



FRITZ!WLAN Repeater 450E

Installation
and Operation



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Symbols and Highlighting

Symbols and emphasized text are used to designate certain information in this manual.

Symbols



This symbol designates hints and tips that are useful in operating your product.



This symbol indicates important instructions that must be observed to avoid malfunctions.

Highlighting

Highlighting	Function	Examples
Quotation marks	Buttons Menus	“Help” “System / “Info” Display”
Blue and underlined text	Address to be entered in the web browser	http://fritz.repeater
Blue text	Links and references within this manual	For instructions on connecting the FRITZ!WLAN Repeater with your wireless access point, see page 12 .

1 FRITZ!WLAN Repeater 450E

This chapter presents an overview of the FRITZ!WLAN Repeater 450E.

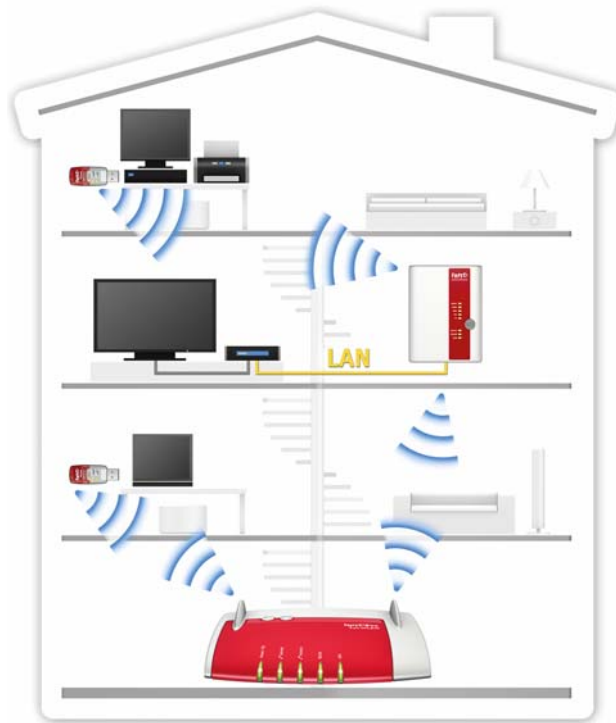
1.1 Features

Extending the Wireless Radio Network

The FRITZ!WLAN Repeater increases the range of your wireless network simply and securely.

PCs, notebooks, tablets and other wireless devices that are not located too far from the wireless access point can be registered with the FRITZ!WLAN Repeater.

The wireless network devices receive access to the radio network and to the wireless access point's Internet connection.



FRITZ!WLAN Repeater 450E in a radio network

Integrating the Network Device in the Wireless Network via LAN Cable

At the LAN port of the FRITZ!WLAN Repeater you can connect a network device without wireless LAN support, like a Blu-ray player, satellite/TV receiver, or network storage.

The connected device is integrated into the wireless radio network and has access to the Internet.

Integrating the Internet Router in the Wireless Network via LAN Cable

You can also connect an Internet router to the FRITZ!WLAN Repeater's LAN port.

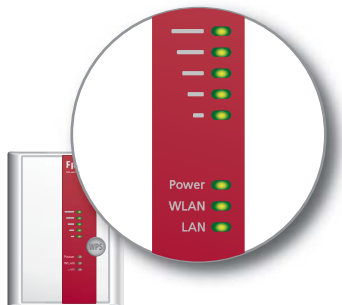
The wireless network devices receive access to the Internet router's Internet connection via the FRITZ!WLAN Repeater.

1.2 Package Contents

- FRITZ!WLAN Repeater 450E
- 1 LAN cable (network cable)
- 1 printed quick guide

1.3 Button and LEDs

The FRITZ!WLAN Repeater has a button and various LEDs on the front panel.




LEDs and button

Button

The following functions are operated using the button:

Function	Press for at least ...
Switches wireless LAN on and off	1 second
Starts a WPS Quick Connection	6 seconds
Restores the repeater to factory settings	15 seconds

LEDs

LED	Condition	Meaning
Signal strength 	flashing	<ul style="list-style-type: none"> Searching for wireless access point No connection with the wireless access point
	on	The more LEDs are lit up, the stronger the connection with the wireless access point In the “LAN Bridge” mode: signal strength of the connection with the first registered wireless LAN device
Power	flashing	<ul style="list-style-type: none"> FRITZ!WLAN Repeater starts Updating the firmware of the FRITZ!WLAN Repeater
	on	FRITZ!WLAN Repeater is ready for operation
WLAN	flashing	<ul style="list-style-type: none"> FRITZ!WLAN Repeater adopts wireless LAN settings Switching wireless radio network on or off Performing WPS
	flashing rapidly	WPS aborted. More than two wireless devices are performing WPS at the same time. Restart WPS.
	on	Wireless LAN is enabled
LAN	on	A network connection has been established to a connected network device
All	flashing	Loading factory settings

2 Before You Connect the FRITZ!WLAN Repeater

Read this chapter before connecting the FRITZ!WLAN Repeater to the power supply and the wireless access point.

2.1 Requirements for Operation

In order to operate the FRITZ!WLAN Repeater 450E, you must have the following:

- The wireless access point must support the IEEE 802.11n, 802.11g, or 802.11b standard in the 2.4-GHz frequency band
- The wireless access point must support automatic IP address assignment (DHCP)
- The wireless access point must support forwarding of IP-based protocols/Address Resolution Protocol
- For wireless LAN configuration: The SSID (radio network name) of the wireless access point must be set to “visible”. For a FRITZ!Box this is the case upon delivery.
- For wireless LAN configuration: The MAC address filter of the wireless access point must be disabled. For a FRITZ!Box this is the case upon delivery. If the MAC address filter of the wireless access point is enabled, the MAC address of the FRITZ!WLAN Repeater must be entered as an exception.
- For wireless LAN configuration with WPS: WPS-compliant wireless access point with up-to-date firmware
- For wireless LAN configuration: Wireless LAN client that supports the WPA or WPA2 encryption standard

2.2 Security and Handling

When working with the FRITZ!WLAN Repeater, be sure to observe the following security instructions in order to protect yourself and the FRITZ!WLAN Repeater from harm.

