Using Test Panels in Measurement & Automation Explorer for Devices Supported by NI-DAQmx

Updated Nov 6, 2020

Environment ⓘ

Driver

- NI-DAQmx

The National Instruments Getting Started with NI-DAQmx Series is aimed at helping you learn NI-DAQmx programming fundamentals. Through video and text tutorials, this series will take you from verifying your device's operation in Measurement & Automation Explorer (MAX) to programming data acquisition applications using LabVIEW. It is intended for both the beginner who wants to learn how to use the DAQ Assistant, as well as the experienced user who wishes to take advantage of advanced NI-DAQmx functionality.

This document covers the details of using test panels in Measurement & Automation Explorer (MAX) for testing and debugging hardware signals. Test Panels provide you with the lowest possible and direct access to the actual signals being read or generated by a device. Although this document primarily mentions about using test panels for NI-DAQmx devices and tasks, but its also possible to use Test Panels for Traditional NI-DAQ Virtual Channels.

This document is part of the
Getting Started with
NI-DAQmx Series

Before You Begin

While creating this document, following versions of different software were used.

- Measurement & Automation Explorer (MAX) Version 4.0
- NI-DAQmx Driver Version 8.1

It's not required to have these versions of software installed on your system, but some functionality and few display options might differ from the ones depicted in this document and your system. Kindly keep in mind that the various items shown under My Systems in MAX would depend on a specific system configuration. National Instruments highly recommends that you upgrade to the latest possible drivers for your system.

