FBxVue User Manual

EMERSON

System Training

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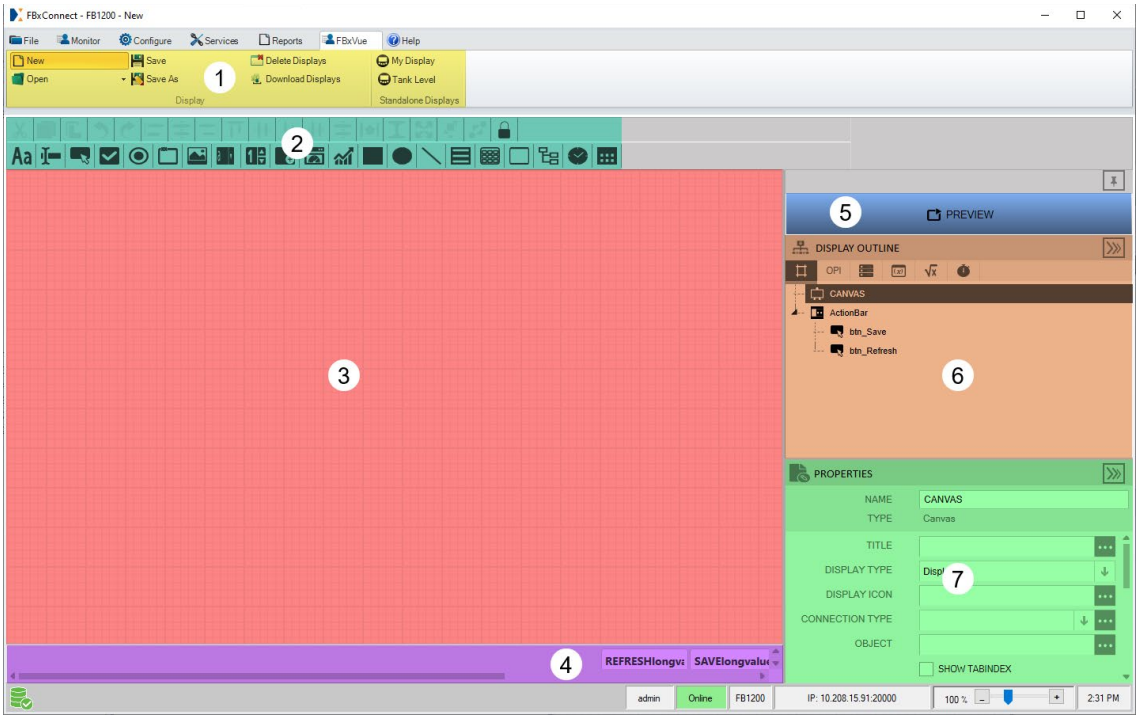
Section 1: FBxVue Overview

FBxVue allows you to create customized displays using the C# programming language and store them as a file on your PC, load and edit displays from a file, or include custom displays as part of a Solution file. You can add controls to a custom display to monitor flow, I/O points, and other object or parameter references.

By adding controls (labels, fields, buttons, etc.) to the display and configuring their properties, you can incorporate "live" data as well as images and other information you wish to convey. One use of custom displays is to graphically represent the application that an FB Series product monitors and controls. Another use is to monitor the FB Series product, giving you the opportunity to change commonly used parameters from a single display.

To access this display, select **FBxVue > New** from the FBxConnect™ main menu. A blank FBxVue display opens.

Figure 1. FBxVue



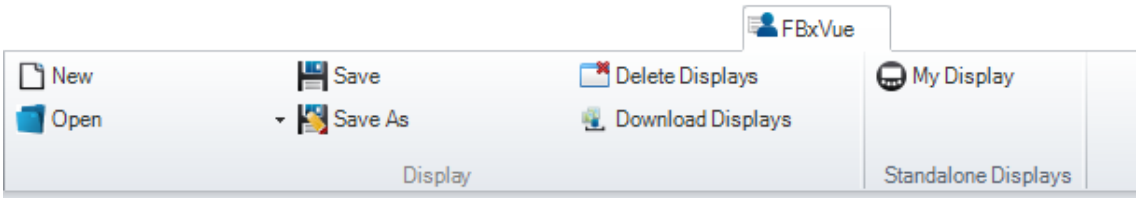
The FBxVue display is divided into the following sections:

1. **FBxVue Menu** – Use the options in the FBxVue Menu to create a new display, open a display, or remove a display.
2. **Developer Toolbar** – Use the buttons on the developer toolbar to add and style controls on your custom display. Refer to Developer Toolbar for more information.
3. **Canvas** – The Canvas is the area where you add controls to create your display.
4. **Action Bar** – Enable the Action Bar to Save, Refresh, Copy, and Paste data on your finished display.
5. **Configure/Preview Modes** – Use these tabs to switch between the Configure and the Preview modes. The Configure Mode allows you to build and style your custom display. The Preview Mode allows you to view how the finished display would appear.
6. **Display Outline** – The Display Outline shows a hierarchy of all controls on the display. Refer to Display Outline for more information.
7. **PROPERTIES** – Use the PROPERTIES pane to configure the parameters for each control on the canvas. Refer to Control Properties for more information about the specific properties available for each control type.

1.1 FBxVue Menu

Use the FBxVue menu to create customized displays for the FB Series products.

Figure 2. FBxVue Menu



The FBxVue menu contains the following options:

New – Create a new custom display using FBxVue.

Open – Open and edit a previously saved display file in FBxVue.

Save – Save the currently opened display to your PC.

Save As – Specify a file name and location when saving the currently opened display.

Delete Displays – Remove displays from the FB Series product and your PC.

Download Displays – Download displays to the FB Series product.

Standalone Displays – View displays not tied to a specific application.

1.1.1 New Display

Use this option to create a new custom display using FBxVue. Select **FBxVue > New** from the FBxConnect™ main menu. A blank canvas opens in FBxVue.

Note

For more information about managing display files, refer to FBxVue Overview.

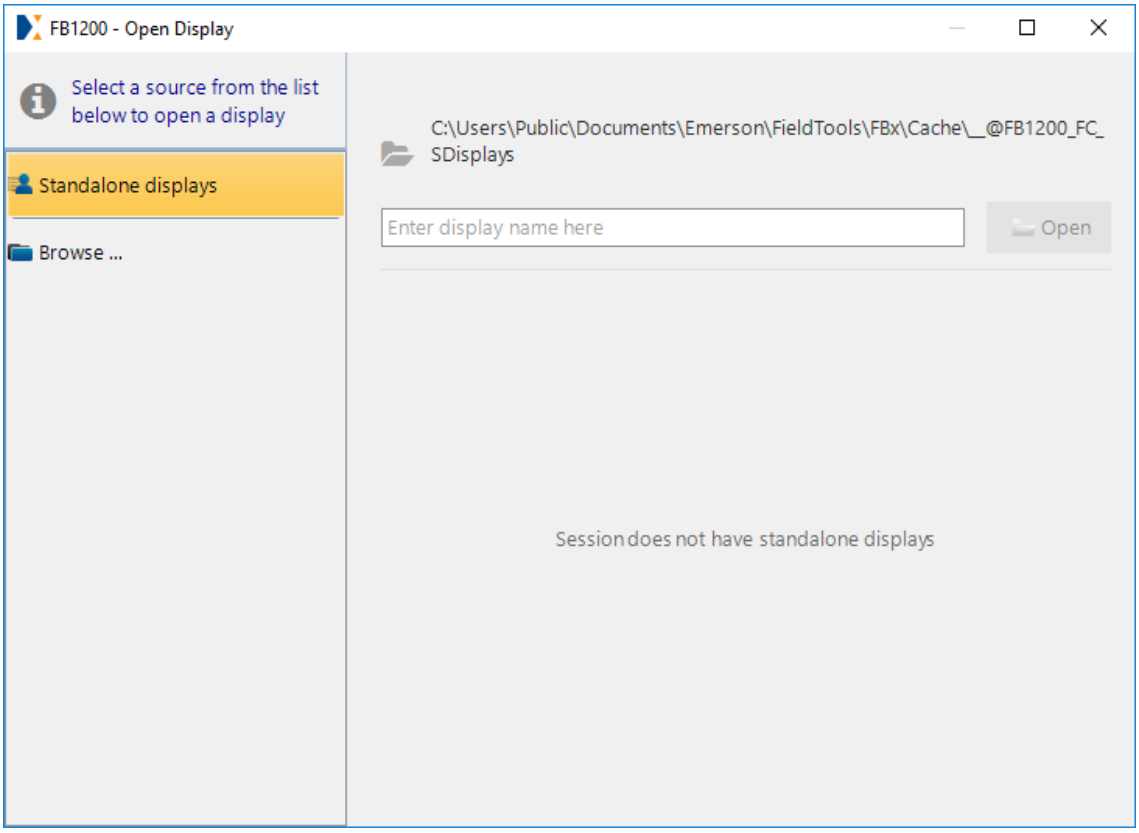
1.1.2 Open Display

Use this option to open and edit a previously saved display file in FBxVue.

To open a display file:

1. Select **FBxVue > Open > Browse** from the FBxConnect™ main menu. The Open Display dialog opens.

Figure 3. Open Display



2. Select either **Standalone displays** or an **application slot number** as the source on the left side of the dialog. If you select Standalone displays, a list of displays stored in the default location on your PC shows on the right side of the dialog. If you select an application slot number, a list of displays tied to the selected application shows on the right side of the dialog.
3. Select a display from the list and select **Open**. The display file opens in FBxVue.

Note

To open a display file not saved in the default location, select **Browse** to open a File Explorer window. Navigate to a location on your PC, select the display file, and then select **Open**. The display file opens in FBxVue.

1.1.3 Save Display

Use this option to save the currently opened display to your PC. With a display file opened in FBxVue, select **FBxVue > Save** to save the display file.

Note

If this is your first time saving the display, the Save Display As dialog opens.

1.1.4 Save Display As

Use this option to specify a file name and location when saving the currently opened display. You can save a display as a standalone file or as part of an installed application.

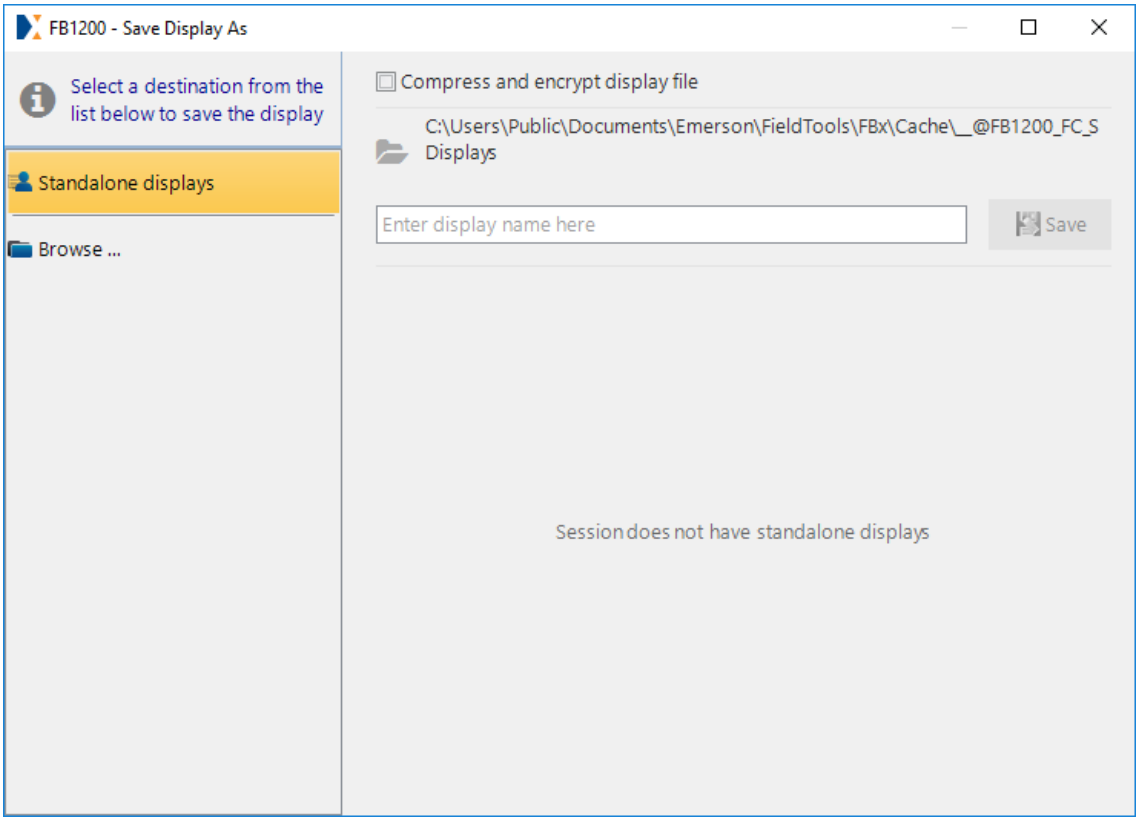
You can save displays using two different file extensions (.XML and .BIN):

- **.XML** – The file extension used when you save a display file and **do not** select the encryption option. You can open and edit the saved display file using FBxVue.
- **.BIN** – The file extension used when you save a display file and **do** select the encryption option. You **cannot** open or edit the saved file using FBxVue.

To save a display file:

1. Select **FBxVue > Save As** from the FBxConnect™ main menu. The Save Display As dialog opens.

Figure 4. Save Display As



2. Optional – Place a check mark next to the **Compress and encrypt display file** option to reduce the size and save an encrypted display file (.BIN).

