Tektronix OpenChoice Software Release Notes (TekVISA V3.3.2)

Welcome to the release notes for Tektronix OpenChoice software. The sections below contain detailed information on installation along with additional information on selected features of Tektronix OpenChoice software. In addition to an updated version of TekVISA, this distribution includes related software that can be used stand-alone or in combination with TekVISA. Software that operates above the VISA API, such as the TekVISA ActiveX® Control, is typically compatible with other VISA API implementations.

TekVISA 3.3.2 Minimum Configuration

Supported Operating Systems:

- Microsoft Windows 2000
  Administrator rights may be required for installation.
- Microsoft Windows XP Pro
  Administrator rights may be required for installation.
- Microsoft Windows VISTA x86 (32-bit)
  Administrator rights may be required for installation.

Minimum Hardware Configuration

- Pentium III or equivalent or later processor
- 128 MB RAM or more
- RS-232, GPIB, USB or Ethernet connection to compatible Tektronix instruments
- Keyboard and mouse

Features

- OpenChoice Instrument Manager
  - Displays 'found' instruments and provides a means to get the identity of the selected instrument
  - Allows for easily setting the criteria for searching for instruments.
  - Launch applications such as OpenChoice Call Monitor and OpenChoice Talker Listener from a user manageable Applications List.
- Support for Software Troubleshooting and Application Development
  - The OpenChoice Call Monitor shows VISA calls as they transact in connections.
  - All VISA functions recorded in the Call Monitor include information showing the time the function required for completion.
  - The OpenChoice Talker Listener provides an easy way to communicate with instruments in an interactive manner.
  - The Talker Listener maintains a history and has the capability to use script files to save command sequences for later use.
- GPIB Support
  - Automatic Discovery of GPIB instruments connected to your controller.
- LAN Support
  - Automatic Discovery of LAN based instruments on your local network.
  - An easy way to specify searches of non-local networks for LAN based instruments.
  - Conformance with the LAN support described in the VISA 2.2 specifications.
  - Capabilities of a raw network socket connection using TCP/IP.
- RS-232 Serial Support
  - Automatically configures serial ports (if instruments are connected to them)
  - Identifies whether an instrument is connected

- USB Support
  - Automatic Discovery of USB instruments connected to your controller.
- Microsoft Office Support for Office2007
  - A toolbar for managing data transfers into Microsoft Excel
  - A toolbar for managing data and image transfers into Microsoft Word

TekVisa Installation

- Platforms supported by this software distribution include Tektronix Windows based instruments and conventional PCs running a 32-bit Windows operating system. The installer detects the platform and installs appropriate software components.
- In many cases, Tektronix OpenChoice software will be installed in conjunction with other software installations or it may come as part of the initial factory software installation on a Tektronix Windows instrument. Taking full advantage of this software may often require installation on a conventional PC. For example, configuring a client connection for the VXI-11 LAN server (see below) will typically involve installation of the TekVISA software on a PC, which then serves as the client connection. TekVISA is a major component of Tektronix OpenChoice software. The installation program for Tektronix TekVISA software is located in the TekVISA directory in the root of the CD-ROM containing Windows instrument software or other Tektronix software. Run the 'setup.exe' program found in the TekVISA directory to install TekVISA software on a conventional PC.
- The installation program provides two approaches to upgrading existing installed VISA software:
  - The first and recommended approach is to use the Windows Programs and Features (Vista) or Add or Remove Programs utilities found in the Control Panel to select and uninstall "OpenChoice TekVISA". This option will always uninstall the software. When the SW is uninstalled you may or may not be asked to reboot. When the uninstall process is complete, launch 'setup.exe' in the TekVisa directory to install the new version. Again, follow the on screen instructions.
  - The second approach is to use the installation program to upgrade TekVisa. Double-click the 'setup.exe' for the TekVISA installation program to start the installer. If a previous version of TekVISA is detected, the installation program will update the software without uninstalling it first. If a more recent (newer) version than what is on the installation program is detected, a dialog will prompt you providing further information. When the update process is complete you may be prompted to reboot. Follow the on screen instructions.
- The TekVISA installer will detect an existing non-Tektronix VISA installation and offer the option of skipping the installation of TekVISA. If the option to keep the current VISA is selected, the installer will retain the non-Tektronix VISA installation and will install all of the other Tektronix OpenChoice features.
- Only the Tektronix implementation of VISA can be installed on Tektronix DPO/DSA7000 or DPO/DSA70000 instruments. Other vendors VISA implementations will cause the Oscilloscope to not function properly. Earlier TDS5K\B, 6K\C, 7K\B Windows based oscilloscopes will work fine with NI-VISA implementations.
- Files are mainly installed under the C:\VXIpnp\WINNT\TekVisa directory with this distribution of TekVisa.

