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FRITZ!Box 6660 Cable FRITZ!OS Version: 07.29 Release Note

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2 Documentation

2.1 Documentation

Changes were made to the following documents:

Document	As Of	Update
Firmware Release Notes	2021-10-29	x
Appendix A: Supported TR-069 Parameters	2021-10-29	-
Appendix B: IPv6 Compatibility	2012-03-16	-
Appendix C: MIB and Specials	16.03.2012	-
Appendix D: TCP/UDP Ports and Related Services	2013-08-30	-
Appendix E: Diagnostics Options	2013-06-11	-
Appendix F: Customer Support and Contacts	2018-05-01	-

2.2 FRITZ!OS - Definition and Notation

FRITZ!OS is the name of the operating system of FRITZ!Box. FRITZ!OS provides a common set of functionality across different FRITZ!Box Models

FRITZ!Os is provided as firmware load for every specific FRITZ!box model, such as e.g. FRITZ!Box 6490 Cable. To identify the firmware for different model types, the firmware version is notated as zzz.xx.yy where zzz identifies the model type and xx.yy shows the FRITZ!OS version. The terms FRITZ!OS and firmware are sometimes used in an interchangeable manner.

2.3 Firmware Image: Explanation

AVM provides three different types of firmware images, which are designed for different applications scenarios:

XX.XX.XX.image

Firmware image for a remotely updating the FRITZ!Box via TR-069

XX.XX.XX.CVC

Firmware image for remotely updating the FRITZ!Box via DOCSIS config file or SNMP

XX.XX.XX.recover-image.exe

Recover image for locally updating the FRITZ!Box from a computer connected with the FRITZ!Box via LAN cable. This enables a fast FRITZ!Box update without any network infrastructure needed.

3 Release Notes

3.1 General Information on FRITZ!OS 07.29

FRITZ!OS version: **141.07.29**

Type: **Release**

Release date: **2021-10-29**

Firmware file names:

- **FRITZ.Box_6660_Cable-07.29.image**
- **6660.07.29.081308002018-d30-2.cvc**

3.1.1 Firmware Improvements of FRITZ!OS 07.29

List of changes (Firmware Improvements of) in FRITZ!OS **07.29** since FRITZ!OS **07.28** from **2021-08-27**:

INTERNET

NoTrack-ID	Module	Title	Im- pact	Occurrence	Description
1	INTER- NET	IMPROVED - Certi- fication authorities	n/a	n/a	List of trusted certification authori- ties updated
2	INTER- NET	IMPROVED - Inter- net sharing opti- ons	ope- ratio- nal	systematic	Processing of internet sharing from FTP/FTPS harmonized with proces- sing for internet sharing via HTTPS
3	INTER- NET	IMPROVED - PCP support	ope- ratio- nal	systematic	On PCP connections, ports for FRITZ!Box services are selected from the PCP port range

SYSTEM

NoTrack-ID	Module	Title	Im- pact	Occurrence	Description	
1	JZ89759	SYSTEM	IMPROVED - Stabi- lity	ope- ratio- nal	sporadic	Device sporadically not responding anymore in rare situations

TELEPHONY

NoTrack-ID	Module	Title	Im- pact	Occurrence	Description
1	TELE- PHONY	FIXED - IPv6	ope- ratio- nal	systematic	Restricted availability by telephone when using telephony via IPv6
2	TELE- PHONY	IMPROVED - Enc- rypted telephony	ope- ratio- nal	sporadic	Encrypedd telephony more robust against lost connections
3	TELE- PHONY	IMPROVED - Enc- rypted telephony	ope- ratio- nal	systematic	Enhanced interoperability for use of encrypted telephony

SECURITY

NoTrack-ID	Module	Title	Im- pact	Occurrence	Description
1	SECURITY	CHANGE - openssl	n/a	n/a	Updated to openssl version 1.1.1l

USB

NoTrack-ID	Module	Title	Im- pact	Occurrence	Description
1	USB	FIXED - Compatibility	operational	systematic	"Improved compatibility with MacOS 12.0 ""Monterey"" beta"
2	USB	FIXED - Compatibility	operational	systematic	Improved compatibility with several older devices (printers, scanners)

3.2 General Information on FRITZ!OS 07.28

FRITZ!OS version: **141.07.28**

Type: **Release**

Release date: **2021-08-27**

Firmware file names:

- **FRITZ.Box_6660_Cable-07.28.image**
- **6660.07.28.081308002018-d30-2.cvc**

3.2.1 Firmware Improvements of FRITZ!OS 07.28

List of changes (Firmware Improvements of) in FRITZ!OS **07.28** since FRITZ!OS **07.27** from **2021-06-03**:

SYSTEM

NoTrack-ID	Module	Title	Im- pact	Occurrence	Description
1	SYSTEM	IMPROVED - Stability	operational	systematic	System stability increased

WLAN

NoTrack-ID	Module	Title	Im- pact	Occurrence	Description
1	WLAN	IMPROVED - Stability	operational	sporadic	Better stability
2	WLAN	IMPROVED - Radar detection	operational	sporadic	Radar detection mechanism improved
3	WLAN	FIXED - SSID Change	operational	systematic	WLAN did not work after changing SSID during DFS wait time
4	WLAN	FIXED - Power saving	operational	systematic	Correction for power saving option Target Wake Time (TWT)

TELEPHONY

NoTrack-ID	Module	Title	Im- pact	Occurrence	Description
1	TELE-PHONY	CHANGE - Google telephone book	operational	systematic	Necessary adaptation to changed demands for authentication with Google
2	TELE-PHONY	IMPROVED - CardDav	operational	systematic	Better interoperability for CardDAV-based online telephone contacts

USB

NoTrack-ID	Module	Title	Im- pact	Occurrence	Description
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1	USB	FIXED - Mac OS SMB	ope- ratio- nal	systematic	No network drive connection (SMB) was possible with macOS Big Sur Version 11.3
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3.3 General Information on FRITZ!OS 07.27

FRITZ!OS version: **141.07.27**

Type: **Release**

Release date: **2021-05-12**

Firmware file names:

- **FRITZ.Box_6490_Cable-07.27.image**
- **6490.07.27.081308002018-d30-2.cvc**

3.3.1 Firmware Improvements of FRITZ!OS 07.27

List of changes (Firmware Improvements of) in FRITZ!OS **07.27** since FRITZ!OS **07.25** from **2021-03-30**:

SYSTEM

NoTrack-ID	Module	Title	Impact	Occurrence	Description
1	SYSTEM	CHANGE - Push service	operational	systematic	"Push Service: Various corrections to content of ""Change notice"" email"
2	SYSTEM	FIXED - Google Authenticator	operational	systematic	The code of the Google Authenticator could not always be entered on the user interface

WLAN

NoTrack-ID	Module	Title	Impact	Occurrence	Description
1	WLAN	IMPROVED - Stability	operational	sporadic	Better stability
2	WLAN	FIXED - UI diagram	operational	systematic	"The legend under the ""Allocation of Wi-Fi Channels"" diagram was not rendered in a single line (""Wi-Fi /Wi-Fi Channels"" page)"
3	WLAN	FIXED - Repeater registration	operational	systematic	"Possible problems while registering repeaters after changing Wi-Fi encryption from ""WPA2+WPA3"" to ""non-encrypted"""
4	WLAN	FIXED - Security	operational	systematic	"Vulnerabilities in the processing of incoming fragmented frames and aggregated MPDUs (A-MPDU) fixed (""Fragatttack"")"
5	WLAN	FIXED - WPS guest access	operational	systematic	WPS for the Wi-Fi Guest Access did not work reliably with non-encrypted Wi-Fi

TELEPHONY

NoTrack-ID	Module	Title	Impact	Occurrence	Description
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1	TELE-PHONY	CHANGE - Google telephone book	operational	systematic	Necessary change for use of a Google online telephone book in the future
2	TELE-PHONY	FIXED - Number registration	operational	systematic	After editing CompanyFlex Cloud PBX telephone numbers, these numbers were no longer registered
3	TELE-PHONY	FIXED - Call blocks	operational	systematic	No display of call blocks if these included an entry without a telephone number
4	TELE-PHONY	FIXED - Telephone book search	operational	systematic	Searches in the telephone book could be performed using a name, but not a telephone number
5	TELE-PHONY	FIXED - Fax	operational	systematic	Configuration of internal fax function not possible when a telephone book contained an entry without a telephone number
6	TELE-PHONY	FIXED - Conference calls	operational	systematic	Occasionally, three-party conferences did not work on an analog telephones

DECT

NoTrack-ID	Module	Title	Impact	Occurrence	Description
1	DECT	FIXED - Stability	operational	sporadic	After long operation times, certain functions were sometimes no longer available (e.g. media player, search for updates...)

