

Walkthrough: Creating a Measurement Studio NI-DAQmx Application



Note To complete this walkthrough, you must have either the Measurement Studio Professional or Measurement Studio Enterprise package installed. This walkthrough requires the DAQ Assistant, which is not included in the Measurement Studio Standard package.

This walkthrough is designed to help you learn how to create an NI-DAQmx application by taking you through the following steps:

- **Setting up the project**—Using the Measurement Studio DAQ Application Wizard, you will create a new project that references the NI-DAQmx assembly and launches the DAQ Assistant to create an NI-DAQmx task.
- **Configuring your task**—Using the DAQ Assistant, you will interactively configure and save your task. The wizard then generates code to reflect your configuration settings. The wizard also generates a component that provides common operations for your task and integration with the Windows Forms designer.
- **Creating a custom user interface for the task**—Using the DAQ Component UI generation wizard, you will create a custom user interface that uses the DAQ component you created to automatically plot the DAQ signal.

Before You Begin

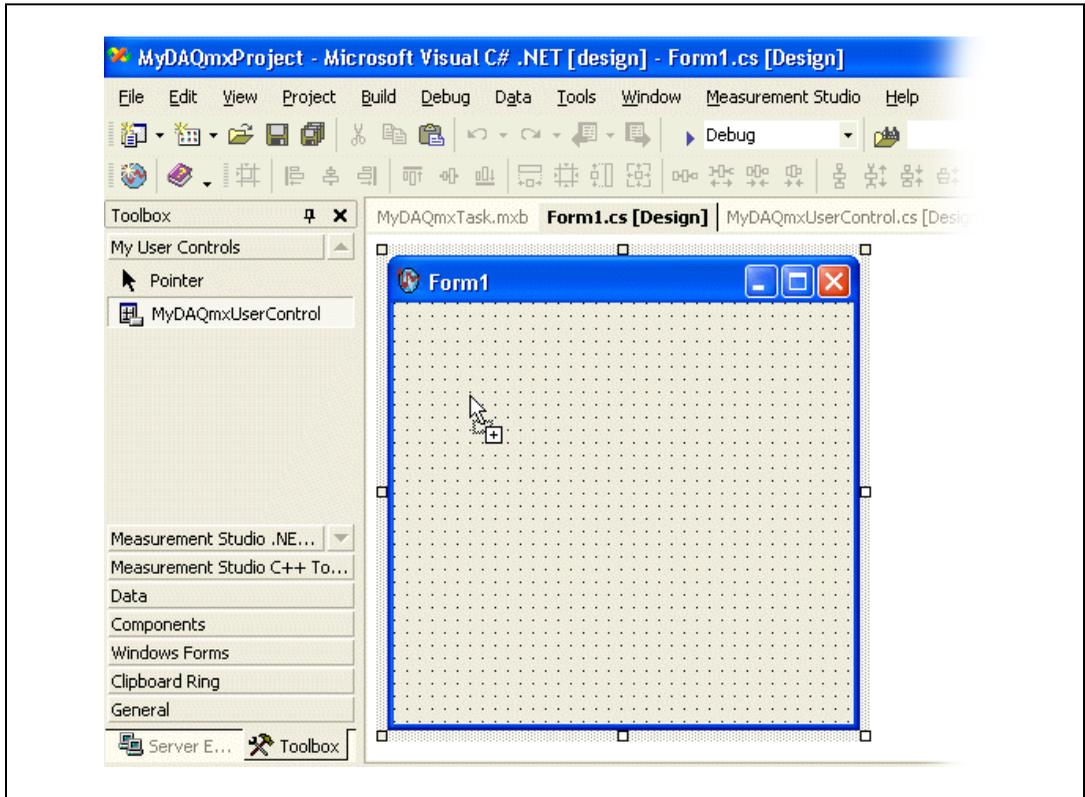
The following components are required to complete this walkthrough:

- Visual Studio 2005 or Visual Studio 2008
- Measurement Studio 8.0.1 or later (Professional or Enterprise package) for Visual Studio 2005 or Measurement Studio 8.5 or later (Professional or Enterprise package) for Visual Studio 2008
- NI-DAQmx 8.1 or later for Visual Studio 2005 or NI-DAQmx 8.7.1 or later for Visual Studio 2008
- NI-DAQmx-supported DAQ device or simulated device