Note

Emerson recommends you save an unencrypted version (.XML) of your display **before** you save an encrypted version. You **cannot** open or edit a display file after it has been encrypted.

3. Select the location of the saved display. Possible options are:
   - **Standalone Displays** – Saves the display to the default location on your PC for displays not associated with an application. Displays stored as standalone displays are available from the Standalone displays group in the FBxVue menu.
   - **Browse –** Navigate to a location on your PC to save the file.
4. Enter the name of the display in the file name box.
5. Select **Save** to save the display.

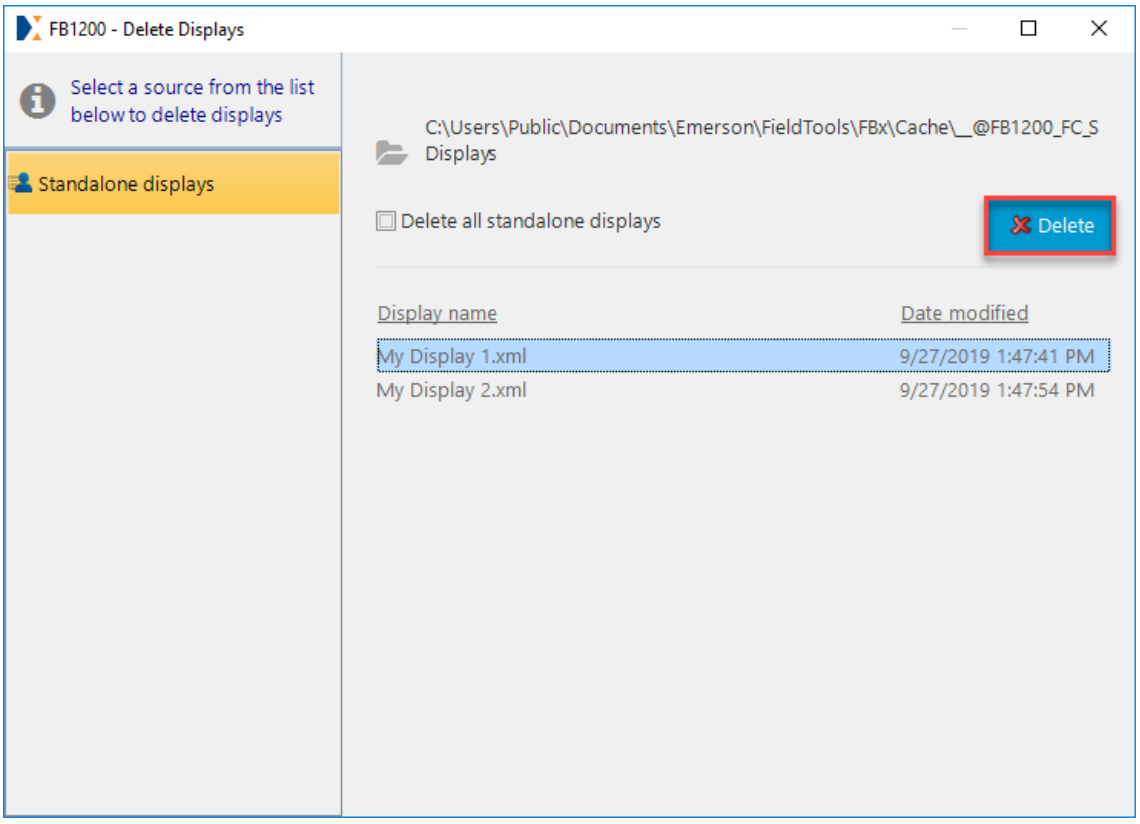
1.1.5 Delete Displays

Use this option to remove displays from the FB Series product and your PC. You can delete both standalone displays and displays tied to an application.

To delete a display:

1. Select **FBxVue > Delete Displays** from the FBxConnect™ main menu.

Figure 5. Delete Displays

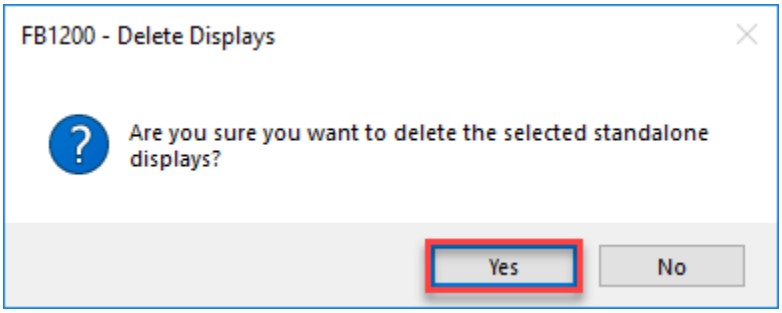


2. Choose a **Display name** from the list on the right and select **Delete** to remove the selected display. A confirmation dialog opens.

Note

Select the **Delete all** checkbox to remove all standalone displays from your computer.

Figure 6. Delete Confirmation



3. Select **Yes** to remove the display from your computer and FB Series product.

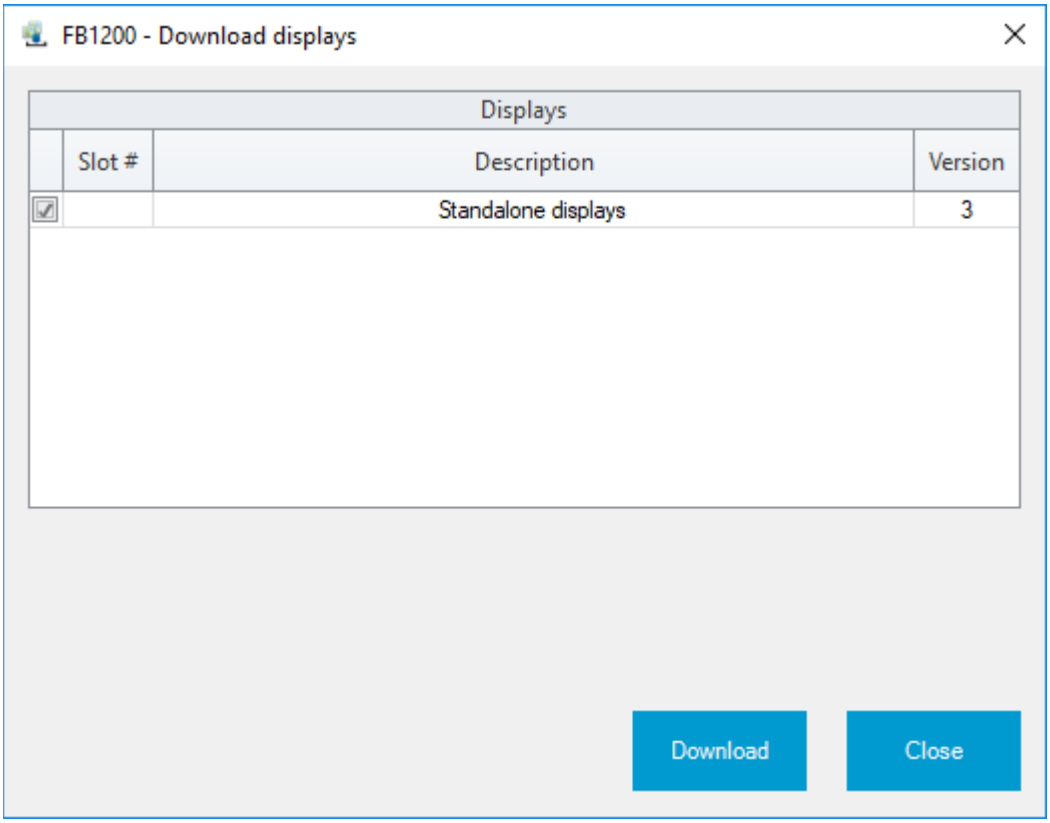
1.1.6 Download Displays

Use this option to download displays to the FB Series product. This allows the display to reside on the FB Series product and not be tied a particular PC. Any custom controls and text styles are also downloaded to the FB Series product, and anyone who connects to the device can access the display.

To download a display:

1. Select **FBxVue > Download Displays** from the FBxConnect™ main menu.

Figure 7. Download Displays



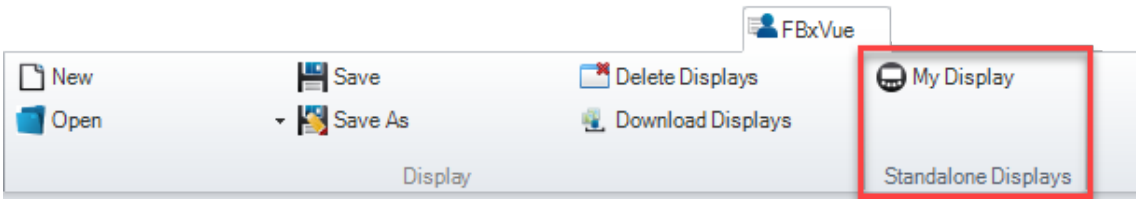
2. Place a check mark next to the application that contains the display(s) you want to download to your FB Series product.

3. Select **Download** to download the displays. Downloaded displays are accessible from the FBxVue menu tab.

1.1.7 Standalone Displays

Previously downloaded displays that are not tied to an application appear in the Standalone Display section of the FBxVue menu. To open a standalone display, select **FBxVue** from the FBxConnect™ main menu and choose a display from the **Standalone Displays** group.

Figure 8. Standalone Displays



1.2 Developer Toolbar

The developer toolbar allows you to build and style your custom display. You can drag and drop controls (labels, fields, buttons, etc.) from the bottom row of the Developer Toolbar onto the canvas. The top row helps you to position those controls on the canvas.

Figure 9. Developer Toolbar

The Developer Toolbar contains the following two rows of buttons:

Layout Buttons – The layout buttons on the top row of the developer toolbar allow you to manage the position and appearance of controls on the canvas.

Control Buttons – The control buttons on the bottom row of the developer toolbar allow you to add controls to the canvas. You then configure the properties of each control to display various values on the custom display.

1.2.1 Developer Toolbar – Layout Buttons

The layout buttons on the top row of the developer toolbar allow you to manage the position and appearance of controls on the canvas.

Note

You can select more than one control on the canvas by pressing and holding the **Ctrl** key on your keyboard.

Figure 10. Developer Toolbar – Layout Buttons

You can configure the layout for each control on the canvas using the following buttons:

Button	Description
Cut	Removes the selected control.
Copy	Copies the selected control.
Paste	Paste the last control that was either cut or copied.
Undo	Reverse the previous action.
Redo	Performs the last action again.
Align Lefts	Align selected controls to the left based on the first control you select.
Align Centers	Align selected controls to the horizontal center based on the first control you select.
Align Rights	Align selected controls to the right based on the first control you select.
Align Tops	Align selected controls to the top based on the first control you select.
Align Middles	Align selected controls to the vertical middle based on the first control you select.
Align Bottoms	Align selected controls to the bottom based on the first control you select.
Make Horizontal Spacing Equal	Equalizes the horizontal spacing between the selected controls.
Make Vertical Spacing Equal	Equalizes the vertical spacing between the selected controls.
Make Same Width	Adjusts the width of the selected controls based on the first control you select.
Make Same Height	Adjusts the height of the selected controls based on the first control you select.

Button	Description
Make Same Size	Adjusts the width and height of the selected controls based on the first control you select.
Bring to Front	When controls are layered, this brings the selected control to the front of the stack.
Send to Back	When controls are layered, this sends the selected control to the back of the stack.
Lock/UnLock	Locks or unlocks the selected control's size and position on the canvas.

1.2.2 Developer Toolbar – Control Buttons

The control buttons on the bottom row of the developer toolbar allow you to add controls to your custom display. You can drag and drop controls (labels, fields, buttons, etc.) from the bottom row of the Developer Toolbar onto the canvas.

Note

You can also add controls if you right-click the canvas and select Insert.

Figure 11. Developer Toolbar – Control Buttons

You can add controls to the canvas using the following buttons:

Note

To view a list of properties for the entire canvas that includes the display type, the location in the FBxConnect™ ribbon menu, and setting a database object associated with the display, refer to Canvas.

Button	Description
Label	Adds a label to the canvas used to identify a control or group of controls. For a list of available properties, see Label.
TextBox	Adds a data entry field to the canvas. For a list of available properties, see TextBox.

