

R&S®SFD

DOCSIS Signal Generator

Release Notes

Firmware Version 1.4.1

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

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1 Information on the Current Version and History

1.1 Version 1.4.1

Firmware Package Contents

- Software Version (svn) 83172

New Functionality

- Undocumented K202 carrier level control capabilities add to SCPI.

Known Issues

- The SFD may not respond to its name, (i.e. rssid-101553.local), but the user can still access it using the IP address.
- Upstream DOCSIS 3.1 bandwidth request burst type do not play out correctly in periodic mode, the simulated load carriers disappear.
- File upload using SCPI can erase a file by renaming it.
- It is recommended to use Firefox or Chrome to browse the Web GUI.
- Some browser extensions or add-ons, such as Adblock, can cause performance decreases when using the Web GUI. If the Web GUI becomes very slow or unresponsive, try disabling the extension or white-listing the URL used to connect to the SFD.

1.2 Version 1.4.0

Firmware Package Contents

- Software Version (svn) 83124

New Functionality

- Extended SCQAM Spectrum mode added (requires license).

Fixed Issues

- UCD message generated on upstream pilot carrier now properly generated when advanced minislots configuration file is used to describe the minislots profiles.
- Custom user reference value is properly saved when external reference is plugged in.

Known Issues

- The SFD may not respond to its name, (i.e. rssid-101553.local), but the user can still access it using the IP address.

- Upstream DOCSIS 3.1 bandwidth request burst type do not playout correctly in periodic mode, the simulated load carriers disappear.
- File upload using SCPi can erase a file by renaming it.
- It is recommended to use Firefox or Chrome to browse the Web GUI.
- Some browser extensions or add-ons, such as Adblock, can cause performance decreases when using the Web GUI. If the Web GUI becomes very slow or unresponsive, try disabling the extension or white-listing the URL used to connect to the SFD.

1.3 Version 1.3.1

Firmware Package Contents

- Software Version (svn) 82401

Fixed Issues

- Improved support for ranging DOCSIS 3.1 cable modems in conjunction with a DSA (Firmware v2.2.1 required).
- Improved support for SFD Static Upstream Analysis when used with a DSA (Firmware v2.2.1 required).
- Applying an external 10MHz reference no longer displays a warning in the Alarm log due to the momentary internal reference changeover.
- SCPi command execution time is now improved to initial SFD performance level.
- There is no longer an offset in the AWGN waveform compared to that of the channel it is tied to.

Known Issues

- The SFD may not respond to its name, (i.e. rssfd-101553.local), but the user can still access it using the IP address.
- Upstream DOCSIS 3.1 bandwidth request burst type do not playout correctly in periodic mode, the simulated load carriers disappear.
- File upload using SCPi can erase a file by renaming it.
- It is recommended to use Firefox or Chrome to browse the Web GUI.
- Some browser extensions or add-ons, such as Adblock, can cause performance decreases when using the Web GUI. If the Web GUI becomes very slow or unresponsive, try disabling the extension or white-listing the URL used to connect to the SFD.

1.4 Version 1.3.0

Firmware Package Contents

- Software Version (svn) 81428

New Functionality

- Support for ranging DOCSIS 3.1 cable modems in conjunction with a DSA (Firmware v2.1.3 required).
- Support for SFD Static Upstream Analysis when used with a DSA (Firmware v2.1.3 required).

Known Issues

- Applying an external 10MHz reference may display a warning in the Alarm log due to the momentary internal reference changeover, the message can be ignored.
- The SFD may not respond to its name, (i.e. rssfd-101553.local), but the user can still access it using the IP address.
- There is a slight offset in the AWGN waveform compared to that of the channel it is tied to the amount can be up to 3 MHz.
- Upstream DOCSIS 3.1 bandwidth request burst type do not playout correctly in periodic mode, the simulated load carriers disappear.
- File upload using SCPI can erase a file by renaming it.
- It is recommended to use Firefox or Chrome to browse the Web GUI.
- Some browser extensions or add-ons, such as Adblock, can cause performance decreases when using the Web GUI. If the Web GUI becomes very slow or unresponsive, try disabling the extension or white-listing the URL used to connect to the SFD.