- The FRITZ!WLAN Repeater has no On/Off switch. This means it must be possible to disconnect the FRITZ!WLAN Repeater from the power supply at any time.
 - Insert the FRITZ!WLAN Repeater into an electrical outlet that is easy to reach.
- Moisture and liquids that find their way into the FRITZ!WLAN Repeater can cause electric shocks or short circuits.
 - Only use the FRITZ!WLAN Repeater indoors.
 - Never let liquids get inside the FRITZ!WLAN Repeater.
- The device contains hazardous components and should only be opened by authorized repair technicians.
 - Do not open the FRITZ!WLAN Repeater housing.
 - If the FRITZ!WLAN Repeater needs to be repaired, please take it to a specialized vendor.
- During electrical storms, lightning and electrical surges present a danger to connected electrical devices.
 - Do **not** install the FRITZ!WLAN Repeater during an electrical storm.
 - During a storm, disconnect the FRITZ!WLAN Repeater from the power supply.
- Heat accumulation can lead to overheating of the FRITZ!WLAN Repeater and subsequently damage the FRITZ!WLAN Repeater.
 - Provide for sufficient air circulation around the FRITZ!WLAN Repeater.
 - Make sure that the ventilation slits on the FRITZ!WLAN Repeater housing are always unobstructed.
 - Do **not** cover the FRITZ!WLAN Repeater.

- Insert the FRITZ!WLAN Repeater in an outlet that is protected from direct sunlight.
- Electronic devices like baby monitors, mobile telephones, microwave devices, DECT base stations, cordless telephones, devices with large metal housings like washing machines or radiators, as well as other wireless LAN devices can cause interference in your wireless network.
 - When installing your FRITZ!WLAN Repeater be sure to maintain enough distance from potential interference sources.
- Dust, moisture and vapors as well as caustic cleaners or solvents can damage the FRITZ!WLAN Repeater.
 - Protect the FRITZ!WLAN Repeater from dust, moisture and steam.
 - Remove the FRITZ!WLAN Repeater from the mains before cleaning.
 - Clean the FRITZ!WLAN Repeater with a slightly moist, lint-free cloth.

3 Connecting with the Internet Router Wirelessly

You can connect the FRITZ!WLAN Repeater with a FRITZ!Box or other wireless access point (Internet router) over a wireless radio network.

You can establish the wireless connection using WPS or the configuration wizard.

3.1 Establishing a Wireless LAN Connection Using WPS

Using WPS (Wi-Fi Protected Setup), you can establish a secure wireless LAN connection at the push of a button.

Requirements

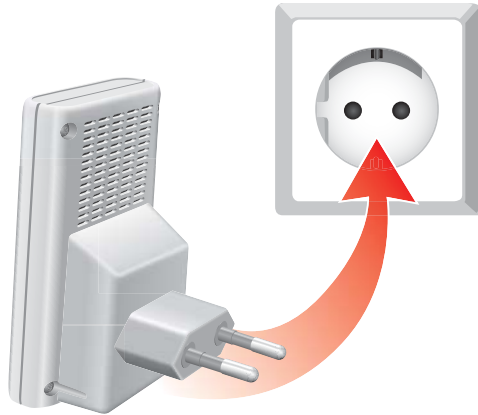
- The wireless access point must support WPS and WPS must be enabled.
- The “WLAN Bridge” operating mode must be set in the FRITZ!WLAN Repeater (preconfigured upon delivery of the FRITZ!WLAN Repeater).
- The SSID (radio network name) of the wireless access point must be set to “visible” (announced).
- If the MAC address filter of the wireless access point is enabled, the MAC address of the FRITZ!WLAN Repeater must be entered as an exception.



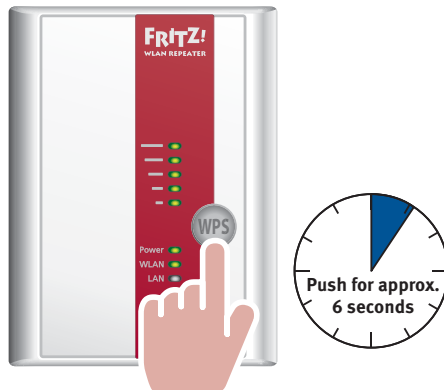
In the presettings of the latest FRITZ!Box models WPS is enabled, the SSID is visible and the MAC address filter is disabled.

Establishing a Wireless Connection

1. Connect the FRITZ!WLAN Repeater to an electrical outlet in the vicinity of the FRITZ!Box.

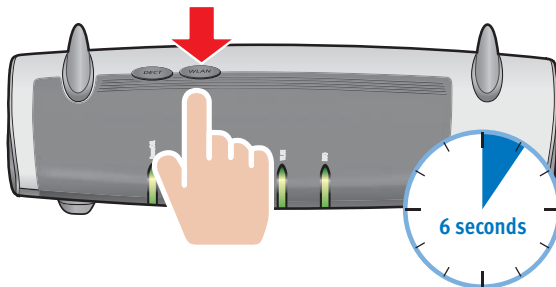


2. Press the “WPS” button on the FRITZ!WLAN Repeater. Hold the button down until the “WLAN” LED flashes.



3. You have two minutes for the next step: Start WPS on the wireless access point.

On a FRITZ!Box, press the button labeled “WLAN/WPS”, “WPS” or “WLAN” until the “WLAN” LED on the FRITZ!Box flashes.



4. Wait until the LEDs displaying signal strength light up on the FRITZ!WLAN Repeater.

The connection is established.

5. Select the best location for expanding the wireless radio network; for more information, see [page 16](#).

Insert the the FRITZ!WLAN Repeater into an electrical outlet at that location.

The connection with the wireless access point is re-established automatically.

3.2 Connecting Wirelessly Using the Configuration Wizard

If you cannot use WPS, establish the wireless connection using the configuration wizard.

