

# INSTALLATION, CONFIGURATION AND OPERATION OF THE FRITZ!WLAN USB STICK



HIGH-PERFORMANCE COMMUNICATION BY ...



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## FRITZ!WLAN USB Stick v1.1

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# Contents

<b>1</b>	<b>FRITZ!WLAN USB Stick at a Glance</b>	<b>6</b>
1.1	Package Contents . . . . .	6
1.2	Operation Requirements . . . . .	7
1.3	LEDs . . . . .	7
1.4	Technical Summary . . . . .	8
<b>2</b>	<b>AVM Stick &amp; Surf Technology</b>	<b>10</b>
<b>3</b>	<b>Installing the FRITZ!WLAN USB Stick</b>	<b>11</b>
3.1	Installation in Windows Vista . . . . .	12
3.2	Installation in Windows XP and Windows 2000 . . . . .	13
3.3	Installation in Windows Vista x64 Edition . . . . .	14
3.4	Installation in Windows XP Professional x64 Edition . . . . .	15
<b>4</b>	<b>The FRITZ!WLAN Control Software</b>	<b>17</b>
4.1	Operating FRITZ!WLAN . . . . .	17
4.2	Establishing a WLAN Connection . . . . .	19
<b>5</b>	<b>Microsoft WLAN Service</b>	<b>24</b>
<b>6</b>	<b>More about WLAN</b>	<b>29</b>
<b>7</b>	<b>Removing the FRITZ!WLAN USB Stick</b>	<b>33</b>
<b>8</b>	<b>Troubleshooting</b>	<b>34</b>
8.1	Errors During Installation: What to Do . . . . .	34
8.2	Checking the IP Settings . . . . .	34
8.3	Checking the Settings of the FRITZ!WLAN USB Stick . . . . .	38
8.4	Problems with the WLAN Connection: What to Do . . . . .	39
<b>9</b>	<b>Customer Service Guide</b>	<b>45</b>
9.1	Product Documentation . . . . .	45
9.2	Information in the Internet . . . . .	46
9.3	Updates . . . . .	46
9.4	Support from the AVM Service Team . . . . .	47
	<b>Index</b>	<b>49</b>
	<b>Declaration of CE Conformity</b>	<b>51</b>

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## Safety Instructions



*When working with the FRITZ!WLAN USB Stick, follow the instructions below to protect yourself and the FRITZ!WLAN USB Stick from damage.*

- Do not install FRITZ!WLAN USB Stick during an electrical storm. Unplug the FRITZ!WLAN USB Stick from the computer during an electrical storm.
- Never let liquids get inside the FRITZ!WLAN USB Stick. Otherwise, electric shocks or short circuits may result.
- Protect the FRITZ!WLAN USB Stick from dust, moisture and steam. Clean the FRITZ!WLAN USB Stick with a slightly moist, lint-free cloth. Intensive cleaning products or solvents are not suitable.
- FRITZ!WLAN USB Stick is intended for indoor use only.
- Do not open the FRITZ!WLAN USB Stick housing. The device contains hazardous components and should only be opened by authorized repair technicians.

## Disposal Instruction



After use, please subject this product to orderly disposal as electronic scrap in accordance with the current EU disposal regulations.



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# Symbols and Highlighting

The following highlighting and icons are used to designate important information:

## Highlighting

The following highlighting is used in this manual.

Highlighting	Function	Example
Quotation marks	Keys, buttons, icons, tabs, menus, commands	“Start / Programs” or “Enter”
Capital letters	Path and file names in running text	SOFTWARE\INFO.PDF or README.DOC
Pointed brackets	Variables	CD-ROM drive
Typewriter font	Information to be typed in using the keyboard	<code>a:\setup</code>
Gray italics	Tips, instructions and warnings	<i>... for more information, see...</i>

## Symbols

The following icons are used in the manual:



*This symbol designates sections which contain important information.*



*This symbol indicates useful tips and information.*

# 1 FRITZ!WLAN USB Stick at a Glance

FRITZ!WLAN USB Stick is a WLAN adapter for the Universal Serial Bus (USB). With the FRITZ!WLAN USB Stick, you can connect your computer directly with a WLAN access point, for example, with a FRITZ!Box WLAN by AVM. You can also connect to other WLAN devices, to printers, and to PDAs. This grants you high mobility while allowing you to work with all of the advantages of wireless connections, high transmission rates and fast connections at maximum security.

## 1.1 Package Contents

The package contains:

- one AVM WLAN-Controller FRITZ!WLAN USB Stick
- one USB extension cable
- one CD with
  - driver software
  - control software with Online Help
  - manual in PDF format
- a quick guide for the FRITZ!WLAN USB Stick

## 1.2 Operation Requirements

In order to operate FRITZ!WLAN USB Stick, your computer must meet the following requirements:

- A USB port on your computer. A USB 2.0 port is recommended; USB 1.1 works at a lower transmission rate.
- A computer with one of the following operating systems installed:  
Microsoft Windows Vista x64 Edition, Microsoft Windows Vista, Windows XP Professional x64 Edition, Windows XP or Windows 2000 (the latest service packs and updates are recommended).
- Pentium-class computer or notebook (500 MHz CPU or better).
- At least 64 MB RAM and 5 MB free memory on the hard drive.
- one CD drive

You can install FRITZ!WLAN USB Stick if your computer meets all of these requirements.

If you would like to connect additional computers, additional FRITZ!WLAN USB Sticks are required.

## 1.3 LEDs

During operation, the orange LEDs on the FRITZ!WLAN USB Stick indicate the following:

- |             |                                                                                           |
|-------------|-------------------------------------------------------------------------------------------|
| <b>WLAN</b> | flashes during data exchange between WLAN devices                                         |
| <b>USB</b>  | remains lit as soon as the FRITZ!WLAN USB Stick has been detected by the operating system |

## 1.4 Technical Summary

LEDs	2 (connection / activity)
USB port	USB version 2.0, compatible with USB 1.1 with reduced data transmission rate
WLAN module	Support for radio network in accordance with IEEE 802.11g (54 Mbit/s) and IEEE 802.11b (11 Mbit/s) standards
Frequency band	2.4 GHz
Encryption	WPA (Wi-Fi Protected Access) / WPA2 (802.11i) / WEP 64-/128-bit (Wired Equivalent Privacy)
Antenna	integrated antenna
Operating systems supported	Windows® Vista x64 Edition/Vista/XP Professional x64 Edition/XP/2000
Dimensions (WxDxH)	approx. 53 x 20 x 11 mm
Weight	approx. 10 g
Power supply	powered by USB, no external power supply required
Maximum power consumption	0.5 W (idle)/ 1.5 W (transfer)
Typical power consumption	1.4 W (transfer)
Transmitter power	max. 50 mW
Receiver sensitivity	max. -92 dBm
Supported data throughput rates (gross)	802.11g++ up to 125 Mbit/s * 802.11g up to 54 Mbit/s * 802.11b up to 11 Mbit/s *
	* The actually achievable throughput rates of the WLAN standards are presented in the table on Page 31.
Firmware	can be updated



Channels	1 through 13 (ETSI)
Ambient temperature (operation)	-5 to 45°C
Ambient temperature (storage)	-10 to 70°C
Humidity (storage/operation)	5 to 90%, no-condensation
Certification	CE

## 2 AVM Stick & Surf Technology

With AVM Stick & Surf technology the FRITZ!WLAN USB Stick can take over the WLAN security settings from other FRITZ!Box WLAN products. This allows a secure WLAN connection to be established between your computer and your FRITZ!Box without any additional configuration.

