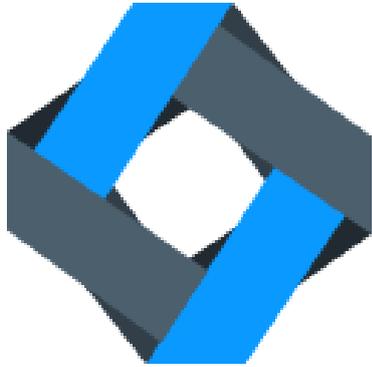


# R&S®Forum

## Release Notes

### Software Version 3.3.7



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Subject to change

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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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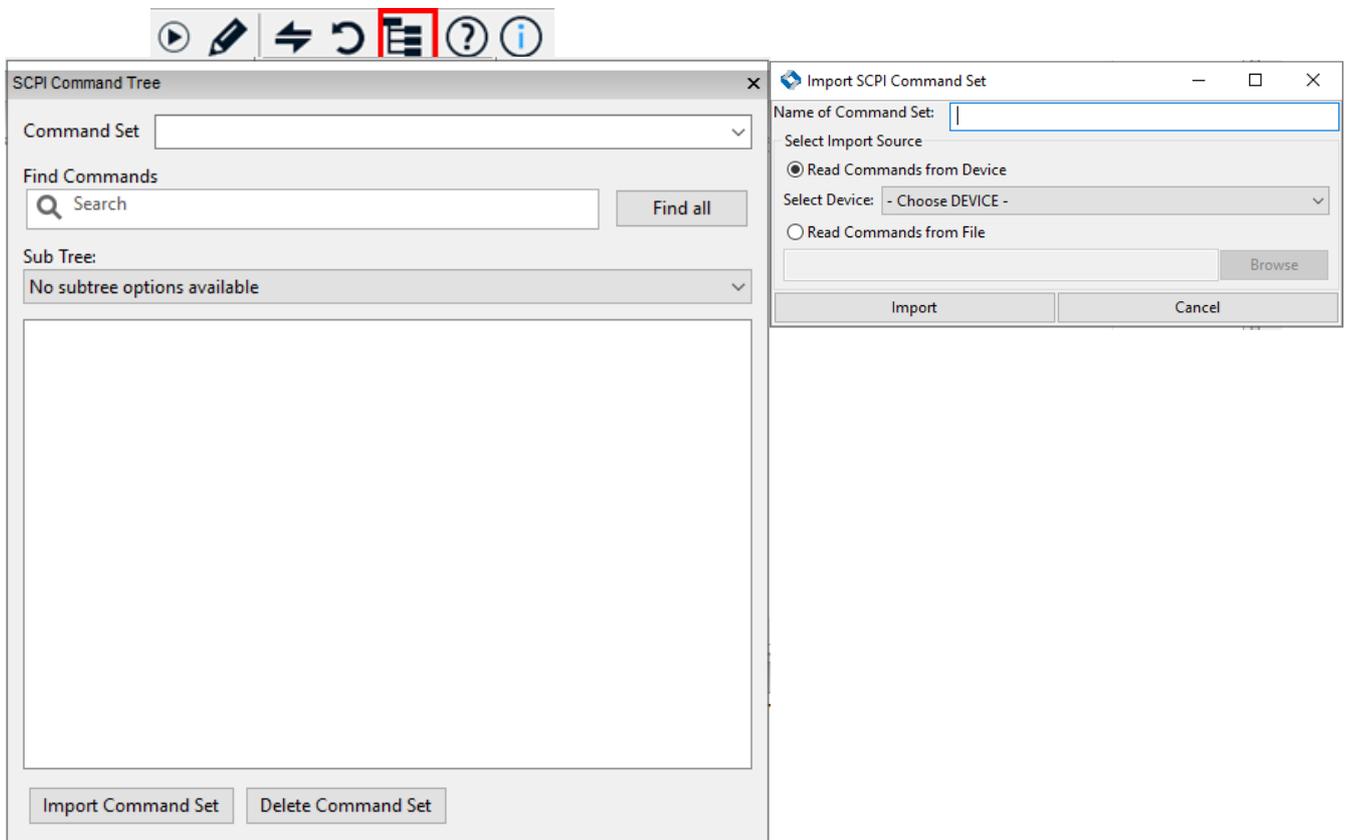
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# 1 Information on the Current Version and History

## 1.1 Version 3.3.7

The current version implements the following features:

- SCPI command tree dialog that allows importing all the supported SCPI commands from the instrument (with HSLIP and VXI11 interface type connections) and storing them offline for future use without instrument communication.