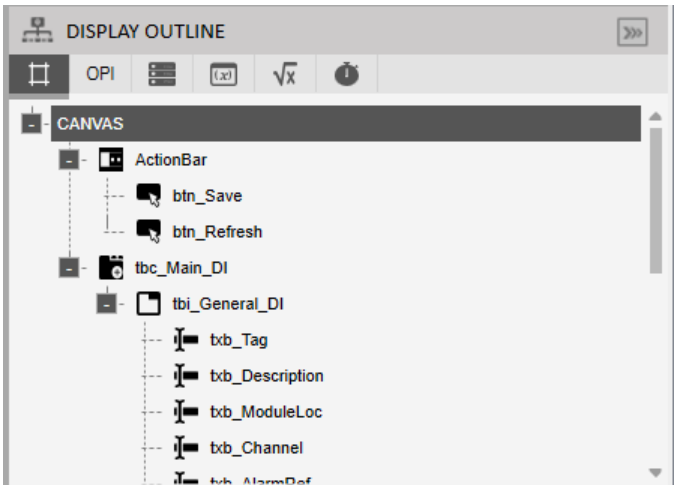
Button	Description
Button	Adds a selectable button to the canvas. For a list of available properties, see Button.
CheckBox	Adds a check box to the canvas for multiple selections. For a list of available properties, see CheckBox.
RadioButton	Adds a radio button to the canvas used to limit input to a single selection. For a list of available properties, see RadioButton.
GroupBox	Adds a non-scrollable container with a caption to the canvas that can contain additional controls. For a list of available properties, see GroupBox.
Image	Adds an image (.JPG, .BMP, .PNG, .GIF, or other graphic formats) to the canvas from a file. For a list of available properties, see Image.
ComboBox	Adds a list of options to the canvas that opens when you click ▼. For a list of available properties, see ComboBox.
NumericUpDown	Adds a spin box (also known as an up-down control) to the canvas that allows you to navigate through a numbered list using up and down arrows. For a list of available properties, see NumericUpDown.
TabControl	Adds a one-tab image to the canvas, to which you can add more tabs. This control allows multiple items that share the same space on the display. For a list of available properties, see TabControl.
Gauge	Adds a gauge to the canvas that allows you to visualize real-time data on the display. For a list of available properties, see Gauge.
Chart	Adds a chart to the canvas used to represent data graphically. For a list of available properties, see Chart. **Note** You can view real-time data by configuring what figures display on the chart. After you configure the chart, view the display and select Auto-Scan. The chart shows the collected data in real-time. You cannot save the chart data to system memory.
Rectangle	Adds either a rectangle or a triangle to the canvas. For a list of available properties, see Rectangle.
Ellipse	Adds an oval to the canvas. For a list of available properties, see Ellipse.

Button	Description	
Line	Adds a line to the canvas. For a list of available properties, see Line.	
Accordion	Adds an accordion to the canvas that contains additional data when you click ▼. You can add additional accordion items by clicking the ⊕ button. Configure the data contained in each accordion in the PROPERTIES pane. For a list of available properties, see Accordion.	
	AccordionItem	Contains properties for each individual accordion defined in the Accordion. For a list of available properties, see AccordionItem.
Grid	Adds a grid containing three columns and three rows. You can add or remove columns and rows, and you can configure the data for each cell in the grid in the PROPERTIES pane. For a list of available properties, see Grid.	
	GridHeader	Contains properties for the first row of cells in the Grid. For a list of available properties, see GridHeader.
	GridCell	Contains properties for each individual cell defined in the Grid. For a list of available properties, see GridCell.
Panel	Adds a scrollable container without a caption that can contain additional controls. For a list of available properties, see Panel.	
TreeNode	Adds a check box (node) for an object and additional subordinate check boxes (child nodes) for all instances of the selected object. For a list of available properties, see TreeNode.	
TimePicker	Adds a time selector with a NumericUpDown control to the hours, minutes, and seconds. For a list of available properties, see TimePicker.	
DatePicker	Adds a date selector that displays the month, day, and year and an icon that opens an interactive calendar to choose a date. For a list of available properties, see DatePicker.	

1.3 DISPLAY OUTLINE

The DISPLAY OUTLINE pane contains all of the controls, OPIs, data sources, variables, expressions, and timers associated with the current display.

Figure 12. DISPLAY OUTLINE



The DISPLAY OUTLINE pane has the following tabs:

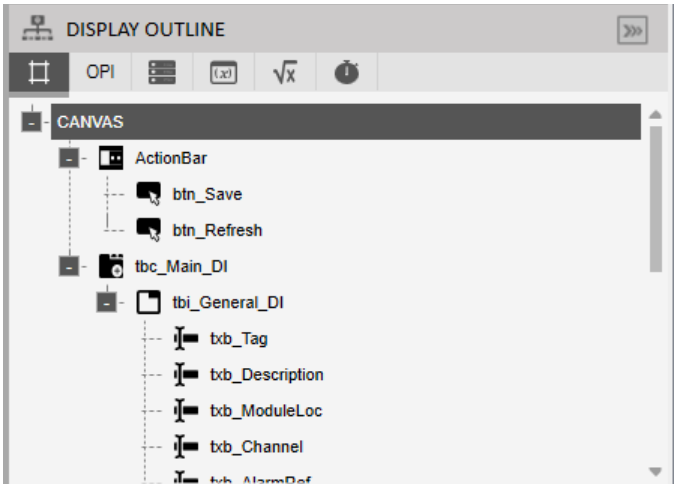
Tab	Description
Control Hierarchy	Use the Control Hierarchy tab to view a hierarchy of all controls currently on the canvas.
OPI	Use the OPI (Object, Parameter, Instance) tab to create, edit, and delete database references assigned to the display.
DATA SOURCE	Use the DATA SOURCE tab to create, edit, and delete references to external data sources. **Note** This feature is **not** currently implemented.
VARIABLE	Use the VARIABLE tab to create variables used to label and store information.
EXPRESSION	Use the EXPRESSION tab to create, edit, and delete sequences of operations (expressions).

Tab	Description
 **TIMER**	Use the TIMER tab to create, edit, and delete timers that generate an event after a specified interval.

1.3.1 Control Hierarchy

Use the Control Hierarchy tab to view a hierarchy of all controls currently on the canvas. If you select a control from this hierarchy, the control is highlighted on the canvas and the properties associated with the selected control display in the PROPERTIES pane.

Figure 13. Control Hierarchy



1.3.2 OPI

Use the OPI (Object, Parameter, Instance) tab to create, edit, and delete database references assigned to the display. This tab contains a list of all existing database references defined in the custom display.

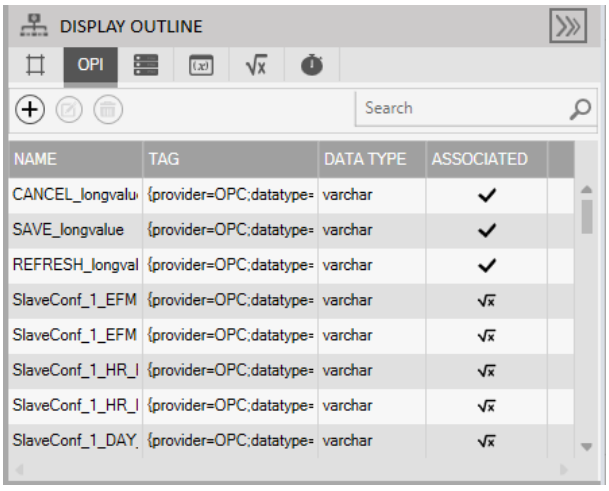
Select ⊕ to open a SOURCE VIEW popup display and map a new OPI (Object, Instance, Parameter) to the display. The database reference is added to the existing OPI list in the DISPLAY OUTLINE. Select ✎ to edit the currently selected OPI. Select 🗑 to delete the currently selected OPI.

Note

When configuring an OPI in the PROPERTIES pane, certain fields require you to select only an object and an instance before automatically configuring the parameter attribute. In

other fields, you are required to select an object, instance, parameter, and attribute. For a list of possible attributes and their descriptions, refer to Attributes.

Figure 14. OPI



1.3.3 DATA SOURCE

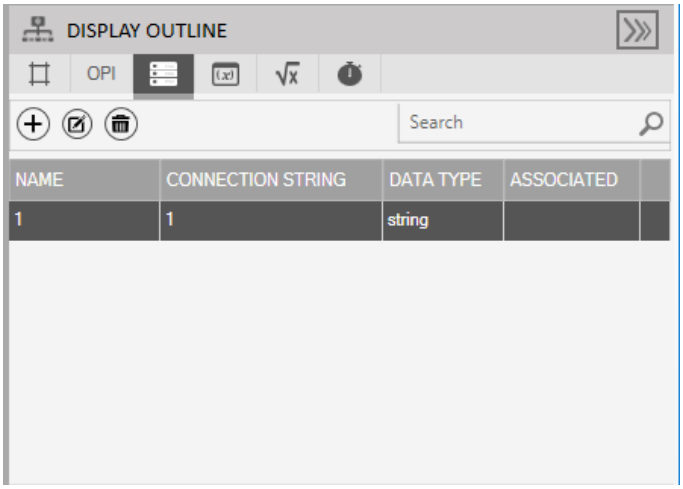
Use the DATA SOURCE tab to create, edit, and delete references to external data sources. This tab contains a list of all existing data sources defined in the custom display.

Select ⊕ to open a SOURCE VIEW popup display and create a new data source. Select ✎ to edit the currently selected data source. Select 🗑 to delete the currently selected data source.

Note

This feature is **not** currently implemented.

Figure 15. DATA SOURCE

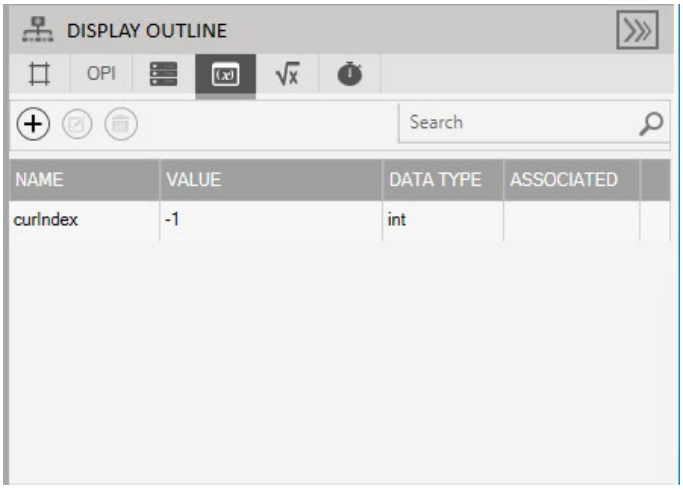


1.3.4 VARIABLE

Use the VARIABLE tab to create variables used to label and store information. This tab contains a list of all existing variables defined in the custom display.

Select ⊕ to open a SOURCE VIEW popup display and create a new variable. Select ✎ to edit the currently selected variable. Select 🗑 to delete the currently selected variable.

Figure 16. VARIABLE



1.3.5 EXPRESSION

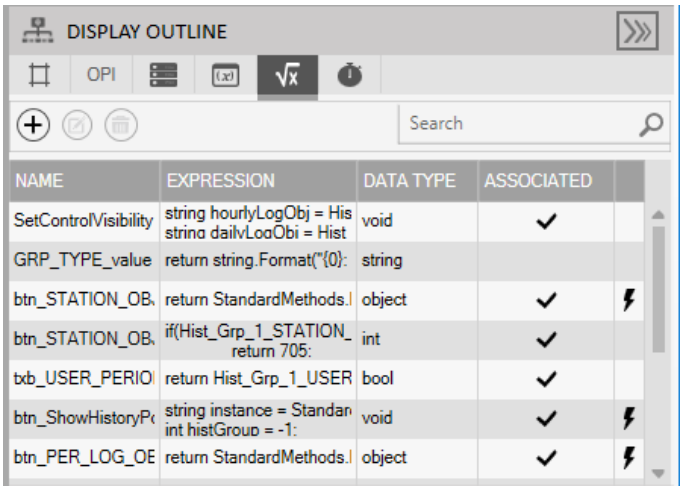
Use the EXPRESSION tab to create, edit, and delete sequences of operations (expressions). This tab contains a list of all existing expressions defined in the custom display.

Expressions are written in C# and can include OPIs, Data Sources, Variables, and Timers. Expressions allow you to customize a controls function on a display. For example, you could set a frame's Visible property to Expression and then specify the conditions (such as a particular OPI value) under which the frame displays. Until that value occurs, the frame does not appear on the custom display. Select ⊕ to open a SOURCE VIEW popup display and create a new expression. Select ✎ to edit the currently selected expression. Select 🗑 to delete the currently selected expression.

Note

To view an example of adding an expression to a control, refer to Writing an Expression.

Figure 17. EXPRESSION

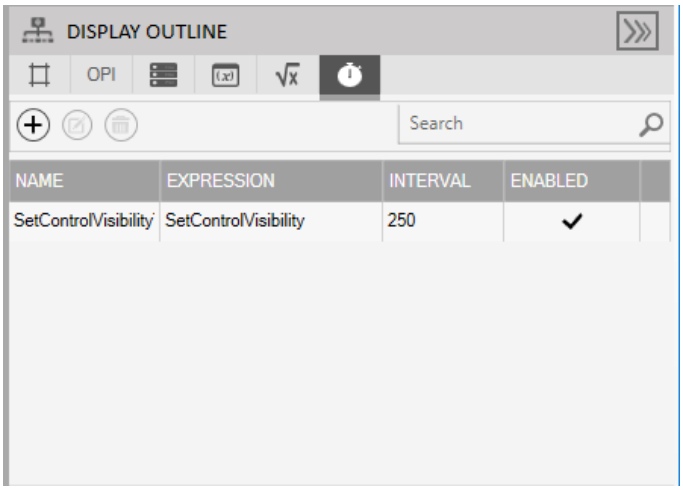


1.3.6 TIMER

Use the TIMER tab to create, edit, and delete timers that generate an event after a specified interval. This tab contains a list of all existing timers defined in the custom display.

Select ⊕ to open a SOURCE VIEW popup display and create a new timer. Select ✎ to edit the currently selected timer. Select 🗑 to delete the currently selected timer.

