



Kepware Technologies

KEPServerEX Client Connectivity Guide for National Instruments' LabVIEW



Table of Contents

- 1. Overview and Requirements 1
- 2. Setting KEPServerEX to Interactive Mode..... 1
- 3. Creating a LabVIEW Project 2
 - 3.1 Creating Bound Variables 6
 - 3.2 Adding an I/O Control to the VI 8
- 4. Using Kepware’s OPC Quick Client 9

1. Overview and Requirements

This guide intends to demonstrate how to establish a connection between the KEPServerEX OPC server and a LabVIEW project. Users must complete the following before continuing with this tutorial:

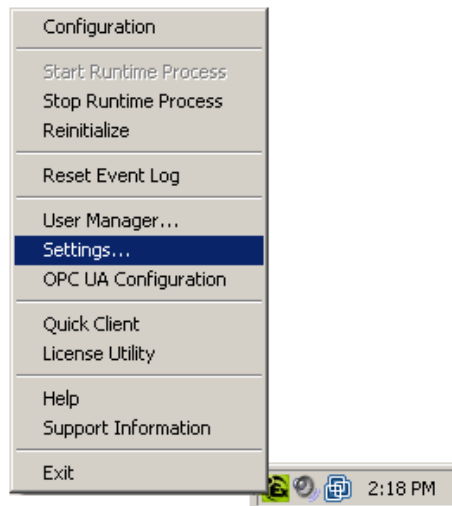
- Configure a server project. Users may either select the appropriate driver and settings or run the **Simulation Driver Demo** that is included with KEPServerEX. The Simulation Driver Demo project will be used for all examples in this tutorial.
- Start KEPServerEX and load the Simulation Driver Demo project. Once the server project has been loaded, open the Runtime menu on the main menu bar and verify that the server project is connected.

Note: LabVIEW version 8.6.1 is used in this tutorial. Its installation must include the Datalogging and Supervisory Control (DSC) module in order to connect with an OPC data server.

2. Setting KEPServerEX to Interactive Mode

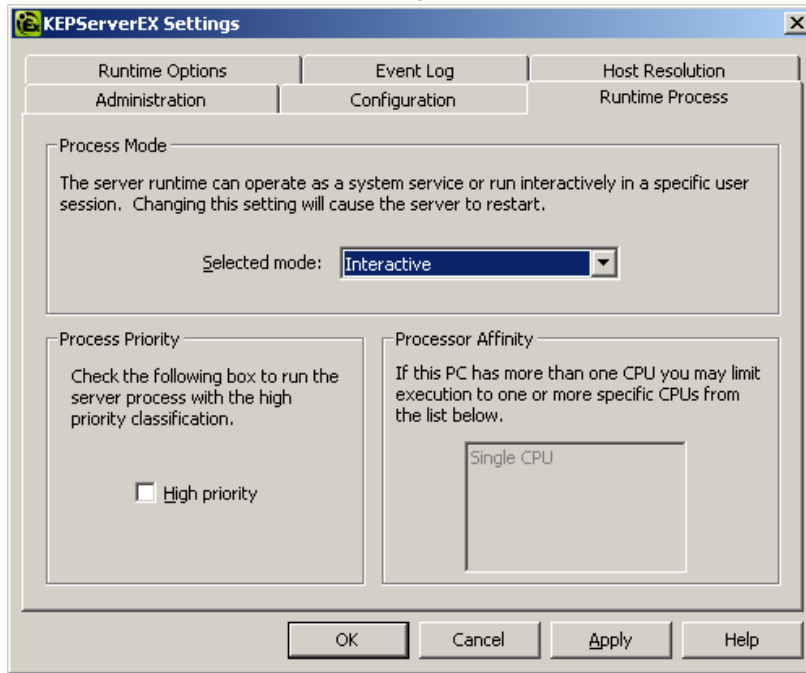
Before the LabVIEW project is created, the OPC server Runtime must be started. National Instruments also recommends that the OPC server be placed in Interactive Mode. For more information, refer to the instructions below.