Opening a Test Panel

Using Measurement & Automation Explorer you can open up a Test Panel for a device, task or a global virtual channel. The functionality of the Test Panel would differs in each case. For example, if a Test Panel is launched for a device, then it would contain different tabs which will let you test different functionality of the device such as analog input, analog output etc. In any of these cases, the test panels could be launched by highlighting the specific item under My Systems and then clicking on the "Test Panels" or "Test" button. Figure 1 illustrates how to launch a Test Panel for a NI-DAQmx device. Figure 2 shows how to launch a Test Panel for a NI-DAQmx task.
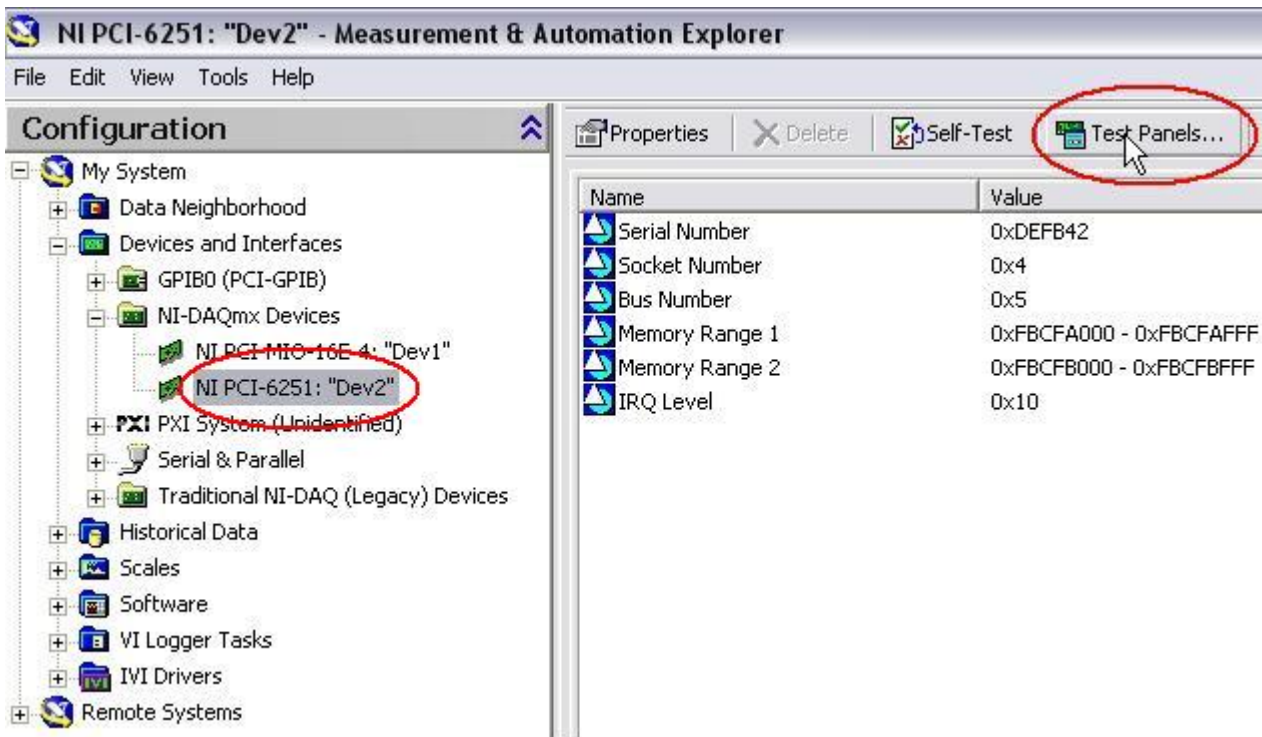
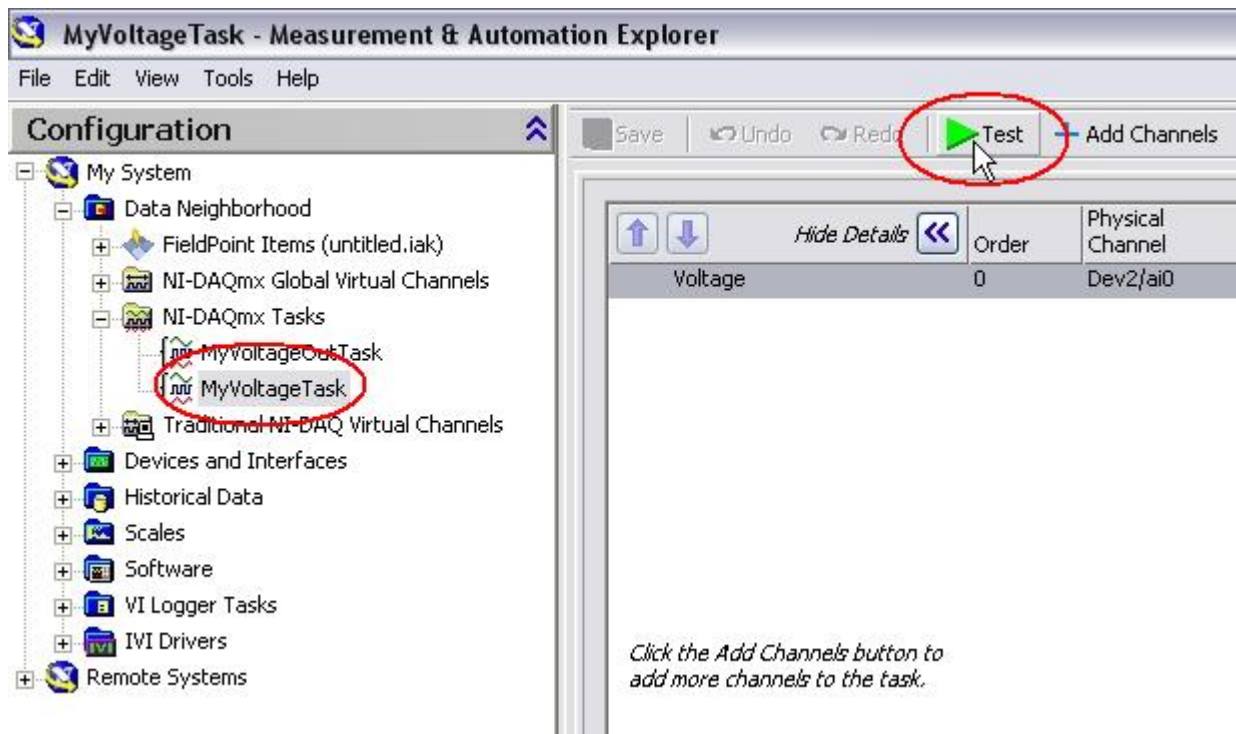Figure 1: Launching a Test Panel for a NI-DAQmx Device.