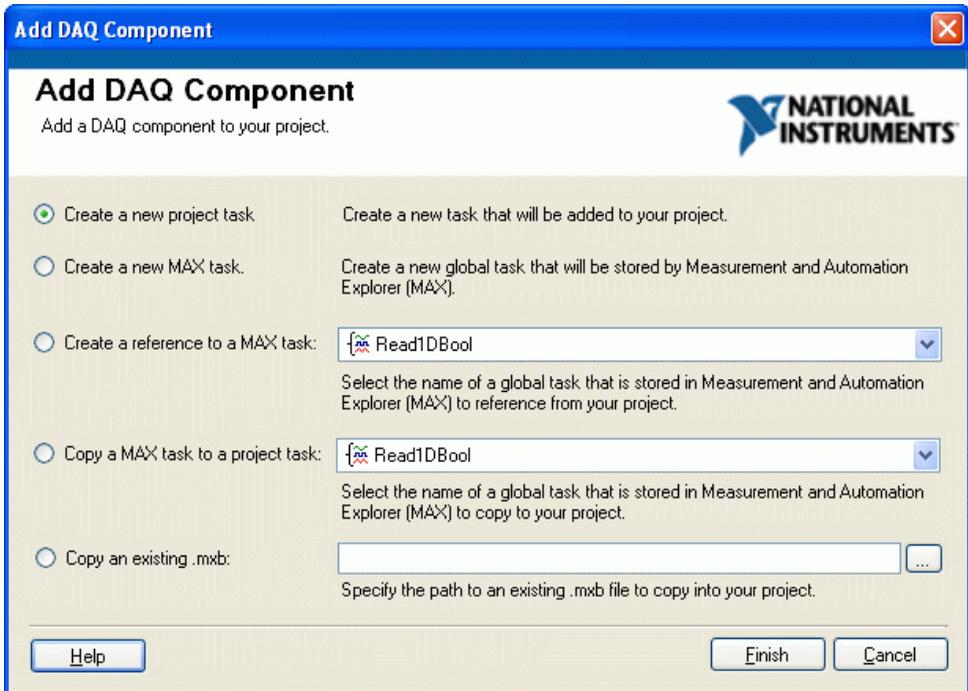
For information about installing and configuring your DAQ device, refer to the *DAQ Getting Started Guide*. You can also use a simulated device to complete this walkthrough. For information on how to create an NI-DAQmx simulated device, refer to *Creating NI-DAQmx Simulated Devices* in the *Measurement & Automation Explorer Help for NI-DAQmx*. To open this help, select **Start»All Programs»National Instruments»Measurement & Automation**. In Measurement & Automation Explorer (MAX), select **Help»Help Topics»NI-DAQmx»MAX Help for NI-DAQmx**. For the purposes of this walkthrough, the NI PCI-6280 device of the M Series DAQ family is recommended.

To Set Up the Project

1. Open Visual Studio from **Start»All Programs»Microsoft Visual Studio 2005»Microsoft Visual Studio 2005** or **Start»All Programs»Microsoft Visual Studio 2008»Microsoft Visual Studio 2008**.
2. Select **File»New»Project**. The New Project dialog box launches. In the Project types pane, expand the **Visual C#** or **Visual Basic** node, depending on which language you want to create the project in, and select **Measurement Studio**. Code generation works in both languages.
3. In the Templates pane, select **NI DAQ Windows Application**. Specify `MyDAQmxProject` for **Name** and specify a **Location** of your choice. Click **OK**. The Measurement Studio DAQ Application Wizard launches.



4. In the Add DAQ Component dialog box, you can choose to create a new project task, create a new MAX task, create a reference to a MAX task, copy a MAX task to a project task, or copy an existing .mxh. For this walkthrough, select **Create a new project task** and click **Finish**.



The Measurement Studio DAQ Application Wizard automatically sets up your data acquisition project and launches the DAQ Assistant.