1. To start, right-click on the Administrative icon located in the System Tray. Then, select **Settings**.



2. Next, open the **Runtime Process** tab.

3. Beneath **Process Mode**, change the **Selected Mode** to **Interactive**.

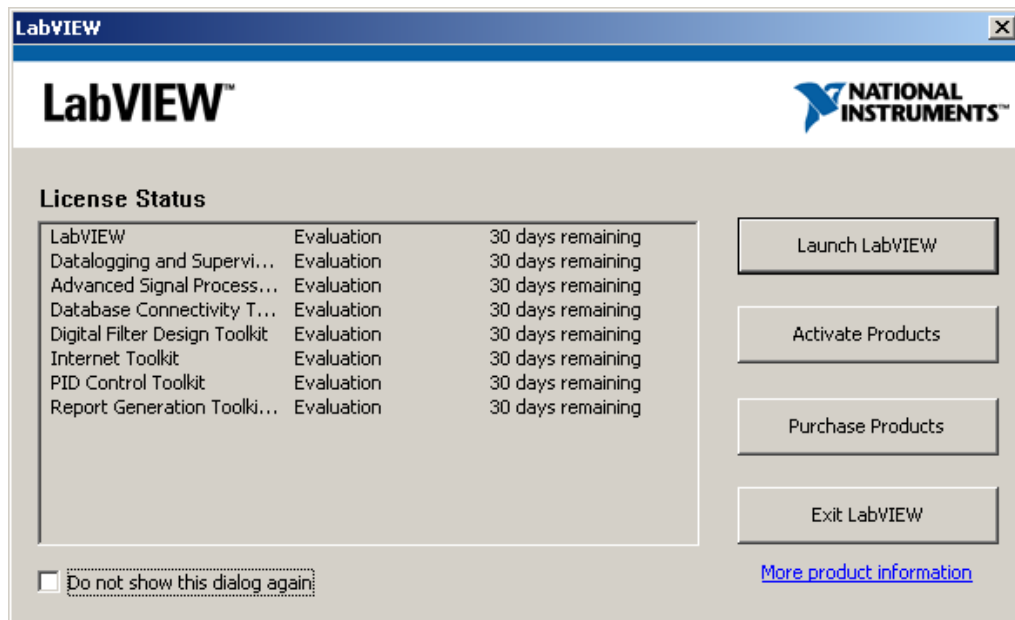


4. Then, click **OK** to apply the changes.

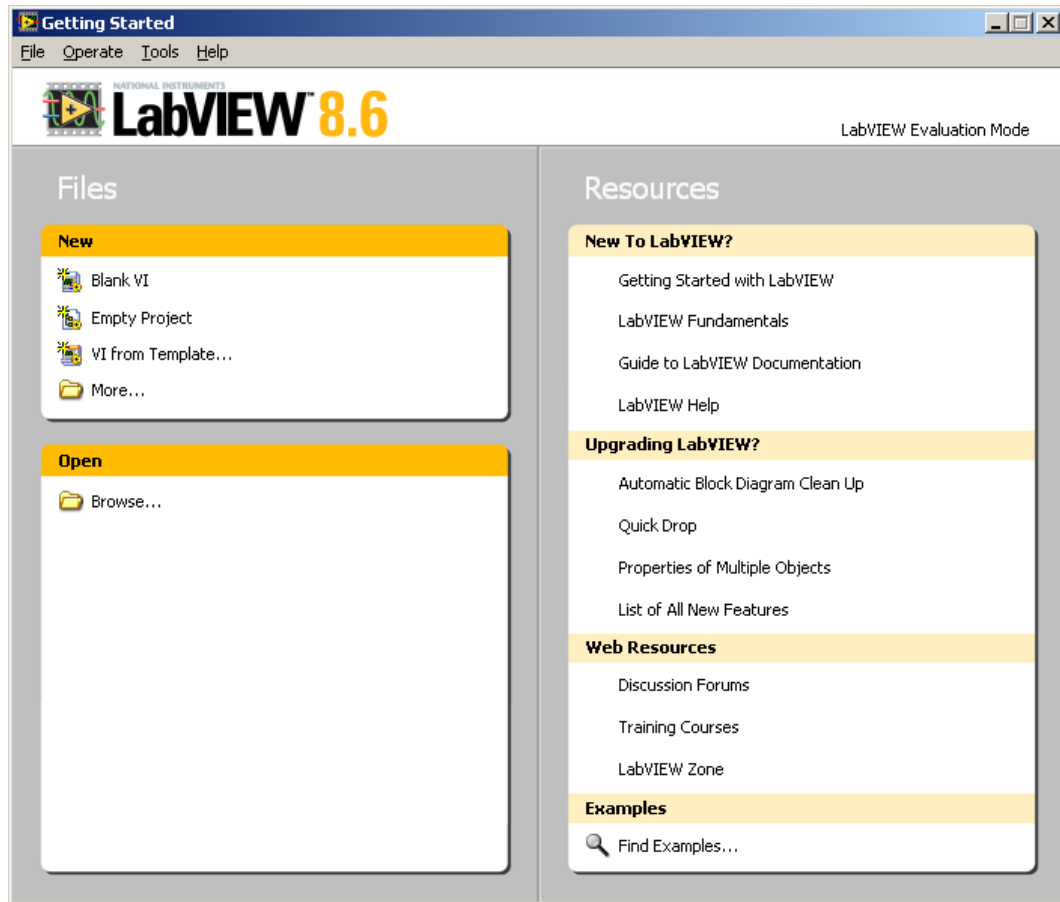
Note: KEPServerEX's Runtime must be running during the configuration of the LabVIEW project. Users should also ensure that the Simulation Driver Demo project has been loaded into KEPServerEX.

