

R&S®Forum

Release Notes

Software Version 3.3.3



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The firmware of the instrument makes use of several valuable open source software packages. For information, see the "Open Source Acknowledgment" on the user documentation CD-ROM (included in delivery).

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

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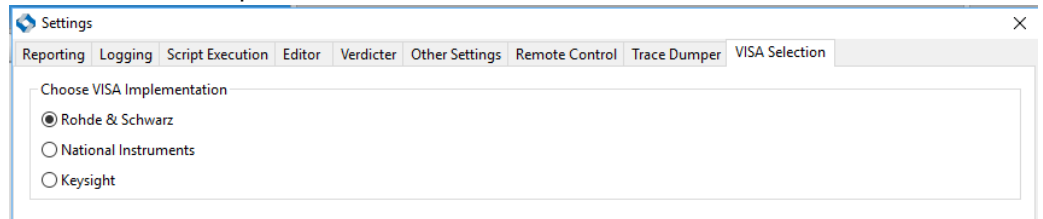
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1 Information on the Current Version and History

1.1 Version 3.3.3

This new version implements the following additional features:

- A new Macro editor that allows any kind of png file to be selected as macro
- Selectable VISA Implementation



- Forum for MacOS

Bugfixes:

- Highspeed mode on Windows 10

1.2 Version 3.3.0

This release implements the following key features:

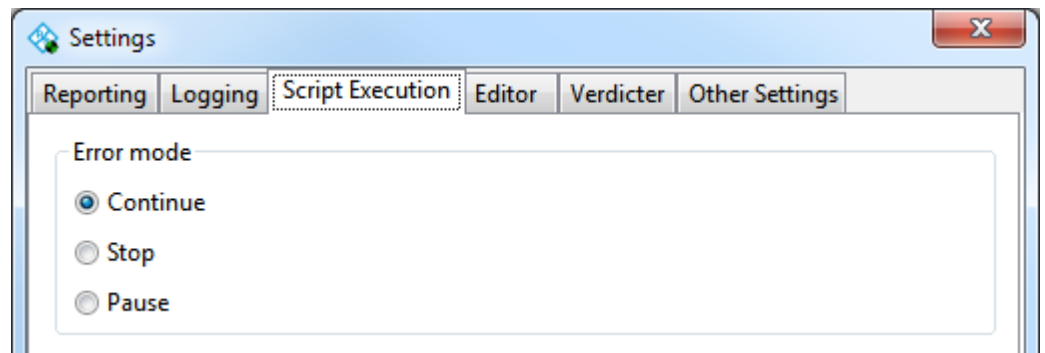
- Requirements which qualify R&S Forum for replacing **IECWIN** (an aged SCPI remote control tool with limited programming capabilities).
- Remote server
- Improved debugging (stepping into other files)
- Interactive remote control



New features:

- Default VISA is now the system default.
- Remote control of R&S Forum is available. If R&S Forum is started in server mode, a remote connection can be established and python commands can be executed in the SHELL window.
- Switching the report file during script execution is now possible (`plib.reporting.set_path()`).
- A trace dumper was implemented, that can be used to dump all call stack traces (on demand as well as repeatedly). This can be used to detect deadlocks in a running script (especially when R&S Forum is used in server mode).

- The post call list can be read using `plib.application.get_post_calls()`.
- The script namespace can be used in imported modules.
- In batch mode (`--batch`), the location of the report file can be defined on command line (`--reportfile`)
- Pipes can be used to communicate with instruments.
- A device (VISA, SOAP or Pipe) can be specified on the command line (`--device`)
- Execution of subscripts is possible.
- Comfort methods for checking return values of devices against expected values are provided (e.g. `DEVICE.expect("FREQ?", 1e9)`).
- Checking for expected SCPI errors with fast error detection is available (`DEVICE.expect_error("UNKNown:QUERy?")`)
- A break-on-error feature is available: Under Settings → Settings → Script Execution:



the new Error Mode feature can be configured, which controls script execution, when an error was detected by either