Figure 18. Timers



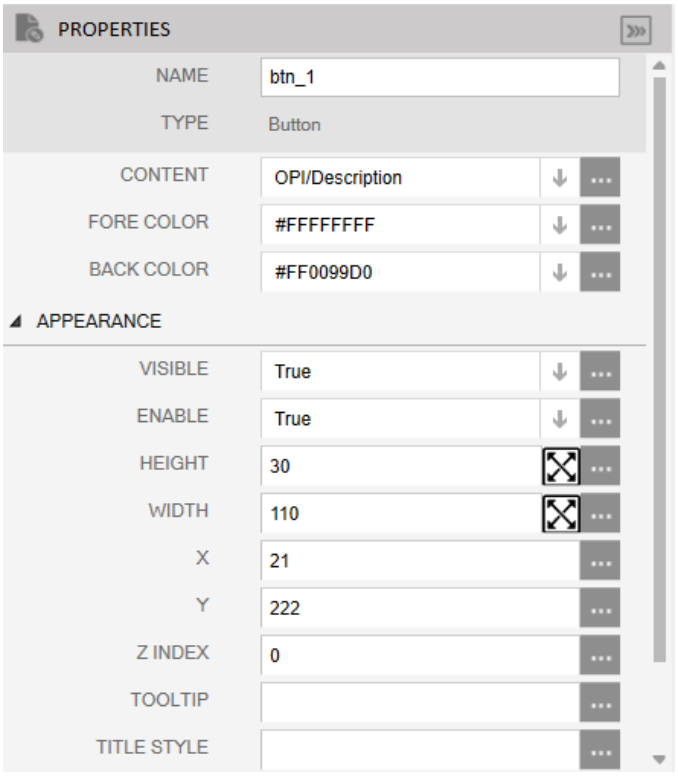
1.4 PROPERTIES

The PROPERTIES pane shows available properties for the entire canvas or for a specific control on the canvas. Available properties are dependent on the selected control type.

Note

For a complete list of properties for the canvas and each control, refer to Control Properties.

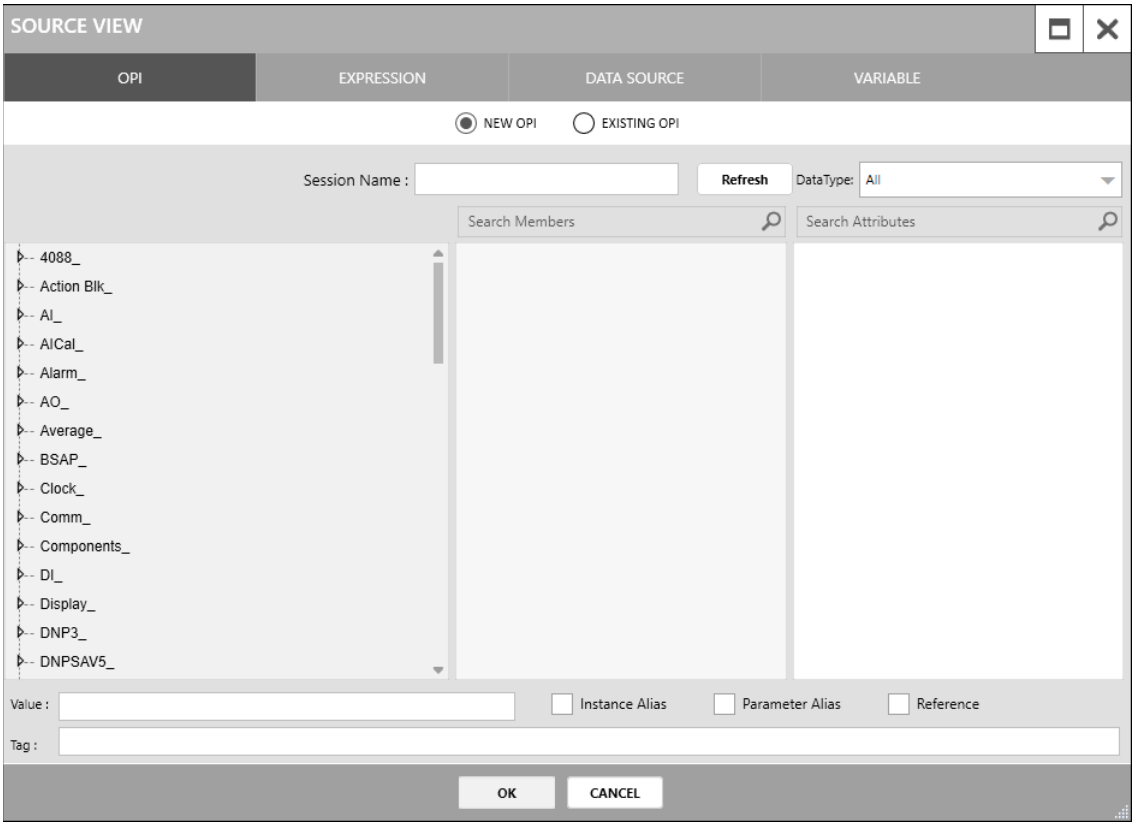
Figure 19. PROPERTIES



1.5 SOURCE VIEW

Use the SOURCE VIEW popup display to map OPIs, define data sources, write expressions, and define variables used in your display. There are multiple ways to access the SOURCE VIEW popup display. You can select ⊕ from the OPI, DATA SOURCE, VARIABLE, EXPRESSION, or TIMER tabs in the DISPLAY OUTLINE or you can also select ... in various fields in the PROPERTIES pane to open a SOURCE VIEW popup display.

Figure 20. SOURCE VIEW Popup Display – OPI Tab Selected



The fields shown on the SOURCE VIEW popup display change based on the tab you have selected at the top of the display (OPI, EXPRESSION, DATA SOURCE, or VARIABLE).

Note

When you open a SOURCE VIEW popup display from a field the PROPERTIES pane, you only see the tabs at the top of the screen that are valid options for the selected field.

Field	Description	
OPI Tab	Select this tab to add a new or existing reference to either the FB Series product's database or FBxConnect's database.	
	NEW OPI	Select this radio button to map a new OPI to the display.

Field	Description	
	EXISTING OPI	Select this radio button to view a list of all existing OPIs associated with the display. Select  to open a SOURCE VIEW popup display and map a new OPI. Select  to edit the currently selected OPI. Select  to delete the currently selected OPI.
	Session Name	NOT USED
	Refresh	Select this button refresh the data in the left-hand column to show the configured Object Tag rather than the default object name. This makes it easier differentiate objects in the FB Series product's database.
	Data Type	Select ▼ a choose the data types you want to show in the Attributes column.
	Objects and Instances	The left-hand column shows a list of all possible objects and instances for FB Series products.
	Parameters	The middle column shows a list of all possible parameters associated with the object you selected in the Objects and instances column. **Note** You the search field at the top of the column to quickly find a specific parameter.
	Attributes	The right-hand column shows a list of all attributes associated with the parameter you selected in the Parameters column. **Note** You the search field at the top of the column to quickly find a specific attribute.
	Value	This **read-only** field shows the value of the selected attribute.

Field	Description	
	Instance Alias	Check this box to configure the selected OPI to be dependent on the currently selected instance. If you switch instances of the display, the parameter value instance on the display changes as well. For example, suppose you configure an FB Series product with two DP meters. You then create a custom display that contains a textbox that shows a DP meter's corrected volume flow rate and check the Instance Alias checkbox. The display would show the corrected volume flow rate for DP Mtr_1 when you select the first DP Meter instance and the corrected volume flow rate for DP Mtr_2 when you select the second DP Meter instance. Select ••• to manually override the instance variable with a local variable.
	Parameter Alias	Check this box and select ••• to manually override the parameter with a local variable. For example, suppose you configure an FB Series product to receive a meter's differential pressure from a HART device. You then create a custom display that contains a textbox that shows the meter's differential pressure. The HART device is wired to an AI, and the AI uses the SELECTED parameter to show the differential pressure reading. The HART input uses the PV_SELECTED parameter for the differential pressure reading. By selecting this checkbox, you can select a local variable that is updated with the correct parameter value. **Note** Not typically used.
	Reference	NOT USED
	Tag	This **read-only** field shows the database tag for any object, instance, parameter, and attribute you have selected.

Field	Description	
EXPRESSION Tab	Select this tab to add a new or existing expression to the display.	
	NEW EXPRESSION	Select this radio button to create a new expression associated with the display.
	EXISTING EXPRESSION	Select this radio button to view a list of all existing expressions associated with the display. Select ⊕ to open a SOURCE VIEW popup display and create a new expression. Select ✎ to edit the currently selected expression. Select 🗑 to delete the currently selected expression.
	NAME	Enter a name used to identify the expression.
	DATA TYPE	Select ↓ to choose the data type returned by the expression.
	Global	Adds the expression to a GlobalExpression.xml file. This enables you to write the expression once and reuse the expression across multiple displays.
	OPI	Select this button to add an OPI to your expression.
	Evaluate	Select this button to have FBxConnect assess the expression you have written.
	Code Box	Empty box in the middle of the screen where you write the expression.
	OUPUT Tab	Shows the build and execution status of the expression.
	ERROR Tab	Shows any errors encountered while building and executing the expression.
DATA SOURCE Tab	Select this tab to create references to external data sources. **Note** This feature is not currently implemented.	
VARIABLE Tab	Select this tab to create variables used to label and store information.	
	NEW VARIABLE	Select this radio button to create a new variable associated with the display.

Field	Description	
	EXISTING VARIABLE	Select this radio button to view a list of all existing variables associated with the display. Select ⊕ to open a SOURCE VIEW popup display and create a new variable. Select ✎ to edit the currently selected variable. Select 🗑 to delete the currently selected OPI.
	NAME	Enter a name used to identify the variable.
	DATA TYPE	Select ↓ to choose the data type of the variable value.
	VALUE	Enter a local display variable. You can declare a local variable and use it in multiple expressions or as a property value for a control. When you change a variable, all locations that reference the variable are automatically updated.

Section 2: OPI

An OPI (Object, Parameter, Instance) is a reference to the FB Series device's internal database or to FBxConnect's database. OPIs exist as data about the connected system, which can be directly displayed for the user, or used in logic (such as C# expressions) to customize what is shown on an FBxVue display.

The list of OPIs shown in the DISPLAY OUTLINE represent the data that will be polled from the device, in a periodic manner, when the display is active. These OPIs can be added manually in the DISPLAY OUTLINE section, or they will be populated automatically in this section when requested in other areas of the FBxVue editor.

Note

Because of the order of operations (OPIs are not read from the FB Series product until after the ONLOAD expression finishes), you **cannot** use an OPI in an expression that serves as the ONLOAD event. If you need to collect a specific parameter to properly format and render display controls in FBxConnect, refer to Collecting Parameters Using an ONLOAD Expression.

2.1 Mapping OPIs to Displays

You can map OPIs to a display that serve as a global variable that can be utilized in one or more aspects of the display. For example, OPIs mapped to a display can be used to populate properties of display controls (such as textboxes and labels) or used in one or more C# expressions.

You can also add a single main object to the Canvas by configuring the OBJECT field in the PROPERTIES pane for the CANVAS to associate all instances of the selected object with the display.

2.1.1 Mapping an OPI to a Display

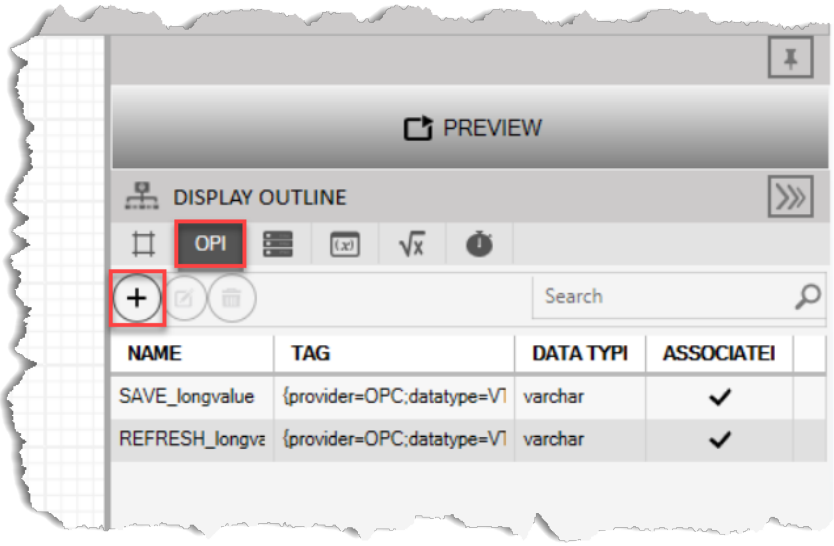
You can add a main object to a custom display by configuring the OBJECT field in the PROPERTIES pane for the CANVAS. After configuring the OBJECT field, a ComboBox is automatically added to the top of the display and is populated with all the active/valid/licensed instances of that object when you preview the display and during run-time.

For example, if the OBJECT field is set to "User Data_", then every single User Data instance (User Data_1 through User Data_n) is selectable. When you change the object instance in the ComboBox, all controls that reference OPIs that were defined as instance aliases are refreshed.

