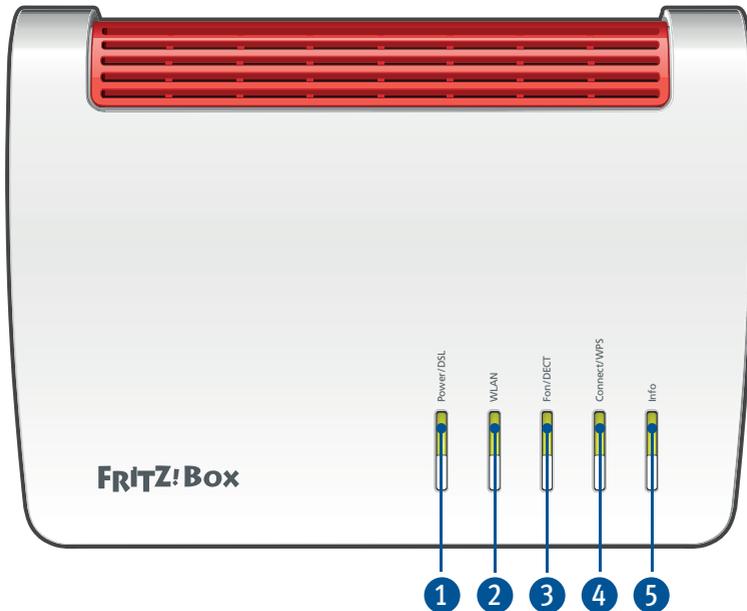
No.	LED	Condition	Meaning
1	Power/D-SL	on	Device has electrical power and the DSL line is ready for operation
		flashing	Device has electrical power and the connection to DSL is being established or has been interrupted
2	WLAN	on	Wireless LAN is enabled
		flashing	Switching wireless LAN function on or off

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No.	LED	Condition	Meaning
3	Fon/DECT	on	Telephone connection via Internet or land-line network active
		flashing	Messages in your voice mail/mail inbox (function must be supported by your telephony provider)
4	Con-nect/WPS	flashing	• Registration of a wireless device via WPS in progress • Registration of a DECT device in progress
		flashing rapidly	WPS aborted: more than two wireless devices are performing WPS at the same time
5	Info	glows green	• Stick & Surf with FRITZ!WLAN USB Stick is concluded • Adjustable, see Selecting Signaling of the "Info" LED, page 188
		flashing green	• Updating FRITZ!OS • Stick & Surf with FRITZ!WLAN USB Stick in progress • Time budget for online time has been reached • Adjustable, see Selecting Signaling of the "Info" LED, page 188

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No.	LED	Condition	Meaning
5		lights or flashes red	Error: • Open the FRITZ!Box user interface, see page 60. • Follow the instructions on the "Overview" page in the user interface

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Requirements for Operation

Requirements

- For an Internet connection via DSL:

  – DSL line or

  – VDSL line

- For an Internet connection via cable:

  – cable connection with cable modem

- For an Internet connection via mobile network:

  – USB modem with mobile Internet access

- For an Internet connection via another access device

  – any Internet connection with a modem or router

- Computer with network connection (to establish a connection with the Internet connection of the FRITZ!Box via LAN cable)

- Computer, tablet or smartphone with support for wireless LAN (to establish a wireless connection with the Internet connection of the FRITZ!Box)

- An up-to-date web browser

- For landline telephony:

  – analog telephone line or

  – ISDN point-to-multipoint line

Comprehensive technical information about your FRITZ!Box
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Connecting

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Overview: Connecting the FRITZ!Box

Overview

Connecting the FRITZ!Box entails the following steps:

Instructions
Place or hang up the FRITZ!Box in a suitable location.
Connect the FRITZ!Box to the power supply.
Connect the FRITZ!Box with your ADSL or VDSL line.
Connect the FRITZ!Box with your landline.
Connect your computers and network devices to the FRITZ!Box.
Connect your telephones to the FRITZ!Box.

Preparation

• Remove any old cabling still attached to the sockets and connectors.

Placement

Rules in General

Keep the following rules in mind for positioning the FRITZ!Box:

• Set the up the FRITZ!Box near an electrical outlet that is easy to reach, so that you can unplug the FRITZ!Box at any time.

• The FRITZ!Box is intended only for indoor operation.

• Place the FRITZ!Box in a dry location that is free of dust.

• Do not place the FRITZ!Box on heat-sensitive surfaces like furniture with sensitive paintwork.

• To avoid heat accumulation, the FRITZ!Box should not be placed on carpets or upholstered furniture.

• Provide for sufficient air circulation around the FRITZ!Box and do not cover up the FRITZ!Box. The ventilation slits must never be obstructed.

Rules for Optimum Wireless LAN Reception

Radio wave propagation during wireless LAN operation is strongly dependent on the positioning of your FRITZ!Box. Keep the following rules in mind for good reception:

• Place the FRITZ!Box in central location.

• Place the FRITZ!Box in a raised position.

• Keep sufficient distance from potential sources of interference like DECT base stations, microwave devices or electric devices with large metal housings.

• Place the FRITZ!Box so that it is not covered by other objects and there are as few obstacles as possible between it and the other wireless devices.

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> (i) By slightly shifting the position of the FRITZ!Box it is often possible to improve the wireless connection significantly. If reception is still unsatisfactory, note our recommendations, see Extending Wireless LAN Range, page 76.

Instructions: FRITZ!Box Placement

1. In compliance with the rules mentioned above, select a suitable location for the FRITZ!Box.

2. Place the FRITZ!Box in this location.

Mounting Instructions: FRITZ!Box on the Wall

⚠ Damage to electric wiring or gas or water pipes during drilling can present a significant danger. Before mounting the FRITZ!Box on the wall, make sure that there are no electrical lines, gas or water pipes located where you need to drill the holes. If necessary, check the site with a pipe detector or consult with qualified experts.

1. In compliance with the rules mentioned above, select a suitable location for mounting the FRITZ!Box on the wall.

2. Mark the spots for drilling at the desired location using the drilling template (see Drilling Template, page 266).

3. Mount the FRITZ!Box on the wall.

Connecting Instructions: Plugging in to Electrical Power

⚠ Avoid using socket strips and extension cords if at all possible.

Do not connect multiple extension cords or socket strips to each other.

Use only the power adapter included with delivery.

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1. Remove the power adapter from the FRITZ!Box package.

2. Connect the power adapter to the socket on the FRITZ!Box labeled "Power".
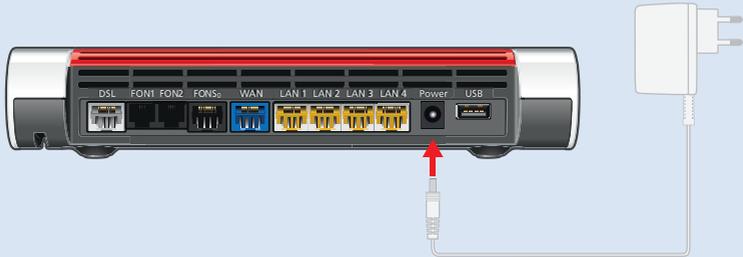
3. Plug the power adapter into an AC power outlet.

The "Power/DSL" LED begins flashing after a few seconds to indicate that the FRITZ!Box is ready for operation.

Connecting to the Internet: Possibilities

Overview

The FRITZ!Box can be connected using various types of Internet connections:

Type of Connection	Connecting the FRITZ!Box
DSL	directly to the DSL or VDSL line
Cable connection	to the cable modem
Fiber optic connection	to the fiber optic modem
Mobile communications network	with the USB broadband dongle (UMTS/HSPA/LTE)
Any Internet connection	to an existing router

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Connecting to the Internet: Determining the DSL Line Type

Overview

You would like to use the FRITZ!Box on your DSL or VDSL line. So that you can connect the FRITZ!Box correctly, you must know whether you have an IP-based line or a landline.

Types of DSL Connections

There are two kinds of DSL connections, which use different technologies for telephony. The two kinds of connections are the IP-based DSL connection and the DSL connection with a landline:

Line Type	Other Expressions Used Frequently	Technology for Telephony
IP-based DSL line	• All-IP connection • NGN line • Splitterless connection • Direct access • Unbundled connection	You make telephone calls via the Internet. The Internet protocol ("IP" for short) is used for both telephone and data connections.
DSL line with landline	DSL or VDSL line with a classic telephone line	You make telephone calls via the landline. The landline is an analog telephone line or an ISDN line. You can also make telephone calls via the Internet.

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Determining Your Line Type

If you do not know whether you have an IP-based DSL line or a DSL line with a landline, contact your DSL provider, take a look at the materials you received along with your DSL or VDSL line, or research your telephony package in the Internet.

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Connecting to the Internet via an IP-based DSL Line

Overview

If you have an IP-based DSL or VDSL line, then connect the FRITZ!Box directly to the telephone jack.
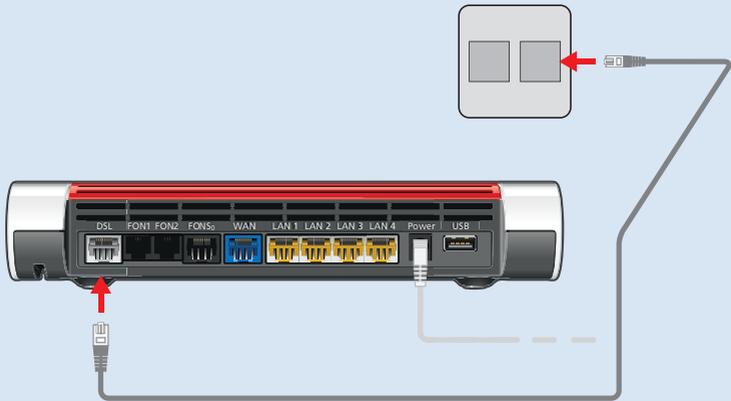
Requirements

•   All cables have been removed from your telephone jack.

If a DSL splitter is still connected to your telephone jack from a previous Internet connection, remove the cable. You can also remove the DSL splitter.

	Telephone jack (left)

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Instructions: Connecting to an IP-based Line

1. Insert the DSL cable into the "DSL" socket on the FRITZ!Box.

2. Insert the free end of the cable into the appropriate socket on your telephone jack.

   If the plug on the cable does not fit into the telephone jack, use the DSL adapter included in the FRITZ!Box package.

   After a short time the "Power/DSL" LED on the FRITZ!Box lights up. The FRITZ!Box is ready to connect to the Internet.
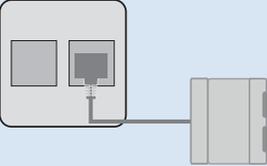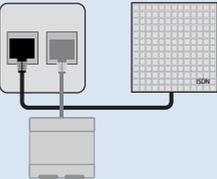
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Connecting with the Internet via a DSL Line

Overview

If you have a DSL or VDSL line with an analog telephone line or ISDN line, connect the FRITZ!Box to the DSL splitter. Use the DSL/telephone cable included with delivery.

### Requirements

• A DSL splitter is connected to your telephone jack.

Line Type	Sockets
DSL line with analog telephone line	 Telephone jack with DSL splitter
DSL line with ISDN line	 Telephone jack, DSL splitter and NT

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Instructions: Connecting to a DSL Connection with a Landline

1. Insert the long end of the DSL/telephone cable into the socket on the FRITZ!Box labeled "DSL".
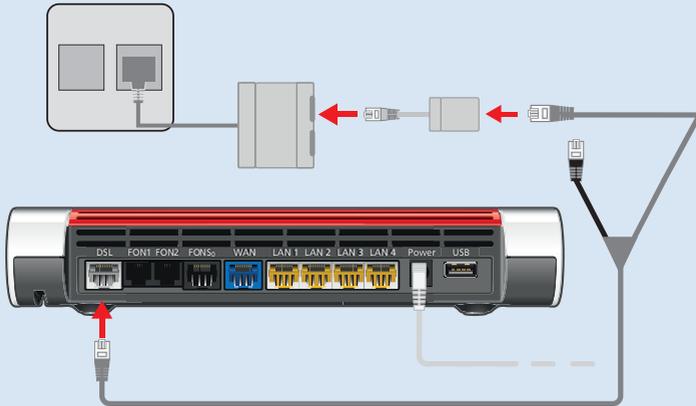
2. Insert the short, gray end of the cable into the appropriate jack on the DSL splitter.

    If the plug on the gray end of the cable does not fit into the DSL splitter, use the gray DSL adapter included in the FRITZ!Box package.
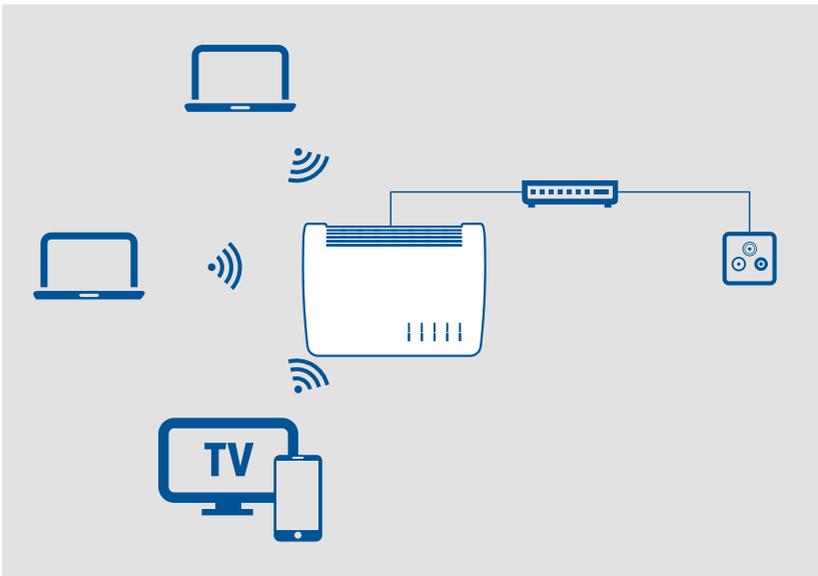
After a short time the "Power/DSL" LED on the FRITZ!Box lights up. The FRITZ!Box is ready to connect to the Internet.

Connecting to the Internet Access: Cable Connection

Overview

If you have a cable connection with a cable modem, you can connect the FRITZ!Box to the cable modem, from where it interfaces with the cable connection. Use a network cable.

Example Configuration

Instructions: Connecting with a Cable Modem

1. Connect the one end of the network cable to the LAN (Ethernet) port on the cable modem.

2. Insert the other end of the network cable in the "WAN" port on the FRITZ!Box.

3. Connect a computer with the FRITZ!Box, see page 47 or see page 49.

4. Set up the Internet connection for connections via cable in the FRITZ!Box; see see Setting Up Internet Access via Cable Modem, page 71.

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Connecting with the Internet Access: Mobile Network

Overview

The FRITZ!Box can connect to the Internet via the mobile communications network.

Example Configuration
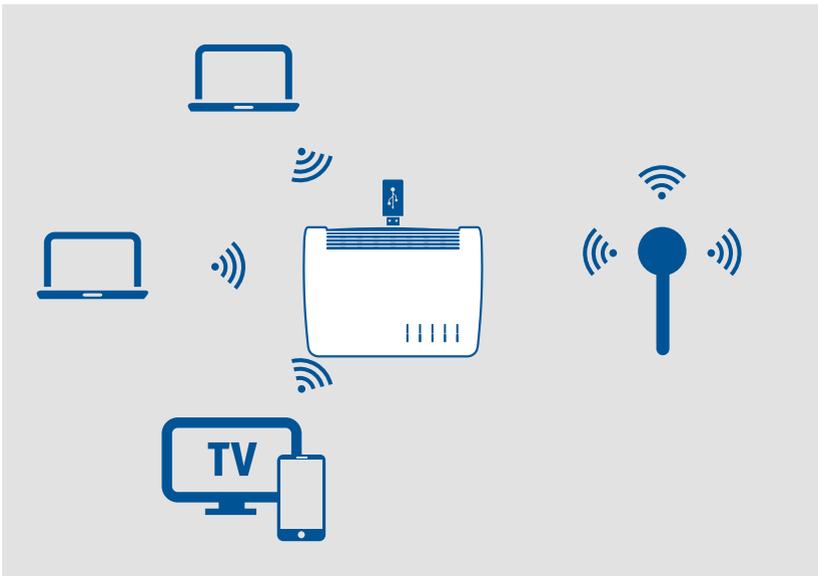
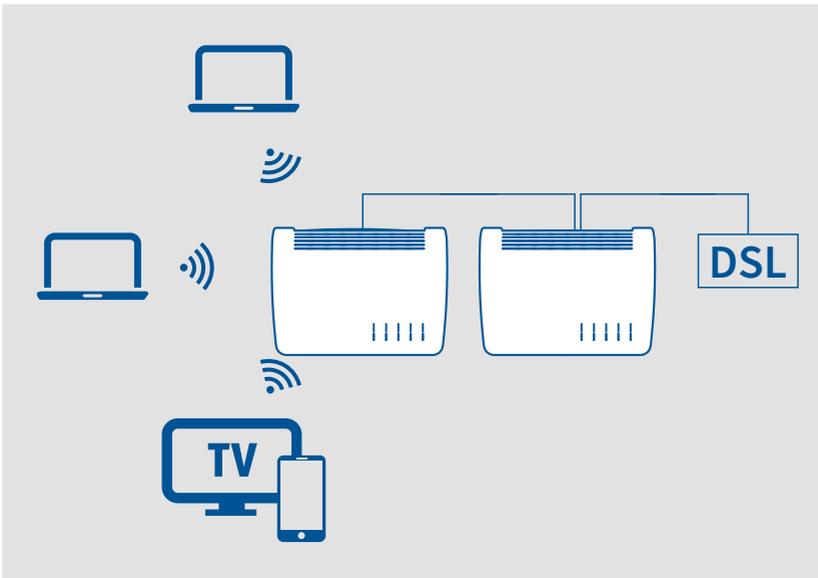## Instructions: Connecting the Mobile Broadband Dongle

1. Insert the mobile broadband dongle in a USB port of the FRITZ!Box.

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Connecting to the Internet Access: Existing Router

Overview

You can use the FRITZ!Box at an already existing Internet access. To do this the FRITZ!Box is connected to the existing Internet router.

Example Configuration

Instructions: Connecting to the Router with a Network Cable

1. Insert the one end of the network cable to the "WAN" port on the FRITZ!Box.

2. Insert the other end of the cable into a network socket on the Internet router.

Connecting with the Router via Wireless LAN

If the router is a wireless access point, you can also connect the FRITZ!Box with the router over wireless LAN; see Setting Up Internet Access via a Wireless Device, page 74.
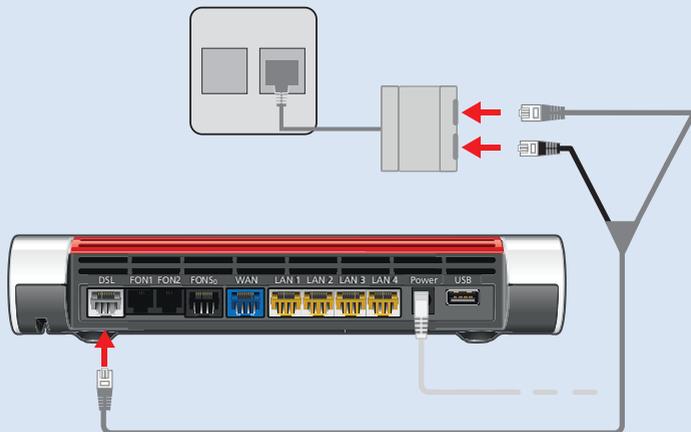
Connecting with the Landline

Overview

You can connect the FRITZ!Box with the following landlines:

- Analog telephone line

- ISDN line

An analog telephone line is a single line with one telephone number. ISDN lines have three or more telephone numbers.

Instructions: Connecting with the Analog Telephone Line

1. Insert the long, gray end of the DSL/telephone cable into the socket on the FRITZ!Box labeled "DSL".

2. Insert the short, black end of the cable into the telephone adapter (black).

3. Then insert the telephone adapter into the appropriate socket of your DSL splitter.

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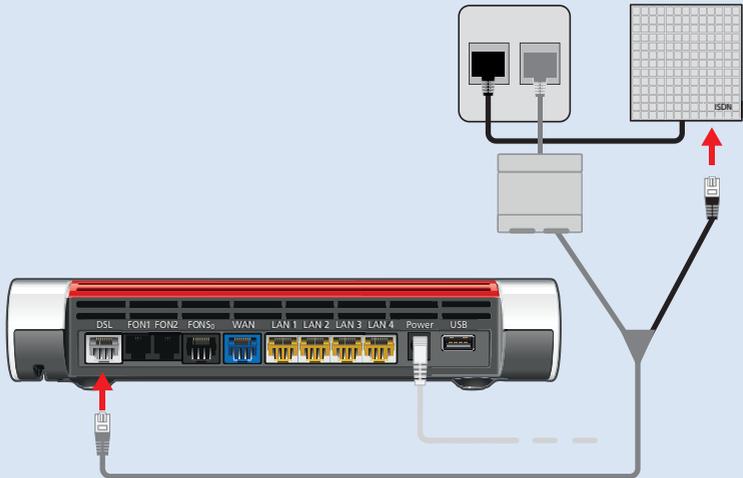## Instructions: Connecting with the ISDN Line

1. Insert the long, gray end of the DSL/telephone cable into the socket on the FRITZ!Box labeled "DSL".

2. Insert the short, black end of the cable into a jack (S_0 interface) on your ISDN NT.

Connecting a Computer with a Network

Overview

You can connect computers and other network devices with the FRITZ!Box using a network cable. This is recommended especially for the initial configuration of your FRITZ!Box. The way a computer is connected to the FRITZ!Box is the same regardless of the operating system on the computer. Open the user interface of the FRITZ!Box in an up-to-date web browser ().

⚠ The network cable used to connect the computer and other network devices to the FRITZ!Box must be a maximum of 100 m in length.

Instructions: Connecting the Computer Using a Network Cable

1. Insert the network cable into the network (LAN) port of the computer.

2. Insert the free end of the cable into a LAN port on the FRITZ!Box.
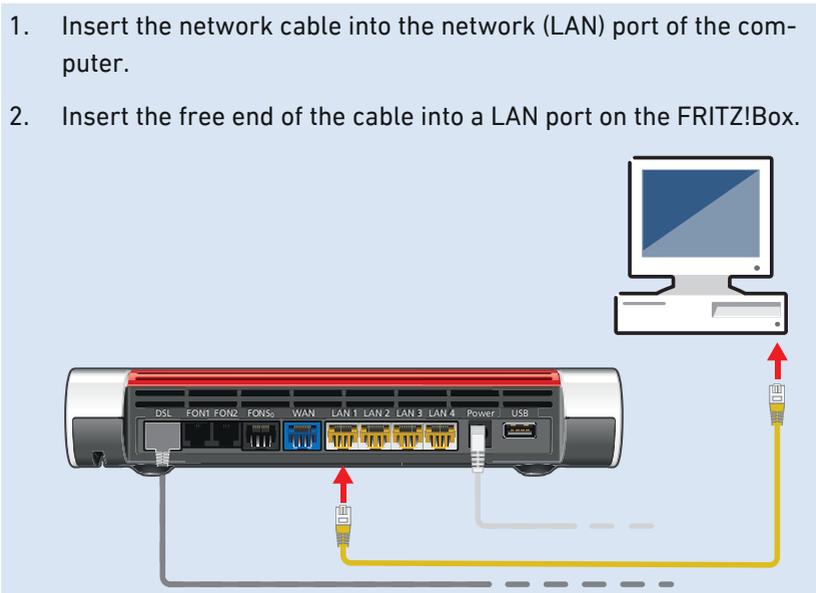
Instructions: Connecting a Network Hub or Network Switch

You can connect a network hub or network switch to the FRITZ!Box.

