R&S®VISA

Products:

► R&S®VISA

Note:

Please find the most up-to-date Application Note on our homepage:

www.rohde-schwarz.com/rsvisa

or:

www.rohde-schwarz.com/appnote/1DC02

ROHDE & SCHWARZ

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Contents

1 Overview

R&S® VISA is a standardized software library that allows fast communications over diverse interfaces with a wide variety of T&M instruments that are detected on the network from PC applications.

R&S® VISA also includes a trace tool that simultaneously monitors communications between multiple applications and T&M instruments, and permits targeted analysis with the aid of efficient filters.

Maintained by the IVI Foundation (ivifoundation.org), Virtual Instruments Software Architecture (VISA) is a multi-vendor, standardized I/O software interface for T&M instruments. Applications based on this interface remain flexible and fit for future requirements. Core features are:

► Communications via TCP/IP (HiSlip, VXI-11, RSIB, Raw Socket) and USBTMC

► Support for all Windows versions from XP SP2 and Mac OS X 10.10 or later

► Available for 32-bit and 64-bit applications

► Switching between VISA implementations at runtime

► Integrated, automatable search algorithms for detecting T&M instruments in the network

► Efficient trace tool for communications analysis

► Compact, fast, and free-of-charge under the R&S terms and conditions for royalty-free products

Besides the VISA library, this product contains three utility applications:

R&S VISA trace tool

► Logs all communications between the R&S VISA library and applications

► Long-term logging to file along with quick display of all VISA remote control commands

► Filters permit targeted monitoring of individual processes, threads or sessions

► Configurable color coding facilitates analysis

► Clear visual highlighting of VISA commands called simultaneously from different threads

► Reduction of a series of identical commands into a single log entry

► Automatic pause at VISA errors

► Multiple instances of R&S VISA trace tool can be launched independently

R&S VISA tester

► Call of common VISA commands for a quick connection check

► Automated test sequences for testing the performance and reliability of a connection

► Query and definition of VISA attributes

► Support of VISA event and locking mechanism

► Switching between active VISA implementations at runtime

► Search for instruments in the network via mDNS and VXI-11

R&S VISA configuration tool

► Definition of alias names for resources

► Manual entry of LAN resources

► Configuration of VISA conflict manager: assignment of channels to VISA implementations

2 Installation

2.1 Installation on Microsoft Windows

2.1.1 System Requirements

Operating System: Microsoft Windows XP / SP2 or higher, Windows 7, Windows 8.1, Windows 10.

2.1.2 Installation Procedure

► Start the Setup executable `SetupRsVisa.exe`

► Click **Next**

► Read the license agreement carefully. If you agree to the terms of the agreement click on "I accept the license agreement" and then click **Next**.

► Use the **Verify** button to verify that the setup executable is not compromised.

► Depending on your system either only the 32-bit library or the 64-bit package are selectable for installation. Note that the 64-bit package contains the 32-bit VISA library as well.
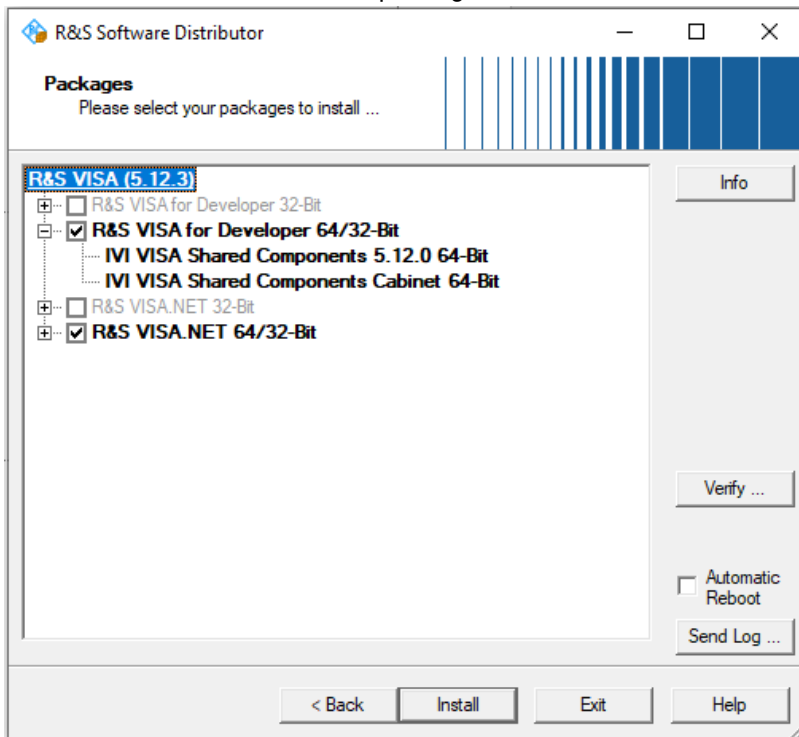

