FRITZ!Box 7590 AX

Manual

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General Information on the FRITZ!Box

Safety Instructions

Overview

Before connecting the FRITZ!Box 7590 AX, 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 cause 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 cause the FRITZ!Box to overheat. This can result in damage to 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 carpets or upholstery.
- Do not cover the FRITZ!Box.

Damage to Heat-Sensitive Surfaces

The base of the FRITZ!Box heats up during normal operation. This heat can cause damage to heat-sensitive surfaces.

- Do not place the FRITZ!Box on heat-sensitive surfaces.

Protection from Storms and Lightning Damage

During storms, overvoltage surges can disrupt electrical and telephone networks. This can cause damage to connected electrical devices.

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

- If possible, disconnect the FRITZ!Box from the power supply and from the DSL line during storms.

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, solvents or wet cloths can cause damage to the FRITZ!Box.

- Please refer to the information about how to clean your FRITZ!Box; see page 17.

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 devices transmitting and receiving radio waves, interference can occur when radio waves overlap.

- 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 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 explosive environments, flammable gases, areas where 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.

About this Manual

Version FRITZ!OS

This FRITZ!Box manual describes settings and functions starting with FRITZ!OS 7.50.

Symbols Used

The following symbols are used in this manual:

	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

Package Contents

Package Contents

Amt.	Supplied Part	Details
1	FRITZ!Box 7590 AX	
1	Power supply unit	• white • 1.5 m
1	Network cable	• also called LAN cable, white • 1.5 m
1	DSL cable	• gray • 1.5 m
1	Quick guide	instructions for connecting the FRITZ!Box
1	FRITZ! Notes	Service card with FRITZ!Box settings upon delivery

Instructions and Help

Instructions and Help

Use the comprehensive customer documentation to connect, configure, and operate your FRITZ!Box. The latest information on products and updates is presented in the newsletter (available only in German), and in the social media.

After a FRITZ!OS update, download the latest manual from en.avm.de/service/manuals.

Medium	Contents	Where
Manual	• This manual • Connecting, configuration, and operation • Range of functions of your FRITZ!Box	en.avm.de/service/manuals
Quick guide	Connecting and configuration	Provided in print with your FRITZ!Box
Service card	• Important settings of your FRITZ!Box upon delivery • Overview of basic functions • A look at the FRITZ!Box configuration options	Provided in print with your FRITZ!Box
Online help	• Instructions on configuration and operation • Help on the functions and settings options in the user interface	http://fritz.box/
Knowledge Base	Solutions for common problems during connection, configuration, and operation	en.avm.de/service

Medium	Contents	Where
Newsletter (in German)	The latest developments for AVM: New products, updates, and practical tips	en.avm.de/newsletter
Social media	The latest about the FRITZ!Box, your FRITZ!Box home network, and your FRITZ! device	Facebook
		Instagram
		Twitter
		YouTube

Parts

AVM Accessories

The following accessories were developed by AVM and are not available from vendors.

- DSL/telephone cable with RJ45 connectors on the ends
- DSL adapter (RJ45 to TAE)
- Telephone adapter (RJ45 to TAE)

Requesting Price Information for AVM Parts

Price information and details on AVM parts can be requested by telephone:

Telephone hours	Telephone number
Monday – Friday 9:00am – 4:00pm	0 30 / 3 99 97 66 07

Ordering AVM Accessories

Please note the following when ordering AVM accessories

- You can order accessories by email or fax.
- We do not accept orders by telephone.
- Accessories are shipped only within Germany.

Email Address	Fax Number
zubehoer@avm.de	0 30 / 3 99 76 87 00

Information on Cleaning

Please Note

- 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.

Functions and Structure

Functions

Internet Router

The FRITZ!Box 7590 AX is an internet router for DSL lines.

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

- ADSL2+ line (up to 24 Mbit/s)
- VDSL2 line
- VDSL2 line with vectoring (up to 100 Mbit/s)
- VDSL2 line with supervectoring (up to 300 Mbit/s)

Telephone System

The FRITZ!Box is a telephone system for IP-based connections with fax function, answering machine, telephone book, call blocks, and other functions. You can connect the following devices:

- cordless telephones
- analog devices (telephones, answering machines, door intercoms)
- IP telephones

DECT Base Station for Cordless Telephones and Smart Home

The FRITZ!Box is a DECT base station for cordless telephones that support the DECT ULE standard.

You can use up to six cordless telephones on the FRITZ!Box, as well as Smart Home devices from FRITZ! and Smart Home devices from other manufacturers that support the HAN FUN DECT ULE protocol

Wi-Fi

The FRITZ!Box supports Wi-Fi 6 (Wireless AX) on the 2.4- and 5-GHz bands for the use of notebooks, smartphones and other wireless devices.

Hub in the Home Network

The FRITZ!Box is the hub of the home network composed of all devices connected with the FRITZ!Box. The functions made available by the FRITZ!Box to the home network include:

- A media server for transmission of music, pictures, and videos to playback devices in the home network
- MyFRITZ! allows access to your own FRITZ!Box over the internet.
- FRITZ!NAS, for easy access to all files in the network

USB Ports

The FRITZ!Box has two USB 3.0 ports for the following devices:

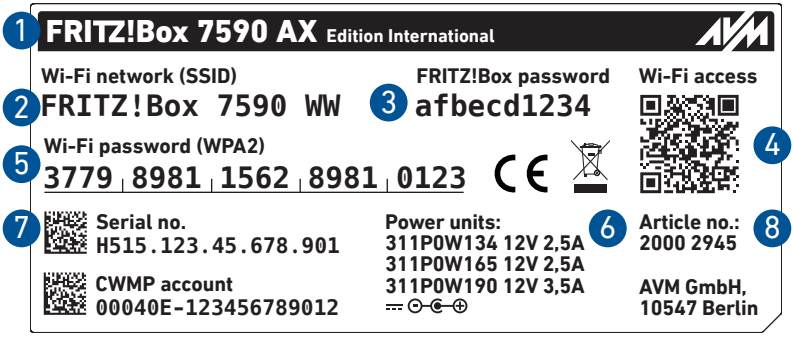
- USB storage devices (for example, flash drives, external hard drive, card reader)
- USB printers, USB all-in-one printers, USB scanners
- USB hubs

Device Data on the Type Label

Overview

Important device data on the FRITZ!Box are presented on the type label on the housing. There you find the preset network key for Wi-Fi connections with the FRITZ!Box, the preconfigured FRITZ!Box password for the user interface, the serial number for support queries, and additional data.

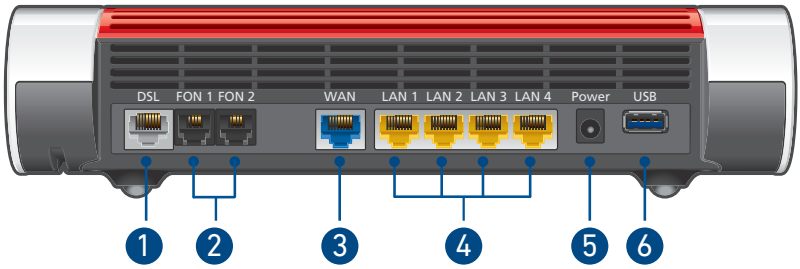
Device Data on the Type Label



No.	Meaning
1	Product name
2	Name of Wi-Fi network (SSID)
3	FRITZ!Box password
4	QR code to access Wi-Fi
5	Network key (Wi-Fi password)
6	Serial number
7	Power adapter specification
8	Article number

Connection Sockets

Connector Panel

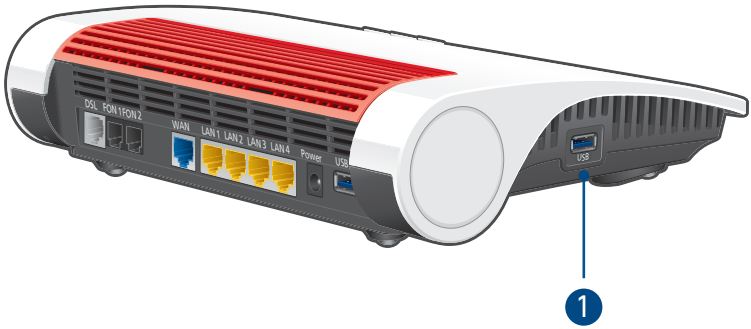


No.	Name	Function
1	DSL	Port for connecting to DSL (VDSL including supervectoring/ADSL2+)
2	FON 1 and FON 2	RJ11 ports for connecting analog telephones, fax machines, answering machines or a door intercom system
3	WAN	RJ45 port for connecting to a modem or a router for internet access. If the port is not used for the internet connection, then it is an additional gigabit Ethernet port for connecting computers and other network-compatible devices.
4	LAN 1 - LAN 4	Ports for connecting computers and other network-compatible devices like hubs and game consoles
5	Power	Port for plugging in the power supply
6	USB	USB 3.0 port for connecting USB devices like printers or storage media

Connectors on the Sides: FON

No.	Name	Function
1	FON 1	TAE jack for connecting analog telephones, fax machines and answering machines

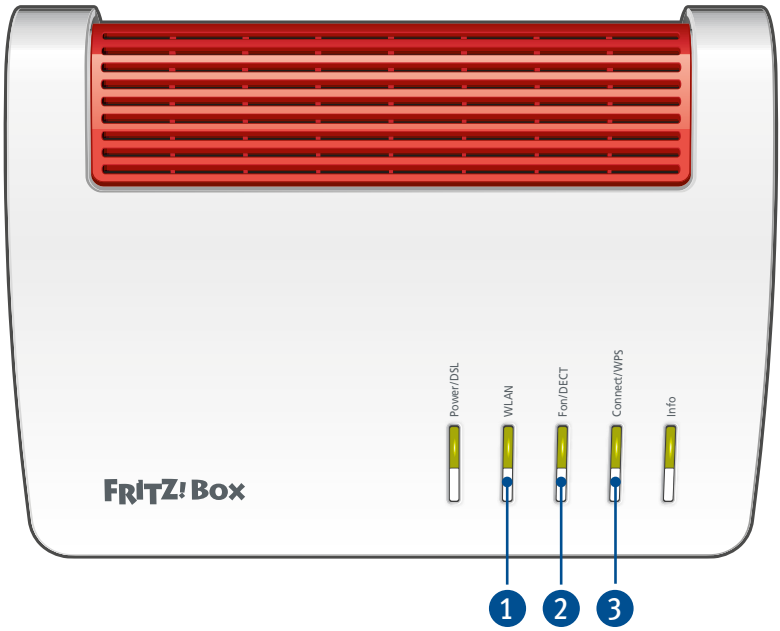
Connectors on the Sides: USB



No.	Name	Function
1	USB	USB 3.0 socket for connecting USB devices like printers or storage media

Buttons

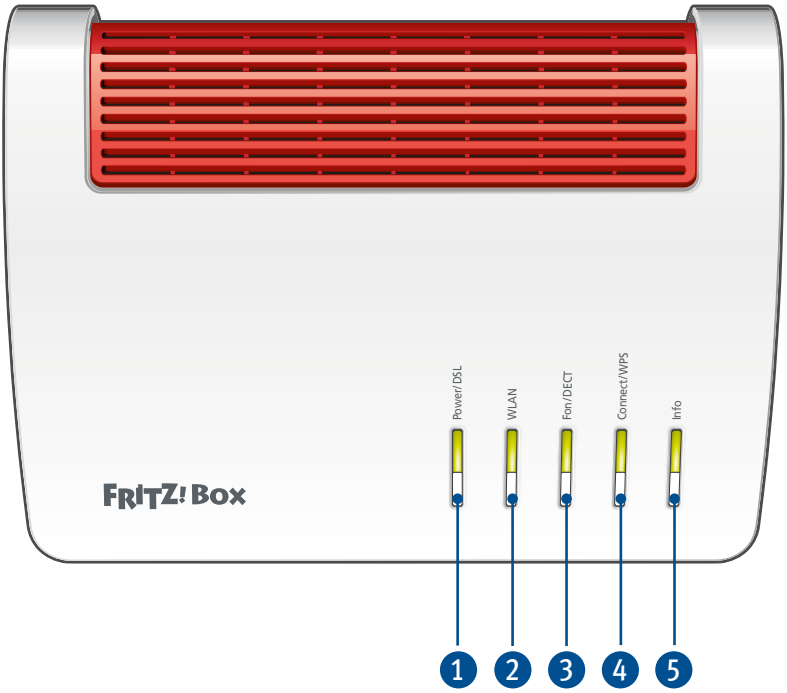
Button Functions



No.	Button	Function
1	WLAN	Switch Wi-Fi on and off
2	Fon/DECT	Search for cordless telephones (paging call)
3	Connect/WPS	• Register cordless telephones with the FRITZ!Box; see page 80 • Register wireless devices with the FRITZ!Box via WPS; see page 39 • Register Smart Home devices with the FRITZ!Box

LEDs

Meaning of the LEDs



No.	LED	Condition	Meaning
1	Power/DSL	off	The device has no electrical power.
		on	The device has electrical power and DSL is synchronized. The FRITZ!Box is ready for operation.
		flashing	Power supply is connected and the connection to DSL is being established or has been interrupted

No.	LED	Condition	Meaning
2	WLAN	off	Wi-Fi disabled
		on	Wi-Fi enabled
		flashing	• Switching Wi-Fi on or off. • Applying changes to the Wi-Fi settings. • WPS in progress: Registration of a wireless device in progress.
3	Fon/DECT	off	No telephone call is being conducted.
		on	A telephone connection via the internet is active.
		flashing	Messages in your voice mailbox. (Function must be supported by the telephony provider.)
4	Connect/ WPS	off	No devices registering with the home network.
		flashing	Registration in progress for a wireless, DECT, Smart Home or powerline device.
		on	Registration of a wireless, DECT, Smart Home or powerline device was successful.
		flashing fast	Registration aborted: more than 1 device registering with the FRITZ!Box. Repeat the registration: 1 device per registration.

No.	LED	Condition	Meaning
5	Info	off	None of the following processes is active:
		green	• AVM Stick & Surf procedure with FRITZ!WLAN Stick concluded. • Adjustable; see page 214. Adjustable; see page 214.
		flashing green	• FRITZ!OS update in progress • AVM Stick & Surf procedure with the FRITZ!WLAN Stick in progress. • Time budget for online time has been reached. • Adjustable; see page 214.
		on or flashing red	Error: 1. Open the FRITZ!Box user interface. 2. Click on **Overview** in the menu. 3. Click next to the red error message on **Show Details** and follow the instructions to remedy the error.

Requirements for Operation

Requirements

- For internet access via DSL: ADSL2+ line
- For internet access via VDSL: VDSL line
- For configuration of the FRITZ!Box: a network device (computer or tablet) with network connection or Wi-Fi support and up-to-date web browser

For comprehensive technical information about your FRITZ!Box, see page 289.

Connecting

Overview: Connecting the FRITZ!Box

Overview

Connect the FRITZ!Box in by performing 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 to your DSL connection.
	Connect a computer to the FRITZ!Box via LAN cable, or connect a computer, smartphone, or tablet to the FRITZ!Box via Wi-Fi.

Placing or the Mounting on the Wall

Overview

You can place the FRITZ!Box on a horizontal surface or mount it on a wall.

Ideal operating conditions are achieved when you mount the FRITZ!Box on a wall.

Rules for Setting up the FRITZ!Box

- Only use the FRITZ!Box indoors.
- Position the FRITZ!Box near an electrical outlet that is easy to reach, so that you can unplug the FRITZ!Box at any time.
- Position 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. Do not cover the FRITZ!Box. The ventilation slits must never be obstructed.

Rules for Optimum Wi-Fi Reception

- Place the FRITZ!Box in a central location. A raised location like a shelf is ideal.
- The fewer walls and ceilings between the FRITZ!Box and your wireless devices, the better.
- Do not place the FRITZ!Box in, behind, or under a cabinet.
- Do not place the FRITZ!Box near metallic objects or objects containing water, like radiators, a refrigerator, or a houseplant.
- Make sure there is enough distance from potential sources of interference like microwaves, wireless speakers and Bluetooth devices.

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.

Instructions: Mounting 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 electricity 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. Pick up the FRITZ!Box and measure the distance between the centers of the hanging holes.
   The hanging holes are located on the back of your FRITZ!Box.
3. Mark two spots for drilling at the distance you measured at the desired location on the wall.
4. Drill two holes and insert screws.
5. Hang the FRITZ!Box on the wall with the socket strip down.

Connecting to Electric Power

Overview

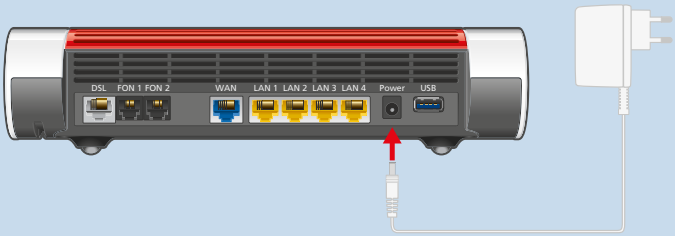
Connect the FRITZ!Box to the power supply.

Please Note

- If at all possible, do not use any power strips or extension cords.
- If it is not possible to avoid using a socket strip or an extension cord, then do not connect multiple extension cords or socket strips to each other.
- Use only the power adapter included with delivery.

Instructions: Plugging In to Electrical Power

1. Connect the power adapter to the socket on the FRITZ!Box labeled **Power**.



2. Plug the other end into an electrical outlet.

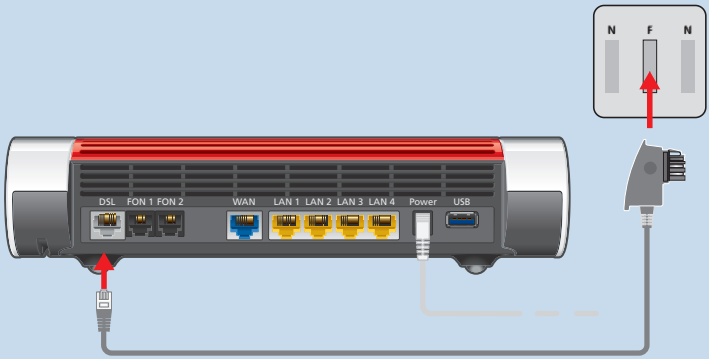
Connecting to the DSL Line

Overview

Connect the FRITZ!Box to your DSL line. Use the connecting cable included with delivery.

Instructions: Connecting to a DSL Line in Germany

1. Insert the RJ connector of the connecting cable into the **DSL** port on the FRITZ!Box.



2. Insert the telephone connector of the connecting cable into the socket on the telephone jack labeled **F**.

After a short time the **Power/DSL** LED on the FRITZ!Box lights up.

Instructions: Connecting to a DSL Line in Other Countries

1. Insert one end of the DSL cable into the **DSL** socket of the FRITZ!Box

2. Insert the other end of the cable into the RJ socket on your telephone jack.

After a short time the **Power/DSL** LED on the FRITZ!Box lights up.

Connecting Computers and Other Devices Using a LAN Cable

Overview

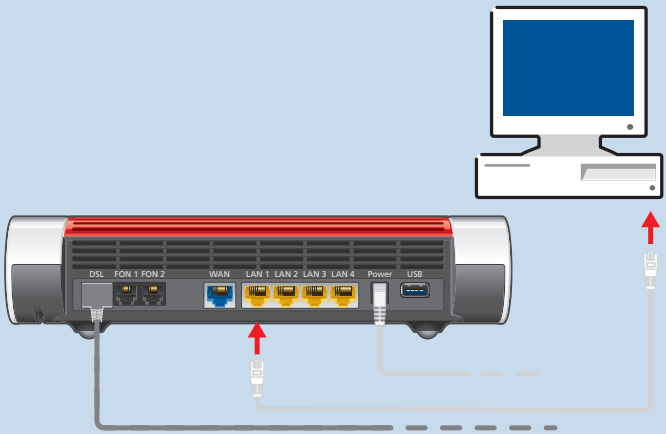
You can connect computers and other network devices with the FRITZ!Box using a LAN cable.

Please Note

- The LAN cable used must not be longer than 100 m.

Instructions: Connecting a Computer Using a Network Cable

1. Insert the LAN cable into the LAN socket of the computer.
2. Insert the free end of the cable into a LAN socket on the FRITZ!Box.



Instructions: Connecting a Network Hub or Network Switch

1. Insert the LAN 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 socket on the FRITZ!Box.

Connecting Wireless Devices with FRITZ!Box

Overview

You can connect computers, smartphones, tablets, and other network devices wirelessly with the FRITZ!Box via Wi-Fi.

Wi-Fi connections can be established using a QR code, the Wi-Fi network key of the FRITZ!Box, or via WPS.

You need

- For Wi-Fi connections via QR code: a smartphone or tablet
- For Wi-Fi connections via WPS: Wireless device with support for WPS at the touch of a button (WPS Push Button)

  Many Windows computers support WPS. Apple devices (macOS, iOS) do not support WPS.

Scanning QR Codes on a Smartphone or Tablet

Many smartphones and tablets can scan QR codes using the camera app. Open the camera app and point the camera at a QR code.

If the camera app detects the QR code, a message appears about the information stored in the QR code. If no message appears, use a QR code app to scan the QR code.

Example QR code with the address of the English-language AVM website:

Instructions: Establishing a Wi-Fi Connection with the QR Code

1. Open the user interface; see page 56.
2. Click on **Wi-Fi > Wi-Fi Network** in the menu.

   Here is where to find the current QR code for Wi-Fi connections with the FRITZ!Box.
3. Scan the QR code on your smartphone or tablet.

   You can scan the QR code directly from the screen or print it out (by clicking on “Print Info Sheet”).

Instructions: Establishing a Wi-Fi Connection Using a Network Key

1. Select the Wi-Fi network of the FRITZ!Box.

   The preconfigured name of the Wi-Fi network (SSID) is printed on the type label attached to the FRITZ!Box housing.
2. Start the connection procedure.
3. Enter the network key of the FRITZ!Box.

   This is printed on the type label on the outside of the FRITZ!Box housing.

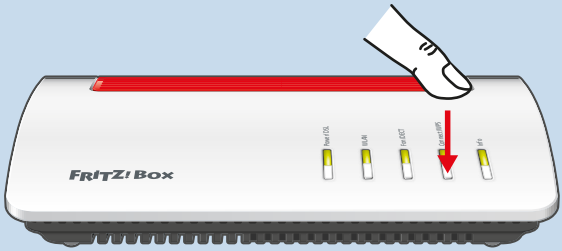
Instructions: Establishing a Wi-Fi Connection Using WPS

WPS is a method for establishing secure Wi-Fi connections at the touch of a button.

