IO Libraries Suite

Accelerate Instrument Connection and Control with IO Libraries

- Automatically detects instruments connected to your PC and configures the interfaces.
- Enables instrument communication for a variety of development environments (Mathworks MATLAB, Python, NI LabVIEW, Microsoft Visual Studio, and more).
- Compatible with most common instruments.
- The Windows product includes support for AXIe, PXI, GPIB, USB, Ethernet/LAN, RS-232, and VXI test instruments from a variety of vendors.
- Windows users can also download popular Keysight software such as BenchVue and Command Expert to work with IO Libraries.
- The Linux product includes support for GPIB, USB, Ethernet/LAN, and RS-232.

IO Libraries for Windows 11

IO Libraries Suite introduces support for Windows 11 on ARM (64-bit x86 emulated applications or ARM64EC applications), which includes LAN (HiSLIP, VXI-11/SICL-LAN, and SOCKET), USB/GPIB, USBTMC, PXI, AXIe, PXI, PXIe, and PCIe devices, RS-232, Remote GPIB, and Remote USB.
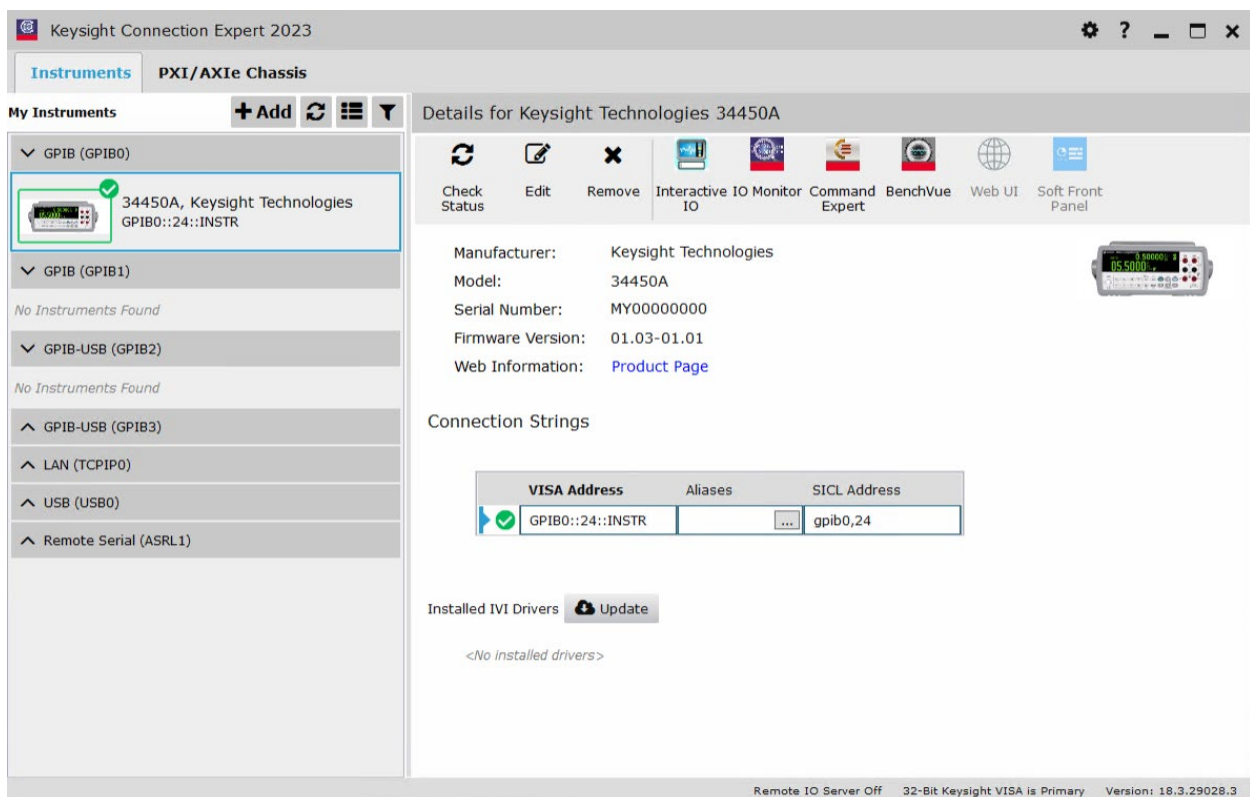
Getting Started is Easy!

