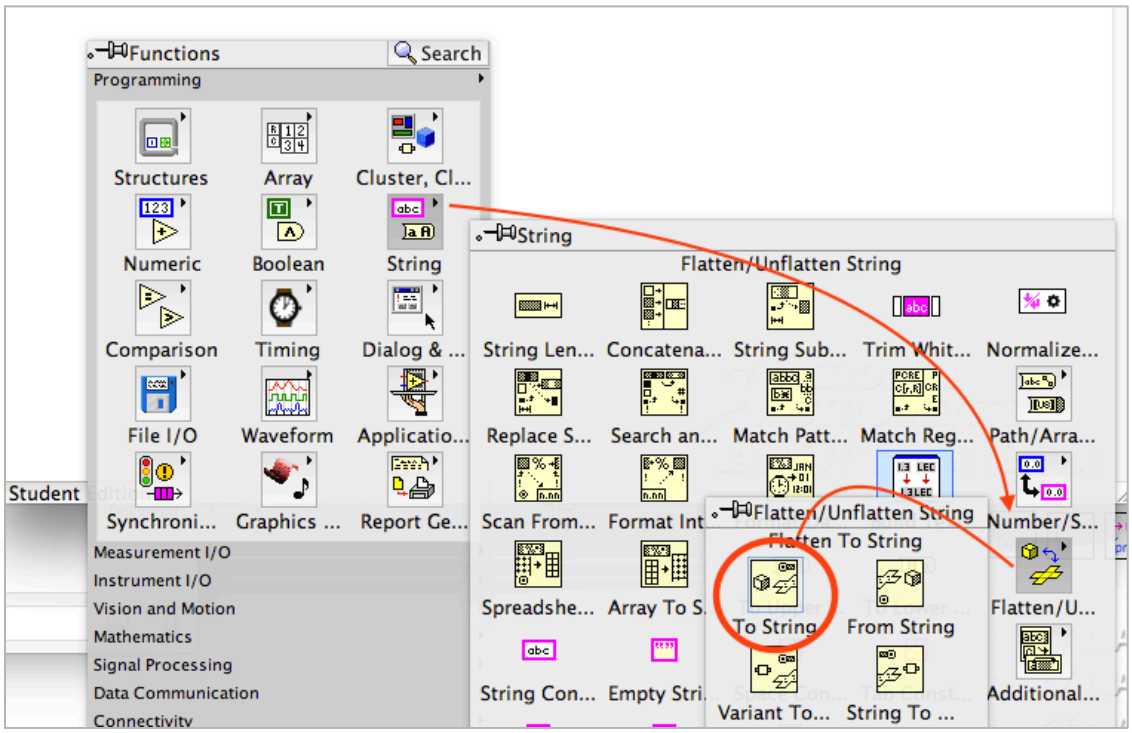
ROS for LabVIEW™ Software Tutorial: Message Building

