English Edition

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

FRITZ!
WLAN
FRITZ!WLAN USB Stick

HIGH-PERFORMANCE COMMUNICATION BY ... AVM

FRITZ!WLAN USB Stick

Documentation release 10/2006

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Contents

Safety Instructions

When working with 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 housing of FRITZ!WLAN USB Stick. The device contains hazardous components and should only be opened by authorized repair technicians.
- Always keep the FRITZ!WLAN USB Stick away from children.

Disposal Instruction

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

Typographical Conventions

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	`a:\setup`
Gray italics	Tips, instructions and warnings	***... For more information, see...***

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 FRITZ!WLAN USB Stick you can connect to a WLAN (Wireless LAN) access point directly. Such access points include devices like FRITZ!Box Fon WLAN, which allows all connected devices to access DSL. You can also connect to other WLAN clients, 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 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: Microsoft Windows XP, Windows Me, Windows 2000 or Windows 98SE (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

Additional FRITZ!WLAN USB Sticks are required to connect further computers.

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

1.3 Technical Specifications

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® XP/2000/Me/98SE
Dimensions (WxDxH):	approx. 65 x 20 x 11 mm
Weight	approx. 10 g
Power supply	powered by USB, no external power supply required
Maximum power consumption	0.6 W (Rx)/ 1.8 W (Tx)
Typical power consumption	0.5 W (Rx)/ 1.3 W (Tx)

Transmitter power	max. 100 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
Firmware	can be updated
Channels	1 through 13 (ETSI)
Certification	CE

1.4 The FRITZ!WLAN USB Stick LEDs

The FRITZ!WLAN USB Stick LEDs indicate whether the FRITZ!WLAN USB Stick was detected by the operating system and whether a WLAN connection to a WLAN device (e. g. an access point) exists.

2 Installing FRITZ!WLAN USB Stick

FRITZ!WLAN USB Stick can be installed in the operating systems Windows XP, Windows Me, Windows 2000 or Windows 98 SE.

In some operating systems the display of menus and folders can be changed. The following instructions are based on the standard installation of each operating system.

2.1 Inserting FRITZ!WLAN USB Stick in the Computer

Perform the following steps to insert FRITZ!WLAN USB Stick in the computer:

1. Switch your computer on and start the Windows operating system.
2. Insert FRITZ!WLAN USB Stick in your PC's USB port.

Your operating system's Hardware Wizard detects the FRITZ!WLAN USB Stick automatically, so that you now can install the software components of FRITZ!WLAN USB Stick.

The exact steps taken to install the driver software differ among the operating systems Windows XP, Me, 2000 and 98 SE. Read the section that describes the installation of the driver software for your operating system.

2.2 Installation in Windows XP

Administrator rights are required to install the driver software in Windows XP.

The installation of the Windows XP Service Pack 2 is recommended; otherwise the USB 2.0 functionality is restricted.

Once the FRITZ!WLAN USB Stick is connected to your computer, the "Found New Hardware Wizard" of Windows XP is started automatically.

1. Insert the installation CD and follow the instructions on the screen.

Instructions for users of the Microsoft Windows XP Service Pack 2: During the course of installing the FRITZ!WLAN USB Stick, the "Found New Hardware Wizard" asks whether a connection to Windows Update server should be established in order to search for the latest device drivers. Select the option "No, not this time". Then click "Next".

2. After the sign-on window, select the option "Install the software automatically (Recommended)". Confirm with "Next".
3. In the next window, select the option "CD-ROM drives" and confirm by clicking "Next".
4. The program reports that a driver was found.
5. In the next dialog Windows may prompt you to install software not digitally signed by Microsoft. This request depends on the driver signature options set on your computer. Click the "Continue Anyway" button.
6. A message appears: "The wizard has finished installing the software for 'AVM FRITZ!WLAN USB Stick'". Conclude the installation by clicking "Finish".

This completes the driver installation. Next comes the installation of the FRITZ!WLAN control software. For more information, see the section "The FRITZ!WLAN Control Software" from page 15.