3. Creating a LabVIEW Project

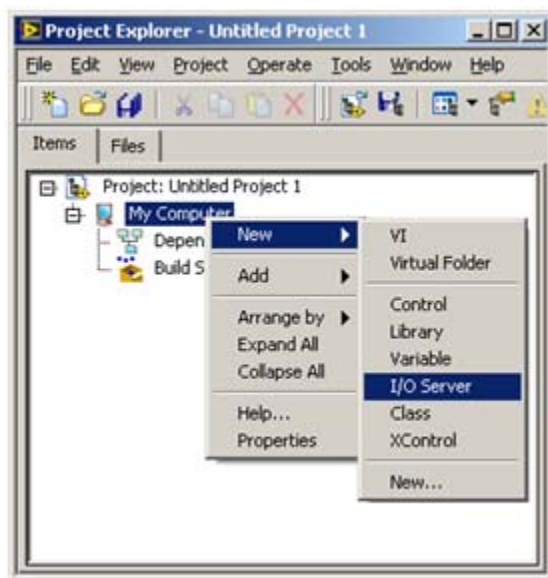
1. To start, open LabVIEW by clicking **Start | Programs | National Instruments LabVIEW8.6**. Then, click **Launch LabVIEW**.



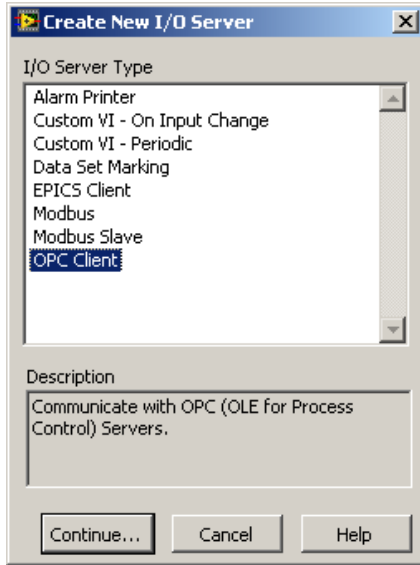
2. In **Getting Started**, select **Empty Project**.



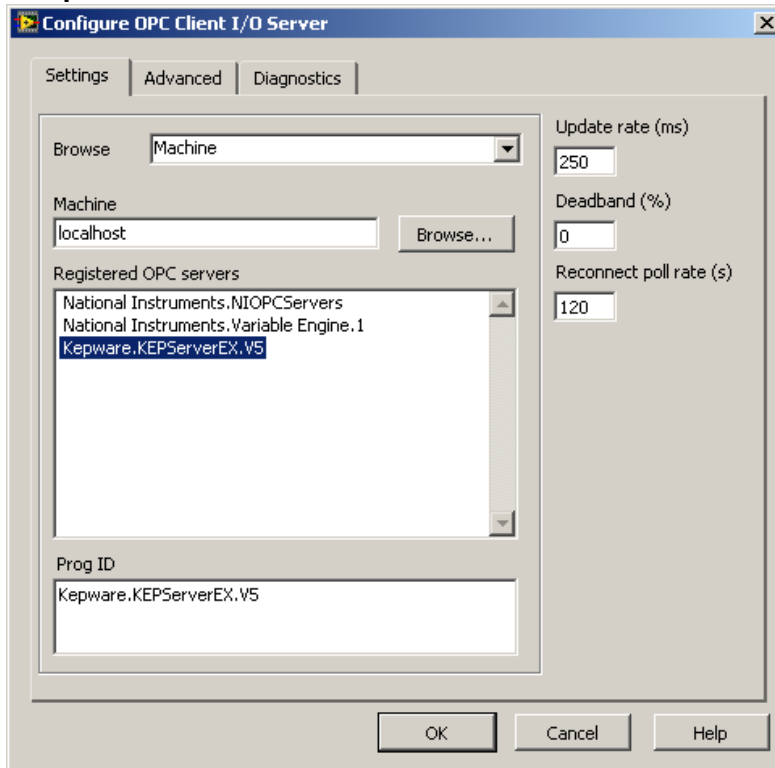
3. In the **Project Explorer**, right-click on **My Computer** and then select **New I/O Server**.