The configuration wizard is started in the web browser.

Requirements

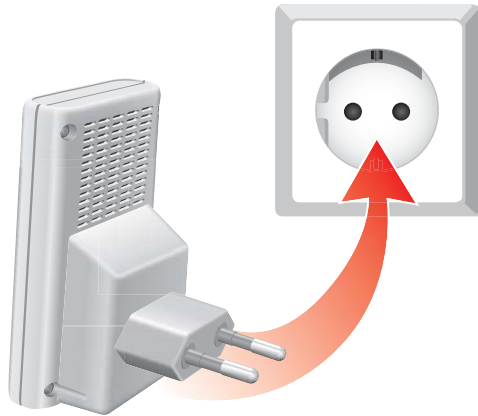
- The “WLAN Bridge” operating mode must be set in the FRITZ!WLAN Repeater (preconfigured upon delivery of the FRITZ!WLAN Repeater).
- DHCP must be enabled on the computer; see [Obtaining an IP Address Automatically](#) on [page 43](#).
- The SSID (radio network name) of the wireless access point must be set to “visible” (announced).
- If the MAC address filter of the wireless access point is enabled, the MAC address of the FRITZ!WLAN Repeater must be entered as an exception.



In the presettings of the latest FRITZ!Box models the SSID is visible and the MAC address filter is disabled.

Establishing a Wireless Connection

1. Connect the FRITZ!WLAN Repeater to an electrical outlet in the vicinity of the FRITZ!Box.



2. Connect the FRITZ!WLAN Repeater to a computer using the network cable included with delivery.

3. Start a web browser on the computer.

4. Enter the address <http://fritz.repeater>.

The configuration wizard starts.

5. Click “Next” and follow the instructions.

A secure wireless LAN connection is established between the FRITZ!WLAN Repeater and the wireless access point.

6. Select the best location for expanding the wireless radio network; for more information, see [page 16](#).

Insert the FRITZ!WLAN Repeater into an electrical outlet at that location.

The connection with the wireless access point is re-established automatically.

3.3 The Best Location for the FRITZ!WLAN Repeater

Note the following to find the best location for extending the wireless network:

- The best location is halfway between the wireless access point and the wireless devices the FRITZ!WLAN Repeater is to use.
- Be sure to keep a safe distance from walls and objects made out of metal, like radiators and electric appliances with metal housings.
- The more signal strength LEDs are lit up (see [page 7](#)), the better the radio signal received and forwarded.

4 Connecting to the Internet Router via LAN Cable

You can use a LAN cable to connect the FRITZ!WLAN Repeater to your wireless access point or to an Internet router without wireless LAN functionality.

Use this connection option in the following cases:

- The Internet router does not support wireless LAN.
- The wireless access point (Internet router) and the FRITZ!WLAN Repeater are too far away from each other for a wireless LAN connection.
- Structural conditions, for instance concrete ceilings, prevent establishing a wireless LAN connection.

4.1 Connecting via LAN Cable or Power Lines

If you do not want to lay any long LAN cables, you can extend your LAN cable via the home's own internal wiring using FRITZ!Powerline.

For more information on FRITZ!Powerline, go to en.avm.de.

4.2 Connecting an Internet Router

1. Connect the FRITZ!WLAN Repeater to a computer using the LAN cable included with delivery.
2. Open the FRITZ!WLAN Repeater user interface (see [page 21](#)).
3. Select "System / Operating Mode".
4. Click the "Change Operating Mode" button.
5. Select the "LAN bridge" operating mode.
6. Click "Next" and follow the instructions.
7. Connect the Internet router to the FRITZ!WLAN Repeater with a LAN cable.

5 Integrating Wireless Devices in the Wireless Network

This chapter describes how to integrate notebooks, tablets, smart-phones and other wireless devices into the wireless network extended by the FRITZ!WLAN Repeater.

5.1 Instructions for a Wireless Connection with the Internet Router

Proceed as follows if the FRITZ!WLAN Repeater is connected with a FRITZ!Box or another wireless access point via wireless radio:

1. Open the wireless LAN software on the wireless device.
2. Search for wireless networks in your vicinity.
3. Select the wireless network of the wireless access point.

The FRITZ!WLAN Repeater is preconfigured to use the same network name (SSID) as the wireless access point.

The wireless network name often appears only once in the list of radio networks. If it appears twice, select one of the two entries.

The wireless device automatically connects with the device (access point or repeater) whose signal is stronger.

4. Start the connection procedure and enter the network key of the wireless access point.

The FRITZ!WLAN Repeater is preconfigured to use the same network key as the wireless access point.

The wireless LAN connection will be established.

The wireless device now has access to the wireless network and to the Internet connection of the Internet router.

5.2 Instructions for a LAN Connection with the Internet Router

If the FRITZ!WLAN Repeater is connected by LAN cable to the Internet router, you can establish wireless connections to your wireless devices using WPS or the devices' own wireless LAN software.

Establishing a Wireless LAN Connection Using WPS

1. Use your wireless device to search for wireless networks.
2. Select the wireless network of the FRITZ!WLAN Repeater.
3. Start the connection procedure on the wireless device via WPS.
4. Press the "WPS" button on the FRITZ!WLAN Repeater. Hold the button down until the "WLAN" LED flashes.

The wireless LAN connection will be established.

The wireless device now has access to the Internet connection of the Internet router.

Establishing a Wireless LAN Connection using Wireless LAN Software

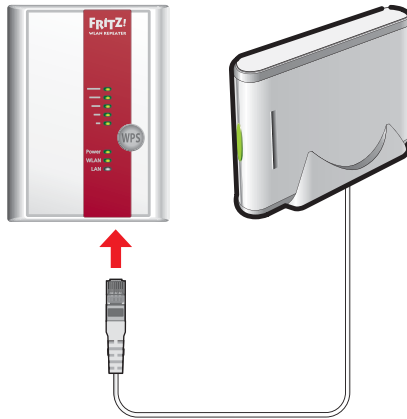
1. Open the wireless LAN software on the wireless device.
2. Search for wireless networks in your vicinity.
3. Select the wireless network of the FRITZ!WLAN Repeater.
4. Start the connection procedure.