Known issues:

- For massive SCPI command sources, the loading of the command can take up to 6 seconds.
- If the connection to the device failed and the device is rebooted, Forum has to be restarted too in order for the SCPI tree dialog to reestablish a connection with the device.

Miscellaneous changes:

- Windows7 is not supported anymore

## 1.2 Version 3.3.6

Bug fixes:

- Fix for STOP and PAUSE button

Known issues:

- After Forum is launched repeatedly, an error occurs when the remote control server is started, stating that the server failed to start and that only one usage of each socket address is normally permitted.

Workaround: kill the *pythonw* task in the task manager, restart Forum and start the remote control server. Alternatively stop the server before shutting down Forum and start the server again at the next Forum launch.

## 1.3 Version 3.3.5

The current version implements the following features:

- IPv6 format support
- The remote control server is now set up to be listening on all IPv4 addresses on the local machine

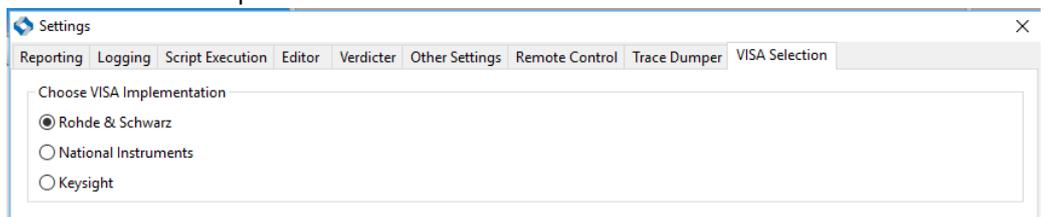
Miscellaneous changes:

- Windows XP is not supported anymore

## 1.4 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

## 1.5 Version 3.3.0

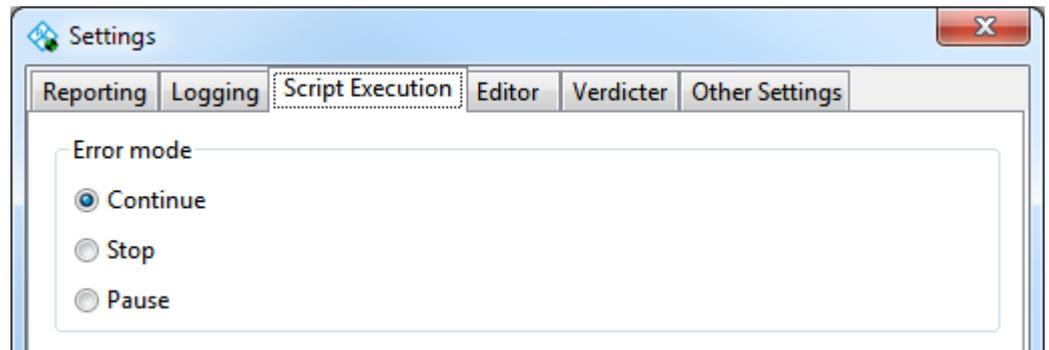
This release implements the following key features:

- 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 files 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.

## 1.6 Version 3.2.0

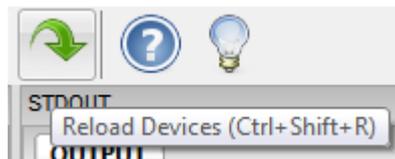
This release provides some usability improvements and bugfixes:

New features:

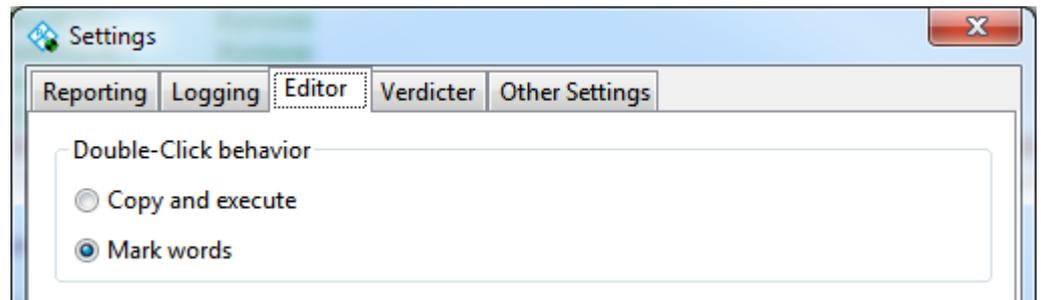
- R&S VISA 5.5.4 is now included in the setup.exe.
- Plugin interface is implemented.
- Upgrade of Python and libraries:
  - Python 2.7.10
  - PyVISA 1.7 (new architecture! Scripts is not affected.)
  - wxPython 3.0.2
- Parameter support is implemented (`--args arg1, arg2, arg3`)

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

## 1.7 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.scpi`: 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`).