1. Insert the network cable included in the package into the uplink port of the network hub or network switch.

2. Insert the free end of the cable into a LAN port on the FRITZ!Box.

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Connecting the Computer via Wireless LAN

Overview

You can connect computers and other network devices to the FRITZ!Box without cables via wireless LAN. You have the following options to establish a secure wireless connection:

- Establish a wireless connection using a network key

- Establish a wireless connection using WPS

Security: Encryption Methods

The FRITZ!Box is preconfigured with encryption using today's safest method WPA2. This encryption method is supported by most of the latest wireless devices. Select a different encryption method only if you would like to deploy older network-compatible devices. The "WPA + WPA2" setting automatically uses the WPA mode most suitable for your connections.

Please note the possible encryption mechanisms:

Mechanism	Protocol	Quality
WPA2	CCMP	Very secure
WPA	TKIP	Secure
Non-encrypted	–	Very insecure, not recommended

Comprehensive information about how to protect your FRITZ!Box and the wireless network from access by strangers is presented in the Internet at:

en.avm.de/guide/security

Requirements

- The "WLAN" LED on the FRITZ!Box lights up.

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Instructions: Establishing a Wireless LAN Connection Using a Network Key

1. Start the wireless LAN software on your wireless device.

2. Search for wireless networks in the environment (see the documentation of your wireless device) and select the wireless network of the FRITZ!Box.

   The preconfigured name of the FRITZ!Box's wireless network is composed of "FRITZ!Box 7590" and two random letters (for instance, "FRITZ!Box 7590 XY"), and is printed on the type label on the bottom.

3. Click "Connect".

4. Enter the network key of the FRITZ!Box. The network key is printed on the bottom of the FRITZ!Box; see Type Label, page 14.

The wireless LAN connection will be established.

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Instructions: Establishing a Wireless Connection Using WPS

With WPS (Wi-Fi Protected Setup) you can connect a wireless device with the FRITZ!Box quickly and easily without entering the wireless network key of your FRITZ!Box. This key is transmitted to the wireless device automatically.

1. Start the wireless LAN software on your wireless device.

2. Search for wireless networks in the environment on the wire-less device (see the documentation of your wireless device) and select the wireless network of the FRITZ!Box.

    The preconfigured name of the FRITZ!Box's wireless network is composed of "FRITZ!Box 7590" and two random letters (for instance, "FRITZ!Box 7590 XY"). The name is printed on the type label on the bottom.

3. Start the connection procedure via WPS (see the documentation of your wireless device).

4. On the FRITZ!Box: Press the "Connect/WPS" button briefly.

Connect/WPS

press and hold until the LED flashes
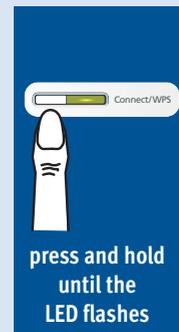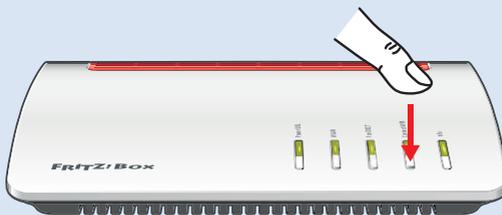
The "Connect/WPS" LED on the FRITZ!Box flashes while the wireless connection is being established.

Connecting Telephones

Overview

You can connect telephones, fax machines, answering machines, and telephone systems to your FRITZ!Box.

You can also connect cordless telephones like FRITZ!Fon to the FRITZ!Box. A DECT base station is integrated in your FRITZ!Box.

⚠️ During a power outage you cannot make any telephone calls with the telephones connected with the FRITZ!Box.

Instructions: Registering a Cordless Telephone

You can register up to 6 cordless telephones with the FRITZ!Box.

1. Start the registration of your cordless telephone with a DECT base station.

2. On the FRITZ!Box: Press the "Connect/WPS" button.

   The "Connect/WPS" LED flashes.

   Connect/WPS

   press and hold until the LED flashes
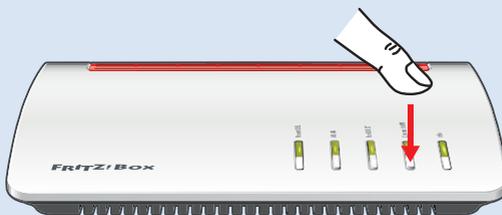
3. Enter the PIN of the FRITZ!Box on the telephone (preset value: 0000).

4. In the user interface of your FRITZ!Box: Configure the telephone; see Configuring Telephones, page 79.

. . . .

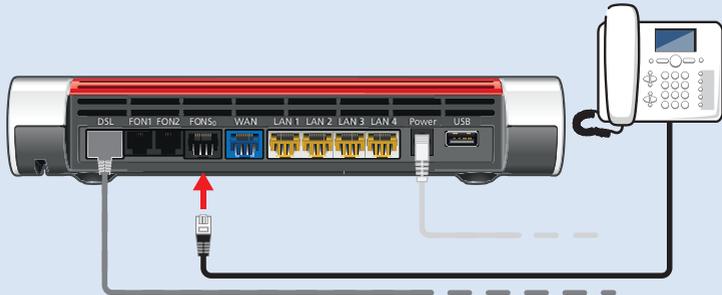## Instructions: Connecting an Analog Telephone

1. Connect the telephone, the answering machine or the fax machine to the "FON 1" or "FON 2" port.
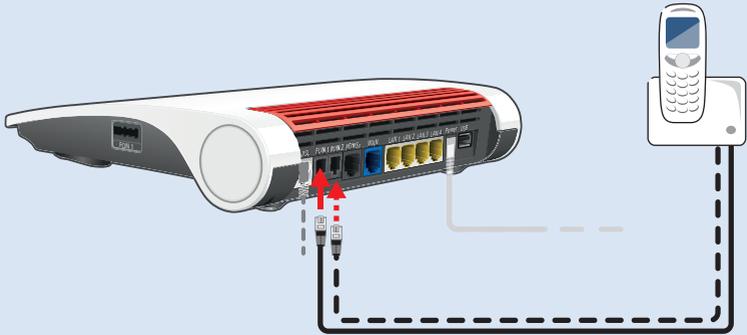
2. In the user interface of your FRITZ!Box: Configure the connected device; see Configuring Telephones, page 79.

Instructions: Connecting an ISDN Telephone

1. Connect the telephone to the "FON S_0" port.

2. In the user interface of your FRITZ!Box: Configure the telephone; see Configuring Telephones, page 79.

Connecting Multiple ISDN Devices

You can connect up to eight ISDN devices to the FRITZ!Box. The FRITZ!Box can provide power to one ISDN device, but the other ISDN devices must have their own power supply. Multiple ISDN devices can be connected in the following ways:

- You can use an ISDN distributor (available from vendors).

- You can have a technician install a S_0 bus, which is connected to the "FON S_0" port. Note for the technician: The "FON S_0" port is terminated. Two terminating resistors are included in the FRITZ!Box.

Instructions: Connecting an IP Telephone

IP telephones are special telephones for Internet telephony (IP stands for Internet Protocol). If your FRITZ!Box is connected with a landline, you can use the connected IP telephone to make calls over the landline network as well.

1. Connect the IP telephone to the FRITZ!Box using a LAN cable or wireless LAN.

2. In the user interface of your FRITZ!Box: Configure the telephone; see Configuring Telephones, page 79.

. . . .

Connecting Smartphones

Overview

Your iPhone or Android smartphone can be registered with the FRITZ!App Fon via wireless LAN using the FRITZ!Box. Then you can use the smartphone to make calls to the numbers configured in your FRITZ!Box whenever you are home. Advantage: No mobile communication charges will be incurred for outgoing calls, and you can also take calls to your home telephone line with your smartphone. The smartphone can still be reached at your mobile telephone number.

Requirements

- iPhone or Android Smartphone

- The setting "Allow access for applications" is enabled in the FRITZ!Box (in the user interface under "Home Network /Home Network Overview / Network Settings")
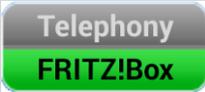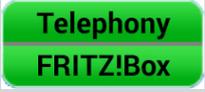
Instructions: Connecting a Smartphone

1. Establish a wireless LAN connection to the FRITZ!Box on your smartphone.

2. Install FRITZ!App Fon on your smartphone. FRITZ!App Fon is available from the Google Play Store and the Apple App Store.

3. Start the FRITZ!App Fon.

   FRITZ!App Fon is automatically configured as an IP telephone in the FRITZ!Box.

4. In the user interface of your FRITZ!Box: Configure the IP telephone "FRITZ!App Fon"; .

Connection Status of FRITZ!App Fon

The icon in the FRITZ!App Fon title bar shows the state of the connection with the FRITZ!Box.

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Icon	Meaning
Telephony **FRITZ!Box**	Wireless connection to the FRITZ!Box is active.
Telephony **FRITZ!Box**	You can make calls via the FRITZ!Box with your smartphone.

Connecting a Door Intercom System

Overview

Door intercom systems with an a/b interface and IP door intercoms can be connected to the FRITZ!Box. Then you have the following options:

- You can answer the doorbell on your telephones, speak with visitors, and open the door, even on a mobile telephone or other telephone connection away from the home.

- You can have the camera image from your door intercom system displayed on FRITZ!Fon telephones with a color display.

- You can configure a special ring tone to signal the doorbell on a FRITZ!Fon.

Requirements

- To connect a door intercom system with an a/b interface: The door intercom system must dial a telephone number using DTMF tone dialing whenever a button is pressed.

- To connect an IP door intercom system: The door intercom system must be configured as an SIP client (by entering the login data for an SIP registrar).

Instructions: Connecting an IP Door Intercom System

1. Connect the IP door intercom system to the FRITZ!Box using a LAN cable or wireless LAN.

2. In the user interface of your FRITZ!Box: Configure the door intercom system; see Configuring a Door Intercom System, page 81.
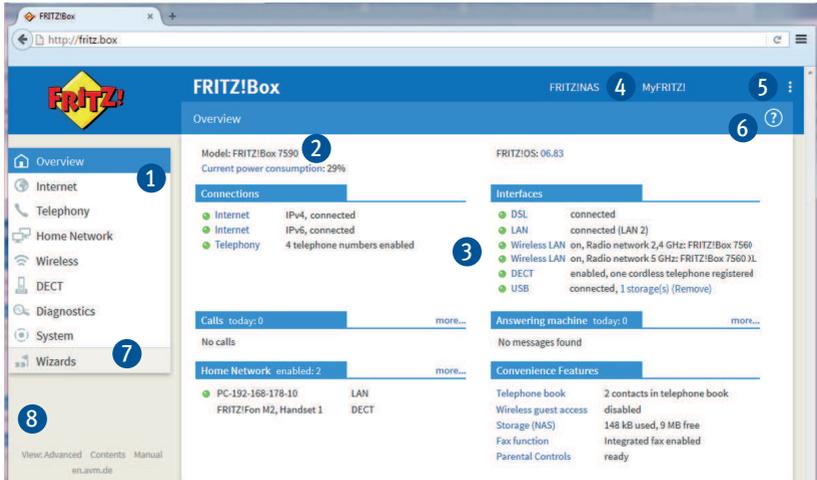
User Interface

Opening the User Interface

Overview

The FRITZ!Box has a user interface you can open in a web browser on your computer or on mobile devices like a tablet or smartphone. In the user interface you configure the FRITZ!Box, enable or disable functions, and receive information on connections, interfaces, and on the entire home network. You can also configure whether and how you would like to use the AVM services for diagnostics and maintenance of your FRITZ!Box.

Areas of the User Interface

The following figure shows the most important areas of the user interface:

No.	Function / Display
1	The FRITZ!Box user interface menu
2	System Information • Product name or individually assigned name of the FRITZ!Box • FRITZ!OS installed • Current power consumption • Important notifications for secure, reliable operation of your FRITZ!Box

No.	Function / Display
3	Information about connections and interfaces
	• Information on Internet and telephony connections and on all FRITZ!Box ports
	• Information on telephone calls and voice messages on the integrated answering machine
	• Devices connected to the FRITZ!Box, such as computers, smartphones, network storage, printers, or Smart Home devices
	• Configured convenience features
4	Links to the FRITZ!NAS and MyFRITZ! areas
5	Pull-down menu
	• Log off the user interface
	• Change the password
	• Switch between standard and advanced view
	• Links to the FRITZ!NAS and MyFRITZ! areas
6	Link to the online help
7	Wizards for configuration of the FRITZ!Box
8	Supplementary links
	• View: Switching between standard and advanced view
	• Contents: overview of all pages in the user interface
	• Manual: FRITZ!Box 7590 PDF manual
	• Newsletter: registering for the AVM newsletter
	• en.avm.de: AVM web pages

Instructions: Opening the User Interface

1. Make sure that your computer, tablet or smartphone is connected with the FRITZ!Box by wireless LAN or with the network cable.

2. Start a web browser on your computer or mobile device.

3. Enter http://fritz.box in the address bar of the browser.
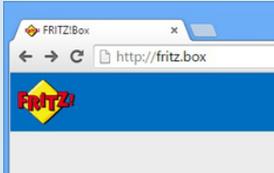
4. Enter the preset FRITZ!Box password and click "Log In". The preset password is printed on the type label on the bottom.

The FRITZ!Box user interface opens.

Using the Wizard for Basic Configuration

Overview

The first time the user interface is opened, the Wizard for Basic Config-
uration of the FRITZ!Box is started. This wizard assists you in entering
your account information to connect to the Internet and use your tele-
phones.

Requirements

- The FRITZ!Box password has been supplied. The preset password
  is printed on the type label on the bottom.

- The account information has been supplied by your Internet ser-
  vice provider.

- The telephone numbers have been supplied by your telephony
  provider.

Instructions: Using the Wizard for Basic Configuration

To protect your private data, settings and account information, the wiz-
ard starts by prompting you to assign a password for access to the
user interface.

1. Enter the preset FRITZ!Box password and click "Log In". The
   preset password is printed on the type label on the bottom.

2. Click "Next".

3. Follow the wizard's instructions.

Once the wizard is complete, the basic configuration of the
FRITZ!Box has been concluded. The FRITZ!Box is ready for the Inter-
net and for telephony.

The wizard can be restarted at any time in the FRITZ!Box user inter-
face.

Logging Out of the User Interface

Overview

Session IDs are assigned for access to the FRITZ!Box user interface. The use of session IDs offers effective protection from attacks from the Internet in which attackers send unauthorized data to a web application. For security reasons, we therefore recommend that you log out of the user interface before surfing the web.

Use push services to have yourself notified each time someone logs on or off of your FRITZ!Box; see Configuring Push Services, page 186.

Automatic Logout when Idle

If you have not logged out of the FRITZ!Box user interface, and have not been active in the browser for 20 minutes, you will be logged off automatically. You must log in again for further access to the FRITZ!Box user interface.

Instructions: Manual Logout

1. Click the menu with the three dots (1) in the header of the FRITZ!Box user interface:

2. Select "Log Out" from the drop-down menu (2).
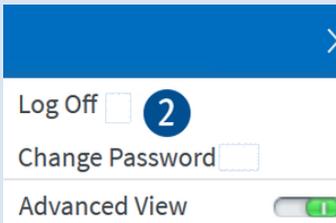
   You have been logged out of the FRITZ!Box user interface.

Using the Standard View and Advanced View

Overview

The FRITZ!Box user interface offers two views: the standard view and the advanced view.

Upon delivery, the standard view is enabled in the FRITZ!Box. All of the settings needed to operate the FRITZ!Box are available here.
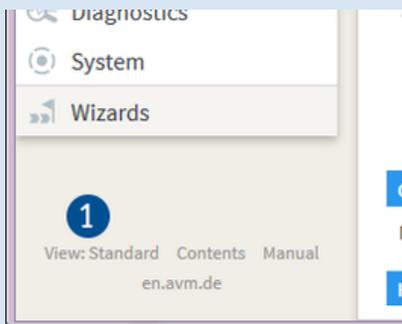
In the advanced view, various menus display additional settings options. The expanded menus contain settings for advanced users and are not required for daily FRITZ!Box operation.

Instructions:Switching between the Views

⚠️ You should only use the advanced view of the "Internet" and "Home Network" menus if you have advanced network expertise. Combining various settings in these menus can produce a situation in which the user interface of the FRITZ!Box can no longer be opened.

1. Click in the area under the menu on "View" (1) to switch back and forth between the "Standard" and "Advanced" views.

Configuring

Overview: Configuring FRITZ!Box

Overview

Configuration of the FRITZ!Box entails the following steps:

Instructions
Set up the Internet connection in the FRITZ!Box.
Set up the connected telephones and their telephone numbers in the FRITZ!Box.
Configure your smartphone in the FRITZ!Box (optional).

Requirements

- The FRITZ!Box is connected with the Internet access.

- You have connected all of the telephones you want to use with the FRITZ!Box.

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Configuring an Internet Connection via DSL

Overview

Set up the Internet connection in the FRITZ!Box user interface. A wizard assists you in entering the account information from your Internet service provider. The first time the user interface is opened, the wizard opens automatically.

Requirements

• The account information has been supplied by your Internet service provider.

Instructions: Configuring Internet Access

1. Open the FRITZ!Box user interface, .

2. If the wizard does not start automatically, select the "Wizards" menu.

3. Click the "Configure Internet Connection" Wizard and follow the instructions.

Once the Internet access has been configured, you can open any websites in the web browsers (for instance, en.avm.de).

Setting Up Internet Access via Cable Modem

Overview

The FRITZ!Box can be connected to a cable modem which provides the Internet connection.

Instructions: Setting Up Internet Access on the Cable Connection

1. Open the FRITZ!Box user interface, see page 60.

2. Select the "Internet / Account Information" menu and the "Internet Connection" tab.

3. In the "Connection" area, select the option "Connection to a cable modem (cable connection)".

4. For further settings, use the online help of the FRITZ!Box.

Setting Up Internet Access via Mobile Broadband Modem

Overview

The FRITZ!Box can provide Internet access via the mobile communications network.

Requirements

- A mobile broadband modem must be connected to the USB port of the FRITZ!Box; .

Instructions: Setting Up Internet Access via Mobile Telephone Network

For instructions, see the Online Help at: "Internet / Mobile Communications".

Setting Up Internet Access via Another Router

Overview

The FRITZ!Box can be connected to a router that provides the Internet connection.

Instructions: Setting Up Internet Access via WAN (as Router)

1. Open the FRITZ!Box user interface, see page 60.

2. Select the "Internet / Account Information" menu and the "Internet Connection" tab.

3. From the "Connection" area, select the "Connection to external modem or router" option.

4. For further settings, use the online help of the FRITZ!Box.

Instructions: Setting Up Internet Access via LAN (IP client)

1. Open the FRITZ!Box user interface, see page 60.

2. Select the "Internet / Account Information" menu and the "Internet Connection" tab.

3. From the "Connection" area, select the "Connection to external modem or router" option.

4. In the "Operating Mode" menu, select the "Share existing Internet connection in the network (IP client mode)" setting.

5. For further settings, use the online help of the FRITZ!Box.

. . . .

Setting Up Internet Access via a Wireless Device

Overview

You can use the FRITZ!Box at an already existing Internet access over a wireless LAN connection. The FRITZ!Box can share the Internet connection of another device via a wireless LAN connection. The other device can be a router, for instance, or a smartphone configured as a hotspot.

The FRITZ!Box is connected with the radio network of other device. In this type of connection the FRITZ!Box works as an independent router to provide a network with its own network address range.

Requirements

- The radio network transmits in the 2.4-GHz frequency range.

- The connection is encrypted using WPA2.

- The radio network allows the FRITZ!Box to set up a wireless LAN connection.

Instructions: Setting Up Internet Access via Wireless LAN

1. Open the FRITZ!Box user interface, .

2. Select the "Internet / Account Information" menu.

3. Select the "Existing connection over wireless LAN" entry from the "Internet service provider" list.

   A list of the radio networks in the vicinity is displayed.

4. Select the radio network with which you want to connect the FRITZ!Box.

5. Enter the network key of the radio network in the "Network key" field in the "Security" area.

6. Click "Apply".

The FRITZ!Box is configured as a router and the network range is changed automatically. The FRITZ!Box, along with the connected network devices, forms its own self-contained network.

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Extending Wireless LAN Range

Overview

In large apartments or houses the wireless LAN radio signal does not always reach every corner. However, you can generally extend the range of your wireless network by placing your FRITZ!Box at a better location. If this is not sufficient, you can improve the range of the radio signal with peripheral equipment like wireless repeaters.

## Measures to Improve Wireless Coverage

The following conditions favor the extension of your FRITZ!Box's wireless radio signal:

• The FRITZ!Box is positioned in a central location.

• The FRITZ!Box is placed in a raised position.

• The FRITZ!Box is unobstructed, meaning that it is not inside a cabinet or behind another object.

• Structural circumstances are accounted for, such as thick concrete walls or ceilings.

• Sources of interference in the vicinity of your wireless radio network (for instance, microwaves, refrigerator or baby monitor) have been eliminated.

• The FRITZ!Box uses frequency ranges that are used by as few other devices as possible (can be checked under "Wireless / Radio Channel").

Extending the Wireless Radio Network

If the FRITZ!Box is placed in a favorable location, but the radio signal still does not reach all of your rooms, then you can extend the range of the radio signal with a wireless repeater. You can also deploy a second FRITZ!Box as a wireless repeater.