The network key of the FRITZ!WLAN Repeater is found in the user interface under "WLAN / Security".

The wireless LAN connection will be established.

The wireless device now has access to the Internet connection of the Internet router.

6 Integrating in the Wireless LAN via LAN Port



Connecting a device to the LAN port

The FRITZ!WLAN Repeater 450E has a LAN port for a network device, for instance a Blu-ray player, television, satellite/TV receiver, printer, or network storage device.

The connected device is then integrated into your wireless network and can use the Internet connection of the wireless access point.

A LAN cable for connecting a network device is included with delivery of the FRITZ!WLAN Repeater.

Example

You can connect a network storage device to the FRITZ!WLAN Repeater's LAN port. All computers connected wirelessly with the FRITZ!WLAN Repeater or the wireless access point then can download files from the network storage or save files to the network storage.

7 The FRITZ!WLAN Repeater User Interface

The FRITZ!WLAN Repeater has a user interface you can open in a web browser on your computer.

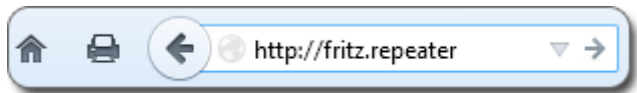
In the user interface, you can edit the FRITZ!WLAN Repeater's settings, enable or disable features and perform firmware updates.

Detailed descriptions of and instructions for settings and features of the FRITZ!WLAN Repeater are presented in the user interface's Online Help.

7.1 Opening the User Interface

The user interface can be opened on every computer connected with the FRITZ!WLAN Repeater or the wireless access point.

1. Start a web browser on your computer.
2. Enter <http://fritz.repeater> in the address field of the browser.



The user interface appears.

If the user interface does not appear, read [The User Interface Is Not Displayed](#) on [page 37](#).

7.2 Protecting the User Interface with a Password

To protect the settings of your FRITZ!WLAN Repeater from unauthorized access, you can set up a password for the user interface.



We strongly recommend setting up and using password protection.


Configuring Password Protection

1. Open the user interface of the FRITZ!WLAN Repeater; see [page 37](#).
2. Go to the “System / Password” menu.

3. Enter a password and click “Apply”.

Password protection is enabled.

Log off the user interface.

When password protection is enabled, you can log off the user interface at any time. To do so, click  **Log off** .

8 FRITZ!WLAN Repeater at a FRITZ!Box

If the FRITZ!WLAN Repeater is connected with a FRITZ!Box, then functions are available in the FRITZ!WLAN Repeater which cannot be used in connection with routers from other manufacturers.

The following functions are available when the FRITZ!WLAN Repeater is connected with a FRITZ!Box:

Function	Settings
Wireless LAN schedule	<ul style="list-style-type: none"> • Upon the first connection with the FRITZ!Box the settings of the wireless LAN switching schedule are adopted from the FRITZ!Box. • You can configure a separate wireless LAN switching schedule for the FRITZ!WLAN Repeater. • The wireless LAN switching schedule can be edited in the “WLAN / Schedule” menu.
Wireless guest access	<ul style="list-style-type: none"> • Upon the first connection with the FRITZ!Box the settings of the wireless LAN guest access are adopted from the FRITZ!Box. • You can configure a separate guest access for the FRITZ!WLAN Repeater. • The wireless guest access can be edited in the “WLAN / Guest Access” menu. • See also Wireless Guest Access: Private Hotspot from page 31.
Parental controls	<ul style="list-style-type: none"> • Upon the first connection with the FRITZ!Box the settings for parental controls are adopted from the FRITZ!Box. • The parental control settings can be edited only in the FRITZ!Box. • See also Configuring a Switching Schedule for the Wireless Radio Network from page 34.

- The functions are enabled upon the first connection with the FRITZ!Box.
- It does not matter whether the FRITZ!WLAN Repeater is connected with the FRITZ!Box via wireless radio or with a network cable.

9 Push Services: Using Notification Services

Push services are notification services that inform you about the activities of your FRITZ!WLAN Repeater and assist you in saving your passwords and FRITZ!WLAN Repeater settings. With the push services you can have e-mail sent to you at regular intervals informing you about the latest connections, usage and configuration of your FRITZ!WLAN Repeater.

Various push services are available in the user interface under “System / Push Service”. There you can select the push service interesting for you and specify which events in the FRITZ!WLAN Repeater you would like to be informed about, how often these e-mails should be sent, and to which e-mail address.

9.1 Available Push Services

You can configure the following push services:

Push Service	Function
FRITZ!WLAN Repeater info	Sends you regular e-mail messages with data on usage and connections.
Wireless guest access	Sends you a message whenever devices register with or deregister from the wireless guest access.
New FRITZ!IOS	Notifies you whenever a new FRITZ!IOS is available.
Save settings	The settings of the FRITZ!WLAN Repeater are saved automatically and sent to the specified e-mail address before every update and each time the factory settings are restored.
Forgot password	Sends an access link to the specified e-mail address if you have forgotten your password.

9.2 Enabling Push Services

A wizard is available in the FRITZ!WLAN Repeater user interface to guide you step by step through the configuration of push services.

1. Open the FRITZ!WLAN Repeater user interface (see [page 21](#)).
2. On the “Overview” page, select the “Wizards” menu.
3. Start the “Configure Push Service” Wizard.

The wizard guides you through the menus and dialogs to enable the push services.

9.3 Configuring Push Services

You can adjust the push services to your needs, and also disable any or all push services.

1. Open the FRITZ!WLAN Repeater user interface (see [page 21](#)).
2. Select the “System / Push Service / Push Services” menu.
3. To configure a push service, click the “Edit” button.
4. Configure various settings in the details.

The Help of the FRITZ!WLAN Repeater user interface presents comprehensive information on the settings of each push service.

