

R&S®FSVA and R&S®FSV Signal and Spectrum Analyzer Release Notes Firmware Version V3.60

**These Release Notes are for following models of the R&S®FSVA Signal and Spectrum Analyzer:
Running operating system Windows 7 / Windows 10:**
R&S® FSVA4, order no. 1321.3008K05, R&S® FSVA7, order no. 1321.3008K08,
R&S® FSVA13, order no. 1321.3008K14, R&S® FSVA30, order no. 1321.3008K31,
R&S® FSVA40, order no. 1321.3008K41

**These Release Notes are for following models of the R&S®FSV Signal and Spectrum Analyzer:
Running operating system Windows 7 / Windows 10:**
R&S® FSV4, order no. 1321.3008K04, R&S® FSV7, order no. 1321.3008K07,
R&S® FSV13, order no. 1321.3008K13, R&S® FSV30, order no. 1321.3008K30,
R&S® FSV40, order no. 1321.3008K39, R&S® FSV40, order no. 1321.3008K40

Running operating system Windows XP:
R&S® FSV3, order no. 1307.9002K03, R&S® FSV3, order no. 1307.9002K21,
R&S® FSV7, order no. 1307.9002K07, R&S® FSV13, order no. 1307.9002K13,
R&S® FSV30, order no. 1307.9002K30, R&S® FSV40, order no. 1307.9002K39,
R&S® FSV40, order no. 1307.9002K40

© 2019 Rohde & Schwarz GmbH & Co. KG
Muehldorfstr. 15, 81671 Munich, Germany
Phone: +49 89 41 29 - 0
Fax: +49 89 41 29 12 164
E-mail: <mailto:info@rohde-schwarz.com>
Internet: <http://www.rohde-schwarz.com>

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The following abbreviations are used throughout this document:
R&S®FSV is abbreviated as R&S FSV. R&S®FSVA as R&S FSVA.

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1 Current Version and History

1.1 New Functions

The following table lists the new functions and indicates the version in which the new function was introduced:

Version	Function
V3.60	FSV-K144: Signal demodulation and analysis in line with TS38.211 V15.6.0 Supports ACLR and SEM measurements in line with TS38.141-1/2 V15.1.0 Supports test models according to TS38.141 V15.2.0 Supports EVM limit check according to TS38.141-1/2 V15.1.0 Supports saving/loading of allocation files across instruments (FSW, FSV3000, VSE) Supports I/Q Offset, I/Q Gain Imbalance, I/Q Quadrature Error and OSTP in result summary Supports compensation of carrier leakage
V3.50	Support of FSV-K144 5G-NR Downlink Measurements Signal demodulation and analysis in line with TS38.211 V15.4.0 Support of ACLR, SEM measurements in line with TS38.141-1/2 V15.0.0 and TS38.521-1/2 V15.1.0 Support of 3GPP test models in line with TS38.141-1/2 V15.0.0
V3.50	FSV-B10: Support for generators R&S SMA100B, SMB100B and SMBV100B models.
V3.41	FSV-K10x: New modulation schemes for LTE DL (1024QAM) and LTE UL (256QAM).
V3.41	FSV-K40: Added ASCII trace export for all traces
V3.40	Support of FSV-K106 NB-IoT Measurements
V3.30SP1	Legacy Pro: FSP-Emulation supports <code>DISPlay:WINDow<1 2>:SElect</code> command.
V3.30SP1	FSVA-B160 supports I/Q data export for record length up to 100MSamples.
V3.30	Firmware supports Windows 10 operating system.
V3.30	Firmware provides open source acknowledgement on instrument.
V3.30	FSV-K70: Support of $\pi/2$ -BPSK, $-\pi/2$ -BPSK, $\pi/2$ -DBPSK modulation
V3.20	Firmware supports 7.5 kHz channel filter.
V3.10SP2	Firmware supports R&S FSV-K54CAL CISPR Calibration for K54.
V3.10SP1	None.
V3.10	Support for FSVA4, FSVA7, FSVA13, FSVA30 and FSVA40.
V3.10	Firmware supports R&S@FSVA-B11 YIG Preselector Bypass.
V3.10	FSV-K100/K104: Support for Medium Range base station SEM measurement.
V3.10	Legacy pro: Supports PSA/ESA emulation.
V3.10	Firmware supports Web Control on the LXI webpage (<code>http://<address of device></code>) allowing remote display and interaction with the device from any browser.
V3.10	Support for Power Sensors: R&S NRP8S, R&S NRP8SN, R&S NRP18S, R&S NRP18SN, R&S NRP33S and NRP33SN, R&S NRP40S and NRP40SN, R&S NRP50S and NRP50SN (USB cable length tested up to 1.5 m)
V3.10	FSV-K70: <ul style="list-style-type: none"> Support of 16FSK modulation. All eye diagrams support two horizontal and two vertical display lines, which allow a manual measurement of the eye size. New SCPI command to query the start of the current result range: <code>DDEM:SEAR:MBUR:STAR?</code> Lower Limit of alpha/BT of the transmit and measurement filter is reduced from 0.1 to 0.05.
V2.30SP2	FSV-B160: In I/Q Analyzer and FSV-K70 the maximum bandwidth can be set to 160 MHz for sample rates below 64 MHz.
V2.30SP2	FSV-K100/101/104/105: The RF-preamplifier can now be controlled from within the LTE option.