To Configure Your Task

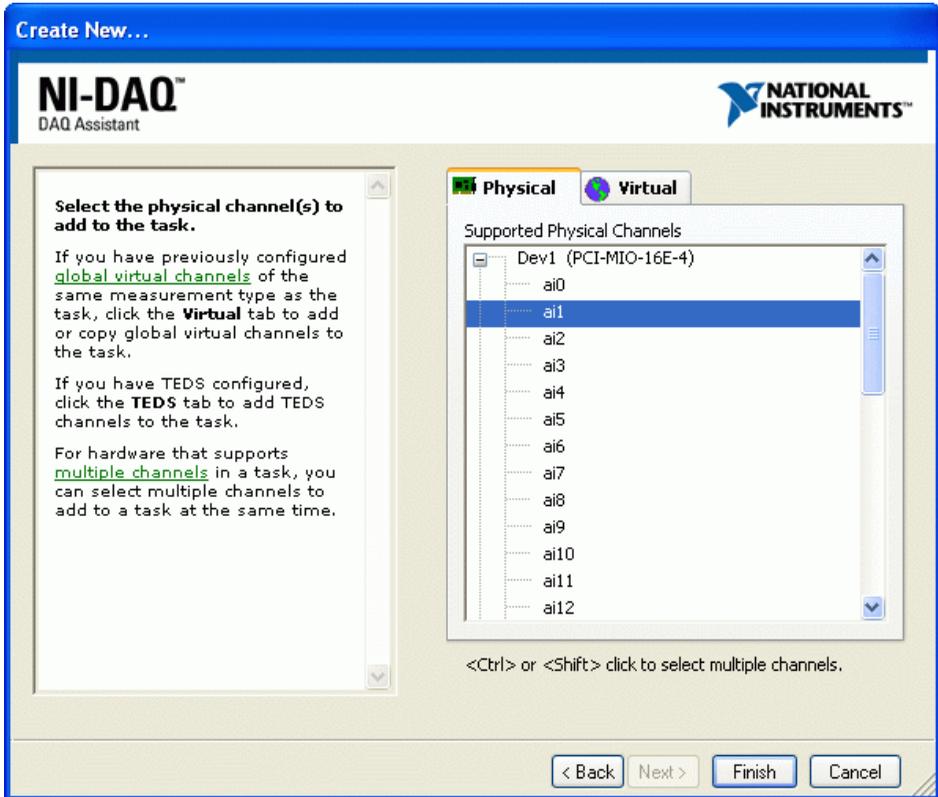
1. In the Create New dialog box of the DAQ Assistant, you can begin to interactively define your DAQ task. Select **Acquire Signals**, and then **Analog Input** as the measurement type for your task.
2. Next, select **Voltage**.