Tektronix USB-TMC Device Driver Installation

Short steps to install: Power up the USBTMC compliant instrument and connect it to the computer. Follow the screens of the Found New Hardware Wizard and use the defaults.

In case of Windows Vista x86 machines, if there is a signed driver the system directly loads the signed driver. Under this condition:

1. Right-click on Computer (Either on the Start pane or Desktop).
2. Select Manage.
3. Select Device Manager.
4. Expand USB Test and Measurement Devices.

5. Select USB Test and Measurement Devices.
6. Right click on the USB Test and Measurement Device.
7. Select Update the Driver software.
8. On the first screen, Select "Browse my computer for driver software".
9. On the next screen, Select "Let me pick from a list of device driver on my computer".
10. If there are other manufacturers device drivers present, uncheck the Show Compatible Hardware on the next Screen.
11. Select Tektronix Inc.'s USB Test and Measurement device.

Tek Toolbars for Microsoft Office

Tektronix provides two toolbar add-ins for Microsoft Excel and Microsoft Word.

- The Tektronix Toolbar for Microsoft Excel (TekXL), which allows you to capture and graph oscilloscope data in MS Excel spreadsheets.
- The Tektronix Toolbar for Microsoft Word (TekW), which allows you to capture and graph oscilloscope data in MS Word documents.

The "Tektronix Toolbar Start Preferences" utility provides a means of adding the toolbars to Excel and Word and also sets them to launch when the respective Office application starts. You can select not to have this happen each time and simply enable it when you want to. The utility is placed on your desktop.

If the "Tektronix Toolbar Start Preferences" utility fails to add the toolbars to Excel and Word it can be done manually by following the steps

In Word,

1. Select the "Templates and Add-Ins" option in the Tools Menu.
2. Check the "TekWStartup.Dot" and "TekWToolbar.Dot" check boxes in 'Global templates and add-ins' Group. Click on OK Button.

In Excel,

3. Select the "Add-Ins" option in the Tools Menu.
4. Check the "Tekxltoolbar" check box in 'Add-Ins available' Group. Click on OK Button.

TekXL Toolbar

The TekXL toolbar supports:

- ASRL (Serial) communications.
  - Serial ports may not be shared between the TekXL toolbar and other applications. This is a limitation in the supported operating systems.
  - Triggered captures are not supported with serial communications.
- Multiple channel acquisition.
  - Multiple Channel Waveform capture.
  - Multiple Channel Measurements capture (all selected measurements are captured for all selected channels.
  - Multiple Channel Triggered capture (waveforms and measurements).
  - Screen Capture
  - INSTALLATION AND TARGET DIRECTORY: The installer places the TekXL Toolbar add-in file and supporting components in a directory named ExcelToobar. The full path will be C:\VXIpnp\WINNT\TekVISA\ExcelToolbar. The TekXL Add-In file itself is named TekXLToolbar.xla.
  - USING THE TOOLBAR: The toolbar has up to Seven icons (depending on the instrument selected). A

quick review of these icons may be gained by clicking on the help icon (the one on the far right with a question mark). A tool tip identifying each of the tools is displayed in a tool tip if you let your mouse linger over the icon. The icon on the far left is named “TekXL Connection” and should be tested first. It lists all detected devices. Select a device and click the OK button. Once connected, you may experiment with the other tools on the toolbar.