For this, your FRITZ!Box WLAN must be equipped with a port for USB devices (USB host function).

In order to use the AVM Stick & Surf technology for secure WLAN connections, perform the following steps:

1. Insert the FRITZ!WLAN USB Stick into the USB port on your FRITZ!Box.



*FRITZ!Box WLAN port for USB devices*

2. The FRITZ!Box “INFO” LED begins flashing to indicate that the WLAN security settings are being transmitted to the FRITZ!WLAN USB Stick.
3. When data transmission has been completed, the “INFO” LED stops flashing on the FRITZ!Box and remains lit.
4. Remove the FRITZ!WLAN USB Stick from the FRITZ!Box USB port.

The WLAN security settings have now been transmitted to the FRITZ!WLAN USB Stick.

As soon as you connect the FRITZ!WLAN USB Stick to your computer, the security settings of your WLAN are implemented in the FRITZ!WLAN control software. The AVM Stick & Surf logo appears and a WLAN connection to FRITZ!Box is established automatically.

### 3 Installing the FRITZ!WLAN USB Stick

FRITZ!WLAN USB Stick can be installed in the operating systems Windows Vista x64 Edition, Windows Vista, Windows XP Professional x64 Edition, Windows XP und Windows 2000.



*Please install the current Microsoft Service Packs using Microsoft Windows Update and use a USB 2.0 port for optimum performance of your FRITZ!WLAN USB Stick.*

*You can change the display of menus and folders in most operating systems. The following instructions are based on the standard installation of each operating system.*

If you have a FRITZ!Box WLAN with USB host function, first use Stick & Surf to transmit the WLAN security settings from your FRITZ!Box WLAN to your computer.

## 3.1 Installation in Windows Vista



*Administrator rights are required to install the FRITZ!WLAN USB Stick in Windows Vista!*

*Over the course of installation Windows will request the rights required for installation. Answer every inquiry by clicking “Continue” in the dialog.*

In order to install the FRITZ!WLAN USB Stick, perform the following steps:

1. Switch on the WLAN device you wish to connect to.
2. Switch on your computer.
3. Insert the FRITZ!WLAN USB Stick into the USB port on your computer.

Windows detects the FRITZ!WLAN USB Stick automatically. This process may take some time.

4. In the “FRITZ!WLAN USB Stick selfinstall” dialog, click the “Run pushinst.exe” entry.
5. Then click “Continue” in the “User Account Control” dialog.

The drivers and the control software for the FRITZ!WLAN USB Stick are installed automatically.

A progress bar indicates the progress and the conclusion of the installation.

This completes the driver installation for the FRITZ!WLAN USB Stick. Continue reading from section “Information on WLAN Connections” on page 16.

## 3.2 Installation in Windows XP and Windows 2000



*Administrator rights are required to install the FRITZ!WLAN USB Stick in Windows XP and Windows 2000!*

In order to install the FRITZ!WLAN USB Stick, perform the following steps:

1. Switch on the WLAN device you wish to connect to.
2. Switch on your computer.
3. Insert the FRITZ!WLAN USB Stick into the USB port on your computer.

Windows detects the FRITZ!WLAN USB Stick automatically. This process may take some time.

4. The drivers and the control software for your FRITZ!WLAN USB Stick are installed automatically.

If you are prompted to do so, insert the FRITZ!WLAN USB Stick CD and follow the instructions on the screen.

If an additional Windows dialog asks if you want to install software not digitally signed by Microsoft, click “Continue Anyway” (Windows XP) or “Yes” (Windows 2000). This request depends on the driver signature options set on your computer.

A progress bar indicates the progress and the conclusion of the installation.

This completes the driver installation for the FRITZ!WLAN USB Stick. Continue reading from section “Information on WLAN Connections” on page 16.

### 3.3 Installation in Windows Vista x64 Edition



*Administrator rights are required to install the FRITZ!WLAN USB Stick in Windows Vista x64 Edition!*

In order to install the FRITZ!WLAN USB Stick, perform the following steps:

1. Switch on the WLAN device you wish to connect to.
2. Switch on your computer.
3. Insert the FRITZ!WLAN USB Stick into the USB port on your computer.

Windows detects the FRITZ!WLAN USB Stick automatically. This process may take some time.

4. In the “Autoplay” dialog, select the “Run pushinstall.exe” option.
5. Then click “Continue” in the “User Account Control” dialog.
6. In the “Found New Hardware” window, select “Locate and install driver software (recommended)”.

If Windows reports that the program may not have been installed correctly, click “Program was installed correctly.” or “Cancel”.

7. Then click “Continue” in the “User Account Control” dialog.
8. Insert the FRITZ!WLAN USB Stick CD when Windows prompts you to do so.

The driver software is installed automatically.

This completes the driver installation for the FRITZ!WLAN USB Stick. Continue reading from section “Information on WLAN Connections” on page 16.

## 3.4 Installation in Windows XP Professional x64 Edition



*Administrator rights are required to install the FRITZ!WLAN USB Stick in Windows XP Professional x64 Edition!*

In order to install the FRITZ!WLAN USB Stick, perform the following steps:

1. Switch on the WLAN device you wish to connect to.
2. Switch on your computer.
3. Insert the FRITZ!WLAN USB Stick into the USB port on your computer.

Windows detects the FRITZ!WLAN USB Stick automatically. This process may take some time.

4. When asked whether you would like to connect to Windows Update, select the option “No, not this time” and then click “Next”.

The Add New Hardware Wizard starts and searches for drivers.

5. Insert the FRITZ!WLAN USB Stick CD and select the option “Install software automatically (recommended)”. Confirm with “Next”.

If an additional Windows dialog asks if you want to install software not digitally signed by Microsoft, click the “Continue Anyway” button. This request depends on the driver signature options set on your computer.

6. A message appears: “The Wizard has finished installing the software for this device”. Conclude the installation by clicking “Finish”.

This completes the driver installation for the FRITZ!WLAN USB Stick. To continue the installation, turn to the section “Information on WLAN Connections”.

## Information on WLAN Connections



If you installed your FRITZ!WLAN USB Stick **using Stick & Surf**, no further steps are necessary to establish a WLAN connection. Your FRITZ!Box WLAN will be identified automatically as WLAN access point. A WLAN connection you can use immediately will be established.