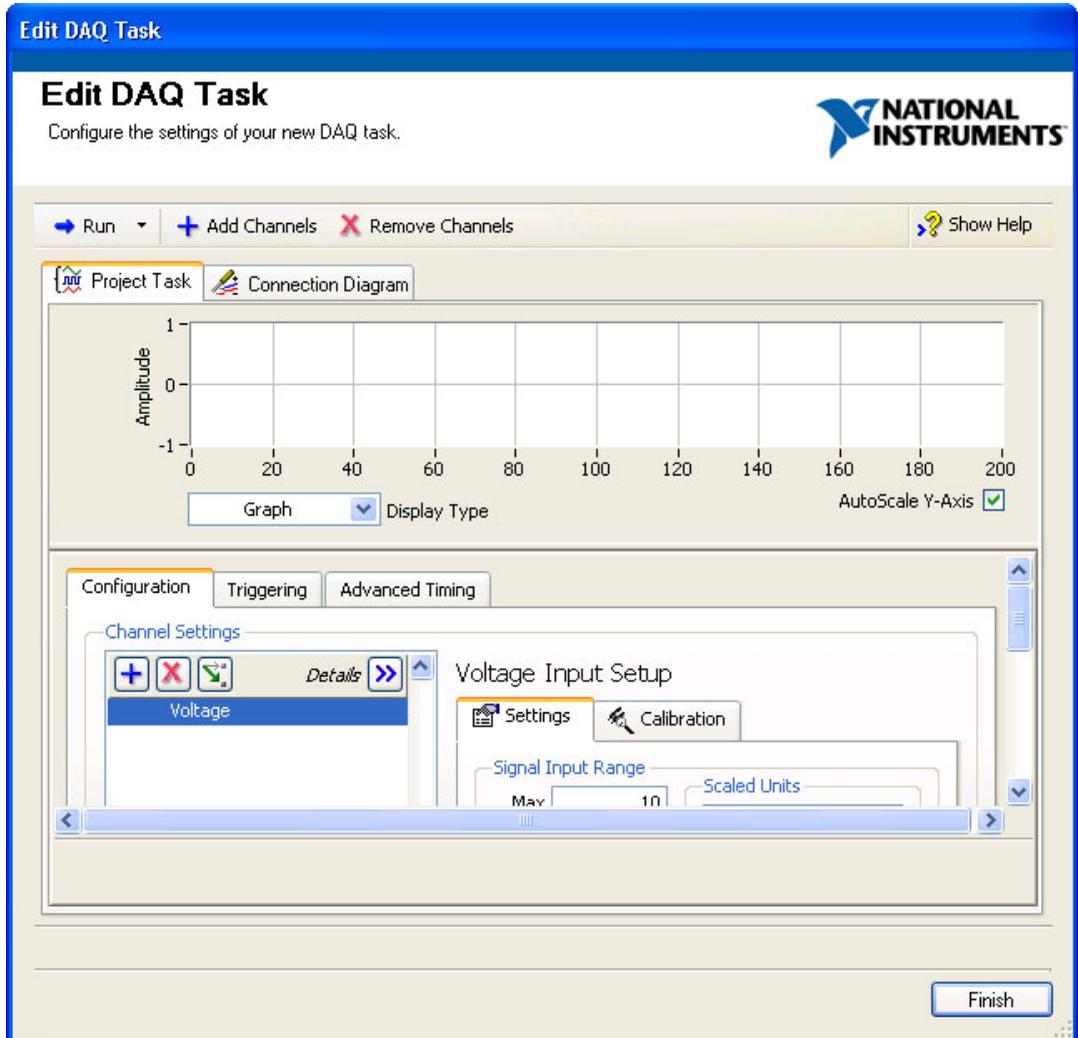
- From the **Supported Physical Channels** tree in the **Physical** tab, select the physical channel, such as **ai1**, on the DAQ device to which you connected the voltage signal. Click **Finish**.



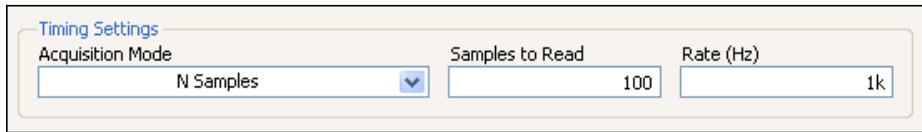
Note You can also use a simulated device in this walkthrough. For more information, refer to *Creating NI-DAQmx Simulated Devices* in the *Measurement & Automation Explorer Help for NI-DAQmx*.



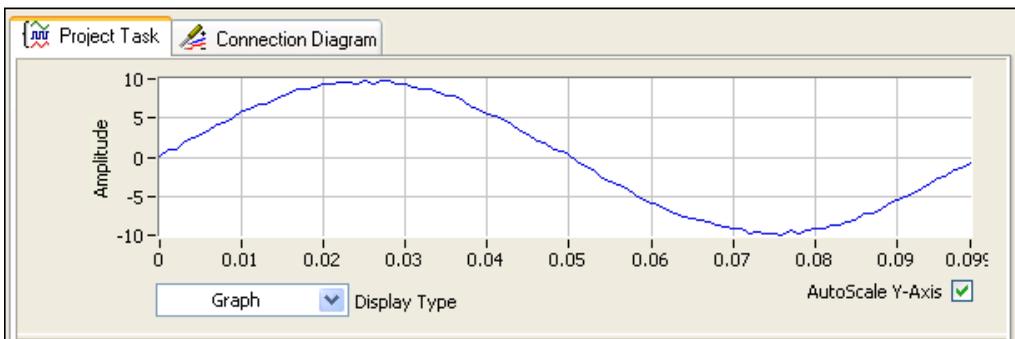
4. In the Edit DAQ Task dialog box, you can edit the configuration of your DAQ task. If the embedded DAQ Assistant help is not open by default, click the **Show Help** button in the upper-right corner of the window to display the help.