4. In **Create New I/O Server**, select **OPC Client**. Then, click **Continue**.

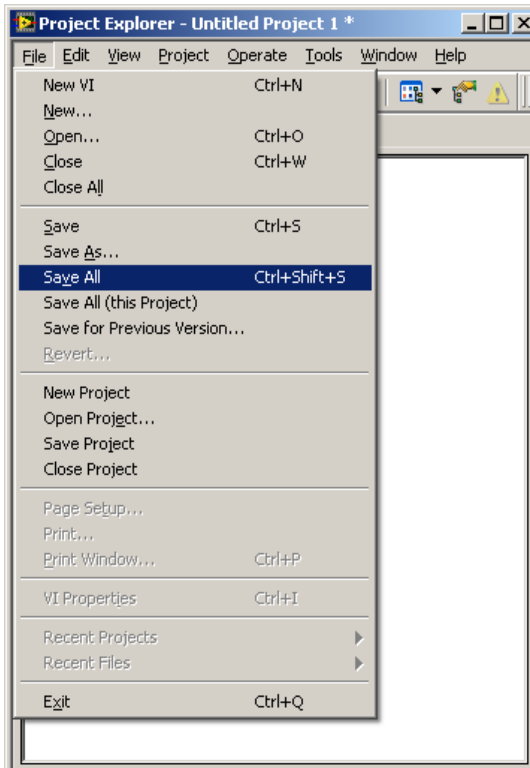


5. In **Configure OPC Client I/O Server**, open the **Settings** tab. For the machine "localhost," select **Kepware.KEPServerEX.V5** from beneath **Registered OPC Servers**.
6. In **Update Rate**, set the value to 250 ms.