Figure 2: Launching a Test Panel for a NI-DAQmx Task

Test Panels for a NI-DAQmx Device

Like mentioned previously, when a Test Panel is launched for a device, you would have the ability to test all of the different hardware features for that specific device. M-Series multifunction DAQ devices are capable of analog input/output, digital input/output and counter input/output tasks. Therefore, using the device Test Panel you would be able to test all of these features. As an application instance, you can wire an analog output into the analog input of the same device and then use the Test Panel to generate a voltage on the analog output and read it at the same time using the analog input tab. Figure 3 shows a Test Panel for a PCI-6251. Notice how you can test the various functionality of the device by using the different available tabs.
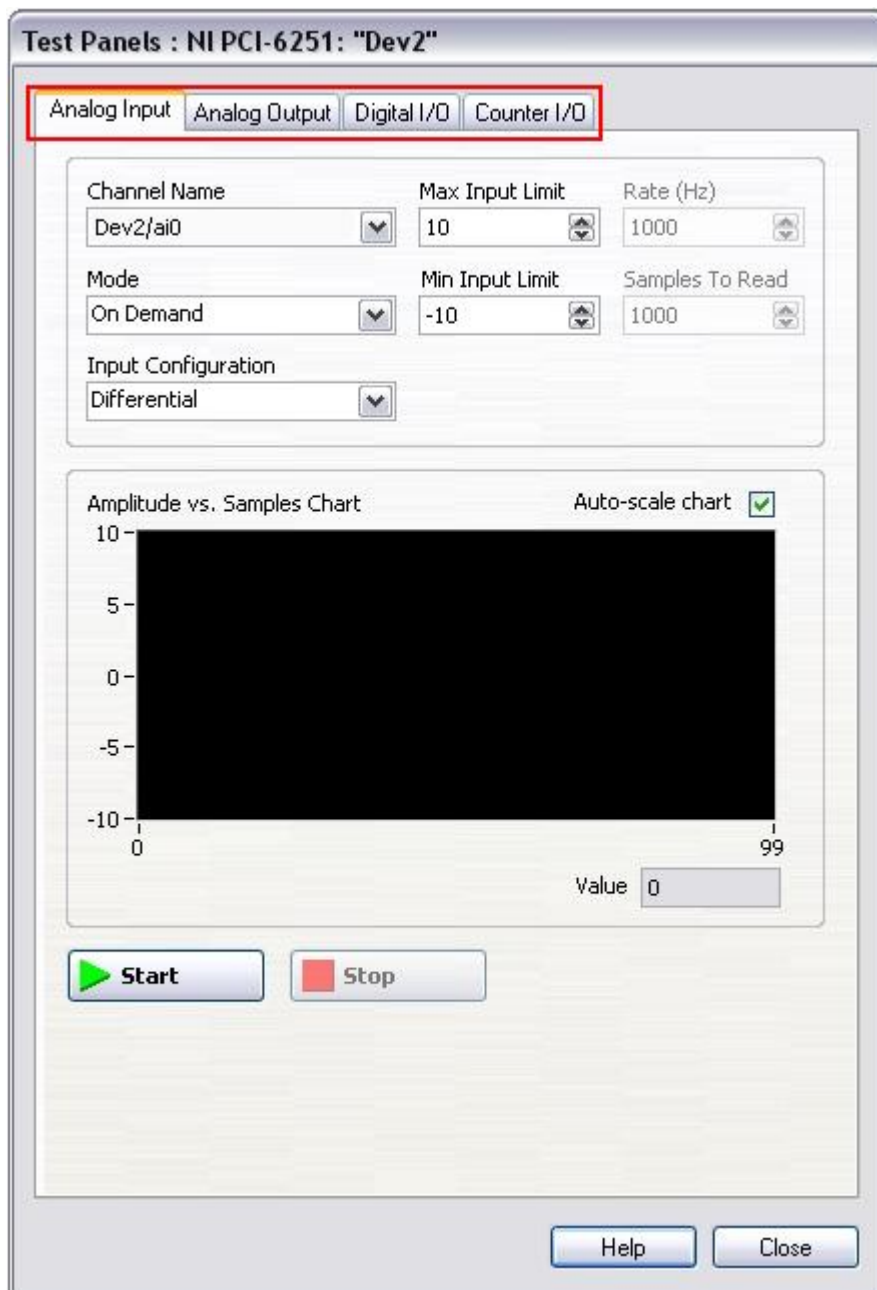
Figure 3: Test Panel for a PCI-6251