2.3 Installation in Windows Me

Once the FRITZ!WLAN USB Stick has been inserted in your computer, the Plug and Play mechanism of Windows Me recognizes the FRITZ!WLAN USB Stick as a "WLAN USB Device" automatically.

1. Insert the installation CD and follow the instructions on the screen.
2. When asked: "What would you like to do?", select the option "Automatic search for a better driver (Recommended).".

   The operating system searches for the device's driver software.
3. Confirm the prompt that Windows is ready to install the best driver for the device by clicking the "Next" button.

   The driver is installed. Confirm by clicking "Finish".
4. The message "The computer has to be restarted." appears. Click "OK".

This completes the driver installation. Right after the computer restarts, the FRITZ!WLAN control software will be installed. For more information, see the section "The FRITZ!WLAN Control Software" from page 15.

2.4 Installation in Windows 2000

Administrator rights are required to install the driver software in Windows 2000.

The installation of the Windows 2000 Service Pack 4 or higher is recommended; otherwise the USB 2.0 functionality is restricted.

Once the FRITZ!WLAN USB Stick is connected to your computer, the "Found New Hardware Wizard" of Windows 2000 is started automatically.

1. Insert the installation CD and follow the instructions on the screen.
2. In the next window, select the option “Search for a suitable driver for my device (recommended)” and confirm your selection with “Next”.
3. In the next window, select the option “CD-ROM drives” and confirm by clicking “Next”.
4. The program reports that a driver was found. Click “Next” to install the driver.
5. In the next dialog Windows may prompt you to install software not digitally signed by Microsoft. This request depends on the driver signature options set on your computer. In any case, click the “Yes” button.
6. A message appears: “Windows has finished installing the software for this device”. Conclude the installation by clicking “Finish”.

This completes the driver installation. Next comes the installation of the FRITZ!WLAN control software. For more information, see the section “The FRITZ!WLAN Control Software” from page 15.

2.5 Installation in Windows 98 SE

Keep your Windows CD at hand during installation.

Once the FRITZ!WLAN USB Stick has been inserted in your computer, the Plug and Play mechanism of Windows 98 SE recognizes the FRITZ!WLAN USB Stick as a “WLAN USB Device” automatically.

1. Insert the installation CD and follow the instructions on the screen.
2. The “Add New Hardware” Wizard searches for a WLAN USB device. Confirm with “Next”.
3. When asked “What do you want Windows to do?”, select the option “Search for the best driver for your device. (Recommended)”. Confirm with “Next”.

4. When the program asks where to search for the driver, activate only the option “CD-ROM drive”. Confirm with “Next”.

   The operating system searches for the device’s driver software.

5. Confirm the prompt that Windows is ready to install the best driver for the device by clicking the “Next” button.

   The driver is installed. Confirm by clicking “Finish”.

6. The message “The computer has to be restarted.” appears. Click “OK”.

This completes the driver installation. Right after the computer restarts, the FRITZ!WLAN control software will be installed. For more information, see the section “The FRITZ!WLAN Control Software” from page 15.

3 The FRITZ!WLAN Control Software

With the FRITZ!WLAN USB Stick you can set up wireless network connections (WLANs) with various WLAN devices. The FRITZ!WLAN control software assists you in setting up such a network. Using FRITZ!WLAN you can establish and clear WLAN connections and view information about the status of your connections. With FRITZ!WLAN you can make all additional settings necessary for your connections.

3.1 Operating FRITZ!WLAN

FRITZ!WLAN offers two different views for operating and configuring all WLAN connections.

The Program Icon in the Notification Area of the Task Bar

After FRITZ!WLAN USB Stick is installed and connected to a WLAN remote site, FRITZ!WLAN appears as a program icon in the notification area of the task bar. All of the basic functions of the program can be operated using the context menu of this icon. Connections between the FRITZ!WLAN USB Stick and known WLAN access points are established automatically as long as a successful connection to this device has already been configured and the device is turned on.