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Example Configuration: Using a FRITZ!WLAN Repeater
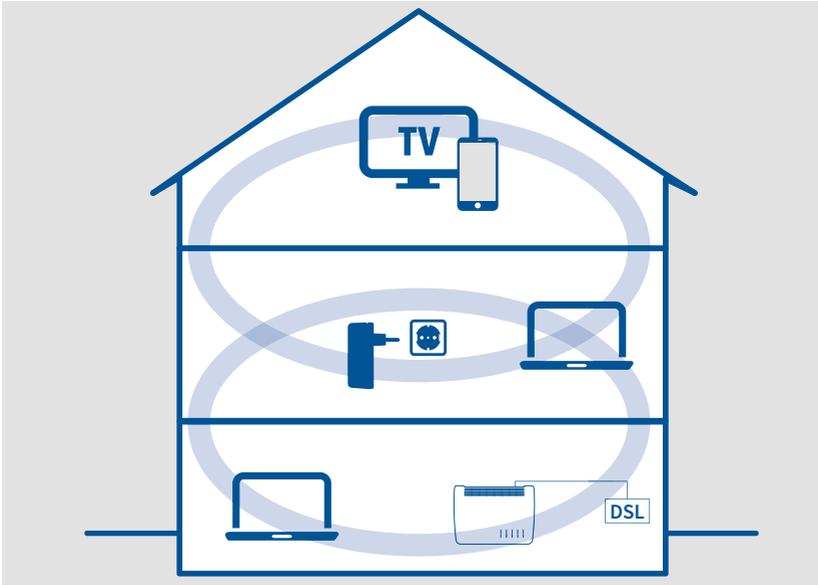
Extending the Wireless Network with a FRITZ!WLAN Repeater

You can extend your wireless radio network with a wireless repeater. In combination with the FRITZ!Box the AVM FRITZ!WLAN Repeater is especially suitable. All models of the series can be integrated into your wireless network and your home network. For more information, see the web address:

en/avm.de/products/fritzwlan

Instructions: Using an Existing FRITZ!Box as a Wireless Repeater

For instructions, see the Online Help at: "Wireless / Repeater".

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Configuring Your Telephone Numbers

Overview

The following telephone numbers must be configured in the FRITZ!Box:

- Landline telephone numbers you would like to assign to telephones, answering machines and other devices

- Internet telephone numbers that are not configured automatically

Some telephony providers configure your Internet telephone numbers automatically. This remote configuration starts right after the FRITZ!Box is connected to the Internet or after the FRITZ!Box user interface is opened.

Instructions: Configuring Your Own Telephone Numbers

1. Open the FRITZ!Box user interface, see page 60.

2. Select "Wizards / Manage Telephone Numbers".

3. Click "Add Telephone Number" and follow the wizard's instructions.

Configuring Telephones

Overview

Once you have connected your telephones, answering machines and fax machines to the FRITZ!Box, configure these devices in the FRITZ!Box. For each device, specify:

• Telephone number for outgoing calls to the public telephone network

• How incoming calls should be handled: Should the device ring (telephone) or pick up (fax machine, answering machine) for every call, or only respond to calls for certain telephone numbers?

• Internal name of the device to be displayed in the call list of the FRITZ!Box

• Further settings that depend on the kind of device. For analog and DECT telephones, for instance, you can enable the "call waiting" function.

Requirements

• Your own telephone numbers are set up in the FRITZ!Box (see the previous section).

Instructions: Configuring Telephones and Other Devices

1. Open the FRITZ!Box user interface, .

2. Select "Telephony / Telephony Devices".

3. If the device to be configured is not yet included in the list of telephony devices, click "Configure New Device". Follow the wizard's instructions.

   The wizard guides you through the assignment of telephone numbers and enters the device in the list.

4. To configure further settings for a device in the list, click the "Edit" button of the device .

   The kind of device determines which additional settings are available.

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Configuring a Door Intercom System

Overview

Once you have connected your door intercom system to the FRITZ!Box, configure the door intercom system in the FRITZ!Box. Specify the telephones or telephone numbers to which door calls should be forwarded. You can also configure other settings, for instance, to have the camera image sent from the door intercom system to your FRITZ!Fon.

Requirements

• Your telephones are configured in the FRITZ!Box (see previous section).

Instructions: Configuring a Door Intercom System

1. Open the FRITZ!Box user interface, see page 60.

2. Select "Telephony / Telephony Devices".

3. Click "Configure New Device". With the "Edit" button ✎ you can also change the settings of a door intercom system that has already been configured.

- -

Saving Power with the FRITZ!Box

Overview

The FRITZ!Box offers various settings for energy-saving operation. The following section describes how you can configure these settings and what potential energy-savings can be expected.

Viewing Information on Energy Consumption

The current power consumption of the total FRITZ!Box system is displayed on the "Overview" page of the user interface.

Information on the power consumption of the individual areas, and on the average power consumption over the last 24 hours, is presented in the FRITZ!Box user interface under "System / Energy Monitor / Energy Consumption".

Using Savings Potential

What	How	Where
Wireless LAN	Set up a wireless LAN schedule, see page 160	"Wireless LAN / Schedule" menu
	Switch off wireless LAN, see page 160	• "WLAN" button • "Wireless / Radio Network" menu
	Reduce the maximum transmitter power	"Wireless / Radio Channel" menu
LAN	Use the LAN port in energy-saving (Green) mode	"Home Network / Home Network Overview / Network Settings" menu

What	How	Where
USB	Use the USB port in energy-saving (Green) mode, see page 151	"Home Network / USB Devices / USB Settings"

Saving Power with Smart Home

With intelligent Smart Home devices like FRITZ!DECT, electrical appliances are integrated into the home network. This way they can be switched on and off by timer. At the same time, they inform the FRITZ!Box about consumption, energy costs incurred, and the CO_2 footprint.

Instructions: Configuring a Timer for Electrical Appliances in the Home Network

For instructions, see the Online Help at: "Home Network / Smart Home".

User Interface: Menu Overview

Menu Overview: Settings and Features

Overview

The "Overview" menu is the start page of the FRITZ!Box user interface. This page presents an overview of all FRITZ!Box features and components: Energy consumption, connections, ports, calls, answering machine messages, convenience functions (parental controls, alarm, etc.) and all devices in the home network.

In addition to the overview, next to the energy consumption and the FRITZ!OS version currently installed, you will also find notifications important for secure, reliable operation of your FRITZ!Box.

"Overview" menu
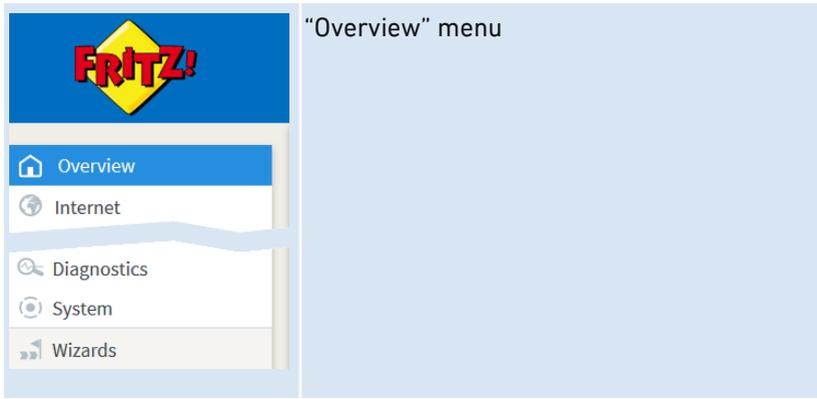
Description of the FRITZ!Box User Interface

For a comprehensive description of the FRITZ!Box user interface: .

User Interface: Internet Menu

Internet Menu: Settings and Features

Overview

The "Internet" menu pools all of the features that have to do with the Internet. Here is where you configure your Internet connection, and use access profiles to control the use of the Internet in your network, for instance by setting up blacklists and whitelists. For secure access to the FRITZ!Box from the Internet you can set up a MyFRITZ! account using an e-mail address and password. And users interested in technology can read information on the DSL connection here.
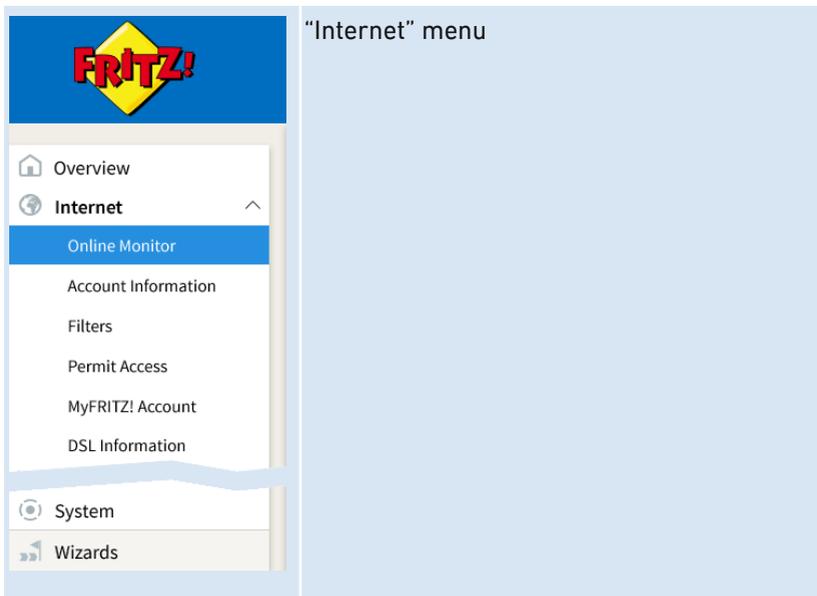
"Internet" menu

Description of the Submenus

The online help of the user interface includes a detailed description of the submenus.

On the Following Pages

The following pages present information on important settings, options and procedures included in this menu.

Configuring Parental Controls

Overview

The parental controls feature allows you to control the use of the Internet by network devices. For each individual network device, you can limit the duration and content of Internet use.

Criteria

The following settings for Internet use are defined in an access profile:

Criterion	Description
Online time	Specifies when and for how long Internet access is permitted
Permitted websites	Specifies which websites may be accessed
Internet access for network applications	Specifies which network applications are allowed to communicate over the Internet (for instance, file sharing programs or chat platforms)

Rules

- In the FRITZ!Box there are four preconfigured access profiles available for use: "Standard", "Guest", "Unrestricted", and "Blocked".

- You can create as many of your own access profiles as you wish.

- Every network device that registers with the home network for the first time automatically receives the "Standard" access profile.

- Every network device that registers with the FRITZ!Box guest network automatically receives the "Guest" access profile.

Example

You have three children and would like to control the Internet use of each child in different ways.

•   Create an individual access profile for each child.

•   Include in this access profile the time and content restrictions to be imposed on the given child.

Requirements

•   The parental controls can be used in the FRITZ!Box only if the FRITZ!Box provides the Internet connection. If the FRITZ!Box is configured as an IP client that uses the Internet connection of another router, you must use the corresponding features offered by the other router.

Instructions: Configuring Parental Controls for a Network Device

1.   Create an access profile with the desired restrictions, if the access profile does not exist already.

    For instructions, see the Online Help at: "Internet / Filters / Access Profiles".

2.   Assign the access profile to the network device.

    For instructions, see the Online Help at: "Internet / Filters / Parental Controls".

Editing Filter Lists

Overview

You can use a filter list to block access to websites with inappropriate content. Upon delivery, there are two empty lists in the FRITZ!Box. You must enter the web sites in these lists. These lists can then be used as filters in the access profiles.

Types of Lists

Access to websites with inappropriate content can be blocked using the blacklist or whitelist.

Filter List	Function and Use
Blacklist	• Access is blocked to websites included in the blacklist. • Use the blacklist if access to most websites is allowed and just a few are to be blocked.
Whitelist	• Access is allowed to websites included in the whitelist. • Use the whitelist if access to most websites is blocked and only a few are allowed to be accessed.

Requirements

• The filter lists can be used in the FRITZ!Box only if the FRITZ!Box provides the Internet connection. If the FRITZ!Box is configured as an IP client that uses the Internet connection of another router, you must use the corresponding features offered by the other router.

Instructions: Editing Filter Lists

For instructions, see the Online Help at: "Internet / Filters / Lists".

Configuring Priorities for Internet User

Overview

For network devices or network applications you can define different priorities for access to the Internet connection. You can reserve bandwidth for the home network whenever the guest network of the FRITZ!Box is in use.

Prioritization Categories

There are three prioritization categories for network applications:

- Real-time applications have the highest priority. This category is intended for applications with high demands on transmission speed and reaction times (for example, Internet telephony, IPTV, video on demand). If an application of this category uses the Internet connection to full capacity, no other data will be transmitted.

- Prioritized applications have intermediate priority. This category is intended for applications that require a fast reaction time (for example, company access, terminal applications, games). These applications will be granted higher priority. When an application of this category uses the full capacity of the Internet connection, the data of other applications will be transferred with lower priority.

- Background applications have the lowest priority. This category is for applications that run in the background and are treated with low priority when the Internet connection is running at capacity (for instance, automatic updates, peer-to-peer services). If no other network applications are active, then the background applications receive the entire bandwidth.

Reserving Bandwidth for the Home Network

All of the network devices connected with the FRITZ!Box share the bandwidth available on the connection. This means that devices in the home network and in the guest network have to share bandwidth. You

can reserve bandwidth for the home network. Whenever the bandwidth reserved for the home network is not needed, it can be used by the devices in the guest network.

Instructions: Configuring Priorities

For instructions, see the Online Help at: "Internet / Filters / Prioritization".

Setting Up Port Sharing

Overview

With default settings in the FRITZ!Box, programs on your computer and LAN cannot be accessed from the Internet. For applications like online games and file sharing software or server services like HTTP, FTP, VPN, terminal and remote access servers, you have to make your computer accessible for other Internet users.

Port Sharing

Using port sharing you allow incoming connections from the Internet. By releasing certain ports for incoming connections, you grant controlled access to the computers in your network to other Internet users.

Port Sharing on Protocols

Port sharing in the FRITZ!Box is possible on the following protocols:

Protocol	Internet Protocol	Explanation
PING	IPv4	The FRITZ!Box responds to ping inquiries from the Internet addressed to the IPv4 address of the FRITZ!Box.
	IPv6	The FRITZ!Box responds to ping inquiries from the Internet addressed to the IPv6 address of the FRITZ!Box. Additionally, you can set up PING6 port sharing rules for each computer in the home network since each computer has its own globally valid IPv6 address.

Protocol	Internet Protocol	Explanation
TCP UDP	IPv4	Within IPv4 networks you can open the FRITZ!Box firewall for the protocols TCP and UDP when entering the port range. One port can be opened for exactly one computer.
	IPv6	Within IPv6 networks you can open the FRITZ!Box firewall for the protocols TCP and UDP when entering the port range. One port can be opened for each computer in the network.
ESP GRE	IPv4	Within IPv4 networks you can open the firewall for the two protocols ESP and GRE, which do not use ports.

Instructions: Configuring Port Sharing

For instructions, see the Online Help at: "Internet / Permit Access / Port Sharing".

Enabling Dynamic DNS

Overview

Every time the Internet connection is interrupted, the Internet service provider re-assigns the IP address. The IP address may change in the process. Dynamic DNS is an Internet service that makes it possible for the FRITZ!Box to remain accessible from the Internet at all times under a fixed name, the domain name, even though the public IP address changes.

You must register with a dynamic DNS provider to use this service. Every time the IP address changes, the FRITZ!Box transmits the new IP address to the dynamic DNS provider in the form of an update request. Then the domain name is assigned to the current IP address by the dynamic DNS provider.

Dynamic DNS and MyFRITZ!

MyFRITZ! can be used as an alternative to dynamic DNS. The two services can also be used in parallel. For more information on MyFRITZ!; .

Requirements

- You are registered with a dynamic DNS provider and have set up a domain name.

- The advanced view is enabled in the FRITZ!Box user interface ().

Instructions: Enabling Dynamic DNS

For instructions, see the Online Help at: "Internet / Permit Access / DynDNS".

Accessing the FRITZ!Box Remotely

Overview

Over the Internet it is possible to access the user interface of the FRITZ!Box. With a laptop, smartphone or tablet you can configure settings in the FRITZ!Box user interface.

HTTPS, FTP and FTPS

Protocol	Function
HTTPS (Hypertext Transfer Protocol Secure)	HTTPS is an Internet protocol for bug-proof communication between the web server and the browser in the World Wide Web. Enable this protocol to allow access to the FRITZ!Box from the Internet.
FTP (File Transfer Protocol)	FTP is a network protocol for transmitting files in IP networks. Enable this protocol to allow access by FTP to the FRITZ!Box storage media from the Internet.
FTPS (FTP over SSL)	FTPS is a method for encrypting the FTP protocol. Enable this protocol to secure transmission over FTP.

Requirements

- Access to the user interface: Every user who would like to access the FRITZ!Box externally from the Internet requires a FRITZ!Box user account which is authorized for access from the Internet.

- Access to storage: Every user who would like to access the storage of the FRITZ!Box externally from the Internet requires a FRITZ!Box user account with the rights to access from the Internet and to access the contents on the storage media.

- The protocols for the desired access must be enabled in the FRITZ!Box.

Instructions: Enabling HTTPS, FTP and FTPS in the FRITZ!Box

For instructions, see the Online Help at: "Internet / Permit Access / FRITZ!Box Services".

Configuring VPN Remote Access

Overview

VPN stands for Virtual Private Network. Via VPN a secure remote access to the network of the FRITZ!Box can be established. The connection is established via the Internet. The data are transmitted in encrypted form via what is known as a tunnel. This excludes the possibility of unauthorized access to the data. In this way you can allow field representatives to connect with the corporate network over VPN—for instance, via their own laptops.

This section addresses system administrators.

That is why the settings for this function are enabled only in the advanced view of the FRITZ!Box user interface.

Example Configuration

. . . .
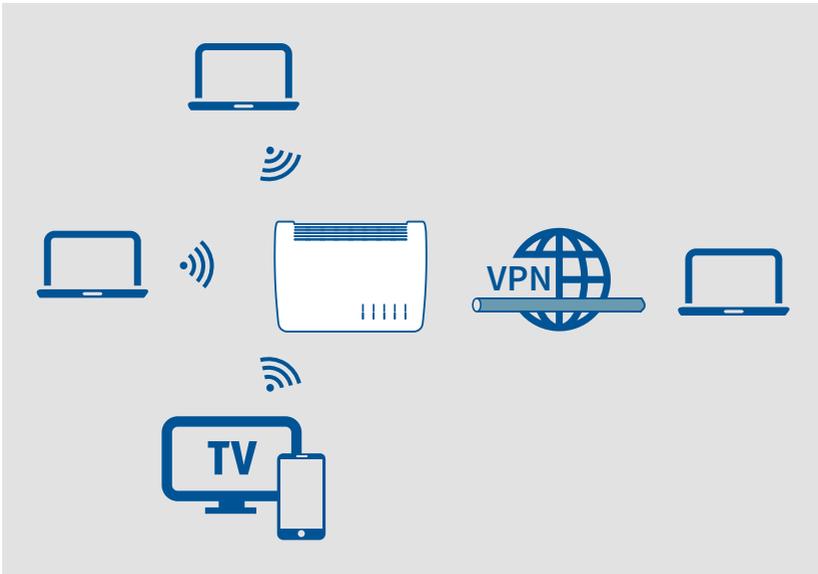
Alternative

Setting up remote access via VPN can overwhelm the layman. It is easier to set up access from outside via MyFRITZ!. For more information see MyFRITZ!, page 208.

VPN Service Portal

The AVM website offers a service page which presents comprehensive information on VPN in general and in connection with the FRITZ!Box. If you would like to find out even more, visit this page at:

en.avm.de/service/vpn

Also on the VPN Service Portal is the "FRITZ!VPN" software for free downloading. The "FRITZ!VPN" software is a VPN client. Install the program on the computers and laptops from which you would like to reach the FRITZ!Box over a VPN connection.

Instructions: Configuring VPN in the FRITZ!Box

For instructions, see the Online Help at: "Internet / Permit Access / VPN".

. . . .

Configuring IPv6

Overview

IPv6 stands for Internet protocol version 6. It is the successor to IPv4, which is to completely replace it in the years ahead. It offers considerably more possible addresses and has higher security and performance features than its predecessor.

The FRITZ!Box supports the new IPv6 Internet protocol and can establish IPv6 connections:

Services that Support IPv6

Home Network / Internet	Services that Support IPv6
IPv6-capable services in the home network	• FRITZ!NAS access via SMB or FTP/FTPS • Access to the user interface with http or https over IPv6 • The DNS resolver of the FRITZ!Box supports queries for IPv6 addresses (AAAA records) and can query the upstream DNS resolver of the Internet service provider over IPv6. • The globally valid prefix is distributed via router advertisement. • For guest access to the wireless LAN, the home network and wireless guests are separated by IPv6 subnetworks. • UPnP, UPnP AV media server

Home Network / Internet	Services that Support IPv6
IPv6-capable services in the Internet	• FRITZ!NAS access via FTPS
	• Completely closed firewall to protect against unwanted data from the Internet (Stateful Inspection Firewall)
	• Voice over IPv6
	• Automatic provisioning (TR-069)
	• Time synchronization over NTP (Network Time Protocol)
	• Remote access via HTTPS
	• Dynamic DNS via dyndns.org and name-master.de

Requirements

- IPv6 must be installed and enabled on the computers in your home network (standard in Windows since Windows Vista and Windows 7, in MAC OS X since MAC OS 10).

- The advanced view must be enabled in the FRITZ!Box user interface; see Using the Standard View and Advanced View, page 67.

Instructions: Configuring IPv6 in the FRITZ!Box

For instructions, see the Online Help at: "Internet / Account Information / IPv6".

Configuring FRITZ!Box as a LISP Router

Overview

LISP is short for list processing, a routing architecture that separates information about location and identity. There are two IP addresses: one for the location and one for the identity. The FRITZ!Box can be configured as a LISP router.

LISP is useful if technical or organization reasons make it preferable to keep the same IP addresses, even when you switch Internet service providers. This way devices (host devices, virtual machines) do not lose their identity when they change locations.

Requirements

- You are registered with a LISP provider.

- The advanced view must be enabled in the FRITZ!Box user interface; see User Interface, page 59.

Instructions: Configuring FRITZ!Box as a LISP Router

For instructions, see the Online Help at: "Internet / Account Information / LISP".

User Interface: Telephony Menu

Telephony Menu: Settings and Features

Overview

In the "Telephony" menu you configure your telephone numbers, telephones and other connected devices (for instance fax machine, door intercom system). You can also configure the FRITZ!Box answering machine, the internal fax function and various other features: the telephone book, alarm, call blocks, call diversion, call through and dialing rules.