1. Select the Wi-Fi network of the FRITZ!Box.

   The preconfigured name of the Wi-Fi network (SSID) is printed on the type label attached to the FRITZ!Box housing.
2. Start the connection procedure with WPS; see the documentation of the wireless device.

3. On the FRITZ!Box: Press the **Connect/WPS** button briefly.



The **Connect/WPS** LED flashes while the Wi-Fi connection is being established.

Option: Connecting to a Modem or Router

Overview: Connecting to a Modem or Router

Overview

You can connect the FRITZ!Box to a modem or to another router and use it on the following internet connections:

- DSL or VDSL line with a DSL or VDSL modem
- fiber optic connection with fiber optic modem (FTTH ONT/media converter)
- cable connection with cable modem
- any internet connection with an internet router

Connecting to a DSL/VDSL Modem

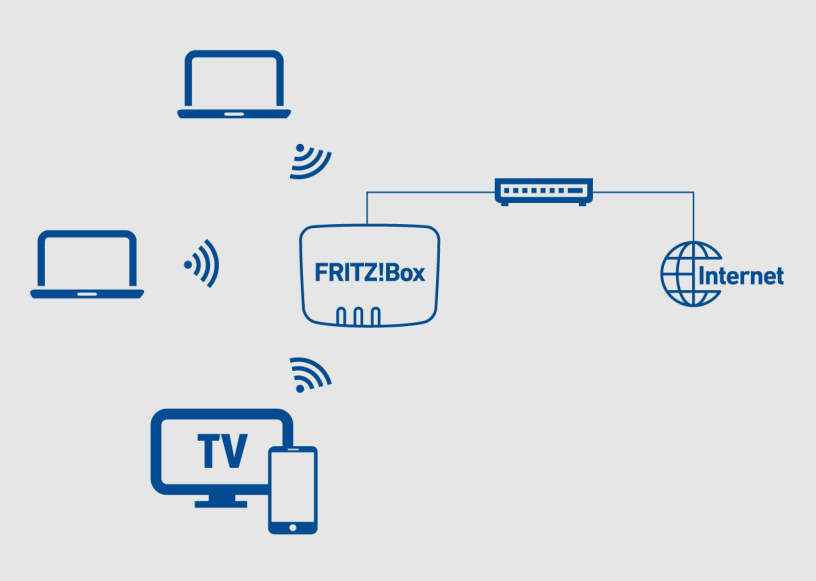
Overview

You can connect the FRITZ!Box with your DSL line using a DSL modem. Then the FRITZ!Box uses the internet connection on the DSL connection.

Requirements

- A DSL modem is connected to your DSL line.
- The **WAN** socket on the FRITZ!Box is configured for **WAN** operation; see page 159.

Example Configuration



You need

- a LAN cable (for instance, from the FRITZ!Box package)

Instructions: Connecting to a DSL Modem

1. Insert one end of the network cable into the **WAN** port on the FRITZ!Box.

2. Insert the other end of the network cable into the LAN (Ethernet) socket on the cable modem.

Connecting to a Fiber Optic Modem

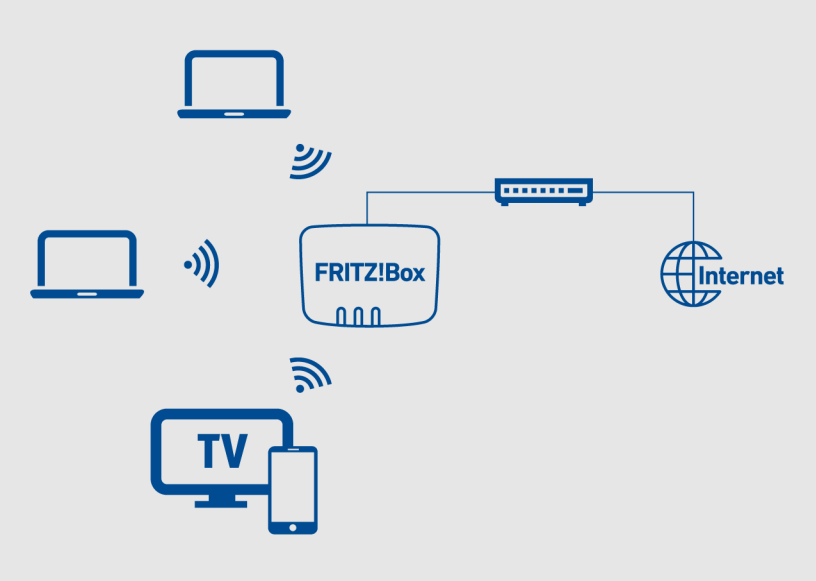
Overview

You can connect the FRITZ!Box with your fiber optic connection using a fiber optic modem (ONT). Then the FRITZ!Box uses the internet connection on the fiber optic connection.

Requirements

- A fiber optic modem is connected to your fiber optic connection.
- The **WAN** socket on the FRITZ!Box is configured for **WAN** operation; see page 159.

Example Configuration



You need

- a LAN cable (for instance, from the FRITZ!Box package)

Instructions: Connecting to a Fiber Optic Connection

1. Insert one end of the LAN cable into the WAN socket on the FRITZ!Box.
2. Insert the other end of the LAN cable into the LAN (Ethernet) socket on the fiber optic modem.

Connecting to a Cable Modem

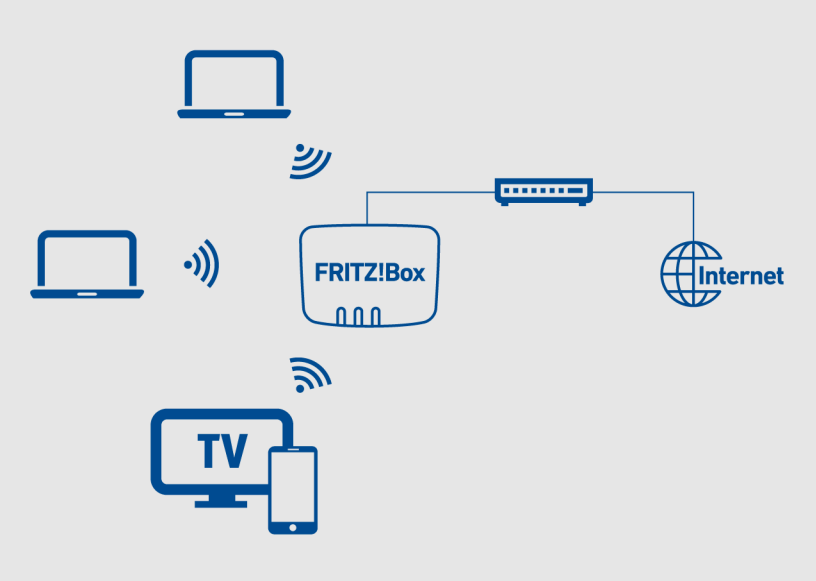
Overview

You can connect the FRITZ!Box with your cable junction via a cable modem. Then the FRITZ!Box uses the internet connection on the cable junction.

Requirements

- A cable modem is connected to your cable junction.
- The **WAN** socket on the FRITZ!Box is configured for **WAN** operation; see page 159.

Example Configuration



You need

- a LAN cable (for instance, from the FRITZ!Box package)

Instructions: Connecting to a Cable Modem

1. Insert one end of the LAN cable into the LAN (Ethernet) port on the cable modem.
2. Insert the other end of the LAN cable into the **WAN** socket on the FRITZ!Box.
3. Connect a computer with the FRITZ!Box, see page 36 or see page 38.
4. Set up the internet connection for connections via cable in the FRITZ!Box; see page 70.

Connecting to a Router

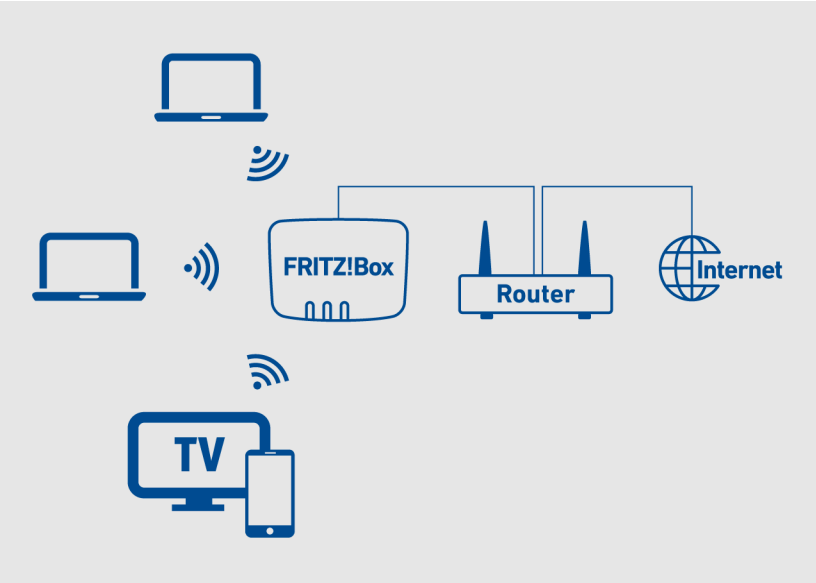
Overview

You can connect the FRITZ!Box to a router that is connected with the internet. Then the FRITZ!Box uses the internet connection of the router.

Requirements

- If the FRITZ!Box is operated as a router and generates its own IP network, then it is connected to the router via the **WAN** socket. The **WAN** socket must be configured for **WAN** operation; see page 159.

Example Configuration



You need

- a LAN cable (for instance, from the FRITZ!Box package)

Instructions: Connecting to the Router via LAN Cable

1. If the FRITZ!Box is to be operated as a router that generates its own IP network: Insert one end of the LAN cable into the **WAN** socket on the FRITZ!Box.

   If the FRITZ!Box is to be operated as an IP client: Insert the LAN cable into a LAN socket on the FRITZ!Box. You can then configure the **WAN** socket as a LAN port as well; see page 159.
2. Insert the other end of the cable into the LAN socket on the internet router.

Option: Connecting with the Mobile Network Connection

Connecting a Mobile Dongle or Smartphone

Overview

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

In this case you need a mobile network dongle or a smartphone for internet access via LTE, UMTS, or HSPA.

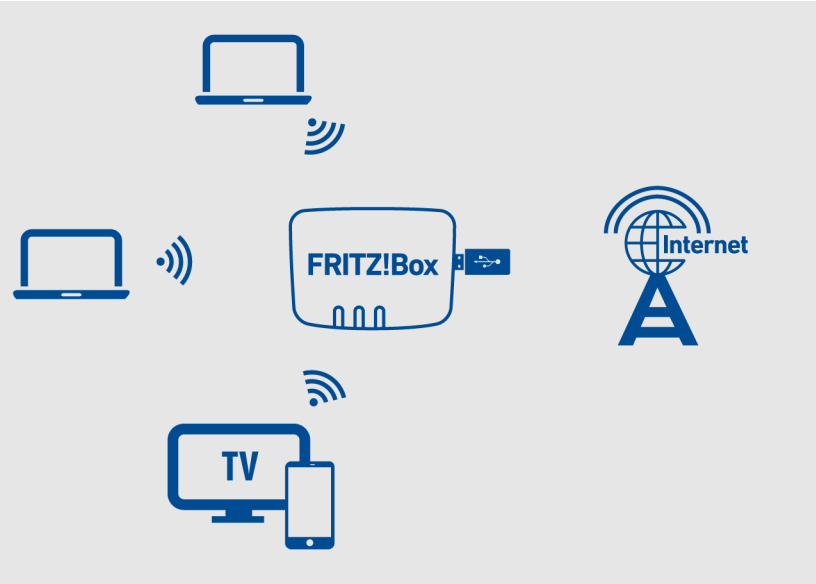
Requirements

- The mobile network dongle or smartphone supports USB tethering.
- You have a SIM card from a mobile network provider.

Restrictions by the Mobile Network Provider

Due to technical limitations on the part of mobile communications network providers, some limitations may arise when making telephone calls via the FRITZ!Box and for applications requiring an incoming connection. This also applies to using port sharing, sharing USB storage, remote access via HTTPS, Dynamic DNS and VPN. Request information on any existing limitations from your network provider.

Example Configuration



Instructions: Connecting the Mobile Network Dongle

1. Insert the mobile network dongle into a USB port of the FRITZ!Box.
2. Configure the internet connection via the mobile network; see page 78.

Instructions: Connecting a Smartphone to the USB Port

1. Connect the smartphone to a USB port on the FRITZ!Box using a USB cable.
2. Configure the internet connection via the mobile network; see page 78.

Accessing the FRITZ!Box

FRITZ!Box Access and Operation Options

Overview

The FRITZ!Box has a user interface in which you can configure the FRITZ!Box and receive detailed information on connections, ports, and your home network. The FRITZ!Box user interface can be opened with a web browser on computers, smartphones, or tablets that are connected with the FRITZ!Box.

In addition to the user interface, you have additional possibilities to operate the FRITZ!Box using the FRITZ!Apps and the FRITZ!Fon.

Access and Operation Options

Access	Function
User Interface	Configure the FRITZ!Box
MyFRITZ!	Access the FRITZ!Box in the home network at home or via the internet from anywhere
FRITZ!Fon	Use FRITZ!Box functions and operate devices in the home network.
MyFRITZ!App	Access your FRITZ!Box from on the go.
FRITZ!App Fon	Make landline calls at home using your smartphone and tablet.
FRITZ!App Smart Home	Switch Smart Home devices in the home network at home or from on the go.
FRITZ!App WLAN	Receive an overview of your Wi-Fi network and the Wi-Fi networks in your vicinity.

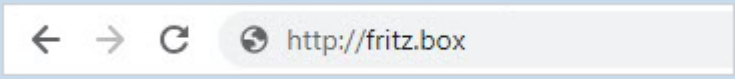
Opening the FRITZ!Box User Interface

Requirements

- Your computer, smartphone, or tablet is connected with the FRITZ!Box via Wi-Fi or network cable.
- The connection is **not** via the Wi-Fi guest access or LAN guest access of the FRITZ!Box.

Instructions: Opening the FRITZ!Box User Interface

1. Start a web browser on your computer or mobile device.
2. Enter the address **http://fritz.box**.



Tip

You can also enter the IP address of the FRITZ!Box or the emergency IP.

The preset IP address is: **http://192.168.178.1**
The emergency IP address is: **http://169.254.1.1**

3. Log in with the FRITZ!Box password or with the login data of a FRITZ!Box user.
   The preconfigured FRITZ!Box password is printed on the type label on the outside of the housing and on the FRITZ! Notes service card.

The first time the user interface is opened, the Wizard for Basic Configuration of the FRITZ!Box starts; see page 65. The next time the user interface is started, the **Overview** page appears.

FRITZ!Fon

Overview

With the FRITZ!Fon you can use various FRITZ!Box functions:

- Switch Wi-Fi on and off
- Switch Wi-Fi guest access on and off
- Switch Smart Home devices
- Change telephony settings
- Set up a telephone book
- Perform software updates and load factory settings.

FRITZ!Fon

Instructions on how to do this are found in the FRITZ!Fon manuals on the AVM website under Manuals.

MyFRITZ! in the Home Network or from On the Go

Overview

With MyFRITZ! you can access various information and features of your FRITZ!Box at home in the home network or via the internet.

Using MyFRITZ!

For more information on MyFRITZ!, see page 242.

MyFRITZ!App

Overview

With the MyFRITZ!App you can access your FRITZ!Box from on the go:

- View the call list and listen to the answering machine
- Access home network storage with FRITZ!NAS, for instance, for photo, music, or video files
- Change settings, view information, and manage all functions
- Manage telephony settings
- Switch Wi-Fi
- Switch and control Smart Home devices.

Downloading MyFRITZ!App

The MyFRITZ!App is available free of charge for Android and iOS:

Google Play Store (Android)	App Store (iOS)

FRITZ!App Smart Home

Overview

With the FRITZ!App Smart Home you can control your FRITZ! Smart Home devices from home or on the go:

- switch FRITZ! smart plugs and FRITZ! radiator controls
- operate FRITZ!DECT LED lights and create color templates
- display the energy consumption of the devices connected to FRITZ! smart plugs
- switch on and off routines to automate Smart Home devices.

Downloading FRITZ!App Smart Home

The FRITZ!App Smart Home is available free of charge for Android and iOS:

Google Play Store (Android)	App Store (iOS)

FRITZ!App Fon

Overview

With the FRITZ!App Fon you can make calls using your smartphone or tablet at home over your landline telephone numbers:

- Make outgoing calls and accept incoming calls
- Access your smartphone contacts and the contacts in the FRITZ!App Fon telephone book
- Listen to the answering machine.

Downloading FRITZ!App Fon

The FRITZ!App Fon is available free of charge for Android and iOS:

Google Play Store (Android)	App Store (iOS)

FRITZ!App WLAN

Overview

FRITZ!App WLAN informs you about your Wi-Fi connection and the FRITZ! devices in the home network:

- monitor Wi-Fi connections
- Mesh: find the ideal position to the FRITZ!Box for the Repeater
- share Wi-Fi with friends (Android).

Downloading FRITZ!App WLAN

The FRITZ!App WLAN is available free of charge for Android and iOS:

Google Play Store	App Store (iOS)

Configuring

Overview: Configuring the FRITZ!Box

Overview

Configure the FRITZ!Box by performing the following steps:

	Instructions
	Set up the internet connection in the FRITZ!Box.
	Configure your telephone numbers in the FRITZ!Box.

Requirements

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

Using the Wizard for Basic Configuration

Overview

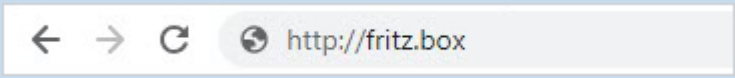
The first time the user interface is opened, the Wizard for Basic Configuration of the FRITZ!Box starts. This wizard assists you in entering your account information to connect to the internet and use your telephones.

You need

- The preset FRITZ!Box password, which is printed on the FRITZ!Box service card FRITZ! Notes and on the type label on the outside of the FRITZ!Box housing.
- Your account information, which you received from the internet provider.
- Your telephone numbers, which you received from the telephone provider.

Instructions: Using the Wizard for Basic Configuration

1. Start a web browser on your computer or mobile device.
2. Enter the address **http://fritz.box**.



Tip

You can also enter the IP address of the FRITZ!Box or the emergency IP.

The preset IP address of the FRITZ!Box is **http://192.168.178.1**. The emergency IP address is: **http://169.254.1.1**.

3. Enter the preset FRITZ!Box password and click on **Log In**.
   The password is printed on the type label on the outside of the FRITZ!Box housing and on the FRITZ! Notes service card.

4. Choose whether you would like to use the AVM services for diagnostics and maintenance. We recommend leaving this option enabled. You can always change the setting later.
5. Click on **Next**.
6. 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 internet and for telephony.

Configuring the Internet Connection on the DSL or VDSL line

Overview

The internet connection is set up 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 FRITZ!Box is connected to the DSL or VDSL line.

You need

- The account information you received from your internet provider.

Instructions: Configuring the Internet Connection

1. Open the user interface; see page 56.
2. If the wizard does not start automatically, click on **Wizards** in the menu.
3. Click on **Configure the Internet Connection**.
4. After the Wizard has concluded: Open a new tab in your web browser and enter a web address, for instance en.avm.de.

   The requested internet page is displayed.

Configuring Your Telephone Numbers

Overview

Configure all telephone numbers in the FRITZ!Box that are not configured automatically.

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

Which telephone numbers can be configured in the FRITZ!Box?

You can configure up to 20 of the following telephone numbers:

- Landline telephone numbers for making calls via the internet connection (also known as: internet telephone numbers, SIP telephone numbers, VoIP telephone numbers)
- SIP trunking from Deutsche Telekom (CompanyFlex, Deutschland LAN SIP-Trunk Pooling, Deutschland LAN SIP-Trunk) or from another provider
- SIP DDI line

Instructions: Configuring Your Own Telephone Numbers

1. Open the user interface; see page 56.
2. Click on **Wizards** in the menu.
3. Click on **Manage Your Own Phone Numbers**.
4. Click on **Add Telephone Number** and follow the wizard's instructions.

Option: Configuring Internet Access via DSL Modem

Overview

If you connected the FRITZ!Box to a DSL modem, configure the FRITZ!Box for internet access via the DSL modem.

Operating Mode of the FRITZ!Box

The following apply when the FRITZ!Box is connected with the internet access via DSL modem:

- The FRITZ!Box obtains the public IP address from the internet service provider via DHCP or PPPoE.
- The FRITZ!Box establishes the internet connection itself.
- The FRITZ!Box functions as a router.
- The FRITZ!Box creates its own IP network.
- The firewall of the FRITZ!Box is enabled.

Requirements

- You connected the FRITZ!Box to a DSL modem that is connected with the DSL line; see page 43.
- The **WAN** socket is configured for **WAN** operation; see Configuring the WAN Connection Socket, page 159.

Option: Configuring Internet Access via Cable Modem

Overview

If you connected the FRITZ!Box to a cable modem, configure the FRITZ!Box for internet access via the cable modem.

Operating Mode of the FRITZ!Box

The following apply when the FRITZ!Box is connected with the internet access via a cable modem:

- The FRITZ!Box obtains the public IP address from the internet service provider via DHCP.
- The FRITZ!Box establishes the internet connection itself.
- The FRITZ!Box functions as a router.
- The FRITZ!Box creates its own IP network.
- The firewall of the FRITZ!Box is enabled.

Requirements

- You connected the FRITZ!Box to a cable modem, which is connected with the cable junction; see page 47.
- The **WAN** socket is configured for **WAN** operation; see page 159.

Instructions: Setting Up Internet Access on the Cable Connection

1. Open the user interface; see page 56.
2. Click in the menu on **Internet > Account Information** and on the **Internet Connection** tab.
3. If your cable provider is included in the **Internet Provider** drop-down list, select your cable provider.
   - Click on **Change connection settings**.
   - Under **Internet Connection**, enable the **via an external modem** option.

4. If your cable provider is not included in the **Internet service provider** drop-down list, proceed as follows:
   - Select **More internet service providers**, if this entry is included. A second drop-down list appears. Select in the second drop-down list the **other internet provider** entry.
   - If the **More internet providers** entry is not available, select the **other internet provider** entry.
   - Assign a name for the internet provider (optional).
   - Under **Connected via**, enable the **Connection to a cable modem (cable connection)** option.
5. Enable **Check Internet connection after "Apply" has been clicked**.
6. Save your settings by clicking on **Apply**.