1.5 Version 1.2.0

Firmware Package Contents

- Software Version (svn) 81205

New Functionality

- Support for ranging DOCSIS 3.0 cable modems in conjunction with a DSA.
- Custom ARB support added for OFDMA playout.

Fixed Issues

- FSW Compatibility mode control now works properly.
- Fan warning speed threshold lowered to prevent false positive warnings.
- Encompassed spectrum for upstream DOCSIS 3.1 is now properly displayed.

Known Issues

- The SFD may not respond to its name, (i.e. rssfd-101553.local), but the user can still access it using the IP address.
- There is a slight offset in the AWGN waveform compared to that of the channel it is tied to the amount can be up to 3 MHz.
- Upstream DOCSIS 3.1 bandwidth request burst type do not playout correctly in periodic mode, the simulated load carriers disappear.
- File upload using SCPI can erase a file by renaming it.
- It is recommended to use Firefox or Chrome to browse the Web GUI.
- Some browser extensions or add-ons, such as Adblock, can cause performance decreases when using the Web GUI. If the Web GUI becomes very slow or unresponsive, try disabling the extension or white-listing the URL used to connect to the SFD.

1.6 Version 1.1.1

Firmware Package Contents

- Software Version (svn) 79801

Modified Functionality

- About page updated with current information.

Fixed Issues

- Messages inserted into PLC no longer disappear after longer time periods.

Known Issues

- The SFD may not respond to its name, (i.e. rssfd-101553.local), but the user can still access it using the IP address.
- There is a slight offset in the AWGN waveform compared to that of the channel it is tied to the amount can be up to 3 MHz.
- Encompassed spectrum is not populating correctly for upstream DOCSIS 3.1, the settings entered are used for the channel.
- Upstream DOCSIS 3.1 bandwidth request burst type do not payout correctly in periodic mode, the simulated load carriers disappear.
- File upload using SCPI can erase a file by renaming it.
- It is recommended to use Firefox or Chrome to browse the Web GUI.
- Some browser extensions or add-ons, such as Adblock, can cause performance decreases when using the Web GUI. If the Web GUI becomes very slow or unresponsive, try disabling the extension or white-listing the URL used to connect to the SFD.

1.7 Version 1.1

Firmware Package Contents

- Software Version (svn) 78496

New Functionality

- Phase noise impairment functionality added.
- AM hum impairment functionality added.

Modified Functionality

- Upstream burst sources are now filtered for the selected burst type.

Fixed Issues

- When changing the data source in upstream D3.1 and D3.0, playout options now update to valid selections.
- Upstream DOCSIS 3.1 ranging bursts now have functioning power control.
- The downstream DOCSIS 3.0 symbol rate now updates to current value without being displayed as an incorrect dirty field.
- ATDMA and SCDMA preamble patterns are now bitwise flipped as required by DOCSIS specification.
- SCPI bug fix that caused parameters to be improperly reported after successive requests for invalid configurations.

Known Issues

- The SFD may not respond to its name, (i.e. rssid-101553.local), but the user can still access it using the IP address.
- There is a slight offset in the AWGN waveform compared to that of the channel it is tied to the amount can be up to 3 MHz.
- Encompassed spectrum is not populating correctly for upstream DOCSIS 3.1, the settings entered are used for the channel.
- Upstream DOCSIS 3.1 bandwidth request burst type do not playout correctly in periodic mode, the simulated load carriers disappear.
- File upload using SCPI can erase a file by renaming it.
- It is recommended to use Firefox or Chrome to browse the Web GUI.
- Some browser extensions or add-ons, such as Adblock, can cause performance decreases when using the Web GUI. If the Web GUI becomes very slow or unresponsive, try disabling the extension or white-listing the URL used to connect to the SFD.