- `DEVICE.expect()`,
- `DEVICE.expect_error()` or if
- `plib.verdicter` reports an error.
- SCPI read/write operations can be aborted with short latency.
- VISA connections can be checked automatically (`SYST:ERR?` after each command). This also helps avoiding VISA timeouts in case of erroneous queries.
- In batch mode, status information is displayed in the taskbar.
- Blockdata management is implemented (e.g. generation and stripping of blockdata headers).
- GUI shows script progress information in the status bar.
- A SCPI random mode is available.
- A script watchdog is available.
- PyVisa is updated to version 1.8
- Default reporting of devices can be changed (up to now, this was only possible on a per-command basis): e.g. `DEVICE.report_mode = ReportMode.Off`
- Global reporting can be configured (`plib.reporting.report_output = ReportOutput.File`)
- Number of macros is now unlimited.
- Default editor font size is now configurable in the settings.

- Log files have sortable file names.
- Auto-reload of imported modules also works for packages, now. Only changed modules are reloaded.
- `plib.devices.reload('config/directory/path')` for reloading devices from config files in a specific directory.
- When opening files, the default directory is taken from the currently active file.
- Prefix strings of device messages are now available for scripts (`plib.reporting.get_device_prefix()` and `plib.reporting.get_script_timestamp()`)
- `__file__` is set for scripts.
- Command line option `--args` is easier to use, now.
- More `expect()` methods:
`DEVICE.expect_greater()`,
`DEVICE.expect_greater_equal()`,
`DEVICE.expect_less()`,
`DEVICE.expect_less_equal()` and
`DEVICE.expect_cond()`.
The latter version is for arbitrary compare functions.
- An exit code is now available for scripts (`plib.application.exit_code`). These can be evaluated in post-call functions.
- Post-call functions can be set using `plib.application.add_post_call()`.
- The device type can be queried: `DEVICE.type`
- Out-of-memory handling: if `DEVICE.read()` runs into an out-of-memory situation, the device answer is completely read and an error is reported.
- Harmonized error handling of VISA devices: In case of an error, an error string is returned. Ugly exceptions are caught internally.
- Added `DEVICE` methods for VisaDevices (not for Pipe nor Soap):
 - `DEVICE.clear()`
 - `DEVICE.lock()`
 - `DEVICE.unlock()`
 - `DEVICE.read_stb()`
 - `DEVICE.read_to_file()`
 - `DEVICE.write_from_file()`
 - `DEVICE.gpib_control_ren()`
 - `DEVICE.assert_trigger()`

Experimental features:

- `import pytron`. This feature allows for execution of Forum scripts directly using python: e.g. `python.exe my-forum-script.py`. This approach has limitations, as not the complete environment is available. However, device objects will be available and part of the plib.

Example:

```
import pytron
pytron.init()
DEVICE.idn()
pytron.finish()
```

Bugfixes:

- Automatic SCPI error checks in `VisaDevice.ask()` fixed.
- Verdicter shall not be ignored in batch mode
- `Forum.exe` shall always return after python subprocess terminated (also after error).
- Opening the help file shall work reliably.
- New, unsaved scripts can now be executed.
- Files opened by double-mouse-click aren't shown in 8.3 format.
- Error counter of devices is reset when a script is started.
- VISA errors shall be shown in `CVisaInstrument.write()`.
- Batch mode did not return, when nose tests were started in an R&S Forum script (`nose.runmodule()`).
- Problems with importing `win32` module are solved.
- Unicode problems are solved.
- Massive output in protocol windows shouldn't freeze the GUI anymore.
- Maximized GUI state and window position are now restored properly after restart.
- `DEVICE.timeout` now works for disconnected devices.
- Debugger now always stops at breakpoints after restart of a script.
- Drag'n Drop now works on empty editor.
- Protocol files are no more locked after script termination.
- Font for errors in logger window is now the same mono font as for normal messages.