## 1.8 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.

## 1.9 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 integratebility, 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.

## 1.10 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.

R&S Forum may be used free of charge under the R&S terms and conditions for royalty-free products<sup>1</sup>.

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<sup>1</sup> see [http://cdn.rohde-schwarz.com/dl\\_downloads/dl\\_common\\_library/dl\\_miscellaneous/Terms\\_and\\_Conditions\\_for\\_royalty-free\\_Products.pdf](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

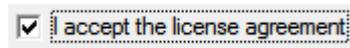
### 2.2 Installation Procedure

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

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

Click "Next >"

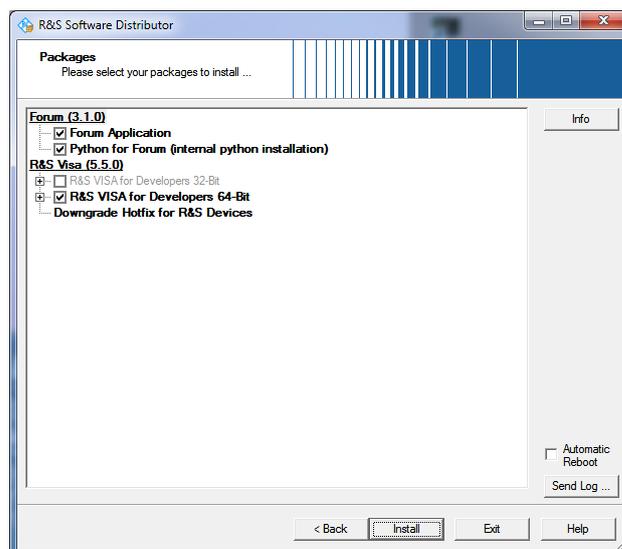
2. Accept the licence



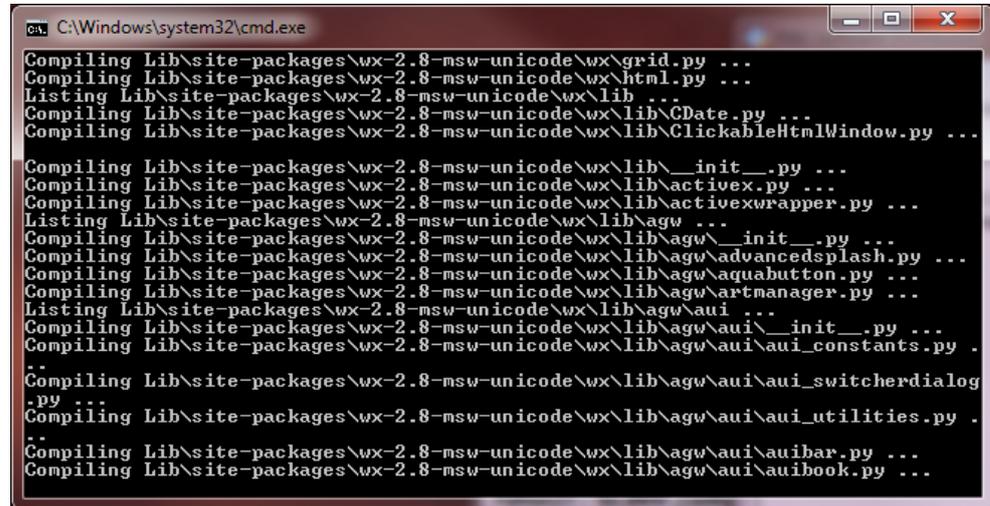
Click "Next >"

The following components are offered:

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



- 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 ...