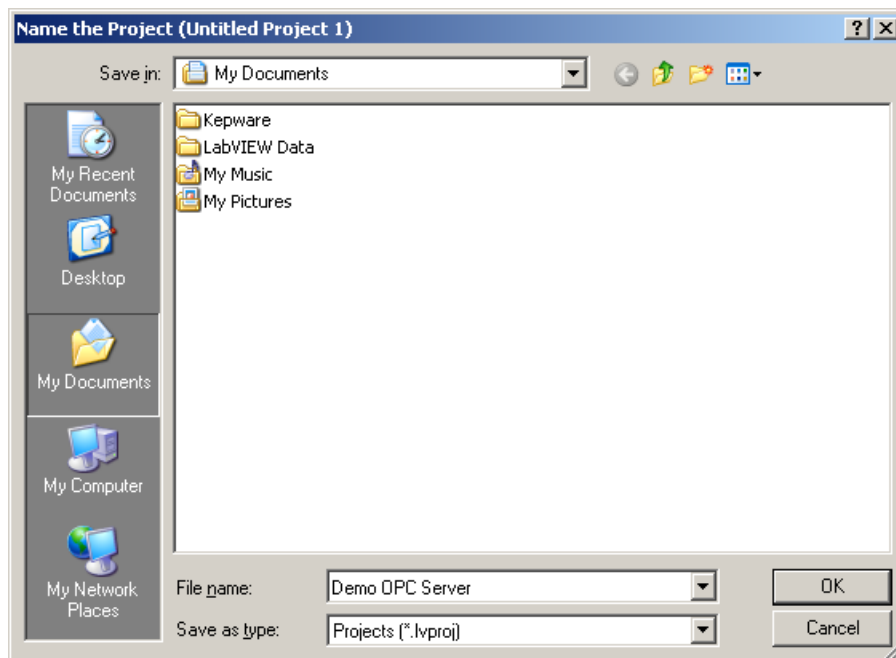


7. Upon completion, click **OK**.

8. In the Project Explorer, click **File | Save All**.

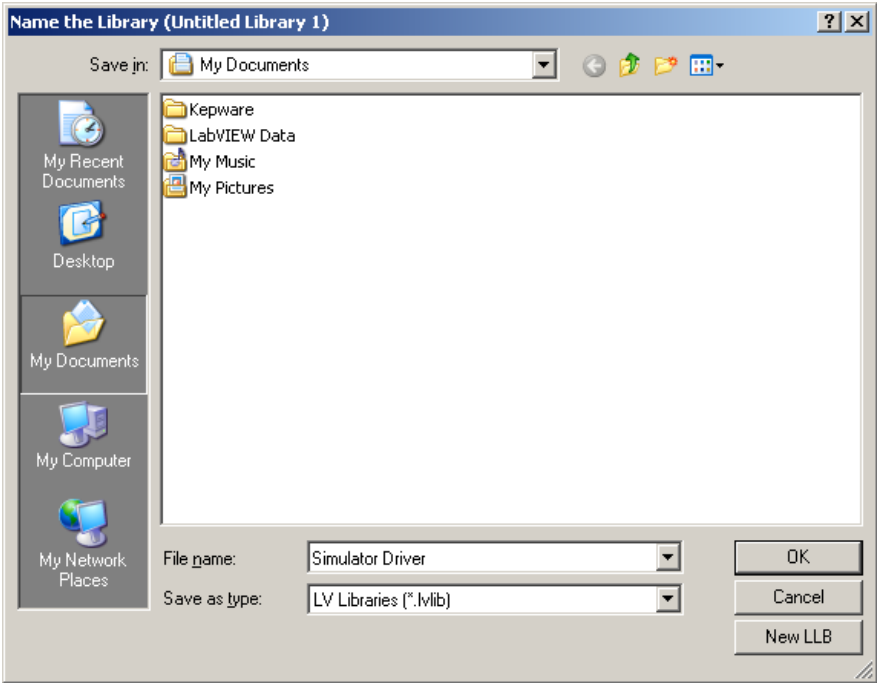


9. In **File Name**, enter "Demo OPC Server." Then, click **OK**.



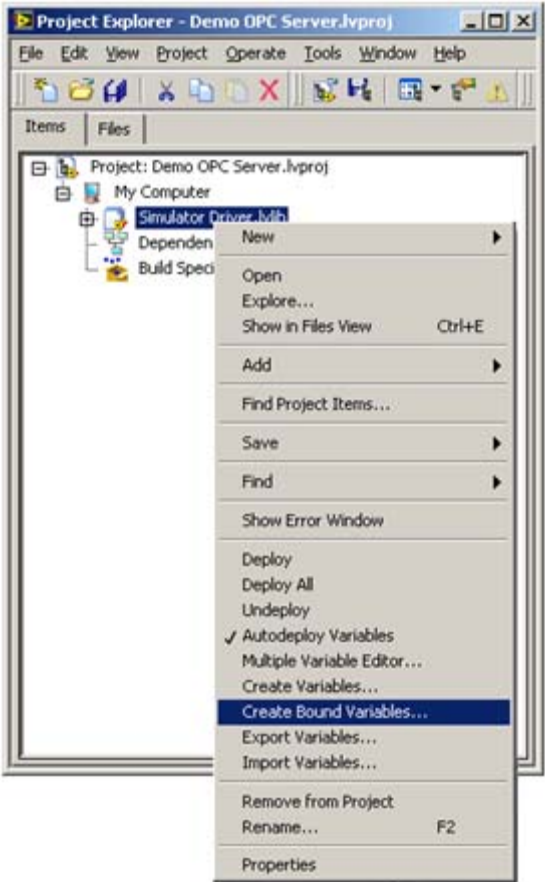
Note: The **Name the Library (Untitled Library 1)** dialog will then be invoked.