Test Panel for a specific NI-DAQmx Task

Whenever you open a Test Panel for an NI-DAQmx task, the functionality that is offered by the Test Panel would depend on the type of task and its configuration. A Test Panel for an analog input task would be different than for a digital input task. Figure 4 & 5 illustrate the Test Panels for an analog input task and an analog output task respectively. In Figure 4, the analog input task was configured for continuous acquisition with a sampling rate of 1KHz and samples to read as 100. A square wave was connected to the device input to test the actual acquisition. In Figure 5, the analog output task had similar task attributes as those for the analog input task.
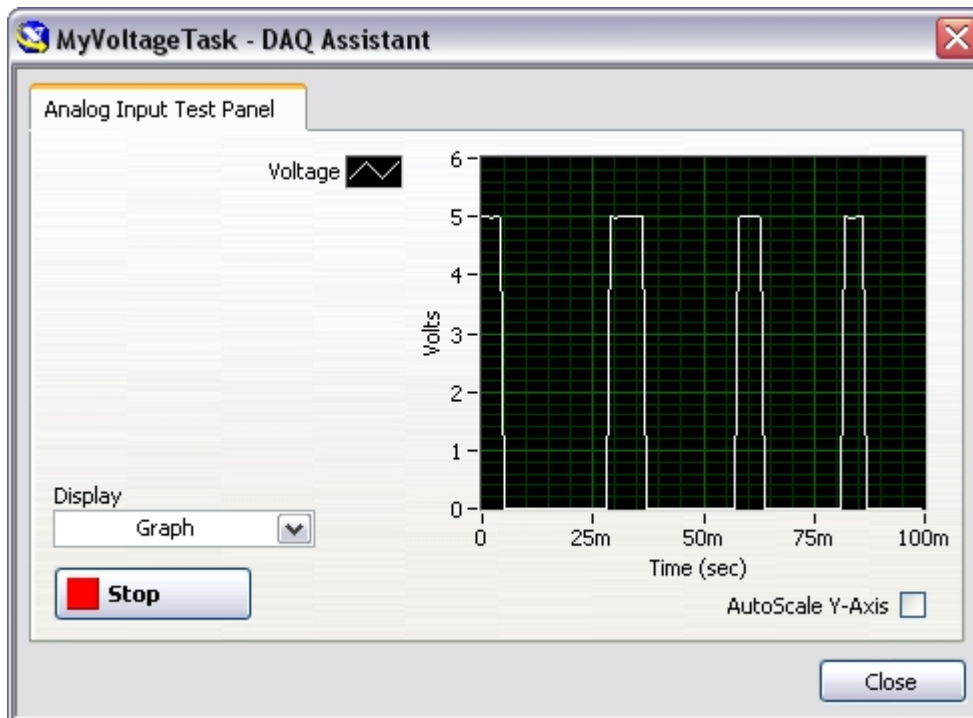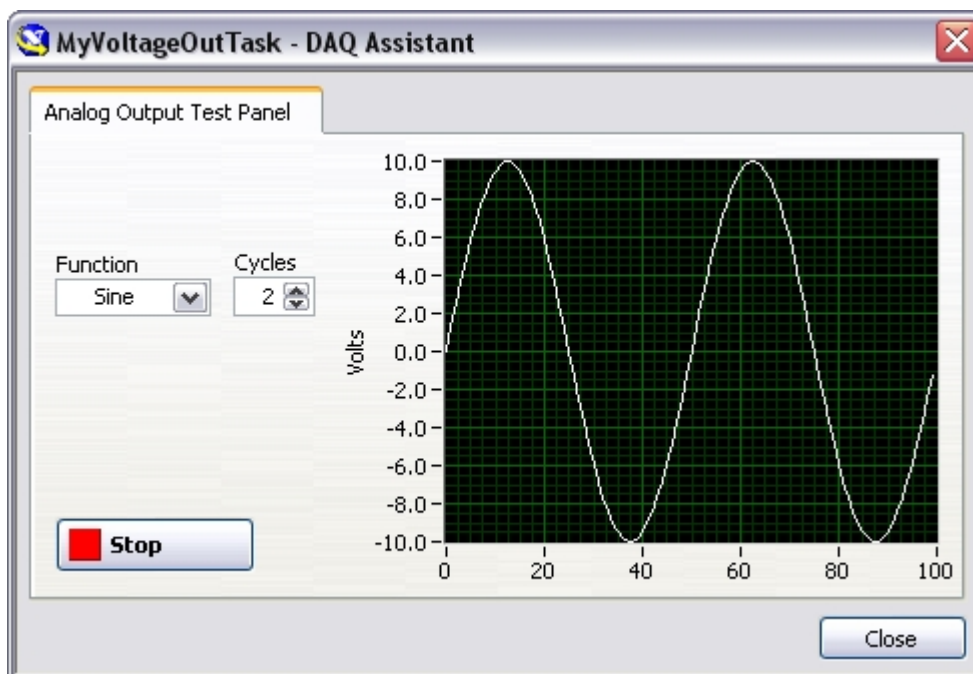
Figure 4: Test Panel for a Analog Input Task