DVB-C

NoTrack-ID	Module	Title	Impact	Occurrence	Description
1	DVB-C	IMPROVED - DVB-C channel scan	operational	systematic	Automatically start channel scan when DVB-C function is activated

Appendix A: Supported TR-069 Parameters

This release note includes four files with information on the TR-069 protocol family:

tr069-uebersicht_status.pdf

TR-069: Overview of Techniques and Parameters supported by FRITZ!Box, 02.06.2014

tr069-wlan_uebersicht.pdf

WLAN: Overview of Objects and Parameters supported by FRITZ!Box, 08.10.2009: Profile according to TR-098: WiFiLAN:2

tr140-uebersicht_status_storage_service.pdf

TR-140: Overview of Techniques and Parameter supported by FRITZ!Box, 14.11.2012
Supported profiles according TR-098A2: StorageService:1.0[1](Baseline:1, FTPServer:1, HTTPServer:1, NetServer:1,UserAccess:1,VolumeConfig:1)

tr104-uebersicht_status.pdf

TR-104: Overview of Objects and Parameters by FRITZ!Box, 02.06.2014
AVM FRITZ!Box: supported TR-104 Profiles: Endpoint-Profile, SIPEndpoint-Profile, TAEndpoint-Profile

Additional local and public interface of the FRITZ!Box are documented here:

<http://www.avm.de/schnittstellen>

Appendix B: IPv6 Compatibility

Supported IPv6 RFCs

- RFC 1981 - Path MTU Discovery for IPv6
- RFC 2375 - IPv6 Multicast Address Assignments
- RFC 2428 - FTP Extensions for IPv6 and NATs
- RFC 2460 - Internet Protocol IPv6 Specification
- RFC 2462 - IPv6 Stateless Address Autoconfiguration
- RFC 2463 - Internet Control Message Protocol (ICMPv6) for the Internet Ver. 6
- RFC 2464 - Transmission of IPv6 over Ethernet Networks
- RFC 2472 - IP Version 6 over PPP
- RFC 2473 - Generic Packet Tunneling in IPv6 Specification
- RFC 3056 - Connection of IPv6 Domains via IPv4 Clouds
- RFC 3068 - An Anycast Prefix for 6to4 Relay Routers
- RFC 3315 - Dynamic Host Configuration Protocol for IPv6 (DHCPv6)
- RFC 3587 - IPv6 Global Unicast Address Format
- RFC 3596 - DNS Extensions to Support IP Version 6
- RFC 3633 - IPv6 Prefix Options for DHCP Version 6
- RFC 3646 - DNS Configuration options for DHCP for IPv6
- RFC 3736 - Stateless DHCP Service for IPv6
- RFC 3769 - Requirements for IPv6 Prefix Delegation
- RFC 4191 - Default Router Preferences and More-Specific Routes
- RFC 4193 - Unique Local IPv6 Unicast Addresses
- RFC 4241 - Model of IPv4/IPv6 Dual Stack Internet Access Service
- RFC 4242 - Information Refresh Time Option for DHCPv6
- RFC 4291 - IPv6 Addressing Architecture (obsolete RFC 3513)
- RFC 4294 - IPv6 Node Requirements
- RFC 4339 - IPv6 Host Configuration of DNS Server Information Approaches
- RFC 4361 - Node-specific Client Identifiers for Dynamic Host, Configuration Protocol Version Four (DHCPv4), -> Client Identifier, contains DUID according to RFC 3315
- RFC 4429 - Optimistic Duplicate Address Detection (DAD) for IPv6
- RFC 4443 - ICMPv6 for the IPv6 Specification
- RFC 4472 - Operational Considerations and Issues with IPv6 DNS
- RFC 4795 - Link-Local Multicast Name Resolution (LLMNR)
- RFC 4861 - Neighbor Discovery for IPv6
- RFC 4862 - IPv6 Stateless Address Autoconfiguration
- RFC 4941 - Privacy Extensions for Stateless Address Autoconfiguration in IPv6
- RFC 4942 - IPv6 Transition-Coexistence Security Considerations
- RFC 5006 - IPv6 Router Advertisement Option for DNS Configuration
- RFC 5175 - IPv6 Router Advertisement Flags Options
- RFC 5569 - IPv6 Rapid Deployment on IPv4 Infrastructures (6rd)
- RFC 5908 - Network Time Protocol (NTP) Server Option for DHCPv6
- RFC 5969 - IPv6 Rapid Deployment on IPv4 Infrastructures (6rd) - Protocol Specification
- RFC 6092 - Simple Security in IPv6 Gateway CPE
- RFC 6204 - Basic Requirements for IPv6 Customer Edge Routers
- RFC 6334 - Dynamic Host Configuration Protocol for IPv6 (DHCPv6) Option for Dual-Stack Lite