10. In **File Name**, enter "Simulator Driver." Then, click **OK**.



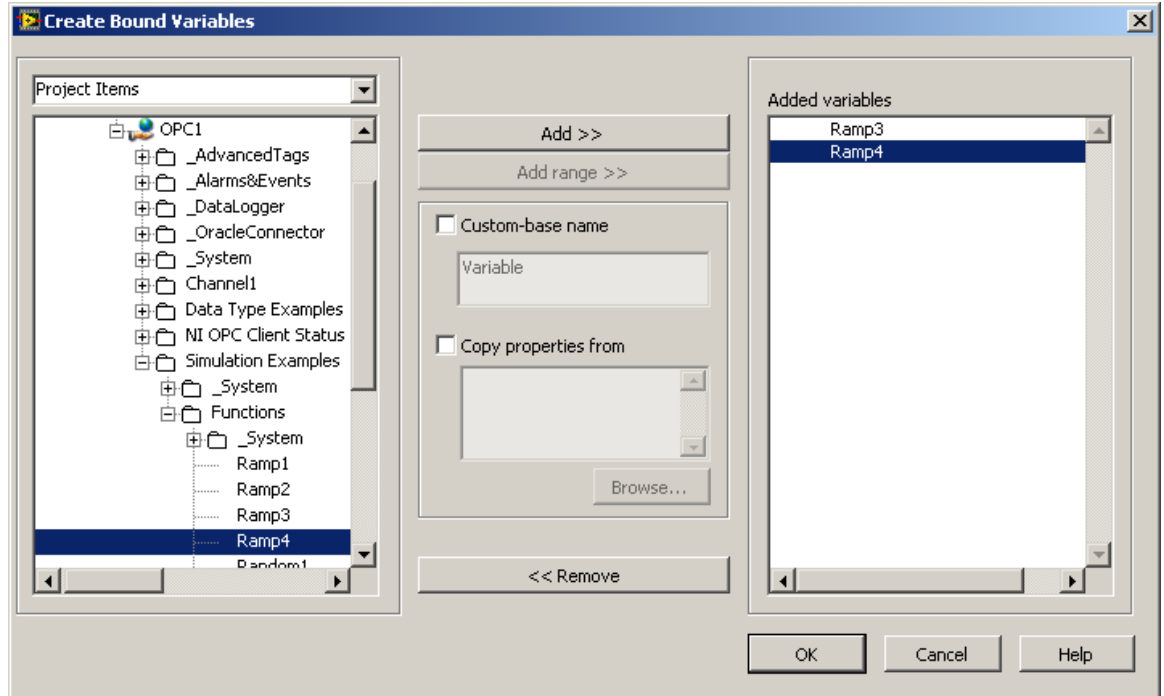
3.1 Creating Bound Variables

1. In the Project Explorer, right-click on **Simulator Driver.lvlib** and then select **Create Bound Variables**.



- In **Create Bound Variables**, expand the project tree beneath **Project Items** until all the folders beneath **OPC1** are visible. Then, open **Simulation Examples** and **Functions**.
- Next, select the tag "Ramp3" and then click **Add>>**.
- Next, select the tag "Ramp4" and then click **Add>>**.

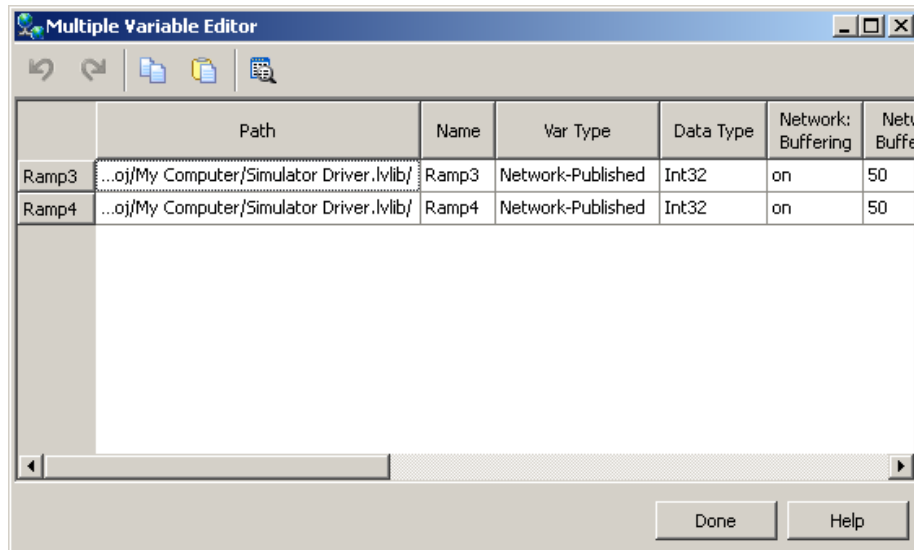
Note: Both "Ramp3" and "Ramp4" should be visible beneath **Added Variables**.