Your internet connection has been configured and successfully checked. For further settings, use the FRITZ!Box help.

Option: Configuring Internet Access via Fiber Optic Modem

Overview

If you connected the FRITZ!Box to a fiber optic modem, configure the FRITZ!Box for internet access via the fiber optic modem.

Operating Mode of the FRITZ!Box

The following apply when the FRITZ!Box is connected with the internet access via a fiber optic modem:

- The FRITZ!Box obtains its public IP address from the internet service provider via DHCP or PPPoE.
- The FRITZ!Box establishes the internet connection itself.
- The FRITZ!Box functions as a router.
- The FRITZ!Box creates its own IP network.
- The firewall of the FRITZ!Box is enabled.

Requirements

- You connected the FRITZ!Box to a fiber optic modem that is connected with the fiber optic connection; see page 45.
- The **WAN** socket is configured for **WAN** operation; see page 159.

Instructions: Setting Up Internet Access on the Fiber Optic Connection

1. Open the user interface; see page 56.
2. Click in the menu on **Internet > Account Information** and on the **Internet Connection** tab.
3. If your fiber optic network provider is included in the **Internet Provider** drop-down list, select your fiber optic network provider.

- If the **Connected via** area appears and the fiber optic connection can be selected as the type of connection, then select the fiber optic connection and enter the account information you received from your fiber optic network provider in the **Account Information** area.
- If the **Connected via** area does not appear, then enter the account information you received from your fiber optic network provider in the **Account Information** area. Then click on **Change Connection Settings** and select **Via an external modem** option under **Internet Connection**.

4. If your fiber optic network provider is not included in the **Internet service provider** drop-down list, proceed as follows:
   - Select **More internet providers**, if this entry is included. A second drop-down list appears. Select in the second drop-down list the **other internet provider** entry.
   - If the **More internet providers** entry is not available, select the **other internet provider** entry.
   - Assign a name for the internet provider (optional).
   - Under **Connection**, enable **Connection to an external modem or router**.
   - Under **Operating Mode**, enable the **Establish own connection to the internet** option.
   - If you received account information from your fiber optic provider, select the **Yes** option under **Account Information** and enter the account information.
5. Enable **Check Internet connection after "Apply" has been clicked**.
6. Save your settings by clicking on **Apply**.

Your internet connection has been configured and successfully checked. For further settings, use the FRITZ!Box help.

Option: Configuring Internet Access via Another Router (Cascading)

Overview

You can use the FRITZ!Box as a cascaded router on another router. The other router provides the internet connection.

As a cascaded router, the FRITZ!Box creates its own IP network.

Operating Mode of the FRITZ!Box

The following apply to this kind of internet connection:

- In the default setting, the FRITZ!Box receives an IP address from the other router via DHCP.
- The FRITZ!Box functions as its own router.
- The FRITZ!Box creates its own IP network.
- The firewall of the FRITZ!Box is enabled.

Requirements

- The FRITZ!Box is connected with a router that provides the internet connection; see page 49.
- The **WAN** socket is configured for **WAN** operation; see page 159.

Instructions: Configuring as a Router via Another Router

1. Open the user interface; see page 56.
2. Click in the menu on **Internet > Account Information** and on the **Internet Connection** tab.
3. Select the following from the **Internet Providers** drop-down list:
   - If the **More internet providers** entry is available, select this entry.
   - › A second drop-down list appears.

- In the second drop-down list, select the **existing connection over WAN** entry.
- If the **More internet providers** entry is not available, select the **existing connection via LAN** entry.

4. Save your settings by clicking on **Apply**.

Option: Configuring Internet Access by LAN via Another Router (IP Client)

Overview

You can use the FRITZ!Box on another router as an IP client. The other router provides the internet connection.

As an IP client, the FRITZ!Box is integrated into the existing network and can be used as a Mesh Repeater; see Mesh with FRITZ!, page 88.

Operating Mode of the FRITZ!Box

The following apply when the FRITZ!Box uses the internet connection of another router as an IP client:

- In the default setting, the FRITZ!Box receives an IP address from the other router via DHCP.
- The FRITZ!Box becomes part of the other router's IP network.
- The network devices connected to the FRITZ!Box receive their IP addresses from the other router.
- The firewall of the FRITZ!Box is disabled.

Requirements

- The FRITZ!Box is connected with a router that provides the internet connection. There are two possibilities for connecting the FRITZ!Box with the router:
  - Via the “WAN” socket. The socket must be configured as a LAN port; see page 159.
  - Via one of the LAN sockets.

Instructions: Setting Up Internet Access via LAN (as an IP Client)

1. Open the user interface; see page 56.

2. Click in the menu on **Internet > Account Information** and on the **Internet Connection** tab.
3. In the **Internet Provider** area, select the settings **More internet providers** and then **Other internet provider**.
4. From the **Connect via** area, select the **Connection to an external modem or router** option.
5. In the **Operating Mode** area, select the setting **Share existing internet connection in the network (Mesh Wi-Fi / IP client mode)**.
6. For further settings, use the FRITZ!Box help.

Option: Configuring Internet Access via the Mobile Network

Overview

If the FRITZ!Box is to use a mobile network dongle or an Android smartphone to access the internet, configure internet access via the mobile network.

Requirements

- You connected a mobile network dongle or an Android smartphone to one USB port on the FRITZ!Box; see page 52.
- If you connected an Android smartphone: USB tethering is enabled on the smartphone.

Instructions: Setting Up Internet Access via the Mobile Telephone Network

1. Open the user interface; see page 56.
2. Click on **Internet > Mobile Network** in the menu.
3. For instructions, open the online help ?.

Connecting Telephones

Connecting Telephones, Fax Machines, and Answering Machines

Overview

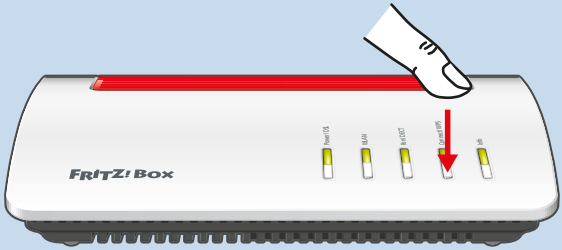
You can connect telephones, fax machines, answering machines, and telephone systems to your FRITZ!Box.

During a power outage you cannot make any telephone calls with the connected telephones.

Instructions: Connecting a Cordless Telephone

You can register up to six cordless DECT telephones like FRITZ!Fon with the FRITZ!Box.

1. On a cordless telephone: Start registration with a base station.
2. On the FRITZ!Box: Press the **Connect/WPS** button.

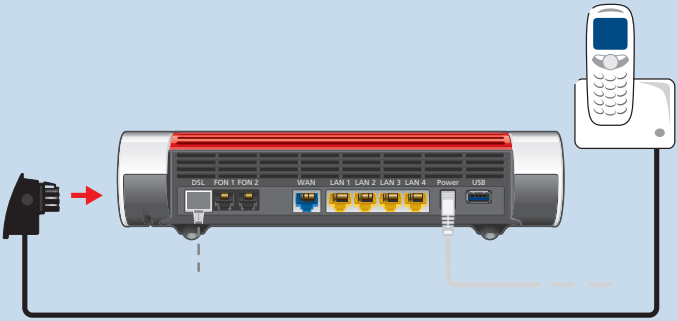


   The **Connect/WPS** LED flashes.
3. On a cordless telephone: Enter the PIN of the FRITZ!Box on the telephone (preset value: 0000).
4. Configure the telephone in the FRITZ!Box user interface; see page 85.

Instructions: Connecting an Analog Telephone

1. Connect the telephone, the answering machine or the fax machine to a **FON 1** socket. Use only one **FON 1**. One of the two sockets must remain free.

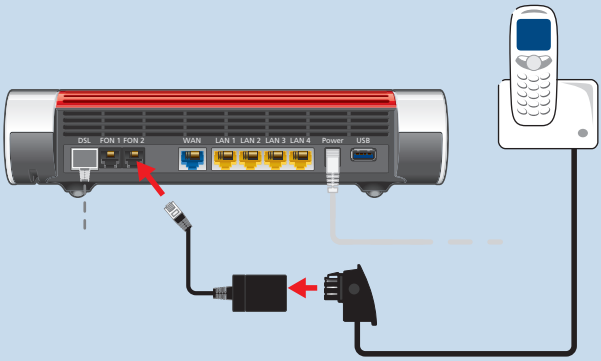
   Some countries have telephone connectors specific to their networks. The FRITZ!Box package may include an adapter for connecting telephones.



2. Configure the telephone in the FRITZ!Box user interface; see page 85.

Instructions: Connecting a Second Analog Telephone

1. Connect the telephone, the answering machine or the fax machine to the **FON 2** socket. If the device to be connected has a TAE connector, use the TAE/RJ11 adapter included with delivery.



2. In the user interface of your FRITZ!Box: Configure the connected device; see page 85.

Instructions: Connecting an IP Telephone

IP telephones are special telephones for internet telephony (IP stands for Internet Protocol).

1. Connect the IP telephone to the FRITZ!Box using a network cable or connect the IP telephone with the FRITZ!Box over Wi-Fi.
2. Configure the telephone in the FRITZ!Box user interface; see page 85.

Connecting a Smartphone

Overview

You can register your iPhone or Android smartphone with your FRITZ!Box using the FRITZ!App Fon. Then you can make calls with your smartphone at home, using all of the telephone numbers configured in the FRITZ!Box. And the smartphone can still be reached at your mobile telephone number as well.

Requirements

- iPhone or Android smartphone
- The setting **Allow access for applications** is enabled in the FRITZ!Box (in the user interface under **Home Network > Network > Network Settings**)

Instructions: Connecting a Smartphone

1. Establish a Wi-Fi 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. Configure the IP telephone **FRITZ!App Fon** in the FRITZ!Box user interface; see page 85.

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 another telephone connection away from 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 ringtone to signal the doorbell on a FRITZ!Fon.

Supported Door Intercom Systems

- Door intercom system with an a/b interface that uses DTMF (dual-tone multi-frequency signaling) tone dialing.
- IP door intercom systems that can be configured as SIP clients (by entering the login data for a SIP registrar).

Instructions: Connecting a Door Intercom System with an a/b Interface

1. In the user interface of your FRITZ!Box: Configure the door intercom system; see page 87.
2. Connect the door intercom system to a **FON 1** or **FON 2** socket. Note: One **FON 1** socket must remain free (not allocated).

Instructions: Connecting an IP Door Intercom System

1. Connect the IP door intercom system to the FRITZ!Box using a network cable or Wi-Fi.
2. Configure the door intercom system in the FRITZ!Box user interface; see page 87.

Configuring Telephones, Fax Machines, and Answering Machines

Overview

Once you have connected your telephony devices, 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 react (ring, for instance) to every call, or only respond to calls for certain telephone numbers?
- Further settings that depend on the kind of device.

Requirements

- Your own telephone numbers are set up in the FRITZ!Box.

Please Note

The following rules apply for IP telephones:

- IP telephones are configured in the FRITZ!Box such that no international calls are possible. You can disable this security feature, see page 86.
- Various FRITZ!Box features are not available for IP telephones, including telephone books, fax and data connections, routing, busy on busy, and controlling FRITZ!Box functions (for instance, switching Wi-Fi on and off).

Instructions: Configuring Telephones and Other Devices

1. Open the user interface; see page 56.
2. Click on **Telephony > Telephony Devices** in the menu.
3. If the device to be configured is not yet included in the list of telephony devices, click on **Configure New Device**. 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 next to the device on the **Edit** button  . The kind of device determines which additional settings are available.

Instructions: Enabling International Calls for an IP Telephone

An IP telephone is configured in the FRITZ!Box such that only domestic calls and calls to emergency numbers are possible. You can disable this security feature:

1. Open the user interface; see page 56.
2. Click in the menu on **Telephony > Telephone Numbers** and on the **Line Settings** tab.
3. Under **Security**, click on **Change selection**.
4. Disable the checkbox next to the desired IP telephone and click on **OK**.
5. Save your settings by clicking on **Apply**.

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 from the door intercom system sent to your FRITZ!Fon.

Instructions: Configuring a Door Intercom System

1. Open the user interface; see page 56.
2. Click on **Telephony > Telephony Devices** in the menu.
3. Click on **Configure New Device**. With the **Edit** button  you can also change the settings of a door intercom system that has already been configured.

Mesh with FRITZ!

Expanding the Wi-Fi through Mesh

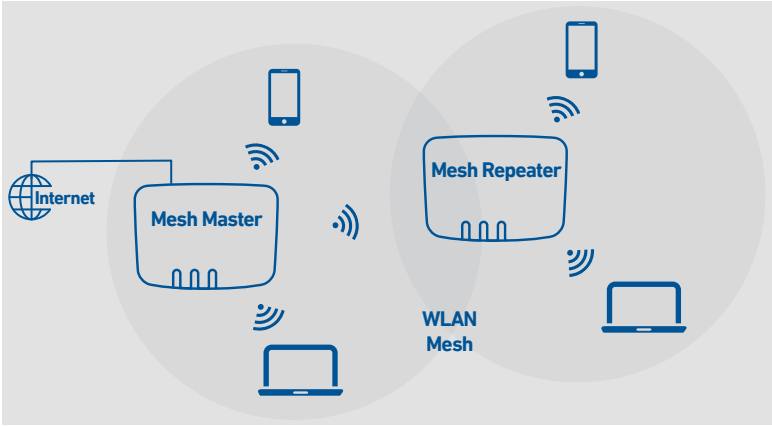
Overview

If the Wi-Fi network of the FRITZ!Box does not reach all of your rooms, then you can extend it with various FRITZ! products.

Mesh combines the individual Wi-Fi networks of the FRITZ! devices into one large Wi-Fi network which has just one Wi-Fi network name and one network key.

The FRITZ!Box is the hub of the Mesh, the Mesh Master. Other FRITZ! devices in the Mesh are Mesh Repeaters.

Example Configuration



FRITZ! Devices with Mesh

The following FRITZ! products can be used as **Mesh Repeaters** to expand the Wi-Fi network of the FRITZ!Box:

FRITZ! Device	Details
FRITZ!Repeater	Connection to the FRITZ!Box via Wi-Fi or LAN cable (FRITZ!Repeater with LAN port only). en.avm.de/products/fritzwlan

FRITZ! Device	Details
FRITZ!Powerline	Connection to the FRITZ!Box over electrical wiring en/avm.de/products/fritzpowerline)
second FRITZ!Box	The second FRITZ!Box must support the **Mesh Repeater** and **IP client mode** functions; see the manual at en.avm.de/service/manuals.

Enabling Mesh for FRITZ!Repeaters and FRITZ!Powerline

Overview

In order to benefit from the advantages of Mesh, enable Mesh for all FRITZ!Repeater and FRITZ!Powerline devices located in the home network of your FRITZ!Box.

Requirements

- FRITZ!Repeater / FRITZ!Powerline with FRITZ!OS 7 or later

Instructions: Enabling Mesh for a FRITZ!Repeater

1. Open the FRITZ!Box user interface; see page 56.
2. Click on **Home Network > Mesh** in the menu.
3. The FRITZ!Box is displayed in the overview with the **Mesh enabled** symbol. If the symbol is also displayed for the FRITZ!Repeater, then Mesh is already enabled for the FRITZ!Repeater. If the symbol is missing next to the FRITZ!Repeater, continue with the next step.
4. Press the button on the FRITZ!Repeater.

   After the button is released, the **WLAN** or **Connect** LED on the FRITZ!Repeater flashes rapidly.
5. Within 2 minutes, start WPS on the FRITZ!Box. Do this by pressing the **Connect/WPS** button until the **Info** LED starts flashing.

Mesh is enabled and the FRITZ!Repeater is displayed in the overview marked with the **Mesh enabled** symbol.

Instructions: Enabling Mesh for FRITZ!Powerline

1. Open the FRITZ!Box user interface; see page 56.
2. Click on **Home Network > Mesh** in the menu.

3. The FRITZ!Box is displayed in the overview with the **Mesh enabled** symbol. If the symbol is also displayed for FRITZ!Powerline, then Mesh is already enabled for FRITZ!Powerline. If the symbol is missing next to the FRITZ!Powerline, continue with the next step.

4. Press the button on FRITZ!Powerline to establish a connection:

FRITZ!Powerline Model	Connection Button
1260E	Connect
1240E, 546E, 540E	WLAN/WPS

   After the button is released, all of the LEDs on FRITZ!Powerline flash.

5. Within 2 minutes, start WPS on the FRITZ!Box. Do this by pressing the **Connect/WPS** button until the **Info** LED starts flashing.

Mesh is enabled and FRITZ!Powerline is displayed in the overview marked with the **Mesh enabled** symbol.

Using the FRITZ!Box as a Mesh Repeater

Overview

You can use your FRITZ!Box 7590 AX as a Mesh Repeater. As Mesh Repeater, the FRITZ!Box 7590 AX expands the Wi-Fi network of another FRITZ!Box which is connected to the internet connection.

Instructions: Configuring FRITZ!Box as a Mesh Repeater

1. Open the user interface; see page 56.
2. Click in the menu on **Home Network > Mesh > Mesh Settings**.
3. For instructions, open the online help ?.

User Interface: Internet Menu

Using AVM Services for Diagnostics and Maintenance

Overview

The AVM services for diagnostics and maintenance keep your FRITZ!Box 7590 AX and the FRITZ!OS operating system up to date and support the security and further development of your FRITZ!Box.

We recommend leaving the use of all AVM services enabled for your FRITZ! device.

AVM services

The following AVM services are provided by your FRITZ!Box:

AVM Service	Explanation
Search for updates	Your FRITZ!Box connects with the AVM update server regularly to search for and install new versions of FRITZ!OS.
Diagnostics data for error analysis	Upon suspicion of misuse by third parties, your FRITZ!Box transmits error reports or technical diagnostics data to AVM for analysis.
Diagnostics data for system maintenance	Your FRITZ!Box transmits device-specific data to AVM for the development of security updates and to further develop FRITZ!OS.

Data Protection

The diagnostics data and the device-specific data transmitted by your FRITZ!Box to AVM do not contain any personalized data. The data transmitted serve the exclusive purpose of technical adaptations and optimizations of your FRITZ!Box. Also, AVM does not pass these data on to third parties. The exact wording of the data privacy statement is presented under **Legal Notice > Data Privacy Statement** in the online help.

Instructions: Configuring AVM Services

1. Open the user interface; see page 56.
2. Click in the menu on **Internet > Account Information** and on the **AVM Services** tab.
3. For instructions, open the online help ?.

Configuring Parental Controls

Overview

With parental controls you can control network devices' internet use. For each individual network device, you can limit the duration and content of internet use. The specifications for temporal and content-related restrictions are created and saved as access profiles. You assign these access profiles to the network devices.

- You can create multiple different access profiles; see page 100.
- With the device block you can block all internet use for a network device without using a special access profile; see page 98.
- With tickets you can extend the restricted use time for individual network devices. A ticket is redeemed on the network device and extends the use time by 45 minutes. Tickets can be redeemed before the use time has been exhausted to avoid interruption of online time. To distribute a ticket for extended use time, see page 99.
- The remaining online time permitted can be queried on any network device with restricted online time; see page 99.

Example

You have three children, all of whom use various devices that access the internet via the FRITZ!Box. You would like to restrict your children's use of the internet as follows:

- Their daily time online is to be restricted to a few hours.
- Access to websites with adult content is to be blocked.

With parental controls you can restrict the internet use of each child individually.

Requirements

- The FRITZ!Box establishes its own connection to the internet. If the FRITZ!Box is configured as an IP client that uses the internet connection of another router, you must use the parental controls set on the other router.

Instructions: Configuring Parental Controls for a Network Device

1. Open the user interface; see page 56.
2. Click on **Internet > Filter** in the menu and then on the **Access Profiles** tab.
3. If there is no access profile with the restrictions you want, then create an access profile:
   – For instructions, open the online help ?.
4. Click on **Internet > Filter** in the menu and then on the **Parental Controls** tab.
5. Click on **Change Access Profiles**.
6. Assign to the network device the access profile with the desired restrictions:
   – For instructions, open the online help ?.

Instructions: Blocking a Device

1. Open the user interface; see page 56.
2. Click on **Internet > Filter** in the menu and then on the **Parental Controls** tab.
3. Select the network device in the device overview and click on the **Block** link.

Internet access is blocked for this network device. It is no longer possible to access the internet from this device.

Instructions: Distributing a Ticket for Extended Use Time

1. Open the user interface; see page 56.
2. Click on **Internet > Filter** in the menu and then on the **Access Profiles** tab.

   In the **Tickets for Additional Online Time** area, a table with 10 tickets is displayed.
3. Distribute the tickets by printing them out:
   - Click on **Print Tickets**.
   - › The 10 tickets are shown in the **Tickets for Online Access** window.
   - Print out the tickets and distribute them to the users of the network devices whose online time is to be extended.
4. If you want to distribute only one single ticket, then click on **Share Ticket**.

   A ticket is saved to the clipboard and can be sent to the user of a network device however you like. In the drop-down list of tickets, that ticket is displayed crossed out and gray.

Instructions: Querying Remaining Online Time

1. Open a browser on the network device for which the remaining online time is to be queried.
2. Enter **fritz.box** in the address bar of the browser.

   The time remaining before the permitted online time has been exhausted is shown in the **Parental Controls** window. If the user has a ticket to extend online time, it can be redeemed here.

Creating and Assigning Access Profiles

Overview

In an access profile you can enter the time and content restrictions for internet use. The devices in the network can have different access profiles. An access profile can be assigned to one or multiple network devices. A network device then accesses the internet exactly as specified in the access profile.

Access Profile: Definition

An access profile is a provision that describes exactly what is allowed during internet use. An access profile takes into consideration three aspects of internet use:

Aspect	Description
Time limit	With time limits you can define when and for how long internet use is permitted each day.
Filters for websites	With the filter lists you can specify which websites are allowed to be accessed.
Blocked network applications	With the list of blocked network applications you specify which network applications are allowed to communicate over the internet. This list can contain, for instance, file sharing programs or chat software.

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.

Preconfigured Access Profiles

Name	Properties
Standard	• Set by default to unrestricted use • Automatic access profile for network devices registering with the home network for the first time • Can be changed
Guest	• Automatic, exclusive access profile for network devices registering with the guest network • Can be changed
Unrestricted	• Unrestricted internet use • Cannot be changed

Instructions: Creating an Access Profile

1. Open the user interface; see page 56.
2. Click on **Internet > Filter** in the menu and then on the **Access Profiles** tab.
3. For instructions, open the online help ?.