1. Install Keysight IO Libraries Suite software on your PC.

2. Connect the interface cables between your chassis and/or instruments and your PC.

3. Detect interfaces, chassis, and instruments and configure them using Keysight Connection Expert.

4. In just minutes you have an error-free connection that simply works.

Fast and Easy Access to your Test and Measurement Equipment from your PC

Connection Expert is an easy-to-use software for discovering and connecting instruments on Windows, Windows-on-ARM, or Linux PC. You can quickly add a new Instrument or I/O Interface and access their Web UI.
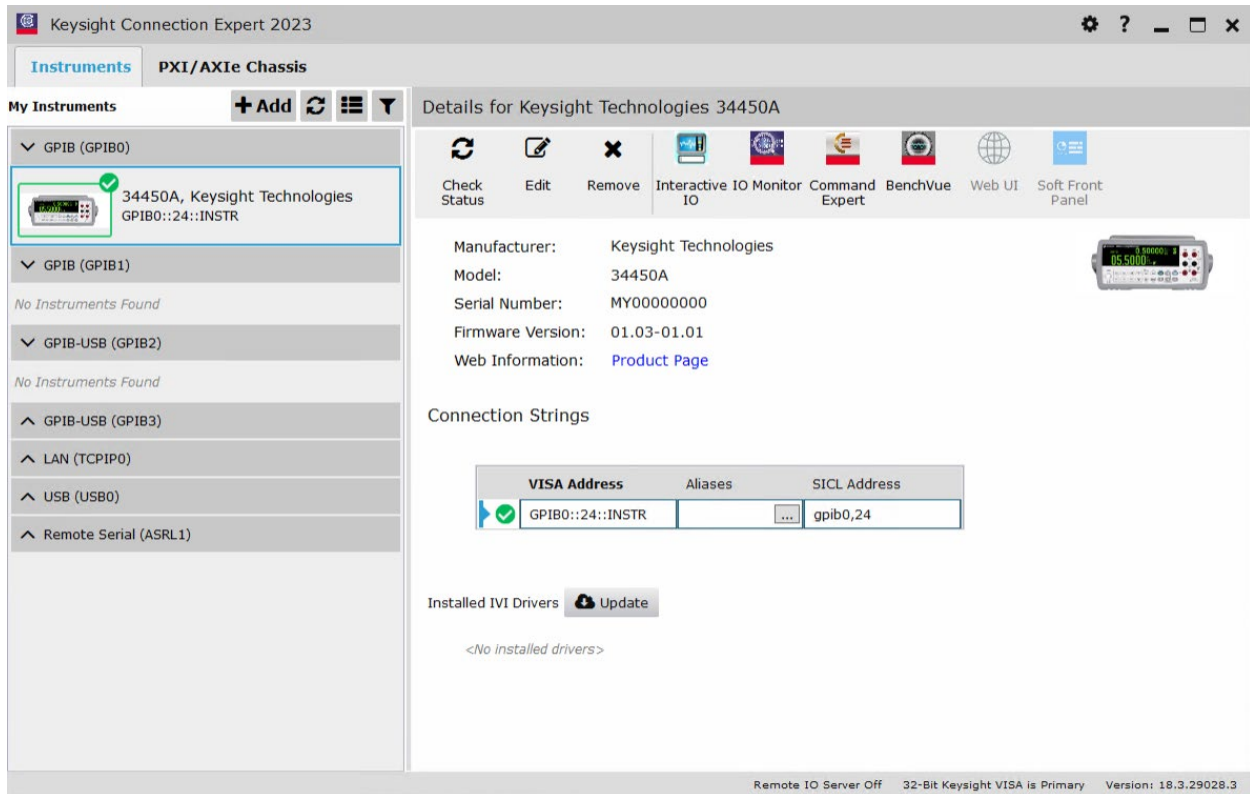
Connection Expert allows you to discover and verify instruments. Additionally, you can update IVI instrument drivers and soft front panels from the instrument properties in Windows. As a result, you save time and ensure your application uses the latest driver.