The green program icon indicates active WLAN connections. If no active WLAN connection exists, this is indicated by a gray icon:

Icon	Effect
	WLAN connection active
	no WLAN connection

The FRITZ!WLAN Console

The console of the FRITZ!WLAN control software displays the FRITZ!WLAN USB Stick, the remote site, and the connection between these devices as icons. The individual icons have their own context menu. The context menus of these icons can be used to establish or clear connections and to view the properties of all WLAN devices and connections. Double-click the FRITZ!WLAN program icon in the status area of the Windows taskbar to open the control software. See the section “The Console” on page 21 for more information.

3.2 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, to PDAs, and even to other WLAN clients. Direct connections between two FRITZ!WLAN USB Sticks are also possible. No matter which device you want to connect to, connecting with FRITZ!WLAN is always based on the same principle: search, find and connect. There are two basic types of WLAN connections:

Ad-hoc Network

When parties connect directly to the WLAN, that is, in a point-to-point connection, without using an access point like FRITZ!Box WLAN, 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. In the FRITZ!WLAN control software, this type of connection is designated by the ad-hoc icon.

Infrastructure Network

When WLAN users connect with a WLAN access point like FRITZ!Box WLAN, they establish what is called an infrastructure network. While the parties to an ad-hoc network must share the available bandwidth, the WLAN access point in an infrastructure network manages bandwidth so that each party receives the optimum amount. Then the access point can

be used to establish connections to a cable-connected network or the Internet. The access point can thus be used to connect wireless networks with cable-based ones. In the FRITZ!WLAN control software, this type of connection is designated by the infrastructure icon.

Requirements for a Successful WLAN Connection

Note the following to establish a WLAN connection between two or more computers using the FRITZ!WLAN USB Stick:

- Make sure that the resources to be made available for network access are enabled for sharing on all computers. Such resources may include folders, drives, printers or Internet connections.
- Make sure that the IP addresses of all parties are automatically assigned by Windows (default setting in Windows). Refer to the description of the settings required for automatic IP address assignments. Refer to the section “Checking the IP Settings” on page 32.

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

This section describes the example of a connection between FRITZ!WLAN USB Stick and an AVM access point.

To establish a connection, perform the following steps:

1. Double-click the program icon FRITZ!WLAN in the notification area of the Windows task bar. The FRITZ!WLAN window opens.
2. Click the “Find” button to search for new WLAN devices. All devices found are displayed in the “Find and Select WLAN Devices” dialog.
3. Select an access point to which you would like to establish a connection and confirm your selection by clicking “Select”.

4. Enter the key of the access point in the “WLAN key” field and click “OK”. The access point is displayed in FRITZ!WLAN as a known WLAN device and a connection to the device is established automatically.

   The WLAN key for an AVM WLAN Access Point is printed on the base of the device and on the CD jewel case.

Connecting Two WLAN Parties Directly (Ad-hoc Mode)

Offering an Ad-hoc Connection

Work through the following steps to offer other WLAN parties an ad-hoc connection:

1. Double-click the FRITZ!WLAN program icon in the notification area of the task bar.

   The FRITZ!WLAN console opens.

2. Select the “Create Ad-hoc Network” command in the context menu of the WLAN remote site. The “Ad-hoc Network” window opens.

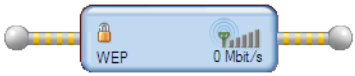
3. One ad-hoc network has already been configured, only a WLAN key must be defined to complete its settings. All WLAN users must enter this key to make a direct connection.

See the encryption instructions in the section “Encryption” on page 27.

   Click the “Edit” button to adjust the preconfigured settings as desired.

4. 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.



FRITZ!WLAN control software: ready for ad-hoc connections

Participating in an Ad-hoc Network

Perform the following steps to offer other parties an ad-hoc connection:

1. Open the FRITZ!WLAN control software on all of the computers to be connected to the ad-hoc network. To do this, double-click the FRITZ!WLAN icon in the notification area of the task bar.
2. Click the “Find” button to search for WLAN devices at your location.

3. An ad-hoc network for direct connections is designated by the ad-hoc icon in the “Find and Select WLAN Device” window.
4. Select the desired ad-hoc party in the list of WLAN devices found. Then click the “Apply” button.
5. 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 27.