The call list shows all of the calls you made, accepted or missed.
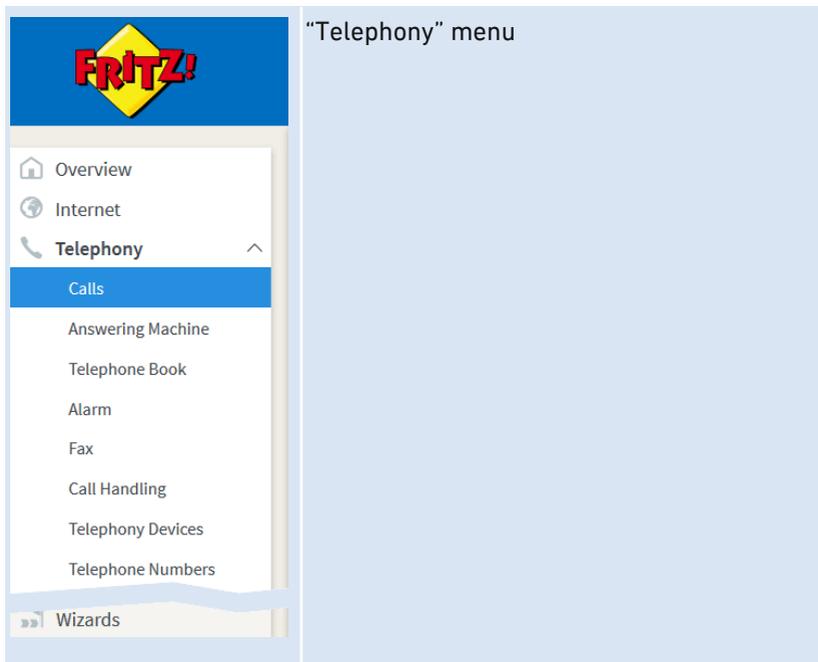
"Telephony" menu

Description of the Submenus

The online help of the user interface includes a detailed description of the submenus.

On the Following Pages

The following pages present information on important settings, options and procedures included in this menu.

Configuring and Using the Telephone Book

Overview

How you can use the FRITZ!Box telephone book depends on the telephone used:

Telephone	Available Functions
FRITZ!Fon	• Telephone book available in the FRITZ!Fon menu • Option for separate telephone books for multiple FRITZ!Fon telephones • Quick-dial numbers • Click to Dial
Cordless telephone with CAT-iq 2.0 support	• Telephone book available in the telephone menu • Quick-dial numbers • Click to Dial
Others	• Quick-dial numbers • Click to Dial

Kinds of Telephone Books

You can set up different kinds of telephone books in the FRITZ!Box:

Telephone Book	Description
Local telephone book	The entire telephone book is saved in the FRITZ!Box.

Telephone Book	Description
Online telephone book	Online telephone books include Google Contacts and the contacts of e-mail accounts with 1&1, GMX or WEB.DE.

The online telephone book is available in the FRITZ!Box and synchronized with your telephone book in the Internet at regular intervals. |

You can set up multiple local and multiple online telephone books, for instance, separate telephone books for different FRITZ!Fon telephones. Quick-dial numbers can be configured only in the first local telephone book.

Instructions: Setting Up a New Telephone Book in FRITZ!Box

For instructions, see the Online Help at: "Telephony / Telephone Book / New telephone book".

Instructions: Creating an Online Telephone Book

For instructions, see the Online Help at: "Telephony / Telephone Book / New telephone book".

Instructions: Creating a New Telephone Book Entry

For instructions, see the Online Help at: "Telephony / Telephone Book".

Instructions: Creating and Using "Click to Dial"

For instructions, see the Online Help at: "Telephony / Telephone Book / Click to Dial".

Configuring and Using the Answering Machine

Overview

In the FRITZ!Box you can configure an answering machine, making an additional device superfluous. If you have more than one telephone number, you can set up multiple answering machines (up to 5).

Features

- Messages by e-mail: If desired, you can receive new messages automatically by e-mail.

- Schedule: You can define times to switch on and off on different days of the week.

- Remote playback: You can check the answering machine from on the go.

Requirements

- For each answering machine you configure, a telephone number is required.

Example

You have two telephones with different telephone numbers (for instance, one for personal calls and one for business calls). Then you can configure an answering machine for each telephone. Assign your personal telephone number to the first answering machine and your office number to the second one.

Instructions: Configuring the Answering Machine

For instructions, see the Online Help at: "Telephony / Answering Machine".

Operating Answering Machines by Telephone

Using a voice menu you can operate the answering machine on any telephone connected with the FRITZ!Box. You can listen to new

messages, for instance, or switch the answering machine on and off. For instructions, see Operation at the Telephone, page 232.

Picking Up a Call from the Answering Machine on the Telephone

Calls that have already been accepted by the answering machine can be picked op on your telephone. For instructions, see Instructions: Picking Up a Call from the Answering Machine or Telephone, page 234.

Configuring and Using the Fax Function

Overview

With the FRITZ!Box you can receive and send faxes without having to connect a fax machine. Faxes are sent from the browser on any connected computer. The FRITZ!Box also accepts faxes and forwards them automatically by e-mail or saves them on a storage medium. You can also set up a push service that notifies you about new faxes.

Rules

- Fax documents to be sent can have a maximum length of two A4 sheets. If your document is longer, it will be shortened to two A4 pages.

- If you use the Google Chrome or Mozilla Firefox web browser, you can attach an image (PNG or JPG format) to the fax.

Requirements

- The fax function of the FRITZ!Box must be configured.

Instructions: Configuring the Fax Function

For instructions, see the Online Help at: "Telephony / Telephony Devices".

Instructions: Sending Faxes

For instructions, see the Online Help at: "Telephony / Fax".

Configuring Call Diversion

Overview

You can configure call diversion for incoming calls in the FRITZ!Box.

Incoming Calls

Call diversion can be set up for the following calls:

• All incoming calls

• All calls from a certain telephone number or a certain person in the telephone book

• All calls without a telephone number (anonymous calls)

• For multiple telephone numbers: all calls for a certain telephone number or a certain telephone

Destination Numbers

You can divert calls to:

• Another telephone number (a different telephone line or mobile telephone number)

• One of the FRITZ!Box's internal answering machines

Example

While you are on the go, calls are to be forwarded from the office to your mobile telephone.

Instructions: Configuring Call Diversion

For instructions, see the Online Help at: "Telephony / Call Handling / Call Diversion".

Configuring Call Blocks

Overview

In the FRITZ!Box you can block telephone numbers for outgoing and for incoming calls.

Kinds of Call Blocks

You can configure various kinds of call blocks:

Call Block for	Function
Outgoing calls	The blocked telephone number can no longer be called from the FRITZ!Box. Ranges of telephone numbers can also be blocked, for instance, mobile networks, or all telephone numbers that begin with 0180.
Incoming calls	The FRITZ!Box will not accept calls from the blocked telephone number. However, the call block only works if the caller allows transmission of her or his telephone number.
Calls without a telephone number (anonymous calls)	The FRITZ!Box will not accept any calls from callers who suppress their telephone number.

Example 1

You would like to prevent dialing of expensive premium telephone numbers. For this you can set up a call block for outgoing calls to all telephone numbers that begin with 0900.

Example 2

You would like to block sales calls from a certain telephone number. For this you can set up a call block for incoming calls from this telephone number.

Instructions: Configuring a Call Block

For instructions, see the Online Help at: "Telephony / Call Handling / Call Blocks".

Configuring Do Not Disturb

Overview

Do Not Disturb keeps a telephone from ringing at specified times. Calls you miss then appear in the FRITZ!Box call list. Do Not Disturb cannot be configured for IP telephones (connected via LAN port/wireless LAN).

Example

You do not want your telephone to ring between 11 pm and 6 am.

Instructions: Configuring Do Not Disturb

For instructions, see the Online Help at: "Telephony / Telephony Devices / Edit / Do Not Disturb".

Setting Up an Alarm

Overview

Setting an alarm will make your telephone ring at the specified time.

Example

You would like to be woken up by your telephone at 6:30 am every morning.

Instructions: Configuring an Alarm

For instructions, see the Online Help at: "Telephony / Alarm".

Configuring a Dialing Rule

Overview

If you have multiple telephone numbers, you can configure dialing rules. A dialing rule determines which telephone number the FRITZ!Box uses for outgoing calls in a certain number range, for instance to mobile networks or abroad.

Example

You have a telephone number with which you can save on international calls. Then configure a dialing rule for international calls.

Instructions: Configuring Dialing Rules

For instructions, see the Online Help at: "Telephony / Call Handling / Dialing Rules".

Configuring Call-by-Call Numbers

Overview

You can configure call-by-call numbers (provider prefixes) in the FRITZ!Box. A call-by-call number is dialed before the actual telephone number to place an outgoing call. The provider prefix ensures that you conduct the call at a discount via the provider with that prefix rather than via your telephone provider.

Example

You would like to use an economic call-by-call prefix for international calls.

Requirements

* Your telephone provider must allow the use of call-by-call prefixes.

Instructions: Configuring Call-by-Call Numbers

For instructions, see the Online Help at: "Telephony / Call Handling / Provider Prefixes".

User Interface: Home Network Menu

Home Network Menu: Settings and Features

Overview

The FRITZ!Box is the center of your home network. All connected devices together make up your personal home network. The "Home Network" menu shows you all of the devices connected with the FRITZ!Box along with their type of connection and properties, and also offers a variety of settings options for these devices. In addition to the central update function, you also find here menus for configuring the LAN guest access and the media server.
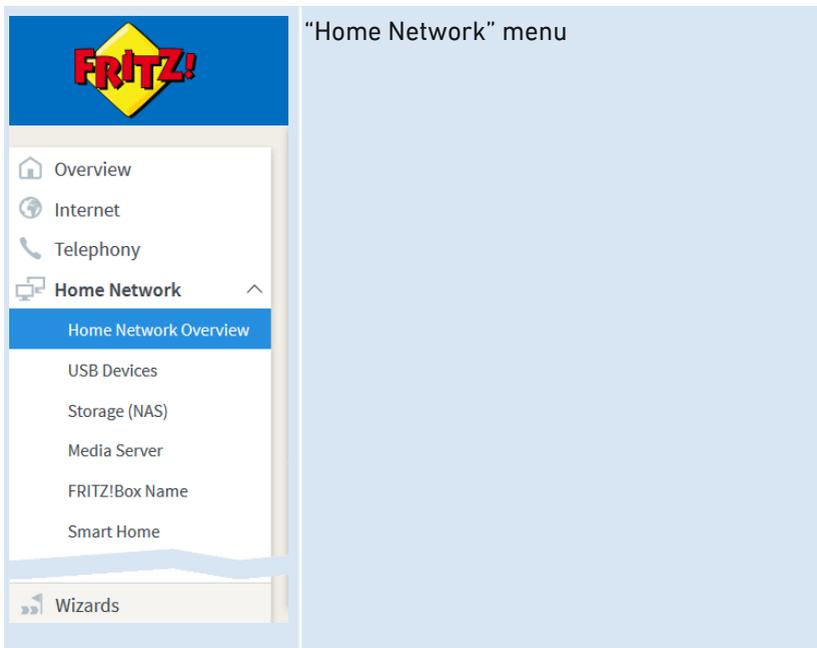
"Home Network" menu

Description of the Submenus

The online help of the user interface includes a detailed description of the submenus.

On the Following Pages

The following pages present information on important settings, options and procedures included in this menu.

Keeping Track of All Devices

Overview

Under "Home Network / Home Network Overview", all of the devices connected with the FRITZ!Box are listed in an overview.

All Devices at a Glance

At a glance you can see a table with all of the devices that are attached to the FRITZ!Box or connected with the FRITZ!Box. Even devices located elsewhere in the home, which you might not think of, are included in the display:

- FRITZ!Box: the FRITZ!Box itself

- Network devices: All network devices connected with a network cable or via wireless LAN, for example: computers (PCs, laptops, ...), mobile terminal devices (tablets, smartphones), wireless repeaters, TV sets.

- Telephones: all of the telephones connected with the FRITZ!Box

- USB devices: all connected USB devices, for example USB storage disks, USB flash drives, USB printers, USB mobile communications dongles

- Smart Home devices: Smart Home devices connected with the FRITZ!Box, for example smart plugs or radiator controls

Central Location for the Update Status of the FRITZ! Devices

For FRITZ! products, the display shows whether the installed FRITZ!OS is up to date or whether an update is available. If there is an update, you can install it directly from the table.

Managing Network Devices

Overview

In the FRITZ!Box user interface, a table listing all network connections is shown under "Home Network / Home Network Overview / Network Connections". A network connection is an IP connection between a network device and the FRITZ!Box. By means of the table you can keep track of the network connections and all network devices. You can edit the connection properties, and add and remove network devices.

Explanation of Terms: Network and Other Terms

Term	Explanation
Network device	Network devices are devices that are connected with the FRITZ!Box in one of the following ways: • with a network cable to a LAN port on the FRITZ!Box • via wireless LAN • via the Internet with a VPN connection (see page 100)
Network	All network devices on the FRITZ!Box comprise a network.
Internet protocol	Communication within the network takes place using the Internet protocol, IP for short. The Internet protocol is the language that all network devices speak and understand.
IP network	A network based on the Internet protocol is also known as an IP network. Connections within an IP network are known as IP connections.

Term	Explanation
Network interface	A network interface as the interface used to connect a network device with a network. It can be a wireless LAN radio module for wireless connections or a network port for cabled connections.

Properties and Benefits

The table with the network connections has the following properties that can be useful in organizing and keeping track of the IP network:

- Overview: The table offers an overview of the entire IP network of the FRITZ!Box.

- All connections: Every connection any network device has to the FRITZ!Box is displayed. A connection can be established with a network cable, via wireless LAN, or over VPN. A network device that is sometimes connected with a network cable, and sometimes via wireless LAN has two entries in the table, one for each connection.

- Inactive connections: Even connections that are currently not active are displayed.

- Windows users: If there are Windows computers in the home network on which AVM parental controls software is installed, the Windows users of these computers are also displayed.

- Only shown here: VPN connections are displayed only in this table.

- Guest network overview: Connections to the guest network are displayed.

- Connection properties: Properties are displayed for every connection.

- Finding devices: Table columns can be shown or hidden, and the table has a sorting function. By means of these functions devices can be located quickly. Devices can be identified by their IP address, for instance.

- Changing connection properties: A detailed view can be opened for each connection. Connection properties can be changed in the detailed view.

Adding a Device

You can include in the overview even network devices that are not physically connected with the FRITZ!Box.

As soon as an entry for a device is included in the table, you can configure various properties, for instance, port sharing. The type of connection is not listed in the table until the device is physically connected with the FRITZ!Box.

Example

The "Add Device" function is useful for vendors. When a customer orders a new FRITZ!Box, she or he can have the vendor set up the network in the FRITZ!Box. With the "Add Device" function this can be done without actually connecting any network devices.

Removing Devices

Unused connections can be removed individually or all at once, as long as they do not have any special settings. When a single unused connection is removed, all of the settings configured for this device are also deleted.

A click on the "Remove" button removes all inactive connections for which properties were never assigned. This function is useful in the following situations:

- in environments with walk-in customers (for example, hotels, cafés, betting offices)

- in households with children who often invite their friends to use the wireless LAN

Changing IPv4 Settings

Overview

The IPv4 settings define the IPv4 network of the FRITZ!Box. Without these settings there is no IPv4 network. The FRITZ!Box has preconfigured IPv4 settings upon delivery. You can change these IPv4 settings.

Changes to the IPv4 settings can have the result that the FRITZ!Box can no longer be reached. Only make changes in this menu if you are proficient in network technology.

Application Scenario

In the following cases it is necessary to change the IPv4 address of the FRITZ!Box:

• VPN connection: The home network of the FRITZ!Box is connected with another FRITZ!Box network via a LAN-LAN linkup.

• The FRITZ!Box is integrated in an existing FRITZ!Box network and both boxes are operating in router mode (cascaded).

In both cases the boxes involved cannot have identical IPv4 networks. The IPv4 address must be changed in at least one FRITZ!Box.

Requirements

• The IPv4 settings can be changed only when the advanced view is enabled in the FRITZ!Box; .

IPv4 Factory Settings

Upon delivery the following values are set in the FRITZ!Box:

IPv4 Setting	Preset Value
IPv4 address of the FRITZ!Box	192.168.178.1

IPv4 Setting	Preset Value
Subnet mask	255.255.255.0
IPv4 network address	192.168.178.0
Address range available for network devices	192.168.178.2 – 192.168.178.254
DHCP server	Enabled
Address range of the DHCP server	192.168.178.20 – 192.168.178.200
Local DNS server	192.168.178.1

Reserved IPv4 Addresses

The following IPv4 addresses are reserved for certain tasks and cannot be assigned for any other use:

IPv4 Address	Purpose
192.168.178.1	IPv4 address of the FRITZ!Box
192.168.178.255	Broadcast address. This address is used to send messages within the network. The messages are received by all network devices.

IPv4 Address in Case of Emergency

The FRITZ!Box also has a fixed IPv4 address that cannot be changed. The FRITZ!Box always can be reached at this IPv4 address.

IPv4 Address	Purpose
169.254.1.1	The FRITZ!Box can always be reached at this IPv4 address.

For instructions for using the emergency IPv4 address, see Opening the User Interface with the Emergency IP Address, page 253.

IPv4 Network

IPv4: IPv4 stands for Internet protocol, version 4. Together, the IPv4 address of the FRITZ!Box and the subnet mask specify the IPv4 network of the FRITZ!Box. The IPv4 address range available for the network devices is determined by this network. If either of these two values is changed, a different network results.

Instructions: Changing the IPv4 Settings

For instructions, see the Online Help at: "Home Network / Home Network Overview / Network Settings", "IPv4 Addresses" button.

Distributing IPv4 Addresses

Overview

Every network device in the IPv4 home network of the FRITZ!Box has an address from the IPv4 address range of the FRITZ!Box. A network device either receives its IPv4 address automatically from the DHCP server of the FRITZ!Box, or the IP address is entered manually in the network settings of the network device.

IPv4 DHCP Server

DHCP stands for Dynamic Host Configuration Protocol. A DHCP server in the IPv4 network assigns IPv4 addresses to the network devices automatically. Assigning the IP addresses via the DHCP server ensures that all of the network devices connected with the FRITZ!Box are located in the same IP network.

The DHCP server of the FRITZ!Box is enabled upon delivery.

One part of the IPv4 address range of the FRITZ!Box is reserved for the DHCP server. The DHCP server assigns IP addresses from this range to the network devices.

IPv4 Addresses Reserved for the DHCP Server upon Delivery
192.168.178.20 – 192.168.178.200

You can change the address range for the DHCP server if needed:

Kind of Change	Need
Enlarge	If there are many network devices in the network, many IP addresses will be needed. In this case the address range of the DHCP server can be enlarged. Example for a larger range: 192.168.178.20 – 192.168.178.220

Kind of Change	Need
Reduce	If there are fewer network devices, the address range can be reduced. Example for a smaller range: 192.168.178.20 – 192.168.178.120
Move	If you permanently assign the IPv4 addresses 192.168.178.2 – 192.168.178.49 to network devices, but want to maintain a DHCP address range of the same size, then you can shift the DHCP address range, for instance to the range 192.168.178.50 – 192.168.178.230

Rules

Only one DHCP server may be active in a network.

Preparing Network Devices for DHCP

For the IP address to be assigned by the DHCP server, the "Obtain an IP address automatically" must be enabled in the IPv4 settings of the network devices; see Obtaining an IP Address Automatically, page 138.

When a network device registers with the FRITZ!Box, it receives an IPv4 address from the DHCP server. Every time the network device is restarted, the DHCP server assigns it an IP address again.

Always Assigning the Same IPv4 Address

You can specify that the DHCP server always assigns the same IPv4 address to network devices. This option can be enabled under "Home Network / Network Connections" in the detailed settings of the network devices.

Disabling the DHCP Server

You can disable the DHCP server of the FRITZ!Box.

In the following cases it is necessary to disable the DHCP server of the FRITZ!Box:

• You use a different DHCP server in your home network.

• You would like to assign addresses to all of the network devices in the home network manually.

Changing IPv6 Settings

Overview

The FRITZ!Box has preconfigured IPv6 settings upon delivery. You can change these settings.

Requirements

- The advanced view is enabled in the FRITZ!Box user interface; see page 67.

- The "IPv6 support enabled" setting is enabled under "Internet / Account Information / IPv6" in the FRITZ!Box user interface.

Factory Settings

The following settings for the IPv6 network of the FRITZ!Box are preset upon delivery:

Topic	Setting
Unique Local Addresses (ULA)	As long as there is no IPv6 Internet connection, the FRITZ!Box assigns unique local addresses to the network devices so that they can communicate with each other.
Additional IPv6 routers in the home network	This FRITZ!Box provides the default IPv6 connection. Other IPv6 routers are disregarded.
DNSv6 server in the home network	Also announce DNSv6 server via router advertisement.
DHCPv6 server in the home network	The DHCPv6 server is enabled. Only the DNS server is announced via DHCPv6.

You can change the settings. For more information on this subject, see the online help of the FRITZ!Box.

Instructions: Changing the IPv6 Settings

For instructions, see the Online Help at: "Home Network / Home Network Overview / Network Settings", "IPv6 Addresses" button.

Configuring a Static IP Route

Overview

A static IP route is a description of a path to an IP subnet whose network address is not known to the FRITZ!Box.

Application Scenario

Static IP routes are intended for the following situation:

• In the FRITZ!Box network there is a subnet whose network address in the FRITZ!Box is unknown.

• The network devices in the subnet are to communicate with the network devices of the FRITZ!Box or access the Internet via the FRITZ!Box.

• Only relevant for IPv4: The router that spans the subnet does not do NAT (Network Address Translation).

How Static IP Routes Work

IP packets whose IP destination addresses are unknown are forwarded to the Internet by default. In the application described above,because the FRITZ!Box does not know the destination addresses that belong to the subnet, it forwards the packet to the Internet. To prevent this from happening, the FRITZ!Box must know the network address of the subnet and the IP address of the interface to the subnet. These two addresses are required to configure a static route. Static IP routes are registered in the routing table.

Requirements

• Static IP routes can be configured only when the advanced view is enabled; .

Instructions: Configuring a Static IPv4 Route

? For instructions, see the Online Help at: "Home Network / Home Network Overview / Network Settings", "IPv4 Routes" button.

Instructions: Configuring a Static IPv6 Route

? For instructions, see the Online Help at: "Home Network / Home Network Overview / IPv6 Routes" "IPv6 Routes" button.

Obtaining an IP Address Automatically

Overview

Network devices that are to obtain their IP address automatically by DHCP must be configured accordingly. This configuration is performed on the operating system level in the IP settings of the network devices.

Obtaining an IP Address Automatically in Windows

1. In Windows 10 and 7 click "Start".

   In Windows 8, press the Windows key and the Q key at the same time.

2. Enter "ncpa.cpl" in the search field and press Enter.

3. Click the network connection between the computer and the FRITZ!Box with the right mouse button and select "Properties".

4. Under "This connection uses the following items", select "Internet Protocol Version 4 (TCP/IPv4)".

5. Click the "Properties" button.

6. On the "General" tab, enable the options "Obtain an IP address automatically" and "Obtain DNS server address automatically".
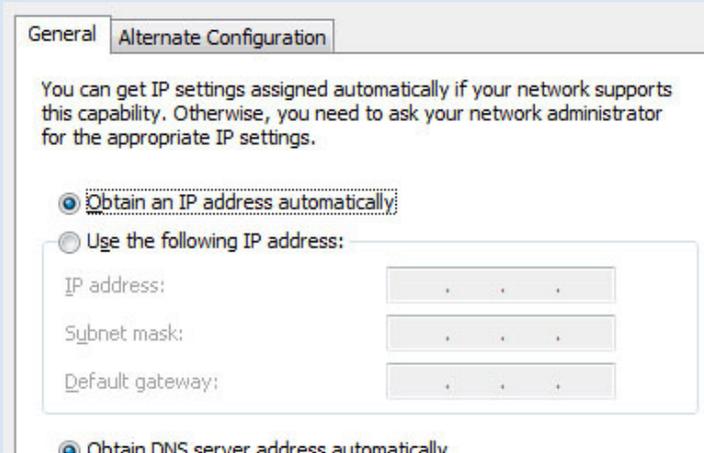
7. Click "OK" to save the settings.