- SOURCE CODE: All source code for the TekXLToolbar file is available through the Microsoft Excel Visual Basic editor. No password protection has been placed on the file. For those with Visual Basic for Applications coding experience, please don’t hesitate in setting breakpoints and stepping through the code. The toolbar uses two compiled ActiveX components beyond the TVC.OCX control: p_ExcelInsert.exe and p_TimedMeas.dll.
- EXCEL VERSIONS: The Toolbar was developed using Excel 2000 and runs under Office 2000 and newer versions. The Toolbar does not run under Excel 97.

TekW Toolbar

The TekW Toolbar supports the same type of features as the TekXL Toolbar. It supports Microsoft Word (Microsoft Word 2000 or later). Triggered captures are not supported with serial communications.

To Run TekW toolbar in Word 2003, the Macro Security should be set to Medium. Here are the steps to set the Macro Security level in Word 2007.

1. Open Word. Click the Tools Menu.
2. From the tools Menu Select Macro->Security Menu item.
3. Security Dialog appears. Select “Medium” option in the ‘Security Level’ tab.
4. Close and restart Word 2003.

You might encounter the following warnings while starting Word 2003

- Macros Warnings: Select “Enable Macro” Options with such warning messages.
- ActiveX Initialization: Press OK to continue.

Word 2007 requires the TekW toolbar to be added to the trusted locations list. Here are the steps to Add TekW Toolbar to the Word 2007 Trusted Locations:

1. Click “Word Options”.
2. "Word Options" dialog Appears. Select the “Trust Center” Tab.
3. Click the "Trust Center Settings" Button.
4. "Trust Center" dialog appears. Select the “Trusted Locations” Tab.
5. Click "Add New Location" Button.
6. "Microsoft Office Trusted Location" dialog appears. Click on "Browse" and select "%Program Files%\Microsoft Office\Office12\STARTUP" folder.
7. Click OK.
8. Close all the open dialogs.
9. Close Word.

Using TekVISA 3.3.2 with Tektronix TDS3000 Series Oscilloscopes

Tektronix TDS3000 Series Oscilloscopes must be configured with Version 3.27 or later firmware. This firmware is available on the Tektronix web site.

Using TekVISA 3.3.2 with Tektronix WaveStar for Oscilloscopes Support

Tektronix WaveStar for oscilloscopes (WSTRO) Version 2.7 have the following compatibility issues with TekVISA 3.3.2:

- WaveStar for oscilloscopes requires instrument names in the format "**GPIB*INSTR**" and "**ASRL*INSTR**" (where * is a wildcard). TekVISA 3.3.2 automatically assigns:
  - GPIBx::yy::INSTR to GPIB instruments (x is the board number, yy is the GPIB primary address).
  - ASRLx::INSTR to serial instruments (x is the COM port number).
  - TCPIP::zzzz::INSTR to Ethernet instruments (zzzz is the TCPIP address/network name).
- You can assign alias names to instruments in TekVISA 3.3.2 Instrument Manager on the instrument properties page to accommodate WaveStar. Use the 'Device Name' field to change connection names.
  - WaveStar for Oscilloscopes will NOT find GPIB or serial instruments if you change their names to any format other than "**GPIB*INSTR**" or "**ASRL*INSTR**".
  - WaveStar for Oscilloscopes will find Ethernet instruments if you assign names in a format of "**GPIB*INSTR**" or "**ASRL*INSTR**".

Installing WaveStar for Oscilloscopes Version 2.7 or earlier onto a TekVISA 3.3.2 system will overwrite TekVISA 3.00 with a previous version of TekVISA. To regain the benefits of TekVISA, you must reinstall it.

Support for National Instruments GPIB-USB-A

You must be running NI 488.2 Version 2.10 or later. Previous versions cause erratic behavior on the Toolbars.

Virtual GPIB Resource

Virtual GPIB (V-GPIB) resource modules are provided for all supported Tektronix Windows scope models. The V-GPIB resource is a functional equivalent of the external hardware GPIB connection, but is implemented using internal hardware/software data paths. Typically, use of the V-GPIB connection results in improved convenience and performance. For example, V-GPIB enables applications running on the scope to access Tektronix scope control and data. V-GPIB is also the connection used by the VXI-11 LAN server (see below).

Two distinct implementations of V-GPIB are provided: for NI-VISA version 2.5 or newer and for version 3.3.2 of TekVISA. The external behavior and performance provided by the two V-GPIB implementations are essentially identical (less than 10% performance difference was observed during benchmark testing). In both cases, the V-GPIB resource is opened via the resource string "GPIB8::1::INSTR".