Version	Function
V2.30SP2	FSV-K100/K104: Support for 256-QAM modulation.
V2.30SP1	Added "Enhanced Tree Walking" as a new SCPI parser mode.
V2.30	Added softkey "Status Bar State" in the menu Setup -> Display Setup
V2.30	FSV-K76: Supporting synchronization on slot 0 for signals without DwPTS
V2.30	FSV-K77: Support of UpPTS evaluation FSV-K77: Support of time synchronization on UpPTS FSV-K77: User can now define the maximum modulation type in order to avoid false detection
V2.30	FSV-K91N/AC: Support of R&S FS-Z11 Trigger Unit for simultaneous MIMO measurements.
V2.30	FSV- K100/101/104/105: Support for loading custom spectrum emission mask XML definition files.
V2.30	FSV-K101/105: Support for 3 MHz & 1.4 MHz channel bandwidth measurements in spectrum SEM.

1.2 Modified Functions

The following table lists the modified functions and indicates the version in which the modification was carried out:

Version	Function
V3.60	FSV-K144: RF up-conversion phase compensation according to TS 38.211 V15.6.0 Chapter 5.4 is now activated by default
V3.60	Modified settling time of the YIG preselector filter for large spans in the area of 7.8 GHz in sweep mode.
V3.30SP1	FSVA: Changed synthesizer setup algorithm for production reasons. Do not downgrade instruments shipped with firmware 3.30SP1 to earlier firmware versions.
V3.10SP1	FSV-B10: Switching the B10 source state to OFF now also sets the RF state of the connected external generator to OFF.
V3.10	PSA-Emulation: *WAI waits till the sweep has finished, new in continuous sweep mode.
V3.10SP2	None.
V3.10SP1	FSVA: Changed synthesizer setup for production reasons. Do not downgrade instruments shipped with firmware 3.10SP1 to earlier firmware versions.
V3.10	In FSP-Emulation: <ul style="list-style-type: none"> the RF attenuator now uses the same values like in FSP as default coupling. HP commands are supported additionally to the SCPI commands (Softkey "HP Additional")
V3.10	In HP-Emulation marker position always remains at the same display position even when start / stop / span is changed.
V3.10	FSV-K100/K104: Support for detecting 256QAM in physical detection auto mode.
V3.10	FSV-K70: Switching the symbol table between hexadecimal, decimal, octal and binary, can now also be done via Remote Control ("CALC:FORM"). When reading the symbol table via remote control this setting is respected if the command "TRAC:DATA? STR" is used.
V2.30SP3	Change of YIG-preselector settings for FSV40 due to production reasons.
V2.30SP2	Printing speed improved.
V2.30SP2	FSV-K30: Max number of measurement points increased to 171
V2.30SP2	FSV-K104: Power ON/OFF now supports result units in dBm or dBm/MHz.
V2.30SP1	FSV-K91 AC: Maximum capture time for a single antenna measurement with 320 MHz sample rate increased to 50ms. Requires a minimum of 2 GBytes of physical memory. This can be checked with: Press the key sequence 'Setup System Info Versions + Options' In the BIOS row check, that the FMRx version is greater or equal FMR9
V2.30SP1	FSV-K104: Update of the Power ON/OFF limit lines according to 3GPP test specification Release 12.