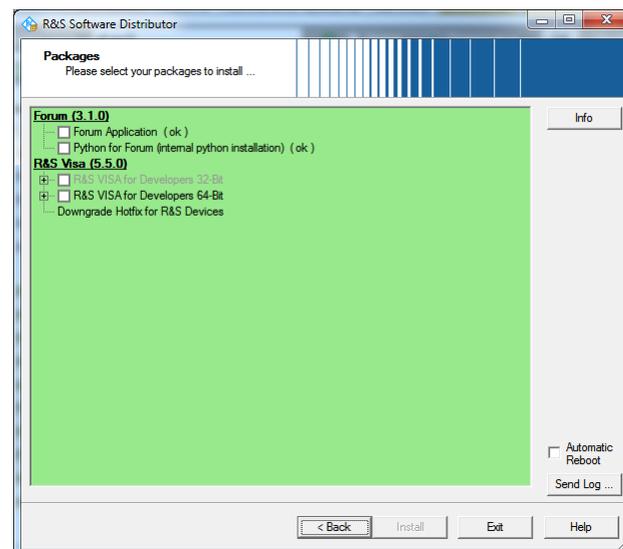
Compiling Lib\site-packages\wx-2.8-msw-unicode\wx\lib\__init__.py ...
Compiling Lib\site-packages\wx-2.8-msw-unicode\wx\lib\activex.py ...
Compiling Lib\site-packages\wx-2.8-msw-unicode\wx\lib\activexwrapper.py ...
Listing Lib\site-packages\wx-2.8-msw-unicode\wx\lib\agw ...
Compiling Lib\site-packages\wx-2.8-msw-unicode\wx\lib\agw\__init__.py ...
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\aiibook.py ...

```