1.8 Version 1.0

Firmware Package Contents

- Software Version (svn) 78065

Existing Functionality

- Web GUI support.
- Option licensing support.
- SNMP and SCPI is supported.
- Single real-time modulated channel generation of:
 - US ATDMA, SCDMA or OFDMA.
 - DS DOCSIS 3.1 J83 Annex A, B or C.
 - ARB Waveform (DS or US).
- Support for SFP+ (1 or 10 Gbps) as a channel source.
- Inclusion of the R&S PIAS daemon to allow software updates.
- RF Impairments supported:
 - BER.
 - AWGN.
- DOCSIS 3.1 PLC Timesync – The ability to insert a DOCSIS timestamp into the PLC upon receiving a trigger has been added.
- FSW Mode – This feature inserts the DPD messages for all Profiles into the PLC.
- Packet Flow Indicator – The SFD will report the instantaneous data rate of each channel with a set source port.

Known Issues

- The SFD may not respond to its name, (i.e. rssfd-101553.local), but the user can still access it using the IP address.
- There is a slight offset in the AWGN waveform compared to that of the channel it is tied to, the amount can be up to 3 MHz.
- When changing the data source in upstream D3.1 the playout options do not update properly to reflect the new possible choices. Clicking on the box forces the update.
- Encompassed spectrum is not populating correctly for upstream DOCSIS 3.1, the settings entered are used for the channel.
- Upstream DOCSIS 3.1 ranging burst types have incorrect power control making the ranging section of the channel higher power than the surrounding carriers.
- Upstream DOCSIS 3.1 bandwidth request burst type do not playout correctly in periodic mode, the simulated load carriers disappear.

- The downstream DOCSIS 3.0 symbol rate shows up as a modified field on first load, but pressing undo reverts it to the current value.
- File upload using SCPI can erase a file by renaming it.
- It is recommended to use Firefox or Chrome to browse the Web GUI.
- Some browser extensions or add-ons, such as Adblock, can cause performance decreases when using the Web GUI. If the Web GUI becomes very slow or unresponsive, try disabling the extension or white-listing the URL used to connect to the SFD.

2 Modifications to the Documentation

Modification of the user documentation from previous versions are detailed below.

2.1 User Manual Version 07

- Updated text in sections: 1.3.2 RF impairments, 1.3.4 SFD License Upgrade, 2.1.3 Device Mode.
- Added Sections: 1.1.3 Extended SC-QAM Spectrum DOCSIS 3.0, 2.3 Downstream DOCSIS 3.0 ESS Settings.
- Made changes to some modulator SCPI commands to add a <channel> element.
- ESS mode added to specification table in Section 6.

2.2 Getting Started Version 03

- Safety section updated

3 Firmware Update

NOTICE

This update contains a boot loader update. Do not power the unit off or unplug it while this upgrade is in progress. This upgrade will not perform the boot loader update unless required. The upgrade is complete when the SFD front panel Power & Status LEDs turn green and all other LEDs are off.