6. 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 three minutes and is signaled by a flashing IP traffic light on the user console. Automatic IP address assignments work the same way in all Windows versions (Windows XP, Windows Me, Windows 2000 and Windows 98 SE).

3.3 Establishing a WLAN Connection Using AVM Stick & Surf Technology

If you have an AVM WLAN product from the FRITZ!Box family, equipped with a port for USB devices (USB host function), then you can transfer the security settings for this port to the FRITZ!WLAN USB Stick quickly and conveniently using AVM Stick & Surf technology. To establish a connection, perform the following steps:

1. Insert the FRITZ!WLAN USB Stick in the USB port on FRITZ!Box to be used for transmission.

FRITZ!Box WLAN 3050 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 successfully, 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.

This completes transmission of the WLAN security settings.

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.

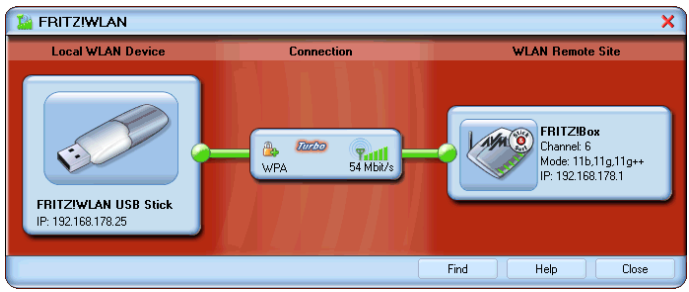
3.4 The Console

The FRITZ!WLAN window is divided into three sections.

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

The middle section displays the icon of the connection to known WLAN devices. The connection icons show the encryption used for a connection and the connection quality.

The right side shows the WLAN remote site to which you were last connected, and to which a connection can be restored immediately.



FRITZ!WLAN – WLAN connection between FRITZ!WLAN USB Stick and an AVM Access Point

Every device and every connection has special properties. Open the context menus of the device and connection icons to view information about the properties of the devices and connections, and to activate additional options for operating your devices and connections. The following functions are available:

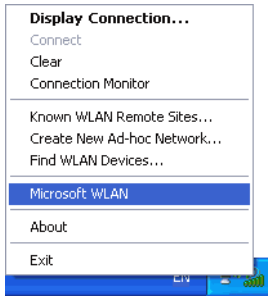
Properties

To view the properties of a device or a connection, click its icon with the left mouse button. The properties of the selected element are displayed.

FRITZ!WLAN Context Menu

The FRITZ!WLAN control software is available to operate and configure all WLAN connections.

Click the FRITZ!WLAN icon in the notification area of the task bar to open the FRITZ!WLAN context menu.



FRITZ!WLAN context menu

Establishing / Clearing WLAN Connections

In the FRITZ!WLAN user interface, connections between the FRITZ!WLAN USB Stick and the WLAN remote sites can be established and cleared using the connection icons.

- To establish a connection, click the icon for the FRITZ!WLAN connection and select the command “Connect”.
- To disconnect, click the icon for the FRITZ!WLAN connection and select the command “Clear”.

Connection Monitor

The data that have been sent and received are displayed here.

Known WLAN Remote Sites

With a notebook and the FRITZ!WLAN USB Stick you can work anywhere. All WLAN devices you configure as WLAN remote sites for your FRITZ!WLAN USB Stick will be treated as known remote sites from that point on, and will be recognized by FRITZ!WLAN automatically at any location. Then you can access the configured WLAN remote sites at any time, as it is

no longer necessary to select remote site that are already known. Of course, you can also switch between remote sites manually at any time and configure new remote sites.

Creating a New Ad-hoc Network

With this function WLAN users can exchange data with each other quickly and directly, without an additional access point. In the FRITZ!WLAN control software, this type of connection is designated by the ad-hoc icon.

Searching

FRITZ!WLAN USB Stick can be connected with a variety of WLAN devices.

- Click the “Find” button in the FRITZ!WLAN window to search for new WLAN devices at your location and connect with them.