If you performed installation **without using Stick & Surf**, you have to select the WLAN remote site (the WLAN access point) to connect with manually in your WLAN control software. Please see the corresponding chapter of the control software for more information:

- If you are using the control software FRITZ!WLAN, please continue by reading the section “Establishing a Connection with a WLAN Access Point (Infrastructure Network)” from page 20.
- If you are using Windows Vista’s Microsoft WLAN Service, continue reading in the section “Establishing a WLAN Connection (Windows Vista)” from page 25. If you are using Windows XP’s Microsoft WLAN Service, continue reading in the section “Establishing a WLAN Connection (Windows XP SP2)” from page 27.



## 4 The FRITZ!WLAN Control Software

With the FRITZ!WLAN USB Stick you can establish wireless network connections (WLANs) with various WLAN devices. The FRITZ!WLAN control software is available to manage all these WLAN connections.



*If the FRITZ!WLAN control software has not yet been installed on your computer, please see the section “Microsoft WLAN Service” from page 24 for instructions on how to install it now.*

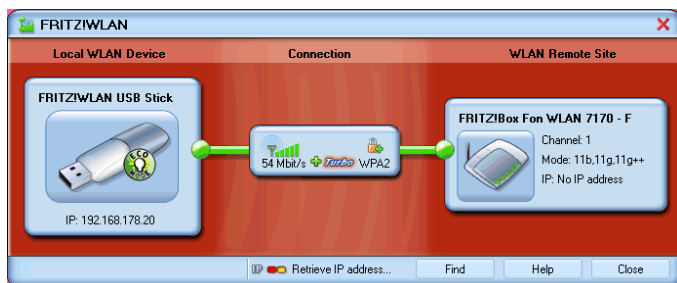
With FRITZ!WLAN you can configure, establish and clear WLAN connections as well as view connection information.

### 4.1 Operating FRITZ!WLAN



After FRITZ!WLAN USB Stick is installed, FRITZ!WLAN appears as a program icon in the notification area of the task bar. You can open the user interface of the control software in two ways:

- Double-click the FRITZ!WLAN program icon in the notification area of the Windows task bar.
- Or click the FRITZ!WLAN program icon with the right mouse button to open the context menu and select the “Display Connection...” command.



*FRITZ!WLAN user interface (connection example)*

### User Interface

All elements of a WLAN connection are displayed as icons in the user interface. The user interface window is divided into three sections.

The left side shows your own WLAN device, the FRITZ!WLAN USB Stick, complete with name and IP address.

The middle section displays the icon of the WLAN connection as a box with links to the devices on the left and on the right. The small icons in the box display the connection quality and the encryption used.

The right side shows the WLAN remote site with which you are currently connected or were connected most recently.

### Context Menus

The features of FRITZ!WLAN are available using the context menu:

1. Click the device or connection icons in the FRITZ!WLAN user interface, or the FRITZ!WLAN program icon in the notification area of the task bar.

The corresponding context menu opens.






2. Select the desired command.

Each icon displays its own selection of commands. You can search for WLAN devices at your location and configure them as WLAN remote sites, establish or clear WLAN connections to known remote sites, and have information displayed on device and connection properties.

For more information, please see the section “Establishing a WLAN Connection” from page 19 or click the “Help” button in the FRITZ!WLAN user interface to open the Online Help.

## Connection Status

The colors of the connection icons in the FRITZ!WLAN user interface and the FRITZ!WLAN program icon in the notification area of the task bar show the current condition of the connection:

Icon	Meaning
 and 	WLAN connection active
	WLAN connection is being established or the ad-hoc network you offered is ready to connect
 and 	no WLAN connection

## 4.2 Establishing a WLAN Connection

With FRITZ!WLAN you can establish WLAN connections to WLAN remote sites (access points), which can provide access to DSL, to printers, to mobile phones, PDAs, and even to other WLAN clients. Direct connections are also possible between two FRITZ!WLAN USB Sticks.

No matter which device you want to connect to, connecting with FRITZ!WLAN is always based on the principle: search, find, and connect.

There are two basic types of WLAN connections:

### Infrastructure Network

When WLAN users connect with a WLAN access point like the FRITZ!Box WLAN, they establish what is called an infrastructure network. In this network the WLAN access point manages bandwidth so that each device receives the optimum amount. The access point can be used to establish connections to a cable-connected network or the Internet.



In the device lists in the FRITZ!WLAN control software, this type of connection is designated by the infrastructure network icon.

### Ad-hoc Network

When WLAN users connect directly with each other without using an access point, they have established an ad-hoc network. This kind of direct connection is practical when WLAN users in the immediate vicinity want to exchange data with each other quickly and directly. The ad-hoc network participants have to share the existing bandwidth.



In the device lists in the FRITZ!WLAN control software, this type of connection is designated by the ad-hoc connection icon.

### Establishing a Connection with a WLAN Access Point (Infrastructure Network)



If you performed installation **using Stick & Surf**, no further steps are necessary. Your FRITZ!Box WLAN will be identified automatically as WLAN access point. A WLAN connection you can use immediately will be established.

If you performed installation **without using Stick & Surf**, you have to select the WLAN remote site (the WLAN access point) to connect with manually. In this case the FRITZ!WLAN control software automatically searches for WLAN devices at your location. Once a list of the WLAN access points found is displayed, proceed as follows:

1. Select the WLAN device to which you would like to establish a connection and confirm your selection by clicking “Select” or “Connect”.

2. Enter the network key of the WLAN access point.

On the AVM FRITZ!Box family products, the network key is printed on the underside of the device.

3. The WLAN connection is established.



Once the connection is established, the **WLAN icon** in the notification area of the Windows task bar turns green. Click the icon to display connection details.



*An active WLAN connection between the FRITZ!WLAN USB Stick and a known WLAN remote site that has been cleared because the computer has been shut down will be re-established automatically every time the computer is started whenever the remote site is accessible.*

## **Connecting Two WLAN Users Directly (Ad-hoc Network)**

To establish a direct connection via WLAN, one WLAN party has to offer an ad-hoc network that other ad-hoc parties may join.

### **How to Establish an Ad-hoc Network:**

1. In the FRITZ!WLAN user interface, click the icon of the WLAN remote site with the right mouse button or click the FRITZ!WLAN program icon in the notification area of the task bar and select the command “Create New Ad-hoc Network...”.

The “Ad-hoc Network” window opens.

2. Enter the WLAN key in the “WLAN key” field.

All other WLAN parties of the ad-hoc connection must also enter this key.



*See also the encryption instructions in the section “Encryption” on page 31.*



Confirm the settings configured earlier for the ad-hoc network. If you would like to change these settings, click the “Edit” button.

3. Confirm with “OK”.

The ad-hoc network is now ready for operation and awaits other WLAN users.

In the FRITZ!WLAN control software, yellow waves in the ad-hoc network icon indicate that it is ready to establish ad-hoc connections.



*The connection icon in FRITZ!WLAN: ready for ad-hoc connections*

### How to Join an Ad-hoc Network:

1. Open the FRITZ!WLAN control software on all of the computers to be connected to the ad-hoc network by double-clicking the FRITZ!WLAN icon in the notification area of the task bar.
2. Click the “Find” button to display the WLAN devices at your location.