Instructions: Assigning an Access Profile

1. Open the user interface; see page 56.
2. Click on **Internet > Filter** in the menu and then on the **Parental Controls** tab.
3. For instructions, open the online help ?.

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 can enter websites in these lists. These lists can then be used as filters in the access profiles.

Types of Filter Lists

There are different types of filter lists in the FRITZ!Box. The lists work in the following way:

Filter List	Function and Use
Permitted Websites	• You can edit this list yourself. • This list can then be used in the access profiles. • This list only affects devices that use an access profile which uses this list. • Access is allowed to websites included in this list. • Use the permitted websites list if most websites are to be blocked and only a few are permitted.
Blocked Websites	• You can edit this list yourself. • This list can then be used in the access profiles. • This list only affects devices that use an access profile which uses this list. • Access is blocked to websites included in this list. • Use the blocked websites list if most websites are to be permitted and only a few are to be blocked.

Filter List	Function and Use
Permitted IP Addresses	• The entries in this list are created automatically. • This list only affects devices that use an access profile which uses the **Blocked Websites** list. • When websites from this list of blocked websites are opened with your IP address, these IP addresses are automatically registered in the **Permitted Websites** list. • The IP addresses can be released individually in the **Permitted IP Addresses** list to allow direct access to these IP addresses.
IP Block List	IP addresses that are entered in the IP block list cannot establish a connection to the FRITZ!Box. With the IP block list you can block incoming connections from specific IP addresses.

Requirements

- The FRITZ!Box establishes its own connection to the internet. If the FRITZ!Box is configured as an IP client that uses the internet connection of another router, you must use the filter functions set on the other router.

Instructions: Editing Filter Lists

1. Open the user interface; see page 56.
2. Click on **Internet > Filter** in the menu and then on the **Lists** tab.
3. For instructions, open the online help ?.

Configuring Priorities for Internet Use

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 fast reaction times (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, which 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

1. Open the user interface; see page 56.
2. Click on **Internet > Filter > Prioritization** in the menu.
3. For instructions, open the online help ?.

Configuring 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 to other internet users.

Port Sharing

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

Port Sharing on Protocols

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

Protocol	Internet protocol	Explanation
PING	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 forwarding rules for each computer in the home network since each computer has its own globally valid IPv6 address.
TCP UDP	IPv4	Within IPv4 networks you can open the FRITZ!Box firewall for the TCP and UDP protocols when entering the port range. One port can be opened for exactly one computer.

Protocol	Internet protocol	Explanation
	IPv6	Within IPv6 networks you can open the FRITZ!Box firewall for the TCP and UDP protocols 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

1. Open the user interface; see page 56.
2. Click on **Internet > Permit Access** in the menu and then on the **Port Sharing** tab.
3. For instructions, open the online help ?.

Enabling Dynamic DNS

Overview

Every time the internet connection is interrupted, the internet service provider reassigns 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 when 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!, see page 242.

Requirements

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

Instructions: Enabling Dynamic DNS

1. Open the user interface; see page 56.
2. Click on **Internet > Permit Access** in the menu and then on the **DynDNS** tab.
3. For instructions, open the online help ?.

Remote Access to the FRITZ!Box

Overview

You can also access the FRITZ!Box user interface via the internet from on the go, and make settings in the FRITZ!Box userface with a laptop, smartphone, or tablet.

For access via the internet, enable the HTTPS, FTP or FTPS protocol in the FRITZ!Box.

HTTPS, FTP and FTPS

With the HTTPS, FTP and FTPS protocols, you have various possibilities for accessing the FRITZ!Box via the internet.

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

- For access to the user interface: In the FRITZ!Box at least one FRITZ!Box user has been configured with access rights from the internet.
- To change FRITZ!Box settings that require additional confirmation (two-factor authentication): An authenticator app has been configured for the user with access rights from the internet. Instructions are presented in the online help of the FRITZ!Box user interface.

  Additional confirmation is required to save or perform security-relevant settings and functions.
- For access to storage: In the FRITZ!Box at least one FRITZ!Box user has been configured with access rights from the internet and the right to access the available storage media.

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

1. Open the user interface; see page 56.
2. Click on **Internet > Permit Access** in the menu and then on the **FRITZ!Box Services** tab.
3. For instructions, open the online help ?.

Configuring VPN

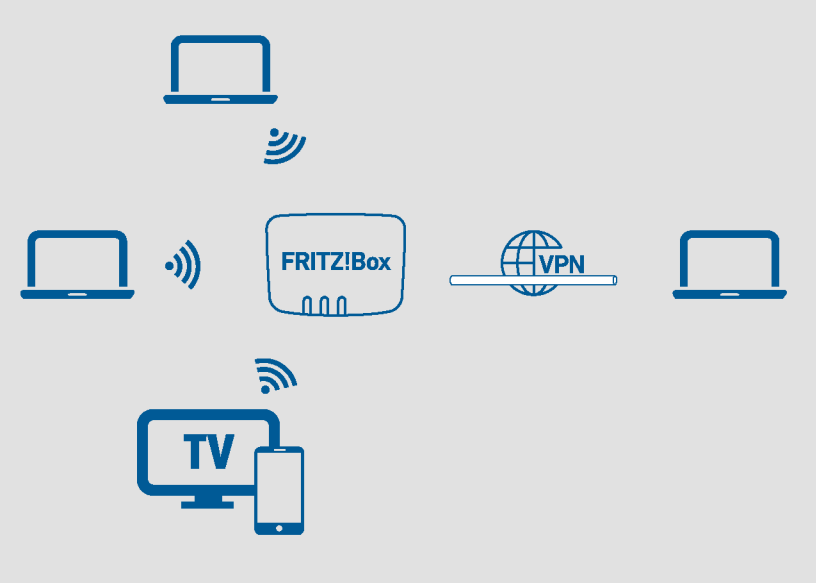
Overview

With a VPN (Virtual Private Network) it is possible to establish bug-proof encrypted connections over the internet. You can also establish VPN remote connections to your FRITZ!Box and the devices in your home network. You can connect individual devices like smartphones, tablets, or computers with the FRITZ!Box over VPN. You can also connect two FRITZ!Box home networks at different locations over one VPN.

The FRITZ!Box supports two VPN solutions:

- IPSec
- WireGuard

Example Configuration



VPN Service Portal

Additional information on VPN with the FRITZ!Box is presented under en.avm.de/vpn on the AVM website.

VPN with MyFRITZ!App for Android Devices

On smartphones and tablets with Android, it is easy to establish IPSec VPN connections to your FRITZ!Box with the MyFRITZ!App.

1. Install the MyFRITZ!App on your smartphone or tablet.
2. Log in to your FRITZ!Box.
3. Configure the VPN connection in the MyFRITZ!App settings with just one click.

Once the VPN connection is configured, you can establish a VPN connection to your FRITZ!Box at any time from anywhere with the MyFRITZ!App.

As soon as the VPN connection is established, the following apply:

- In the MyFRITZ!App you can click on a link to access your FRITZ!Box and other devices that have their own web interface, for example a NAS system.
- All of your Android device's internet communication takes place over the VPN connection.

Connecting Individual Devices with the FRITZ!Box via VPN

You can configure VPN connections in the FRITZ!Box for smartphones, tablets, and computers. The table below provides an overview of the VPN solutions in the different operating systems.

Operating system	Establish an IPSec VPN connection	Establish a WireGuard VPN connection
Android	You can establish the VPN connections using the solution included in the operating system without additional software.	You need the WireGuard app to establish VPN connections.
iOS		
macOS		You need the WireGuard software to establish VPN connections.
Linux		
Windows 10 / 8 / 7	You need additional software to establish IPSec VPN connections. You can use the FRITZ!VPN software. You can download FRITZ!VPN free of charge from the AVM website: en.avm.de/vpn	You need the WireGuard software to establish VPN connections.
Windows 11		You need the WireGuard software to establish VPN connections.

Connecting FRITZ!Box Home Networks via VPN (LAN-LAN Linkup)

You can connect two or more FRITZ!Box home networks via VPN with bug-free encryption. The VPN configurations listed in the table below can be configured with IPSec and with WireGuard.

VPN Configuration	Description
VPN for two or more FRITZ!Box home networks	You can connect two or more FRITZ!Box home networks at different locations with each other via VPN (LAN-LAN linkup). From any home network you can access the devices in the other home networks and use all of the IP-based services such as email servers, databases, and file servers at all locations.

VPN Configuration	Description
VPN between two FRITZ!Box home networks for individual LAN ports	The VPN connection between two FRITZ!Box home networks can be restricted to individual LAN ports.
Configure a FRITZ!Box as a VPN client of another FRITZ!Box.	You can configure the VPN connection between two FRITZ!Box home networks so that one FRITZ!Box acts as a VPN client of the other FRITZ!Box. In such a configuration, devices in the home network of the FRITZ!Box configured as a VPN server can only be reached from the home network of the FRITZ!Box configured as a VPN client. It is not possible for devices in the home network of the VPN server to access devices in the VPN client's home network.

Connecting a FRITZ!Box with a Company VPN Network

With IPSec you can configure a VPN that connects your FRITZ!Box home network with the VPN server at your company. In this case the FRITZ!Box is configured as a VPN client. Over this VPN connection you can access devices and data in the company's network from the home network of the FRITZ!Box. It is not possible to access devices in your home network from the company network.

The IPSec algorithms listed below must be applied in the company VPN.

The FRITZ!Box supports VPN connections according to the IPsec standard with ESP, IKEv1, and pre-shared keys. Authentication Header (AH) and Perfect Forward Security (PFS) are not supported.

- Supported IPSec algorithms for IKE phase 1:
  - Encryption method: AES with 256, 192, 128 bit, Triple DES with 168 bit or DES with 56 bit
  - Hash algorithms: SHA2-512, SHA1 or MD5-96

  - The FRITZ!Box uses 1024-bit Diffie-Hellman initial key exchange (DH group 2). It then also accepts 768, 1536, 2048 and 3072 bit (DH groups 1, 5, 14, and 15).
- Supported IPSec algorithms for IKE phase 2:
  - Encryption method: AES with 256, 192, 128 bit, Triple DES with 168 bit or DES with 56 bit
  - Hash algorithms: SHA2-512, SHA1 or MD5-96
  - The Diffie-Hellman group is determined by IKE phase 1
  - Compression: None

Connecting FRITZ!Box with a VPN Provider

With WireGuard, you can use your FRITZ!Box to establish a VPN connection to an internet anonymization service (VPN provider). You can specify whether all or only some of your devices in the home network can access the internet via the VPN provider. The VPN provider must support WireGuard.

IPv4 and IPv6 Network Traffic over VPN

The FRITZ!Box can establish VPN connections over both IPv4 and IPv6. This means that VPN connections can also be established if the FRITZ!Box is operated on an internet connection with Dual-Stack Lite (DS-Lite).

However, the FRITZ!Box can only transmit IPv4 data within the VPN tunnel. It is not possible to access IPv6 web services or devices in the remote network over the VPN connection if they are only available via IPv6.

Maximum Number of Simultaneous VPN Connections to the FRITZ!Box

In the FRITZ!Box you can configure several VPN connections and use them at the same time. It does not matter whether the connections are IPSec or WireGuard connections, connections from a computer or smartphone, connections to another FRITZ!Box or a company VPN.

Theoretically the maximum number of VPN connections that can be configured in the FRITZ!Box is unlimited. However, IPSec connections can only be configured for up to 20 FRITZ!Box users.

The maximum number of VPN connections that can be used at the same time depends on the speed and current utilization of the internet connection, the VPN technologies being used, and the utilization of the FRITZ!Box. We recommend using no more than 10 to 20 VPN connections at the same time.

Instructions: Configuring VPN in the FRITZ!Box

1. Open the user interface; see page 56.
2. Click on **Internet > Permit Access** in the menu.
3. If you would like to configure a VPN connection with IPSec, click on **VPN (IPSec)**.
4. If you would like to configure a VPN connection with WireGuard, click on **VPN (WireGuard)**.
5. For instructions, open the online help ?.

Configuring IPv6

Overview

IPv6 stands for internet protocol version 6. This is the successor protocol to IPv4. IPv6 is more powerful, and has more addresses and better security properties than IPv4.

The FRITZ!Box supports IPv6 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 Wi-Fi network, the home network and Wi-Fi 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 unsolicited 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 or namemaster.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 since Mac OS X 10).

Instructions: Configuring IPv6 in the FRITZ!Box

1. Open the user interface; see page 56.
2. Click in the menu on **Internet > Account Information** and on the **IPv6** tab.
3. For instructions, open the online help ?.

Configuring the FRITZ!Box as a LISP Router

Overview

LISP stands for Locator/Identifier Separation Protocol. LISP is a routing architecture which separates information about location and identity: there is one IP address for the location and one for the identity. The FRITZ!Box can be configured as a LISP router.

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

Requirements

- You are registered with a LISP provider.

Instructions: Configuring the FRITZ!Box as a LISP Router

1. Open the user interface; see page 56.
2. Click in the menu on **Internet > Account Information** and on the **LISP** tab.
3. For instructions, open the online help ?.

User Interface: Telephony Menu

Configuring and Using the Telephone Book

Overview

You can set up various telephone books in the FRITZ!Box. Which telephone book features are available 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 menu of the telephone • Quick-dial numbers • Click to Dial
FRITZ!App Fon	Telephone book available in FRITZ!App Fon
IP telephone	FRITZ!Box telephone book not available
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	You can set up the following contacts as an online telephone book:
	Google Contacts
	iCloud contacts (Apple)
	Contacts from email accounts with 1&1, GMX, WEB.DE, and Telekom (Telekom Mail)
	Contacts in CardDAV format
	Once an online telephone book has been configured, its contacts are available on your FRITZ!Fon cordless telephones. The online telephone book is synchronized with your contacts 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 the FRITZ!Box

1. Open the user interface; see page 56.
2. Click in the menu on **Telephony > Telephone Book** and on the **Telephone Book** tab.
3. For instructions, open the online help ?.

Instructions: Enabling and Using “Click to Dial”

With "Click to Dial" you can establish calls from the call list or the telephone book.

1. Open the user interface; see page 56.
2. Click on **Telephony > Telephone Book** in the menu and then on the **Click to Dial** tab.

3. For instructions, open the online help ?.

Configuring and Using the Answering Machine

Overview

You can configure up to five answering machines in the FRITZ!Box, including multiple answering machines for the same telephone number.

Features

- If desired, you can receive any new messages automatically by email.
- With a schedule you can define times to switch on and off on different days of the week.
- With remote playback you can check answering machines from on the go.

Example 1

You have one telephone number for personal contacts and a second telephone number for business contacts. You can set up a separate answering machine for each telephone number.

Example 2

You use the answering machine in the office and the answering machine should record messages at all times. However, callers should hear a different message during office hours than outside of business hours.

For this you can set up two answering machines with different messages for the office telephone numbers. Configure the schedules such that the answering machines are never enabled at the same time.

Instructions: Configuring Answering Machines

1. Open the user interface; see page 56.
2. Click on **Telephony > Answering Machine** in the menu.

3. For instructions, open the online help ?.

Operating the Answering Machine with Devices in the Home Network

You can operate the answering machine with the following devices:

- With your FRITZ!Fon. Instructions are presented in the current FRITZ!Fon manual on en.avm.de/service/manuals.
- By voice menu using any connected telephone. Instructions are included in this manual: see page 263.
- By pressing a button on your FRITZ!DECT 440. Instructions for configuring the buttons are presented in the current FRITZ!DECT manual on en.avm.de/service/manuals.

Picking Up a Call from the Answering Machine on the Telephone

Calls that have already been accepted by the answering machine can be picked up on your telephone. For more information, see page 265.

Instructions: Listening to Answering Machines via Remote Playback

If you enabled remote playback in the configuration of the answering machine, then you can listen to an enabled answering machine from on the go:

1. Call your telephone line.
2. When the answering machine answers: Press the * (star) key on the telephone and then enter the remote playback PIN.
3. Follow the voice menu.

Using the Fax Function

Overview

With the FRITZ!Box you can send and receive faxes. The FRITZ!Box can forward received faxes to your email address. Send the fax from the user interface. A graphic file in JPG or PNG format can be appended to any fax transmission.

Maximum Fax Length

A maximum of ten A4 pages can be transmitted as a fax. If you append a graphics file, page 10 is reserved for the graphics.

Instructions: Configuring the Fax Function

1. Open the user interface; see page 56.
2. Click on **Telephony > Telephony Devices** in the menu.
3. For instructions, open the online help ?.

Instructions: Sending Faxes

1. Open the user interface; see page 56.
2. Click on **Telephony > Fax** in the menu.
3. For instructions, open the online help ?.

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 contact in the telephone book
- all calls from telephone numbers not included 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

1. Open the user interface; see page 56.
2. Click on **Telephony > Call Handling** in the menu and then on the **Call Diversion** tab.

3. For instructions, open the online help ?.

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 to certain telephone numbers or in certain ranges of telephone numbers	Blocked telephone numbers can no longer be called from the FRITZ!Box You can also block ranges of telephone numbers like mobile networks or all telephone numbers that begin with 0180.
Incoming calls from certain telephone numbers or certain ranges of telephone numbers	The FRITZ!Box does not accept calls from blocked telephone numbers. Call blocks for incoming calls only work when the caller transmits their telephone number.
Calls from telephone numbers not in the telephone book	You can block all telephone numbers that are not entered in a FRITZ!Box telephone book. The telephone book is then your positive list for telephone numbers: You can only be reached by contacts from a FRITZ!Box telephone book.
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.

You can also configure a call block for the range of **premium numbers** and further prevent the dialing of telephone numbers that start with 0190, 0180, 0137, or 0138.

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

1. Open the user interface; see page 56.
2. Click on **Telephony > Call Handling** in the menu and then on the **Call Blocks** tab.
3. For instructions, open the online help ?.

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/Wi-Fi).

Example

You do not want your telephone to ring between 11 p.m. and 6 a.m.

Instructions: Setting Up Do Not Disturb

1. Open the user interface; see page 56.
2. Click on **Telephony > Telephony Devices** in the menu.
3. Click on the **Edit** button  for the desired telephone.
4. Switch to the **Do Not Disturb** tab.
5. For instructions, open the online help  .

Setting an Alarm

Overview

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

Example

You would like your telephone to wake you at 6:30 every morning.

Instructions: Configuring an Alarm

1. Open the user interface; see page 56.
2. Click on **Telephony > Alarm** in the menu.
3. For instructions, open the online help ?.

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 to a certain range of numbers, for instance to mobile networks or to foreign countries.

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

1. Open the user interface; see page 56.
2. Click on **Telephony > Call Handling** in the menu and then on the **Dialing Rules** tab.
3. For instructions, open the online help ?.

Enabling DECT Eco

Overview

With the following settings you can reduce the radiation of DECT emissions:

- Reduce DECT field strength: Enable this setting only if you use all DECT devices in the vicinity of the FRITZ!Box. Reducing the field strength reduces the range of the DECT radio network.
- DECT Eco: When DECT Eco is enabled, the FRITZ!Box switches off the DECT radio network when all cordless telephones are in standby mode. The radio network is switched back on when a call arrives or you press a key on a cordless telephone.

You can enable these settings individually or at the same time.

Requirements

- All registered cordless telephones support DECT Eco: Under **Telephony > DECT > Monitor** in the FRITZ!Box user interface, **DECT Eco supported** is displayed for each telephone.
- The following devices are not registered with the FRITZ!Box: FRITZ!DECT devices with a smart plug, FRITZ!DECT Repeaters, another FRITZ!Box in DECT repeater mode.

Instructions: Reducing DECT Transmission Power

1. Open the user interface; see page 56.
2. Click on **Telephony > DECT** in the menu and then on the **Base Station** tab.
3. Enable the **Reduce DECT field strength** checkbox.
4. Save your settings by clicking on **Apply**.

Instructions: Enabling DECT Eco

1. Open the user interface; see page 56.

2. Click on **Telephony > DECT** in the menu and then on the **Base Station** tab.
3. Enable the checkbox **DECT Eco**.
4. Select whether DECT Eco should always be enabled, or define times when DECT Eco should be switched on and off.
5. Save your settings by clicking on **Apply**.

Allowing Non-Encrypted DECT Connections

Overview

Some DECT repeaters from other manufacturers do not support encrypted connections. For operation of such DECT repeaters you can allow non-encrypted DECT connections.

In the default settings, the FRITZ!Box allows only authenticated and encrypted DECT connections.

Please Note

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

- Registration of a FRITZ!DECT Repeater or FRITZ!Box in DECT repeater mode
- DECT Eco
- HD telephony
- With FRITZ!Fon: ring tones of your own, web radio, podcasts, background image, photos of callers, and playback of music files by the FRITZ!Box media server

Instructions: Allowing Non-Encrypted DECT Connections

1. Open the user interface; see page 56.
2. Click on **Telephony > DECT** in the menu and then on the **Base Station** tab.
3. For instructions, open the online help ?.

User Interface: Home Network Menu

Overview of All Devices

Overview

In the **Mesh Overview** you see all devices that are attached to the FRITZ!Box or connected with the network of the FRITZ!Box. The overview covers the home network and the guest network.

Home Network and Mesh Wi-Fi: Overview Diagram

An overview diagram shows all devices that are physically connected to the FRITZ!Box or connected with the FRITZ!Box via Wi-Fi. The overview diagram is a helpful tool to make the device connections transparent.

What the Diagram Shows	Details
Network devices	All devices connected with the FRITZ!Box via Wi-Fi, by network cable, via VPN or via powerline: PCs, laptops, tablets, smartphones, TVs, game consoles, wireless repeaters, powerline devices, etc.
Smart Home Devices	Radiator controls, smart plugs, controllable switches, etc.
USB devices	Storage drives, memory sticks, printers, etc.
DECT repeater	Repeaters to extend the DECT transmission range
Connection technology	The technology of the connection to the FRITZ!Box is shown for every device: • Wi-Fi, Ethernet cable, VPN, powerline: for network devices • 2.4 GHz or 5 GHz : for wireless devices • DECT: for cordless telephones, Smart Home devices and DECT repeaters • USB: for USB devices

What the Diagram Shows	Details
Connection topology	Connection path of the devices to the FRITZ!Box: direct connection or via a repeater, an access point, or a powerline device
Devices in the guest network	Devices that are connected with the FRITZ!Box via the guest network.
Update available	The Perform update >> button for FRITZ! products indicates that a new FRITZ!OS is available.
Devices in the Mesh	Mesh enabled: the **Mesh enabled** icon marks the devices that are configured as Mesh Repeaters.