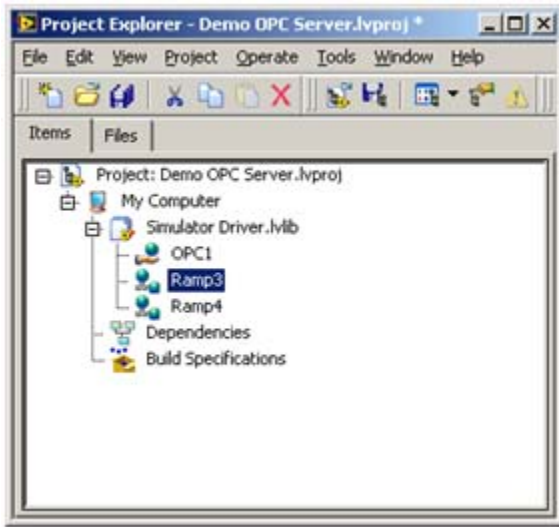
- Upon completion, click **OK**.

Note: The **Multiple Variable Editor** dialog will then be invoked. This dialog is used to configure tag-related options.

- Leave the options at their default settings and then click **Done**.

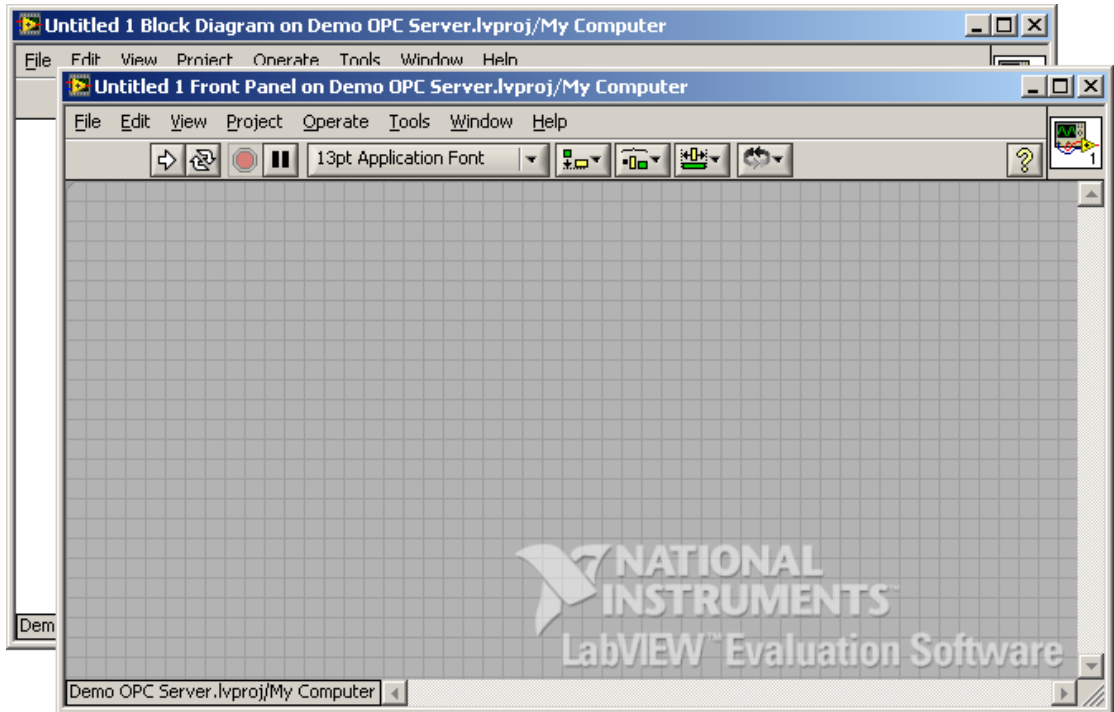


Note: In the Project Explorer, the two variables "Ramp3" and "Ramp4" should be visible beneath the **Simulator Driver.lvlib** library.