Drafts

- Basic Requirements for IPv6 Customer Edge Routers draft-ietf-v6ops-ipv6-cpe-router-09
- draft-ietf-softwire-ds-lite-tunnel-option

Appendix C: MIB and Special Features

-- Currently no special features --

Appendix D: TCP/UDP Ports and Related Services

Cable Modem Interface:

- UDP-161-SNMP IPv4+IPv6
- UDP-162-SNMP-Trap IPv4+IPv6
- UDP-37-Time IPv4+IPv6
- UDP-68-DHCPv4
- UDP-546-DHCPv6

General:

- TCP-53-Domain Name Service (DNS)
- TCP-80-Hypertext Transfer Protocol (HTTP)
- TCP-139-NetBIOS Session Service
- TCP-445-Microsoft Active Directory, Windows shares
- TCP-2066-AURA (AVM USB Remote Architecture)
- TCP-4711-IPerf Speedtest (AVM IPerf Server)
- TCP-5031-CAPI over TCP (AVM CAPI over TCP)
- TCP-8181-Parental Control -- AVM Content-Filter
- TCP-8182-Parental Control
- TCP-49000-UPnP/TR-064/UPnP AV
- TCP-49200-AVM Media Server HTTP
- TCP-49300-1&1 Medienserver HTTP
- TCP-49400-Telekom Medienserver HTTP
- TCP-49443-TR-064 over SSL/TLS
- TCP-51111-DTrace (AVM DTrace, DECT Trace for DLC, Network and MAC-Layer)
- TCP-51112-DTrace (AVM Dtrace, Rerouting of DECT Stub output supported)
- UDP-37-Time Protocol
- UDP-53-Domain Name Service (DNS)
- UDP-67-DHCP-Server
- UDP-68-DHCP-Client
- UDP-123-Network Time Protocol (NTP)
- UDP-137-Microsoft NetBIOS Name Service
- UDP-138-Microsoft NetBIOS Datagram Service
- UDP-500-IKE
- UDP-547-DHCPv6-Server
- UDP-1900-UPnP SSDP
- UDP-4500-IPSec NAT-T
- UDP-4711-IPerf Speedtest (AVM IPerf Server)
- UDP-4712-IPerf Speedtest (AVM IPerf Server)
- UDP-5031-CAPI over TCP (AVM CAPI over TCP)
- UDP-5351-Port Control Protocol (PCP)
- UDP-5353-Multicast DNS (mDNS)
- UDP-5355-Link Local Multicast Name Resolution (LLMNR)
- UDP-5060-Session Initiation Protocol (SIP)
- UDP-7077-Voice over IP (RTP,RTCP)

Optional-WAN only:

- TCP-21-File Transfer Protocol (FTP)
- TCP-4711-IPerf Speedtest (AVM IPerf Server)
- TCP-4712-IPerf Speedtest (AVM IPerf Server)
- TCP-5060-Session Initiation Protocol (SIP)

Randomised-Optional-WAN only:

- TCP-443 (or 40000-49999) Hypertext Transfer Protocol over SSL/TLS (HTTPS)
- TCP-7547, 8089, 46000-47000, 46000-56000 TR-069 Connection Request Port

Appendix E: Diagnostics Options

The FRITZ!Box offers a plethora of diagnostics options. The following section presents various descriptions and explanations of the available tools:

Access to the User Interface

<http://fritz.box>

<http://192.168.178.1>

<http://169.254.1.1>

Support Data

Support information can assist the AVM Support Desk in analyzing your problem more precisely. If they are required, AVM staff will request that you compile support data and send them to AVM Support. Such support data contain all of the settings of your FRITZ!Box, excluding user names and passwords.

