StellarNet All-In-One LabVIEW subVI

The StellarNet Init, Read, Close.vi is a general-purpose subVI for programming episodic spectral readings in LabVIEW. When called, it:

1)   Initializes the instrument using either programmatic parameters or parameters stored on disk by SpectraWiz,
2)   Acquires the spectrum, returning it to the calling VI as a graph-ready cluster that includes amplitude and wavelength information, and
3)   Checks for error information from the .dll during the scan process, providing this in a LabVIEW-compatible format.

Since it is entirely self-contained, it can be used interactively as well as called as a subVI.

This document describes the subVI's operation and provides a simple example (included in the LabVIEW .llb) of programmatic usage. It is written in LabVIEW 8.2 and has been tested under Windows XP, Vista and 7.

Set up your spectrometer(s) and verify correct operation before using this software.
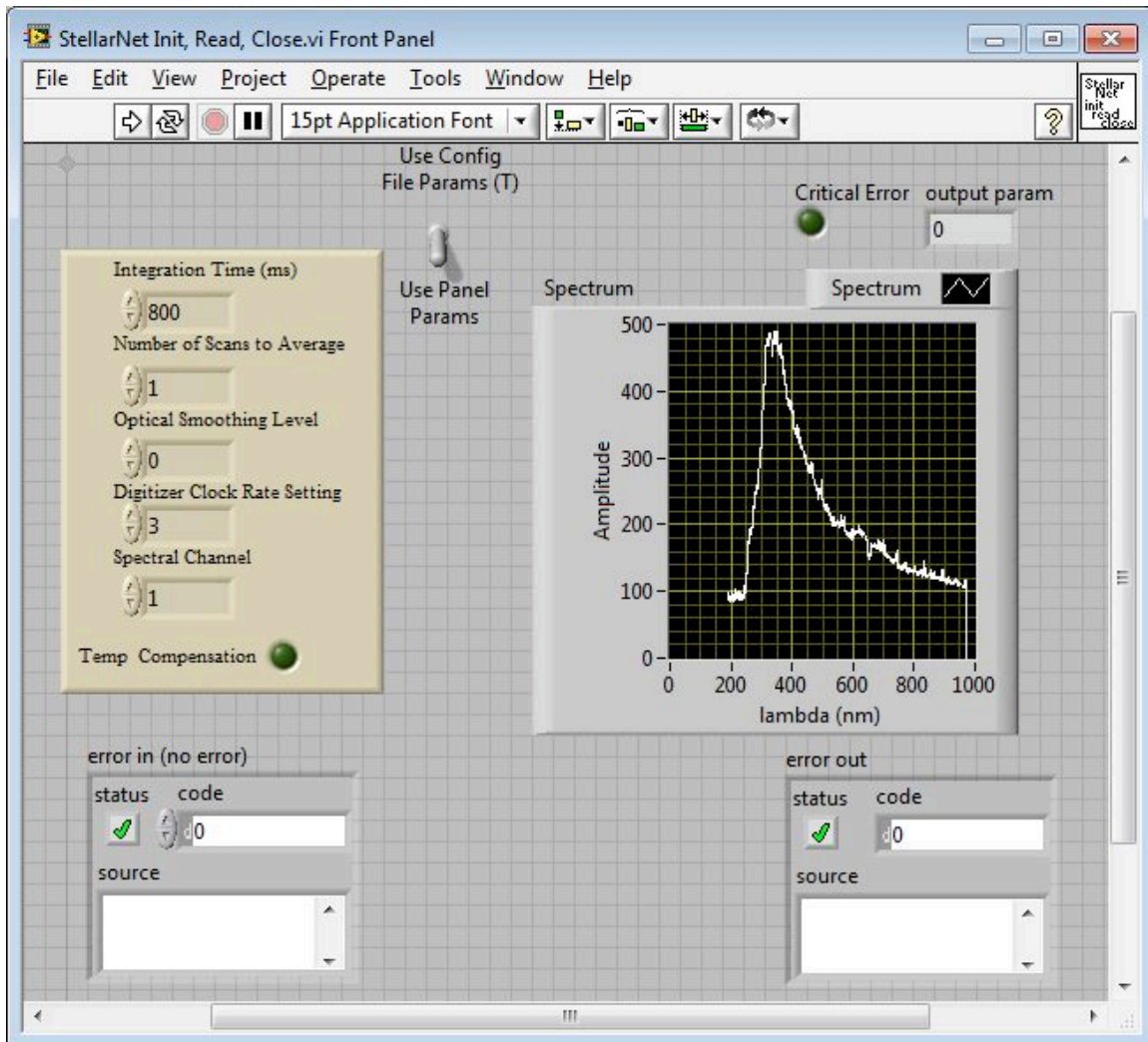
The Front Panel