Active Connections and Current Software Version

All devices shown in the **Home Network and Mesh Wi-Fi** diagram are also listed in the **Active Connections in the Home Network and Current Software Version** table.

The table offers the following functions:

Function	Description
Check FRITZ!OS version	For FRITZ! products, the **Update** column displays whether the FRITZ!OS installed on the FRITZ! device is the latest, or whether an update is available.
Perform FRITZ!OS update	If the **Update** column in the table indicates that a FRITZ!OS update is available, you can perform the update directly from the table.
Open a properties window for a device	The **Properties** column contains a **Details** link for each device. Clicking on this link opens the properties window for network devices. For other devices, it opens the settings page in the device's technology area.

Prioritize Device for Internet Access

You can prioritize network devices for internet access. Prioritized devices receive preferential treatment when they access the internet.

Properties and Actions	Description
Highest priority	• On prioritized devices, all applications that access the internet are treated as real-time applications. • When the internet connection is working at full capacity, a prioritized device receives preferential treatment. • If multiple devices are prioritized, they are prioritized equally.
Wireless repeaters and powerline devices	Prioritized wireless repeaters and powerline devices do not pass their prioritization on to the network devices that are connected with them. The prioritization must be configured on the network devices.
Adjusting prioritization	Prioritized devices and all of their applications are added to the real-time applications under **Internet > Filter > Prioritization**. There you can configure adjustments to the prioritization of the device.
Configuring prioritization	Prioritization is configured in the properties window of the device (opening a properties window; see page 142).

Editing the Properties of a Network Device

The properties of any network device can be viewed, and settings changed or reset, in the properties window of the given device.

Instructions: Opening a Properties Window for a Device

1. Open the user interface; see page 56.
2. Click on **Home Network > Network** in the menu and then on the **Network Connections** tab.
3. Select the network device in the table and click on **Edit**.

The window with the properties for the device opens.

Performing a FRITZ!OS Update in the Mesh Overview

Overview

The FRITZ!Box works with its own operating system FRITZ!OS. AVM regularly makes new versions of FRITZ!OS available for your FRITZ!Box, free of charge. Updates contain further developments and often new features.

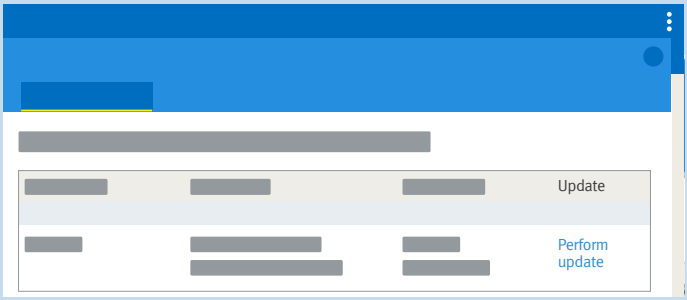
You can update the FRITZ!OS in the user interface of your FRITZ!Box, in the Mesh Overview.

Always install the latest FRITZ!OS version on all FRITZ! products in your FRITZ!Box home network. This keeps your FRITZ! products up to date and ensures optimum synchronization of all devices in your home network.

Instructions: Performing a FRITZ!OS Update in the Mesh Overview

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

1. Open the user interface; see page 56.
2. Click on **Home Network > Mesh** in the menu.
3. When a new update is available, the **Active Connections in the Home Network and Current Software Version** table displays the **Perform update** link next to the FRITZ!Box entry.



4. Start the update by clicking on **Perform update** and wait until the message **Update was successful** appears.

Managing Network Devices

Overview

In the FRITZ!Box user interface, a table listing all network connections is shown under **Home Network > Network > 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 Wi-Fi • via the internet with a VPN connection (see page 111)
Network	All network devices on the FRITZ!Box comprise a network.
Internet protocol (IP)	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 is the interface used to connect a network device with a network. This can be a wireless module for Wi-Fi connections or a network port for cabled connections.

Properties and Benefits

The table with the network connections assists you 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 Wi-Fi, or over VPN.
- Idle connections: Connections that are currently inactive are 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.
- Find devices quickly:
  - Show and hide table columns: 
  - Sort table columns: for ascending and for descending
- Adjustable connection properties: The properties window can be opened for each connection. Connection properties can be changed in the properties window.

Adding a Device

You can include in the table 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, they 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 Wi-Fi

Changing IPv4 Settings

Overview

The IPv4 settings define the IPv4 network of the FRITZ!Box. Without these settings there is no IPv4 network. In the FRITZ!Box an IPv4 network is the default setting. The preconfigured IPv4 network is identical in all FRITZ!Boxes. You can change the IPv4 settings.

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

Application Example

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 into an existing FRITZ!Box network and both FRITZBoxes are operating in router mode (cascaded).

In both cases the FRITZ!Boxes involved cannot have identical IPv4 networks.

IPv4 Factory Settings

The following values are preconfigured in the FRITZ!Box:

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

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

How to use the emergency IPv4 address: see page 283.

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

1. Open the user interface; see page 56.
2. Click on **Home Network > Network > Network Settings** in the menu.
3. For instructions, open the online help ?.

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. Either a network device receives its IPv4 address automatically from the DHCP server of the FRITZ!Box, or you enter the IP address 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	Requirement
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
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

Kind of Change	Requirement
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

Please Note

- 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** option must be enabled in the IPv4 settings of the network devices; see page 157.

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 Assign the Same IPv4 Address

You can specify that the DHCP server always assign the same IPv4 address to network devices. This option can be enabled under **Home Network > 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 **IPv6 support enabled** setting is enabled under **Internet > Account Information > IPv6** in the FRITZ!Box user interface.

Factory Settings

The following IPv6 settings are configured in the FRITZ!Box upon delivery:

IPv6 Property	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 the 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

1. Open the user interface; see page 56.

2. Click on **Home Network > Network** in the menu and then on the tab **Network Settings**.

3. For instructions, open the online help ?.

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 Example

Static IP routes are intended for situations in which all three of the points below apply:

- 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 located in the subnet, it forwards the packet to the internet. To prevent this from happening and have the packets forwarded to the subnet instead, 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.

Instructions: Configuring a Static IPv4 Route

1. Open the user interface; see page 56.
2. Click on **Home Network > Network** in the menu and then on the **Network Settings** tab.
3. In the **Static Routing Table** area, click on **IPv4 Routes**.
4. For instructions, open the online help ?.

Instructions: Configuring a Static IPv6 Route

1. Open the user interface; see page 56.
2. Click on **Home Network > Network** in the menu and then on the **Network Settings** tab.
3. Click on **Additional Settings**.
4. Click under **Table for Static Routes** on **IPv6 Routes**.
5. For instructions, open the online help ?.

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. Click on **Start** in Windows 11 and Windows 10.
2. Enter **ncpa.cpl** in the search field and press Enter.
3. Click with the right mouse button on the network connection between the computer and the FRITZ!Box and select **Properties**.
4. Under **This connection uses the following items**, select **Internet Protocol Version 4 (TCP/IPv4)**.
5. Click on the **Properties** button.
6. On the "General" tab, enable the options **Obtain an IP address automatically** and **Obtain DNS server address automatically**.
7. Save with **OK**.
8. Enable the options **Obtain an IP address automatically** and **Obtain DNS server address automatically** for the internet protocol version 6 (TCP/IPv6) as well.

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

Obtaining an IP Address Automatically in macOS

1. Click on **System Settings** in the **Apple** menu.
2. In the **System Preferences** window, click on **Network**.
3. In the **Network** window, click on **Ethernet (integrated)** in the **Show:** menu.
4. Switch to the **TCP/IP** tab and click on **DHCP** in the **Configure IPv4** menu.
5. Click on **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 the **WAN** Connection Socket

Overview

The **WAN** connection socket can be configured and used as a WAN port or as a LAN port.

Functions of the **WAN** Connection Socket

Configuration	Function
WAN port	**WAN** is the factory setting. The socket functions as a WAN port. This setting is necessary if the FRITZ!Box is connected to an access device in order to connect to the internet and works as a router. This is the case when: • The FRITZ!Box is connected to a modem. • The FRITZ!Box is connected to a router. The FRITZ!Box works as a router and generates its own local network.
LAN Port	When the **LAN** setting is selected, the socket functions as a LAN port. This setting is necessary in the following cases: • Network devices are connected to the **WAN** socket. • The FRITZ!Box is operated via the **WAN** socket as an IP client on a router.

Instructions: Configuring the **WAN** Connection Socket

1. Open the user interface; see page 56.
2. Click on **Home Network > Network** in the menu and then on the **Network Settings** tab.
3. Scroll to the **WAN Setting** area.
4. Select the WAN setting you need.
5. Save your settings by clicking on **Apply**.

Configuring LAN Guest Access

Overview

With a LAN guest access you can provide houseguests with an internet connection of their own via network cable (LAN cable). A guest access is designed for temporary use by your guests. A guest access can also be made available wirelessly via Wi-Fi.

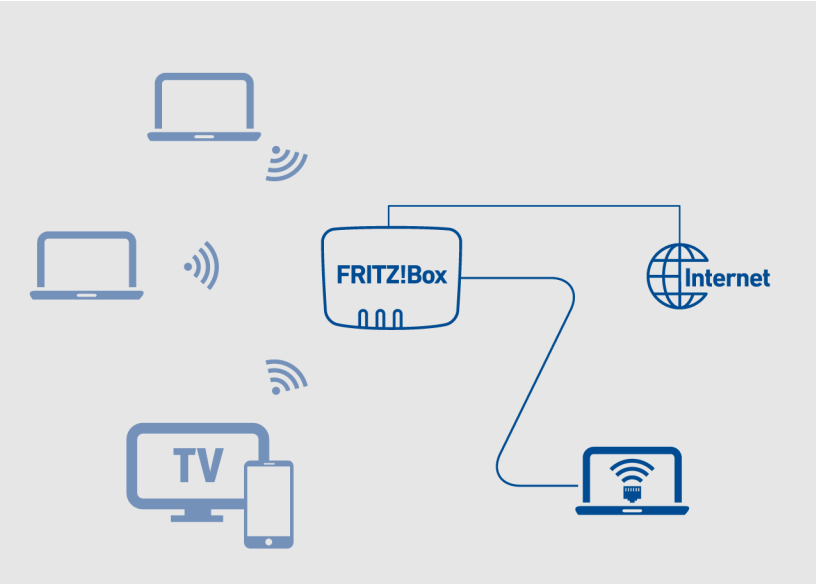
The **Guest** Access Profile

Only the **Guest** access profile can be used at the LAN guest access. You can edit the **Guest** access profile in the **Internet > Filter > Access Profiles** menu.

The preconfigured **Guest** profile defines the following for the guest access:

Allowed/Not Allowed	Activities
Allowed	• Surfing the web (according to the filters specified in the **Permitted websites** list or the **Blocked websites** list) • Sending and receiving email
Not allowed	• Accessing contents of the home network • Changing the settings of the FRITZ!Box

Example Configuration



Requirements

- The FRITZ!Box establishes its own connection to the internet. It is not configured as an IP client.
- You have a network cable.

Instructions: Configuring LAN Guest Access

1. Open the user interface; see page 56.
2. Click on **Home Network > Network** in the menu and then on the **Network Settings** tab.
3. For instructions, open the online help ?.

Configuring Wake on LAN

Overview

Wake on LAN is a function that allows a computer to be started from the internet via network adapter. Wake on LAN can be used with remote maintenance software, to eliminate the need to keep 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.
- Your computer is connected with the FRITZ!Box in one of the following ways:
  - 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

1. Open the user interface; see page 56.
2. Click on **Home Network > Network** in the menu and then on the **Network Connections** tab.
3. Select the network devices in the list and click on **Edit**.
4. For instructions, open the online help.

Using USB Storage and USB Devices on the FRITZ!Box

Overview

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

Supported USB Devices

The following USB devices can be operated on FRITZ!Box as network devices:

- USB storage formatted for EXT2/3/4, FAT, FAT32, exFAT or NTFS
  - flash drives
  - external hard drives
  - card readers
- USB printers, USB all-in-one printers, USB scanners
- USB mobile network modems
  - Android smartphones (USB tethering)
  - USB mobile network dongles
- USB hubs

Please Note

- USB devices with power consumption of no more than 900 mA can be connected directly to the FRITZ!Box. If the power consumption of the USB device is higher, connect the device to the FRITZ!Box via an active USB hub.
- Do not perform any updates for USB devices that are connected with the computer via the FRITZ!Box USB remote connection.
- The FRITZ!Box cannot protect itself from voltage peaks and drops during an electrical storm, which can result in data losses on USB storage media. You should back up the contents of your USB storage media on a regular basis.

- Place USB hard drives far away from the FRITZ!Box in order to prevent interference with Wi-Fi transmission.

Configuring USB Storage Media as Network Storage

Overview

You can connect USB storage media to the FRITZ!Box and make them available as network storage. Connected USB storage media are also available for FRITZ!NAS; see page 236.

Instructions: Configuring USB Storage Media on the FRITZ!Box

1. Connect a USB storage medium to a USB port on the FRITZ!Box.
2. Open the user interface; see page 56.
3. Click on **Home Network > USB / Storage** in the menu and on the **Device Overview** tab.
4. For instructions, open the online help ?.

Integrating USB Storage in the Computer as a Network Drive

Overview

You can integrate the USB storage media on the FRITZ!Box as a network drive in the file manager of a computer in the home network. The storage then receives a drive letter and can be used on the computer just like a local drive or a USB storage medium connected directly to the computer, for instance in the Windows Explorer or macOS Finder.

Configure the USB storage media as a network drive by performing the following steps:

	Instructions
	Configure the USB storage medium for network access in the FRITZ!Box user interface.
	Integrate the USB storage medium into the computer as a network drive.

Requirements

- To use USB storage media on the FRITZ!Box: The **USB remote connection** is disabled for USB storage media.
- A FRITZ!Box user with **Access to NAS contents** rights is configured.

Instructions: Configuring USB Storage for Network Access

1. Open the user interface; see page 56.
2. Click on **Home Network > USB / Storage** in the menu and on the **Device Overview** tab.
3. Enable **Storage (NAS) function of [FRITZ!Box name] enabled**.

   The available storage media are displayed (internal FRITZ!Box storage, USB storage media and/or cloud storage).

4. Scroll down to **Home Network Sharing** and enable **Access via network drive (SMB) enabled**.

   Access with SMBv2 and SMBv3 is enabled.
   For older devices that do not support SMBv2/v3, you can also **Enable support for SMBv1**.

5. Accept the name **FRITZ.NAS** as the name for sharing, or enter a different name.

   The name for sharing will be displayed in file managers like Windows Explorer or macOS Finder.

6. Accept the name **WORKGROUP** for the workgroup.

   WORKGROUP is the default name for workgroups in computer operating systems. All computers that are to be able to access the USB storage must be located in the same workgroup.
   If you assigned a name of your own for the workgroup, enter this name here.

7. Save your settings by clicking on **Apply**.

Instructions: Integrating USB Storage as a Network Drive (Windows 11)

1. Enter **\\fritz.box** in the search box in the Windows taskbar and press Enter.

   If the FRITZ!Box is configured as a Mesh Repeater or an IP client: Enter the IP address at which the FRITZ!Box can be reached in the home network, for example **\\192.168.178.20**.
   The IP address is displayed in the FRITZ!Box user interface in the **Home Network > Network** menu on the **Network Connections** tab.

2. If you are prompted to enter account information: Enter the name and the password of a FRITZ!Box user who has the **Access to NAS contents** right.

   User notifications can be adjusted under **System > FRITZ!Box Users** in the FRITZ!Box user interface.

3. Enable **Remember my credentials** and click on **OK**.

   The folder called **FRITZ!NAS** or the name you assigned it is displayed in the Windows Explorer.

4. if you want to configure the entire FRITZ!Box storage as a network drive:

   – Right-click on the **FRITZ!NAS** folder and click in the context menu on **Show more options** and then on **Map Network Drive...**.

   – From the drop-down list, select a free drive letter and click on **Finish**.

     Leave the **Reconnect at login** setting enabled to keep the network drive mapped permanently.

   The internal FRITZ!Box storage and the connected USB data storage are connected as network drive **FRITZ.NAS**.

5. If you only want to set up a specific data medium (USB memory or internal FRITZ!Box memory) or a subfolder as a network drive:

   – Click on **This PC** in the navigation area of the Windows Explorer.

   – In the menu bar, click on the three-dot menu and then on **Map Network Drive...**.

   – In the **Folder** field, enter the path to the data storage you want to connect as a network drive.

     Example: To connect a connected USB storage device named **Backup** as a network drive, enter **\\fritz.box\FRITZ.NAS\Backup**.

     You can also find the path to the data storage by clicking on **Browse**.

   – From the drop-down list, select a free drive letter and click on **Finish**.

     Leave the **Reconnect at login** setting enabled to keep the network drive mapped permanently.

   The desired storage or subfolder is mounted as a network drive with the volume name.

The data storage or subfolder is now displayed in Windows Explorer as a folder with the drive letter you selected.

Instructions: Integrating USB Storage as a Network Drive (Windows 10)

1. Enter **\\fritz.box** in the search box in the Windows taskbar and press Enter.
   If the FRITZ!Box is configured as a Mesh Repeater or an IP client: Enter the IP address at which the FRITZ!Box can be reached in the home network, for example **\\192.168.178.20**.
   The IP address is displayed in the FRITZ!Box user interface in the **Home Network > Network** menu on the **Network Connections** tab.
2. If you are prompted to enter account information: Enter the name and the password of a FRITZ!Box user who has **Access to NAS contents** rights.
   User notifications can be adjusted under **System > FRITZ!Box Users** in the FRITZ!Box user interface.
3. Enable **Remember my credentials** and click on **OK**.
   The folder called **FRITZ!NAS** or the name you assigned it is displayed in the Windows Explorer.
4. if you want to configure the entire FRITZ!Box storage as a network drive:
   - Right-click on the **FRITZ!NAS** folder and click in the context menu on **Map Network Drive...**.
   - From the drop-down list, select a free drive letter and click on **Finish**.
     Leave the **Reconnect at login** setting enabled to keep the network drive mapped permanently.

   The internal FRITZ!Box storage and the connected USB data storage are connected as network drive **FRITZ.NAS**.
5. If you only want to set up a specific data medium (USB memory or internal FRITZ!Box memory) or a subfolder as a network drive:
   - Click on **This PC** in the navigation area of the Windows Explorer.
   - In the menu bar, click on **Computer** and then on **Map Network Drive**.

- In the **Folder** field, enter the path to the data storage you want to connect as a network drive.
  Example: To connect a connected USB storage device named **Backup** as a network drive, enter **\\fritz.box\FRITZ.NAS\Backup**.
- From the drop-down list, select a free drive letter and click on **Finish**.
  Leave the **Reconnect at login** setting enabled to keep the network drive mapped permanently.

The desired storage or subfolder is mounted as a network drive with the volume name.

The data storage or subfolder is now displayed in Windows Explorer as a folder with the drive letter you selected.

Instructions: Integrating FRITZ!Box Storage as a Network Drive (macOS)

1. Click on the Finder icon with the right mouse button to open the context menu of the macOS Finder.
2. Click on **Connect to Server...**.
3. Enter the following address in the **Server Address:** field: **smb://fritz.box**.
   If the FRITZ!Box is configured as a Mesh Repeater or an IP client: Enter the IP address at which the FRITZ!Box can be reached in the home network, for example **smb://192.168.178.20**.
   The IP address is displayed in the FRITZ!Box user interface in the **Home Network > Network** menu on the **Network Connections** tab.
4. Click on **Connect**.
5. If you are prompted to enter account information: Enter the name and the password of a FRITZ!Box user who has **Access to NAS contents** rights.
   The folder called FRITZ.NAS or the name you assigned it is displayed in the Finder.
6. Double-click on the folder.

7. Select the folder you want to permanently add to the Finder.
8. Select **Make Alias** from the Finder **File** menu.
9. Drag the new alias to the **Favorites** area in the Finder.

The folder is now displayed in the Finder under **SHARED**.

Configuring Online Storage (Cloud Storage) in the FRITZ!Box

Overview

Cloud storage is memory in the internet, in which you can save photos, music and other data. You can access the data in cloud storage from anywhere via the internet. Cloud storage is generally made available by storage service providers. You can configure your cloud storage in the FRITZ!Box. Then data are always available in both the internet and in the home network.

Please Note

- The access information for the cloud storage is stored in the FRITZ!Box.
- When data are saved to cloud storage, the data are cached on a USB storage medium connected to the FRITZ!Box. This way uploads of large amounts of data are possible even when the computer is switched off.
- You can then use the cloud storage like a local drive on the computers in the home network. Then you can access the cloud storage in the Windows Explorer or macOS Finder; see page 239.

Requirements

- A USB storage device is connected to the FRITZ!Box. The storage space available on the USB storage device must equal at least the volume of data to be copied to or from cloud storage (cache).
- The cloud storage supports access via the WebDAV protocol.
- A FRITZ!Box user with **Access to NAS contents** rights is configured; see page 211.

Instructions: Configuring Online Storage (Cloud Storage)

1. Open the user interface; see page 56.

2. Click on **Home Network > USB / Storage** in the menu and on the **Device Overview** tab.

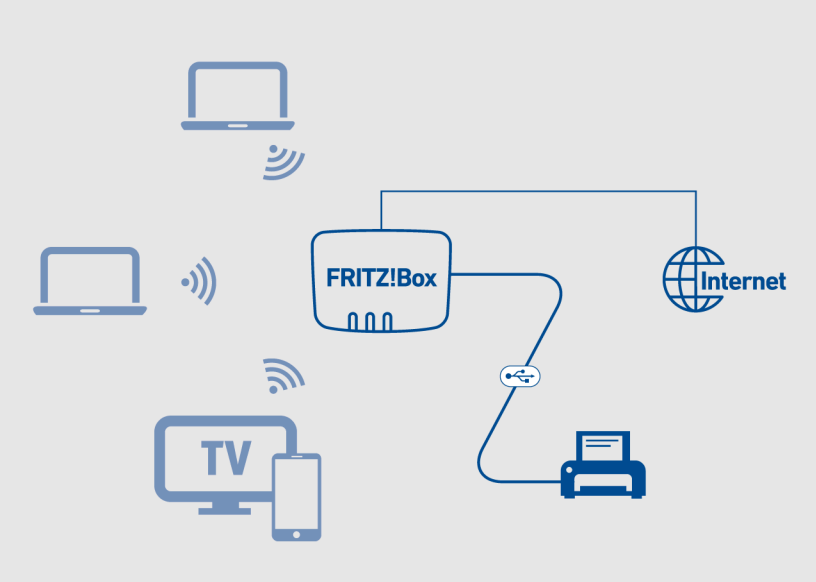
3. For instructions, open the online help ?.