7. Next, click **File | New VI**.

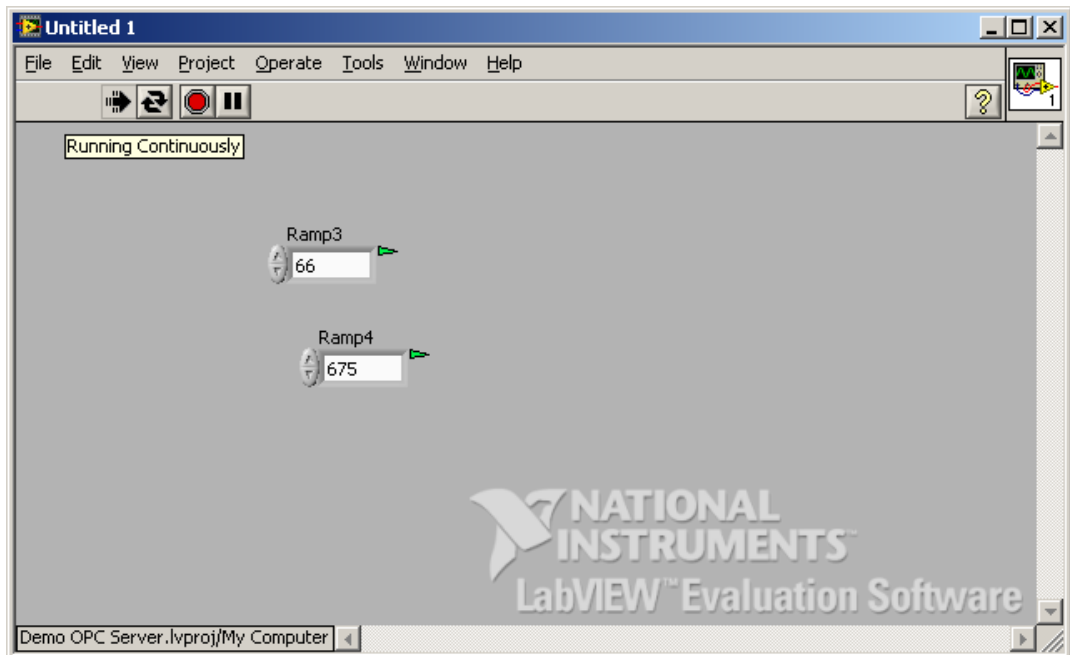
Note: Two new windows will be invoked. One is an untitled Front Panel. The other is the corresponding Block Diagram window. Together, these two windows comprise a Virtual Instrument (VI).



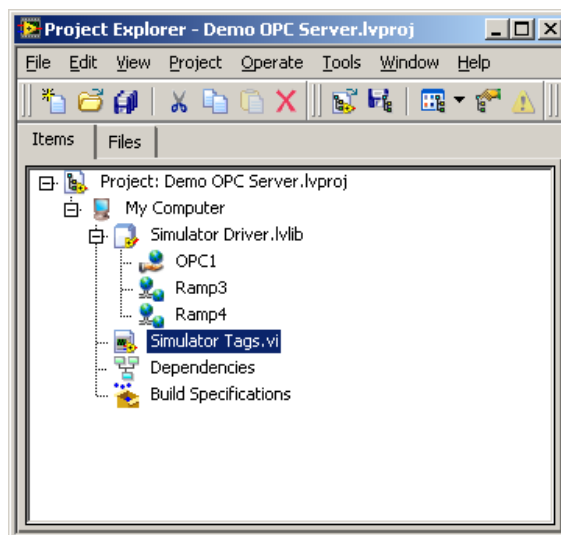
3.2 Adding an I/O Control to the VI

1. From the Project Explorer, drag "Ramp3" to the **Untitled 1 Front Panel**. Place an I/O control for "Ramp4" on the front panel in the same fashion.

- In the front panel's main menu, click **Run Continuously**. Changing data should be visible in both I/O controls.



- Next, click **Abort Execution** to stop the VI.
- In the Project Explorer, click **File | Save All**. Then, name the VI "Simulator Tags." The new VI will be visible in the project tree.



4. Using Kepware's OPC Quick Client

Kepware provides an OPC client application for testing purposes with each installation of KEPServerEX. For more information, refer to the OPC Quick Client help documentation.