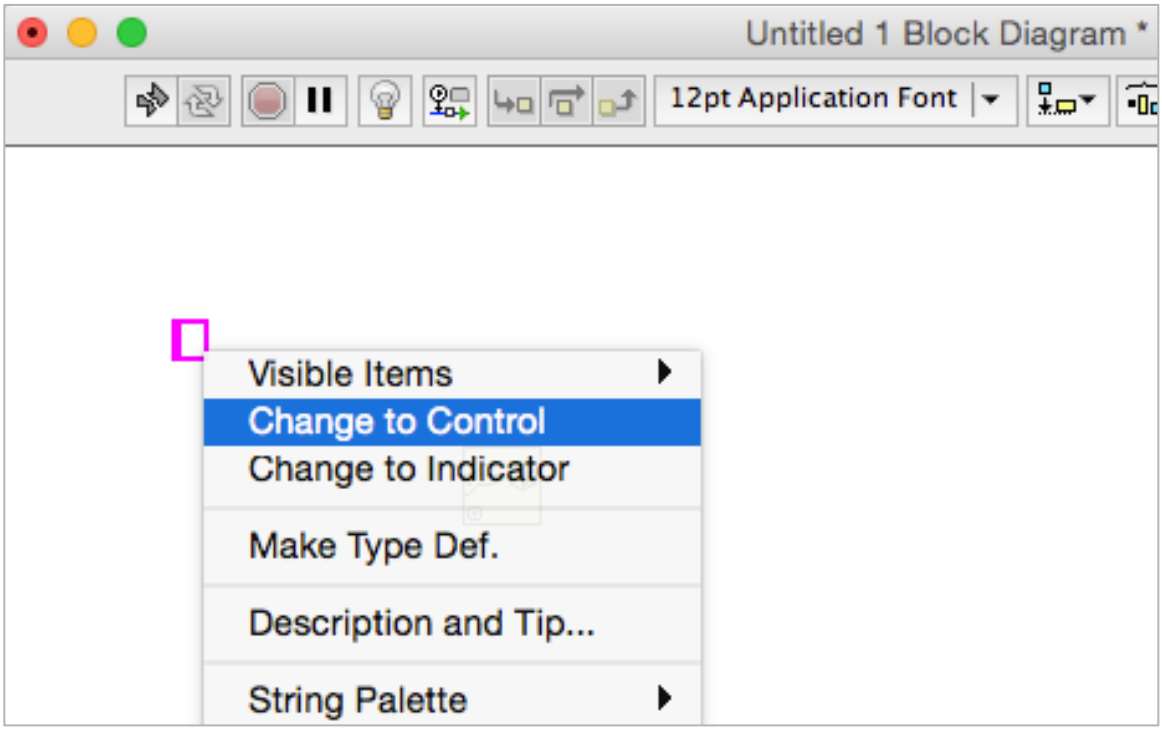
This tutorial will cover how to build messages in LabVIEW which can be used by publishers to send messages to a device running ROS. The message builder builds a message of different data types- in this example we build a message with a Boolean- but it can be used to build more complicated messages made up of multiple different data types as needed by your device

1. **Open a new VI in LabVIEW**
2. **Drag "Flatten to String" to the block diagram**