Possible ad-hoc parties found at your location are designated by the ad-hoc icon in the list of accessible WLAN devices.

3. Select the desired ad-hoc remote site in the list of WLAN devices found. Then click the “Select” button.
4. Next, enter the shared WLAN key in the “Ad-hoc Network” window and confirm your entry by clicking “OK”.



*See the encryption instructions in the section “Encryption” on page 31.*

The ad-hoc network is displayed on the FRITZ!WLAN console as a known device and the WLAN connection is established.



*The process of automatically assigning IP addresses can take up to 3 minutes and is signaled by a flashing IP traffic light in the control software.*

## Connecting to the Internet

There are two different ways for FRITZ!WLAN USB Stick to connect to the Internet. In both cases you need account information from an Internet Service Provider:

### Connecting Using the WLAN Access Point

The WLAN access point (FRITZ!Box WLAN, for instance) establishes the connection with the Internet. For this the account information of the Internet Service Provider must be configured in the WLAN access point. All connected computers can then use this Internet connection at the same time. It is not necessary to install any additional Internet access software on the other connected computers. With this configuration, the WLAN access point can be used as a router for multiple-workplace operation. Instructions on how to configure the WLAN access point for multiple-workplace operation are presented in the WLAN access point manual.

### Establishing Connections Using the Computer

The computer to which a FRITZ!WLAN USB Stick is connected establishes the Internet connections itself. In this case the WLAN access point works like a DSL modem and is responsible only for forwarding data. An Internet connection must be configured on the connected computer, using Internet access software (FRITZ!DSL, for instance) and the account information from an Internet Service Provider. The Internet access software is also required to establish Internet connections.

## 5 Microsoft WLAN Service

In Windows Vista and Windows XP with Service Pack 2, the Microsoft WLAN service “WZC” (Wireless Zero Configuration) can be used to manage wireless devices rather than the FRITZ!WLAN program.

### Information on the WLAN Control Software

Note the following to use Microsoft WLAN Service for your WLAN connections:

- If you are working with a FRITZ!WLAN USB Stick **version 1.0**, the FRITZ!WLAN control software was installed on your system as part of the installation routine. This is the default application for your WLAN connections.

If you prefer to work with the Microsoft WLAN Service as WLAN control software, you can switch to this program as follows:



- Click the WLAN icon in the notification area of the task bar.
- Select the “Microsoft WLAN” command in the context menu and follow the instructions displayed on the screen.

- In FRITZ!WLAN USB Stick **version 1.1**, Microsoft WLAN Service is provided as the default application for WLAN connections. The FRITZ!WLAN Mini version of the FRITZ!WLAN control software was installed on your computer. This version only displays status information.

If you want to work with the full version of FRITZ!WLAN as your WLAN control software, you can install it later as follows:



- Click the WLAN icon in the notification area of the task bar.
- Select the command “Install AVM WLAN Software” in the context menu and follow the instructions on the screen.

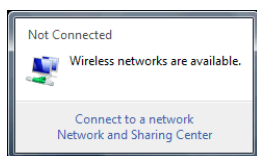


## Establishing a WLAN Connection (Windows Vista)

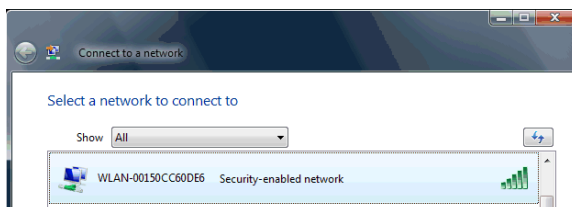
To establish a WLAN connection in Windows Vista using Microsoft WLAN Service (“automatic WLAN configuration”), work through the following steps:



1. Click the Microsoft WLAN icon in the notification area of the task bar and select the option “Connect to a network”.



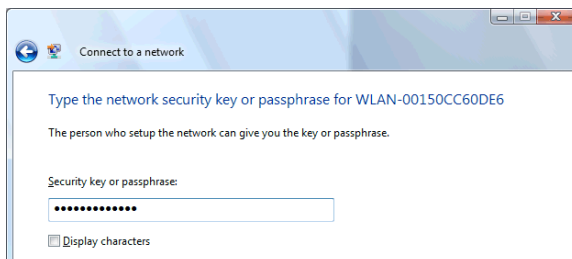
All wireless networks found at your location (mostly WLAN access points) are displayed in a list.



*Available wireless networks (example view)*

2. Select the desired WLAN access point and click the “Connect” button.

The window for entering the network security key opens:

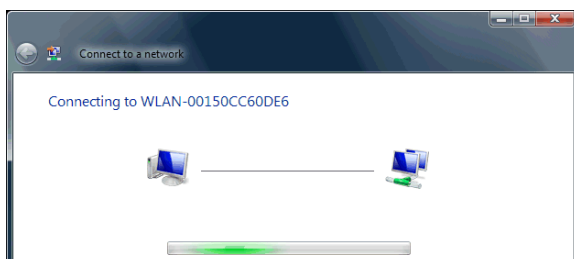


*Entering the WLAN key*

3. Enter the WLAN key of the selected WLAN access point in the “Security key or passphrase” field and click “Connect”.

On the AVM FRITZ!Box family products the network key is printed on the underside of the device.

The WLAN connection is established.



Should difficulties arise in establishing a WLAN connection, see the sections “Problems with the WLAN Connection: What to Do” from page 39 and “Errors During Installation: What to Do” on page 34.

For information on AVM Stick & Surf, see the section “AVM Stick & Surf Technology” on page 10.



To display all important status information for your WLAN connection, click the FRITZ!WLAN Mini program icon in the notification area of the task bar.

## Establishing a WLAN Connection (Windows XP SP2)

To establish a WLAN connection using Microsoft WLAN Service (“Wireless Zero Configuration Service”) in Windows XP with Service Pack 2, work through the following steps:



1. Click the Microsoft WLAN icon in the notification area of the task bar.

The “Wireless Network Connection” window opens. All wireless networks found at your location (mostly WLAN access points) are displayed in a list.



*Available wireless networks (example of display)*

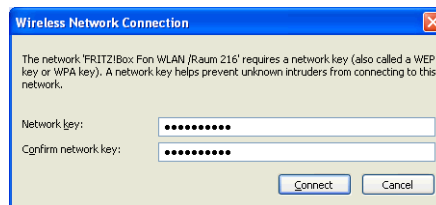
2. Select the desired WLAN access point and click the “Connect” button.

The “Wireless Network Connection” window is opened.

3. Enter the WLAN key of the WLAN access point in the “Network key” field.

On the AVM FRITZ!Box family products the network key is printed on the underside of the device.

4. Repeat your entry in the “Confirm network key” field and then click the “Connect” button.



*Entering the WLAN key*

The WLAN connection is established.

Should difficulties arise in establishing a WLAN connection, see the sections “Problems with the WLAN Connection: What to Do” from page 39 and “Errors During Installation: What to Do” on page 34.