To add an OPI to the display:

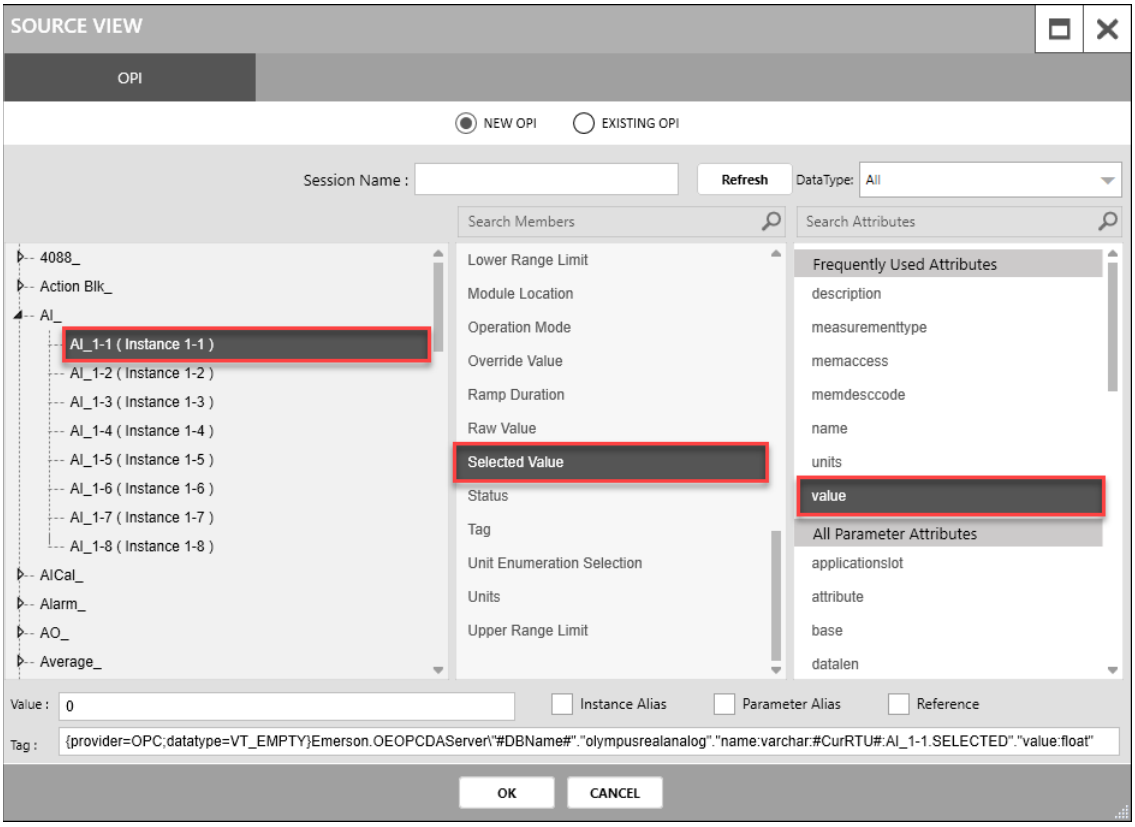
1. In the DISPLAY OUTLINE, select the **OPI** tab.
2. Select ⊕ to open a SOURCE VIEW popup display.

Figure 21.



3. Select an **AI_1-1** in the left column.
4. Select **Selected Value** in the middle column.
5. Select **value** in the right column.

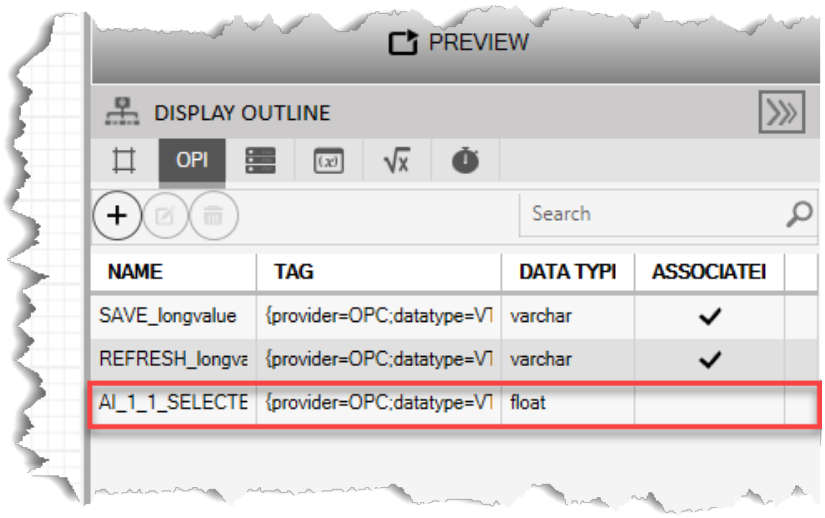
Figure 22.



6. Select **OK** to close the SOURCE VIEW popup display.

7. The OPI is added to the display and is shown in the DISPLAY OUTLINE.

Figure 23.



2.1.2 Adding an Object to the Canvas

You can add a single main object to the Canvas by configuring the OBJECT field in the PROPERTIES pane for the CANVAS. After configuring the OBJECT field, a ComboBox is automatically added to the top of the display and is populated with all the active/valid/licensed instances of that object when you preview the display and during run-time.

For example, if the OBJECT field is set to "User Data_", then every single User Data instance (User Data_1 through User Data_n) is selectable. When you change the object instance in the ComboBox, all controls that reference OPIs that were defined as instance aliases are refreshed.

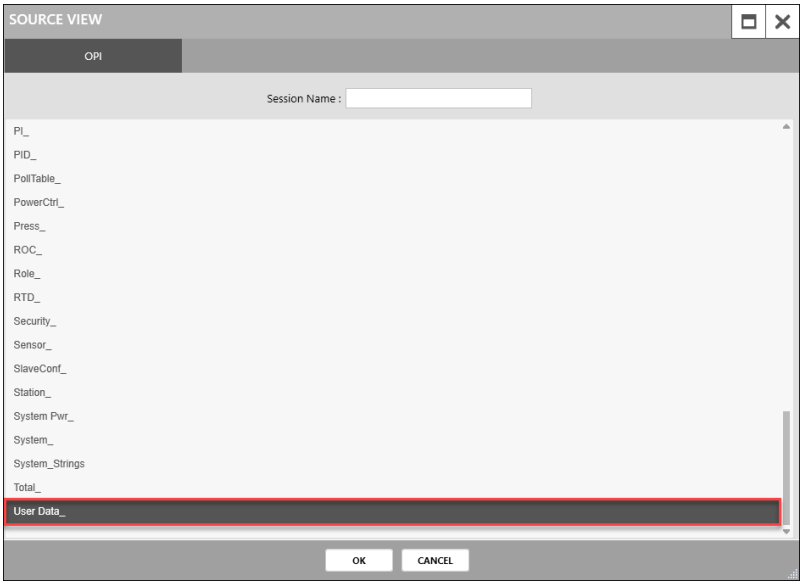
Note

If you need to map additional objects to a display, refer to Mapping Additional Objects Using an Expression.

To add an OPI to the display:

8. Select **FBxVue** > **New** to create a new display.
9. In the PROPERTIES frame, select ... in the OBJECT field. A SOURCE VIEW popup display opens.

Figure 24. OBJECT SOURCE VIEW



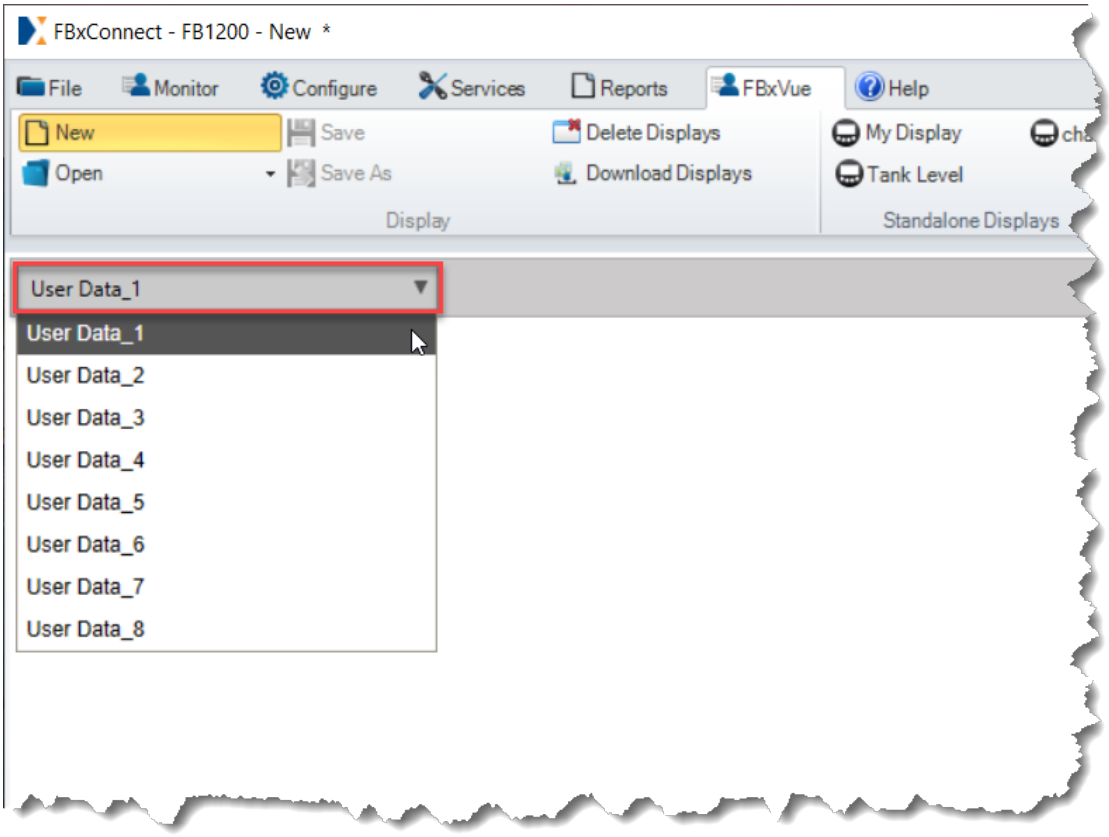
10. Select the object you want to add to the display (we select User Data_ in the picture above).

11. Select **OK** to close the SOURVE VIEW popup display.

Figure 25. PREVIEW

12. Select **PREVIEW** to view the changes to the display. A ComboBox shows at the top of the screen that allows you to select the instance of the object you selected previously.

Figure 26. OBJECT ComboBox



2.2 Mapping OPIs to Controls

You can map an OPI to a control. This allows you to view values from the database on the custom display. There are two different ways to map an OPI to a control: automatically using the SOURCE button or by manually configuring fields using the SOURCE VIEW popup display.

Using the SOURCE button populates the associated control properties in the manner most typically required. However, what is populated by the SOURCE button can be manually overridden and customized for each property. For example, if using a textbox control and wishing to enter your own text for the title, clear the default description given in the TITLE field and replace it with your custom title.

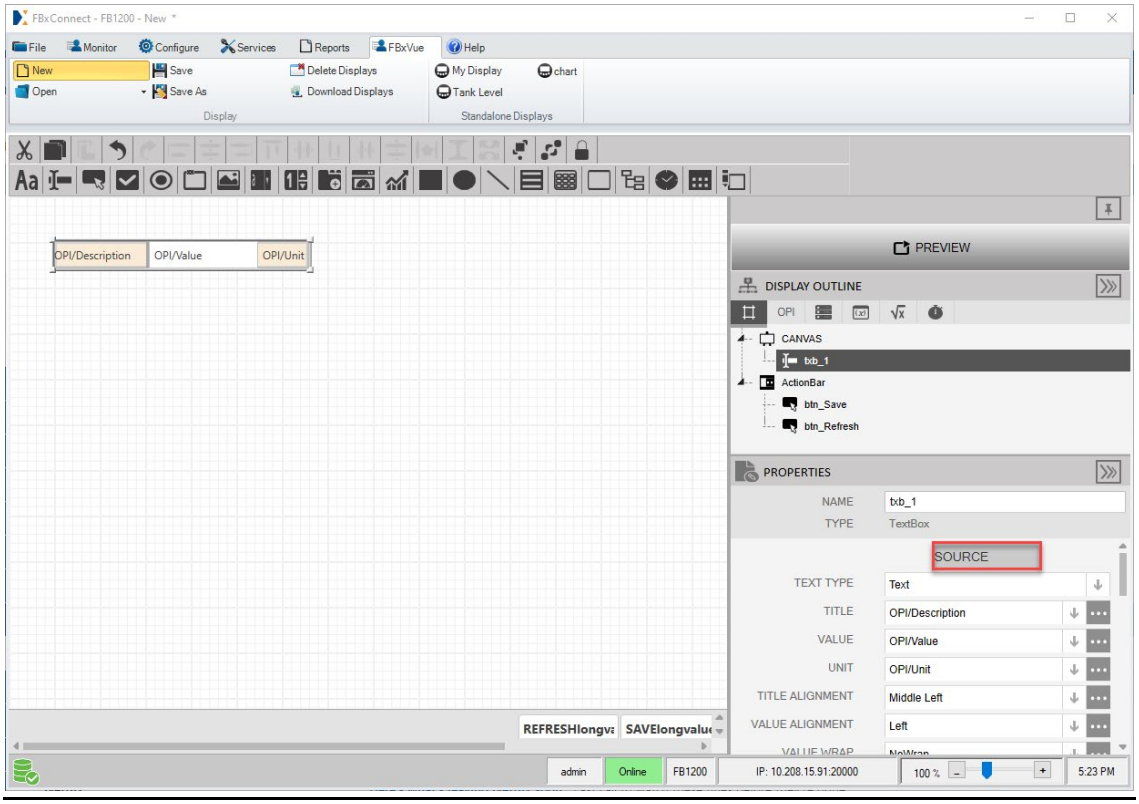
2.2.1 Automatically Mapping an OPI to a Control

You select the object, instance, and parameter when you use the SOURCE button to map an OPI to a control, and FBxConnect automatically assigns appropriate parameter attributes for other fields in the PROPERTIES pane.