Microsoft WLAN

In Windows XP with Service Pack 2, the Microsoft WLAN service “WZC” (Wireless Zero Configuration) can be used to configure wireless devices rather than the FRITZ!WLAN program. However, Microsoft WLAN service does not support all of the AVM FRITZ!WLAN USB Stick features, or supports them differently. Even when “Microsoft WLAN” is enabled, FRITZ!WLAN continues to show all of the important status information about your connection by means of an icon in the status area. Please note that the WLAN settings (search for WLAN devices / enter key / establish connection) must be configured again for Microsoft WLAN service. Consult the Windows documentation for more information.

A Microsoft patch must be installed for Microsoft WLAN service to support WPA2 encryption (802.11i). See also: http://support.microsoft.com/kb/893357/EN-US.

About

Information on the FRITZ!WLAN control software version and the driver software.

3.5 Configuring FRITZ!WLAN USB Stick for Internet Connections

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 Fon 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 manual of the WLAN access point.

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. No settings are required on the FRITZ!Box Fon WLAN, because in this case it works as a DSL modem.

3.6 WLAN: Wireless Local Area Networks

WLAN is a radio technology that allows Ethernet networks and access to the Internet to be provided without cable connections. Multiple users can share such a wireless Internet access in both the business and the private sphere. A notebook and a WLAN adapter is all you need for an Internet connection at locations with public WLAN access points, for instance at airports. In this network you can share LAN resources like hard drives, CD players and recorders, Internet access, printers, and scanners. You can also access all computers connected with each other in a wireless network. Please see the Windows Network Help for more information on configuring networks, searching and setting up working groups and releasing resources for network sharing.

Standards

The two WLAN standards IEEE 802.11b and IEEE 802.11g were developed by the Institute of Electrical and Electronic Engineers (IEEE). With 802.11b technology, transmission rates of up to 11 Mbit/s are possible; with 802.11g technology, up to 54 Mbit/s. FRITZ!WLAN USB Stick supports both standards. FRITZ!WLAN USB Stick has a high-speed (802.11g++) mode. This mode allows with the compatible AVM remote sites a data throughput 35% higher than the 802.11g standard.

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. Thus interference can 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. 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 can overlap and result in mutual interference. If several WLANs are operated within a small space,

a distance of at least four channels—if possible, five—should be left empty between each two channels used. For instance, if channel 1 is selected for one WLAN, the channels 6 through 13 can be selected for a second WLAN. This maintains the minimum distance between channels.

WLAN channels in the 2.4 GHz range:

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

Range and Power

For line-of-sight connections without intervening walls, a range of up to 200 m is possible. The range may be restricted depending on the conditions at your location, the spatial circumstances and construction materials used. Radio waves can penetrate walls or glass, but not steel. If necessary, setting up an additional access point between the transmitter and receiver can amplify the radio signal. To achieve the best range possible, in principle it is always advisable to place the WLAN devices as close to each other as possible. The WLAN access point should always be in a central location with regard to the computer connected by means of the FRITZ!WLAN USB Stick. Whenever possible, avoid placing devices behind furniture, in closets or under the desk. The radio waves of other devices that work in the ISM frequency

band around 2.4 GHz can also penetrate your WLAN network and affect how the WLAN functions. Such devices include microwave ovens and Bluetooth devices. If more than one WLAN network has been configured in your direct vicinity, attempt to improve the range by switching to a different WLAN radio channel.

Security

Security is of utmost importance within radio networks. The radio signals of a WLAN 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 requirements required 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 of a WLAN is encryption. FRITZ!WLAN USB Stick supports the security mechanisms WEP (Wired Equivalent Privacy), WPA (Wi-Fi Protected Access) and WPA2 (802.11i) 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.
- FRITZ!WLAN USB Stick uses WEP 64/128 with the setting “Open” or “Open Key”, respectively. When establishing a WLAN connection using products by 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 mechanism provides 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.