Version	Function
V2.30	The state settings for the visibility of status bar, tool bar and date&time field are now saved before shutdown and in save/recall dataset files.
V2.30	Changing the reference level offset will preserve the vertical position of limit lines with relative y-values on the screen (for compatibility to FSP).
V2.30	Modified synthesizer setup table.
V2.20	HP emulation: Support of unit SEC
V2.30	FSV-B5: In FSP/FSU emulation mode the AUX PORT Pin 9 "Ready for Trigger" signal is now inverted. (High level indicates "ready for trigger")
V2.30	FSV-K7: ASCII export of logarithmic PM spectrum will now export in linear units to be consistent with AF spectrum exports.
V2.30	FSV-K91/N/AC: - Obsolete softkey "Sweep [Run Single, Cont" was removed (function is available as the frontpanel keys). - Changing the Reference Level or Attenuation setting will make the auto level functionality go into manual mode. FSV-K91: - SENS : DEM : FORM : BAN? The code rate is now optionally appended to the modulation format. For the previous versions only the modulation format was returned. The code rate is appended to the returned string using the :SENSe : DEMod : FORMat : BANalyze : DRATe <ON OFF> command. This affects only IEEE 802.11a, , IEEE 802.11g OFDM, IEEE 802.11 j10 and IEEE 802.11 j20 signals.
V2.30	FSV-K104/105: Maximum TDD special subframe configuration extended to a value of 9 for normal cyclic prefix and 7 for extended cyclic prefix.
V2.30	FSV- K100/101/104/105: SENSe : LTE : MODulation : SElect accepts and returns text parameters.

1.3 Improvements

The following tables list the improvements and indicate since which version the issue could be observed:

Improvements of Firmware V3.60:

since	Function
V3.50	FSV-K144: For specific RF up-conversion frequencies, the precision of the determined frequency error was too low. This issue is solved.
V3.50	FSV-K144: In certain scenarios, the channel estimation selection "pilot and payload" was not applied. This issue is solved.
V1.10	FSV-IQ Mode: Performing auto level on a modulated signal with a certain configuration did not always provide the optimum reference level during the first pass (this changed when performing auto level again). This issue is solved.
V1.10	In ACLR measurement the RF Attenuation changes when entering "Gate Settings" if RF Attenuation is set to AUTO. This issue is solved.
V1.10	SEM measurement: There was an issue when setting the frequency ranges of a SEM sweep list by remote. This issue is solved.
V1.10	When setting a marker threshold, no threshold line was displayed. This issue is solved.
V1.10	Support SCPI command for List Evaluation Details in Spurious Emissions Measurement.

Improvements of Firmware V3.50:

since	Function
V1.50	FSV-IQ Mode: At some devices and specific frequencies, spurious responses with small carrier offset were visible. This affected also the EVM value. This issue is solved.

since	Function
V1.10	In Spurious Emissions Measurement with special configuration, some devices displayed an irregular signal in addition to the provided RF signal. This issue is solved.
V1.10	FSV-K10: For GMSK modulated signals with very severe corruption of the TSC the estimator for the Modulation Accuracy table results amplitude droop, IQ Imbalance and IQ Offset might not converge. This issue is solved.
V1.10	FSV-K10: Running auto level could result in a permanent IF overload if out-of-band signals are present. In such situations (e.g. presence of a multi carrier signal) activating the Multi Carrier setting resolves this issue.
V1.10	FSV-B10: For some devices, a "Visa Error" was displayed when a USB-Stick was inserted during startup of the application. This issue is solved.
V1.50	FSV-K100: Auto level did use the preamplifier even if the hardware option was not available. This issue is solved.