For information on AVM Stick & Surf, see the section “AVM Stick & Surf Technology” on page 10.



To display all important status information for your WLAN connection, click the FRITZ!WLAN Mini program icon in the notification area of the task bar.

## 6 More about WLAN

WLAN (Wireless Local Area Network) is a radio technology that allows Ethernet networks and access to the Internet to be provided without cable connections. This allows multiple users to share one wireless Internet connection.

### Standards

The WLAN standards IEEE 802.11b, IEEE 802.11g and IEEE 802.11i were developed by the Institute of Electrical and Electronic Engineers (IEEE).

Standard	Gross Data Throughput	Net Data Throughput
802.11b	11 Mbit/s	5 Mbit/s
802.11g	54 Mbit/s	25 Mbit/s
802.11g++	125 Mbit/s	35 Mbit/s

### IEEE 802.11b and IEEE 802.11g

The standards IEEE 802.11b and IEEE 802.11g define the transmission rate within a wireless LAN. These standards differentiate between gross and net transmission rates. The net speed describes the transmission rate of the user data.

The FRITZ!WLAN USB Stick supports the 802.11g Wireless Standard and is downward compatible to 802.11b networks.

The range within a given WLAN depends to a high degree on the WLAN adapter used as well as the physical surroundings of the network.

### 802.11g++

The FRITZ!WLAN USB Stick also supports the high-speed mode 802.11g++. The transmission rate within a wireless LAN can be increased with this extension to as high as 125 Mbit/s gross and 35 Mbit/s net when the remote site is connected to a WLAN access point compatible with this mode (a FRITZ!Box WLAN by AVM, for example).

### **IEEE 802.11i**

The WPA2 security mechanism is defined in the IEEE 802.11i standard. WPA2 is an extension of the familiar security mechanism WPA (Wi-Fi Protected Access).

The main feature of the extension of WPA to WPA2 is the AES-CCM encryption process.

- The WPA mechanism stipulates the TKIP (Temporary Key Integrity Protocol) for encryption.
- Besides TKIP, the WPA2 mechanism also defines the AES-CCM encryption procedure, which is based on the extremely secure AES (Advanced Encryption Standard) procedure. CCM (Counter with CBC-MAC) defines how the AES procedure is applied to WLAN packets.

The FRITZ!WLAN USB Stick supports the AES encryption procedure as part of the WPA2 mechanism, and the TKIP encryption procedure as part of the WPA mechanism. This means that the FRITZ!WLAN USB Stick can be used in combination with any WLAN access points that also support WPA2 with AES or WPA with TKIP.

## **Security**

Security is of utmost importance within radio networks. Radio signals can also be received outside of office or residential spaces and abused for criminal purposes.

Therefore it is important that no unauthorized users can register in a WLAN to use its Internet access or shared network resources.

The necessary requirements for this, which contribute to the security of your WLAN and of your computers, are integrated in the FRITZ!WLAN control software.

## Encryption

The most important security setting is the encryption. The FRITZ!WLAN USB Stick supports the security mechanisms WEP (Wired Equivalent Privacy), WPA (Wi-Fi Protected Access) and WPA2 as follows:

- As part of the WEP mechanism a static key is determined to serve for the encryption of the user data. The key must also be registered in the WLAN settings of the WLAN client and correspond with the WLAN settings of the WLAN access point.
- The FRITZ!WLAN USB Stick uses WEP64/128 with the setting “Open” or “Open Key”, respectively. When establishing a WLAN connection using products from other manufacturers, always make sure that the setting “Open” or “Open Key” is set for registration or authentication in the manufacturer’s software. If necessary, consult the manufacturer’s documentation for more information.
- If you use a WEP key, make sure that it is the correct length.

WEP	ASCII Characters	Hex. Characters
64	5	10
128	13	26

- The WPA and WPA2 mechanisms provide for authentication while the connection is being established. The user data are encrypted using an automatically generated key. This key is regenerated at regular intervals.



***If the WPA security mechanisms are supported by your WLAN remote sites, use WPA for your WLAN encryption. WEP is out of date and data encrypted with WEP can be deciphered within minutes.***

### Frequency Range

WLAN uses the frequency range around 2.4 GHz in the ISM band. WLAN thus works in the high-frequency range, like Bluetooth. Microwave devices and cordless telephones use this range as well. This means that interference may occur within WLANs operated in the vicinity of such devices. Generally the only adverse effects are to the transmission rate; aborted connections and data losses are rare while using the same frequency.

In Europe, 13 channels are provided for WLAN in the 2.4 GHz range. One channel has a bandwidth of 22 MHz. A 5-MHz interval is left empty between adjacent channels. That means that channels located directly next to each other may overlap and result in mutual interference. If several WLANs are operated within a small space, a distance of at least five channels should be left empty between each two channels used. For instance, if channel 1 is selected for one WLAN, the channels 7 through 13 can be selected for a second WLAN. This maintains the minimum distance between channels.

Should interference in a WLAN persist, the first step should be to select a different channel. For more instructions, see the section “Problems with the WLAN Connection: What to Do” from page 39.

WLAN channels in the 2.4 GHz range:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412	8	2447
2	2417	9	2452
3	2422	10	2457
4	2427	11	2462
5	2432	12	2467
6	2437	13	2472
7	2442		



## 7 Removing the FRITZ!WLAN USB Stick

The instructions for removing the FRITZ!WLAN USB Stick are valid for all operating systems. The FRITZ!WLAN USB Stick driver software and the FRITZ!WLAN control software are removed at the same time.

Proceed as follows:

1. Insert the FRITZ!WLAN USB Stick CD.
2. Run the SETUP.EXE file.



*For the operation systems Windows Vista x64 Edition and Windows XP Professional x64 Edition, the required SETUP.EXE file is located in the WINDOWS\_VISTA\_x64 folder on the CD.*

3. Click “Continue” in the following window.
4. Select the “Removal” option.  
The FRITZ!WLAN USB Stick will be removed.
5. Click “Finish” to complete the process of uninstalling the software.

## 8 Troubleshooting

### 8.1 Errors During Installation: What to Do

If no connection can be made to a WLAN remote site during the FRITZ!WLAN USB Stick installation, please note the following:

#### **No WLAN Remote Sites Found**

- Make sure that the power supply of the WLAN remote site is secure and that the device is switched on.
- Check whether the WLAN remote site is within transmission range of the FRITZ!WLAN USB Stick. Reduce the distance and try to establish the connection again.

#### **Connection to the WLAN Remote Site Failed**

- Make sure you have entered the WLAN key correctly. Pay special attention to capitalization.

Then connect with the WLAN remote site again. To do this, perform the following steps:

- Click the FRITZ!WLAN program icon in the notification area of the Windows task bar.  
The FRITZ!WLAN context menu opens.
- Select the “Connect” command.

