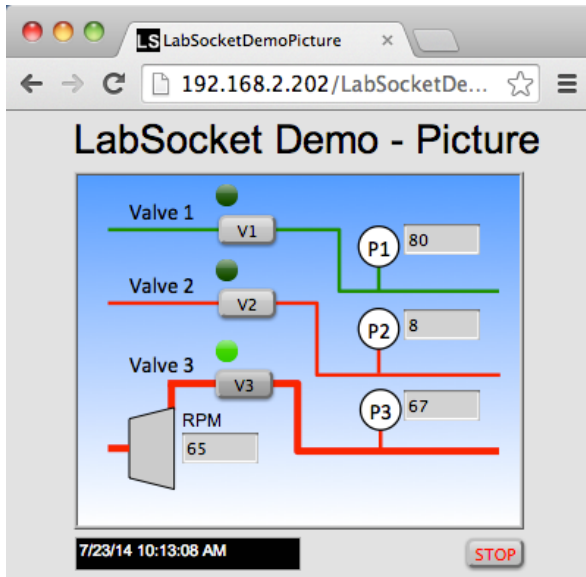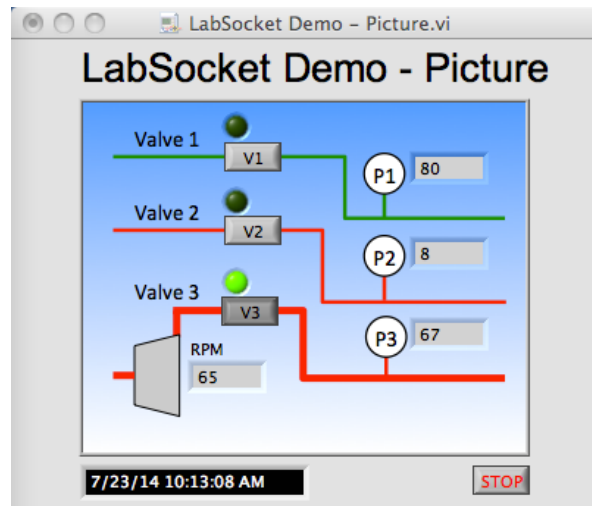# LabSocket

The Easy Way to Extend LabVIEW to the Web

The LabSocket System enables remote access to LabVIEW applications from desktop or mobile web browsers, without the need for browser plugins or a client-side run time engine. A key technology used in the system is the HTML5 WebSocket interface that enables continuous, bi-directional communication with a web browser. The use of this interface contributes to the name of the system: "LabSocket = LabVIEW + WebSocket".

a) Browser　　　　　*b) LabVIEW Front Panel*
*LabVIEW Front Panel Rendered in Browser Using LabSocket*

How it Works

LabSocket "Support VIs" on the LabVIEW Host Platform operate in parallel to the VI to be accessed in the browser, or "Target VI". On startup, the Support VIs automatically generate HTML and JavaScript code based on the content of the Target VI front panel. This code is then posted to an HTTP server on the "LabSocket Server" platform.

After the web page is loaded in a browser, the Support VIs continuously synchronize the front panel controls and indicators with those in the browser via a WebSocket interface.

Three versions of the LabSocket system have been developed to meet specific developer requirements: 1) LabSocket-Basic; 2) LabSocket-MultiClient; and, 3) LabSocket-RT.

LabSocket-Basic

The simplest version of the LabSocket system is "LabSocket-Basic" in which one or more browsers connect to a single Target VI. In this version, each remote user sees the same Target VI indicator data and can manipulate the controls of the Target VI front panel.
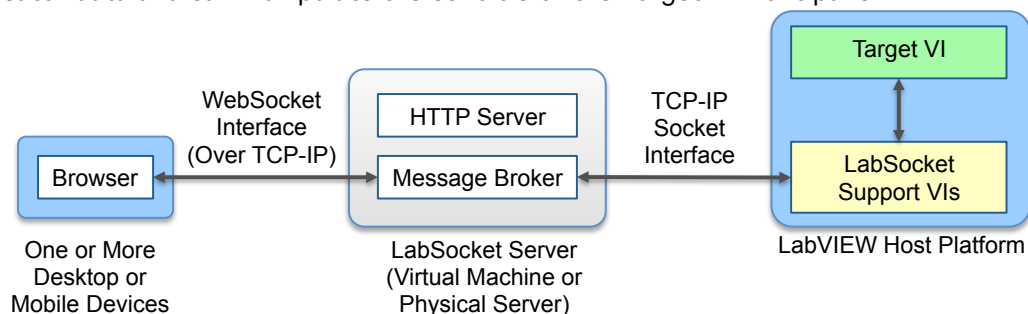
LabSocket-Basic Overview

LabSocket-Basic is invoked simply by including the "LabSocket Start VI" on the block diagram of the Target VI.