IO Libraries Suite software updates can be found at www.keysight.com/find/iosuite, or from the option available in Connection Expert. Windows users can also enable automatic updates.

Save time with the bundled tools IO Monitor and Interactive IO, which can be launched from within Connection Expert.

IO Monitor, Interactive IO, and Included APIs

- IO Monitor lets you monitor and trace instrument I/O traffic, greatly simplifying and speeding up the debugging process.

- Interactive IO lets you quickly send commands to instruments and read responses.

- Use the Keysight IO Libraries APIs to control your instruments or other devices from your custom automation software. APIs are available to support a wide variety of programming languages, hardware interface types, and industry-standard I/O library layers.

- Get up to 5x faster data transfers with the HiSLIP protocol for LAN-based instruments – HiSLIP speed is faster than any other current interface, and for some instruments can approach the theoretical limit of Gigabit LAN for TCP/IP connections. Easily convert an existing VXI-11 program to HiSLIP by simply changing the address string.

Quick Access to Test and Measurement Equipment from your PC

Support for modular instruments (Windows-only) - Keysight VISA and Connection Expert support modular instruments such as PXI (PCI eXtensions for Instrumentation), AXIe (ATCA eXtensions for Instrumentation), and PCIe® (PCI EXPRESS®) devices. The PXI Resource Manager will discover and display both chassis and modules.

Specifications: Version 2023 and Later

Supported interfaces

GPIB: Standard IEEE 488.1, 488.2	
USB: USBTMC-USB488	
LAN/Ethernet: Standard LAN (with HiSLIP, LXI, VXI-11, SICL-LAN and sockets)	
(Windows only)	PXI, AXIe, PXI, PXIe, and PCIe devices
	VXI: FireWire (Windows 7, 10, and 32/64-bit)

Supported development environments and supported I/O software

(Windows)	.NET languages (VB.NET, C#): VISA.COM, VISA, Keysight 488, VISA.NET
	C/C++/CLI: VISA.COM, VISA, Keysight 488
	EXCEL VBA: VISA COM, VISA, SICL, Keysight 488
	MATLAB: VISA
	Python: PyVISA
	LabVIEW: VISA, Keysight 488
(Linux)	C/C++: VISA, SICL
(Windows on ARM)	C/C++: VISA, SICL
	Python: PyVISA

I/O utilities

Connection Expert	Automatically scans and configures your instrument I/O, helps you get connected quickly and easily, and displays the status of your interfaces and instruments
Interactive IO	Lets you quickly send commands to instruments and read response
IO Monitor	Lets you monitor and debug I/O calls made on any of Keysight's supported buses
	(Windows: SICL, VISA, VISA COM, or Keysight IVI instrument drivers)
	(Linux: SICL or VISA)
IO Control	Provides easy access to the IO Libraries Suite utilities and documentation from the system tray
viFind32	Windows and Windows on ARM debug utility that uses VISA functions to find resources and 32-bit VISA implementations, listing them in a console window
viFind64	Debug utility that uses VISA functions to find resources and 64-bit VISA implementations, listing them in a console window

1. See the latest information on supported interfaces and operating systems for IO Libraries Suite 2023 from the Keysight website (Trials and Licenses tab). To identify which versions of IO Libraries, support particular operating systems and interface combinations, consult the information for the current and previous versions. Go to the Trials and Licenses tab, click Details and Download, and then install the most recent version that fits your OS and instrument combination.