4 Removing the FRITZ!WLAN USB Stick

To remove FRITZ!WLAN USB Stick from your computer, please follow the instructions pertaining to your operating system:

4.1 Uninstalling in Windows XP

Proceed as follows to remove the FRITZ!WLAN USB Stick driver software in Windows XP:

1. Open the “System Properties” of Windows XP by clicking through “start / Control Panel / Performance and Maintenance / System” and select the “Device Manager” button on the “Hardware” dialog page.
2. In the “Network adapters” section of the “Device Manager”, select the “AVM FRITZ!WLAN USB Stick” entry.
3. In the “Action” menu, select the “Uninstall” command.
4. Confirm the uninstallation in the following security prompt. The AVM FRITZ!WLAN USB Stick will be removed.

This completes the uninstallation of FRITZ!WLAN USB Stick.

Proceed as follows to remove the FRITZ!WLAN control software:

1. Open “start / Control Panel / Add or Remove Programs”. Make sure that the “Change or Remove Programs” button is selected in the column at left.
2. Select the “AVM FRITZ!WLAN” entry from the list of “Currently installed programs:”.
3. Click the “Change/Remove” button.

This concludes the removal of FRITZ!WLAN.

4.2 Uninstalling in Windows Me and 98 SE

Proceed as follows to remove the FRITZ!WLAN USB Stick driver software in Windows Me and 98 SE:

1. Select “Start / Settings / Control Panel”, then double-click the “System” icon. The “System Properties” window appears.
2. Click the “Device Manager” settings page.
3. Select the entry “AVM FRITZ!WLAN USB Stick” from the list of “Network adapters” and click “Remove”.
4. When you are prompted to confirm the action, click “OK”.

This concludes the uninstallation of FRITZ!WLAN USB Stick.

Proceed as follows to remove the FRITZ!WLAN control software:

1. Select “Start / Settings / Control Panel”, then double-click the “Add/Remove Programs” icon.

   The FRITZ!WLAN control software appears in the list of installed programs.
2. Select the entry “AVM FRITZ!WLAN”.
3. Click the “Add/Remove...” button.

   The uninstall program is started. All of the selected component’s files and settings are deleted from your computer.

This concludes the removal of FRITZ!WLAN.

4.3 Uninstalling in Windows 2000

Proceed as follows to remove the FRITZ!WLAN USB Stick driver software in Windows 2000:

1. Open the system properties of Windows by clicking through “Start / Settings / Control Panel / System” and select the “Device Manager...” button on the “Hardware” settings page.
2. In the “Network adapters” section of the “Device Manager”, select the “AVM FRITZ!WLAN USB Stick” entry.
3. In the “Action” menu, select the “Uninstall...” command.
4. Confirm the uninstallation in the following security prompt. The AVM FRITZ!WLAN USB Stick will be removed.

This completes the uninstallation of FRITZ!WLAN USB Stick.

Proceed as follows to remove the FRITZ!WLAN control software:

1. Open “Start / Settings / Control Panel / Add/Remove Programs”. Make sure that the “Change or Remove Programs” button is selected in the column at left.
2. Select the AVM FRITZ!WLAN entry from the list of “Currently installed programs:”.
3. Click the “Change/Remove” button.

This concludes the removal of FRITZ!WLAN.

5 Troubleshooting

5.1 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 status area of the Windows taskbar.

  The FRITZ!WLAN context menu opens.
- Select the “Connect” button.

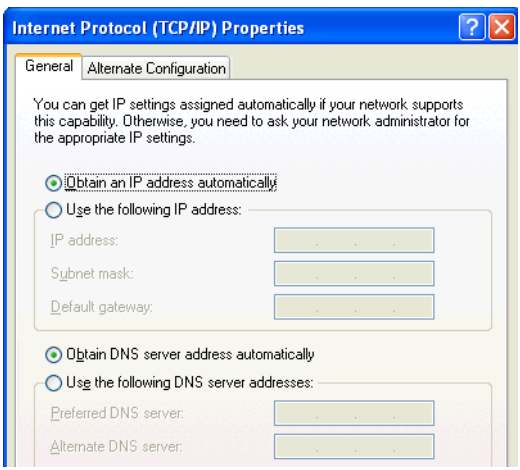
5.2 Checking the IP Settings

A WLAN access point, for instance, a FRITZ!Box FON 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. Go on to the relevant section for your operating system.