Improvements of Firmware V3.41:

since	Function
V1.10	In the FSV-B160 signal path, the trigger delay and jitter was too high. This issue is solved.
V1.10	FSV-K91: Standard 802.11g was not supported with certain combinations of licenses. This issue is solved

Improvements of Firmware V3.40:

since	Function
V1.10	When switching the Sweep Time from Auto to Manual with span > 0 Hz, the sweep time value was not updated when switching to span = 0 Hz. This issue is solved.
V2.10	FSV-B5 on devices with part number 1321.3008.xx: The video output did not work for RBW above 20 MHz. This issue is solved.
V2.10	When entering a license key for an option which was already installed on the device an error message occurred. This issue is solved.
V3.10	Using FSV-B21 with active 'Auto-ID' function simultaneously with FSV-B10 (external tracking generator) resulted in an abrupt firmware application termination. This issue is solved.
V3.20	FSV-K7: CALCulate:FEED command did not accept SCPI long form as argument (e.g. CALCulate:FEED 'XTIM:AM:RELative:AFSPectrum1'). This issue is solved.

Improvements of Firmware V3.30SP1:

since	Function
V3.20	FSV-K54: In rare situations, recalling a save set with active K54 option may have led to a lockup of the instrument. This issue is solved.
V3.10SP1	Legacy Pro: PSA-Emulation: Missing implementation for *OPC?. This issue is solved.

Improvements of Firmware V3.30:

since	Function
V1.60	FSV-K30/K40: The wrong external mixer band was sometimes displayed, this has now been fixed

Improvements of Firmware V3.20:

since	Function
V1.10	Extended number of significant digits from 12 to 14 for remote command CALCulate:MARKer:COUNt:FREQUency? to be able to measure 1 mHz frequency resolution.
V2.10	Several dropouts are visible in spectrum mode with RMS detector, FFT sweep, large span (e.g. 40 GHz) and a large number of sweep points (e.g. 10001). This has now been fixed.

Improvements of Firmware V3.10SP2:

since	Function
	None.

Improvements of Firmware V3.10SP1:

since	Function
	None.

Improvements of Firmware V3.10:

since	Function
V2.40	Firmware lockup solved when opening / closing remote connection via raw SCPI very often.
V2.30SP1	Extremely slow SEM measurement with span = 10 MHz, RBW = VBW = 10 Hz. This issue is solved.
V2.30SP1	Firmware lockup solved when switching between LTE and WCDMA very often.
V2.30SP1	The trace average result was restarted on parameter change although trace mode hold cont was active. This issue is solved.
V2.30	ACLR: Total power reading for unit dBm/Hz corrected (power value was shown for unit dBm)
V2.30	Rounding problem for remote queries solved (e.g. DISP:WIND:TRAC:Y:RLEV?)
V2.00	Level dropouts with R&S FSV-K54 CISPR-AVG detector solved.
V1.10	FSV-K70: Improved accuracy of recursive calculation of standard deviation for result summary. For small sweep counts, this results in slightly higher values.

1.4 Known Issues

The following table lists the known issues and indicates since which version the issue could be observed:

Since	Function
V3.30	FSV-K72/K73, K76/77, K82/83, K84/85: Missing dialog/table header of 'Select Channel/Slot' and 'Predefined Channel Table' on Windows 10 operating system. FSV-K72/K73: Missing table header of 'Carrier Table Settings' of the Time Alignment Error Measurement on Windows 10 operating system.
V3.30	Title of 'Adjust All' and 'Adjust Frequency' message boxes is truncated on Windows 10 operating system.
V3.10	The R&S®FS-K100/-K102/-K104PC EUTRA/LTE PC software version 3.5 Beta 5 does not support R&S® FSVA. Version 3.5 Beta 6 will support R&S® FSVA.
V2.00	FSV with Windows 7: Softkeys for control of R&S EX-IQ-BOX order number 1409.5505.02 (first serial) will not be supported. The configuration can be done from a separate PC running Windows XP and the software R&S DiglConf.
V1.41/ V1.71	Hints to FSV-B17 Digital Baseband Interface: If the FSV is used as digital output and for example the R&S SMU as digital input please ensure the sample rate 100 MHz on both devices. With newer versions of the R&S®DiglConf it could happen that querying information about an USB connected EX-IQ Box via remote commands is not possible. This issue will be solved by reinstallation of V1.71 or higher or execution the registry file located under: C:\R_S\INSTR\USER\DiglConf_EnableInfoServerlfc.reg
V1.20	The analyzer supports the LXI standard. As a consequence the DHCP IP address assignment is performed twice: once while Windows XP is booting, and again when the firmware is started. This can be omitted by deleting the following registry key: HKEY_LOCAL_MACHINE\SOFTWARE\Rohde&Schwarz\SoftwarePlatform\ServiceConfiguration\LanServices: "DoRenewDHCP"="1"