8. Enable the options "Obtain an IP address automatically" and "Obtain DNS server address automatically" for the Internet pro-tocol version 6 (TCP/IPv6) as well.

The network device receives an IP address from the FRITZ!Box.

Obtaining an IP Address Automatically in Mac OS X

1. Select the "System Preferences" in the Apple menu.

2. In the "System Preferences" window, click "Network".

3. In the "Network" window, select the "Ethernet" entry from the "Show:" list.

4. Switch to the "TCP/IP" settings page and select the "Using DHCP:" option from the "Configure IPv4" drop-down menu.

5. Click "OK".

The network device now automatically receives an IP address from the FRITZ!Box.

Obtaining an IP Address Automatically in Linux

For comprehensive information and tips on network settings in Linux,
see, for example:

www.tldp.org/HOWTO/NET3-4-HOWTO-5.html

Configuring LAN Guest Access

Overview

With a LAN guest access it is simple to provide houseguests with an Internet connection of their own via network cable (LAN cable). A guest access is a user account for temporary users like weekend guests. A guest access can also be made available wirelessly via wireless LAN.

Criteria

The access profile "Guest" is set for the LAN guest access. This access profile can be edited in the "Internet / Filters / Access Profiles" menu.

These activities are permitted and prohibited on the guest access:

Your Guests Can	Your Guests Cannot
Surf the web (according to the filters you specified)	Access the contents of the home network
Send and receive e-mail	Configure settings in the FRITZ!Box user interface

Example Configuration
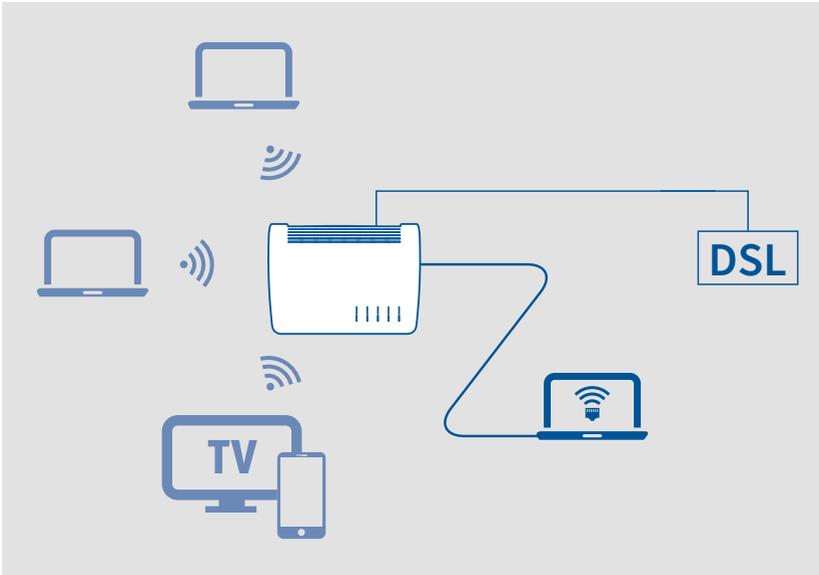
Requirements

- • The FRITZ!Box establishes the Internet connection itself, that is, it is not configured as an IP client.

- • You have a network cable at hand.

Instructions: Configuring LAN Guest Access

For instructions, see the Online Help at: "Home Network / Home Network Overview / Network Settings".

. . . .

Configuring Wake on LAN

Overview

Wake on LAN is a function that allows a computer to be started via network adapter. Wake on LAN can be used with remote maintenance software, without wasting electricity by keeping the computer switched on permanently. The FRITZ!Box supports Wake on LAN both for IPv4 and for IPv6 connections.

Requirements

- The network adapter of the computer supports Wake on LAN.
- The computer is connected with the FRITZ!Box
    - via a FRITZ!Powerline device or
    - by network cable
- For access from the Internet, the computer must be in standby operation.

Instructions: Configuring Wake on LAN

For instructions, see the Online Help at: "Home Network / Home Network Overview / Network Connections / Edit Device Details ".

Configuring USB Devices

Overview

The FRITZ!Box has two USB ports to which you can connect various USB devices. All devices in the FRITZ!Box home network can use these USB devices jointly and simultaneously.

Suitable USB Devices

The following USB devices can be connected to the FRITZ!Box:

- USB storage media compatible with EXT2/3/4, FAT, FAT32 or NTFS
    - flash drives
    - external hard drives
    - card readers
- USB printers
- USB all-in-one printers
- USB scanners
- USB modems
    - UMTS/HSDPA dongles
    - LTE dongles
- USB hubs

Example Configuration
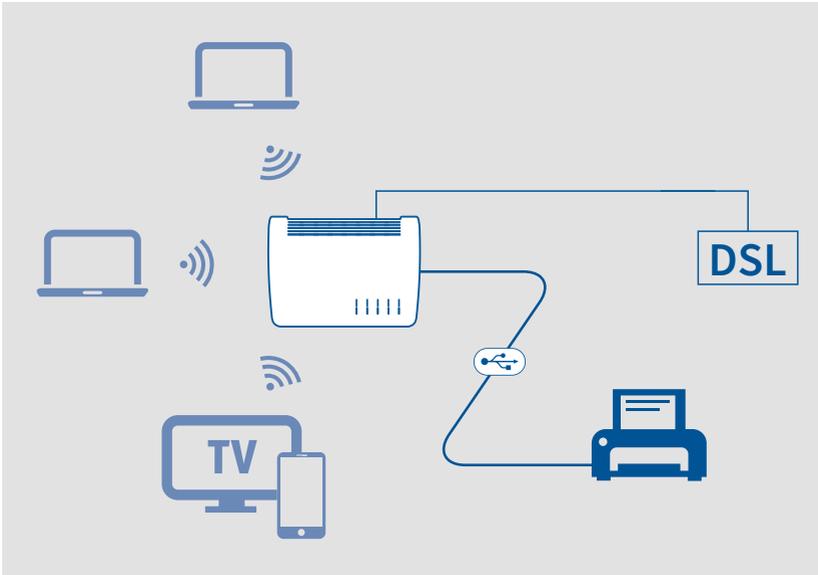
Rules

Follow the rules below for connecting USB devices to the FRITZ!Box:

• If more than one USB device without its own power supply is con-nected to the FRITZ!Box, the total current consumption may not exceed a value of 500 mA. Otherwise errors on the USB devices and even damage to the FRITZ!Box may occur.

• UMTS modems can have very high power consumption. For this reason, do not operate a UMTS modem directly on the FRITZ!Box, but on an active hub with its own power supply.

• Do not conduct any updates for USB devices that are connected with the computer via the FRITZ!Box USB remote connection.

- The FRITZ!Box can not defend connected USB storage media from external influences. Voltag peaks or drops during an electrical storm can result in the loss of data. Therefore you should back up the contents of the USB storage media on a regular basis.

- Place USB hard drives as far away from the FRITZ!Box as possible in order to prevent interference to wireless radio transmission.

Instructions: Connecting and Configuring USB Storage Media

Click "Remove Safely" before removing a USB storage medium from the FRITZ!Box. This ensures that all data transmission has been completed.

1. Connect the USB storage device to the USB port on the FRITZ!Box.

   The USB storage medium will be re-indexed and you can access the stored contents.

Configuring Access Rights for USB Storage Media

Under "System / FRITZ!Box Users" in the FRITZ!Box user interface you can specify which contents on a connected USB storage media can be accessed by each user account.

. . . .

Instructions: Configuring a USB Printer as a Network Printer (Windows 7)

A USB printer connected to the FRITZ!Box can be configured as a network printer in Windows 7:

1. Click "Start / Control Panel" and select the printer category of your operating system.

2. Click the printer icon with the right mouse button and select "Properties" or "Printer properties".

3. Switch to the "Ports" tab and click "Add Port...".

4. Double-click the "Standard TCP/IP Port" entry.

5. Click "Next" and enter fritz.box in the "Printer Name or IP Address" field.

6. Enter any name you wish in the "Port name" field and click "Next".

7. Select the "Custom" option and click "Settings...".

8. Enable the "Raw" option and enter 9100 in the "Port number" field.

9. Click "OK", click "Next", and confirm with "Finish" and "Close".

10. In the "<Printer name> Properties" window, switch to the "Ports" tab.

11. Disable the "Enable bidirectional support" option and click "Apply".

The USB printer has been configured and can be used as a network printer.

Instructions: Configuring a USB Printer as a Network Printer (Windows 8)

A USB printer connected to the FRITZ!Box can be configured as a network printer in Windows 8:

1. Press the keyboard shortcut "Windows key+X" and select "Control Panel" from the context menu.

2. Click "Hardware and Sound" and select "Devices and Printers".

3. In the menu bar, click "Add a printer".

4. In the "Add Printer" window, select "The printer that I want isn't listed" and then "Next".

5. Enable the option "Add a printer using TCP/IP address or hostname" and click "Next".

6. Enter fritz.box in the "Hostname or IP address" field.
   If the FRITZ!Box is configured as a wireless repeater or an IP client, enter here the IP address at which the FRITZ!Box can be reached in the network.

7. Click "Next".

8. Click "Next" and confirm with "Finish".

The USB printer has been configured and can be used as a network printer.

Instructions: Configuring a USB Printer as a Network Printer (Windows 10)

A USB printer connected to the FRITZ!Box can be configured as a network printer in Windows 10:

1. Press the keyboard shortcut "Windows key+X" and select "Control Panel" from the context menu.

2. Click "Hardware and Sound" and select "Devices and Printers".

3. In the menu bar, click "Add a printer".

4. In the "Add Printer" window, select "The printer that I want isn't listed".

5. Enable the option "Add a printer using TCP/IP address or hostname" and click "Next".

6. Enter fritz.box in the "Hostname or IP address" field.
   If the FRITZ!Box is configured as a wireless repeater or an IP client, enter here the IP address at which the FRITZ!Box can be reached in the network.

7. Click "Next".

8. Select the printer manufacturer and model, and click "Next".

9. If the "Printer Sharing" window appears, select "Do not share this printer" and click "Next".

10. Click "Finish".

The USB printer has been configured and can be used as a network printer.

. . . .

Instructions:Configuring a USB Printer as a Network Printer (Mac OS X 10.5 or Higher)

A USB printer connected to the FRITZ!Box can be configured as a net-work printer in Mac OS X version 10.5 or higher:

1. In the dock, click "System Preferences".

2. Click "Printers & Faxes".

3. Click the "+" sign.

4. Click "IP".

5. In the "Protocol:" list, select the entry "HP Jet Direct – Socket".

6. Enter fritz.box in the "Address" field.
    If the FRITZ!Box is configured as a wireless repeater or an IP client, enter here the IP address at which it can be reached in the network.

7. In the "Use:" list, select the printer that is connected to the USB port of your FRITZ!Box.
    If the printer is not displayed, you must first install the printer drivers for this device. Consult the documentation of your print-er for instructions.

8. Click "Add" or "Add Port...".

The USB printer has been configured and can be used as a network printer.

Instructions: Configuring a USB Printer in Other Operating Systems

In operating systems other than Windows or Mac OS X, configure the following settings to set up a USB printer as a network printer:

1. As the port type, select "Raw TCP".

2. Enter 9100 as the port.

3. Enter fritz.box as the printer name.
   If the FRITZ!Box is configured as a wireless repeater or an IP client, enter here the IP address at which it can be reached in the network.

Configuring USB 2.0 and USB 3.0

For power saving operation of the FRITZ!Box the "Home Network / USB Devices / USB Settings" menu in the user interface offers the following settings for the USB ports:

Power Mode (USB 3.0)	Green Mode (USB 2.0)
Full power: up to 3 times faster than USB 2.0	Reduced power
Increased power consumption	Reduced power consumption
Preset for the port on the back	Preset for the port on the side

Operating USB devices at a USB port in "Power Mode" may result in slower data transmission in the 2.4- wireless network and poor voice quality in telephone calls with DECT cordless telephones.

The occurrence of interference depends on the quality of the USB cable used. To remedy interference, select "Green Mode" and/or switch to wireless LAN in the 5-GHz band.

Configuring and Using the Media Server

Overview

With the media server of the FRITZ!Box you can make photos, videos and music available to compatible playback devices. The media server can be expanded using USB storage media or USB hard disks. You can also use the media server of the FRITZ!Box to listen to web radio.

Criteria

The FRITZ!Box detects media files automatically and makes them available in a clear playlist. You can decide yourself which media sources on the media server should be made available to the users in the home network and from the Internet.

Writing large amounts of data to a storage medium connected to the FRITZ!Box can take a while. You can accelerate the process by copying the data to the storage medium on your computer first and then connecting the storage medium to the FRITZ!Box.

Example Configuration
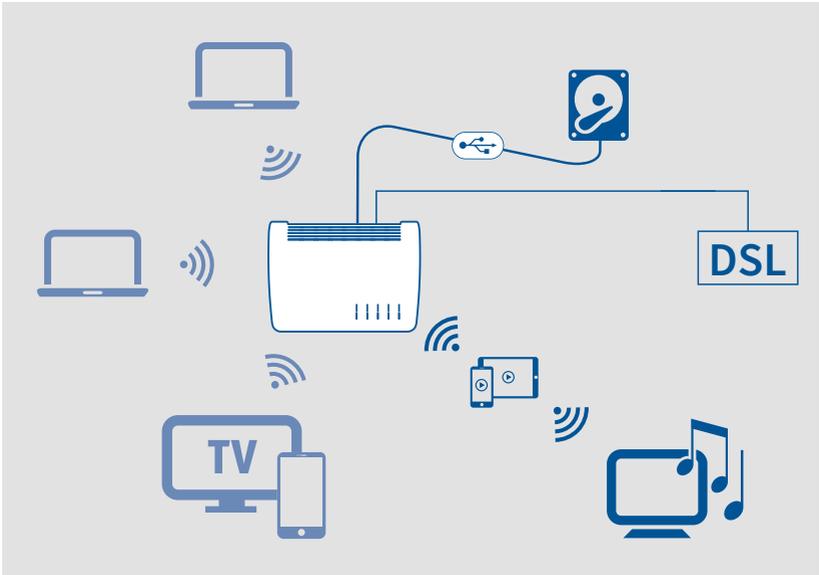
Requirements

- The playback devices must support the UPnP AV standard.

Instructions: Configuring and Using the Media Server

For instructions, see the Online Help at: "Home Network / Media Server / Settings", "Home Network / Media Server / Web Radio" and "Home Network / Media Server / Podcast".

Assigning a FRITZ!Box Name

Overview

You can assign an individual name for your FRITZ!Box in the FRITZ!Box user interface. This name is then adopted as the name of the wireless radio network (SSID).

⚠️ Changing the name may make it necessary to reconfigure your wireless connections and network links.

Consequences of Assigning a Name

The name is adopted in the following areas of your home network:

- Name of the wireless radio network (SSID)

- Name of the guest radio network (SSID)

- Name of the working group released for home network sharing

- Name of the media server

- Name of the DECT base station

- Push service sender name

- Name of your FRITZ!Box in the device overview in MyFRITZ!

Instructions: Assigning a FRITZ!Box Name

For instructions, see the Online Help at: "Home Network / FRITZ!Box Name".

Controlling Smart Home Devices

Overview

The following Smart Home devices can be registered with the FRITZ!Box and configured and controlled via the FRITZ!Box:

• Up to 10 FRITZ!DECT 200/210 outlet switches and

• Up to 12 FRITZ!DECT 300/Comet DECT radiator controls

With outlet switches you can control the power supply to connected devices by schedule, and record the devices' energy consumption. With radiator controls you can control the room temperature automatically and save energy costs. The Smart Home devices can be configured and controlled on the computer, table, or smartphone, and even via the Internet from on the go.

Example Configuration
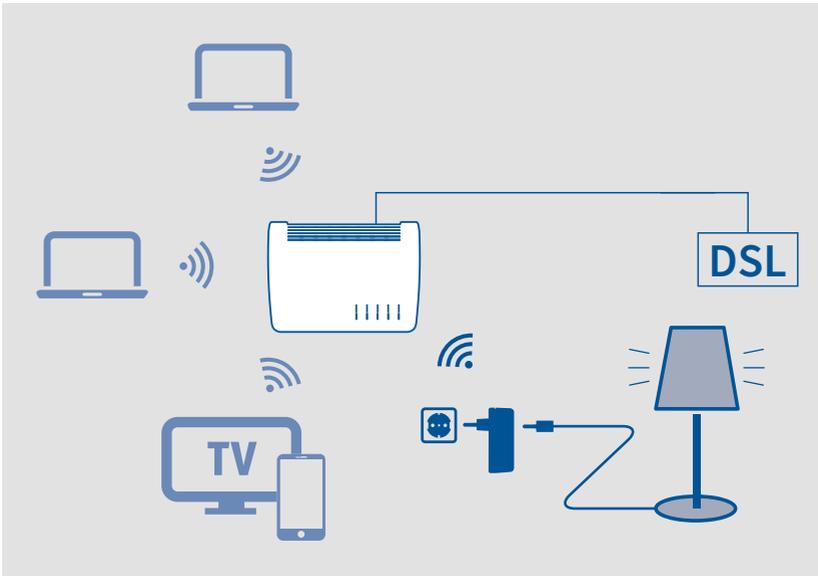
Requirements

- A Smart Home device is registered with the FRITZ!Box.

Instructions: Setting Up a Group

For instructions, see the Online Help at: "Home Network / Smart Home".

Instructions: Configuring Automatic Switching

For instructions, see the Online Help at: "Home Network / Smart Home / Edit Smart Home Device / Automatic Switching".

User Interface: Wireless Menu

Wireless Menu: Settings and Features

Overview

In the "Wireless" menu you can configure and secure a wireless radio network and a separate wireless guest access. In this menu you can also set up a schedule for your wireless radio networks and change the operating mode of the FRITZ!Box so that it can be used as a wireless repeater if needed.
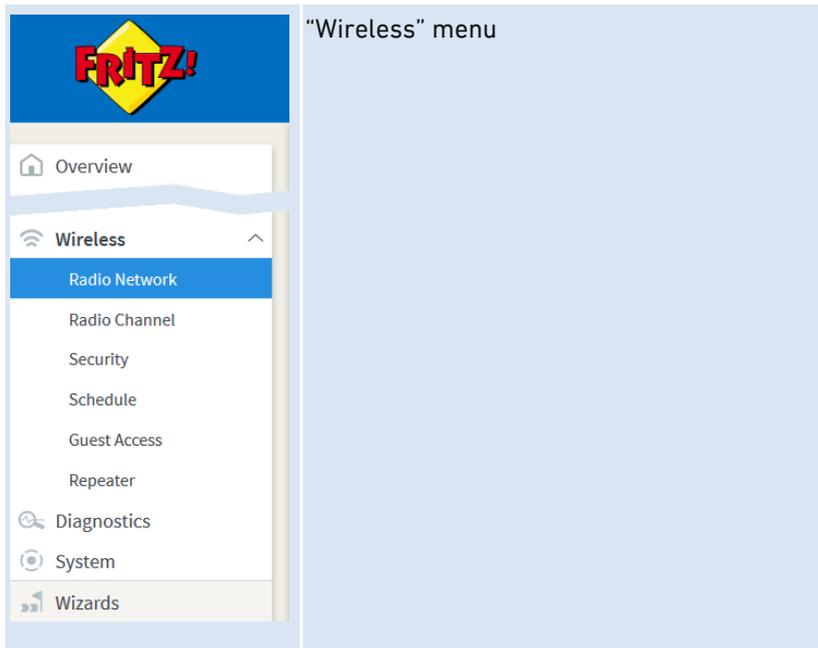
"Wireless" menu

Description of the Submenus

The online help of the user interface includes a detailed description of the submenus.

On the Following Pages

The following pages present information on important settings, options and procedures included in this menu.

Switching the Wireless Radio Network On and Off

Overview

When no one is using it, you can switch off the wireless network. This way you reduce both power consumption and wireless radiation.

You can switch the wireless network on and off manually, and set up a schedule for times at which the wireless network is turned on and off automatically.

The FRITZ!Box schedule can be transferred to other connected AVM devices, for instance FRITZ!WLAN Repeaters and FRITZ!Powerline adapters. By default, the AVM devices adopt the settings for the wireless switching schedule from the FRITZ!Box. You can also configure a separate wireless LAN switching schedule for the connected AVM devices.

Instructions: Switching the Wireless Network On and Off Manually

You can switch the wireless network on and off in the following ways:

- with the "WLAN" button on the FRITZ!Box

- by keypad code using a connected telephone; see Instructions: Switching Wireless LAN On, page 230 and see Instructions: Switching Wireless LAN Off, page 231

- in the menu of a connected FRITZ!Fon cordless telephone

Instructions: Switching Wireless LAN On and Off by Schedule

For instructions, see the Online Help at: "Wireless / Schedule".

Selecting the Radio Channel

Overview

Wireless LAN uses the frequency ranges at 2.4 GHz and 5 GHz for transmission. Generally the FRITZ!Box automatically checks the wireless environment and selects the optimum radio channel settings. In some cases it may be necessary to adjust these radio channel settings in order to adapt the wireless radio network to the circumstances at your location.

Comparison of the Frequency Ranges

The following table compares the 2.4-GHz and 5-GHz frequency ranges:

	2.4 GHz	5 GHz
Advantages	Greater range – supported by older and newer clients	Less busy, therefore less interference
Disadvantages	Subject to heavy use, therefore often lots of interference	Lower range – only supported by newer clients
Recommendation	Use for applications that require a low to normal throughput rate (for instance, reading and writing e-mail).	Use for applications that rely on a steady, high throughput rate (for instance, streaming).

Wireless Auto Channel

With the "Set radio channel settings automatically" (wireless auto channel) feature, the FRITZ!Box automatically searches for the channel subject to the least interference. This process takes into consideration interference from radio networks in the vicinity (wireless access points) and potential sources of interference (for instance baby

monitor, microwave oven). Should problems with interference persist despite this function, try to identify the source of interference and eliminate it.

Switching Frequency Bands Spontaneously (Band Steering)

To improve data transmission, the FRITZ!Box can automatically switch the frequency band used by dual-band wireless devices. For this the registered wireless devices are controlled so that they log in to the less busy frequency band, and thus take better advantage of the wireless spectrum available on both frequency bands.