To map an OPI to a control using the SOURCE button:

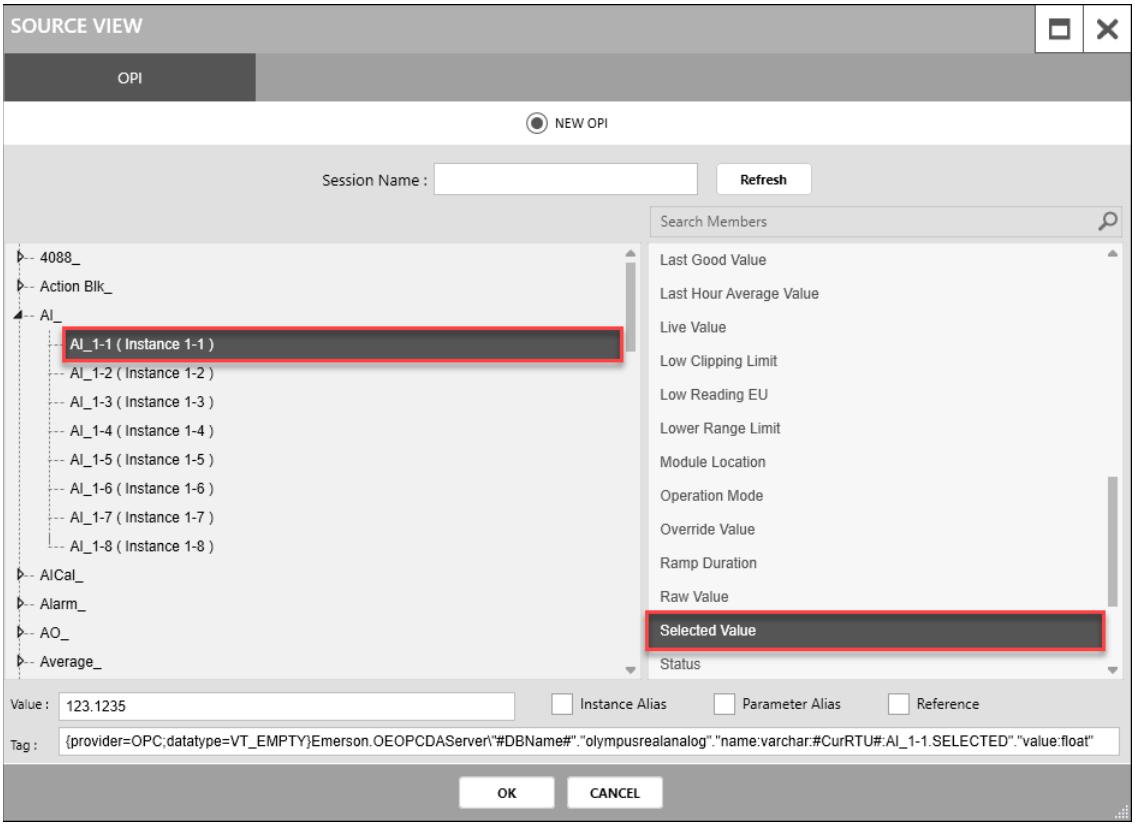
1. Select **FBxVue** > **New** to create a new display.
2. Drag and drop a TextBox control on to the canvas.

Figure 27.



3. In the PROPERTIES pane, select the SOURCE button. A SOURCE VIEW popup display opens.

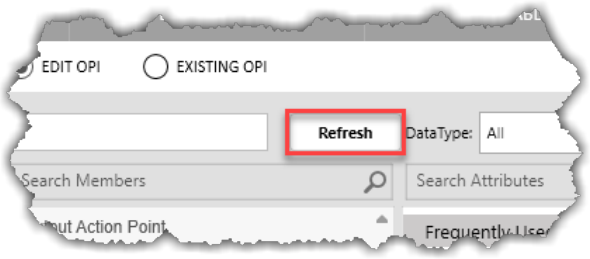
Figure 28.



4. Select the object, instance, and parameter you want to map to the selected control (in this example, we selected the AI object, instance 1-1, and the Selected Value parameter).

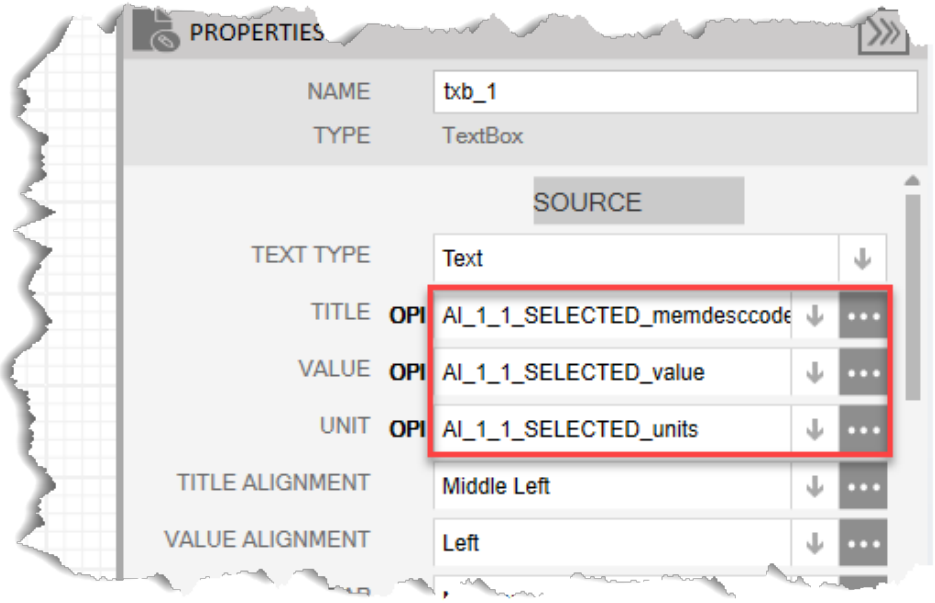
Note

To make it easier to differentiate objects in the FB Series product's database, the SOURCE VIEW popup display shows the configured Object Tag. In this example, the window shows the configured Object Tag of "High Level Status (Instance 1)" rather than the default Object Tag of "Action Block 1 (Instance 1)." If your SOURCE VIEW popup display does not show the configured Object Tag, select the **Refresh** button to update the list.



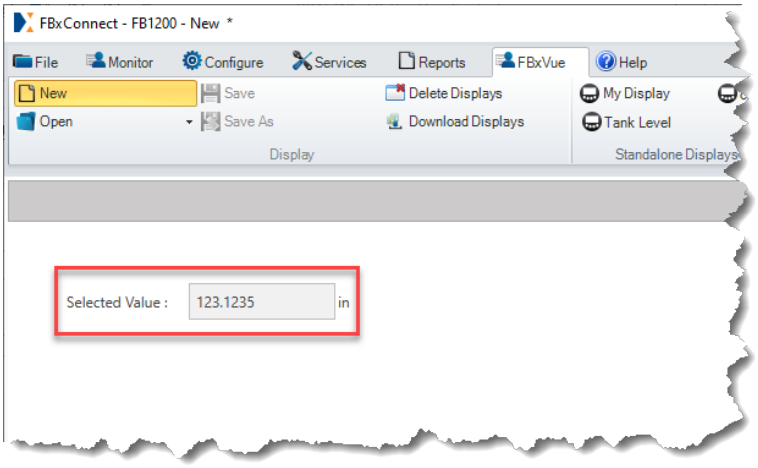
5. Select **OK** to close the SOURCE VIEW popup display. Notice that FBxConnect automatically configures additional fields in the PROPERTIES pane for you.

Figure 29.



6. Select the **PREVIEW** button. The display shows the TITLE, VALUE, and UNIT associated with the object, instance, and parameter you selected via the SOURCE button.

Figure 30.



2.2.2 Manually Mapping an OPI to a Control

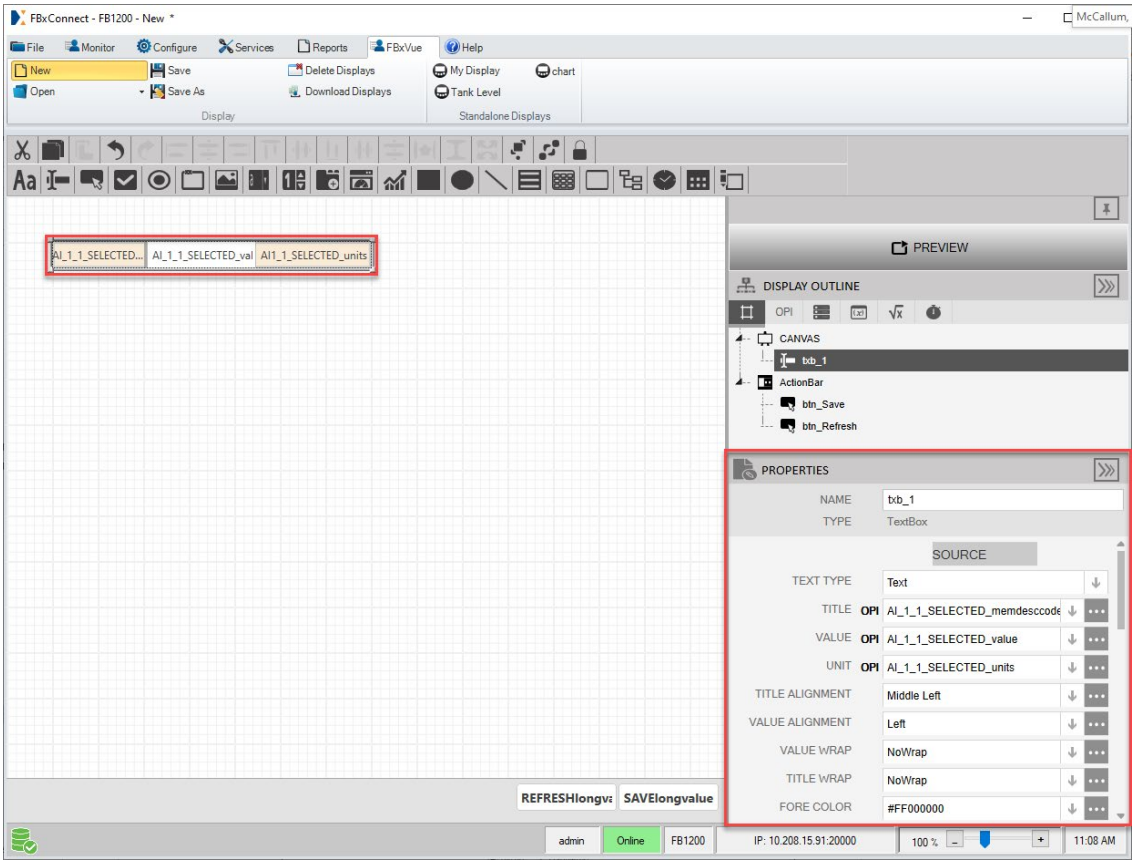
You can gain further customization of what is shown on your display by manually selecting parameter attributes for each field. The attribute you choose determines what is shown on the custom display.

For example, the TextBox title was “Selected Value” when we used the SOURCE button to automatically map an OPI in the previous section. This may be confusing if we have multiple controls on a display that are mapped to different instances of the selected value parameter and all of the controls have the same “Selected Value” title. In this instance, you can make the data shown on your custom display more useful by manually selecting a parameter attribute.

To manually map an OPI to a control:

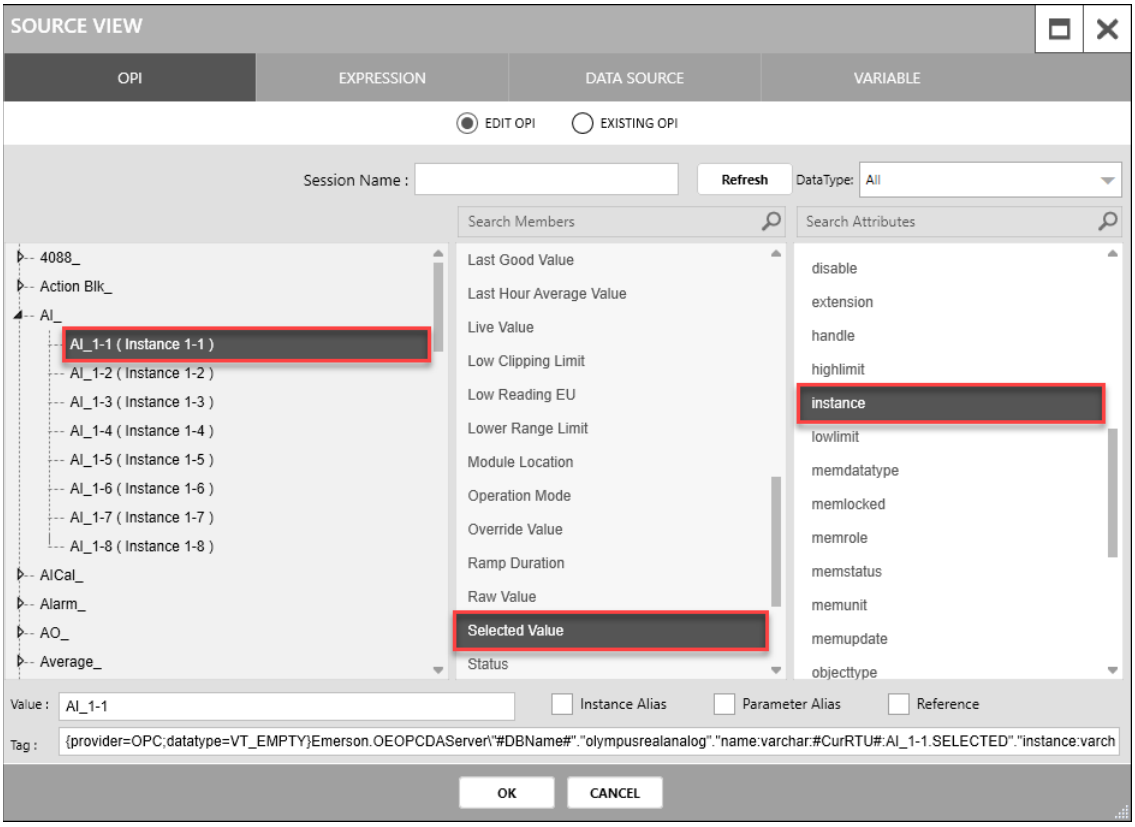
1. Using the display you created in the previous section, select in the TextBox to view the PROPERTIES of the TextBox.