Since	Function
V1.05	FSV with Windows XP and new touch controller board: The touch alignment started from the firmware will not work. Workaround: Terminate the firmware (ALT+F4). Double click the "Touchkit" or "Touchpanel" application on the windows desktop. Select the tab "Tools" and the button "4 Point Calibration". Perform the calibration (by following the instruction on the screen) and accept with "OK" twice. Restart the firmware by double clicking the Analyzer icon.
V1.71SP3	FSV-K10: Limit check missing in Wide Modulation Spectrum measurements at 6 MHz frequency offsets. Delta to limit results are displayed as "...". SCPI returns NAN as limit value.
V1.05	FSV-K30 Toggle and zoom hard keys not active.
V2.10	FSV-K91: In case of Simultaneous MIMO measurements of N Tx antennas, the application might crash, if less than the required number of N R&S FSx analyzers is connected..
V1.60	FSV-K91: Remote controlled: In rare cases change between remote and local mode may lock up the firmware. Switching between local and remote causes the display updates to be switched on and off. It is more efficient to leave the display on or off as desired for the entire execution of the remote control script.
V1.60	FSV-K91: For signals with AWGN distortion the SEM trace might show shoulders in neighboring channels. For suppressing this use the setting "Trace reduction: Trace detector"
V1.20	FSV-K93: Auto level result in the spectrum measurement can be improved manually.
V1.50	FSV-K100/K104 Constellation diagram does not display ideal constellation points for 'rotated BPSK' and PSK.
V1.50	FSV-K100/K104 The Capture 'analyzed frame bar (green)' updates are occasionally skipped when processing fast measurements in continuous mode.
V1.61SP1	FSV-K100/K101/K104/K105: A measurement which fails due to invalid settings may not clear the previous measurements results.

1.5 Windows 10

FSV/FSVA running operation system Windows 10 are using Windows 10 IoT Enterprise LTSC. (**IoT** stands for **I**nternet **o**f **T**hings and is the embedded version of Windows 10. **LTSC** stands for **L**ong **T**erm **S**ervicing **B**ranch which means a long support period of Windows patches.)

1.6 Changing of hard disks between different types of CPU boards

For the FSV spectrum analyzer different CPU boards are in use:

FMR7 with order no. 1091.3204, FMR9 with order no. 1091.1599, 1206.0198 or 1091.1347.

Furthermore FSVs with order no. 1321.3008 are running operating system Windows 7 / Windows 10 and FSVs with order no. 1307.9002 are running operating system Windows XP.

The hard disks of the FSV can be changed from one device to another, as long as the devices have the same operating system and the same CPU board with the identical order number.

If the hard disk is exchanged between different types of CPU boards or operating systems misbehavior like blue screens or wrong display resolution or non-functioning front panels and USB are the results.

General Solution:

Change back to the hard disc which fits to the front module controller.

The device will boot as usual.

1.7 Modifications to the Documentation

None - all new features are described in the online help or the latest documentation, which is available for download from the Rohde & Schwarz website, on the R&S FSV product page at:

<https://www.rohde-schwarz.com/manual/fsv/>

<https://www.rohde-schwarz.com/manual/fsva/>

2 Firmware Update

The firmware update file for the R&S FSVA/FSV is one file including the main firmware version number e.g. FSVSetup_V1.60.exe. It will be referred as FSVSetup.exe later in the text. The file can be found on Rohde & Schwarz web page.

CAUTION

Firmware versions 3.30 or higher can be installed on FSVA's or FSV's with operating system Windows XP, Windows 7 and Windows 10.

Firmware versions below 3.30 can only be installed on FSVA's or FSV's with operating system Windows XP or Windows 7.

Installing versions below 3.30 on devices with Windows 10 will result in malfunction of the device and the hard drive may need a new image from the service center!

Firmware versions 3.00 or higher can be installed on FSVA's or FSV's with operating system Windows XP and Windows 7.