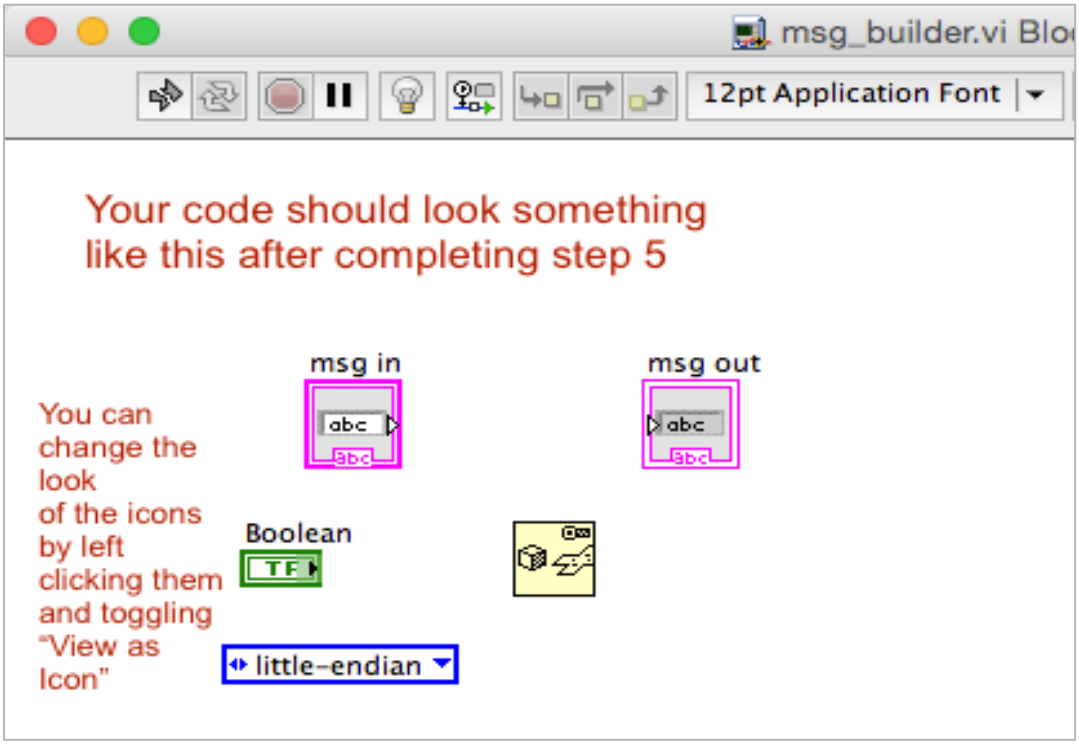


Note: In LabVIEW 2012 "Flatten to String" is found under Data Manipulation

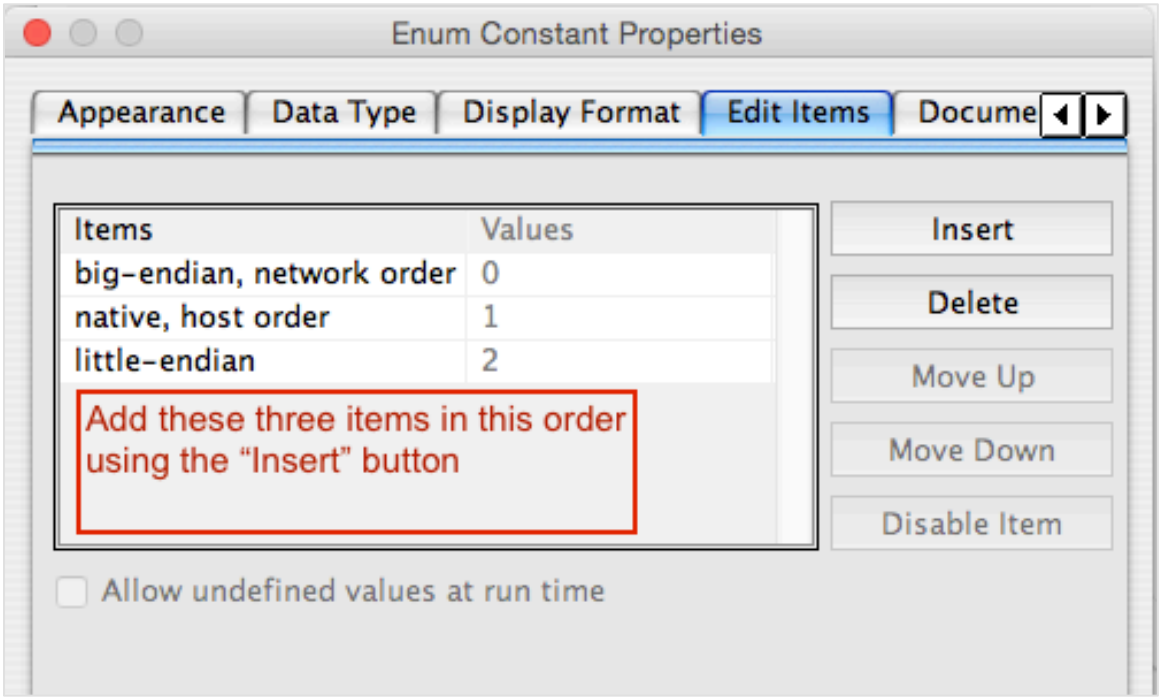
3. Add two string constants to either side of the Flatten to String VI. Change the one on the left to Control, and the one on the right to Indicator, by right clicking the icon. Name the control “msg in” and the indicator “msg out”



4. Drag a constant of whichever data type you’re using to build your message into the block diagram. Once dragging it to the diagram, left click it and select “Change to Indicator”
5. Drag an enum constant to the block diagram, found under Programming > Numeric



6. Right click on the enum constant and select "Edit Items…" to add items to the menu



7. Connect the Boolean and enum constant to the flatten to string VI. The bool should wire to “anything” and the enum should wire to “byte order”
8. Drag concatenate string to the block diagram from the String menu under Programming. Wire the data string output from Flatten String into one input terminal and msg in into the other.
9. Wire the output from concatenate strings to msg out to complete your message builder.