3.1 Updating the Firmware

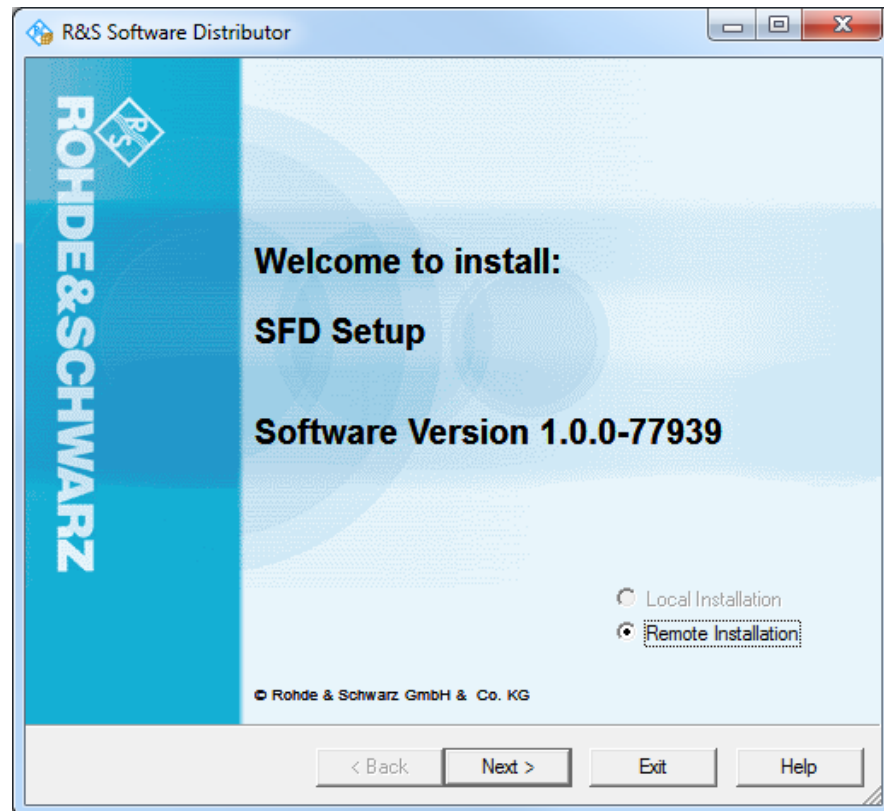
The firmware update consists of one file. The version number in the file name varies with each update (symbolized by placeholder x).

- *SFD_Setup_FW_xxxx.exe*

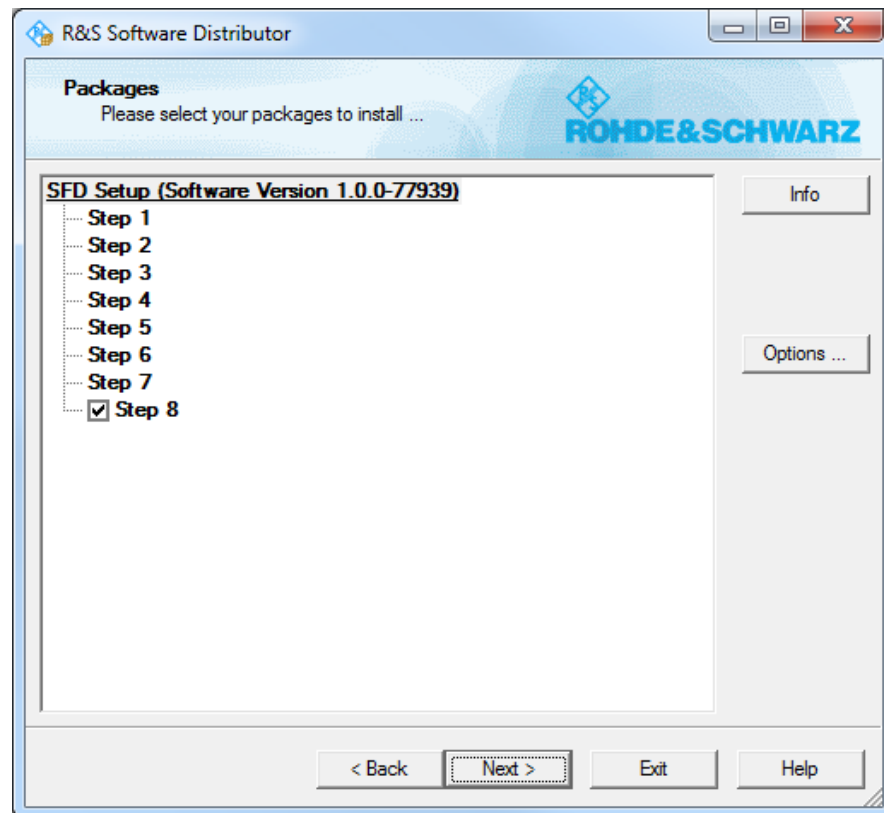
Perform the update on a computer under control of the Windows operating system.