- To complete the DAQ configuration, select the **N Samples** Acquisition Mode in the **Timing Settings** section. For more information on timing, refer to Timing in the *NI-DAQmx Help*.



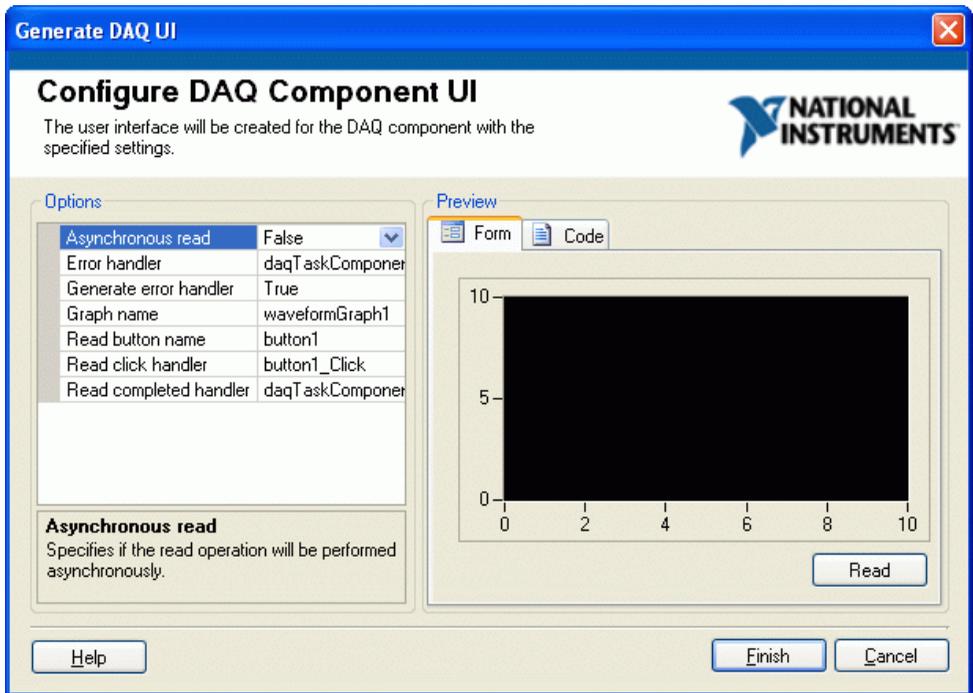
- Next, click the **Run** button in the toolbar near the top of the Edit DAQ Task dialog box. The test runs automatically. You can run the test in the DAQ Assistant to test the task and make sure you connected the signal properly. If necessary, you can modify the settings before any code is generated.



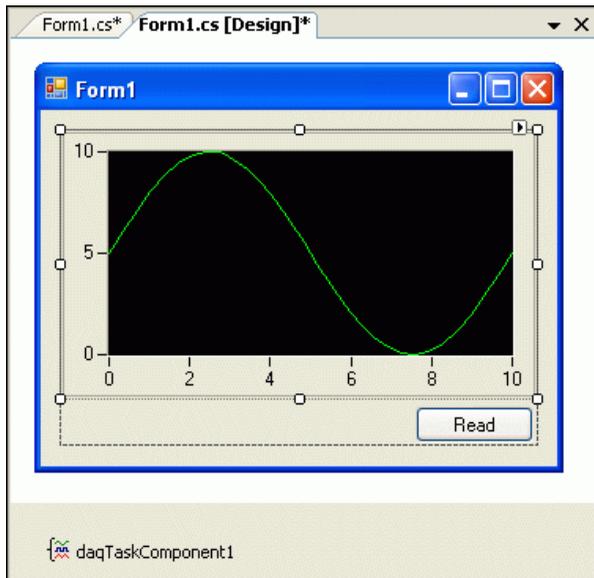
- Click the **Finish** button in the Edit DAQ Task dialog box to complete the configuration of your DAQ task and to launch the Configure DAQ Component UI wizard.