Firmware versions 2.00 or higher can be installed on FSV's with operating system Windows XP and Windows 7.

Firmware versions below 2.00 can only be installed on FSV's with operating system Windows XP.

Installing versions below 2.00 on devices with Windows 7 will result in malfunction of the device and the hard drive may need a new image from the service center!

2.1 Performing the Firmware Update on the Instrument

There are three ways to make the setup FSVSetup.exe visible to the device:

Using a memory stick:

1. Copy the file to a directory of the memory stick and insert the memory stick into one of the USB sockets of the R&S FSVA/FSV.

Using the remote desktop and copying the installation files to a directory of the instrument:

1. Connect the R&S FSV to your LAN.
2. Start the remote desktop on your PC (C:\winnt\system32\mstsc.exe).
3. Enter the TCP/IP address of the instrument, you want to update. Ensure that the "local resources" > "drives" option is selected and press the "Connect" button. (to get the TCP/IP address of the R&S FSVA/FSV) press the hard key "Setup" and then the soft key "Network + Remote". The IP address consists of 4 numbers between 0 and 255.

4. Login to the instrument (user name: "instrument" and default password "123456" or since firmware version 1.50 password "894129").
5. Copy the FSVSetup.exe from your PC to a new folder e.g. C:\FWUpdate.
6. You can now access this directory with the FSVSetup.exe from the R&S FSVA/FSV analyzer firmware.

Using a network drive:

1. Connect your R&S FSVA/FSV to your LAN, and establish a connection to one of your servers. (Please ask the local IT administrator for support)
2. Copy the FSVSetup.exe from your PC to a directory on this server
3. You can now access the directory with the FSVSetup.exe from the R&S FSVA/FSV analyzer firmware.

Performing the update on the instrument:

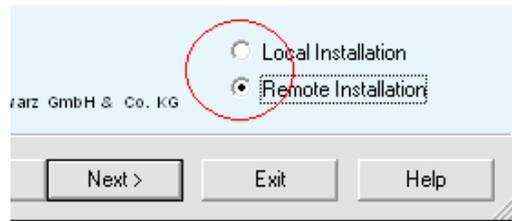
The firmware update process is performed by the following steps:

1. Switch the instrument on and wait until the Analyzer has resumed operation.
2. Press the "SETUP" hard key, go to the side menu using the "More" soft key, and press the soft keys "Firmware Update".
A dialog box is displayed to select the proper FSV*.exe setup file. Change the path to the drive and directory which you prepared in the previous step (USB stick directory, remote PC directory or directory on a server) and close the dialog with the "Select" button.
3. Press the "Next" button to come to the selection of the firmware packages. By default all application should be installed. Ensure that the applications needed are selected.
4. Press the "Install" button.
The firmware will be stopped and the installation starts. After a few minutes the system restarts automatically.
5. Depending on the previous firmware version, a reconfiguration of the hardware may be required during the first start of the firmware. In this case the following message box is displayed:
"FPGA Update. A system shutdown is necessary"
Accept this and the device will be shut down. It is then necessary to start the device on the front panel. An automatically restart is not possible because the FPGA needs a complete boot cycle from power off.
6. After the restart the firmware installation is complete. After the firmware update the "UNCAL" flag appears. A self alignment is necessary. Press the "SETUP" hard key, the soft key "Alignment" and then press the soft key "Start Self Alignment" to invoke the alignment procedure.

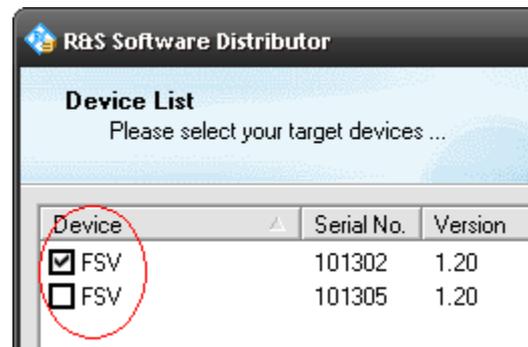
2.2 Performing the Firmware Update from a Windows PC

If the firmware version 1.10 or newer is installed on the instrument the new firmware can also be uploaded without using a memory stick or a network drive. Just a LAN connection from the instrument and a Windows PC is necessary.

