The Basics of Making a Sub-VI

LabVIEW supports the use of Sub-VIs, which are analogous to subroutines in a conventional structured programming language. These aid in managing the complexity of diagrams by providing abstraction, which makes diagrams easier to understand and debug.

1. Icons
   a. The Icon can be seen in the upper right hand corner of Front Panel and Block Diagram. Every VI has a default Icon than can be modified.
   b. An Icon can be modified using the Icon Editor. Right-click on the default Icon and select **Edit Icon** from the menu.
      i. The Icon can be edited or created in the fat pixel window.
      ii. To delete, use the select window to highlight a portion of an Icon and press the Delete key.
   c. An Icon can also be edited by dragging a .BMP, .WMF, .EMF, or .PCT format file onto the default Icon.

2. Connectors
   a. The connector acts like a parameter list in a structured programming language. It specifies which inputs and outputs the sub-VI accepts and returns to a calling VI. It is a sort of “Front Panel” for the computer.
   b. To set up a VI’s Connector, right-click on the Icon in either the Panel or Diagram window. Select **Show Connector** from the menu. This will cause the default Connector to be displayed in the place of the Icon.
      i. The default Connector shows a pattern of boxes relating to the possible connections this sub-VI could have to other VIs in a Diagram.
      ii. The connector can be edited by right-clicking on the connector and selecting different options from the pulldown menu. For example, connectors can be rotated, flipped, or replaced by connectors of different patterns.
      iii. Each terminal of a Connector will be colored to match the data type of a control or indicator in the sub-VI’s front panel. Blue corresponds to an integer; orange is floating-point; etc. A terminal that is white is unconnected.
      iv. To be useful as a sub-VI, inputs and outputs must be associated with terminals on the Connector. To accomplish this, follow the steps below:
         1. Select the Front Panel window and be sure the Connector is visible as opposed to the Icon.
         2. Select the wiring tool from the Tools palette.
         3. Use the wiring tool to select a terminal on the Connector by clicking it. The selected terminal will turn black.
         4. Click on a Control or Indicator on the Front Panel to associate it with the selected terminal.