The V-GPIB resource for NI-VISA 2.5 is a passport DLL. Passport DLLs are an I/O extension facility supported by newer versions of the National Instruments VISA implementation. NI-VISA version 2.5 or newer is required for passport DLL support.

The V-GPIB resource for TekVISA 3.3.2 is a standard TekVISA resource module. It is therefore equivalent to other TekVISA resource modules such as those supporting asynchronous or hardware GPIB connections.

TekVisa LAN Server Setup

INTRODUCTION: TekVISA provides LAN-based instrument connectivity via client and server support of the VXI-11 network instrument protocol. The VXI-11 LAN server is a Tektronix OpenChoice software feature that may be run on the instrument to provide TCP/IP network access for controlling and collecting data from the instrument. The TekVISA API provides a VXI-11 client as a VISA instrument resource.
TekVisa also provides the capabilities of a raw network socket connection using TCP/IP. The Socket Server is a Tektronix OpenChoice software feature that may be run on the instrument to provide a raw network socket connection for controlling and collecting data from the instrument.

INSTALLATION: The VXI-11 LAN server and Socket Server are installed by default on supported instrument platforms by the Tektronix OpenChoice installer. As part of the installation, the TekVisa LAN Server Control program is automatically configured to exist in the Windows system tray at system power up (except on PC/client workstation installations, which do not include the VXI-11 LAN server and Socket Server).

STARTUP: To automatically start the VXI-11 LAN server or Socket Server with system power up, it must initially be manually activated via the Tektronix LAN Server Control program's "Start VXI-11 Server" or “Start Socket Server” menu selection. This is available via a popup menu from the system tray. However, using the Server Control program, a preference setting may be turned on that will automatically start the VXI-11 LAN server/Socket Server with any future system power up; select the "Server Properties" item from the system tray popup menu. Whether started manually or automatically, the VXI-11 LAN server and Socket Server can run without the Server Control program being active.

If the Server Control program is not running in the system tray, it also may be started manually. Locate the Server Control application under the **Start > Programs > TekVISA** menu and run it. It will appear as a new icon in the system tray. When you reinstall/upgrade TekVisa, the preference setting for startup of the VXI-11 Server and Socket Server will be set to not automatically start on power on (default setting).

IDENTIFICATION: The VXI-11 server on a Tektronix instrument may be identified by right-clicking on the Tektronix LAN server Control in the system tray and selecting Server Properties. The text edit field “Location” may be changed to include information helpful in identifying this instrument from a network connect. The text in that field will be displayed in the Properties page accessed via the Instrument Manager in the Instrument Location field for this VXI-11 device.

CLIENT ACCESS: The VXI-11 LAN server may be accessed via any VXI-11 client implementation. For TekVISA clients, the server may be configured as a remote VISA instrument resource on the client workstation. If ‘Auto Discovery’ is enabled the VXI-11 devices on the local network will automatically be discovered in the “Instrument Manager” during a Find operation. If you’ve placed a VXI-11 device on the network after the Find operation has occurred on the client, you can initiate a Find operation by selecting **Start > Programs > TekVISA > OpenChoice Instrument Manager** and then pressing the Update button. If the VXI-11 device is not on the local network for the client computer, it will be necessary to add the either the LAN based instruments hostname, IP address, or IP address range to the Remote Host list in the Search Criteria page accessed on the Instrument Manager by selecting the Search Criteria button and then selecting the LAN button.

TROUBLESHOOTING: If your client application cannot access the VXI-11 server/Socket Server, or if the OpenChoice Instrument Manager does not find any instrument resources on the server, verify that the server is in fact installed and activated on the remote instrument. If the Server Control program indicates that the server is already running, try stopping it and restarting it. If client access problems still persist, power down the instrument and restart it.

SignalExpress and TekVisa Compatibility

Users who have no VISA version or NI-VISA installed on the PC: Installing Signal Express TE edition will update NI-VISA (if older version is present) and the experience should be very smooth.