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 to select the “Wireless Network Connection” of the AVM FRITZ!WLAN USB Stick.
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”.

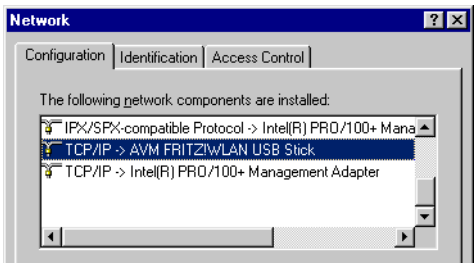
The computer now receives an IP address from the WLAN access point. For WLAN products of the AVM FRITZ!Box family, automatic IP address assignment (DHCP) is enabled in the factory settings.

Obtaining an IP Address Automatically in Windows Me/98

Proceed as follows in Windows Me/98 SE:

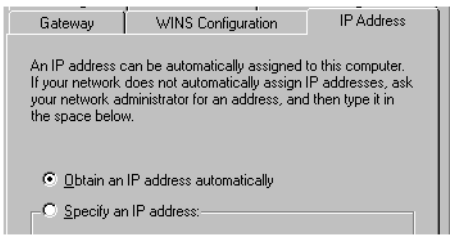
Keep your Windows CD handy, as this may be required for changes to your network settings.

1. Select “Start / Settings / Control Panel”.
2. Double-click the “Network” entry to open it.
3. In the list, double-click to select the binding designated with an arrow, “(TCP/IP) -› ‹network adapter bound to “FRITZ!WLAN USB Stick”›”.



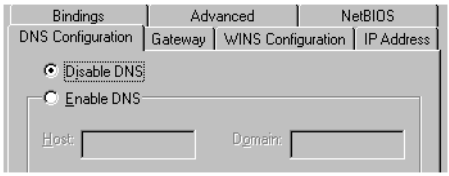
TCP/IP binding to a network adapter

4. Enable the option “Obtain an IP address automatically”.



The “Obtain an IP address automatically” option

5. On the “DNS Configuration” settings page, enable the “Disable DNS” option.



The "Disable DNS" option

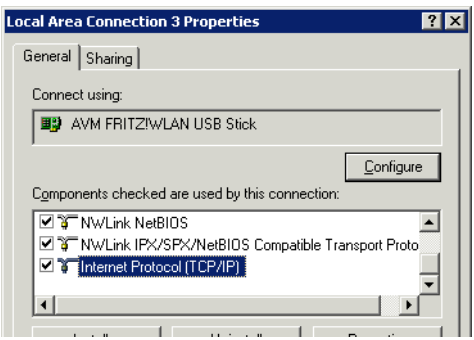
6. Confirm your selection by clicking "OK".

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.

Obtaining an IP Address Automatically in Windows 2000

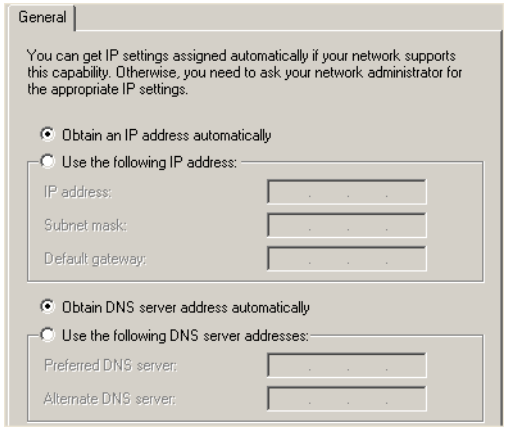
Proceed as follows in Windows 2000:

1. Select "Start / Settings / Control Panel / Network and Dial-up Connections".
2. Double-click to select the LAN connection "AVM 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 of a network adapter

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



The "Obtain an IP address automatically" option

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.

5.3 Checking the Settings of the FRITZ!WLAN USB Stick

Open the FRITZ!WLAN console and check the settings for the FRITZ!WLAN USB Stick. Proceed as follows:

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

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

  If you use 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”.