Instructions: Adjusting the Radio Channel Settings Manually

For instructions, see the Online Help at: "Wireless / Radio Channel".

Configuring Wireless Guest Access

Overview

With a wireless guest access it is simple to provide houseguests with an Internet connection of their own via network cable (LAN cable). This is a user account for temporary users like weekend guests. At the wireless guest access your guests can log in with their own smartphones, tablets, laptops or other network devices. The guest access can require your guests to confirm your terms of use when they register, and notify you about all guest devices registering and de-registering.

Your Guests Can	Your Guests Cannot
Surf the web (according to the filters you specified)	Access the contents of the home network
Send and receive e-mail	Configure settings in the FRITZ!Box user interface

- -

Example Configuration
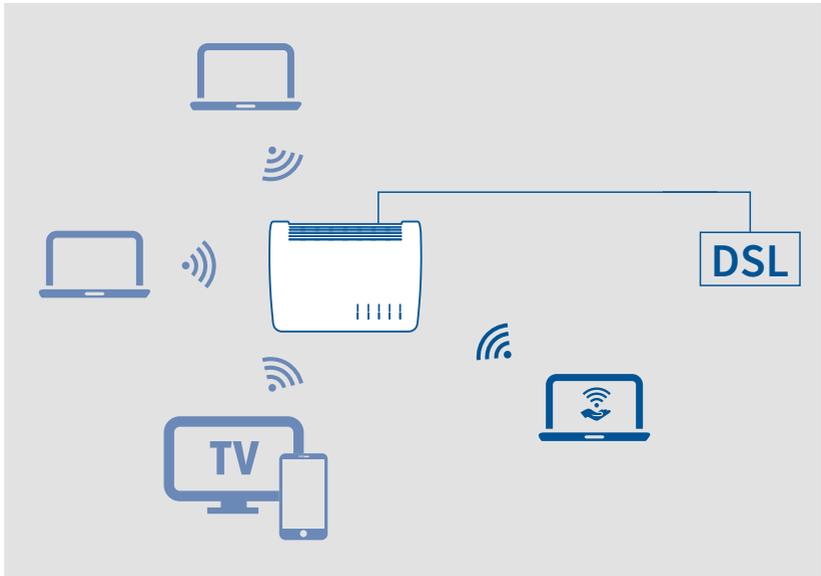
Requirements

The FRITZ!Box is not configured as an IP client.

Instructions: Configuring Wireless Guest Access

For instructions, see the Online Help at: "Wireless / Guest Access".

User Interface: DECT Menu

DECT Menu: Settings and Features

Overview

The "DECT" menu contains the settings to configure the DECT base station integrated in the FRITZ!Box.
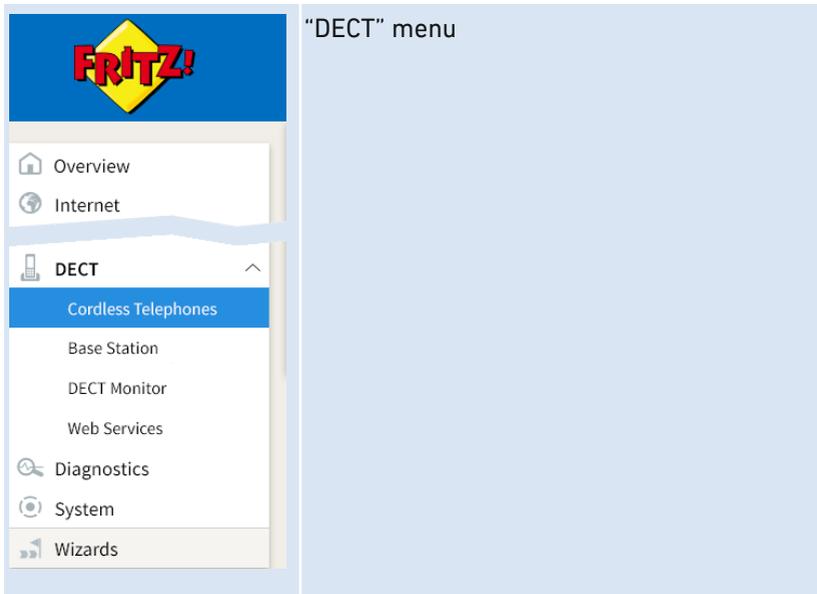
FRITZ! Overview · Internet · **DECT** ∧ · **Cordless Telephones** · Base Station · DECT Monitor · Web Services · Diagnostics · System · Wizards	"DECT" menu

Description of the Submenus

The online help of the user interface includes a detailed description of the submenus.

On the Following Pages

The following pages present information on important settings, options and procedures included in this menu.

Enabling DECT Eco

Overview

DECT Eco allows DECT radio transmission to be switched off during standby operation. DECT Eco reduces DECT radiation, but does not save any electricity.

How It Works

A telephone is on standby operation when you are not making any calls, not using any other features, and not pressing any buttons. When all registered cordless telephones are in standby operation, the DECT radio network of the FRITZ!Box and the telephones is switched off. As soon as a call arrives or you press a key on a cordless telephone, the DECT radio network is switched back on.

Requirements

- In the user interface, the "DECT Eco supported" option must be displayed for each telephone under "DECT / DECT Monitor".

- The following devices may not be registered with the FRITZ!Box: FRITZ!DECT devices with a switchable socket, FRITZ!DECT Repeater, a FRITZ!Box in DECT repeater mode.

Instructions: Enabling DECT Eco

For instructions, see the Online Help at: "DECT / Base Station".

Allowing Non-encrypted Connections

Overview

The FRITZ!Box is preconfigured to allow only authenticated and encrypted DECT connections. In order to use DECT repeaters from other manufacturers that do not allow encrypted connections, you can allow non-encrypted connections.

Consequences of Non-encrypted Connections

The following FRITZ!Box features can not be used if you allow non-encrypted connections:

- Registering FRITZ!DECT Repeater or FRITZ!Box in DECT repeater mode

- DECT Eco

- HD telephony

- Own ring tones for FRITZ!Fon

- Playback of web radio or podcast with FRITZ!Fon

- Display of background image or photos of callers on FRITZ!Fon

- Rendering audio files from the FRITZ!Box media server with FRITZ!Fon

Requirements

DECT settings can be changed only if the following prerequisite is met:

- At least one DECT cordless telephone is registered with the FRITZ!Box.

Instructions: Allowing Non-encrypted DECT Connections

For instructions, see the Online Help at: "DECT / Base Station".

Switching DECT On and Off

Overview

DECT is switched on automatically whenever you register a DECT device with the FRITZ!Box and switched off when you deregister all DECT devices. You can also switch off DECT in the user interface. Then the registered DECT devices will lose their connections to the FRITZ!Box, but remain registered with it. When you switch DECT back on, the connections will be restored.

Instructions: Switching DECT On and Off

1. Open the FRITZ!Box user interface, .

2. Select the "DECT / Base Station" menu.

3. Enable or disable the "DECT base station enabled" checkbox.

4. Click "Apply".

User Interface: Diagnostics Menu

Diagnostics Menu: Settings and Features

Overview

The "Diagnostics" menu presents an overview of the functional status of your FRITZ!Box, your home network, and the connection to the Internet. You also get an overview of all security-relevant settings of your FRITZ!Box. At a single glance it shows which ports are opened, which users are logged in and which wireless devices are connected.

In the case of an error, the results of the function and security diagnostics can be saved and sent to the AVM Support team.
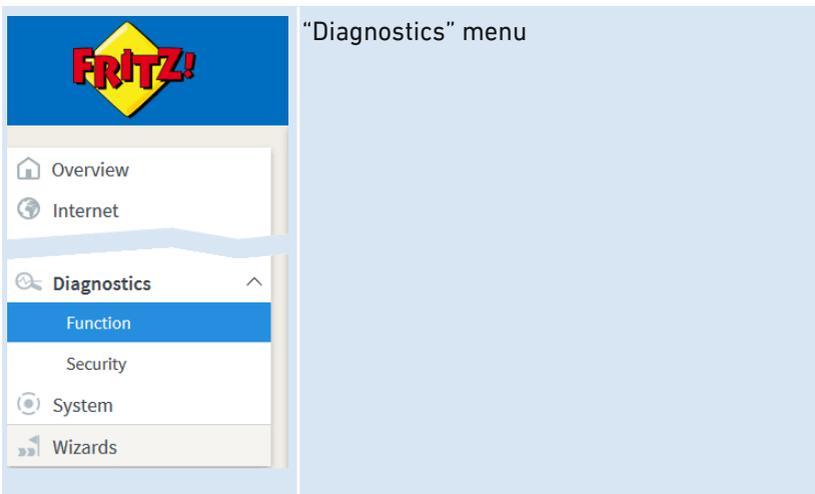
"Diagnostics" menu

Description of the Submenus

The online help of the user interface includes a detailed description of the submenus.

On the Following Pages

The following pages present information on important settings, options and procedures included in this menu.

Starting the Function Diagnostics

Overview

With the function diagnostics you can get an overview of the functional status of your FRITZ!Box, its Internet connection and about your home network. In the case of an error the diagnostics results can help you localize and remedy any problems.

Areas of Diagnostics

The following areas are checked:

Area	Checkpoint / Status
FRITZ!Box 7590	• Name of the FRITZ!Box • FRITZ!Box version • FRITZ!OS up to date
Registration	Configured kind of login to the FRITZ!Box user interface
LAN	• Allocation of LAN ports • Power settings on LAN ports
Wireless LAN	• Wireless LAN frequency band enabled/disabled with wireless LAN • Number of wireless LAN devices connected • Security settings
DECT	• DECT enabled/disabled • Number of DECT devices connected

. . . .

Area	Checkpoint / Status
USB devices	• Number of storage media connected • Number of partitions • Connected printers
Internet connection	• IPv4 connection active since/not active • IPv6 connection active since/not active • Current IP address
DSL connection	If the Internet connection check is negative, the DSL connection is checked.
Telephone numbers	Count and number of own telephone numbers
Home network	• Number of network devices connected with the FRITZ!Box at present or at an earlier point in time • Number of network devices online
Smart Home	Number of Smart Home devices
Wireless environment	Wireless LAN frequency band with number of wireless radio networks on the same or an adjacent channel

Instructions: Starting Function Diagnostics

For instructions, see the Online Help at: "Diagnostics / Function".

. . . .

Using Security Diagnostics

Overview

By means of the security diagnostics you get an overview of all security-relevant settings of your FRITZ!Box. At a glance you can see whether the latest FRITZ!OS is installed, which ports are open, which users are logged in or off the FRITZ!Box, which wireless devices with which properties are connected with the FRITZ!Box and much more.

Security Diagnostics Test Points

The following areas are checked:

Area	Checkpoint / Status
FRITZ!OS	• FRITZ!Box version • FRITZ!OS up to date
Login	Configured kind of login to the FRITZ!Box user interface
Internet connection	• Opened ports on the FRITZ!Box • Protocols used on these ports • Port sharing for home network devices to the Internet • Filters for Internet access
Wireless	• Properties and settings for access to the wireless network and wireless guest access • Names of registered and known wireless devices

Area	Checkpoint / Status
Telephony	• Functions and properties of the DECT base station of the FRITZ!Box • Call handling settings • IP telephone settings: connected with the FRITZ!Box directly or via FRITZ!App Fon
FRITZ!Box users	• All FRITZ!Box users and their rights to access FRITZ!Box contents, for the FRITZ!Box home network and for access from the Internet • Time at which the FRITZ!Box last logged in and the IP address it used to do so.
FRITZ!NAS	Access rights to the FRITZ!Box storage media with the following details: • Which user has access to which storage media? • Which rights (write and read) are included? • Is access permitted only via the home network, or also from the Internet?

Instructions: Using Security Diagnostics

For instructions, see the Online Help at: "Diagnostics / Security".

User Interface: System Menu

System Menu: Settings and Functions

Overview

The "System" menu shows all system-relevant events and supplies you with an "Energy Monitor" showing information about the power consumption of your FRITZ!Box, for details. Various notification services inform you about the activities of the FRITZ!Box and assist you in saving your passwords and FRITZ!Box settings.

In addition to allocating rights in the user administration, the "System" menu entries also allow the settings of the FRITZ!Box to be saved and restored.

In the "Update" menu you can also specify how the operating FRITZ!OS system is kept up to date.
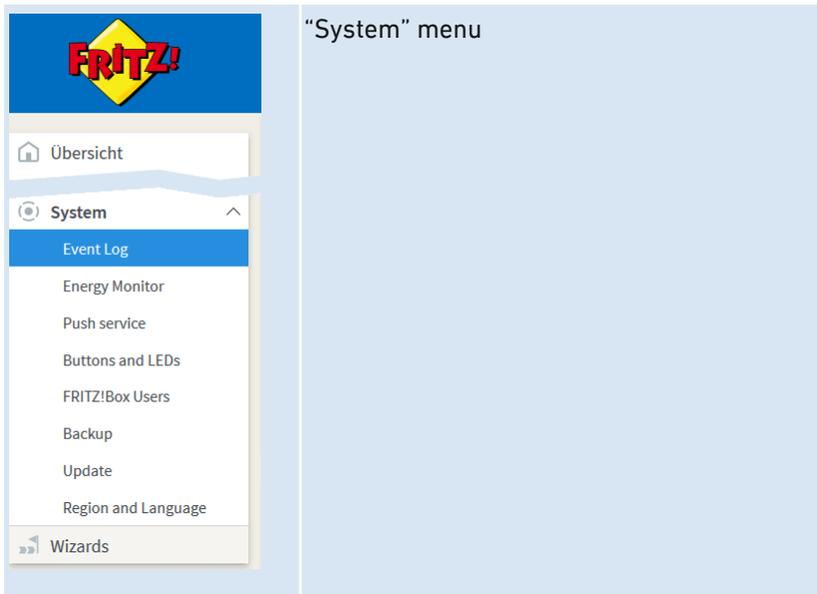
"System" menu

FRITZ!	"System" menu
⌂ Übersicht	
◉ System ⌃	
Event Log	
Energy Monitor	
Push service	
Buttons and LEDs	
FRITZ!Box Users	
Backup	
Update	
Region and Language	
»ʃ Wizards	

Description of the Submenus

The online help of the user interface includes a detailed description of the submenus.

On the Following Pages

The following pages present information on important settings, options and procedures included in this menu.

Setting a FRITZ!Box Password

Overview

With the FRITZ!Box password you open the user interface of the FRITZ!Box. Every user who knows this password can access all contents and settings of the FRITZ!Box.

A unique password is already set in your FRITZ!Box upon delivery. With this, access to the user interface of your FRITZ!Box is protected from the outset.

The preset network key is found here:

- on the bottom of the FRITZ!Box

- on the enclosed FRITZ! Notice

If needed, you can replace the preconfigured password with a FRITZ!Box password of your own.

With the FRITZ!Box password it is not possible to access the FRITZ!Box from the Internet. For Internet access to the FRITZ!Box you also need an account as a FRITZ!Box user; see Creating FRITZ!Box Users, page 182.

Password Protection

To protect the FRITZ!Box with a password, you can either use a FRITZ!Box password or set up FRITZ!Box accounts. These password variants differ in the following ways:

	FRITZ!Box Password	FRITZ!Box Users
Password	You specify a password. Or you use the preconfigured password. Everyone who knows the password can access the FRITZ!Box user interface.	There are user accounts. Every FRITZ!Box user receives her or his own password for opening the user interface.
Scope of access	With the FRITZ!Box password, access to all contents and settings in the FRITZ!Box is permitted.	For each FRITZ!Box user, in the user account you define which contents and settings of the FRITZ!Box the given user is allowed to access.
Kind of access	Login to the user interface is permitted from devices located in the home network of the FRITZ!Box.	A FRITZ!Box user can also log in to the FRITZ!Box user interface—with the appropriate user rights—from the Internet.

Rules for Passwords

Comply with the following rules for setting passwords:

- Select a password with at least twelve characters, which includes capitals and lower-case letters as well as numerals and special characters.

Characters Allowed	Illegal Characters
• Letters from a to z in lower case and upper case	• Letter ß • Umlauts ä, ö, ü in upper and lower case
• Numerals 0 to 9	
• Spaces	
• Special characters: _ - ! " # $ % & ' ( ) * + , . / : ; < = > ? @ [\ ] ^ ' {	} ~	Special characters: § ´

- Keep your passwords in a safe place.

- Configure the "Forgot password" push service. When you have forgotten a password, the FRITZ!Box sends an access link to the e-mail address you specified. Using this link you can set a new password.

⚠️ If you lose your FRITZ!Box password and did not configure the "Forgot password" push service, you will have to restore the factory settings to the FRITZ!Box and you will have to reconfigure all of your personal settings for your Internet connection, your telephone system and your home network.

Instructions: Configuring a FRITZ!Box Password

❓ For instructions, see the Online Help at: "System / FRITZ!Box Users / Login to the Home Network".

Creating FRITZ!Box Users

Overview

You can set up as many as 18 user accounts in the FRITZ!Box. A FRITZ!Box user opens the user interface of the FRITZ!Box by entering her or his personal password. There she or he can view and change those contents or settings for which she or he has been granted access rights.

It is up to you whether to use FRITZ!Box users instead of the FRITZ!Box password. You need to log in as FRITZ!Box user in the following cases:

• You would like to access your FRITZ!Box from the Internet.

• You would like to assign different rights to different users of your FRITZ!Box.

Do not create any user accounts for temporary users (like weekend guests, for example) whom you would like to grant Internet access over your FRITZ!Box temporarily. Use the guest access of the FRITZ!Box instead; see Configuring Wireless Guest Access, page 163.

Password Protection

To protect the FRITZ!Box with a password, you can either use a FRITZ!Box password or set up FRITZ!Box accounts. These password variants differ in the following ways:

	FRITZ!Box Password	FRITZ!Box Users
Password	You specify a password. Or you use the precon-figured password. Everyone who knows the password can access the FRITZ!Box user interface.	There are user accounts. Every FRITZ!Box user receives her or his own password for opening the user interface.

	FRITZ!Box Password	FRITZ!Box Users
Scope of access	With the FRITZ!Box password, access to all contents and settings in the FRITZ!Box is permitted.	For each FRITZ!Box user, in the user account you define which contents and settings of the FRITZ!Box the given user is allowed to access.
Kind of access	Login to the user interface is permitted from devices located in the home network of the FRITZ!Box.	A FRITZ!Box user can also log in to the FRITZ!Box user interface—with the appropriate user rights—from the Internet.

Rules for User Names and Passwords

Comply with the following rules for creating user names and setting passwords:

- For FRITZ!Box users, select a user name that begins with a letter from a to z in upper or lower case and has a maximum of 32 characters.

Characters Allowed for User Names	Illegal Characters for User Names
• Letters from a to z in lower case and upper case	• Letter ß • Umlauts ä, ö, ü in upper and lower case
• Numerals 0 to 9	
• Spaces	
• Special characters: - _ , .	Special characters: ! " § # $ % & ' (*) + / : ; < = > ? @ [\ ] ^ ' ´ { | } ~

- Select a password with at least twelve characters, which includes capitals and lower-case letters as well as numerals and special characters.

Characters Allowed for Passwords	Illegal Characters for Passwords
• Letters from a to z in lower case and upper case	• Letter ß • Umlauts ä, ö, ü in upper and lower case
• Numerals 0 to 9	
• Spaces	
• Special characters: _ - ! " #$ % & ' (*) + , . / : ; < = > ?@ [\ ] ^ ' {	} ~	Special characters: § ´

- Keep your passwords in a safe place.

- Configure the "Forgot password" push service. When you have forgotten a password, the FRITZ!Box sends an access link to the e-mail address you specified. Using this link you can set a new password.

Instructions: Configuring FRITZ!Box Users

For instructions, see the Online Help at: "System / FRITZ!Box Users / Users".

Configuring Push Services

Overview

Various push services are available in the user interface under "System / Push Service". Push services are notification services that inform you about the activities of your FRITZ!Box and assist you in saving your passwords and FRITZ!Box settings. With the push services you can have e-mail sent to you at regular intervals informing you about the latest connections, usage and configuration of your FRITZ!Box.

Available Push Services

You can request push service mails about the following FRITZ!Box activities:

Push Service	Function
FRITZ!Box info	Sends you regular e-mail messages with data on FRITZ!Box usage and connections
Answering machine	Forwards messages recorded on the FRITZ!Box answering machines to the specified e-mail address
Calls	Sends you e-mail when calls arrive - either only for missed calls, or for all calls.
Smart Home	Sends you the status of the Smart Home device regularly on when important events occur
Wireless guest access	Sends a message whenever devices register with or deregister from the wireless guest access
Fax function	Forwards your faxes by e-mail and also saves them to a storage location you defined

Push Service	Function
New FRITZ!OS	Notifies you whenever a new FRITZ!Box version is available for your FRITZ!OS
Save settings	Saves the settings of the FRITZ!Box before each update and every time the factory settings are restored, and forwards these settings by e-mail
Forgot password	Sends you an access link to the specified e-mail address if you have forgotten your password
Current IP address	Sends the IP address assigned by the Internet provider every time the Internet connection is established
Change notice	Sends you an e-mail every time changes are made to a FRITZ!Box setting or when potentially security-relevant events occur.

Instructions: Enabling Push Service

For instructions, see the Online Help at: "Overview / Wizards".

Instructions: Configuring Push Service

For instructions, see the Online Help at: "System / Push Service".

Selecting Signaling of the "Info" LED

Overview

The "Info" LED signals various events. Some events are preset and configured permantely, see LEDs, page 24. In addition to this, the "Info" LED can be assigned to display another event of your choice.

Example 1

You would like to be notified about new messages on the answering machine. The "Info" LED flashes when there are new messages on the FRITZ!Box answering machine. The LED stops flashing as soon as all new messages have been heard.

Example 2

You would like to be notified when the data or time included in your Internet package, stipulated in the "Internet / Online Monitor / Online Meter", has been exhausted. The "Info" LED will then flash when the configured volume has been exceeded.

Instructions: LED "Info" Freely Assignable

For instructions, see the Online Help at: "System / Buttons and LEDs / "Info" Display".

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Locking Buttons

Overview

You can lock the keys on the FRITZ!Box. Locking the buttons prevents the settings for your FRITZ!Box or your home network from being changed unintentionally or without authorization.

Example

With the "WLAN" button the wireless network of the FRITZ!Box can be switched off at the touch of a button. If this happens by accident, in some cases it may take some time before the cause is found and the wireless LAN radio network can be restored to all FRITZ!Box users in the home network.

Instructions: Locking the Buttons of the FRITZ!Box

For instructions, see the Online Help at: "System / Buttons and LEDs / Keylock".

Updating FRITZ!OS

Overview

FRITZ!OS is the operating system of the FRITZ!Box. AVM regularly makes new versions of FRITZ!OS available for your FRITZ!Box, free of charge. Updates contain further developments of existing features, and often new features for your FRITZ!Box.