5. Click “OK” to save your settings.

In the Help of the FRITZ!WLAN Repeater user interface you can find detailed instructions.

10 Updating: Update FRITZ!OS

AVM provides regular free FRITZ!OS updates for your FRITZ!WLAN Repeater. FRITZ!OS is the operating system of the FRITZ!WLAN Repeater and controls all functions and settings of the FRITZ!WLAN Repeater. FRITZ!OS updates provide for maximum security in your home network, contain further developments of existing FRITZ!WLAN Repeater functions and often also introduce new features for the FRITZ!WLAN Repeater.

10.1 Updating FRITZ!WLAN Repeater Automatically

With the “Automatic Update” feature you have the option of installing updates automatically whenever a new FRITZ!OS version becomes available. For the “Automatic Update” function you can select among various methods:

Procedure	Description
Notify about new FRITZ!OS versions	The FRITZ!WLAN Repeater indicates when a new version of FRITZ!OS is available in the “Overview” menu. You start the update yourself; see Performing an Update with the Wizard from page 27.
Notify me about new versions of FRITZ!OS and install necessary updates automatically (recommended)	<p>The FRITZ!WLAN Repeater indicates when a new version of FRITZ!OS is available in the “Overview” menu. You start the update yourself; see Performing an Update with the Wizard from page 27.</p> <p>Updates which AVM regards as necessary for continued secure and reliable operation (for instance, security updates) will be installed automatically.</p> <p>The FRITZ!WLAN Repeater selects a suitable time for the update, generally at night.</p> <p>During installation the Internet connection is briefly interrupted.</p>

Configuring Automatic Update

1. Open the FRITZ!WLAN Repeater user interface (see [page 21](#)).
2. Select the “System / Update” menu and click on the “Auto-Update” tab.
3. Select the desired auto-updating option.
4. Click on “Auto-Update”.

This concludes the configuration of the auto-update feature.



You can also request notification about new updates by e-mail; see [Push Services: Using Notification Services](#) from [page 24](#).

10.2 Performing an Update with the Wizard

For updating the FRITZ!WLAN Repeater there is a wizard in the FRITZ!WLAN Repeater user interface. The wizard checks whether an update of the FRITZ!OS is available for your FRITZ!Box and guides you step by step through installation.

Performing the Update

1. Open the FRITZ!WLAN Repeater user interface (see [page 21](#)).
2. On the “Overview” page, select the “Wizards” menu.
3. Start the “Update FRITZ!OS” wizard.

The wizard checks whether a new FRITZ!OS update is available for your FRITZ!WLAN Repeater.

- ➔ To transfer a new FRITZ!OS to the FRITZ!WLAN Repeater, click “Start Update”.

The FRITZ!OS update begins and the “Power” LED on the FRITZ!WLAN Repeater starts flashing.



Interrupting the FRITZ!OS update can damage the FRITZ!WLAN Repeater. Do not interrupt the power supply to the FRITZ!WLAN Repeater during the update!

The FRITZ!OS update is complete when the “Power” LED stops flashing.

10.3 Updating the Firmware Manually

There are situations in which it is not possible to perform an automatic update, for instance when the FRITZ!WLAN Repeater is not connected to the Internet. Then you have the option of performing an update manually.

Requirements

Before you can perform a manual update, you must download an up-to-date FRITZ!OS file from the Internet (using your neighbor's or friend's computer, or at an Internet café) and save it on your computer or on a connected storage medium.

Downloading the FRITZ!OS File

1. Enter the address <ftp://ftp.avm.de/fritz.box/> in your web browser.
2. Switch to the folder for your FRITZ!WLAN Repeater model, then to the sub-folder “firmware”, and then to the folder named “english”.

The complete model name of your FRITZ!WLAN Repeater is shown in the user interface on the “Overview” page and is also printed on the sticker on the underside of the housing.

3. Download the latest FRITZ!OS file for the FRITZ!WLAN Repeater with the file extension “.image” to the computer.

The currently installed version of FRITZ!OS is displayed on the “FRITZ!OS File” tab and on the “Overview” page. The version number of the FRITZ!OS you downloaded and saved is included in the name of the “*.image” file. Perform an update only if the downloaded FRITZ!OS is a newer version than the FRITZ!OS currently installed.

Now you can copy the FRITZ!OS file to the computer that is connected to the FRITZ!WLAN Repeater, for instance using a USB flash drive.

Performing a FRITZ!OS Update

1. Open the FRITZ!WLAN Repeater user interface (see [page 21](#)).
2. Select “System / Update / FRITZ!OS File”.
3. Click the “Save Settings” button to save the current settings of your FRITZ!WLAN Repeater on your computer and save the export file on your computer.

Using this file you can restore the settings of your FRITZ!WLAN Repeater as needed.

4. Click the “Browse...” button and choose the file with the new FRITZ!OS you already downloaded and saved on your computer.
5. Click the “Start Update” button.

The FRITZ!OS update begins and the “Power” LED on the FRITZ!WLAN Repeater starts flashing.



Interrupting the FRITZ!OS update can damage the FRITZ!WLAN Repeater. Do not interrupt the power supply to the FRITZ!WLAN Repeater during the update!

The FRITZ!OS update is complete when the “Power” LED stops flashing.

11 Changing the Name of the Wireless Network (SSID)

If you change the name (SSID) of the FRITZ!WLAN Repeater wireless network, you can specify the wireless network of the FRITZ!WLAN Repeater for selection on wireless devices (for example, notebooks, tablets).

11.1 Why the Name of the Radio Network (SSID) Has To Be Changed First

The FRITZ!WLAN Repeater is preconfigured to adopt the same network name (SSID) as the wireless access point (FRITZ!Box) in the WLAN Bridge operating mode.

So wireless devices find a radio network with the SSID of the wireless access point, but no radio network that belongs only to the FRITZ!WLAN Repeater.

When you select the radio network, the wireless device automatically connects with the device (access point or repeater) with the stronger wireless signal.