1.3 Version 3.2.0

This release provides some usability improvements and bugfixes:

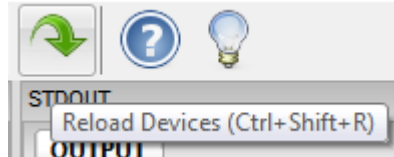
New features:

- R&S VISA 5.5.4 is now included in the `setup.exe`.
- Plugin interface is implemented.
- Upgrade of Python and libraries:
 - Python 2.7.10
 - PyVISA 1.7 (new architecture! Scripts is not affected.)
 - wxPython 3.0.2
- Parameter support is implemented (`--args arg1, arg2, arg3`)

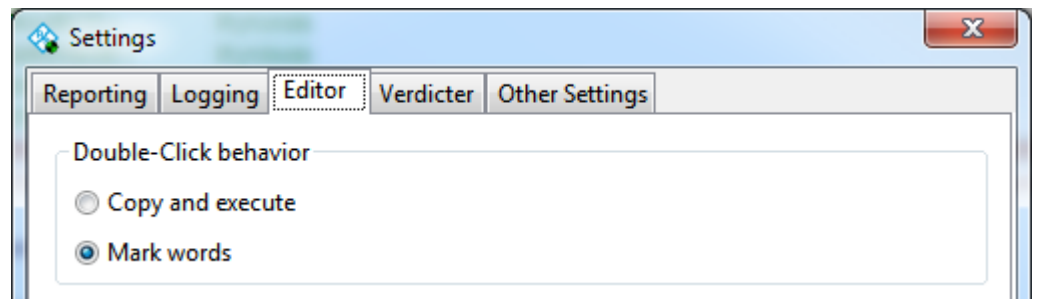
Usability improvements:

- Non-system modules imported by scripts are automatically reloaded at script start.
- Font size of editor and output windows is restored after restart. (The font size can be changed by holding the Ctrl-Key and using the mouse wheel.)
- Scripts are not automatically saved, when they are executed. This makes it possible to executed read-only files with temporary changes.
- Size and position of the device dialog is now persistent.

- Colors of the device dialog were changed for a better indication of the device status after testing.
- When closing the device dialog, device objects are automatically reloaded, if they were modified.
- The taskbar now contains a reload button



- Double-clicking a line in the source code: the behaviour is defined in the Settings dialog:



"**Copy and execute**" copies the source code line to the SHELL and immediately executes it.

"**Mark words**" is the standard behaviour of most editors. Double-clicking marks a whole word.

Fixed bugs:

- The default device (`DEVICE`) is now available in batch mode.
- "macro.source not found" fixed.
- Re-install of R&S VISA fixed.
- Threading issues in wx calls fixed in GUI.
- Fixed flushing of protocol files when script is paused.
- Stripping of termination characters fixed.
- Reading and writing binary data fixed.
- The interface identifier of USB device connections is now supported.
- The current working directory is no more changed by Forum. The current working directory of scripts is now the same the current working directory of the Forum main process.
- The startup file is now located in the ProgramData folder of R&S Forum (`%ProgramData%\Rohde-Schwarz\Forum`) and may also be changed by users without administrator privileges.
- `--consoleout` (for redirecting output to stdout in batch mode) was fixed.
- WBI-Syntax preprocessor fixed. Using a device name followed by a colon and a space in a string now works, e.g.


```
VI = VisaDevice("TCPIP::cmw50050-100068::INST0::INSTR")
print "VI: %s" % str(VI)
```

Before, the string part "**VI:** " was interpreted as the beginning of a WBI command.

- `flib.rs_scpri.print_protocol_head(DEVICE)` can now be called from a macro before a test was executed.
- `DEVICE` selection was made persistent.

1.4 Version 3.1.0

This version provides SOAP support and a new highspeed mode.