This version of LabSocket is certified "Compatible with LabVIEW" by National Instruments and is available through the LabVIEW Tools Network.
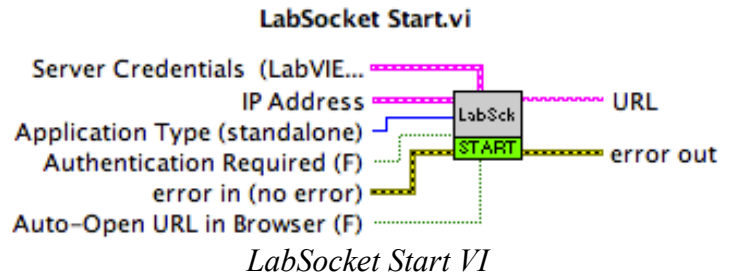
LabSocket Start VI

LabSocket-MultiClient

LabSocket-MultiClient establishes independent connections between each browser client and unique instances of the Target VI. Instances of the Target VI are automatically started and stopped as browser clients connect to and disconnect from the system.

LabSocket-MultiClient is ideal for applications in which multiple users enter or retrieve user-specific information. Such applications include surveys, database access and even games.

LabSocket-MultiClient
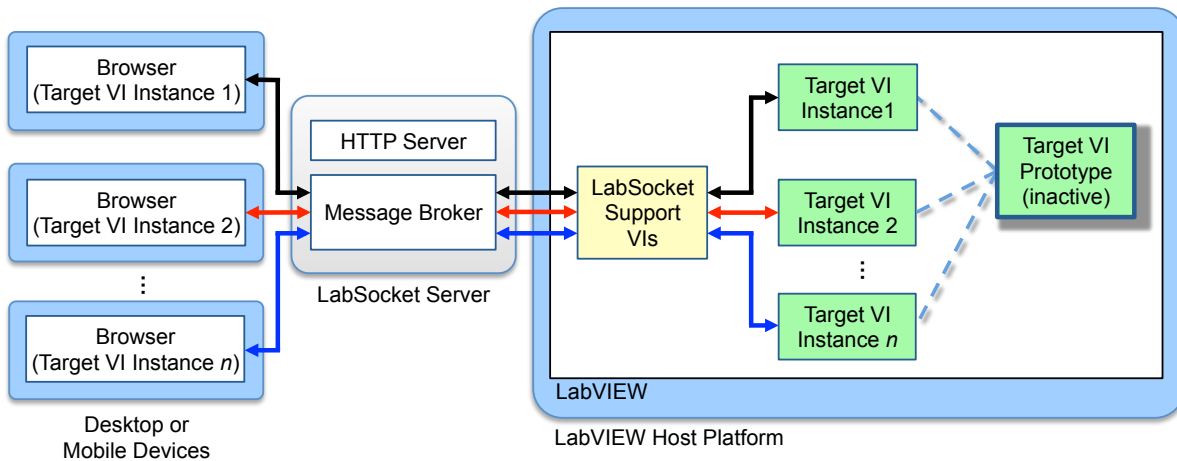
LabSocket-RT

LabSocket-RT enables remote access by one or more browsers to a Target VI operating on LabVIEW Real-Time platforms such as cRIO devices. This version is intended for rapid development of UIs for "headless" RT systems. Although LabSocket-RT currently supports only a limited set of front panel elements, expansion of the number of supported elements is planned.

LDAP User Authentication

All versions of LabSocket can perform user authentication using a Lightweight Directory Access Protocol (LDAP) database. LabSocket can be interfaced to a customer's existing LDAP database or an optional OpenLDAP server that can be delivered with the system.

LabSocket Server

The most popular physical implementation of the LabSocket Server is a pre-configured VirtualBox Virtual Machine (VM) that is included with each LabSocket system. The use of a VM enables the entire LabSocket system to be easily set up within a customer LAN and assures customers complete control and ownership of the system. Other physical implementations of the LabSocket Server, including a customer-owned cloud server, are also available.

Contact and Additional Information

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