Figure 1. Front Panel of StellarNet Init. Read, Close.vi. When called, indicate whether the software should use the parameters established by SpectraWiz, or front-panel (or wired-in) parameters.

Interactive or programmatic operation is simple. If the parameters established by SpectraWiz are to be used, set the Use Config File Params Boolean to True. To use front-panel (or wired-in) parameters instead, set this Boolean to False. On execution, the spectrum is acquired and made available on the connector pane.
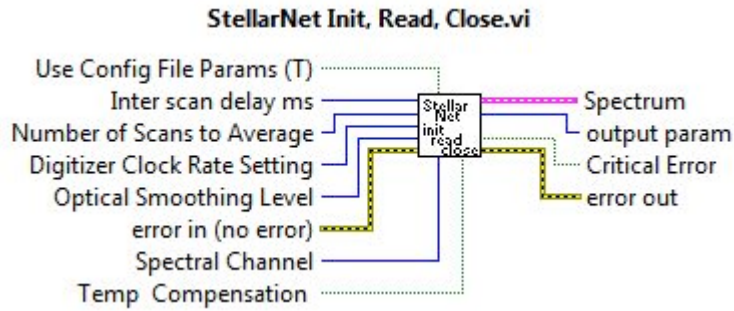
StellarNet Init, Read, Close.vi
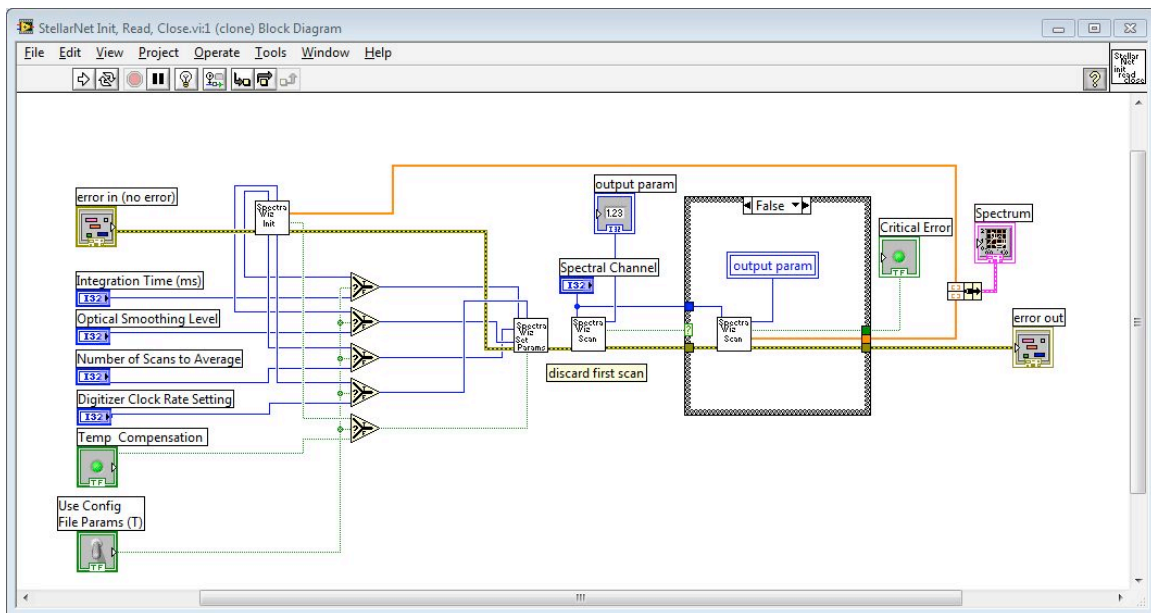
Figure 2. The connector pane.