Configuring a USB Printer as a Network Printer

Overview

You can connect USB printers, USB all-in-one printers and USB scanners to the FRITZ!Box and operate them as network devices.

Example Configuration



Instructions: Configuring a USB Printer as a Network Printer (Windows 11, Windows 10)

1. Connect the printer to the FRITZ!Box using a USB cable and switch on the printer.
2. On your Windows computer: Click on the magnifying glass icon in the Windows task bar and enter the search term **Printers**.
3. From the search results, select **Printers & scanners**.

   The **Printers & scanners** window opens.

4. Click next to **Add a printer or a scanner** on **Add device**.

   The connected printers and scanners are searched for and then displayed.

5. If your printer is displayed: Click on the name of your printer and then on **Add device**.

6. If your printer is not displayed: Click next to **The printer that I want isn't listed** on **Add a local printer or network printer with manual settings**.

7. Enable **Add a printer using TCP/IP address or hostname** and click on **Next**.

8. Enter the address **http://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.

9. Click on **Next**.

10. If the **Printer Sharing** window appears, select **Do not share this printer** and click on **Next**.

11. Click on **Finish**.

The selected printer is configured as a network printer with the standard Windows 10 or Windows 11 drivers and can be used via the Windows print dialog.

Instructions: Configuring a USB Printer as a Network Printer (macOS)

1. Click on **System Settings** in the **Apple** menu.
2. Click on **Print & Fax**.
3. Click on **+**.
4. Click on **IP**.
5. In the **Protocol:** drop-down list, select the entry **HP Jet Direct – Socket**.
6. Enter the address **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 printer for instructions.
8. Click on **Add**.

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 macOS, configure the following settings to set up a USB printer as a network printer:

Setting	Value
Connection Type	Raw TCP
To Port	9100
Printer Name	**fritz.box** or the IP address of the FRITZ!Box in the network Use the IP address when the FRITZ!Box is configured as a wireless repeater or IP client, or when a VPN connection is active.

Configuring USB 3.0 or 2.0 (Power Mode / Green Mode)

In the FRITZ!Box user interface, the following settings for the USB ports are located under **Home Network > USB/Storage > USB Settings**:

Setting	Function
Power Mode (USB 3.0)	Full transmission capacity
Green mode (USB 2.0)	During operation of devices with USB 3.0 • reduced power consumption • reduced transmission capacity

Configuring and Using the Media Server

Overview

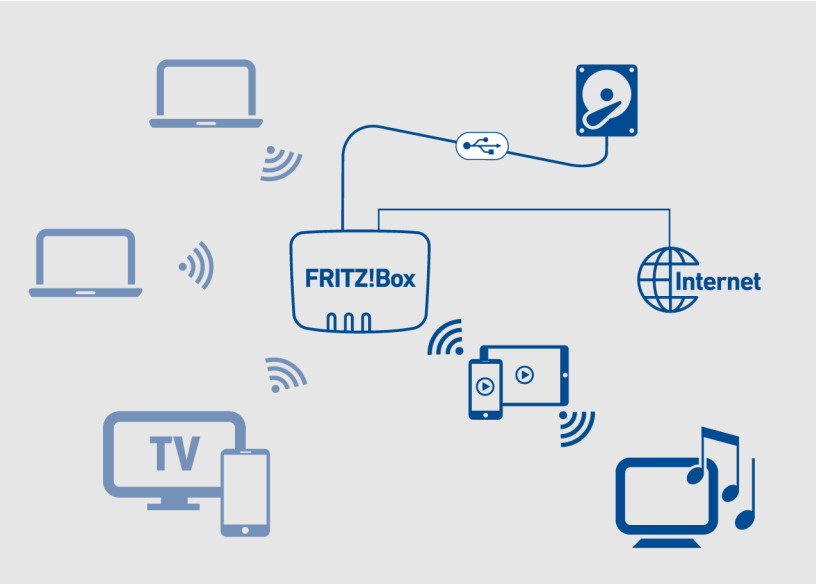
As a media server in the home network, the FRITZ!Box can transmit images, music, and videos as well as internet radio stations and podcasts to compatible playback devices like televisions, smartphones, Wi-Fi music systems, and streaming software (media streaming).

How It Works

The FRITZ!Box detects media files automatically and makes them available to playback devices 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 for Playback Devices

- The playback devices support the UPnP AV standard.

Instructions: Configuring and Using the Media Server

1. Open the user interface; see page 56.
2. Click on **Home Network > Media Server** in the menu.
3. For instructions, open the online help ?.

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 Wi-Fi network (SSID).

Changing the name may make it necessary to reconfigure your Wi-Fi connections and network links.

Consequences of Assigning a Name

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

- name of the Wi-Fi network (SSID)
- name of the guest Wi-Fi network (SSID)
- name of the media server
- name of the DECT base station
- the push service sender name
- name of your FRITZ!Box in the device overview in MyFRITZ!

Instructions: Assigning a FRITZ!Box Name

1. Open the user interface; see page 56.
2. Click on **Home Network > FRITZ!Box Name** in the menu.
3. For instructions, open the online help ?.

User Interface: Wi-Fi Menu

Switching the Wi-Fi Network On and Off

Overview

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

You can switch the Wi-Fi network on and off manually, and set up a schedule for times when the Wi-Fi network is turned on and off automatically.

Switching the Wi-Fi Network On and Off Manually

You can switch the Wi-Fi network on and off in the following ways:

- press the **WLAN** button
- on the FRITZ!Fon in the **Home Network > Wi-Fi** menu
- in the MyFRITZ!App in the **Convenience Features > Wi-Fi** menu
- by keypad code with connected telephones see page 262

Instructions: Switching the Wi-Fi Network On and Off by Schedule

1. Open the user interface; see page 56.
2. Click on **Wi-Fi > Schedule** in the menu.
3. For instructions, open the online help ?.

Selecting the Wi-Fi Channel

Overview

In the default setting **Set Wi-Fi channel settings automatically**, the FRITZ!Box automatically searches for the ideal channel. The FRITZ!Box takes into consideration adjacent Wi-Fi networks and other sources of interference like baby monitors or microwave ovens.

Should problems with interference in the Wi-Fi network persist, try to find the source of interference and eliminate it.

In some cases it may be necessary to adjust the Wi-Fi channel settings.

Instructions: Adjusting the Wi-Fi Channel Settings

1. Open the user interface; see page 56.
2. Click on **Wi-Fi > Wi-Fi Channel** in the menu.
3. For instructions, open the online help ?.

Configuring Wi-Fi Guest Access

Overview

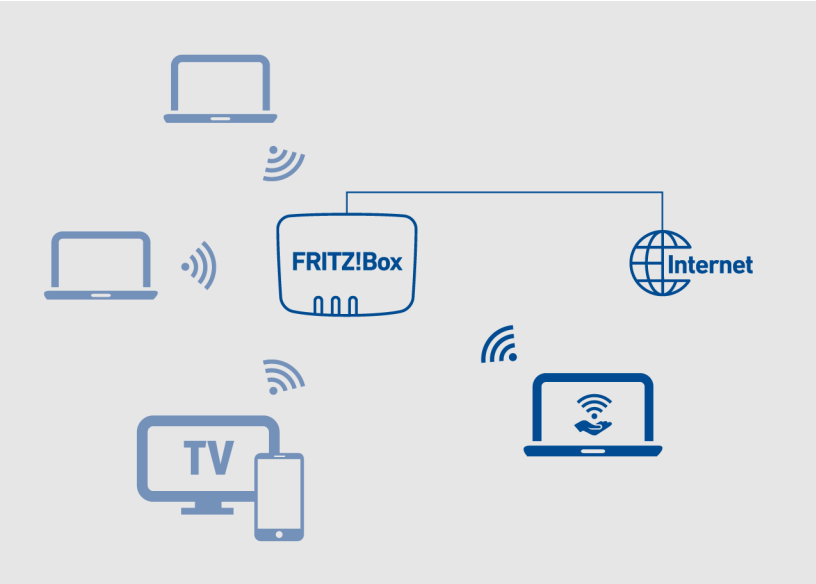
With the Wi-Fi guest access you can make an internet connection available to guests which is separate from your home network. Guests cannot access shared files or printers in the FRITZ!Box home network.

You can configure a private Wi-Fi guest access or a public Wi-Fi hotspot. The private Wi-Fi guest access can only be used with a password, and data transmission on this access is encrypted. The private Wi-Fi guest access is suitable for friends and acquaintances who want access to the internet when visiting you at home.

The public Wi-Fi hotspot can be used without a password (open Wi-Fi), making it suitable for the public spaces in shops, cafés, or doctor's offices.

Your guests can connect to the Wi-Fi guest access quickly by scanning a QR code.

Example Configuration



Requirements

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

Functions for Security and Monitoring the Wi-Fi Guest Access

Various functions are available for the security and monitoring of the Wi-Fi guest access.

- In the default setting, wireless devices in the guest network cannot communicate with each other.
- You can enable a **captive portal** for the guest access so that the user must confirm the provider's terms of use. Every time the FRITZ!Box is restarted, all users must log back in and consent to the terms of use.
- If you enable the push service for the guest access, you will receive email messages about registrations with and deregistrations from the guest network.

- You can restrict internet applications to surfing and email.
- Wireless devices in the guest network receive the **Guest** access profile in the FRITZ!Box parental controls. For this access profile you can restrict internet use to certain periods and block certain websites. When **Germany** is selected in the FRITZ!Box user interface as the country under **System > Region and Language**, all websites included in the index of the Federal Review Board for Media Harmful to Minors (German BPjM module) will be blocked.

Instructions: Configuring Wi-Fi Guest Access

1. Open the user interface; see page 56.
2. Click on **Wi-Fi > Guest Access** in the menu.
3. For instructions, open the online help ?.

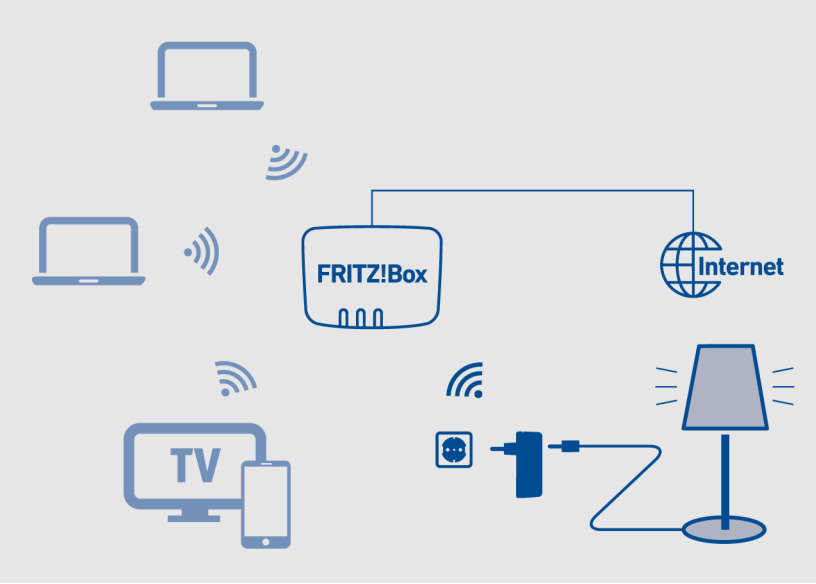
User Interface: Smart Home Menu

Smart Home Devices

Overview

Via the FRITZ!Box you can configure and operate Smart Home devices from FRITZ! and Smart Home devices from other manufacturers in the home network.

Example Configuration



Compatible Smart Home Devices

The following Smart Home devices can be registered with the FRITZ!Box:

- up to 10 FRITZ!DECT 210/200 smart plugs
- up to 12 FRITZ!DECT 301/300 or Comet DECT radiator controls
- up to 10 FRITZ!DECT 440/400 switches
- up to 10 FRITZ!DECT 500 LED lights

- up to 10 Smart Home devices from other manufacturers that support the standard DECT ULE/HAN FUN

FRITZ!DECT 210/200 Smart Plugs

With the FRITZ!DECT 210/200 smart plugs, you can control and automate the power supply to lights and other devices. You can also measure the power consumption of these devices. You operate the plugs in the FRITZ!Box user interface, with a FRITZ!DECT 440/400 switch, with FRITZ!App Smart Home, or with your FRITZ!Fon.

FRITZ!DECT 301/300 Radiator Control

With the FRITZ!DECT 301/300 radiator controls you can control the room temperature automatically and save heating costs. With a FRITZ!DECT 440/400 switch, the FRITZ!App Smart Home, or your FRITZ!Fon, you can display the measured temperature, set the desired and cool-down temperature, and change the desired temperature independent of the switching schedule.

FRITZ!DECT 440/400 Switches

With the FRITZ!DECT 440/400 switches, you can switch and control the FRITZ!DECT 210/200 smart plugs, the FRITZ!DECT 301/300 radiator controls, and the FRITZ!DECT 500 LED light.

With the FRITZ!DECT 440 switch you can also turn the answering machine and the Wi-Fi guest access on and off.

FRITZ!DECT 500 LED Light

FRITZ!DECT 500 is an LED light for white and color lighting. With the FRITZ!DECT 440 and 400 switches you can switch the LED light. With FRITZ!App Smart Home you can also dim the LED light and change its color. FRITZ!DECT 500 requires an E27 lighting fixture.

HAN FUN Devices

You can connect Smart Home devices from other manufacturers to the FRITZ!Box and configure and operate them in the FRITZ!Box user interface, for instance, motion sensors and door and window contacts. The devices must support the HAN FUN (Home Area Network FUNctional) Smart Home standard.

FRITZ!Smart Gateway Integrates Zigbee LED Lights

With a FRITZ!Smart Gateway you can also configure LED lights that support the Zigbee standard in the FRITZ!Box. Zigbee is supported by Philips Hue and IKEA TRÅDFRI bulbs, for instance.

en.avm.de/products/smart-home

Settings and Possibilities in the Smart Home

Overview

For each Smart Home device, the FRITZ!Box user interface makes settings available to configure and control the device's functions.

For electrical outlets, radiator controls, LED lights and various other device types you can also configure automatic switching to turn the devices on and off according to your needs.

You can automate sequences with templates, scenes, and routines in the Smart Home.

Configuring Device Functions

Which special settings are available for a certain Smart Home device depends on the device type and model.

For a number of LED lights, for instance, you can configure white light or colored light; for others, various degrees of warmness for white light. For window contacts you can select an action to be triggered when a window is opened, and for several radiator controls you can configure open window detection.

Configuring an Automatic Switching Schedule

You can configure various types of automatic switching for Smart Home devices like LED lights, smart plugs, and radiator controls.

You can define different times for devices to switch on and off on individual weekdays, for instance, or simulate that someone is home by having LED lights switch on and off at random times.

For a radiator control, for instance, you can specify when you want the room to have the desired temperature, and when the temperature can be lower.

Configuring Groups

You can combine different Smart Home devices of the same type in a group like LED lights, smart plugs, or radiator controls.

In the group you can switch devices on and on together. You can also configure automatic switching, templates, and scenes for groups.

Configuring Templates and Scenes

In templates and scenes you can save Smart Home settings to be used later. When you get home, leave the house, or in other specific situations, these prepared templates and scenes can be applied quickly. When they are applied, the current settings of your Smart Home devices are overwritten with the settings from the template or scene.

With the predefined **Coming Home** scene, for instance, you can switch on all LED lights and set all radiator controls to the desired temperature.

A template contains settings for Smart Home devices of the same type, such as LED lights. A scene can contain multiple templates, even for different device types.

Configuring Routines

Routines are if-then rules containing a trigger, a condition, and an action.

The trigger is a Smart Home device with a sensor, for instance, a door/window contact.

The condition is an event on the trigger, for instance, the opening of a door or window.

The action is a template or a scene such as **switch on all LED lights**. The action is carried out when the condition is met.

User Interface: Diagnostics Menu

Starting Function Diagnostics

Overview

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

Function Diagnostics Checkpoints

Area	Checkpoint/Status
FRITZ!Box 7590 AX	• name of the FRITZ!Box • FRITZ!Box Version • FRITZ!OS up to date
Registration	Configured login method to the FRITZ!Box user interface
LAN	• allocation of LAN ports • power settings on LAN ports
Wi-Fi	• Wi-Fi frequency band enabled/disabled with Wi-Fi function • number of wireless devices connected • security settings
DECT	• DECT enabled/disabled • number of DECT devices connected
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

Area	Checkpoint/Status
DSL connection	If the internet connection check is negative, the DSL connection is checked.
Telephone Numbers	How many and which numbers assigned
MyFRITZ!	• status of MyFRITZ! activation • MyFRITZ! account email address
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
Wi-Fi environment	Wi-Fi frequency band with number of Wi-Fi networks on the same or an adjacent channel

Instructions: Starting Function Diagnostics

1. Open the user interface; see page 56.
2. Click on **Diagnostics > Function** in the menu.
3. For instructions, open the online help ?.

Starting 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 to the FRITZ!Box and much more.

Security Diagnostics Test Points

Area	Checkpoint/Status
FRITZ!OS	• FRITZ!Box Version • FRITZ!OS up to date
Registration	Configured login method to the FRITZ!Box user interface
Internet connection	• ports opened on the FRITZ!Box • protocols used on these ports • port sharing for home network devices to the internet • filters for internet access
MyFRITZ!	• status of MyFRITZ! activation • MyFRITZ! account email address • registration link for MyFRITZ! • overview of MyFRITZ! sharing for access from the internet
Outgoing filters	overview of active filters for access from the internet

Area	Checkpoint/Status
Wi-Fi	• properties and security-relevant settings for access to the Wi-Fi network and Wi-Fi guest access • names of registered and known wireless devices
Telephony	• Mesh Repeater with telephony On a Mesh Repeater (FRITZ!Box) enabled for telephony in the Mesh, all of the telephone numbers configured in the Mesh Master are available. • functions and properties of the DECT base station of the FRITZ!Box • call handling like call diversion settings, premium numbers, settings for international calls, and security-relevant connection settings • IP telephone settings: connected with the FRITZ!Box directly or via FRITZ!App Fon • CAPIoverTCP driver function CAPI drivers install virtual modem drivers so that analog services like faxing can be used digitally. With CAPIoverTCP you can use the **FRITZ!Fax for FRITZ!Box** program with the FRITZ!Box to send and receive faxes.
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 of the last login to the FRITZ!Box and the IP address used to do so

Area	Checkpoint/Status
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 • whether access is permitted only via the home network, or also from the internet

Instructions: Starting Security Diagnostics

1. Open the user interface; see page 56.
2. Click on **Diagnostics > Security** in the menu.
3. For instructions, open the online help ?.

User Interface: System Menu

Saving Power with the FRITZ!Box

Overview

The FRITZ!Box offers various settings for energy-saving operation.

Displaying Information on Power Consumption

Information on the current power consumption of the entire FRITZ!Box system is displayed on the **Overview** page in the FRITZ!Box 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 > Power Consumption**.

Using the Energy-Saving Functions of the FRITZ!Box Automatically

Overview

For automatic use of energy saving functions, the FRITZ!Box offers two modes: **Balanced mode** and **Energy-saving mode**.

- **Balanced mode** is the default setting in the FRITZ!Box. In this mode the relation between active power (power consumption) and performance is balanced.
- In **Energy-saving mode**, the active power (power consumption) of the FRITZ!Box is reduced automatically. **Energy-saving mode** reduces the performance of Wi-Fi, LAN and USB ports, and LEDs in order to reduce active power (power consumption). You can also switch off Wi-Fi in the FRITZ!Box temporarily or permanently.

The settings options for automatic use of the energy-saving functions are located under **System > Energy Monitor > Energy Mode** in the FRITZ!Box user interface.

Comparison of Settings

The following FRITZ!Box settings are configured by the energy modes:

Settings	Balanced Mode	Energy-saving mode
Wi-Fi	• The 2.4-GHz and 5-GHz frequency bands are enabled and can be controlled automatically to improve data transmission. • The maximum Wi-Fi transmitter power remains unchanged. • The enabled Wi-Fi schedule remains unchanged.	• If the 2.4-GHz and 5-GHz frequency bands are enabled, the 5-GHz band will be disabled. If only one frequency band is enabled, the setting remains unchanged. Please note: If only the 5-GHz frequency is active in the settings, only the other energy-saving functions will be adjusted. The indication about the individual setting remains visible on the FRITZ!Box user interface. • The maximum Wi-Fi transmitter power remains unchanged. • The enabled Wi-Fi schedule remains unchanged.
LAN	The maximum data rate for LAN connections is set to 1 Gbit/s (Power mode).	The maximum data rate for LAN connections is reduced to 100 Mbit/s (Green mode).
USB	The configured operating mode (USB 3 or USB 2) remains unchanged.	The operating mode is changed from USB 3 to USB 2 (Green mode). This reduces USB transmission capacity.

Settings	Balanced Mode	Energy-saving mode
LEDs	• LED brightness is set to very bright. • The setting to adapt to ambient light remains unchanged.	• LED brightness is set to weak. • The setting to adapt to ambient light remains unchanged.

Tailoring the Energy-Saving Functions of the FRITZ!Box

What	How to	Where
Wi-Fi	Configure a schedule; see page 183	**Wi-Fi > Schedule** menu
	Switch off Wi-Fi; see page 183	• **WLAN** button • **Wi-Fi > Wi-Fi Network** menu
	Reduce the maximum transmitter power	**Wi-Fi > Wi-Fi Channel > Wi-Fi Channel Settings > Additional settings** menu
LAN	Use the LAN port in energy-saving (green) mode	**Home Network > Network > Network Settings > LAN Settings** menu
USB	Use the USB port in energy-saving (green) mode; see page 178	**Home Network > USB/Storage > USB Settings** menu

Saving Power with Smart Home

With intelligent Smart Home devices like FRITZ!DECT radiator controls or intelligent FRITZ!DECT smart plugs, you can control your energy consumption in the home network via the FRITZ!Box, FRITZ!App Smart Home or FRITZ!DECT switches. Information on the temperature, energy consumption, or incurred energy costs and CO_2 balance are found in the FRITZ!Box user interface in the profiles of your Smart Home devices under **Smart Home > Devices and Groups**.