Users who have TekVISA 2.03 installed on your PC:

- Installing Signal Express TE edition (bundled with DPO4000) will replace TekVISA visa32.dll with NI-VISA. However, TekVISA applications like TVC and toolbars are not uninstalled and will continue to work with older scope models. All value scope customers who have installed OpenChoice Desktop would fall under this category.
- Users who a) want the updated tools b) use the toolbars and TVC with DPO7000 or DP4000, or c) want to use the new TLA-Offline application (Version XX) need to install TekVISA 3.3.2 first and then install SignalExpress (w NI-VISA).

Sample Applications

Sample applications associated with TekVISA Programming Manual are part of a typical Tektronix OpenChoice installation. These samples will appear in a directory hierarchy under the C:\VXIpnp\WINNT\TekVISA\VISASamples directory.

Most of the sample applications associated with TekVISA Programming Manual are simple C-based command line applications that illustrate a specific VISA programming topic. In addition to a single source file, the directory containing each command line sample includes Visual C++ version 6 project files. A compiled version of the sample application is included in the Release sub-directory. The following command line samples are provided:

attraccess — demonstrates use of viGetAttribute() and viSetAttribute() to access a few common VISA attributes including VI_ATTR_TMO_VALUE to set the VISA timeout.

exlockexam — demonstrates use of viLock() with the VI_EXCLUSIVE_LOCK flag.

findrsrcattrmatch — demonstrates use of viFindRsrc() and viFindNext() to iterate through available resources that match a pattern that includes an attribute expression.

rwexam — demonstrates use of viWrite() and viRead() to perform a GPIB “*idn?” query.

sharedlock — demonstrates use of viLock() with the VI_SHARED_LOCK flag.

simple — demonstrates use of viWrite() and viRead() to perform a GPIB “*idn?” query.

simplefindrsrc — demonstrates use of viFindRsrc() and viFindNext() to iterate through available resources that match the pattern “GPIB?*INSTR”.

srq — demonstrates use of viInstallHandler() / viUninstallHandler() and viEnableEvent() / viDisableEvent() to set up a callback type handler for the VI_EVENT_SERVICE_REQ event (service request). Note: this example may be somewhat scope family specific due to the GPIB command set used.

srqwait — demonstrates use of viEnableEvent() / viDisableEvent(), viWaitOnEvent(), and viReadSTB() to set up a queued event for VI_EVENT_SERVICE_REQ (service request). Note: this example may be somewhat scope family specific due to the GPIB command set used.

A somewhat more complex sample—an MFC dialog box application—is also associated with TekVISA Programmer Manual:

VISAApiDemo — supports interactive access to commonly used VISA operations including viOpenDefaultRM(),viFindRsrc(),viOpen(), viGetAttribute() / viSetAttribute(), viWrite(),viRead(), and viClear(). A release build of this application is in the Release sub-directory.

Known Issues

TekVisa

- Using GPIB: When termination character is enabled and viRead encounters the character, VI_SUCCESS_TERM_CHAR is not the returned value. VI_SUCCESS is returned.
- TekVisa intermittently 'hangs' during a Serial Search.
- For Serial Scan to be successful, it sometimes is necessary to exit and relaunch TekVisaRM. It is not hung in this situation but is not discovering serial instruments any longer.
- Some FormatIO format strings are not being properly handled.

Talker Listener

- When run on displays of 640X480 (some windows oscilloscopes) the display is too large and you cannot access the bottom part of the UI.

TekVisa Installation

- In Windows XP SP2, when the user selects Language for non-Unicode programs other than English, an error message is shown.

TekToolBars

- Excel Toolbar cannot connect to more than one Instrument simultaneously even if different work books are used for each Instrument.

Talker Listener, Call Monitor and Instrument Manager

- The Talker Listener, Call Monitor and Instrument Manager may take a long time (90 seconds or more) to launch on those systems that are not connected to a network. Workarounds to solve this problem:

- Establish a network connection with LAN settings such that internet connection is available.

OR

- Open Internet Explorer. Select the **Tools->Internet options** menu item. On the **Internet options** dialog select the **Advanced** tab, scroll to the **Security** settings and uncheck the box for "**Check for server certificate revocation (requires restart)**" option. Restart your computer and the problem should be solved.