5.4 WLAN Connection Is Not Established: What to Do

If you use the FRITZ!WLAN control software for your WLAN connections, make sure that the settings agree with the entries in the following description before attempting to establish the connection again. The description presumes that an AVM WLAN product from the FRITZ!Box family is used with WEP encryption:

Setting	Preset Value
SSID (name of the WLAN radio network)	FRITZ!Box SL WLAN
Encryption	WEP
Key length	128 bits
Key	The key is printed on the stickers on the base of the device and on the back of the installation CD.
Type of Authentication/Registration	Open key
Network mode	Infrastructure
Channel	6

Also follow the instructions below to resolve problems with WLAN connections:

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.
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.

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

Undefined malfunction.

Possible Cause

Radio traffic subjected to strong irradiation.

Remedy

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

Error Scenario

You computer recognizes the network and the router, but cannot access the network.

Possible Cause

Incorrect WLAN key

Remedy

Make sure the WLAN key is correct. If you have a WLAN access point from the AVM FRITZ!Box family, you can find the key on the base of the device and on the back of the installation CD. If you use a WLAN access point from another manufacturer, please see the documentation of this device.

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, workgroup 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 27 and “Checking the IP Settings” on page 32).

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 current 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 the

USB 2.0 bus system support information

and

Knowledge Base article 822603.

Error Scenario

A connection to an access point via the Windows XP Service Pack 2 WLAN service (WZC) fails with WPA 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

6 Information, Updates and Support

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 directly from Microsoft.

6.1 Information Sources

Information about all components of FRITZ!WLAN USB Stick is available here:

Documentation

The FRITZ!WLAN USB Stick includes comprehensive documentation in a variety of formats:

- Help for FRITZ!WLAN: In the FRITZ!WLAN control program you can open the detailed Online Help by pressing "F1".

Internet

For comprehensive information, see also the AVM home page. The URL of the AVM home page is:

http://www.avm.de/en

- Click "Products" for the latest information about all AVM products as well as announcements of new products and product versions.
- The "Service" category contains the support form as well as various manuals of AVM products. Solutions to concrete problems are offered here.

6.2 Updates

AVM provides new drivers and software updates for FRITZ!WLAN USB Stick and software applications for downloading free of charge from the AVM Data Call Center (ADC).

Internet

To download updates from the Internet, please visit:

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

6.3 Assistance from AVM Support

Please take advantage of the information sources described above before contacting AVM support.

AVM’s Support team is at your service with direct assistance should problems arise during installation, the initial configuration and your first steps in operating FRITZ!WLAN USB Stick.

The support desk can be reached by e-mail or by fax. AVM Support then will contact you to assist in solving your problem. You will receive an e-mail or a fax.

Support by E-mail

Support requests can be sent to AVM by e-mail. Please use the Support request form at 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

Support by Fax

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

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+49 (0)30 / 39 97 62 66
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Your fax should contain the following information:

- Your name and address.
- An e-mail address or fax number at which you can be reached.
- The serial number of the device, printed on the sticker on the bottom of the base. Support staff will always check this number to ensure that you are a registered user.
- Which operating system are you using (e.g., Windows XP or Windows 98 SE?)
- 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 at hand. All information on the versions can be viewed by clicking with the right mouse button on the FRITZ!WLAN program icon in the notification area of the task bar. Select the "About" command in this window.

Once you have gathered this information, please fax it to AVM Support.

Index

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Declaration of CE Conformity

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

herewith declares that the product

Product	FRITZ!WLAN USB Stick
Type	WLAN-Controller

complies with the following directives:

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

The following norms were consulted to assess conformity:

- EN 301 489-17 V1.2.1 (2002)
- EN 301 489-1 V1.5.1 (2004)
- EN 55024/9.98 + A1/10.01 + A2/01.03
- EN 300 328 V1.6.1 (11.2004)

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

Berlin, 04-03-2005 Peter Faxel, Technical Director

Indication of Countries

This device is designed for use in all countries of the European Union and in Switzerland, Norway and Iceland. In France only indoor operation is permitted.