To Create a Custom User Interface for the Task

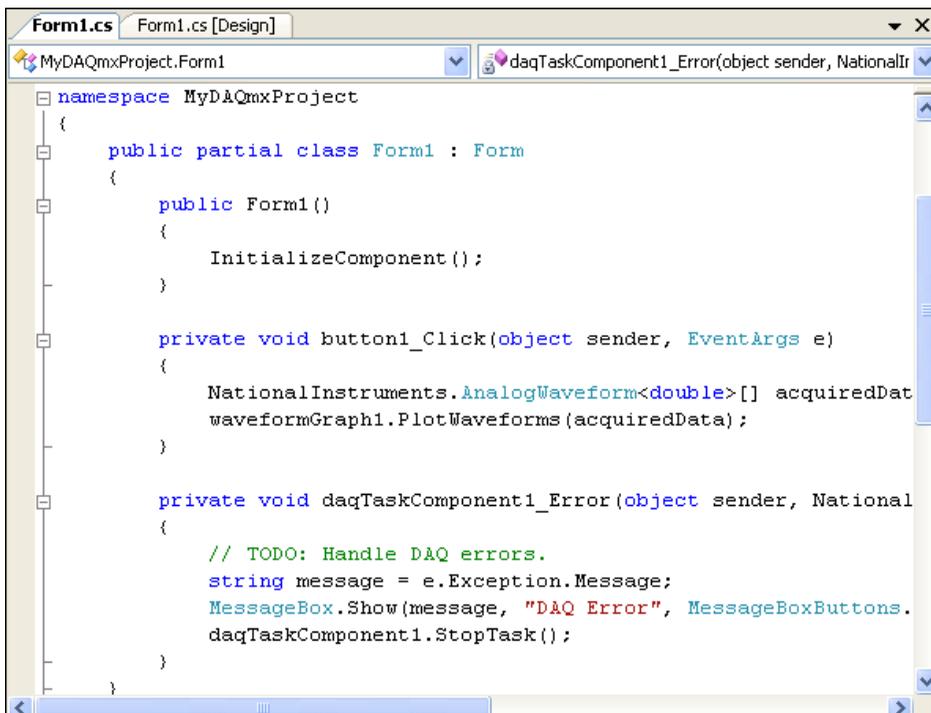
1. In the Configure DAQ Component UI wizard, you can customize and preview a user interface and code for your task.



2. Click **Finish** to generate the task user interface in your project form.

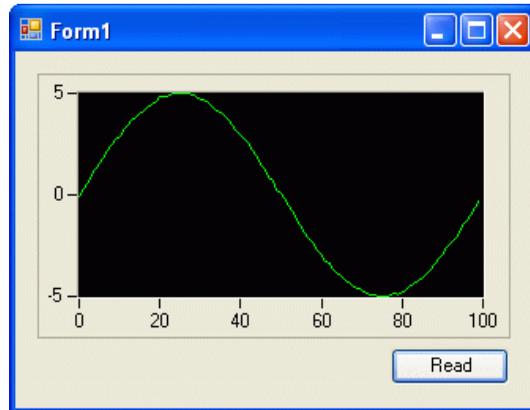


The wizard also generates event handlers and code to acquire data and present it on your generated user interface.



3. Press <F5> to run the application.

4. After you have started the application, click the **Read** button to begin acquiring data from your DAQ device.



What's Next

To learn more about tasks, channels, and other NI-DAQmx concepts, refer to the NI-DAQmx Help located at **Start»All Programs»National Instruments»NI-DAQ»NI-DAQmx Help**.

For more information about creating and using tasks in Measurement Studio, refer to *Using the Measurement Studio NI-DAQmx .NET Library*.

You can also look at examples that ship with NI-DAQmx. Refer to *Measurement Studio NI-DAQmx .NET Examples* for the locations of these examples.