1. Make sure that the computer and the R&S SFD are connected by LAN.
2. Switch on the R&S SFD.
3. Wait until the R&S SFD firmware has booted and the application has started.

4. On the computer, execute *SFD_Setup_FW_xxxx.exe*.
The "R&S Software Distributor" is displayed. Only "Remote Installation" is available.

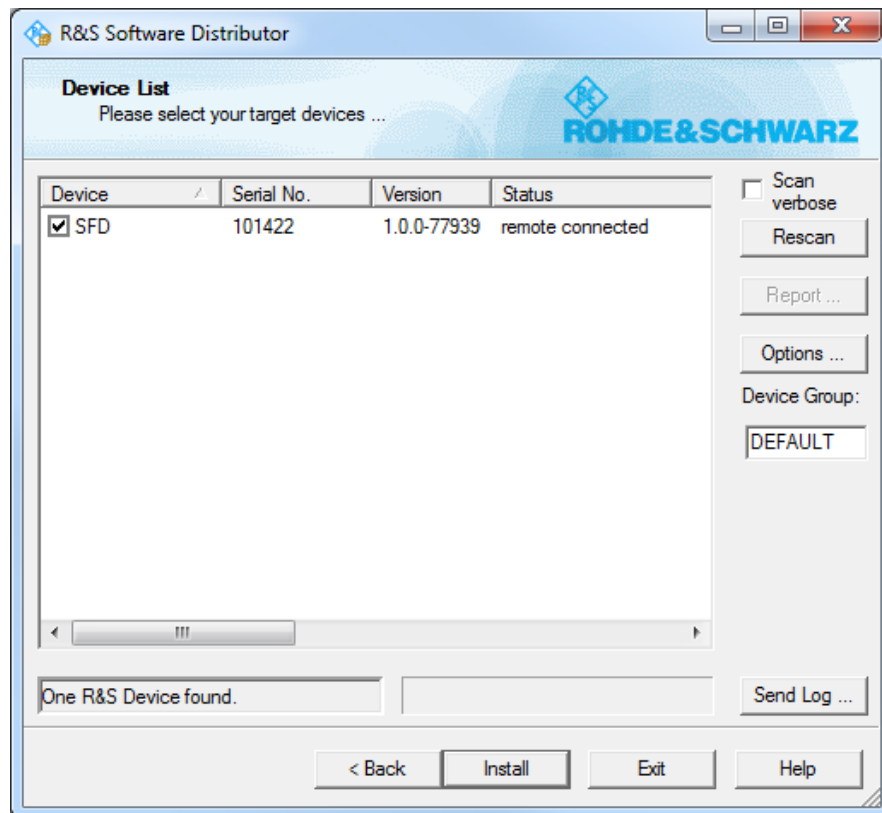


- Click "Next>".
By default, "Step 8" is selected. Do not change the selection.



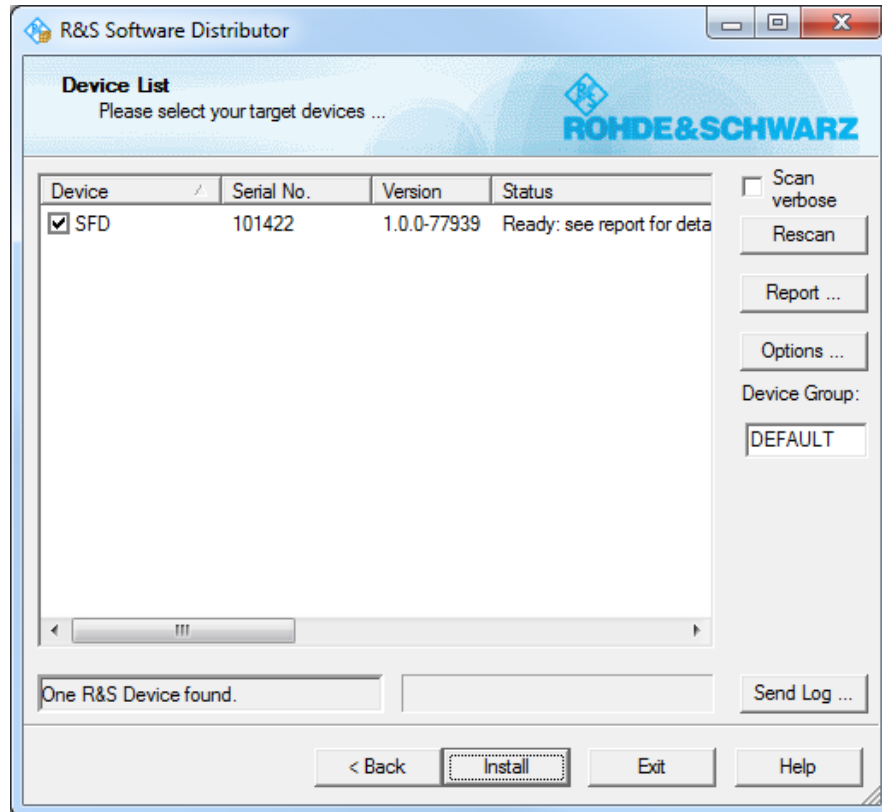
- Click "Next>".
All detected R&S SFDs are displayed.