11.2 Configuring a Separate Radio Network Name for the FRITZ!WLAN Repeater

To select the FRITZ!WLAN Repeater directly, assign a different name for the radio network of the FRITZ!WLAN Repeater.

1. Open the FRITZ!WLAN Repeater user interface (see [page 21](#)).
2. Select “WLAN / Radio Settings”.
3. Disable the checkbox “Take on the same radio network name as the wireless access point (FRITZ!Box)”.
4. Enter a name for the wireless radio network of the FRITZ!WLAN Repeater.
5. Click “Apply”.

12 Wireless Guest Access: Private Hotspot

You can configure a guest access to the wireless radio network of the FRITZ!WLAN Repeater. At this guest access guests can surf the web with their own devices, but cannot access the contents of your home network.

The wireless guest access is your private hotspot.

12.1 Prerequisite for Guest Access

The guest access is made available by the FRITZ!WLAN Repeater only if the access point of the FRITZ!WLAN Repeater is a FRITZ!Box.

12.2 Features of the Wireless Guest Access

- Your guests can register with the guest access with their own smartphones, tablets, and notebooks.
- Guest devices can surf the Internet.
- Guest devices have no access to your home network.
- The guest access can be disabled automatically.
- Via push service you can keep informed about what guest devices are registered with the guest access.
- The access profile “Guest” is set for the wireless guest access. This access profile can be edited in the FRITZ!Box user interface (<http://fritz.box> under “Internet / Filters”).

12.3 Configuring Guest Access

Default Setting

When the FRITZ!WLAN Repeater connects with the FRITZ!Box, the switching schedule of the FRITZ!Box is adopted automatically. You can disable this setting and set up a separate guest access for the FRITZ!WLAN Repeater.

Configuring Guest Access

1. Open the FRITZ!WLAN Repeater user interface (see [page 21](#)).
2. Select “WLAN / Guest Access”.
3. To set up a separate guest access for the FRITZ!WLAN Repeater, disable the “Adopt settings for guest access from the FRITZ!Box” checkbox.
4. Enable the checkbox “Guest access enabled”.
5. Set up the guest access.
6. Click “Apply”.

12.4 Registering with the Guest Access

There are different ways for wireless devices to register with the guest access.

Manually Registering a Wireless Device with the Wireless Guest Access

1. Your guest starts the wireless LAN software of her or his wireless device and searches for the guest network.
2. Your guests authorize themselves using the network key you assigned.

The wireless LAN connection will be established.

Registering a Wireless Device with the Wireless Guest Access via QR Code

1. Open the FRITZ!WLAN Repeater user interface (see [page 21](#)).
2. Print out the QR code for your guest.
3. Your guest starts the QR code reader on his or her wireless device and reads in the QR code of the wireless network.

The wireless LAN connection will be established.

Registering a Wireless Device with the Wireless Guest Access via WPS

1. Open the FRITZ!WLAN Repeater user interface (see [page 21](#)).
2. Your guest starts WPS on his or her wireless device.
3. In the “WLAN / Guest Access” menu, click the “Start WPS” button.

The wireless LAN connection will be established.

13 Configuring a Switching Schedule for the Wireless Radio Network

You can configure a schedule for times at which the wireless network of the FRITZ!WLAN Repeater is to be turned on and off automatically.

Switching off the wireless network reduces power consumption.

Prerequisite

The switching schedule for the wireless radio network is available only if the access point of the FRITZ!WLAN Repeater is a FRITZ!Box.

Default Setting

When the FRITZ!WLAN Repeater connects with the FRITZ!Box, the switching schedule of the FRITZ!Box is adopted automatically.

Configuring a Switching Schedule

1. Open the FRITZ!WLAN Repeater user interface (see [page 21](#)).
2. Select “WLAN / Schedule”.
3. Enable the “Use schedule for wireless network” checkbox.
4. To set up a switching schedule only for the FRITZ!WLAN Repeater, disable the “Adopt schedule settings from the FRITZ!Box” checkbox.
5. Set up the switching schedule.
6. Click “Apply”.

14 Switching the Operating Mode

14.1 Operating Modes

Upon delivery, the “WLAN Bridge” operating mode is preconfigured in the FRITZ!WLAN Repeater.

You can also deploy the FRITZ!WLAN Repeater in the “LAN Bridge” operating mode.

Which operating mode to be used depends on how the Internet router (FRITZ!Box) is to be connected with the FRITZ!WLAN Repeater.

Operating Mode	How to connect the Internet router:	How to connect network devices:
WLAN bridge (preset)	via wireless radio	<ul style="list-style-type: none"> • via wireless radio • via LAN cable
LAN bridge	via LAN cable	via wireless radio

Network devices include, for instance, PCs, notebooks, tablets and smartphones.

14.2 Changing the Operating Mode

1. Open the FRITZ!WLAN Repeater user interface (see [page 21](#)).

If you cannot open the user interface, connect the computer to the FRITZ!WLAN Repeater using the LAN cable included with delivery. Enter the address <http://192.168.178.2> in the web browser.

2. Select “System / Operating Mode”.
3. Click the “Change Operating Mode” button.
4. Select the desired operating mode.
5. Click “Next” and follow the instructions.

15 Switching Off LEDs

You can completely switch off the LEDs on the FRITZ!WLAN Repeater:

1. Open the FRITZ!WLAN Repeater user interface (see [page 21](#)).
2. Go to the “System / LEDs” menu.
3. Select the “LED display off” option.
4. Click “Apply”.

The LEDs turn off.

If you insert the FRITZ!WLAN Repeater into an outlet when the LED display is switched off, the LED display will light up initially and then turn off automatically.

16 Help in Case of Errors

16.1 LEDs Not On

The LEDs on the FRITZ!WLAN Repeater do not light up.

Cause

The FRITZ!WLAN Repeater has no electricity.

Help

- Make sure that the FRITZ!WLAN Repeater is connected to electrical power.
- Make sure that the electrical outlet is active.

Cause

The LEDs have been disabled.