1. Run FSVSetup.exe on your PC.
2. Select Remote Installation and click the button Next.



3. Select the Packages which shall be installed and click the button Next.
HINT FOR FIRE WALL USERS:
The FSVSetup.exe is communicating with the instruments via LAN. Therefore it is necessary that the FSVSetup.exe may pass the fire wall. After adding it to the fire wall rules, restart the scan by clicking on Rescan.



4. After scanning your LAN subnet all found instruments are listed. Select the instruments you want to update.
It is possible to select up to 5 instruments for updating in parallel.

NOTICE

Please be careful and check twice if you have selected the correct instruments. Depending on your company's network structure also instruments of other departments will show up!

5. Additional help will be displayed after clicking the button "Help" and further options are available by clicking the button "Options".
6. Start the installation by selecting "Install"
7. Confirm that you want to reboot the instrument in order to activate the firmware update (the instrument then restarts automatically)

2.3 Operation with and without Administrator Rights

With firmware version V1.50 and image version V3.25 or higher, the analyzer may be operated with or without administrator rights. Some administrative tasks (e.g. a firmware update or a LXI functions or network configuration) do require administrator rights. In the default configuration, auto login is enabled, and the "Instrument" account

with administrator rights is active. This means that no password is required, and the full functionality of the analyzer is available. An additional user account (user name "NormalUser" with default password "894129") is pre-defined. Use standard Windows functionality if you wish to deactivate the auto login mechanism and activate the NormalUser account. Please refer also to the Quick Start Manual of the FSV.

An update from a firmware version <V1.50 to version V1.50 or higher does not replace the operating system image. This means that a firmware update only will not offer the functionality to the "NormalUser". To replace the image version, contact your R&S service representative. Prerequisite is a front module controller FMR9 which can be identified by the BIOS version V7.0.xx.yy shown during startup or by the CPU Board FMR9 with order no. 1091.1599.00 shown in SETUP-SYSTEM INFO-HARDWARE INFO.

2.4 Firmware Downgrade

A downgrade of the firmware from V1.50 or greater to version <V1.50 requires the following process (this is only valid for FSVs with order no. 1307.9002.xx) :

1. Ensure to be logged in with administrator rights (user "Instrument")
2. Exit the firmware with ALT-F4
3. Select Windows Start Menu -> Programs -> Accessories -> Backgrade to start the back grade preparation in the registry. If a message box appears allow that registry settings to be performed.
4. Open the Windows Explorer change the path to the drive and directory which you prepared in the previous step (USB stick directory, remote PC directory or directory on a server) and double click on proper FSV*.exe setup file.
5. Press the "Next" button to come to the selection of the firmware packages. By default all application should be installed. Ensure that the applications needed are selected. Press the "Install" button.
After a few minutes the system restarts automatically. After the restart the firmware installation is complete and the "UNCAL" flag appears. A self alignment is necessary.
6. Press the "SETUP" hard key, then "Alignment" and the "Self Alignment" soft key to start the alignment procedure.
Depending on the previous firmware version, a reconfiguration of the hardware may be required during the first start of the firmware. In this case the following message box is displayed:
"FPGA Update. A system shutdown is necessary"
Accept this and the device will be shut down. It is then necessary to start the device on the front panel. An automatically restart is not possible because the FPGA needs a complete boot cycle from power off.

2.5 Installing Firmware Options

2.5.1 Firmware options included in basic instrument

The R&S FSV-K7, R&S FSV-K7S, R&S FSV-K8, R&S FSV-K9, R&S FSV-K14 and R&S FSV-K54 application software packages are included in the basic instrument firmware. Therefore they do not have a separate item in the installer to be selected.

Note:

The R&S FSV-K7S needs the FSV-K7 installed on the device.

2.5.2 Other Firmware Options within the FSVSetup.exe File

The R&S FSV-K10, R&S FSV-K30, R&S FSV-K40, R&S FSV-K70, R&S FSV-K72/73, R&S FSV-K76/77, R&S FSV-K82/83, FSV-K84/85, R&S FSV K91, R&S FSV-K93, R&S FSV-K100, R&S FSV-K144 application software packages have their own installation item and are therefore added to the selection list during the firmware update. Ensure that the checkbox is checked if their installation is requested.