Figure 1: Rohde & Schwarz Software distributor screenshot

► If the IVI Shared Components are either not already available on your system or have a lower version number, this component is installed along with the R&S VISA. Click **Install** to start the installation of all required components.

► If requested, read the license agreement of the IVI Shared Components carefully and accept these if you agree.

► After a successful installation click **Exit** to finish the setup.

2.1.3   Uninstallation

Open the uninstall manager in the control panel. Select R&S VISA and click **Uninstall**. When uninstalling R&S VISA from your system all R&S VISA components are removed along with all user settings (e.g. the resource identifier and alias list). The IVI Shared Components remain installed, but can be uninstalled separately.

2.1.4   Repair, Update and Downgrade

If a file of the R&S VISA is missing (e.g. by accidently deleting it) rerun `SetupRsVisa<version>.exe`. The missing files are copied to your system. The user settings are not modified. To initiate the update or downgrade process run `SetupRsVisa<version>.exe` of the newer or older version and follow the installation steps given above. All R&S VISA components are replaced by the components of the new version. The user settings are not modified. Note, the R&S VISA setup only updates and never downgrades the IVI Shared Components.

2.2   Installation on Mac

2.2.1   System Requirements

Operating System: Operating System: Mac OS X (10.10 or later)

2.2.2   Installation Procedure

► Open Setup image `rsvisa<version>.dmg`

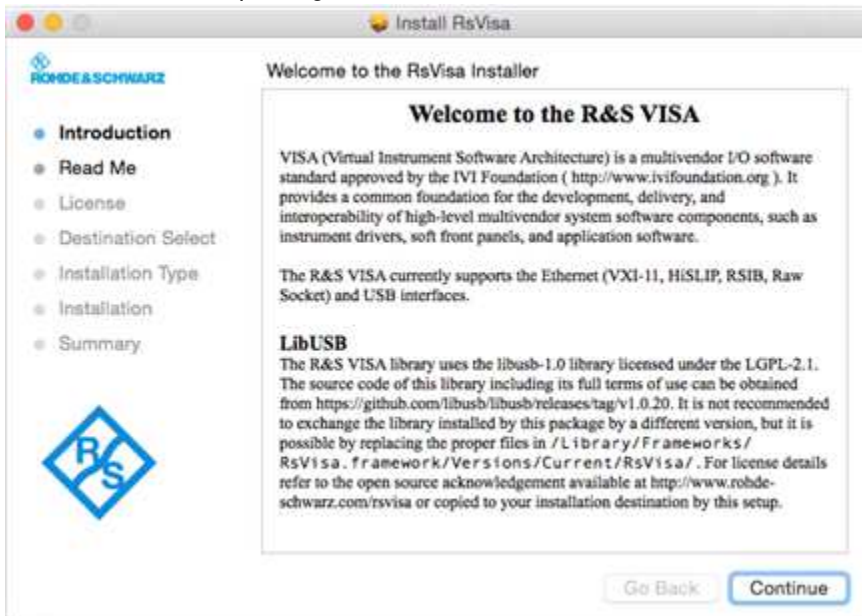► Double-click on the package item to start the installer.

Figure 2: Rohde & Schwarz VISA Mac Installer Welcome page screenshot.

► Read the first and second page of the installer to get an overview of VISA and recent changes. If needed, save the **Usage** information to a file for later access.

► Read the license agreement carefully. If you comply, click **Continue** and **Agree**. If you do not comply, either exit the installer or click **Continue** and **Disagree**.