Always install the latest version of FRITZ! on all FRITZ!Box products in your FRITZ!OS home network (). This keeps your FRITZ! products up to date and ensures optimum synchronization of all devices in your home network. Regular updates also protect from hacker attacks.

Instructions: Updating FRITZ!OS via Wizard

Interrupting the FRITZ!OS update could damage your FRITZ!Box. Do not clear the connection between FRITZ!OS and the computer during a FRITZ!Box update, and do not unplug the power cord.

Perform the update as follows:

1. Open the FRITZ!Box user interface, .

2. On the "Overview" page, select the "Wizards" menu.

3. Start the "Update" wizard.

    The wizard checks whether a FRITZ!OS update is available for your FRITZ!Box.

    If the wizard finds an update, it displays the version number of the new FRITZ!OS. Click the link under the FRITZ!OS version to view information about further developments and new functions contained in the FRITZ!OS update.

4. If an update was found, click "Start Update Now" to have the FRITZ!OS update transferred to the FRITZ!Box.

    The FRITZ!OS update starts and the "Info" LED starts flashing.

When the "Info" LED stops flashing, the FRITZ!OS update is finished.

Instructions: Updating FRITZ!OS Manually

In some cases it is not possible to perform an automatic update. Then you have the option of performing an update manually.

Interrupting the FRITZ!OS update could damage your FRITZ!Box. Do not clear the connection between FRITZ!OS and the computer during a FRITZ!Box update, and do not unplug the power cord.

Perform the manual update as follows:

1. Enter the following address in the web browser:
    ftp.avm.de/fritz.box

2. Switch to the folder for your FRITZ!Box model, then to the subfolder "firmware", and then to the folder named "english". The complete model name of your FRITZ!Box is shown in the user interface on the "Overview" page and is also printed on the sticker on the underside of the housing.

3. Download the latest FRITZ!OS file for your FRITZ!Box with the file extension ".image" to the computer.

4. Open the FRITZ!Box user interface, .

5. Enable the advanced view; .

6. Select "System / Update / FRITZ!OS File".

7. Click the "Save Settings" button to save the current settings of your FRITZ!Box on your computer and save the export file on your computer. Using this file you can restore the settings of your FRITZ!Box as needed.

8. Click the "Browse..." button and choose the file with the new FRITZ!OS you already downloaded and saved on your computer.

9. Click "Start Update".

The FRITZ!OS update begins and the "Info" LED starts flashing. The FRITZ!OS update is complete when the "Info" LED stops flashing.

Information on the Automatic Update Function

FRITZ!Box searches for updates periodically. A new version of FRITZ!OS can contain improvements, bug fixes and important security updates, as well as significant new functions.

For secure, reliable use of your FRITZ!Box we recommend updating the FRITZ!OS regularly.

With the automatic update function you will never miss a software update for your FRITZ!Box and will be able to use new features right away. In the "System / Update / Auto Update" menu you can specify whether every new version of FRITZ!OS should be installed automatically, or only critical updates, such as security updates, or whether you would rather just be informed about a new version of FRITZ!OS.

The "Auto Update" function offers you the following methods:

Procedure	Description
Notify about new FRITZ!OS versions	• The FRITZ!Box indicates that a new version of FRITZ!OS is available on the "Overview" page. • You start the update yourself; see Instructions: Updating FRITZ!OS via Wizard, page 190.
Notify me about new versions of FRITZ!OS and install necessary updates automatically (recommended)	• The FRITZ!Box indicates that a new version of FRITZ!OS is available on the "Overview" page. You start the update yourself; see Instructions: Updating FRITZ!OS via Wizard, page 190. • Updates which AVM regards as necessary for continued secure and reliable operation (for instance, security updates) will be installed automatically. • The FRITZ!Box selects a suitable time for the update, generally at night. • During the installation all Internet and telephony connections will be interrupted briefly.

Procedure	Description
Notify me about new versions of FRITZ!OS and install new versions automatically	• The FRITZ!Box indicates that a new version of FRITZ!OS is available on the "Overview" page.
	• Every new version of FRITZ!OS will be installed automatically.
	• The FRITZ!Box selects a suitable time for the update, generally at night.
	• During the installation all Internet and telephony connections will be interrupted briefly.

Instructions: Configuring Automatic Update

For instructions, see the Online Help at: "System / Update / Automatic Update".

Disabling Automatic Update

For instructions, see the Online Help at: "Internet / Account Information / AVM Services".

Saving Settings

Overview

You can save all of the settings made in your FRITZ!Box to a backup file. Using this file you can save time on future configurations:

- You can restore the saved settings in your current FRITZ!Box.

- You can load the saved settings into a FRITZ!Box of the same model.

- You can load the saved settings into a FRITZ!Box of another model.

Saving FRITZ!NAS Data

If you have saved data on the internal storage of your FRITZ!Box, you should back them up as well. For instructions, see Saving FRITZ!NAS Storage, page 207.

Instructions: Saving Settings Automatically

For instructions, see the Online Help at: "System / Push Service / Push Services".

Instructions: Saving Settings Manually

For instructions, see the Online Help at: "System / Backup / Save".

Loading Settings

Overview

FRITZ!Box settings you have previously saved can be restored.

- You can restore settings saved in your current FRITZ!Box.

- You can load the saved settings into a FRITZ!Box of the same model.

- You can load the saved settings into another FRITZ!Box of a different model.

When restoring your FRITZ!Box settings, you can chose whether to restore all settings, or only certain selected ones.

Instructions: Loading Settings

For instructions, see the Online Help at: "System / Backup / Restore".

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Restarting

Overview

A restart may be necessary if the FRITZ!Box no longer reacts correctly, or if Internet connections can no longer be established for no apparent reason. You can perform a restart directly on the FRITZ!Box or via the FRITZ!Box user interface.

Consequences of Restarting

Restarting the FRITZ!Box has the following consequences:

- The FRITZ!Box is reinitialized.

- Events in the "System / Event Log" menu are deleted.

- Settings and adjustments you made in the FRITZ!Box remain intact.

To delete all of the settings you made in the FRITZ!Box, see Restoring Factory Settings, page 258.

Instructions: Restarting on the Device

1. Remove the power adapter of the FRITZ!Box from the electrical outlet.

2. Wait 5 seconds.

3. Plug the power adapter back in to the outlet.

Restarting the FRITZ!Box takes about 2 minutes.

Instructions: Restarting from the User Interface

For instructions, see the Online Help at: "System / Backup / Restart".

User Interface: Wizards Menu

Using Wizards

Overview

Wizards guide you step by step through the most important FRITZ!Box functions. All settings options are commented on in detail. Follow the wizard's instructions in each window and configure your settings.

"Wizards" menu

When you cancel a wizard, any entries you made during the course of using the wizard are discarded.

Range of Functions

The following wizards assist you in step-by-step configuration:

Wizard	Function
Manage Telephony Devices	Connecting and configuring the following devices: • Telephones • Answering machines • Fax machines • ISDN telephone systems (PBXs) • Cordless (DECT) telephones
Manage Your Telephone Numbers	Adding and editing telephone numbers
Configure an Internet Connection	Configuring and checking your Internet connection
Check the Status of the FRITZ!Box	Diagnostics of the functional status of your FRITZ!Box, its Internet connection and the home network connection to the FRITZ!Box
Security	• Diagnostics of FRITZ!Box settings that regulate access to the FRITZ!Box from the Internet or in the home network • Indications of potentially insecure settings
Save and Restore Settings	Saving and restoring the FRITZ!Box settings
Update	Checks whether a new version of FRITZ!OS is available for your FRITZ!Box

Wizard	Function
Configure Push Service	Configuring push services (automatic e-mail sent with status and usage data)

Instructions: Starting Wizards

1. Open a web browser.

2. Enter http://fritz.box in the address field.

3. Click the "Wizards" menu.

4. Start the wizard of your choice with a mouse click.

5. Follow the instructions the wizard displays on the screen.

FRITZ!NAS

FRITZ!NAS Features

Overview

With FRITZ!NAS you can display the data on the storage media of your FRITZ!Box in a clearly arranged interface. All participants in the FRITZ!Box home network can start FRITZ!NAS in a web browser and use it as a platform to access music, images, videos and documents in the FRITZ!Box memory.

The FRITZ!Box storage is composed of:

• Internal memory

• Configured online storage

• Connected USB storage media

Areas of the FRITZ!NAS User Interface

No.	Area	Function
1	Toolbar	• Uploading and downloading files • Editing folders and folder contents • Shared (folders and files that are released for sharing from the Internet) • View (list and tile view) • Refresh
2	Search mask	Search for file names
3	Path	Path name
4	Display surface	Display of all folders and folder contents

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Requirements

- Web browser that supports HTML5, for instance Internet Explorer version 9 or higher, Firefox version 17 or higher, or Google Chrome version 23 or higher.

Instructions: Starting FRITZ!NAS in the Home Network

1. Open a web browser.

2. Enter "fritz.nas" in the address bar.

3. If password protection is configured: Log in to your FRITZ!Box.

FRITZ!NAS opens and displays the storage media enabled in the FRITZ!Box.

Instructions: Starting FRITZ!NAS in the Internet

1. Open a web browser.

2. Enter "myfritz.net" in the address bar of the browser.

3. Log in with e-mail address and MyFRITZ! password.

4. Click "FRITZ!NAS" the user interface.

FRITZ!NAS opens and displays the storage media enabled in the FRITZ!Box.

Expanding FRITZ!NAS Storage

Overview

The FRITZ!Box storage is composed of:

- Internal memory
- Online storage
- USB storage device

Online storage can be configured with a provider. USB storage media can be connected to the FRITZ!Box. By combining these storage options, you can deploy the FRITZ!Box as high-performance NAS storage.

Access Rights

Access to FRITZ!NAS and thus to the storage media of the FRITZ!Box can be protected by defining a password in the user interface. For user oriented rights management, you can configure different FRITZ!Box users. You can set a password for each FRITZ!Box user and specify which FRITZ!NAS contents she or he is allowed to access.

Instructions: Configuring Online Storage

For instructions, see the Online Help at: "Home Network / Storage (NAS)".

Instructions: Configuring USB Storage Media

For instructions, see the Online Help at: "Home Network / USB Devices / Overview of Devices" and "Home Network / USB Devices / USB Settings".

Displaying FRITZ!NAS Storage in a File Manager

Overview

You can display the NAS storage of your FRITZ!Box in the file manager of your computer. This section describes how to proceed in doing so.

Requirements

- Your computer is connected with the FRITZ!Box via network cable.

Instructions: Displaying FRITZ!NAS Storage in Windows Explorer

1. Open Windows Explorer.

2. Enter fritz.nas in the address bar.

The NAS storage of your FRITZ!Box is displayed in Windows Explorer. You can list, rename, copy and delete files.

Instructions: Displaying FRITZ!NAS Storage in OS X Finder

1. Click the Finder icon with the right mouse button to open the context menu of the Finder.

2. Select the "Connect to Server…" option.

3. Enter the server address: smb://fritz.nas

The NAS storage of your FRITZ!Box is displayed in the Finder. You can list, rename, copy and delete files.

Saving FRITZ!NAS Storage

Overview

You can save the data you have stored on the internal FRITZ!NAS storage to a file.

Instructions: Saving Data from Internal Memory

1. Open FRITZ!NAS.

2. Select the data you would like to save.

3. Click in the FRITZ!NAS toolbar the icon for downloading, select a storage location for the data, and save with "OK".

The selected data are copied to a ZIP file in the download order you specified. This concludes the saving of your data from the internal memory of the FRITZ!Box.

MyFRITZ!

Service for Remote Access to the FRITZ!Box

Overview

MyFRITZ! is a free service from AVM, which is supported by all current FRITZ!Box models. Via an Internet connection you can use MyFRITZ! to access your FRITZ!Box at home from anywhere.

Access to the MyFRITZ! Service

There are three ways you can use MyFRITZ! for secure, easy access to the information and data on your FRITZ!Box when you're on the go.

Kind of Access	MyFRITZ! Access
Via mobile device	• MyFRITZ!App • MyFRITZ!App 2
Via web browser	The "myfritz.net" website

Possible Uses

What information and data you can access via MyFRITZ! depends on the rights enabled in the account of your FRITZ!Box user. If needed, adjust the rights in the FRITZ!Box user account.

Can Be Used with MyFRITZ!	Authorization
Call list	View the call list of your FRITZ!Box
Answering machines	Listen to voice messages
NAS storage (FRITZ!NAS)	Access documents and media data in the NAS storage of your FRITZ!Box

Can Be Used with MyFRITZ!	Authorization
Smart home	• Switch the home automation devices connected to the FRITZ!Box • Retrieve power consumption data on a device connected to a smart home outlet
User interface	Check the settings of your FRITZ!Box

Requirements

- The MyFRITZ!App (available for Android and iOS, free of charge) or the MyFRITZ!App 2 (available for Android, free of charge) is installed on your smartphone or tablet. (Not required for use of the "myfritz.net" website.)

- An account as FRITZ!Box user has been set up for you in your FRITZ!Box. (Not required for use of the MyFRITZ!App 2.)

- A MyFRITZ! account was created and your FRITZ!Box is registered with this account. (Not required for use of the MyFRITZ!App 2.)

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Creating a New MyFRITZ! Account

Overview

In order to be able to use MyFRITZ! via the MyFRITZ!App or the "myfritz.net" website, you must first create a MyFRITZ! account. During this process your FRITZ!Box is registered with your MyFRITZ! account.

If you would like to use MyFRITZ! via the MyFRITZ!App 2, this step is not necessary.

Requirements

- The browser on your device is connected with the Internet.

- You can access your e-mail on the device used.

Rules for Passwords

Comply with the following rules when assigning a password for your MyFRITZ! account:

- Your MyFRITZ! password must be different from the password of your FRITZ!Box user account.

- Use a password rated as secure.

- Select a password with at least twelve characters, which includes capitals and lower-case letters as well as numerals and special characters.

- Keep your passwords in a safe place.

Instructions: Creating a New MyFRITZ! Account

For instructions, see the Online Help at: "Internet / MyFRITZ! Account".

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Using an Existing MyFRITZ! Account

Overview

You only have to set up a MyFRITZ! account once. It exists no matter which FRITZ!Box was used to create it. You can register as many FRITZ!Boxes as you like with one MyFRITZ! account.

Switching to a Newer FRITZ!Box

If you trade in your FRITZ!Box for a different FRITZ!Box model some day, simply register the new device with your existing MyFRITZ! account and delete the old device there. If you created a bookmark for access via MyFRITZ! in your web browser, this bookmark will then route you to the user interface of the new FRITZ!Box.

Registering Multiple FRITZ!Boxes

If needed, you can also register multiple FRITZ!Boxes with your MyFRITZ! account. Each FRITZ!Box is then registered with the MyFRITZ! account via its own user interface.

Instructions: Using an Existing MyFRITZ! Account

For instructions, see the Online Help at: "Internet / MyFRITZ! Account".

Configuring the MyFRITZ!App: with Android

Overview

If you would like to access your FRITZ!Box from an Android mobile device, you can use the free MyFRITZ!App 2 or the older, also free, MyFRITZ!App from AVM.

In order to be able to use MyFRITZ!App 2, your FRITZ!Box must use the software version FRITZ!OS 6.50 or higher.

Both MyFRITZ!Apps are available in the Google Play Store.

Requirements

• Android smartphone or Android tablet with Google Android 4 (or newer)

• Your Android mobile device is connected with your FRITZ!Box via wireless LAN.

Only when using the MyFRITZ!App (not required for use with the MyFRITZ!App 2):

• A MyFRITZ! account was set up.

• Your FRITZ!Box is registered with this MyFRITZ! account.

• An account as FRITZ!Box user has been set up for you in your FRITZ!Box.

Instructions: Configuring the MyFRITZ!App

1. Update your software of your FRITZ!Box to the latest version by clicking the "Find New FRITZ!OS" button in the "System / Update / FRITZ!OS Version" menu and follow the instructions in the user interface.

2. Check the "System / Update / FRITZ!OS Version" to find out which FRITZ!OS version your FRITZ!Box uses.

3. Pick up your Android mobile device and install one of the MyFRITZ!Apps from the Google Play Store:

   FRITZ!OS 6.50 or higher: Install the MyFRITZ!App 2 on your Android mobile device.

   FRITZ!OS 6.40 or lower: Install the MyFRITZ!App on your Android mobile device.

4. Open the MyFRITZ!App.

5. To register with the FRITZ!Box, enter the required data.

Configuring the MyFRITZ!App: with iOS

Overview

If you would like to access your FRITZ!Box from a mobile Apple device, you can do so using the free MyFRITZ!App from AVM.

The MyFRITZ!App is available in the Apple App Store.

Requirements

- iPhone (model 4GS or later) or iPod touch (5th generation or higher) or iPad with iOS 8.0 (or later).

- A MyFRITZ! account was set up.

- Your FRITZ!Box is registered with this MyFRITZ! account.

- An account as FRITZ!Box user has been set up for you in your FRITZ!Box.

- Your mobile Apple device is connected with your FRITZ!Box via wireless LAN.

Instructions: Configuring the MyFRITZ!App

1. Install the MyFRITZ!App on your mobile Apple device.

2. Open the MyFRITZ!App, enter the password for the user interface of your FRITZ!Box, and select "Connect…".

3. Enter the data of your FRITZ!Box user account.

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Using MyFRITZ!

Overview

With MyFRITZ! you can access your FRITZ!Box directly via the MyFRITZ!App 2 (Android), or via the MyFRITZ!App (Android and iOS), or via the "myfritz.net" website.

Requirements When Using the MyFRITZ!App 2

- You are using the latest version of the app.

- You have enabled the "Use from on the go" setting in the app.

  This is not necessary if you only intend to use MyFRITZ! in the FRITZ!Box home network.

Requirements When Using the MyFRITZ!App or the "myfritz.net" Website

- You are using the latest version of the app or a current web browser.

- A MyFRITZ! account was set up.

- The FRITZ!BoxAccess from the Internet allowed option is enabled in your "" user account. This is not necessary if you only intend to use MyFRITZ! in the FRITZ!Box home network.

Instructions: Using MyFRITZ! via Smartphone or Tablet

1. Open the MyFRITZ!App.

2. Where applicable, enter the data required to log in to your FRITZ!Box.

Instructions: Using MyFRITZ! in the Web Browser

1. Open a web browser.

2. Enter "myfritz.net" in the address bar of the browser.

3. Log in with your e-mail address and the MyFRITZ! password.

Controlling FRITZ!Box with Keypad Codes

Information on Keypad Codes

Overview

Various FRITZ!Box functions can be configured and operated using a connected telephone without opening the user interface. These include not only telephony functions like the alarm, Do Not Disturb and call diversion, but also other functions. For instance, you can switch wireless LAN on and off, and restore the factory settings to the FRITZ!Box.

How It Works

Keypad codes are combinations of keys (for instance, **#️⃣8️⃣1️⃣1️⃣*️⃣1️⃣*️⃣**), which you enter on the telephone keypad.

Entering Keypad Codes

A keypad code can contain the following characters: *️⃣, #️⃣, the numerals 0️⃣ to 9️⃣. Depending on the type of telephone, here is how to dial keypad codes:

Type of Telephone	Dial Keypad Code
Telephone without call button	• Pick up the handset. • Enter the keypad code. • Hang up.
Telephone with call button (usually green)	• Enter the keypad code. • Press the "Call" ("Connect") button. • Press the "End Call" button.

Configuration on the Telephone

Instructions: Disabling Automatic Outside Dialing for the FON 1 or FON 2 Port

If you make a lot of internal calls, you can disable automatic outside dialing on the "FON 1" and "FON 2" ports. Then you can enter internal numbers without the prefix ** (for instance, 1 instead of **1). Instead, you must dial the prefix 0 for outside calls (for instance, 0030399760 instead of 030399760).

Telephone without Call Button	Telephone with Call Button
Disable automatic outside dialing: # 1 1 * 0 * (FON 1) # 1 2 * 0 * (FON 2)	
Wait for acknowledgment tone	

Instructions: Enabling Automatic Outside Dialing for the FON 1 or FON 2 Port

Telephone without Call Button	Telephone with Call Button
Enable automatic outside dialing: **#❶❶✱❶✱** (FON 1) **#❶❷✱❶✱** (FON 2)	
Wait for acknowledgment tone	

Instructions: Switching On Call Diversion for All Calls

Call diversion automatically diverts incoming calls to a previously spe-
cified external telephone number. If your telephone provider supports
this, calls will be diverted by your provider and your line will remain
free for other calls. Otherwise the FRITZ!Box establishes a second con-
nection. In either case, extra charges will accrue according to your
contracted telephone rates.

Telephone without Call Button	Telephone with Call Button
Configure immediate call diversion to destination call number <DCN>: ✲❷❶✲<DCN>✲#	
Configure call diversion after 20 seconds to destination call number <DCN>: ✲❻❶✲<DCN>✲#	
Configure call diversion on busy to the destination call number <DCN>: ✲❻❼✲<DCN>✲#	
Wait for acknowledgment tone	

Instructions: Switching Off Call Diversion for All Calls

Telephone without Call Button	Telephone with Call Button
Switch off immediate call diversion: ✷②❶✷✷# Switch off delayed call diversion: ✷⑥❶✷✷# Switch off call diversion on busy: ✷⑥❼✷✷#	
Wait for acknowledgment tone	

Instructions: Switching On Call Diversion for One Telephone Number

If you have multiple telephone numbers, you can configure call diversion that is applied to only one specified telephone number (TN). Calls for your other telephone numbers will not be diverted.

Telephone without Call Button	Telephone with Call Button
Switch on immediate call diversion to destination call number <DCN>: ✱❷❶✱<DCN>✱<TN>#	
Switch on call diversion after 20 seconds to destination call number <DCN>: ✱❻❶✱<DCN>✱<TN>#	
Switch on call diversion on busy to the destination call number <DCN>: ✱❻❼✱<DCN>✱<TN>#	
Wait for acknowledgment tone	

Instructions: Switching Off Call Diversion for One Telephone Number

Telephone without Call Button	Telephone with Call Button
Switch off immediate call diversion: ✲➋➊✲✲<TN>＃ Switch off delayed call diversion: ✲➏➊✲✲<TN>＃ Switch off call diversion on busy: ✲➏➐✲✲<TN>＃	
Wait for acknowledgment tone	

. . . .

Instructions: Switching On Call Diversion for the FON 1 Port

Telephone without Call Button	Telephone with Call Button
📞	

Switch on immediate call diversion for the FON 1 port without ringing to destination call number <DCN>:

✴④①①✴<DCN>✴

Switch on immediate call diversion for the FON 1 port with ringing to destination call number <DCN>:

✴④⑤①✴<DCN>✴

Switch on call diversion for the FON 1 port after 20 seconds to destination call number <DCN>:

✴④②①✴<DCN>✴

Switch on call diversion for the FON 1 port on busy to the destination call number <DCN>:

✴④③①✴<DCN>✴

Switch on immediate call diversion for the FON 1 port on busy, otherwise delayed, to the destination call number <DCN>:

✴④④①✴<DCN>✴

	📞

Wait for acknowledgment tone

📞	📞

. . . .