7. Select the R&S SFD(s) you want to update.
Note: You can update several R&S SFDs simultaneously.

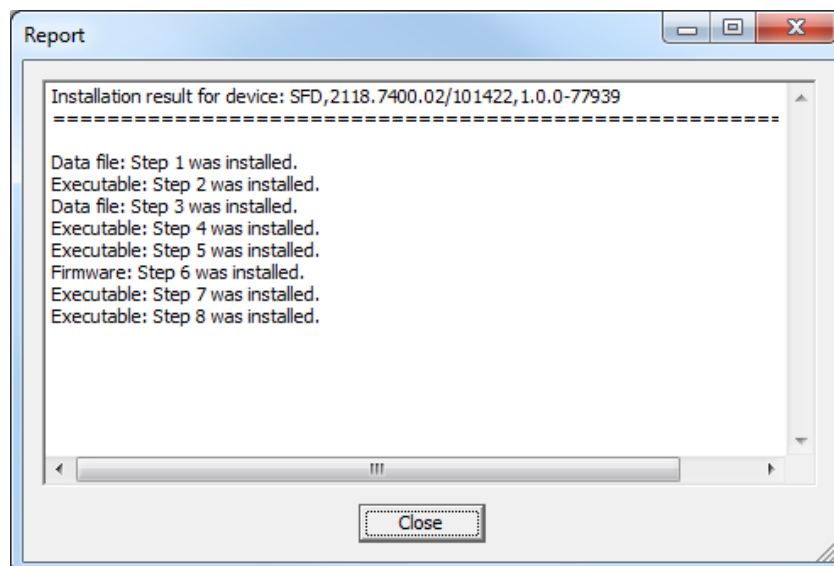


8. If no R&S SFD is automatically detected, expand the search:
- Click "Options".
 - Click "Add URL".
 - Enter one or several R&S SFD URL(s), e.g. 192.168.10.1, to be included in the search.
 - To save the search address(es), click "Save Options". If you do not save the options, the added search addresses are only used for the current installation.

9. Click "Install".
The installation process itself is self-explanatory and may take up to 10 minutes. After the installation, the "Status" is changed to "Ready".



10. Click "Report" to view the installation report. If the installation was successful, no errors are displayed (see example below).



11. Close the report and click "Exit".
12. Power cycle the R&S SFD with the switch on the back to complete the update.

4 License Installation

4.1 License Installation for R&S SFD Functionality

Users are able to upgrade the R&S SFD functionality by entering option keys. Please contact your distributor to arrange purchase and delivery of new features. Once you have the option key, simply upload the license file to add each feature. Alternatively a key can be entered manually in the Install License Key field and added by clicking on the Install button.

After verification the unit will reset and display the currently licensed features. After verification the unit will display the currently licensed features as "Available". Removal of option keys is also supported, by adding a "removal" key.