Figure 5: Test Panel for a Analog Output Task

Test Panel for a specific NI-DAQmx Global Virtual Channel

Since an NI-DAQmx global virtual channel does not contain any timing information, the Test Panel would only show or generate single point values for the specific channels. Figure 6 shows a Test Panel for an analog input global virtual channel.
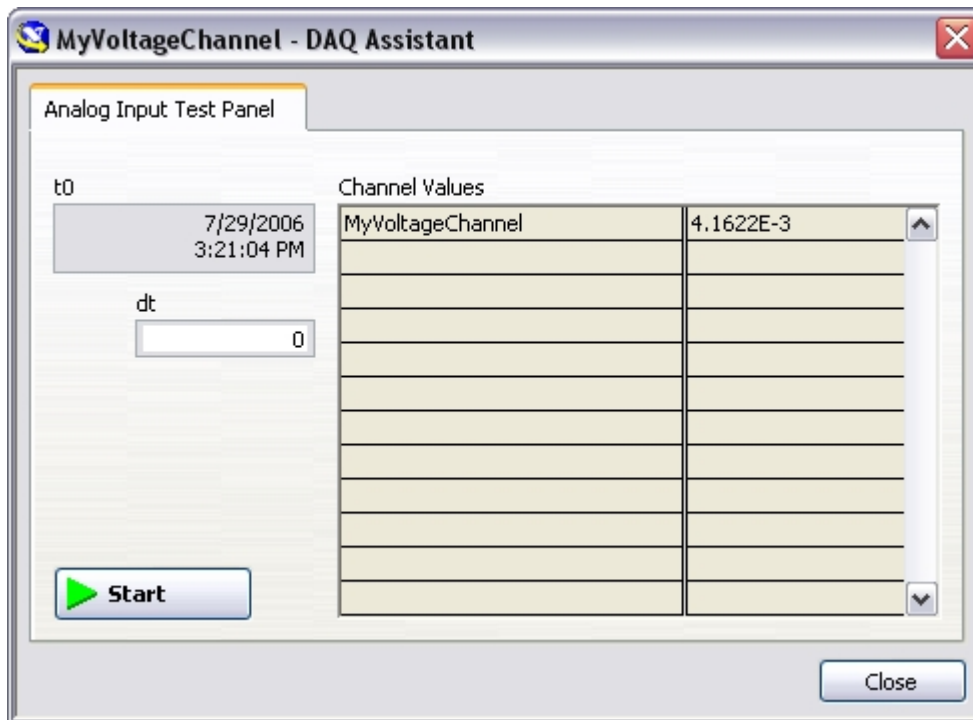
Figure 6: Test Panel for a Analog Input Global Virtual Channel

Conclusion

Test Panels provide a excellent way to test and troubleshoot the actual signals being acquired or generated by a device. A Test Panel can be launched on NI-DAQmx supported devices to test device, task and channel functionality. The functionality available in a test panel depends upon the specific device and/or task configuration.

Other Support Options

Ask the NI Community
Collaborate with other users in our discussion forums
- Search the NI Community for a solution

Request Support from an Engineer
A valid service agreement may be required, and support options vary by country.
- Open a service request
- Purchase or renew support services