- SOAP devices are supported.
- New highspeed mode (can be activated in the settings menu).
- Better column resizing in device dialog.
- `plib`: a structured API for script support was implemented as a future replacement for the `flib`. This lib will be extended in the next versions:
 - `plib.application`: access to the Forum application.
 - `plib.devices`: provides information about the configured devices.
 - `plib.reporting`: control the reporting/script output.
 - `plib.scpri`: supports the handling of the SCPI protocol and data conversions.
 - `plib.verdicter`: collects test results and prints a verdict for the script run, when the execution terminated.
 - `plib.visa`: provides access to the underlying VISA implementation (VISA connections).
- New macro icons.
- Support for RSNRP VISA devices.
- R&S VISA is included in the installer.
- No newline in SHELL window after script execution.
- Execution time corrected for WBI style queries.
- `DEVICE` device is restored after device reload.
- Forum does not try to reload temporary files after restart.
- No reload query when saving a new file.
- No "New file 1" tab is opened if scripts are already opened in editor.
- Default settings for (serial) connections use `\n` instead of `\r`.
- The `test_case_result` and `test_result` methods allow for passing arbitrary python instances into the `extra_data` parameter.
- "Use Intellisense" flag controls function call tips, too.
- Batch mode allows for redirecting script output to console (`--consoleout`).

1.5 Version 3.0.1

This version is a maintenance release, which also implements missing features:

- Forum is now executable without VISA present.
- `vi.instrument.lock()` and `unlock()` now return the `ViStatus` value returned by the VISA and don't throw exceptions.

- The last script path is now remembered.
- Externally changed scripts can be reloaded.
- Scripts can now be reloaded.
- Forum can be executed without administrator privileges (UAC active on Windows systems)
- UP and DOWN keys in shell work for command history.
- Script context handling was refactored:
 - The execution context (locals()) was harmonized: Macro, shell, script execution and editor (auto-completion) share the same dictionary for locals(). Changes made in the shell are immediately effective in the other locals().
- A default device object `DEVICE` is now available in scripts and macros. The associated instrument can be chosen using the dropdown list next to the macro buttons in the toolbar.
- The name of the script protocol output file is now shown in the tab of the output window.
- The script protocol output file can be opened using the context menu in the output window.
- The file path of the script protocol output file can be copied to the clipboard using the context menu in the output window.
- Using wx dialogs in macros is now possible.

1.6 Version 3.0.0

The main goal for this version was the integration in the test automation environment of 1C at Rohde & Schwarz. In order to achieve integrateability, the following features were implemented:

- **Batch execution:** R&S Forum can execute script files on the command line without GUI: `Forum.exe --batch <script_file_path_name>`
- **Multiple versions:** it is possible to copy the installation directory to another location and use it independently from installed versions. The command line option `--configdir` may be used to specify an alternative configuration directory.
- **Custom Python installation:** it is possible to use a custom Python installation for running R&S Forum. However, at least the following requirements have to be met:
 - Python 2.7
 - PyVisa 1.4
 - matplotlib 1.2.1
 - wxWidgets 2.8
 - py-dom-xpath 0.1

Command line:

```
Forum.exe --pythonpath <python_install_directory_name>
```

- **Protocol files can be read from other processes**, while a script is executed.
- **Read-only files** can be executed.

- `<device>.query()` returns the original device answer (in contrast to `<device>.ask()`, which splits the answer at colons into string arrays).
- The **device dialog** now allows for assigning alias names to devices. When alias names are used in scripts, the target device can be changed easily without changing the VISA Resource Name.
- **Device connections** can be **reloaded** during script run (e.g. after rebooting the device).

Bug fixes:

- In rare cases, fresh installations of R&S Forum didn't start. This should be fixed.

1.7 Version 2.1.0

R&S Forum (1322.9822.00) is a tool designed for easy and powerful remote control of instruments with Python scripts.