DOCSIS Signal Generator

Licences

RF Path: Downstream
 TX Mode: OFF
 Cmd Mode: SNMP

Take Control

Device ID: 2118.6956.02
 Serial Number: 10
 Install License Key:

Install

R&S Type	Status
K200 - Downstream	Unavailable
K300 - Upstream	Unavailable
K1050 - Impairments	Unavailable
K3018 - Extended	Unavailable
Encrypted waveform	Unavailable
Encrypted waveform	Unavailable

Licence Upload (Method: html5)

Select files
 Add files to the upload queue and click the start button.

Filename	Status	Size
Drag files here.		
	0%	0 kb

Preset

4.2 License Installation for Encrypted Waveforms

The encrypted waveform functionality provides the ability to play waveform files that are encrypted. Libraries of these files are available for purchase. To use these files, a license file is provided. This license file must be uploaded to the R&S SFD (see ["Uploading a New License File"](#)).

Unencrypted waveforms are not affected by the encrypted waveform functionality. They look and function unchanged.

Under "Files on device" in the Configurations/ARB screen of the Web GUI, icons indicate if waveforms are encrypted.

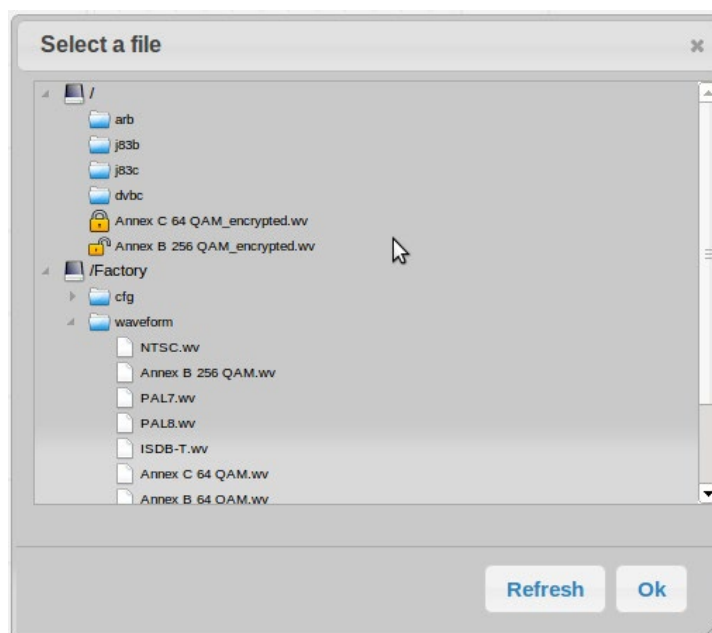


The locked icon indicates that the waveform is encrypted, and the R&S SFD does not have the license file necessary to decrypt it.



The unlocked icon indicates that the waveform is encrypted but the R&S SFD does have the license file necessary to decrypt it.

The locked/unlocked icons are also displayed in the "Select a file" pop-up window on the Block Settings screen if the AWG file field is selected. If the file is unlocked, you can select it to be loaded. If it is locked, it cannot be loaded.



A license file is required in order to decrypt the encrypted waveforms. Once a license file is supplied, it can be uploaded on the Unit Status screen of the Web GUI.

At the bottom of the Unit Status screen is a field called "Licence Options" and a file upload box called "Licence Upload". The "Licence Options" field shows the current licensing options that are available on the R&S SFD. If no licenses are uploaded, it displays "No Licence Files Uploaded".

Uploading a New License File

1. Take control of the R&S SFD in the Web GUI.
2. Navigate to the Licenses screen.
3. At the bottom of the "Licence Upload" box, click "Add Files", or drag the license file into the "Licence Upload" box.
4. At the bottom of the "Licence Upload" box, click "Start Upload".

The file is uploaded to the R&S SFD. When the upload is completed, the new license option is added to the "Licence Options" field. All encrypted waveforms corresponding to the license option are available to be used.

5 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.

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