Help

Open the user interface (see [page 21](#)). In the “System / LEDs” menu, enable the “LED display on” option and click “Apply”.

16.2 The User Interface Is Not Displayed

The user interface of the FRITZ!WLAN Repeater is not displayed in the web browser.

Cause

The address “fritz.repeater” cannot be reached.

Help

Open the network overview of your wireless access point. Make note of the IP address of your FRITZ!WLAN Repeater. Enter this address in the address field of your browser.

If the connection to the wireless access point is interrupted, connect your computer to the FRITZ!WLAN Repeater using the LAN cable included with delivery. Then enter the IP address <http://192.168.178.2> in the address line of your browser.

16.3 No Connection with the Wireless Access Point

Cannot establish a wireless LAN connection between the FRITZ!WLAN Repeater and your wireless access point.

Cause

The FRITZ!WLAN Repeater is located outside the wireless LAN range of your access point.

Help

Reduce the distance between the two devices. Connect the FRITZ!WLAN Repeater to an outlet in another location.

Cause

The wireless LAN function of your wireless access point is disabled.

Help

Enable the wireless LAN function.

Cause

Your wireless access point is configured to establish wireless connections only in the 5-GHz frequency band.

Help

Change the settings of your wireless access point so that the 2.4-GHz frequency band is used for the wireless radio network. See the documentation of your wireless access point for instructions.

Cause

You are attempting to register the FRITZ!WLAN Repeater at your wireless access point using WDS (Wireless Distribution System).

Help

The FRITZ!WLAN Repeater does not support WDS. For instructions on connecting the FRITZ!WLAN Repeater with your wireless access point, see [page 12](#).

Cause

Another wireless radio network in the vicinity is causing interference.

Help

Test a different radio channel. If possible, set automatic radio channel selection in the wireless access point.

Cannot establish a wireless LAN connection between the FRITZ!WLAN Repeater and the wireless LAN access point via WPS.

Cause

The connection via WPS failed.

Help

Start the connection procedure again (see [Establishing a Wireless LAN Connection Using WPS](#) from [page 12](#)).

Cause

The “LAN Bridge” operating mode is set in the FRITZ!WLAN Repeater. In this mode the wireless LAN access point can only be connected using a LAN cable. In this operating mode you can use WPS only to connect wireless devices like notebooks and smartphones with the FRITZ!WLAN Repeater.

Help

Switch the operating mode to “WLAN bridge” in the “System / Operating Mode” menu in the user interface.

Cause

WPS is disabled on the wireless access point.

Help

Install the latest firmware for your wireless access point and then enable the WPS function in the access point.

Cause

The encryption of your wireless access point is set to “WEP” or “non-encrypted”. WPS can only be used with WPA/WPA2 encryption.

Help

Configure encryption with WPA/WPA2 in the user interface of your wireless access point.

Cause

The radio network name (SSID) at your wireless access point is set to “not visible”.

Help

Set the SSID to “visible”.

The SSID must be visible to establish a connection using WPS. Once the connection has been established you can reset the SSID of the wireless access point back to “not visible”.

Cause

The MAC address filter of the wireless access point is enabled and the FRITZ!WLAN Repeater is not entered as an exception in the MAC address list of the wireless access point.

Help

Enter the MAC address of the FRITZ!WLAN Repeater as an exception in the MAC address filter of the wireless access point.

16.4 No Wireless LAN Connection with a Computer

No wireless LAN connection can be established between the FRITZ!WLAN Repeater and a computer.

Cause

The computer’s wireless LAN adapter is not ready for operation.

Help

On some notebooks the wireless LAN adapter must be activated by flipping a switch on the notebook. Make sure that the wireless LAN adapter is switched on.

Cause

The computer is located beyond the wireless LAN range of the FRITZ!WLAN Repeater.

Help

Reduce the distance between your computer and the FRITZ!WLAN Repeater.

Cause

The FRITZ!WLAN Repeater is not yet connected with the wireless access point.

Help

Follow the instructions in the section [Connecting with the Internet Router Wirelessly](#) from [page 12](#).

Cause

The encryption method set in the FRITZ!WLAN Repeater is different from the one in your computer's wireless LAN software.

Help

Set the same encryption method in your computer's wireless LAN software as in the FRITZ!WLAN Repeater. To find out which encryption method is set in the FRITZ!WLAN Repeater, check the user interface (see [page 21](#)).

For connections to the wireless access point the FRITZ!WLAN Repeater applies the encryption method and network key of the access point. If the connection was established using WPS, the access point has WPA/WPA2 encryption configured.

Cause

Another wireless radio network in the vicinity of the FRITZ!WLAN Repeater and the wireless access point is causing interference.

Help

Test a different radio channel. If possible, set automatic radio channel selection in the wireless access point. Your FRITZ!WLAN Repeater then will use the same channel automatically.

16.5 Cannot Access Devices in the Network

No other devices in the network can be accessed.

Cause

A firewall is running on the devices.

Help

Configure the firewall to allow access to the network.

Cause

The devices are not configured to receive their IP addresses automatically.

Help

Set up the devices as directed in the section [Obtaining an IP Address Automatically](#) from [page 43](#).

Cause

The devices are not bound to TCP/IP.

Help

Check the network connection of the network adapter in the device in question. See the documentation of your operating system for more information.

16.6 Obtaining an IP Address Automatically

This section describes how to set automatic IP address assignment in the computers in the network.

Obtaining an IP Address Automatically in Windows

1. In Windows 7 and Vista click “Start”.

In Windows 8 and 8.1, press the Windows key and the Q key at the same time.

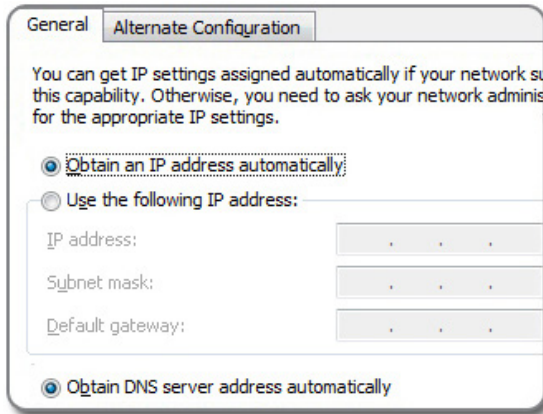
In Windows 7 and Vista, the Start menu with the “Search” field appears. In Windows 8 and 8.1 the “Search” menu for apps appears.