Core features are

- **Stand-alone** tool with installer (currently except VISA).
- **Multiple remote connections** are supported
- **Python shell prompt** for interactive remote control
- **Integrated Debugger:** Breakpoints, stepping through source code, inspecting variables
- **Macros:** Assign code snippets to buttons in the GUI
- **Window manager:** Docking windows allow for user-defined window layout
- **Extensible** due to Python: Easy integration of custom python libraries
- **Graphics:** matplotlib and numpy are integrated

R&S Forum runs on Windows XP, Vista, 7, 8.

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¹ see http://cdn.rohde-schwarz.com/dl_downloads/dl_common_library/dl_miscellaneous/Terms_and_Conditions_for_royalty-free_Products.pdf

2 Installation

2.1 Prerequisites

R&S Forum requires

- OS: Windows XP, Vista, 7 or 8
- Driver: A VISA implementation

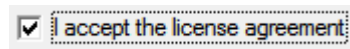
2.2 Installation Procedure

There is no need to uninstall an older version of R&S Forum.

1. Run the installer Forum-<Version>-Setup.exe

Click "Next >"

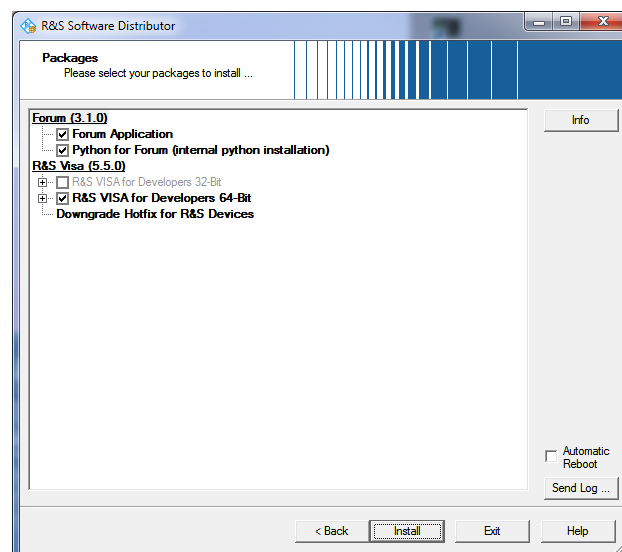
2. Accept the licence



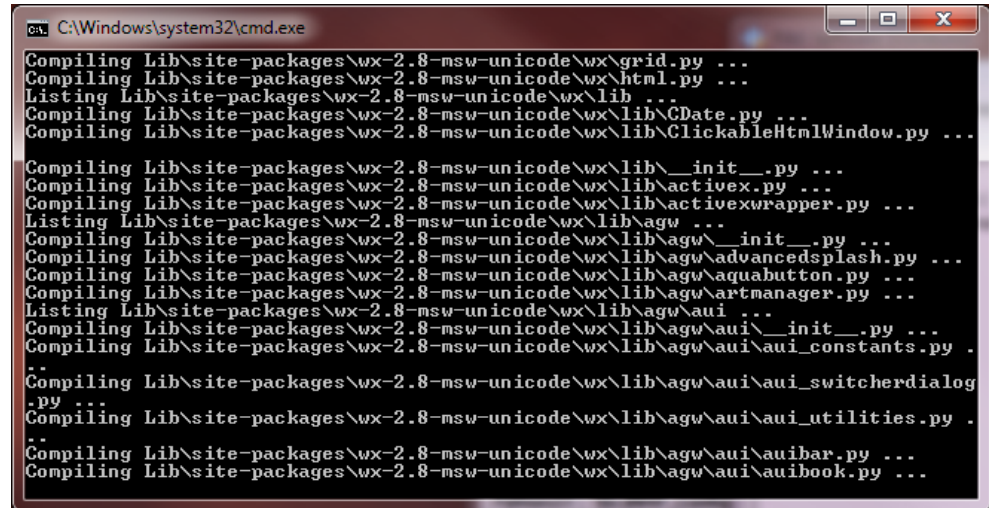
Click "Next >"

The following components are offered:

- Forum Application
- Python for Forum
- R&S VISA



3. Install both Forum components.
The Python installation does affect any existing installations. At the end of the installation, all python modules will be pre-compiled in order to enhance the startup performance:



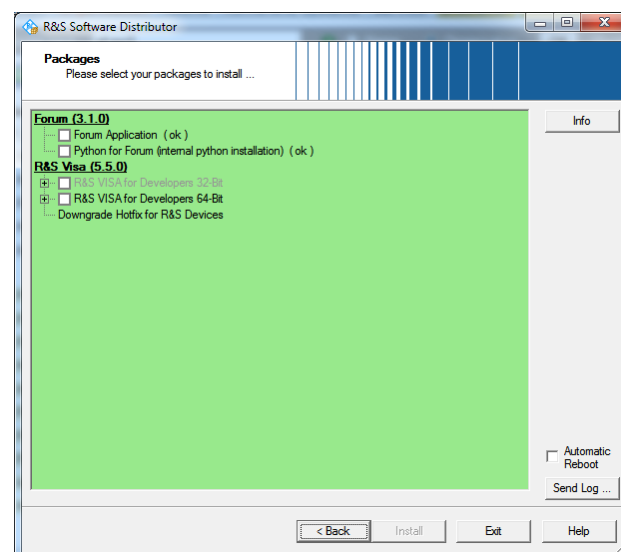
```
C:\Windows\system32\cmd.exe
Compiling Lib\site-packages\wx-2.8-msw-unicode\wx\grid.py ...
Compiling Lib\site-packages\wx-2.8-msw-unicode\wx\html.py ...
Listing Lib\site-packages\wx-2.8-msw-unicode\wx\lib ...
Compiling Lib\site-packages\wx-2.8-msw-unicode\wx\lib\CDate.py ...
Compiling Lib\site-packages\wx-2.8-msw-unicode\wx\lib\ClickableHtmlWindow.py ...

Compiling Lib\site-packages\wx-2.8-msw-unicode\wx\lib\__init__.py ...
Compiling Lib\site-packages\wx-2.8-msw-unicode\wx\lib\activex.py ...
Compiling Lib\site-packages\wx-2.8-msw-unicode\wx\lib\activexwrapper.py ...
Listing Lib\site-packages\wx-2.8-msw-unicode\wx\lib\agw ...
Compiling Lib\site-packages\wx-2.8-msw-unicode\wx\lib\agw\__init__.py ...
Compiling Lib\site-packages\wx-2.8-msw-unicode\wx\lib\agw\advancedsplash.py ...
Compiling Lib\site-packages\wx-2.8-msw-unicode\wx\lib\agw\aquabutton.py ...
Compiling Lib\site-packages\wx-2.8-msw-unicode\wx\lib\agw\artmanager.py ...
Listing Lib\site-packages\wx-2.8-msw-unicode\wx\lib\agw\ai ...
Compiling Lib\site-packages\wx-2.8-msw-unicode\wx\lib\agw\ai\__init__.py ...
Compiling Lib\site-packages\wx-2.8-msw-unicode\wx\lib\agw\ai\ai_constants.py .
..
Compiling Lib\site-packages\wx-2.8-msw-unicode\wx\lib\agw\ai\ai_switcherdialog
.py ...
Compiling Lib\site-packages\wx-2.8-msw-unicode\wx\lib\agw\ai\ai_utilities.py .
..
Compiling Lib\site-packages\wx-2.8-msw-unicode\wx\lib\agw\ai\aiubar.py ...
Compiling Lib\site-packages\wx-2.8-msw-unicode\wx\lib\agw\ai\aiobook.py ...
```

4. Optionally install R&S VISA

A VISA implementation is required, if you want to use VISA connections. If you already have a VISA installed on your computer, you may skip the installation of the R&S VISA.