Instructions: Switching Off Call Diversion for the FON 1 Port

Telephone without Call Button	Telephone with Call Button
📞	
Switch off call diversion for the FON 1 port: **✱④⓪①✱✱**	
	📞
Wait for acknowledgment tone	
📞	☎

Instructions: Switching On Call Diversion for the FON 2 Port

Telephone without Call Button	Telephone with Call Button
Switch on immediate call diversion for the FON 2 port without ringing to destination call number <DCN>: ✱➍➊➋✱<DCN>✱ Switch on immediate call diversion for the FON 2 port with ringing to destination call number <DCN>: ✱➍➎➋✱<DCN>✱ Switch on call diversion for the FON 2 port after 20 seconds to destination call number <DCN>: ✱➍➋➋✱<DCN>✱ Switch on call diversion for the FON 2 port on busy to the destination call number <DCN>: ✱➍➌➋✱<DCN>✱ Switch on immediate call diversion for the FON 2 port on busy, otherwise delayed, to the destination call number <DCN>: ✱➍➍➋✱<DCN>✱	
Wait for acknowledgment tone	

Instructions: Switching Off Call Diversion for the FON 2 Port

Telephone without Call Button	Telephone with Call Button
Switch off call diversion for the FON 2 port: ✱④⓪②✱✱	
Wait for acknowledgment tone	

Instructions: Configuring a Telephone as a Baby Monitor

You can configure a telephone on the "FON 1" or "FON 2" port as a baby monitor and use it to listen in on a room. As soon as a certain noise level is reached, the telephone then automatically calls a previously specified telephone number, for instance, of your mobile telephone.

(i) You can also use your FRITZ!Fon cordless telephone as a baby monitor. See the manual of your FRITZ!Fon for instructions.

Telephone without Call Button	Telephone with Call Button
Press the following keys: ✱➍<level>✱<TN># <Level> specifies the sensitivity. Permitted values: 1 (highest) – 8 (lowest) <TN> is the internal or external telephone number that the baby monitor is supposed to call. Internal numbers should also be entered without **.	
The baby monitor is enabled. Hang up to disable it.	

Instructions: Switching Wireless LAN On

The wireless radio network of your FRITZ!Box can be switched on and off using a connected telephone.

Telephone without Call Button	Telephone with Call Button
Switch wireless LAN on: #96*1*	
Wait for acknowledgment tone	

Instructions: Switching Wireless LAN Off

Telephone without Call Button	Telephone with Call Button
Switch wireless LAN off: **#96*0***	
Wait for acknowledgment tone	

Operation at the Telephone

Instructions: Operating the Answering Machine with the Telephone

You can operate the answering machine with the telephone using a voice menu, for instance to switch the answering machine on or off and to listen to messages.

Here is how to establish a connection to the answering machine:

Telephone without Call Button	Telephone with Call Button
Establish a connection to the answering machine:	
✱✱❻❶❺ (answering machine 1)	
✱✱❻❶❶ (answering machine 2)	
✱✱❻❶❷ (answering machine 3)	
✱✱❻❶❸ (answering machine 4)	
✱✱❻❶❹ (answering machine 5)	
Follow the voice menu	

Voice Menu of the Answering Machine

Main Menu (Level 1)	Level 2	Level 3
❶ Play back messages	❸ Return call ❺ Delete message ❼ To previous message ❾ To next message	
❷ Delete all messages		
❸ Answering machine on/off		
❹ Record a greeting	❶ Greeting message ❷ Greeting for announcement mode ❸ Closing message	❶ Listen to all greetings, select greeting with ❷ ❺ Delete greeting/announcement ❽ Record greeting, end with ❶
❺ Enable recording/announcement mode (no messages recorded in announcement mode)		

Instructions: Picking Up a Call from the Answering Machine or Telephone

You can pick up and take the following calls on connected telephones:

• Calls that have already been accepted by an answering machine. This can be the FRITZ!Box answering machine or a connected answering machine.

• Calls that arrive at another connected telephone (the other telephone rings).

Telephone without Call Button	Telephone with Call Button
Press the following keys: ✱❶❾	

Instructions: Making Internal Calls

You can conduct free internal calls between connected telephones.

Telephone without Call Button	Telephone with Call Button
📞	
Enter the internal telephone number (see the telephone book in the user interface)	
	📞

Instructions: Starting a Broadcast Call

A group call or broadcast call is an internal call that is signaled on all telephones connected with the FRITZ!Box.

Telephone without Call Button	Telephone with Call Button
📞	
Press the following keys for a broadcast call: **✱✱9**	
	📞
All telephones on the FRITZ!Box ring. You will be connected to the telephone that picks up the call first.	

Instructions: Transferring Calls

With the "Call Transfer" feature you can forward a call to another con-
nected telephone or to an external telephone number.

Telephone without Call Button	Telephone with Call Button
During the call with the party 1, press the hold button: ℝ The call is on hold.	
Enter the telephone number of party 2. This can be an external tele-phone number or an internal number (see the telephone book in the user interface).	
When party 2 accepts the call, connect party 1 and party 2 with each other:	
	On cordless telephones: ✱④ Others:
If party 2 cannot be reached, back to party 1: ℝ①	

Instructions: Specifying the Telephone Number for the Next Call

If you have multiple telephone numbers, when dialing a call you can specify which telephone number the FRITZ!Box uses to make the call. Dialing rules are disregarded for this call.

Telephone without Call Button	Telephone with Call Button
Select your telephone number:	
Landline: ✳❶❶❶#	
Internet telephone number 1 (under "Telephone Numbers" in the user interface): ✳❶❷❶#	
Internet telephone number 2: ✳❶❷❷#	
Other Internet telephone numbers: ✳❶❷❸# and so on	
Enter the external telephone number	

Instructions: Suppressing Telephone Number Once

For a call on the "FON 1" or "FON 2" port you can suppress identification of your telephone number once (for one call). Then your telephone number will not be transmitted to the other caller during this call.

Telephone without Call Button	Telephone with Call Button
Press the following keys: ✱❸❶＃	
Enter the external telephone number	

Instructions: Setting Up a Three-party Conference Call

A three-party conference call is a call with three participants. The call can be conducted with external or internal parties.

Telephone without Call Button	Telephone with Call Button
During the call with the party 1, press the hold button: **Ⓡ** Call 1 is on hold.	
To establish the call with party 2, enter an internal or external telephone number.	
When party 2 accepts the call, establish the three-party conference: **Ⓡ❸**	
If party 2 cannot be reached, back to party 1: **Ⓡ**	
During the three-party conference call you can: Interrupt the conference (you speak with party 1, call 2 is on hold): **Ⓡ❷** Switch back and forth between parties 1 and 2 (alternate): **Ⓡ❷** Restore an interrupted conference: **Ⓡ❸** End call 2 and continue with call 1: **Ⓡ❶** End the active call and continue the other call: Hang up, wait until your telephone rings and pick up	

Instructions: Holding/Consultation/Alternating

During a telephone call you can establish a connection to another party (consultation) without ending the first call (the call is on hold). You can alternate between the two parties as often as you like.

Telephone without Call Button	Telephone with Call Button
During the call with the party 1, press the hold button: **Ⓡ** The call is on hold.	
To establish the call with party 2, enter an internal or external telephone number.	
When party 2 accepts the call, you can: Alternate back and forth between the calls: **Ⓡ②** End the active call and continue the other call: Hang up, wait until your telephone rings and pick up	
If party 2 cannot be reached, back to party 1: **Ⓡ**	

Instructions: Using Keypad Shortcuts

Keypad shortcuts are commands consisting of characters and numerals which you enter on the telephone. With keypad shortcuts you can control services and features in your telephone provider's network. For information about which keypad shortcuts you can use, contact your telephone provider.

Telephone without Call Button	Telephone with Call Button
Press the following keys (<Seq> is the keypad shortcut):	
✱ # <Seq>	

Instructions: Enabling an Alarm

You can use connected telephones for alarm calls. For this you can set up, enable and disable up to three alarms under "Telephony / Alarm" in the user interface. The first alarm configured can also be enabled and disabled with the telephone keys.

Telephone without Call Button	Telephone with Call Button
Switch on the alarm: #️⃣8️⃣8️⃣1️⃣✳️✳️	
Wait for acknowledgment tone	

Instructions: Disabling an Alarm

Telephone without Call Button	Telephone with Call Button
Switch alarm off: **# 8 8 1 #**	
Wait for acknowledgment tone	

Operation on the Telephone (ISDN Convenience Features)

Overview

The following convenience features can be used if the FRITZ!Box is connected with an ISDN line.

Instructions: Callback on No Reply

You can enable a call-back for internal and external calls in the following cases:

- The telephone number called is busy. You will be called back when the telephone number is free again.

- The party called did not accept your call. You will be called back the next time the party ends a call.

Telephone without Call Button	Telephone with Call Button
Press the following key before hanging up: ❺	
Wait for acknowledgment tone	
📞	📞

Instructions: Enabling Tracing

The tracing feature (also known as MCID, malicious call identification) allows the recording of call data for a caller suppressing her or his caller ID. This feature has to be enabled for your ISDN line.

Telephone without Call Button	Telephone with Call Button
During a call, or after the caller hangs up, press the following keys: 🅡✪❸❾⌗	
Tracing is enabled. For more information on the "tracing" feature, contact your ISDN provider.	

Restoring Factory Settings with the Telephone

Overview

You can restore factory settings to the FRITZ!Box by telephone. This is necessary, for instance, if you can no longer access the user interface of your FRITZ!Box because you've forgotten your password and did not configure the "Forgot password" push service. Then the FRITZ!Box is reset to its factory settings.

Consequences of Resetting

- All settings you made in the FRITZ!Box will be deleted.

- The internal memory of the FRITZ!Box is deleted. Contents on FRITZ!NAS, messages on the answering machine and received faxes will be discarded.

- The preconfigured FRITZ!Box password is restored.

- The preconfigured network key and the preconfigured name of the wireless radio network (SSID) are reactivated.

- The preconfigured IP configuration is restored.

Instructions: Loading Factory Settings

Telephone without Call Button	Telephone with Call Button
Restore factory settings to FRITZ!Box: **#️⃣9️⃣9️⃣1️⃣*️⃣1️⃣5️⃣9️⃣0️⃣1️⃣5️⃣9️⃣0️⃣*️⃣**	
Wait for acknowledgment tone	

Malfunctions

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Troubleshooting Procedures

Overview

The following table offers recommendations about what do when problems with your FRITZ!Box arise:

Error Scenario	Remedy
No access to the user interface	Troubleshooting chart; see page 250
Comprehensive help for problems with: • Connections • Configuration • Telephony • Internet • Wireless LAN • etc.	Knowledge Base; see page 255
Troubleshooting chart and Knowledge Base do not offer a solution.	Support, see page 256

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Troubleshooting Chart

Overview

Try to resolve any problems using the following tables first. Turn to the other measures listed here if you cannot access the user interface.

Troubleshooting Chart

Error Scenario	Cause	Solution
LEDs not on	Power supply interrupted	• Make sure the power supply unit is connected properly. • Try plugging in a different device to make sure that the electrical outlet is active.
Cannot establish a wireless LAN connection	Computer's wireless LAN adapter not ready for operation	Switch on your computer's wireless LAN adapter. For details, consult the manual of your computer.
	Wireless radio network of the FRITZ!Box switched off	When the "WLAN" LED is off, press the "WLAN" button on the FRITZ!Box. Hold it down until the "WLAN" LED begins flashing.
	Computer cannot find the wireless network of the FRITZ!Box	Enable the "Name of the radio network visible" function ("Wireless / Radio Network") in the FRITZ!Box user interface.
	Incorrect network key	Enter the correct network key ("Wireless / Security").

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Error Scenario	Cause	Solution
The user interface does not open	Path name incorrect	Open the user interface by entering its complete address (http://fritz.box instead of fritz.box).
	FRITZ!Box has crashed	Remove the FRITZ!Box from the power mains and restart the FRITZ!Box again after about five seconds.
	Cache is full	Empty the cache of your web browser. For more information on this, see the help of your web browser.
	Proxy configuration does not allow the FRITZ!Box address	If a proxy server is enabled in your web browser, the address of the FRITZ!Box must be entered as an exception. Check your web browser settings. For more information on this, see the help of your web browser.
	Computer is not configured to obtain IP address automatically	On your computer, enable the setting "Obtain an IP address automatically" for the network adapter used to connect to the FRITZ!Box. For more information, see the documentation by the manufacturer of your operating system.

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Error Scenario	Cause	Solution
The user interface does not open	Forgot FRITZ!Box password	Restore factory settings to the FRITZ!Box (see page 258).
	Combination of various settings in the "Internet" and "Home Network" menus.	Attempt to open the user interface with the emergency IP address; see page 253.
		If this does not work, restore factory settings to the FRITZ!Box (see page 258).
Wireless LAN connection interrupted	Wireless radio connection between FRITZ!Box and wireless device interrupted	Change the positions of the FRITZ!Box and the wireless devices:
		• Do not place the FRITZ!Box in the corner of a room.
		• Do not place the FRITZ!Box directly next to or beneath an obstacle or a metal object (like a cabinet or radiator).
		• Position the FRITZ!Box and the wireless devices so that there are as few obstacles between them as possible.
	Radio channel with heavy interference	Configure automatic selection of the radio channel in the FRITZ!Box user interface.
		Then the FRITZ!Box will automatically select a radio channel with as little interference as possible ("Wireless / Radio Channel").

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Opening the User Interface with the Emergency IP Address

Overview

The FRITZ!Box has an emergency IP address at which it can always be reached. The emergency IP address can be useful if you can no longer access the FRITZ!Box user interface, for instance due to erroneous configurations.

Information on the Emergency IP Address

- The emergency IP address is: 169.254.1.1

- The emergency IP address cannot be changed.

Requirements

- The computer from which you want to open the user interface with the emergency IP address must be connected by network cable to a LAN port of the FRITZ!Box.

- This computer is not connected with the FRITZ!Box via LAN guest access.

Instructions: Opening the User Interface with the Emergency IP Address

1. Clear all other connections between your FRITZ!Box and other network devices.

2. If your computer is connected with the FRITZ!Box over wireless LAN, clear the wireless connection.

3. Connect your computer to the "LAN 2" port of the FRITZ!Box using a LAN cable.

4. Restart your computer.

5. Enter the emergency IP address in the web browser on the computer: 169.254.1.1

6. If the user interface is protected with a password: Enter your password.

7. If the FRITZ!Box user interface is not displayed, you have to assign the IP address 169.254.1.2 to the network adapter connected with the FRITZ!Box. Instructions from the AVM Knowledge Base can be viewed by searching in Google for Configuring a network adapter to access the user interface with emergency IP address.

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Knowledge Base

Overview

Help for resolving problems with the FRITZ!Box is provided in the AVM Knowledge Base. This resource presents answers to the questions asked most frequently of our Support team.

If the problem cannot be resolved using the Knowledge Base, then contact the Support team; .

AVM Knowledge Base

The AVM Knowledge Base is available online at:

en.avm.de/service

Support

Overview

The Support team assists you in resolving any problems with your FRITZ! products.

Preparation

Keep the following device information handy:

- Model

- Serial number

- FRITZ!OS version

- Country

- Internet service provider

- Information on the operating system, network (LAN or wireless LAN), any error messages displayed

Instructions: Support by e-mail

1. Start a web browser on your computer, tablet or smartphone.

2. Enter the following address: https://en.avm.de/service.

3. Select from the "Service" area the model for which you need support.

4. Enter a keyword in the search field of the Knowledge Base or select an FAQ (frequently asked question).

5. If you need more help, click the "Submit support request" button.

6. Fill out the form and then click the "Submit support request" button.

Our Support team will respond by e-mail within one working day.

Decommissioning

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Restoring Factory Settings

Overview

You can restore factory settings to the FRITZ!Box.

Application Scenario

Resetting makes sense in the following cases:

- You forgot your password and can no longer access the user interface of your FRITZ!Box.

- The FRITZ!Box is not working any more (for instance, due to improper settings).

- The FRITZ!Box is to be passed on to an outside party for repair.

- The FRITZ!Box is to be resold to another user.

- The FRITZ!Box is to be disposed of.

Consequences of Resetting

Resetting the FRITZ!Box has the following effects:

- All settings you made in the FRITZ!Box will be deleted.

- The internal memory of the FRITZ!Box is deleted. In addition to contents on FRITZ!NAS, messages received on the answering machine and faxes will be discarded.

- The network key of the factory settings will be activated again.

- The name of the wireless radio network (SSID) will be reset.

- The IP configuration of the factory settings will be restored.

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Preparation

If you would like to restart operation of the FRITZ!Box after restoring factory settings, make the following preparations:

- Save your FRITZ!Box settings; see Saving Settings, page 195.

- Back up your data from the internal memory, for instance, using the download function in FRITZ!NAS; see Saving FRITZ!NAS Storage, page 207.

Instructions: Restoring Factory Settings

When the factory settings are restored to the FRITZ!Box, all of the settings are restored to their condition upon delivery.

1. Open the FRITZ!Box user interface, see page 60.

2. In the FRITZ!Box user interface, select the "System / Backup" menu.

3. Select the "Factory Settings" tab.

4. Click the "Load Factory Settings" button.

The FRITZ!Box is reset to its factory settings. All data have been deleted.

If you intend to restart operation of the FRITZ!Box, we recommend updating the FRITZ!OS of your FRITZ!Box; see page 190.

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Disposal

Disposal of Used Devices

In accordance with European regulations, FRITZ!Box, as well as all devices and electronic components contained in the package, may not be disposed with household waste.
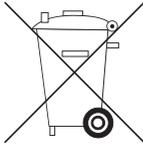
Comply with the symbol for the separate collection of electric and electronic devices on the type label of your FRITZ!Box (bottom).

After use, please dispose of FRITZ!Box and all electronic components and devices included with delivery at a collection point in your local community for the disposal of electric and electronic appliances.

Appendix

Technical Specifications

Device Properties

Property	Value
Dimensions (W x H x D)	Circa 250 x 48 x 185 mm
Supply voltage	230 V / 50 Hz
Certification	Conforms to CE standards
Internal memory	512 MB

Ambient Conditions

Property	Value
Operating temperature	0 °C – +40 °C
Storage temperature	-20 °C – +70 °C
Relative humidity (operation)	10% – 90%
Relative humidity (storage)	5% – 95%

Power Consumption (Energy Use)

Property	Value
Maximum power consumption	30 W

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Property	Value
Average consumption, determined with the following load: • DSL connection active • Wireless LAN on; no devices registered via wireless LAN • DECT on; one telephone registered via DECT; no active calls • One network device connected to a LAN port; no data transfer; other LAN ports not in use	9 W – 10 W

Ports and Interfaces

Connect via	Interface
WAN	WAN port via an RJ45 socket for connecting to a modem or a router
DSL	DSL/telephone socket • VDSL/ADSL modem for use with VDSL (also IP-based, also vectoring and supervectoring) and ITU G.993.2/5 or ADSL/ADSL2+ (also IP-based, Annex J) or ITU G.992.3 (Annex B or J) • Telephone socket for connecting to the analog network or ISDN
TAE, RJ11	2 a/b ports with RJ11 sockets for connecting two analog terminal devices
ISDN	1 ISDN S_0 NT port with support for ISDN terminal devices; the CIP services voice, telephony, audio 3.1 and fax G2/G3 are supported

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Connect via	Interface
DECT	DECT base station for up to 6 handsets
LAN	4 LAN ports via RJ45 sockets (standard Ethernet, 10/100/1000 Base-T)
USB	2 USB host controllers (USB version 3.0)
Wireless LAN	Wireless access point with support for wireless LAN radio networks (wireless standard – data rate) • IEEE 802.11a—54 • IEEE 802.11b—11 • IEEE 802.11g—54 • IEEE 802.11n—800 (including 256QAM) • IEEE 802.11ac—1733

Wireless LAN Radio Frequencies

Frequency	Frequency Range	Maximum Transmitter Power
2.4	2400 – 2483	100
5	1/2: 5150 – 5350	200
	2/2: 5470 – 5725	1000

DECT Radio Frequencies

Frequency	Frequency Range and Transmitter Power
DECT	• Frequency range: 1880 – 1900 • Maximum transmitter power: 250

Tones

Beep	Tone Sequence
Busy signal	500 ms tone, 500 ms pause, +/− 20 ms
Dial tone	1 s tone, 4 s pause, +/− 100 ms

Drilling Template

FRITZ!Box 7590 Drilling Template

The following figure is a drilling template for your FRITZ!Box. The drilling template assists you in marking the holes needed to mount the FRITZ!Box on a wall.

Be sure to print out the figure of the drilling template in its original size, or 100%. Do not enlarge it, adjust its size, reformat or rescale it in your printer settings.
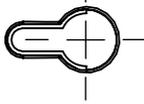
This page must be printed out at a
size of 100%. Do not enlarge it,
adjust its size, reformat or rescale it
in your printer settings.

197 mm
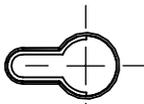
Legal

Manufacturer's Warranty

We offer a manufacturer's warranty of 5 years on the hardware of this original product. The warranty period begins with the purchase date from the first end user. Compliance with the warranty period can be proven by submission of the original invoice or comparable documents. This warranty does not restrict your warranty rights based on the contract of sale or other statutory rights.

Within the warranty period, we will remove defects to the product which are demonstrably due to faults in materials or manufacturing. Our warranty does not cover defects which occur due to incorrect installation, improper use, non-observance of instructions in the user manual, normal wear and tear or defects in the environment of the system (third-party hardware or software). We may, at our discretion, repair or replace the defective product. Claims other than the right to the removal of defects which is mentioned in these terms of warranty are not constituted.

We guarantee that the software conforms with general specifications, not, however, that the software meets your individual requirements. Delivery costs will not be reimbursed. Products which have been replaced revert to our ownership. Claims recognized under warranty entail neither an extension or recommencement of the warranty period. If we reject a warranty claim, this claim lapses no later than six months after being rejected by us.

This warranty shall be governed by German substantive law, to the exclusion of the United Nations Convention on Contracts for the International Sale of Goods (CISG).

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Alt-Moabit 95	Alt-Moabit 95
D-10559 Berlin	D-10559 Berlin

AVM in the Internet: en.avm.de

Declaration of CE Conformity

AVM declares herewith that the device is compliant with the basic requirements and the relevant rules in directives 2014/53/EU, 2009/125/EC and 2011/65/EU.

The long version of the declaration of CE conformity is available at en.avm.de/ce.

Information on Cleaning

Rules

Keep the following rules in mind for cleaning your FRITZ!Box:

- Remove the FRITZ!Box from the mains before cleaning.

- Wipe the FRITZ!Box with a slightly moist, lint-free cloth or an anti-static cloth.

- Do not use any strong detergents or solvents for cleaning.

- Do not use any wet cloths for cleaning.

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