2. Enter “ncpa.cpl” in the search field and press Enter.



Entering “ncpa.cpl” in Windows 8

3. Click the network connection of the computer with the right mouse button and select “Properties”.
4. Under “This connection uses the following items”, select “Internet Protocol Version 4 (TCP/IPv4)”.
5. Click the “Properties” button.
6. On the “General” tab, enable the options “Obtain an IP address automatically” and “Obtain DNS server address automatically”.



7. Click “OK” to save the settings.
8. Enable the options “Obtain an IP address automatically” and “Obtain DNS server address automatically” for the Internet protocol version 6 (TCP/IPv6) as well.

The computer receives an IP address from the wireless access point.

Obtaining an IP Address Automatically in Mac OS X

1. Select the “System Preferences” in the Apple menu.
2. In the “System Preferences” window, click the “Network” icon.
3. In the “Network” window, select the “Ethernet” entry from the list.
4. Click the “Advanced...” button. The “TCP/IP” settings page opens. Select the “Using DHCP” option from the “Configure IPv4:” drop-down list.
5. Click “OK”.

17 Technical Specifications

17.1 Physical Specifications

- Dimensions (W x D x H): approx. 76 x 101 x 76 mm
- Supply voltage: 230 V / 50 Hz
- Total power consumption: approx. 5 watts
- Weight: approx. 120 g
- 3 antennas
- LAN port over RJ45 socket (gigabit Ethernet, 10/100/1000 Base-T)
- Wireless LAN: IEEE 802.11 n/g/b
- Wireless LAN: WPA, WPA2 (802.11i)
- WLAN: 2.4 GHz max. 100 mW
- Wireless transmission rate (gross) up to 450 Mbit/s

The user data rate that can actually be achieved is somewhat below this value.

- Operating temperature: 0 °C to +40 °C

17.2 User Interface and Display

- Configuration and status messages in a web browser on a connected computer
- “WPS” button to control wireless LAN and WPS and to restore settings
- LED display for information on the connection, activity and status

18 Customer Service Guide

Here you will find the important information you need, in the form of frequently asked questions (FAQs), manuals, updates and support.

18.1 Documentation on the FRITZ!WLAN Repeater

Help in the User Interface

In the user interface (see [page 21](#)), click the Help button to view information on the settings and features of the FRITZ!WLAN Repeater.

Latest Manual

The latest manual is available in PDF format on our website at [en/avm.de/service/manuals/fritz wlan](http://en.avm.de/service/manuals/fritz wlan).

18.2 Information in the Internet

On its website AVM presents comprehensive information on your AVM products as well as new product announcements and new product versions.

[AVM Knowledge Base](#)

In our AVM Knowledge Base you can find precise solutions to your problems. The AVM Knowledge Base is located in the “Service” area of the AVM website:

en.avm.de/service

18.3 Assistance from the Support Team

If you have problems with the FRITZ!WLAN Repeater, proceed as follows:

1. If you have any problems, for instance in establishing connections, read the section [Help in Case of Errors](#) from [page 37](#).

2. Search for a solution in the AVM Knowledge Base.

en.avm.de/service

This site contains answers to questions frequently posed to our Support team.

Support by e-mail

You can send us an English-language e-mail request at any time using the “Service” area of our website. You can reach the service area at en.avm.de/service/support-request/your-support-request.

1. Select the product group and your product for which you need support.

You will receive a selection of FAQs.

2. If you need more help, click the “Submit support request” link to open the e-mail support form.
3. Fill out the form and send it to AVM by clicking the “Submit support request” button.

Our Support team will respond by e-mail as quickly as possible.

Manufacturer's Warranty

We offer a manufacturer's warranty of 5 years on the hardware of this original product. The warranty period begins with the purchase date from the first end user. Compliance with the warranty period can be proven by submission of the original invoice or comparable documents. This warranty does not restrict your warranty rights based on the contract of sale or other statutory rights.

Within the warranty period, we will remove defects to the product which are demonstrably due to faults in materials or manufacturing. Our warranty does not cover defects which occur due to incorrect installation, improper use, non-observance of instructions in the user manual, normal wear and tear or defects in the environment of the system (third-party hardware or software). We may, at our discretion, repair or replace the defective product. Claims other than the right to the removal of defects which is mentioned in these terms of warranty are not constituted.

We guarantee that the software conforms with general specifications, not, however, that the software meets your individual requirements. Delivery costs will not be reimbursed. Products which have been replaced revert to our ownership. Claims recognized under warranty entail neither an extension or recommencement of the warranty period. If we reject a warranty claim, this claim lapses no later than six months after being rejected by us.

This warranty shall be governed by German substantive law, to the exclusion of the United Nations Convention on Contracts for the International Sale of Goods (CISG).

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The information in this documentation and the software are subject to change without notice for the purpose of technical improvement.

We offer a manufacturer’s warranty for this original product. The warranty conditions are presented from [page 49](#) of this manual.

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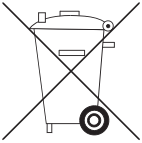
AVM declares herewith that the device is compliant with the basic requirements and the relevant rules in directives 2014/53/EU, 2009/125/EC and 2011/65/EU.

The declaration of CE conformity is available at en.avm.de/ce.

Disposal Information

In accordance with European regulations, the FRITZ!WLAN Repeater 450E, as well as all devices and electronic components contained in the package, may **not** be disposed with household waste.

After use, please dispose of FRITZ!WLAN Repeater 450E and all electronic components and devices included with delivery at a collection point in your local community for the disposal of electric and electronic appliances.



Symbol for the separate collection of electric and electronic devices

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