Figure 3. The VI's construction is straightforward. Initialization is performed and the values retrieved from sw.ini (the parameter file created by SpectraWiz) are retrieved. These are either used or supplanted by the front-panel (or wired-in) parameter values. A parameter update is performed, and the spectrum is retrieved. If an error occurs during the scan process, the LabVIEW error cluster is updated, allowing downstream processes to detect and handle the error gracefully.

Example Usage

We include a simple example of how to use this subVI in a program. Figure 4 shows the front panel of an application which performs timed spectral measurements, plotting the spectrum with each iteration and charting the maximum intensity and its wavelength over time. Figure 5 shows the wiring diagram and notes several details of the program's construction that are worth noting.
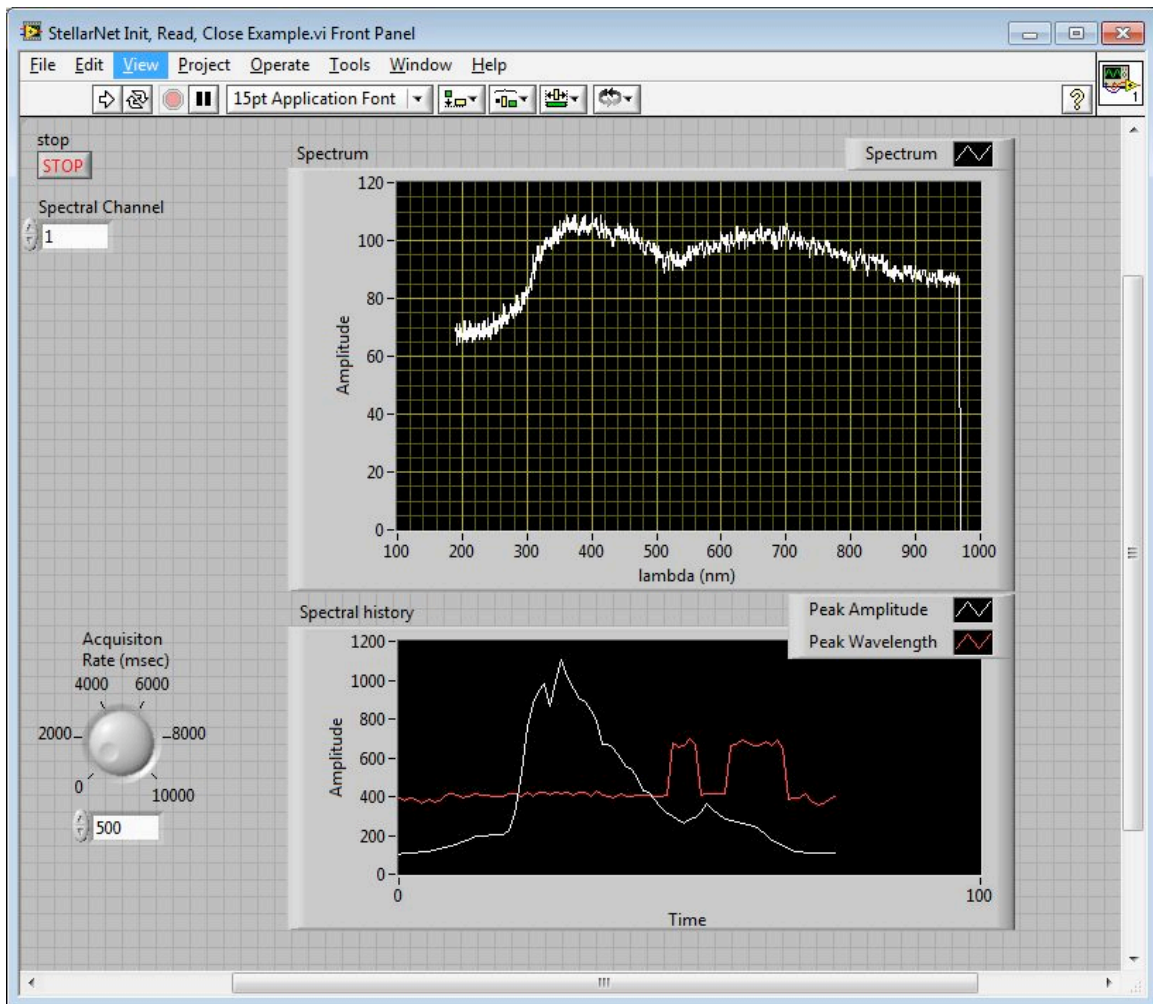