Configuring Push Services

Overview

The FRITZ!Box makes various push services available. Push services are service email messages with information on the activities of your FRITZ!Box. With the push services you can have email sent to you at regular intervals informing you about the latest connections, usage, and configuration of your FRITZ!Box. Push Services also support you in restoring your passwords and backing up the FRITZ!Box settings.

Configure the push service emails by performing the following steps:

	Instructions
↓	Set an email address as the sender of push service mail.
↓	Enable the desired push services and make any other necessary settings.

Available Push Services

You can request push service mails to notify you about the following activities by the FRITZ!Box:

Push Service	Function
FRITZ!Box info	Sends you regular email messages with data on FRITZ!Box usage and connections
Smart Home	Sends you the status of a Smart Home device regularly or when important events occur
Wi-Fi Guest Access	Sends a message whenever devices register with or deregister from the Wi-Fi guest access
SMS Reception	Forwards texts that arrive at the FRITZ!Box via the mobile network by email

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

Instructions: Configuring and Testing an Email Address for Sending Push Service Mail

1. Open the user interface; see page 56.
2. Click on **System > Push Service** in the menu and then on the **Sender** tab.
3. For instructions, open the online help ?.

Instructions: Configuring and Enabling Push Services

1. Open the user interface; see page 56.
2. Click on **System > Push Service** in the menu and then on the **Push Services** tab.
3. For instructions, open the online help ?.

FRITZ!Box Password and FRITZ!Box Users

Overview

When you open the user interface of your FRITZ!Box, you will be prompted to log in. This login serves to keep your FRITZ!Box secure and protects access to the user interface.

You have two options for logging in to your FRITZ!Box:

- with a FRITZ!Box password; see page 209
- as a FRITZ!Box user; see page 211

FRITZ!Box Password

For the first login to the FRITZ!Box, a FRITZ!Box password is preconfigured, which works without a username. The preconfigured FRITZ!Box password is printed on the on the FRITZ! Notes service card and on the type label on the outside of the FRITZ!Box housing.

The FRITZ!Box password has the following properties:

- Login with the FRITZ!Box password without a username is possible only within the FRITZ!Box home network.
- Every user who logs in with the FRITZ!Box password without a username has the right to access all contents and settings on the FRITZ!Box.
- For the FRITZ!Box password, the FRITZ!Box automatically creates a FRITZ!Box user with a username composed of the letters **fritz** and a four-digit string of numerals, for instance, **fritz1234**. The FRITZ!Box uses this user account internally whenever you log in with the home network with the FRITZ!Box password and without a username. This automatically created user account cannot be deleted.

  If you change the automatically created username, then you can no longer log in using just the FRITZ!Box password without a username. Then login is possible only with a username and password.
- You can change the preconfigured FRITZ!Box password; see page 210.

- The preconfigured FRITZ!Box password is restored if you restore the factory settings to the FRITZ!Box.

Changing the FRITZ!Box Password

Overview

Within the FRITZ!Box home network you can log in with the FRITZ!Box using a FRITZ!Box password without a username. For the first login with the FRITZ!Box, use the FRITZ!Box password preset for your FRITZ!Box, which you can find on the **FRITZ! Notes** service card and printed on the FRITZ!Box housing.

You can change the preconfigured FRITZ!Box password.

Requirements

- The username automatically created for the FRITZ!Box password has not been changed yet; see page 209.

Instructions: Changing the FRITZ!Box Password

1. Open the user interface; see page 56.
2. Log in with your FRITZ!Box password.
3. Click on the menu with the three dots in the header of the FRITZ!Box user interface:
4. Click on **Change Password** in the menu.
5. Enter a new password.
   Remember to comply with the rules for passwords; see page 211.

   Important

   Also configure the **Forgot Password** push service, right away if possible. The **Forgot password** push service sends you an access link to a specified email address if you have forgotten your password. With this link your access to the FRITZ!Box user interface is restored.

   If you changed the FRITZ!Box password and then forgot it, there is no way to find it out without this push service.

FRITZ!Box Users

FRITZ!Box users are individual authorizations to access and use the FRITZ!Box, which are linked with individual user accounts. A FRITZ!Box user account is set up with a username and a password.

A FRITZ!Box user account has the following properties:

- Login using a FRITZ!Box account is possible from the home network of the FRITZ!Box and, with the appropriate rights, also via the internet.
- If you create a FRITZ!Box user account for a person, then that person is granted rights to use selected areas and functions of the FRITZ!Box.
- A FRITZ!Box user does not have to be an actual person. You can create a FRITZ!Box user for the purpose of bundling certain use rights. For instance, you can create a Smart Home user who can access only Smart Home functions.
- Every FRITZ!Box user logs in with their own username and a unique password.
- You can set up as many as 18 FRITZ!Box user accounts.

You can configure the following rights for each FRITZ!Box user:

- Access the FRITZ!Box from the internet
- View and edit FRITZ!Box settings
- View and listen to voice messages, faxes, and the FRITZ!App Fon call list
- Control Smart Home devices
- Access selected network storage (NAS)
- Establish a VPN connection to the FRITZ!Box

Please Note

Please Note the following rules for usernames and passwords:

- For FRITZ!Box users, select a username that begins with a letter from a to z in upper or lower case and has a maximum of 32 characters; see page 213.

- Select a password with at least twelve characters, which includes capitals and lower-case letters as well as numerals and special characters; see page 213.
- Configure the **Forgot Password** push service. When you have forgotten a password, the FRITZ!Box sends an access link to the email address you specified. Using this link you can set a new password.

If you lose your FRITZ!Box access information and did not configure the **Forgot Password** push service, you will have to restore the factory settings to the FRITZ!Box and reconfigure all of your personal settings for your internet connection, your telephone system, and your home network.

Characters Allowed for Passwords and Usernames

Characters	In Usernames	In Passwords
Latin letters from a to z in lower case and upper case	allowed	allowed
Numerals 0 to 9	allowed	allowed
Spaces	allowed	allowed
Umlauts in upper case and lower case (for example, ä, ö, ü)	not allowed	not allowed
The letter ß in lower case and upper case	not allowed	not allowed
Currency symbols: €	not allowed	not allowed
Special characters: - _ .	allowed	allowed
Special characters: ! " # $ % & ' (*) + / : ; , < = > ? @ [\ ] ^ ‘ { | } ~	not allowed	allowed
Special characters: § ´	not allowed	not allowed

Instructions: Configuring FRITZ!Box Users

1. Open the user interface; see page 56.
2. Click on **System > FRITZ!Box Users > User** in the menu.
3. For instructions, open the online help ?.

Selecting Signaling of the “Info” LED

Overview

The **Info** LED signals various events. Some events are preset and configured permanently; see page 26. 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: Selecting the Signaling of the "Info" LED

1. Open the user interface; see page 56.
2. Click on **System > Buttons and LEDs > Info Display** in the menu.
3. For instructions, open the online help ?.

Switching Off and Dimming the LED Display

Overview

By means of the LEDs, your FRITZ!Box notifies you about the current connection status and signals events in the home network. In the **System / Buttons and LEDs / LED Display** menu you can adjust the brightness of the LEDs or turn them off completely. Error conditions will still be signaled, and it is also possible to switch them on briefly without permanently changing the LED display settings.

Example

Your FRITZ!Box is located in the bedroom and you find the light from the LEDs too bright or irritating.

Instructions: Turning Off and Dimming the LED Display

1. Open the user interface; see page 56.
2. Click on **System / Buttons and LEDs / Info Display** in the menu.
3. For instructions, open the online help ?.

Locking and Unlocking Buttons

Overview

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

Example

With the **WLAN** button the Wi-Fi network of the FRITZ!Box can be switched off at the touch of a button. Then the Wi-Fi network will not be available. If this happens by accident, in some cases it may take some time before the cause is found. With the button lock you can prevent the **WLAN** from being pressed by accident.

Instructions: Locking or Unlocking the Buttons of the FRITZ!Box

1. Open the user interface; see page 56.
2. Click on **System > Buttons and LEDs** in the menu and then on the **Keylock** tab.
3. Enable or disable **Buttons locked**.
4. Click on **Apply**.

Setting the User Interface Language

Overview

You can change the language of the user interface. You can choose between Dutch, English, French, German, Italian, Polish, and Spanish.

Please Note

- FRITZ!Fon cordless telephones automatically adopt the new language of the FRITZ!Box. You can prevent this: Within two minutes after you changed the language setting in the FRITZ!Box, press **Cancel** on the FRITZ!Fon.

Instructions: Setting the User Interface Language

1. Open the user interface; see page 56.
2. Click on **System > Region and Language** in the menu and then on the **Language Settings** tab.
3. Select the desired language from the drop-down list.
4. Click on **Apply**.

The FRITZ!Box restarts. After restarting, the user interface is in the desired language.

Changing Regional Options

Overview

The FRITZ!Box is optimized to make telephone calls in various countries. With the regional options you specify the country in which you use your FRITZ!Box for telephone calls. This way you ensure that the FRITZ!Box adapts optimally to the telephony functionality of the country in which it is used.

Instructions: Changing Regional Options

1. Open the user interface; see page 56.
2. Click on **System > Region and Language > Regional Options** in the menu.
3. For instructions, open the online help ?.

Adjusting the Time Zone

Overview

By default, the FRITZ!Box automatically sets the time zone when it connects to the internet. However, you can also set the time zone where you use the FRITZ!Box manually.

If you are using the FRITZ!Box in a country with daylight saving time, you can enable the option to adjust to daylight time automatically.

For all features of the FRITZ!Box to work smoothly, the FRITZ!Box must always be set to the local time zone where it is located.

Instructions: Adjusting the Time Zone

1. Open the user interface; see page 56.
2. Click on **System > Region and Language > Time Zone** in the menu.
3. For instructions, open the online help ?.

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 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 a FRITZ!Box of another model.

If you have saved data on the internal storage of your FRITZ!Box, you should back them up as well. Instructions are included in this manual: see page 240.

Instructions: Saving Settings Manually

1. Open the user interface; see page 56.
2. Click on **System > Backup** in the menu and then on the **Save** tab.
3. For instructions, open the online help ?.

Instructions: Saving Settings Automatically

With the **Save Settings** email service you can have an automatically generated file of your FRITZ!Box settings sent to you before an update or before restoring the factory settings to the FRITZ!Box. With this backup file you can restore your personal settings.

1. Open the user interface; see page 56.
2. Click on **System > Push Service > Push Services** in the menu.
3. For instructions, open the online help ?.

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 choose whether to restore all settings, or only certain selected ones.

Instructions: Loading Settings

1. Open the user interface; see page 56.
2. Click on **System > Backup > Restore** in the menu.
3. For instructions, open the online help ?.

Restarting the FRITZ!Box

Overview

A restart of your FRITZ!Box 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

- The FRITZ!Box is reinitialized.
- Events in the **System > Event Log** menu are deleted.
- Settings you made in the FRITZ!Box remain intact.

Instructions: Restarting the FRITZ!Box

1. Remove the power adapter of the FRITZ!Box from the electrical outlet.
2. Wait 5 seconds.
3. Plug the power adapter back into the outlet.

Restarting the FRITZ!Box takes about 2 minutes.

Instructions: Restarting the FRITZ!Box from the User Interface

1. Open the user interface; see page 56.
2. Click on **System > Backup > Restart** in the menu.
3. For instructions, open the online help ?.

Restoring the Factory Settings to the FRITZ!Box

Overview

You can restore the factory settings to the FRITZ!Box.

Application Example

- You forgot the login information for the FRITZ!Box and can no longer access the user interface.
- The FRITZ!Box no longer works properly (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

- All of the settings you made in the FRITZ!Box are 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 are discarded.
- The network key from the factory settings is reactivated.
- The name of the Wi-Fi network (SSID) is reset.
- The IP configuration of the factory settings is restored.

Preparations

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 page 220.
- Back up your data from the internal memory, for instance, using the download function in FRITZ!NAS; see page 240.

Instructions: Restoring Factory Settings

When the factory settings are restored, all of the settings you made in the FRITZ!Box are deleted.

1. Open the user interface; see page 56.
2. Click on **System > Backup** in the menu and then on the **Factory Settings** tab.
3. Click on **Load Factory Settings**.

The FRITZ!Box is reset to its factory settings. All data are deleted.

Performing an FRITZ!OS Update Automatically

Overview

The FRITZ!Box works with its own operating system FRITZ!OS. AVM regularly makes new versions of FRITZ!OS available for your FRITZ!Box, free of charge. Updates contain further developments and often new features.

With the automatic update function of the FRITZ!Box you will never miss a software update for your FRITZ!Box and will be able to use new features right away. A new version of FRITZ!OS can contain improvements, bug fixes and important security updates, as well as significant new functions.

Always install the latest FRITZ!OS version on all FRITZ! products in your FRITZ!Box home network. This keeps your FRITZ! products up to date and ensures optimum synchronization of all devices in your home network.

Properties of Automatic Updates

In the **System > Update > Auto Update** menu you can specify when and which updates should be installed automatically, or whether you would like to be merely informed about new FRITZ!OS updates. The default setting is for notification of updates and automatic installation of all updates (level III).

The **Automatic Update** function offers you the following methods:

Method	Description
Level I: Notify me about new FRITZ!OS versions	• The FRITZ!Box indicates that a new version of FRITZ!OS is available on the homepage. • You start the update yourself; see page 233.
Level II: Notify me about new versions of FRITZ!OS and install necessary updates automatically	• The FRITZ!Box indicates that a new version of FRITZ!OS is available on the homepage. You start the update yourself; see page 233. • Updates that 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 installation all internet and telephony connections will be interrupted briefly.
Level III: Notify me about new versions of FRITZ!OS and install new versions automatically (recommended)	• The FRITZ!Box indicates that a new version of FRITZ!OS is available on the homepage. • Every new version of FRITZ!OS will be installed automatically. • The FRITZ!Box selects a suitable time for the update, generally at night. • During installation all internet and telephony connections will be interrupted briefly.

In the default setting, the FRITZ!Box generally installs updates at night. During installation internet and telephone connections are briefly interrupted. If you require a stable internet connection without interruption at night, for instance for working on servers, large downloads or updates, then select a time period that works better for you in the **System > Update > Auto Update** menu of the FRITZ!Box user interface.

Instructions: Configuring Automatic Updates

1. Open the user interface; see page 56.
2. Click on **System > Update > Auto Update** in the menu.
3. For instructions, open the online help ?.

Performing a FRITZ!OS Update Manually

Overview

The FRITZ!Box works with its own operating system FRITZ!OS. AVM regularly makes new versions of FRITZ!OS available for your FRITZ!Box, free of charge. Updates contain further developments and often new features.

In some cases it is not possible to perform an automatic update, or an update via the "Mesh Overview" or wizard. Then you have the option of performing a manual update with a FRITZ!OS file that is already saved on your computer's hard drive, or on a storage medium connected to the computer, for instance a USB stick. No internet connection is needed for this update.

Always install the latest FRITZ!OS version on all FRITZ! products in your FRITZ!Box home network. This keeps your FRITZ! products up to date and ensures optimum synchronization of all devices in your home network.

Instructions: Updating FRITZ!OS without an Internet Connection

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

1. On a computer with an internet connection, enter the following address in the browser: download.avm.de
2. Navigate through the following folders: **fritzbox > your FRITZ!Box model > deutschland > fritz.os**.
   The complete model name of your FRITZ!Box is shown in the user interface on the **Overview** page and on the type label on the outside of the housing.
3. Download the file with the file extension **.image** and save it to a location which you can access via the FRITZ!Box user interface, for instance, to a USB storage medium.

4. Open the user interface on a computer that is connected with the FRITZ!Box; see page 56
5. Click on **System > Update > FRITZ!OS File** in the menu.
6. If you did not configure the **Save Settings** push service: Back up the settings on your FRITZ!Box before the update. Using this file you can restore the settings of your FRITZ!Box as needed.
   - Enable **Create a backup file before the update (recommended)**.
   - Assign a password for the encryption of your backup file.
   - Perform the additional confirmation and click on **OK**.
   - Save the backup file on your computer.
7. Click on the Browse button and select the downloaded file.
8. Click on **Start Update**.

User Interface: Wizards Menu

Using the Wizards

Overview

Wizards guide you step by step through the most important FRITZ!Box functions.

Configuring Step by Step with the Wizard

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

Wizard	Function
Manage Telephony Devices	Connects and configures the following devices: • telephones • answering machines • fax machines • cordless (DECT) telephones
Manage Telephone Numbers	Adds and edits telephone numbers
Configuring the Internet Connection	Configures and checks your internet connection
Check the Status of the FRITZ!Box	Performs diagnostics of the functional status of your FRITZ!Box, its internet connection, and the home network connection to the FRITZ!Box
Transfer Your Settings to a New FRITZ!Box	Transfers all FRITZ!Box settings for internet, Wi-Fi, telephony, MyFRITZ! and Smart Home to a new FRITZ!Box
Security	• Performs diagnostics of FRITZ!Box settings that regulate access to the FRITZ!Box from the internet or in the home network • Warns about potentially insecure settings

Wizard	Function
Save and Restore Settings	Saves and restores the FRITZ!Box settings
Update	Checks whether a new version of FRITZ!OS is available for your FRITZ!Box
Configure Push Service	Sets up push services (automatic email sent with status and usage data)
More Functions in Brief	Introduces new and interesting functions, settings, and features of the FRITZ!Box

Instructions: Starting Wizards

1. Open the user interface; see page 56.
2. Click on **Wizards** in the menu.
3. Click on your wizard of choice and follow the instructions.

Performing a FRITZ!OS Update with the Wizard

Overview

The FRITZ!Box works with its own operating system FRITZ!OS. AVM regularly makes new versions of FRITZ!OS available for your FRITZ!Box, free of charge. Updates contain further developments and often new features.

Using the **Update** wizard makes it especially easy to install a new version of FRITZ!OS. The wizard checks whether a new version of FRITZ!OS is available and guides you step by step through installation.

Always install the latest FRITZ!OS version on all FRITZ! products in your FRITZ!Box home network. This keeps your FRITZ! products up to date and ensures optimum synchronization of all devices in your home network.

Instructions: Performing an FRITZ!OS Update with the Wizard

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

1. Open the user interface; see page 56.
2. Click on **Wizards** in the menu.
3. Click on **Update**.

   The wizard checks whether a FRITZ!OS update is available for your FRITZ!Box.
4. If an update is available: Click on **Start Update** and follow the wizard's instructions.

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

Using the Wizard to Switch FRITZ!Boxes

Overview

The wizard for switching FRITZ!Boxes assists you if you are using a FRITZ!Box and want to replace it with a new FRITZ!Box.

With the wizard you can adopt all settings for internet, Wi-Fi, telephony, MyFRITZ! and Smart Home. Devices in the home network like FRITZ!Repeaters, cordless telephones, and radiator controls, can be connected with the new FRITZ!Box for immediate use.

Example 1

You are switching your type of internet connection technology, for instance, from DSL to fiber optics. For this you want to switch to a new FRITZ!Box.

Example 2

You want to replace your old FRITZ!Box with a newer FRITZ!Box device.

Requirements

- FRITZ!OS 7.51 or later is installed both on the old FRITZ!Box and the new FRITZ!Box.
- The new FRITZ!Box has the factory settings configured and is not plugged in.
- The latest version of FRITZ!OS is installed on all FRITZ! devices connected with the old FRITZ!Box.

Please Note

- The wizard for easy switching to a different FRITZ!Box is available only when you access the FRITZ!Box user interface from within the home network. This wizard is not available with remote access.

- Older FRITZ! devices in the home network may not be automatically adopted by the new FRITZ!Box during the switch. These FRITZ! devices can be connected with the new FRITZ!Box manually at a later point in time.

Instructions: Starting a Switch to a New FRITZ!Box

Start the process of switching FRITZ!Boxes on the old FRITZ!Box:

1. Open the user interface; see page 56.
2. Click on **Wizards** in the menu.
3. Click on **Transfer Your Settings to a New FRITZ!Box**.
4. Follow the wizard's instructions.

FRITZ!NAS

Using FRITZ!NAS Functions

Overview

The FRITZ!Box can provide central storage (NAS = Network Attached Storage) in the home network. With FRITZ!NAS you can access your saved files, for instance, music, images, videos, and documents, from all computers, smartphones, and other devices in the home network.

The FRITZ!Box storage is composed of:

- Internal FRITZ!Box memory (low storage capacity)
- Connected USB storage media
- Configured online storage (cloud storage)

Requirements

- Network storage is configured on the FRITZ!Box (USB storage or online storage); see page 166
- For access to the FRITZ!NAS portal: A web browser that supports HTML5, for instance Microsoft Edge, Mozilla Firefox version 17 or later, Google Chrome version 23 or later, or Safari version 5 or later.
- For login with the FRITZ!Box from the home network: The FRITZ!Box user has **Access to NAS contents** configured; see page 211. Login only with the FRITZ!Box password without a username has all rights by default.
- For login from the internet:
  - A MyFRITZ! account has been set up; see page 247.
  - The FRITZ!Box can be reached from the internet; see page 245.
  - A FRITZ!Box user with the rights **Access from the internet allowed** and **Access to NAS contents** has been set up; see page 211.

Opening FRITZ!NAS in the FRITZ!Box

You can open the FRITZ!NAS portal in the FRITZ!Box.

On this portal the following file administration functions are available: adding, sorting, saving, moving, renaming, splitting, or deleting.

Opening FRITZ!NAS	Location
Opening FRITZ!NAS in the home network	Enter “fritz.nas” in the address line of a web browser. Log in with your FRITZ!Box using the FRITZ!Box password if prompted to do so.
Opening FRITZ!NAS from the internet	Enter “myfritz.net” in the address line of a web browser. Log in with the email address and the password of your MyFRITZ! account.

Displaying FRITZ!NAS in the File Manager

Overview

You can display the contents of the FRITZ!Box data storage in the file manager of a computer in the home network. The storage can be used on the computer just like a local drive or a USB drive connected directly to the computer, for instance in the Windows Explorer or macOS Finder.

Requirements

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

Instructions: Displaying FRITZ!Box Storage in Windows Explorer

1. Open Windows Explorer.
2. Enter **fritz.nas** in the address bar of the browser.

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

Instructions: Displaying FRITZ!Box Storage in the macOS Finder

1. Click on the Finder icon with the right mouse button to open the context menu of the macOS Finder.
2. Click on **Connect to Server...**.
3. Enter the server address smb://fritz.nas.