Figure 31.



2. In the PROPERTIES pane, select ... in the TITLE field. A SOURCE VIEW popup display opens.

Figure 32.

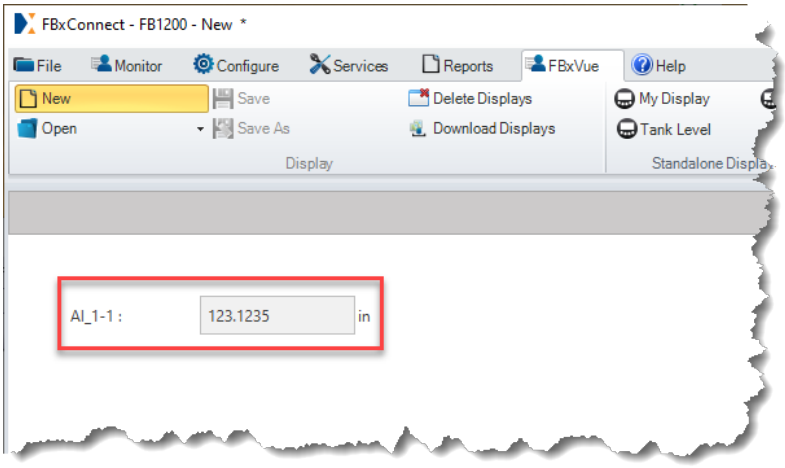


3. With the OPI tab selected, select **AI_ > AI_1-1 (Instance 1)** in the left column.
4. Select **Selected Value** in the middle column.
5. Select **instance** in the right column.
6. Select **OK** to close the SOURCE VIEW popup display.
7. Select the **PREVIEW** button. The title of the control shows as **AI_1-1** for the control.

Note

Rather than selecting an OPI, you can also type directly into a field in the PROPERTIES pane to show the text on the display.

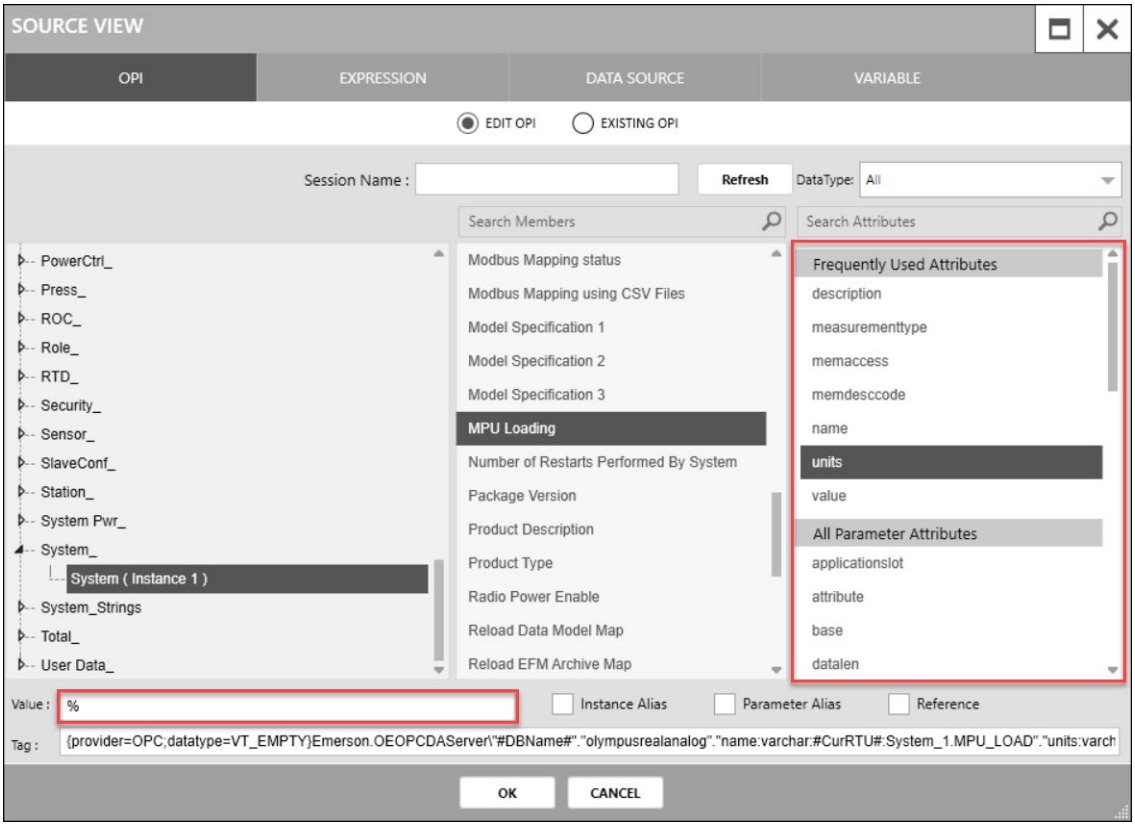
Figure 33.



2.2.2.1 OPI Attributes

When you manually select an OPI (Object, Parameter, Instance) in the SOURCE VIEW popup display, you must also select an attribute associated with that OPI. Possible attributes are shown in the right-hand column of the SOURCE VIEW popup display.

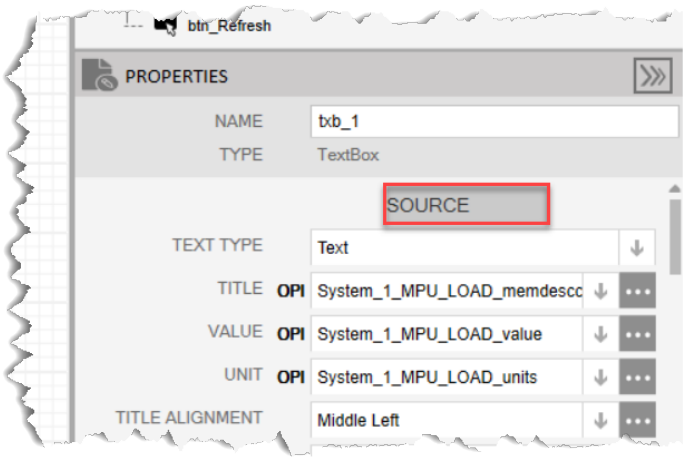
Figure 34. SOURCE VIEW – Attributes



Note

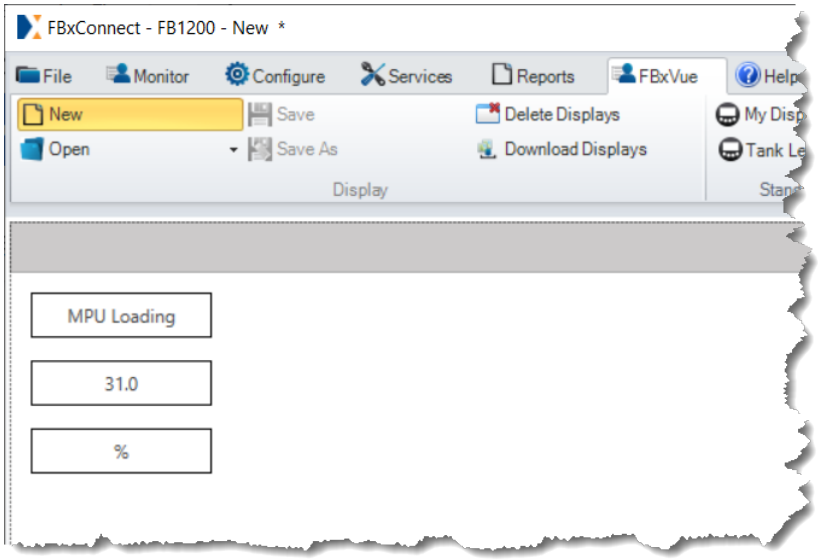
- The attributes column shows all possible attributes for the selected parameter. For more information about the meaning of each attribute, refer to OPI Attributes.
- The value of the selected attribute is shown in the **Value** field at the bottom of the SOURCE VIEW popup display.

- If you select the SOURCE button in the FBxVue PROPERTIES pane, you **only** select an object, instance, and parameter. Attributes are selected for you automatically.



The attribute you choose determines the value shown for each control on your display. This is demonstrated in the following picture that contains three Label controls. The TEXT field for each control is configured with the same **System** object and **MPU Loading** parameter, but each Label is configured with different attributes. The top label is configured with the **description** attribute, the middle label is configured with the **value** attribute, and the bottom label is configured with the **units** attribute.

Figure 35. Label – Configured Title



The following table lists all possible attributes you can select in the SOURCE VIEW popup display:

Table 2-1 Attribute Descriptions

Attribute	Description
applicationslot	If the parameter is associated with an application, indicates which slot (1 thru 8) the parameter belongs to.
attribute	The parameter part of the tag. For example, the parameter "User Data_10.DOUBLE_1" will have a value of "DOUBLE_1".
base	The object part of the tag. For example, the parameter "User Data_10.DOUBLE_1" will have a value of "User Data_".
binaryformat	DO NOT USE
datalen	The length in bytes of the parameter value. For example, 4 bytes for a FLOAT, 8 bytes for a DOUBLE, etc.
datatype	Maximum length of parameter's value.
defaultvalue	The default value for the parameter on initial startup.
Description[1]	The localization description string for the parameter.
devicename[1]	The name for the device that contains the parameter in the Field Tools database.
dirtyvalue	DO NOT USE
disable	Boolean value (True / False) that indicates if the parameter can be written to.
extension	The instance part of the tag. For example, the parameter "User Data_10.DOUBLE_1" will have a value of 10.
handle	DO NOT USE
highlimit	If range checking is applicable, indicates the maximum allowed value for the parameter.
instance	The object and instance part of the tag. For example, the parameter "User Data_10.DOUBLE_1" will have a value of "User Data_10".
istime	Boolean value (True / False) as to if the parameter represents a timestamp.
lowlimit	If range checking is applicable, the minimum allowed value for the parameter.

Attribute	Description
measurementtype[1]	The numerical code representing the measurement type (e.g., Density, Temperature, Pressure, etc.) or other meaning for the parameter.
memaccess[1]	The access for the parameter, where 0 = Read-Only and 1 = Read/Write.
memdatatype	Data Type of parameter from CSV file.
memdesccode[1]	A unique code that serves as the index for the parameter in the localization description table. - commonly used with the "TITLE" property for most controls.
memlocked	DO NOT USE
memrole	DO NOT USE
memstatus	The status (health or data quality) for the parameter. A value of 0 means no issues.
memunit	DO NOT USE
memupdate	DO NOT USE
name[1]	The full name of the parameter tag, within the Field Tools database. For example, "DeviceNameRTU:User Data_10.DOUBLE_1"
objecttype	A string representing the table where the parameter value is stored. For example, "realanalog" or "integeranalog" or "string"
prerelease	Boolean value (True/False) as to if the parameter is part of a feature currently under development.
prmrangecheck	Indicates if minimum/maximum value range checking applies to this parameter.
prmupdate	DO NOT USE
questionable	DO NOT USE
regionname	Applicable table within the Field Tools database. For example, "olympusinteger" or "olympusreal" or "olympusstring".
scadamapgroup	DO NOT USE
scadamapsubgroup	DO NOT USE

Attribute	Description
signed	Boolean value (True/False) as to if the parameter is signed or unsigned. Applies to integer data types only.
status	DO NOT USE
tagvalue	DO NOT USE
units	String representing the units for the parameter. This attribute is commonly used with the "UNIT" property for most controls.
value[1]	The current value for the parameter. This attribute is commonly used with the "VALUE" property for most controls.
writestatus	DO NOT USE

1. Denotes a frequently used attribute.

Section 3: Variables

Variables allow you to label and store information. You can declare a local variable and use it in multiple expressions or as a property value for a control (instead of an OPI or Expression). When you change a variable, all locations that reference the variable are automatically updated.

For example, suppose you declare a variable named RED with a value that is the string hex color code of #FFDD0000. You can place multiple controls on the canvas and assign their BACK COLOR property to the RED local display variable. If you later decide to change the BACK COLOR, you can update the RED local variable with a new value and all controls that used that variable updated automatically.

You could also write one expression to initialize a variable with a value, and then other expressions can read this value and make decisions based on that value. This can increase the performance of your display by only polling a database parameter once and then holding the value in a variable, rather than polling the database multiple times.