The support information on the FRITZ!Box Support Data page are available at:

<http://fritz.box/html/support.html>

DOCSIS Diagnostics Data

The DOCSIS diagnostics data are not available in firmware versions that have been released.

When the firmware is still beta or lab, you can use the diagnostics data to conduct a more detailed analysis of problems with the connection. If they are required, AVM staff will request that you compile DOCSIS diagnostic data and send them to AVM Support. DOCSIS diagnostic data contain additional information on the status of your cable connection, but no user names or passwords.

The DOCSIS diagnostics data can be accessed on the Support Data page of the FRITZ!Box under:

<http://fritz.box/html/support.html>

Options for Packet Tracing

Packet traces are extremely detailed protocols that allow AVM Support to perform a deep analysis of certain error situations. If they are required, AVM Support staff will request that you create a packet trace and send it to Support.

For the purpose of diagnostics, FRITZ!Box can record all data packets in Wireshark format when the FRITZ!Box is configured as a router. Multiple traces can be started at the same time. They assist AVM Support in a precise analysis of complex problems with the Internet connection. Keep in mind that traces may contain your confidential passwords.

1. Start the packet trace by clicking the corresponding "Start" button and save the file to the hard disk.

2. End the trace by clicking "Stop" or the "Stop All Traces" button.

Important: If you want to end the trace, do not interrupt the saving of the file on the hard drive in the browser. Click the corresponding "Stop" button instead!

3. Click the "Refresh" button if the buttons to stop the trace are not displayed.

The packet tracing page is accessible from the Support Data page of the FRITZ!Box or directly at:

<http://fritz.box/html/capture.html>

Part 1)

The "Standard tracing" of Internet connection 1 records the FRITZ!Box's Internet connection. This is the only place where any PPPoE frames and PPP dialin events are visible.

If there is an extra PVC for VoIP, then multiple Internet connections are available:

- Trace of Internet connection 1 contains *only* VoIP traffic
- Trace of Internet Connection 2 contains the actual data of the Internet connection.

WAN trace of only Internet, without PPP and PPPoE in the router of the FRITZ!Box

WAN trace of only TR069 communication, without PPP and PPPoE in the router of the FRITZ!Box

WAN trace of everything, without PPP and PPPoE in the router of the FRITZ!Box

Part 2)

- eth0 is the Ethernet interface (the LAN ports) of the FRITZ!Box.
- eth0 is part of the logical interface "lan".
- eth0 should be used if you would like to trace directly on the LAN port.

"lan" is a logical interface that combines all of the bridged local network interfaces. It generally contains the IP traffic on the LAN ports and the network traffic arriving from the WLAN.

Additional Tracing Options

Part 3)

Available WLAN interfaces on which traces can be recorded are dynamically displayed depending on the access points that are enabled and available.

WLAN abbreviations:

HW == hardware (close to WLAN chip)

AP == AP mode (logical WLAN mode "access point")

HW2 == hardware 2.4 GHz

HW == hardware 5 GHz

AP2 == Logical AP ath1

AP == Logical AP ath0

ath0 == 2.4 GHz

ath1 == 5 GHz

wifi0 == hardware (close to WLAN chip) trace point 5GHz

wifi1 == hardware (close to WLAN chip) trace point 2.4GHz

Interface 0 == trace point close to HW

Interface 1 == trace point on network stack (only available in logical WLAN mode)

- wifi0 bzw wifi1

This trace records as close to the hardware as possible. The trace covers all frames that are transferred to and from the WLAN chip. There is one trace point for each WLAN hardware. At present these are 'wifi0' and 'wifi1'.

- Tracing on the Logical Layer

Although there is usually only one WLAN hardware, multiple logical WLAN modi can exist in parallel. These are called AP, WDS and STA. There are two trace points for each mode present in the given product. One of these (interface 0) - as for tracing on 'wifiX' - is close to the hardware, while the second (interface 1) is oriented toward the network stack.

Appendix F: Customer Support and Contacts

For technical support, FAQs, manuals, tools and additional information, please visit:

<http://www.avm.de/de/Service/index.html>

The AVM Knowledge Database offers additional support information:

<http://service.avm.de/support/de/SKB>

Please contact the following persons for direct support:

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