5. After completion of the install procedure, the following dialog shows "(ok)" after the installed components:



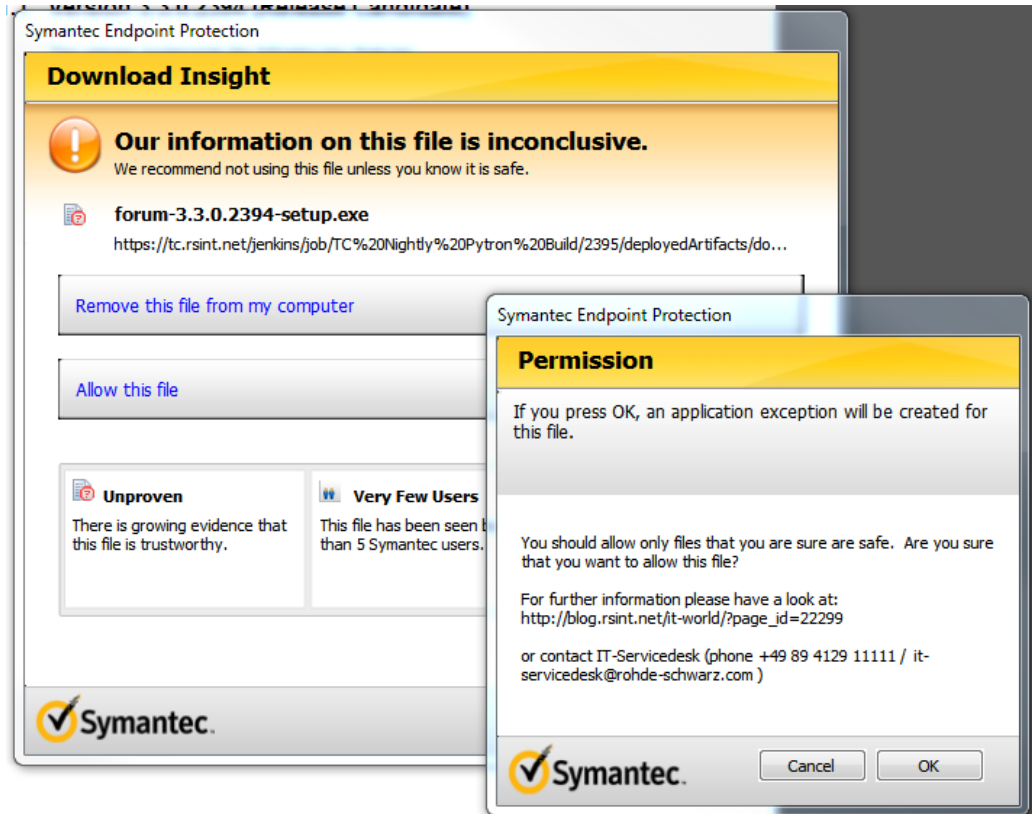
2.3 Troubleshooting

If problems with the installation occur, please make sure, that no previously installed R&S Forum is running.