- 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.

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



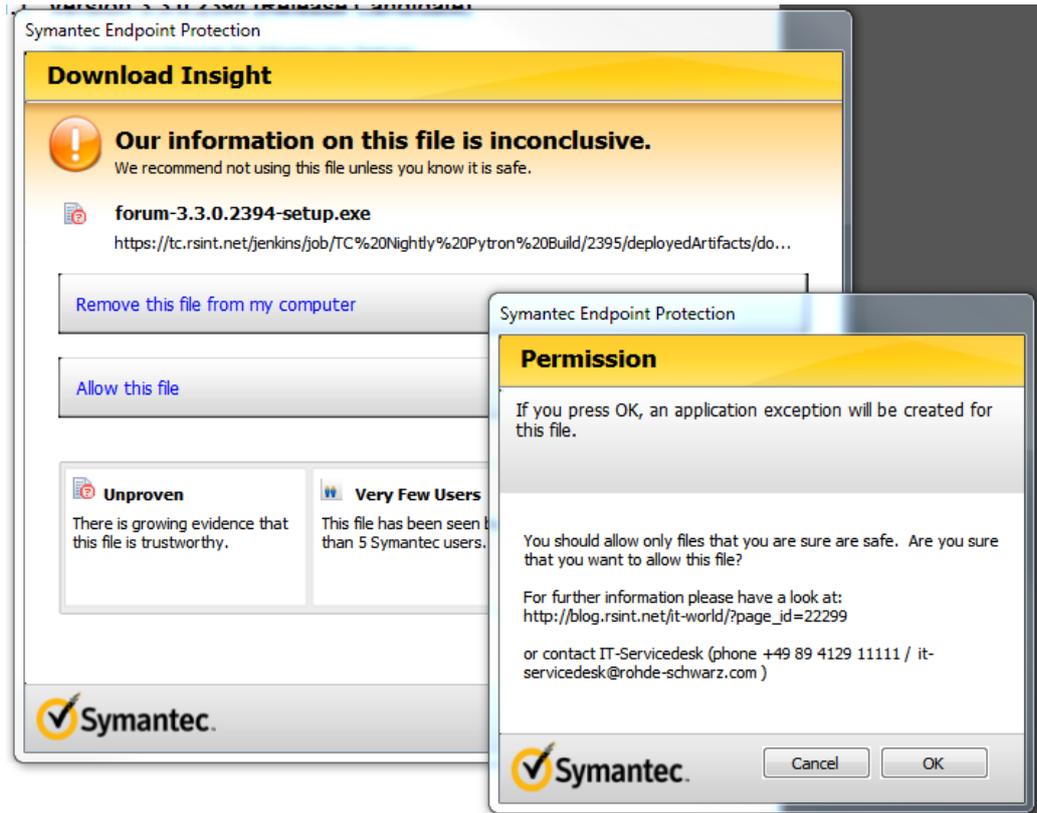
## 2.3 Troubleshooting

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

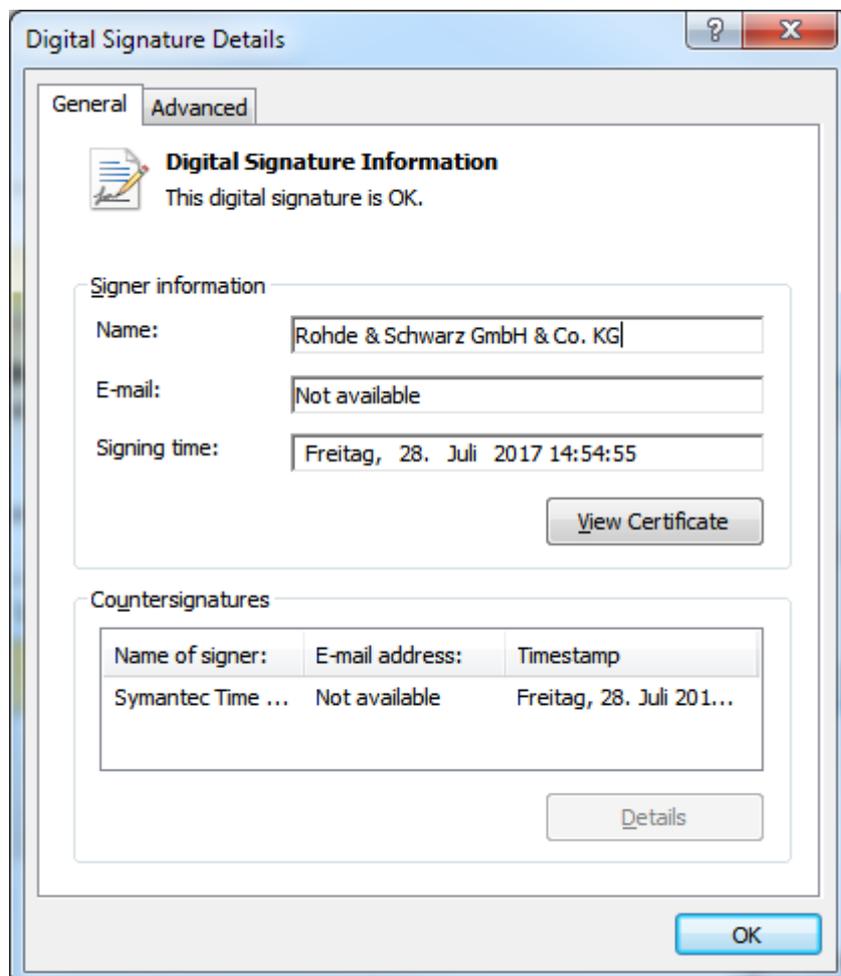
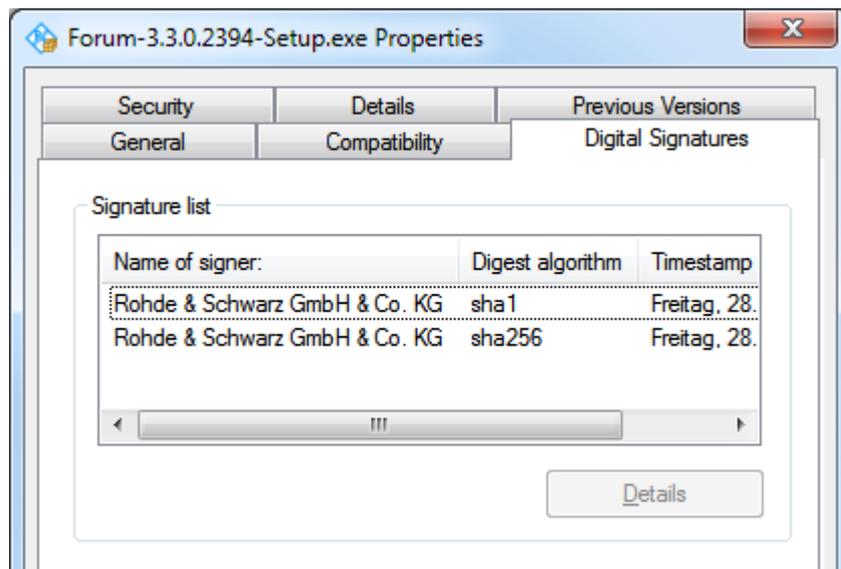
## 3 Known Issues

### 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.

#### **Europe, Africa, Middle East**

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