### 8.2 Checking the IP Settings

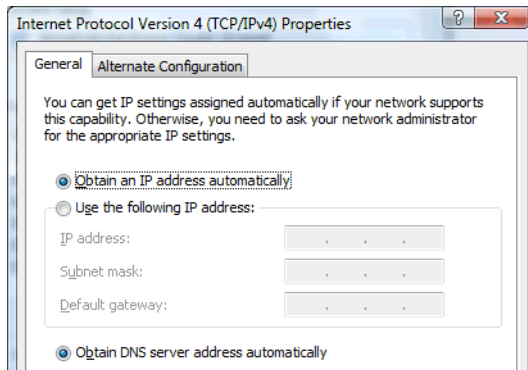
A WLAN access point, for instance, a FRITZ!Box WLAN, has its own DHCP server, which assigns IP addresses to the connected computers. For this the computers must be configured to obtain an IP address automatically from the DHCP server of the access point. The steps for checking and adjusting this option differ among the operating systems. See the relevant section for your operating system.

## Obtaining an IP Address Automatically in Windows Vista

Proceed as follows in Windows Vista:



1. Click the “Start” button in the task bar and select “Control Panel / Network and Internet / View Network Status and Tasks”.
2. From the “Tasks”, select “Manage Network Connections”.
3. Click the Wireless network connection icon with the right mouse button and select “Properties”.
4. Under “This connection uses the following items”, select the “Internet Protocol Version 4 (TCP/IPv4)” entry and click “Properties”.
5. Enable the options “Obtain an IP address automatically” and “Obtain DNS server address automatically”.



*Properties of the Internet protocol (TCP/IP)*

6. Confirm your selection by clicking “OK”.

If necessary, repeat steps 4 through 6 for the “Internet Protocol Version 6 (TCP/IPv6)” as well.

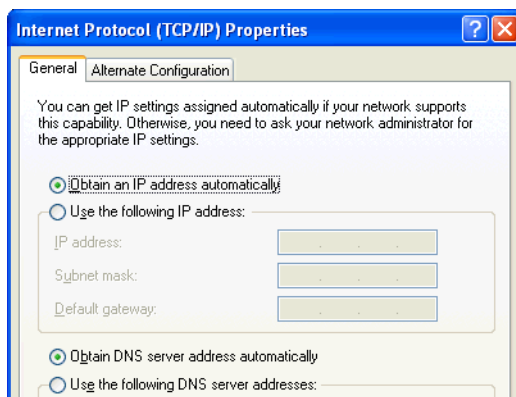
The computer now receives an IP address from the WLAN access point.

For WLAN products of the AVM FRITZ!Box family, automatic IP address assignment (DHCP) is enabled in the factory settings.

### Obtaining an IP Address Automatically in Windows XP

Proceed as follows in Windows XP:

1. Go to “start / Control Panel / Network and Internet Connections / Network Connections” and double-click the “Wireless Network Connection” of the FRITZ!WLAN USB Stick with the right mouse button.
2. Click the “Properties” button.
3. Select “Internet Protocol (TCP/IP)” in the list of items used in this network connection and click “Properties”.
4. Enable the options “Obtain an IP address automatically” and “Obtain DNS server address automatically”.



*Properties of the Internet protocol (TCP/IP)*

5. Confirm your selection by clicking “OK”.

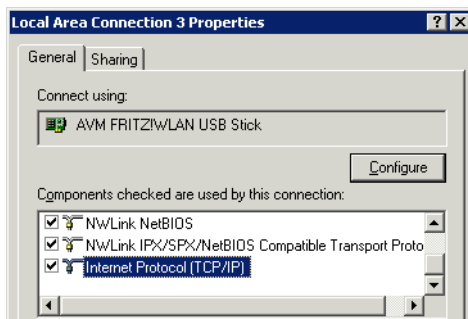
The computer now receives an IP address from the WLAN access point.

For WLAN products of the AVM FRITZ!Box family, automatic IP address assignment (DHCP) is enabled in the factory settings.

## Obtaining an IP Address Automatically in Windows 2000

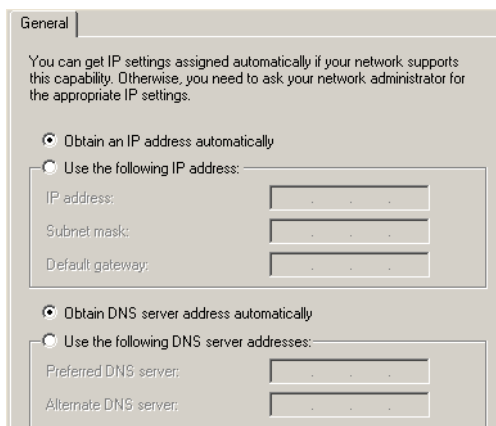
Proceed as follows in Windows 2000:

1. Select “Start / Settings / Control Panel / Network and Dial-up Connections”.
2. Double-click to select the LAN connection “FRITZ!WLAN USB Stick”.
3. Click the “Properties” button.
4. Double-click to select “Internet Protocol (TCP/IP)” in the list of network components.



### *Properties of the LAN connection*

5. Enable the options “Obtain an IP address automatically” and “Obtain DNS server address automatically”.



### *Properties of the Internet protocol (TCP/IP)*

6. Confirm your selection by clicking “OK”.

The computer now receives its IP address from the WLAN access point.

For WLAN products of the AVM FRITZ!Box family, automatic IP address assignment (DHCP) is enabled in the factory settings.

### 8.3 Checking the Settings of the FRITZ!WLAN USB Stick

Open the FRITZ!WLAN console and check the settings for the FRITZ!WLAN USB Stick. Please note:

- Have you entered the correct WLAN key? On the AVM WLAN products from the FRITZ!Box family, the key is printed on a sticker attached to the underside of the device and the CD jewel case.
- Make sure that you are trying to establish a connection to the WLAN access point desired.

For a WLAN product from the AVM FRITZ!Box family, the default name always begins with “FRITZ!Box”.

If you are using a WLAN access point from another manufacturer, please see the documentation of this device.

In a direct connection, the preconfigured name of the ad-hoc network in the FRITZ!WLAN control software is “ad hoc”.

## 8.4 Problems with the WLAN Connection: What to Do

If the WLAN connection is not established correctly, make sure that the settings in the FRITZ!WLAN control software agree with the entries in the following table. Try again to establish a WLAN connection.

For the settings in this table it is presumed that an AVM WLAN product from the FRITZ!Box family is used with WEP encryption. However, we recommend using the more secure WPA mechanisms to encrypt your wireless network if these are supported by your WLAN remote site.

Setting	Preset Value
SSID (name of the WLAN radio network)	<i>Name of the WLAN access point, for example:</i> FRITZ!Box SL WLAN
Encryption	WEP
Key length	128 bits
Key	The key (ASCII format) is printed on the underside of the device and on the back of the installation CD.
Type of authentication/registration	Open key
Network mode	Infrastructure
Channel	6

## How to Remedy Problems with the WLAN Connection

---

### Error Scenario

After installing the FRITZ!WLAN control software and the FRITZ!WLAN USB Stick, the FRITZ!WLAN icon does not appear in the notification area of the Windows task bar.