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

Backing Up Data from Internal FRITZ!Box Storage

Overview

When you restore the factory settings to the FRITZ!Box, all data stored in the internal memory of the FRITZ!Box are deleted. These can include, for instance, received faxes and answering machine messages. With FRITZ!NAS you can download the data from the internal FRITZ!Box memory and back them up.

Instructions: Saving Data from Internal FRITZ!Box Memory

1. Open the user interface; see page 56.
2. Click on FRITZ!NAS in the header of the user interface.
   The file manager of FRITZ!NAS opens.
3. Click on **Select** in the header of the file manager.
   Markable selection fields are displayed next to the folders and files.
4. Mark the data to be saved by clicking on the adjacent selection fields.
   Click on **All** to mark the selection fields for all data.
5. Click on **Download** in the toolbar in the header of the file manager.
   The selected files are packed into a ZIP file and the browser dialog for saving the file opens.
6. Save the file on your computer with the *.zip suffix.
   You can unzip the zip file using Windows Explorer or macOS Finder, for instance, or other standard software.

Instructions: Saving Data from Internal Memory

1. Open a web browser.
2. Enter **fritz.nas** in the address bar of the browser.

3. Select on the FRITZ!NAS page the data you would like to save.
4. Click in the toolbar on the icon for downloading and select a storage location for the data.
5. Save with **OK**.

The selected data are copied to a ZIP file in the download folder you specified.

MyFRITZ!

What Is MyFRITZ!?

Overview

MyFRITZ! adds several free additional functions to your FRITZ!Box. With MyFRITZ! you can access various information and features of your FRITZ!Box or FRITZ!Fon via the internet or from the home network.

MyFRITZ! Components

	MyFRITZ! Account / MyFRITZ!net	MyFRITZ!App	MyFRITZ! / myfritz.box
Function	MyFRITZ! in the internet: connection between FRITZ!Box and the internet	MyFRITZ! mobile	MyFRITZ! in the home network
Access to	Internet portal: • personal FRITZ!Box overview portal • depending on the user rights, to FRITZ!Box functions Services: • status information on FRITZ!Box by email • email when password forgotten • weather forecast and speech reproduction in FRITZ!Fon	FRITZ!Box functions from on the go	FRITZ!Box functions in the home network

	MyFRITZ! Account / MyFRITZ!net	MyFRITZ!App	MyFRITZ! / myfritz.box
Accessed via...	Configuration of a MyFRITZ! account and login with the http://www.myfritz.net website	A mobile device (with MyFRITZ!App installed)	MyFRITZ! link in the FRITZ!Box user interface or the address http://myfritz.box in the browser

Using MyFRITZ! in the Internet: MyFRITZ! Account / MyFRITZ!net

Create a MyFRITZ! account with an email address and a password. The MyFRITZ! account establishes a connection between your FRITZ!Box and the internet.

- Log in to the FRITZ!Box Overview page http://www.myfritz.net with a web browser and access your FRITZ!Box from there, for instance, to retrieve information on calls or to access photo, music, or video files on home network storage.
- The FRITZ!Box automatically sends software updates and important information about the home network to the email address of the MyFRITZ! account.
- If you forget your password, you receive an email to restore it.
- Services like weather forecasts and speech reproduction in FRITZ!Fon require a MyFRITZ! account.
- Upon registration with the MyFRITZ! account, the FRITZ!Box receives a web address at which it can always be reached.

FRITZ!Box Web Address

Upon registration with the MyFRITZ! account, the FRITZ!Box receives a unique MyFRITZ! address with the domain ending ".myfritz.net". The FRITZ!Box can always be reached at this fixed domain name, even when the IP address changes.

You can use the FRITZ!Box web address for purposes such as:

- Direct access to your FRITZ!Box via a web browser
- VPN connections to your FRITZ!Box, for instance via WireGuard; see Configuring VPN, page 111
- Access to server services in the home network via port sharing

Using MyFRITZ! from a Mobile Device: MyFRITZ!App

With the free MyFRITZ!App you receive information from the home network directly on your mobile device. You can access your FRITZ!Box at any time from anywhere.

- Messages: View the FRITZ!Box call list and listen to messages on the answering machine
- Home network: access the FRITZ!Box user interface and connected home network devices securely
- Smart Home: Control smart plugs and radiator controls
- FRITZ!NAS: Access home network storage, for instance, for photo, music, or video files
- Convenience functions: control answering machines and call diversion settings

Downloading MyFRITZ!App

The MyFRITZ!App is available free of charge for Android and iOS:

Google Play Store (Android)	App Store (iOS)

Using MyFRITZ! in the Home Network: myfritz.box

Via the "MyFRITZ!" overview page at the address "myfritzbox" you can access functions of your FRITZ!Box frequently used in the home network directly from your browser:

- Call list: View calls and listen to messages
- FRITZ!NAS: Access home network storage, for instance, for photo, music, or video files
- Convenience functions: Display and switch Wi-Fi, WPS, guest access, answering machines on and off
- Smart Home: Switch and control smart plugs and radiator controls

Which functions you can access depends on the rights configured for the FRITZ!Box users logged in. If you logged in with the general FRITZ!Box password, you have access to all areas; see page 209.

Creating a New MyFRITZ! Account

Overview

Create a MyFRITZ! account with an email address and a password.

Please Note

- When the MyFRITZ! account is created, the FRITZ!Box from which the account is created is registered with the MyFRITZ! account.
- The MyFRITZ! account exists no matter which FRITZ!Box was used to create it. You can register multiple FRITZ!Box devices with one MyFRITZ! account.
- If you switch to a new FRITZ!Box, you can then register the new model with your existing MyFRITZ! account and delete any old FRITZ!Box models no longer in use.

Instructions: Creating a New MyFRITZ! Account or Using an Existing MyFRITZ! Account

1. Open the user interface; see page 56.
2. Click on **Internet > MyFRITZ! Account** in the menu.
3. For instructions, open the online help ?.

Controlling the 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 Wi-Fi on and off, and restore the factory settings to the FRITZ!Box.

How It Works

Keypad codes are combinations of keys (for instance, #81*1*), which you enter on the telephone keypad.

Requirements

- For analog telephones and DECT telephones with their own base station: The telephone is configured such that special characters (* and #) can be dialed; see the manual of your telephone.

Please Note

- Keypad codes do not work with smartphones.
- Keypad codes do not work with FRITZ!App Fon; exception: internal calls.
- Only the following shortcuts work with IP telephones: internal calls, call transfer, using keypad sequences, suppressing the telephone number once, and call diversion on/off (international calls must be allowed for the IP telephone; see page 86)

Entering Keypad Codes

A keypad code can contain the following characters: *, #, and the numerals 0 to 9. Depending on the type of telephone, here is how to dial keypad codes:

Type of Telephone	Action
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 key.

Configuration on the Telephone

Instructions: Disabling Outside Line Access for the FON 1 or FON 2 Port

If you make a lot of internal calls, you can disable outside line access 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 outside line access: #11*00* (FON 1) #12*00* (FON 2)	
	
Wait for acknowledgment tone	
	

Instructions: Enabling Outside Line Access for the FON 1 or FON 2 Port

Telephone without Call Button	Telephone with Call Button
	
Enable outside line access: #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 specified 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 connection. In either case, extra charges will accrue according to your contracted telephone rates.

Telephone without Call Button	Telephone with Call Button
	

Telephone without Call Button	Telephone with Call Button
Configure immediate call diversion to destination call number <DCN>: ✱21✱<DCN>✱# Configure call diversion after 20 seconds to destination call number <DCN>: ✱61✱<DCN>✱# Configure call diversion on busy to the destination call number <DCN>: ✱67✱<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: ✱21✱✱# Switch off delayed call diversion: ✱61✱✱# Switch off call diversion on busy: ✱67✱✱#	
	
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: ✱21✱✱<TN># Switch off delayed call diversion: ✱61✱✱<TN># Switch off call diversion on busy: ✱67✱✱<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>: #❹❶❶✱<DCN>✱ Switch on immediate call diversion for the FON 1 port with ringing to destination call number <DCN>: #❹❺❶✱<DCN>✱ Switch on call diversion for the FON 1 port after 20 seconds to destination call number <DCN>: #❹❷❶✱<DCN>✱ Switch on call diversion for the FON 1 port on busy to the destination call number <DCN>: #❹❸❶✱<DCN>✱ Switch on immediate call diversion for FON 1 on busy, otherwise delayed, to the destination call number <DCN>: #❹❹❶✱<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>: #❹❶❷✱<DCN>✱ Switch on immediate call diversion for the FON 2 port with ringing to destination call number <DCN>: #❹❺❷✱<DCN>✱ Switch on call diversion for the FON 2 port after 20 seconds to destination call number <DCN>: #❹❷❷✱<DCN>✱ Switch on call diversion for the FON 2 port on busy to the destination call number <DCN>: #❹❸❷✱<DCN>✱ Switch on immediate call diversion for FON 2 on busy, otherwise delayed, to the destination call number <DCN>: #❹❹❷✱<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: #4022**	
	
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, the number of your mobile telephone.

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: #4<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 Wi-Fi On

The Wi-Fi network of your FRITZ!Box can be switched on and off using a connected telephone.

Telephone without Call Button	Telephone with Call Button
	
Switch Wi-Fi on: #9641*	
	
Wait for acknowledgment tone	
	

Instructions: Switching Wi-Fi Off

Telephone without Call Button	Telephone with Call Button
	
Switch Wi-Fi off: #9640*	
	
Wait for acknowledgment tone	
	

Operating on 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: ✱✱600 (answering machine 1) ✱✱601 (answering machine 2) ✱✱602 (answering machine 3) ✱✱603 (answering machine 4) ✱✱604 (answering machine 5)	
	
Follow the voice menu	

Voice Menu of the Answering Machine

Main Menu (Level 1)	Level 2	Level 3
1 Play back messages	3 Return call 5 Delete message 7 To previous message 9 To next message	

Main Menu (Level 1)	Level 2	Level 3
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: ✪09	
	

Instructions: Making Internal Calls

You can conduct free internal calls between connected telephones.

Telephone without Call Button	Telephone with Call Button
	
Enter an internal telephone number from the FRITZ!Box telephone book	
	

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 Consultation

With the **Call Transfer** feature you can forward (transfer) a call to another telephone or to an external telephone number.

For transferring a call on a telephone without a hold button, see the manual of the telephone.

<table>
<tr><th>Telephone without Call Button</th><th>Telephone with Call Button</th></tr>
<tr><td colspan="2">During the call with the party 1, press the hold button:
R
The call is on hold.</td></tr>
<tr><td colspan="2">Enter the telephone number of party 2. This can be an external telephone number or an internal number from the FRITZ!Box telephone book.</td></tr>
<tr><td colspan="2">When party 2 accepts the call, you can consult with others in the room.</td></tr>
<tr><td colspan="2">Connect party 1 and party 2 with each other:</td></tr>
<tr><td>  </td><td>On cordless telephones:
*4
Others:
  </td></tr>
<tr><td colspan="2">If party 2 cannot be reached or does not wish to speak with party 1, go back to party 1:
R1</td></tr>
</table>

Instructions: Transferring Calls without Consultation

With the Call Transfer feature you can forward (transfer) a call to another connected telephone or to an external telephone number.

For transferring a call on a telephone without a hold button, see the manual of the telephone.

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 telephone number or an internal number from the FRITZ!Box telephone book.	
	On cordless telephones: *4 Others: 

Instructions: Picking Up from Call Waiting

When the call waiting feature is enabled for a telephone, you are notified about incoming calls during an active telephone call. You hear a signal tone. You can accept or reject waiting calls.

Telephone without Call Button	Telephone with Call Button
During a call: Pick up from call waiting: ®2 Reject waiting call: ®0	
If you pick up the waiting call, you can: Switch between call 1 and call 2 (alternate): ®2 End the active call and continue the other call: Hang up, wait until your telephone rings, and pick up	

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: ✱31#	
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, go 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/Toggling

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: R 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: Toggle back and forth between the calls: R2 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, go back to party 1: R	

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 sequences you can use, contact your carrier.

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: #881**	
	
Wait for acknowledgment tone	
	

Instructions: Disabling an Alarm

Telephone without Call Button	Telephone with Call Button
	
Switch alarm off: #8801#	
	
Wait for acknowledgment tone	
	

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 of the settings you made in the FRITZ!Box are 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 Wi-Fi 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: #991*1590159008	
	
Wait for acknowledgment tone	
	

Malfunctions

Troubleshooting Procedures

Overview

The following table offers recommendations about what do when problems with your FRITZ!Box arise:

Problem	Help
• LEDs not on • No access to the user interface • Wi-Fi connection cannot be established or is interrupted	Troubleshooting chart; see page 280
Problem with: • connecting • configuration • telephony • internet • Wi-Fi • etc.	Knowledge Base; see page 284
Troubleshooting chart and Knowledge Base do not offer a solution	Support, see page 285

Troubleshooting Chart

Overview

If malfunctions occur, for instance, such that you can no longer access the user interface of the FRITZ!Box, first try to solve the problems using the following tables.

Troubleshooting Chart

Problem	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 Wi-Fi connection	Computer's wireless adapter not ready for operation	Switch on your computer's wireless adapter. For details, consult the manual of your computer.
	Wi-Fi network of the FRITZ!Box switched off	If the **WLAN** LED is off, press the WLAN button on the FRITZ!Box. Hold the button down until the **WLAN** LED begins flashing.
	Computer cannot find the Wi-Fi network of the FRITZ!Box	Enable the **Name of the Wi-Fi network visible** function (**Wi-Fi > Wi-Fi Network**) in the FRITZ!Box user interface.
	Incorrect network key	Enter the correct network key (**Wi-Fi > Security**).

Problem	Cause	Solution
User interface does not open	Address not correct	Enter the complete address in the browser: http://fritz.box
	Restart required 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.
	Forgot FRITZ!Box password	Restore factory settings to the FRITZ!Box (see page 223).

Problem	Cause	Solution
	Combination of various settings in the **Internet** and **Home Network** menus.	Attempt to open the user interface with the emergency IP address; see page 283. If this does not work, restore factory settings to the FRITZ!Box (see page 223).
Wi-Fi connection interrupted	Wi-Fi connection between FRITZ!Box and wireless device interrupted	Change the positions of the FRITZ!Box and the wireless devices: • Do not set up the FRITZ!Box in the corner of a room. • Do not set up 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.
	Wi-Fi channel with heavy interference	Configure automatic selection of the Wi-Fi channel in the FRITZ!Box user interface. Then the FRITZ!Box will automatically select a Wi-Fi channel with the least interference possible (**Wi-Fi > Wi-Fi Channel**).

Opening the User Interface with the Emergency IP Address

Overview

The FRITZ!Box has an emergency IP address at which the user interface can always be reached.

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 with which the user interface was opened using the emergency IP address is connected with the FRITZ!Box by network cable.
- This computer is not connected with the FRITZ!Box via LAN guest access.

Instructions: Opening the User Interface with the Emergency IP Address

1. Disconnect the FRITZ!Box from other network devices and make sure that there is no Wi-Fi connection between your computer and the FRITZ!Box.
2. Connect your computer to the **LAN 2** socket of the FRITZ!Box using a network cable.
3. Restart the computer.
4. Open a web browser and enter the emergency IP address **169.254.1.1**.
5. Log in to the FRITZ!Box user interface.

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; see page 285.

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.

Preparations

Keep the following information handy for a support request:

- FRITZ!Box model
- Article number, see page 21
- FRITZ!OS Version
- Internet service provider
- Error messages, if any

Instructions: Contacting Support

Contact AVM Support via the AVM website.

1. Open the en.avm.de website.
2. Click on **Service** and then on **Support**.
3. Keep your information handy (see Preparations, page 285).
4. Contact our Support team via email form, fax, or chat.

   Important

   Our email and chat support are not always available in all languages. Select another language for the AVM website if needed.

Decommissioning and Disposal

Decommissioning

Deleting Private Data

As the final user of a FRITZ! product, you are responsible for deleting your own personalized data on devices to be disposed of.

Delete your personal settings and personalized data from your FRITZ!Box device before ending its operation and disposing of the device. To do this, restore the factory settings to the FRITZ!Box; see page 223.

Disposal

Disposal of Electronic Devices and Electronic Components

In accordance with European regulations and the Waste of Electrical and Electronic Equipment Directive (in Germany), the FRITZ! device, and all devices and electronic components contained in the package, may not be disposed with household waste, residual waste, or the yellow recycling bin.

Bring your FRITZ! device and all electronic components included with delivery to a collection point in your local community for the disposal of electronic appliances where it can be disposed of properly. According to the criteria stipulated in § 17 par. 1 and par. 2 of the Waste of Electrical and Electronic Equipment Directive (for Germany), distributors of electronic devices are also obligated to accept returns of their products free of charge.

The crossed out bin on the type label or on the housing of your FRITZ! device means that you are required by law to dispose of the electronic device separately from household waste.

Technical Specifications

Technical Specifications

Device Properties

Attribute	Value
Dimensions (W x H x D)	circa 254 x 63 x 191 mm
Supply voltage	230 V / 50 Hz

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%

Active Power (power consumption)

Property	Value
Maximum active power (power consumption)	30 W
Mean active power (power consumption), averaged with the following load: • DSL connection enabled • Wi-Fi on; no devices registered via Wi-Fi • 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	14 W – 16 W

Ports and Interfaces

Connect via	Interface
WAN	1-Gbit/s WAN port for connecting to a modem or a router
DSL	DSL Line • VDSL/ADSL modem for use with VDSL in accordance with ITU G.993.2/5 (IP-based, also vectoring and supervectoring), VDSL Long Reach (as specified in 993.5) or ADSL2+ in accordance with ITU G.992.5 (Annex A, B)
FON	• 1 a/b port with a RJ11 and TAE socket for connecting an analog terminal device • 1 a/b port with a RJ11 socket for connecting an analog terminal device
DECT	DECT base station for: • 6 handsets • 10 FRITZ!DECT 200/210 smart plugs • 10 FRITZ!DECT 440/400 switches • 12 FRITZ!DECT 300/301/Comet DECT radiator controls • 10 Smart Home devices by other manufacturers with HAN FUN
LAN	4 LAN ports via RJ45 sockets (standard Ethernet, 10/100/1000 Base-T), 1 Gbit/s
USB	Two USB host controllers (USB version 3.0)

Connect via	Interface
Wi-Fi, 2.4 GHz	• Wi-Fi 3 (IEEE 802.11g), transmission rates of up to 54 Mbit/s • Wi-Fi 4 (IEEE 802.11n), transmission rates of up to 800 Mbit/s (including 256QAM) • Wi-Fi 6 (IEEE 802.11ax) – transmission rates of up to 1200 Mbit/s
Wi-Fi, 5 GHz	• Wi-Fi 4 (IEEE 802.11n), transmission rates of up to 800 Mbit/s • Wi-Fi 5 (IEEE 802.11ac), for 80 MHz channel bandwidth, transmission rates of up to 1733 Mbit/s (4 x 4 streams) • Wi-Fi 5 (IEEE 802.11ac), for 160 MHz channel bandwidth, transmission rates of up to 1733 Mbit/s (2 x 2 streams) • Wi-Fi 6 (IEEE 802.11ac), for 80 MHz channel bandwidth, transmission rates of up to 2400 Mbit/s (4 x 4 streams) • Wi-Fi 6 (IEEE 802.11ac), for 160 MHz channel bandwidth, transmission rates of up to 2400 Mbit/s (2 x 2 streams) • Compatible with IEEE 802.11a

Wi-Fi Frequencies

Frequency	Frequency Range	Max. Transmitter Power
2.4 GHz	2400 - 2483 MHz	100 mW
5 GHz	5150 - 5350 MHz	200 mW
	5470 - 5725 MHz	1000 mW

In the 5-GHz band for Wi-Fi, the range from 5150 MHz to 5350 MHz is intended only for indoor use. This restriction or requirement is effective in the countries AT, BE, BG, CY, CZ, DE, DK, EE, EL, ES, FI, FR, HR, HU, IE, IT, LT, LU, LV, MT, NL, PL, PT, RO, SE, SI, SK, UK.

DECT Radio Frequencies

Frequency	Frequency Range and Transmitter Power
DECT	• Frequency range: 1880 MHz – 1900 MHz • Maximum transmitter power: 250 mW

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 wide 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.

Audio Tones

Beep	Melody
Busy signal	500 ms tone, 500 ms pause, +/– 20 ms
Dial tone	1 s tone, 4 s pause, +/– 100 ms

Interfaces and Protocols Used with the FRITZ!Box

Information on interfaces and protocols from the AVM product development can be found on the following AVM web page (in German):

avm.de/service/schnittstellen

Legal Notice

Legal Notice

Manufacturer's Warranty

We, AVM GmbH, Alt-Moabit 95, 10559 Berlin, as manufacturer of this original product, offer 5 years warranty for defects to the product which are demonstrably due to faults in materials or manufacturing. Your legal rights in the case of defects for which claims can be made free of charge are not restricted by this warranty.

The warranty period begins with the date of purchase by the first end user. Compliance with the warranty period must be proven by submission of the original invoice of the first end consumer or comparable documents as well as the return of the product in question. In order to return your product, our Support team will send you a link to an "RMA form". After filling out this form you will receive an RMA number authorizing you to return the product to us. This RMA number must be clearly visible and easy to read on the outside of the package, and sufficient postage must be attached (insured shipping is recommended). The product must be dispatched within 14 days after the RMA number has been issued. The package is to be returned without the original box and accessories, packed carefully and secured for transportation. AVM accepts no liability for any damage during transport. Returns without an RMA number, packages sent freight collect or without sufficient postage, and packages without an invoice will not be processed and sent back to the sender; in such cases we reserve the right to charge a processing fee of up to 35 €.

Within the warranty period, we will remove reported defects to the product hardware 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). In this case we reserve the right to return such devices without processing and will charge you a processing fee of 35 €. We may, at our discretion, repair or replace the defective product. AVM bears the costs for returning the repaired or exchanged product. Claims other than the right to the re-

moval 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. Shipping costs will not be reimbursed. Products to be exchanged due to a warranty claim are transferred to our ownership upon provision of the replacement product. Claims recognized under warranty entail neither an extension nor a recommencement of the warranty period. If we reject a warranty claim, this claim lapses no later than six months after being rejected by us. All claims from or in association with 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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AVM in the internet: en.avm.de

Declaration of CE Conformity

AVM declares herewith that the device is compliant with directive 2014/53/EU.

The full text of the declaration of EU conformity is available at https://en.avm.de/service/declarations.

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