Note:

The functionality of the FSV-K91n/K91p/K91ac is integrated within FSV-K91 and is activated by an own key code.

This R&S FSV Signal Analyzer Firmware is compatible to the following options:

FSV-K10	FSV-K30	FSV-K40	FSV-K70	FSV-K72/ FSV-K73	FSV-K76/ FSV-K77
V3.60	V3.60	V3.60	V3.60	V3.60	V3.60

FSV-K82/ FSV-K83	FSV-K84/ FSV-K85	FSV-K91/ K91n/K91p/ K91ac	FSV-K93	FSV-K100/ K101/K102/ K103/K104/ K105/K106	FSV-K144
V3.60	V3.60	V3.60	V3.60	V3.60	V3.60

2.5.3 Compatibility with the EUTRA/LTE software

This R&S FSVA/FSV Signal Analyzer Firmware supports the EUTRA/LTE FSV-K100-K105 as internal measurement applications which are included in the FSVSetup.exe.

Nevertheless this version is still compatible to the following EUTRA/LTE software running on PCs:

- R&S FSV-K100 EUTRA/LTE FDD Downlink
- R&S FSV-K101 EUTRA/LTE FDD Uplink
- R&S FSV-K102 EUTRA/LTE Downlink MIMO (requires either R&S FSV-K100 or R&S FSV-K104)
- R&S FSV-K104 EUTRA/LTE TDD Downlink
- R&S FSV-K105 EUTRA/LTE TDD Uplink

The EUTRA/LTE software can either be installed on an external PC or on the R&S FSV as an external application. The installation instructions can be found in the EUTRA/LTE release notes. If the EUTRA/LTE software is installed on the R&S FSV, the LTE Measurement Application is no longer available. In order to enable the LTE Measurement Application (build-in option), uninstall the EUTRA/LTE software under Windows Start -> Control Panel -> Add or Remove Programs -> Rohde & Schwarz Eutra/LTE.

2.5.4 Enabling Options by Entering Option Key Codes

NOTICE

This section can be skipped if the option key was entered once.

To activate application software packages, you must enter a license key for validation. If a XML-file with an option key was sent to you see the install description below. The license key is in the device certificate or delivered as a part of the software package. The process is performed in the following steps:

1. Press the "SETUP" hard key.
2. Go to the side menu using the "More" soft key.
3. Press the "Option Licenses" soft key.
4. Press the "Install Option" soft key.
A dialog box is displayed.
5. Enter the option key number using the keypad.
6. Press "ENTER".
After a successful validation the message "Option Key valid" is displayed. If the validation failed, the option software is not installed.
7. Reboot the device.

Installation of options via XML-file

1. Press the "SETUP" hard key.
2. Go to the side menu using the "More" soft key.
3. Press the "Option Licenses" soft key.
A file browser is displayed.
4. Select the path to the XML file (e.g. network drive or USB stick)
5. Press "Select".
After a successful validation the message "Option Key valid" is displayed. If the validation failed, the option software is not installed.
6. Reboot the device.

3 Customer Support

Technical support – where and when you need it

For quick, expert help with any Rohde & Schwarz equipment, contact one of our Customer Support Centers. A team of highly qualified engineers provides telephone support and will work with you to find a solution to your query on any aspect of the operation, programming or applications of Rohde & Schwarz equipment.

Up-to-date information and upgrades

To keep your instrument up-to-date and to be informed about new application notes related to your instrument, please send an e-mail to the Customer Support Center stating your instrument and your wish. We will take care that you will get the right information.

Europe, Africa, Middle East

Phone +49 89 4129 12345

customersupport@rohde-schwarz.com

North America

Phone 1-888-TEST-RSA (1-888-837-8772)

customer.support@rsa.rohde-schwarz.com

Latin America

Phone +1-410-910-7988

customersupport.la@rohde-schwarz.com

Asia/Pacific

Phone +65 65 13 04 88

customersupport.asia@rohde-schwarz.com

China

Phone +86-800-810-8828 / +86-400-650-5896

customersupport.china@rohde-schwarz.com