Figure 4. This simple example performs a timed measurement, plotting the spectrum with each iteration and charting the peak amplitude and its associated wavelength over time.
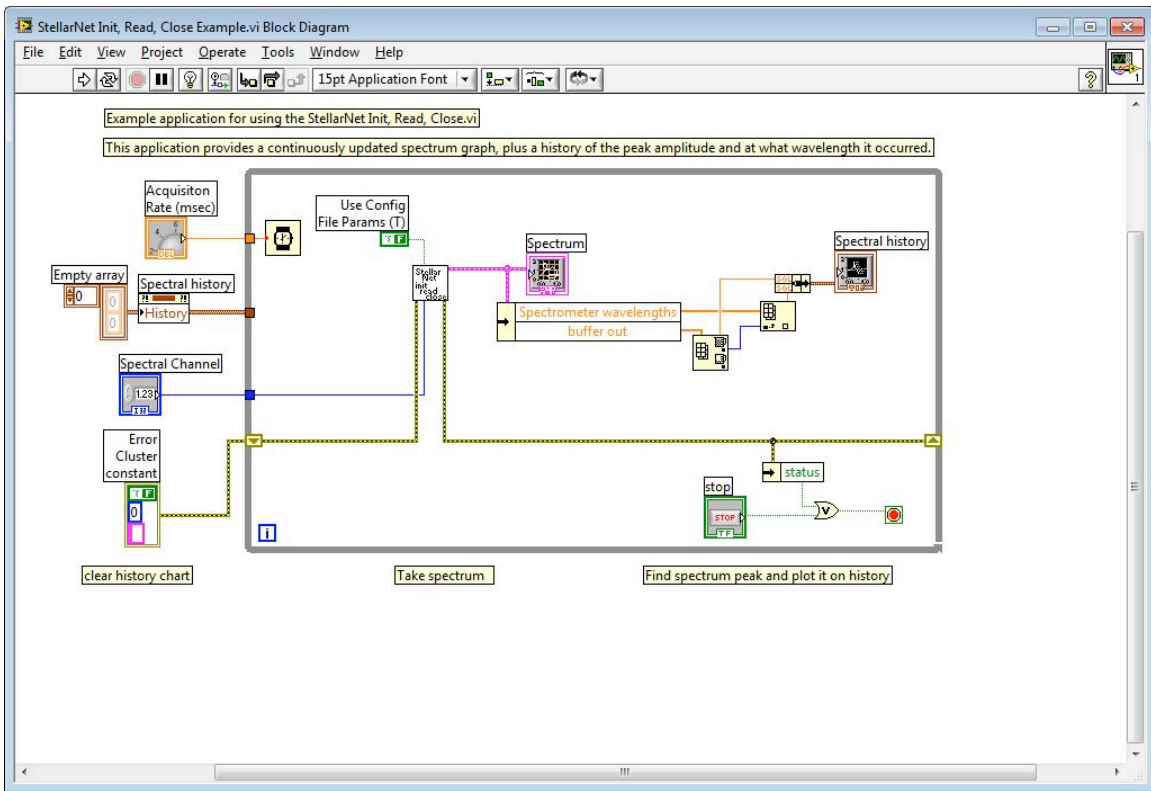
Figure 5. The example VI illustrates how to use the StellarNet Init, Read, Close.vi. Note how the error cluster is recirculated with each iteration and examined for an error after each reading. If an error is encountered (or the user presses the front-panel Stop button), execution ceases. Each spectrum is graphed, and its maximum amplitude plotted along with the wavelength at which the maximum occurred.