► Click **Install** to start the installation. Note that you might be requested to enter the credentials of a privileged user to proceed with the installation.
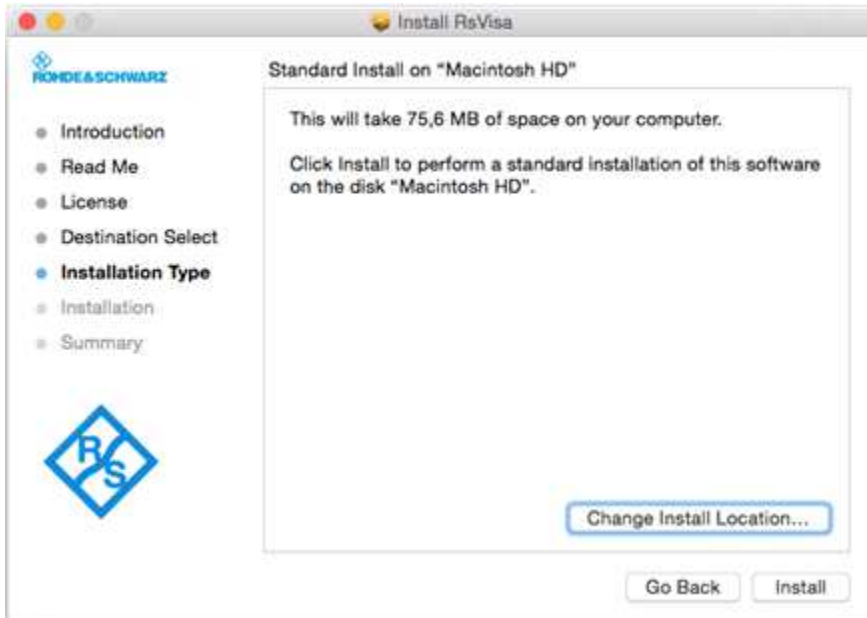

Figure 3: Rohde & Schwarz VISA Mac Installer Installation Type screenshot

► Click Close to finish the installation and eject the `rsvisapack` image.

2.2.3 Uninstallation

For convenience the R&S VISA provides an uninstall script which removes all R&S VISA related files from your hard drive. This file is located at `/Applications/ Rohde-Schwarz/removeVisa.sh` and should be invoked with root privileges. In a terminal this can be achieved by the command
`sudo /Applications/Rohde-Schwarz/removeVisa.sh`

2.2.4 Repair, Update and Downgrade

If a file of the R&S VISA is missing (e.g. by accidently deleting it) rerun the installation procedure as outlined above. The installer copies missing files to your system without modifying the user settings.

To up- or downgrade the R&S VISA run the installer of desired version as outlined above or in the release notes of the target version. The installer replaces all R&S VISA components by the components of the version being installed without modifying the user settings.

3 Compatibility under Windows

The R&S VISA can be installed along with VISA implementations by other vendors. However, 32-bit applications linked against the generic `visa32.lib` and not the R&S specific `RsVisa32.lib` use the library `visa32.dll` at runtime. This library merely redirects all exported functions to a vendor specific VISA library. Usually if along with the R&S VISA another VISA is installed, this file is overwritten. Hence, applications importing `visa32.dll` no longer use the R&S VISA. A `visa32.dll` file redirecting all exported functions to the R&S VISA can be found at `%VXIPNPPATH%WinNT\RsVisa\bin`.

Furthermore, because the `visa32.dll` file is installed by other VISA implementations as well, uninstalling such a VISA implementation might delete the file `visa32.dll`. In this case the R&S VISA should be repaired (cf. Section 2.4). The R&S VISA uninstaller never deletes the file `visa32.dll` if still needed by another VISA implementation.

These problems do not persist with 64-bit applications. Here applications link against `visa64.dll`. This file is not installed by the VISA, but by the IVI Shared Components, hence uninstalling a VISA implementation does not change the installation state of the `visa64.dll` file. Furthermore, the `visa64.dll` library does not redirect all exported functions to the same VISA implementation, but the user may decide at runtime which VISA should be used. For further details see the R&S VISA Manual section 6.4.