System Requirements: Keysight IO Libraries Suite

Windows on ARM PC software: Operating system

- Windows 11 on ARM (64-bit x86 emulated applications or ARM64EC applications)
- Windows 10 on ARM (32-bit x86 emulated applications)

Windows PC software: Operating system

- Windows 11 (64-bit), Home, Pro, Enterprise
- Windows 10 (32-bit and 64-bit), Home, Pro, Enterprise
- Windows 8 and 8.1 (32-bit and 64-bit), Pro, Enterprise
- Windows 7 SP1 (32-bit and 64-bit), Starter, Home Basic, Home Premium,
- Professional, Ultimate, Enterprise
- Windows Server 2008 R2 SP1 (64-bit), Standard and Enterprise
- Windows Server 2012 (64-bit), Standard

Linux PC software: Operating system

- 64-Bit Red Hat Enterprise Linux Desktop Workstation 7.4 to 8.3
- 64-Bit CentOS Desktop Workstation 7.4 to 8.3
- 64-Bit Ubuntu Desktop 18.04.x and 20.04.2

PC hardware (Windows on ARM)

- Processor: 2.40 GHz, 8 Core (e.g. Qualcomm Snapdragon 7c)
- RAM: 4 GB minimum
- Hard disk space required: 2.5 GB (2 GB for Microsoft .NET Framework 4.6, 100 MB for Keysight IO Libraries Suite)
- Display: 1024 x 768 96 or 120 DPI
- Web connection for Internet download

PC hardware (Windows and Linux)

- Processor: 1 GHz, no support for Itanium64
- RAM: 1 GB minimum
- Hard disk space required: 2 GB
- Display: 1024 x 768 96 or 120 DPI
- Web connection for Internet download

Download information

If you like to install or upgrade to the latest version of IO Libraries Suite, download the free software from the Keysight website.

The most recent versions are available for Windows, Windows on ARM, and Linux on the Trials and Licenses tab. Windows users can also browse the Trials and Licenses tab for past versions compatible with specific operating systems or older instruments. In addition, Windows users can obtain a DVD ISO image for IO Libraries Suite by clicking a link on the Overview and Features tab.
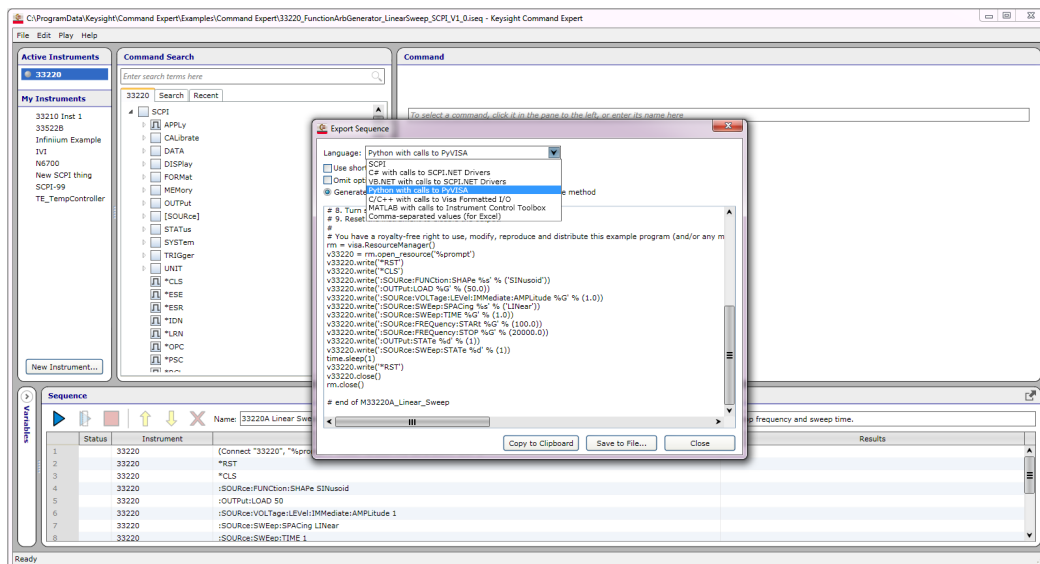
Additional Windows Utilities that Work with IO Libraries

Windows IO Libraries users can also download other I/O utilities from the Keysight website.

For example, BenchVue software enables instrument control and simplified automation – no programming required. Download it at www.keysight.com/find/BenchVue

Command Expert is a no-cost software application that provides fast and easy instrument control in many PC application environments. Download it from: www.keysight.com/find/commandexpert

KEYSIGHT