---

### Possible Cause

The FRITZ!WLAN software or drivers for the FRITZ!WLAN USB Stick were not installed correctly or the device is disabled in the Device Manager.

---

### Remedy

First check the Device Manager in the Control Panel to see whether the device is listed and disabled. Enable the device.

If it is not listed, uninstall the FRITZ!WLAN USB Stick and repeat the installation as described in the manual.

---

### Error Scenario

The computer does not detect the FRITZ!WLAN USB Stick.

---

### Possible Cause

The FRITZ!WLAN USB Stick is not inserted correctly into the USB port or the chip set drivers of your computer are out of date.

---

### Remedy

Make sure that the FRITZ!WLAN USB Stick is inserted firmly into the USB port. Pull the FRITZ!WLAN USB Stick out if it is not positioned correctly and insert it into the USB port again. Install the latest chip set drivers. See the documentation for your mainboard to find out which drivers your computer requires. To obtain the latest chip set drivers, visit the Internet pages of the following manufacturers:

[www.intel.com](http://www.intel.com)

[www.nvidia.com](http://www.nvidia.com)

[www.viaarena.com](http://www.viaarena.com)

---



---

**Error Scenario**

Could not register at the WLAN remote site.

---

**Possible Cause**

The settings of the WLAN remote site and the entries in the “Remote Site” do not match.

---

**Remedy**

Check whether the correct WLAN access point has been selected from the list of WLAN devices and make sure that the WLAN key and the name (SSID) of the WLAN remote site have been entered correctly. On AVM FRITZ!Box products, the WLAN key is printed on the underside of the device and on the installation CD jewel case.

---

**Error Scenario**

AVM FRITZ!WLAN software is installed, but every time Windows Vista/XP is restarted, the Microsoft WLAN control is applied, no matter which settings were configured before.

---

**Possible Cause**

The FRITZ!WLAN USB Stick is utilized in the notebook along with an Intel Pro Wireless Adapter.

---

**Remedy**

Remove the Intel Pro Wireless Software (not the driver) to eliminate the problem.

---

**Error Scenario**

The FRITZ!WLAN USB Stick and the WLAN access point cannot exchange any data with each other.

---

**Possible Cause**

The WLAN access point is not connected correctly or not switched on.

---

**Remedy**

Check whether the WLAN access point is connected correctly and make sure that the device and the WLAN function are switched on.

---

---

### **Error Scenario**

Two or more computers are networked via FRITZ!WLAN USB Stick, but you cannot access files and connected devices on the remote site.

---

### **Possible Cause**

The desired resources like folders, drives, printers or Internet connections are not configured for network sharing.

---

### **Remedy**

Make sure that those resources are configured for network sharing. Further information is provided in the Online Help of your operating system.

---

---

### **Error Scenario**

Your computer recognizes the network and the router, but cannot access the Internet or the network (limited connectivity).

---

### **Possible Cause**

The WLAN key is wrong or the IP address was not assigned by Windows automatically (note: the process can take up to three minutes).

---

### **Remedy**

Check the WLAN key entry. On AVM FRITZ!Box products, the WLAN key is printed on the underside of the device and on the installation CD jewel case. If you are using a WLAN access point from another manufacturer, please see the documentation of this device. Make sure that the automatic assignment of IP addresses is enabled in your operating system. For details, see the section "Checking the IP Settings" from page 34.

---

---

**Error Scenario**

The FRITZ!WLAN USB Stick is detected automatically in the Windows XP and 2000 operating systems. However, the device is not fully functional.

---

**Possible Cause**

The necessary service packs have not been installed.

---

**Remedy**

USB 2.0 support was integrated into the operating systems for the first time with the current Microsoft Service Packs. To ensure full operation capability, install the latest service packs and updates using the Windows Update function. We recommend at least Service Pack 2 for Windows XP, or Service Pack 4 for Windows 2000.

For more information on the subject of support for USB 2.0 in Microsoft operating systems, see:

[USB 2.0 bus system support information](#)

[Knowledge Base article 822603](#)

---

---

**Error Scenario**

Two FRITZ!WLAN USB Sticks are connected directly via WLAN, but cannot exchange any data with each other.

---

**Possible Cause**

The IP address was not assigned by Windows automatically (note: the process can take up to 3 minutes), or the network key, work-group or ad-hoc network names do not match.

---

**Remedy**

Make sure that the ad-hoc network name of your connection and the network key match, and that automatic assignment of IP addresses is enabled in your operating system. The connected computers must be in the same working group. (For more information, see “Encryption” on page 31 and “Checking the IP Settings” from page 34.)

---

---

### **Error Scenario**

A ping to any web URL appears to be faster without the power save feature (Eco mode).

---

### **Possible Cause**

The new power save feature provides for efficient energy management: When data traffic between the access point and the stick is idle, energy consumption is reduced. The stick heats up less. The Eco mode works not only with a FRITZ!Box WLAN, but also with other access points as remote sites.

---

### **Remedy**

The amount of data transmitted for a ping is not sufficient to wake the FRITZ!WLAN USB Stick up from Eco mode. In a typical online gaming scenario, enough data packets are exchanged over the WLAN route to normalize the ping values.

---

### **Error Scenario**

An undefined malfunction occurs.

---

### **Possible Cause**

Radio traffic is subjected to interference by strong irradiation.

---

### **Remedy**

Switch the WLAN channel setting on the access point.  
Find a better location for the WLAN devices to avoid potential interference from microwaves, cordless DECT telephones or Bluetooth devices.

---

### **Error Scenario**

Connecting to an access point using Microsoft WLAN Service (WZC) in Windows XP Service Pack 2 fails with WPA2 encryption.

---

### **Possible Cause**

The required WPA2 (802.11i) Microsoft patch is not installed.

---

### **Remedy**

Support for WPA2 in Microsoft WLAN service was not available until the current patch for Windows XP Service Pack 2. Install the current patch from Microsoft:

<http://support.microsoft.com/kb/893357/EN-US>

## 9 Customer Service Guide

AVM provides numerous sources of information to assist you should any questions or problems arise. Here you will find the important information you need, in the form of manuals, updates and support.




*In many cases problems which arise during operation can be resolved by installing the current Microsoft Service Pack for your operating system. The current service pack can be obtained free of charge from Microsoft.*

### 9.1 Product Documentation

To take advantage of all commands and features of your FRITZ!WLAN USB Stick, consult the following information resources:



Help on the FRITZ!WLAN control software  
In the FRITZ!WLAN user interface you can open the detailed Online Help by selecting the “Help” button, clicking the Help icon  or pressing “F1”.

#### Information on Other Operating Systems

If you want to install the FRITZ!WLAN USB Stick on a computer with an operating system other than Microsoft Windows Vista x64 Edition, Windows Vista, Windows XP Professional x64 Edition, Windows XP or Windows 2000, please see the following documentation:



- Installation Instructions for Microsoft Windows 98SE/98

A PDF version of this manual is included in the INFO folder on the FRITZ!WLAN USB Stick CD.