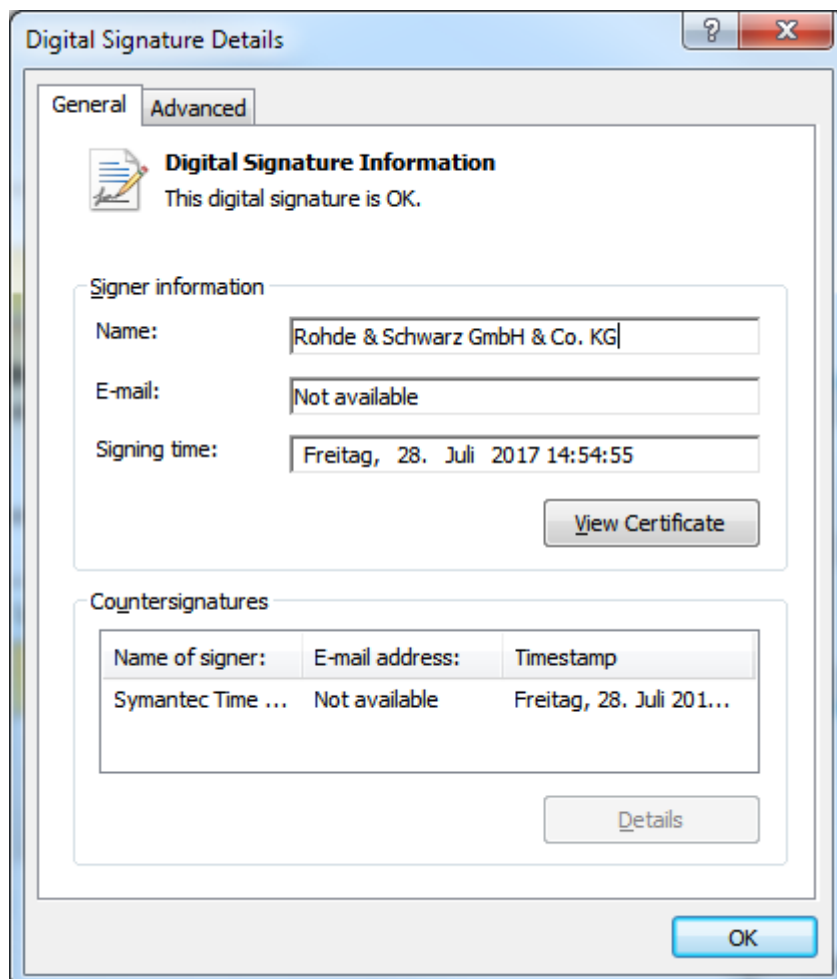
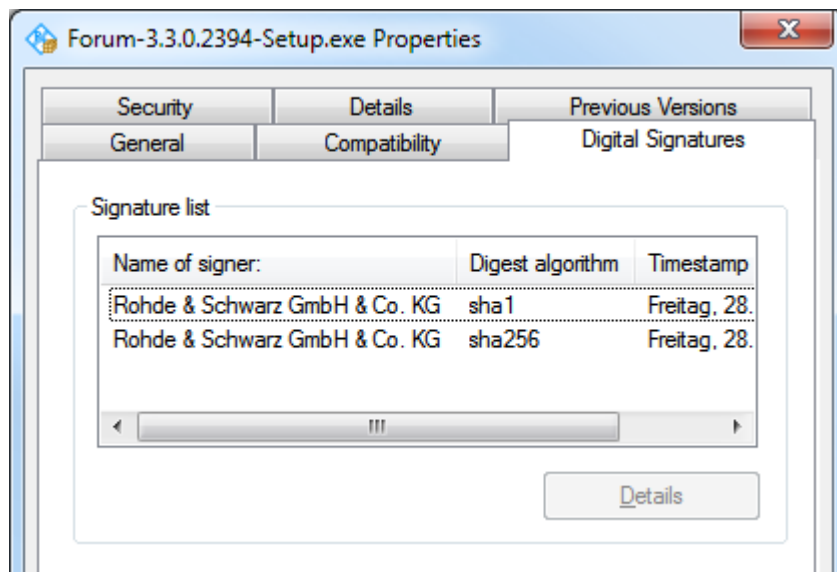
3 Known Issues

3.1 False Symantec Error Messages

Symantec may show an error message, even though the setup file is signed with an R&S certificate.



If the file properties show the following certificates and the certificates are valid (see Details button), it should be safe to install R&S Forum:



3.2 GUI is not visible

In rare cases it has been observed after a new installation, that the R&S Forum icon is displayed in the task bar, but the GUI is not visible. If this happens, try to maximize the window:

1. On Windows 7 move the mouse pointer over the task bar icon and wait until the mini image of the GUI is shown.
2. Right-click on the image and select "Maximize". If the "Maximize" selection is not available, use the Windows keyboard shortcut ALT+SPACE to bring up the window size context-menu and select "Maximize".
3. The GUI should be visible now and the problem shouldn't occur any more.

4 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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