- Installation Instructions for Microsoft Windows Me

A PDF version of this manual is included in the INFO folder on the FRITZ!WLAN USB Stick CD.

## 9.2 Information in the Internet

On its web site AVM presents comprehensive information on all AVM products as well as new product announcements and new product versions.

### Frequently Asked Questions (FAQs)

We would like to make our products as easy to use as possible. If you still have problems, sometimes a little tip is all you need to resolve them. That is why we present you with a selection of frequently asked questions.

The FAQs can be viewed at the following address:

[www.avm.de/en/service/FAQs](http://www.avm.de/en/service/FAQs)

## 9.3 Updates

AVM provides software updates for the FRITZ!WLAN USB Stick and the software applications for free downloading over the Internet.

To download updates from the Internet, go to:

[www.avm.de/en/download](http://www.avm.de/en/download)

The AVM FTP server can also be used to download current driver software. Click the “FTP Server” link in the download area, or enter the following address:

[www.avm.de/ftp](http://www.avm.de/ftp)

## 9.4 Support from the AVM Service Team

Should problems with your FRITZ!WLAN USB Stick arise, we recommend taking the following steps:

1. See the FAQs in the Internet:  
[www.avm.de/en/service/FAQs](http://www.avm.de/en/service/FAQs)  
This site contains answers to questions our customers have frequently asked our Support team.
2. If you do not find the answer you need in the FAQs, AVM Support will assist you in solving problems with your FRITZ!WLAN USB Stick. The support desk can be reached by e-mail or by fax.

### Support by E-mail

Support requests can be sent to AVM by e-mail. Please use the Support request form on the AVM home page. Fill out the form and send it to AVM support by clicking the “Send” button. This form is available at:

[www.avm.de/en/service/support](http://www.avm.de/en/service/support)

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

### Support by Fax

If necessary, you can reach AVM Support at the fax number:

+49 (0) 30 / 39 97 62 66

The following information should be included in your fax:

- Your name and address
- An e-mail address or fax number at which you can be reached.
- Which operating system are you using (e.g., Windows XP?)
- At what point of the installation routine does an error message appear? What is the exact wording of the message?

- Do you have a problem with the FRITZ!WLAN control software? What is the exact wording of the message?
- Keep the version numbers of the FRITZ!WLAN USB Stick driver at hand. Information on the version can be viewed using the context menu of the FRITZ!WLAN program icon.



- Click the icon in the notification area of the task bar and select the menu command “About”.

Once you have gathered this information, please fax it to AVM Support. The Support team will assist you in resolving your problem.



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# Index

## A

- access point 19
  - establishing connections 20
- ad-hoc connection icon 20
- ad-hoc network 21
  - creating 21
  - participating 22
- assistance
  - FAQs 46
  - frequently asked questions 46
  - information in the Internet 46
  - product documentation 45
  - support 47

## C

- connection icon 22
- control software
  - FRITZ!WLAN 17
  - information 24
  - Microsoft WLAN service 24
- customer service
  - updates 46
- customer service guide 45

## D

- declaration of conformity 51
- DHCP server 34
- direct connection 21
- disposal of the device 4

## E

- encryption 31

## F

- FRITZ!WLAN 17
  - connection status 19
  - context menus 18
  - establishing WLAN connections 19
  - help 45
  - network key 20
  - program icon 17
  - user interface 18
- FRITZ!WLAN icons
  - ad-hoc connection icon 20
  - connection icon 22
  - Edit icon 21
  - infrastructure network icon 19
  - program icon 17
  - WLAN icon 20
- FRITZ!WLAN Mini 24
  - program icon 26, 28

## I

- infrastructure network 19
  - establishing connections 20
- infrastructure network icon 19
- installation 11
  - errors during installation 34
  - in Windows 2000 13
  - in Windows Vista 12
  - in Windows XP 13
- Internet connection
  - via the computer 23
  - via the WLAN access point 23

## L

- LEDs 7

## M

- Microsoft WLAN service 24
  - Microsoft WLAN icon 25, 27
  - WLAN key 26, 27

---

## N

- network key 20, 26, 27
- networks
  - available 25
  - wireless 25, 27

## O

- obtaining an IP address automatically
  - in Windows 2000 37
  - in Windows Vista 35
  - in Windows XP 36
- operation requirements 7

## P

- package contents 6

## R

- recycling of the device 4
- remote site 19
  - establishing connections 16, 20
- requirements for operation 7

## S

- safety instructions 4
- security in wireless networks 30
- settings
  - FRITZ!WLAN USB Stick 38
  - IP (Internet protocol) 34
- Stick & Surf 10, 16, 20
- support 47

## T

- taking over security settings of a FRITZ!Box 10
- technical specifications 8
- troubleshooting 34
  - assistance 45
  - diagnostics 40

## U

- uninstallation 33

## W

- WEP key 31
- WEP security mechanism 31
- Windows Vista, installation in 12
- Windows XP, installation in 13
- Windows 2000, installation in 13
- wireless networks 27
- WLAN
  - access point 19
  - ad-hoc network 20
  - connecting using Microsoft WLAN Service in Windows Vista 25
  - connecting using Microsoft WLAN service in Windows XP SP2 27
  - connecting via an access point 20
  - connecting with FRITZ!WLAN 19
  - connections between FRITZ!WLAN USB Sticks 21
  - direct connection 21
  - encryption 31
  - frequency range 32
  - icon in the notification area of the task bar 20
  - infrastructure network 19
  - more information 29
  - network key 20, 25, 27
  - remote site 19
  - security 30
  - standards 29
  - taking over security settings 10
  - transmission channels 32
  - troubleshooting 39
  - types of WLAN connections 19
    - using Stick & Surf for connections 10
- WLAN devices
  - searching for 20
- WPA security mechanisms 31

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# Declaration of CE Conformity

**The manufacturer**           AVM GmbH  
Address:                        Alt-Moabit 95  
                                      D-10559 Berlin

**herewith declares that the product**

Type                            WLAN-Controller  
Product                        FRITZ!WLAN USB Stick v1.1

**complies with the following directives:**

- 1999/5/EC:                 R&TTE Directive:  
                                      Radio and Telecommunications Terminal Equipment
- 89/336/EEC                EMC Directive:  
                                      Electromagnetic Compatibility

The following norms were consulted to assess conformity:

- EN 55024/9.98 + A1/10.01 + A2/01.03
- EN 301 489-1 V 1.5.1 (2004)
- EN 301 489-17 V 1.2.1 (2002)
- EN 300 328 V 1.6.1 (11.2004)



The CE symbol confirms that this product conforms with the above mentioned norms and regulations.

A handwritten signature in purple ink, which appears to read 'P. Foxel', is written over a light blue grid background.

Berlin, 15-11-2005

Peter Foxel, Technical Director

**Indication of Countries**

This product may be operated in the countries of the European Union and in Switzerland, Norway and Iceland. Certain restrictions of user rights or licensing requirements apply in France and Italy.