Note

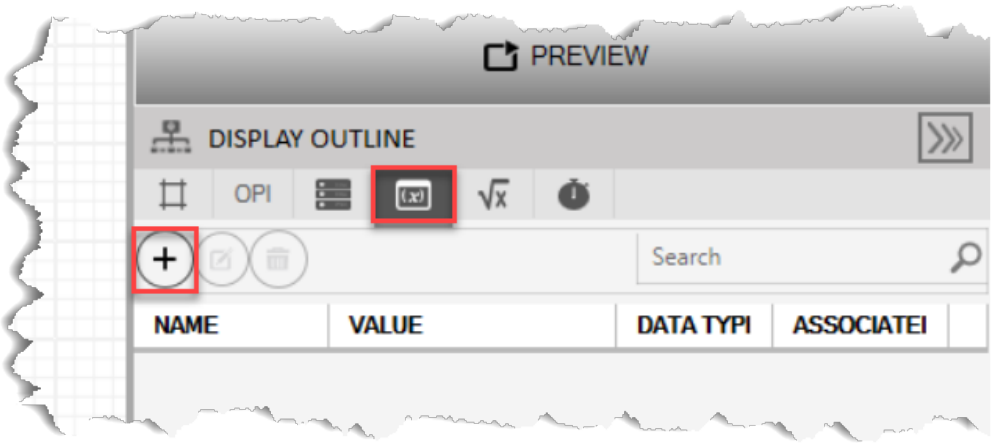
Variables can be used in all expressions. Variables are limited in scope to the display for which they were declared and cannot be read from other displays.

3.1 Defining Variables

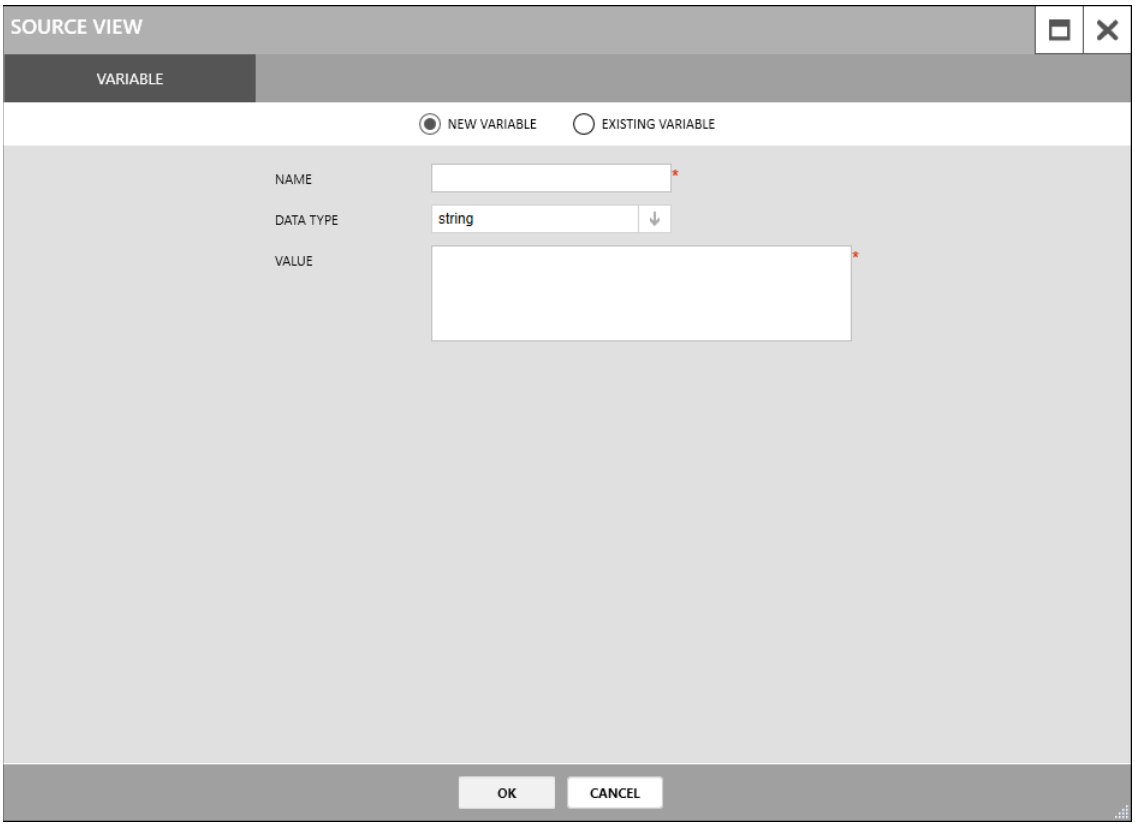
To define a variable:

1. In the DISPLAY OUTLINE, select the **VARIABLES** tab.

Figure 36.



2. Select ⊕ to open a SOURCE VIEW popup display. The SOURCE VIEW popup display opens, which provides the VARIABLE editor



3. Enter a name for the variable in the NAME FIELD.

4. Select the data type of the variable in the DATA TYPE field.
5. Enter a value in the VALUE field.

Note

The value assigned must be of the same the data type. If the variable is an integer, it is invalid to enter a value of "abc."

6. Select **OK** to close the SOURCE VIEW popup display. The variable is added to the list of existing variables in the DISPLAY OUTLINE and is also selectable on the VARIABLE tab in the SOURCE VIEW window.

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Section 4: Expressions

Expressions allow you to customize the function of a control on a display. For example, you can set a frame's Visible property to Expression and then specify the conditions (such as a particular OPI value) under which the frame displays. Until that value occurs, the frame does not appear on the custom display.

Note

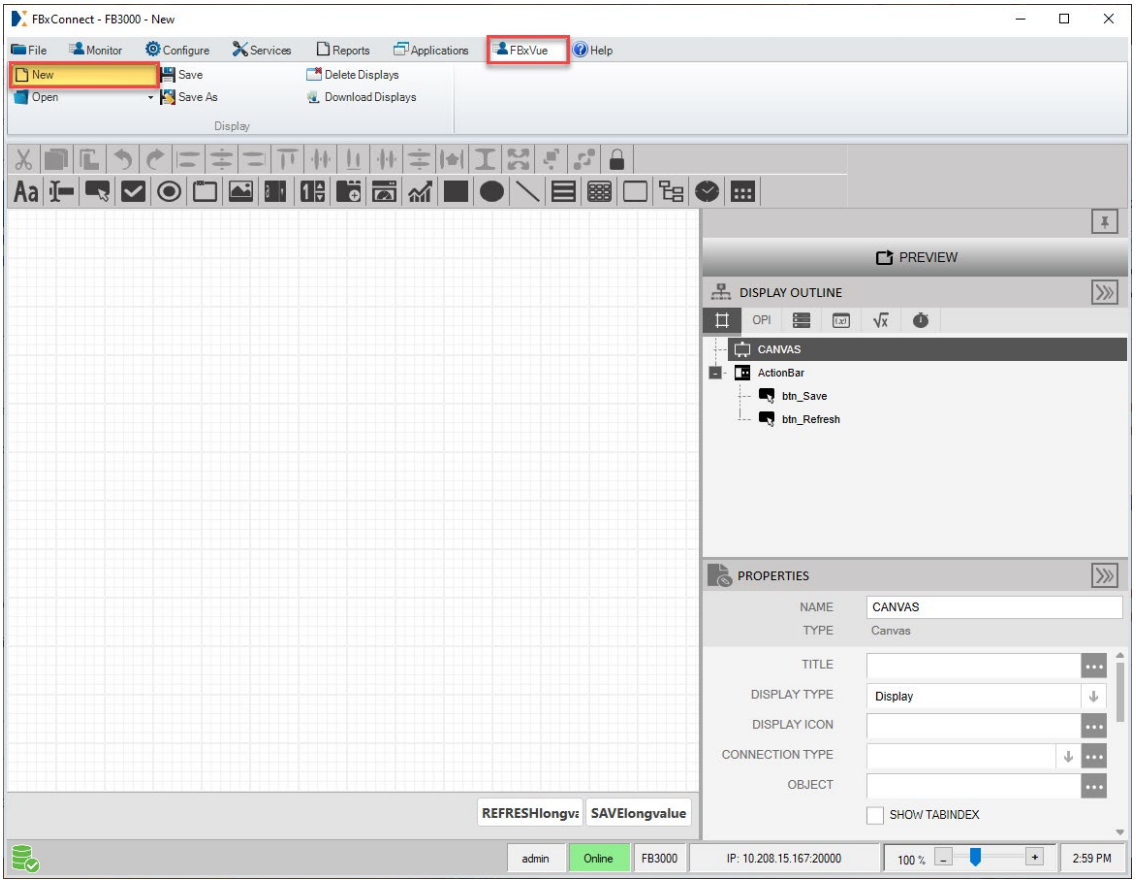
- The process of adding an expression to a control is similar for all expression types. The Writing an Expression example shows how to add an expression that opens a popup display when you single-click on a button control.
- To map additional objects to a display, refer to Mapping Additional Objects Using an Expression.
- Sometimes it's necessary to collect parameters to properly format and render display controls. To collect these parameters, refer to Collecting Parameters Using an Expression.
- For a list of common functions when writing expressions, refer to Common Functions.

4.1 Writing an Expression

To write an expression:

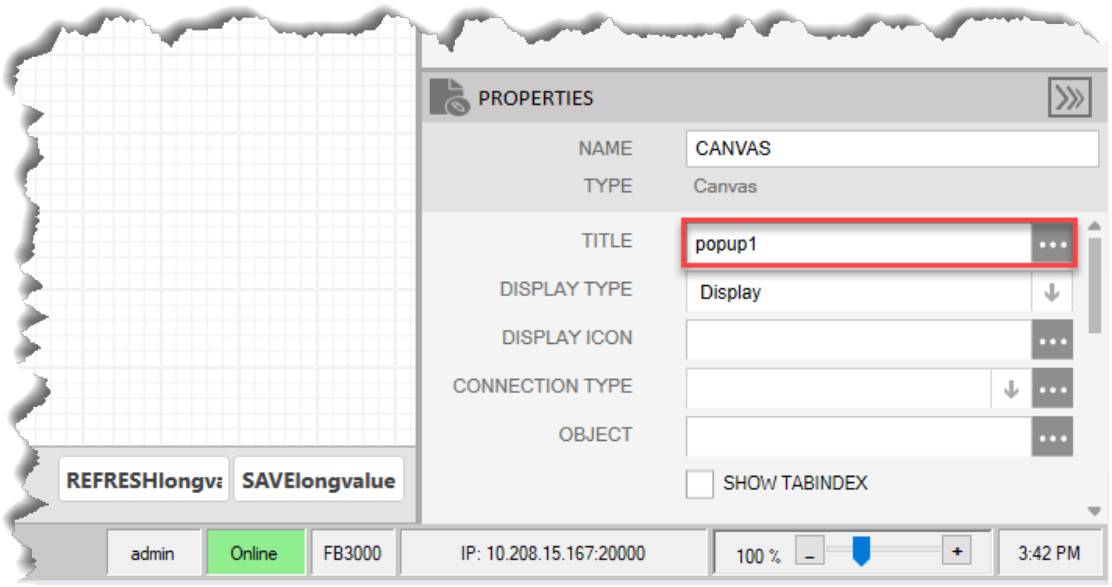
1. Select **FBxVue** > **New** to create a new display. This will be the popup display.

Figure 37. New Display



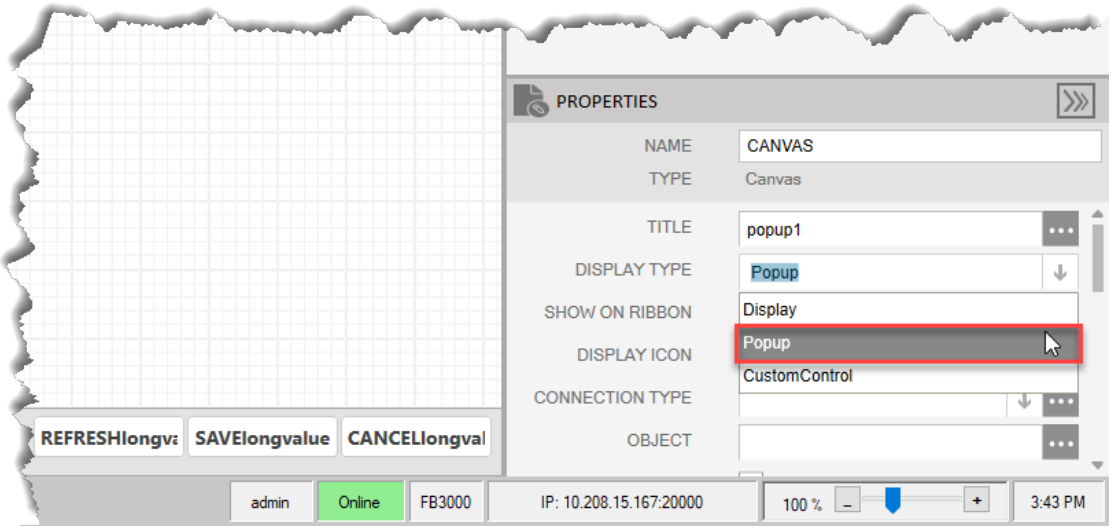
1. In the PROPERTIES pane, enter **popup1** in the TITLE field. This text will show in the title bar of the display.

Figure 38. TITLE



2. Click ↓ in the DISPLAY TYPE field and select **Popup**.

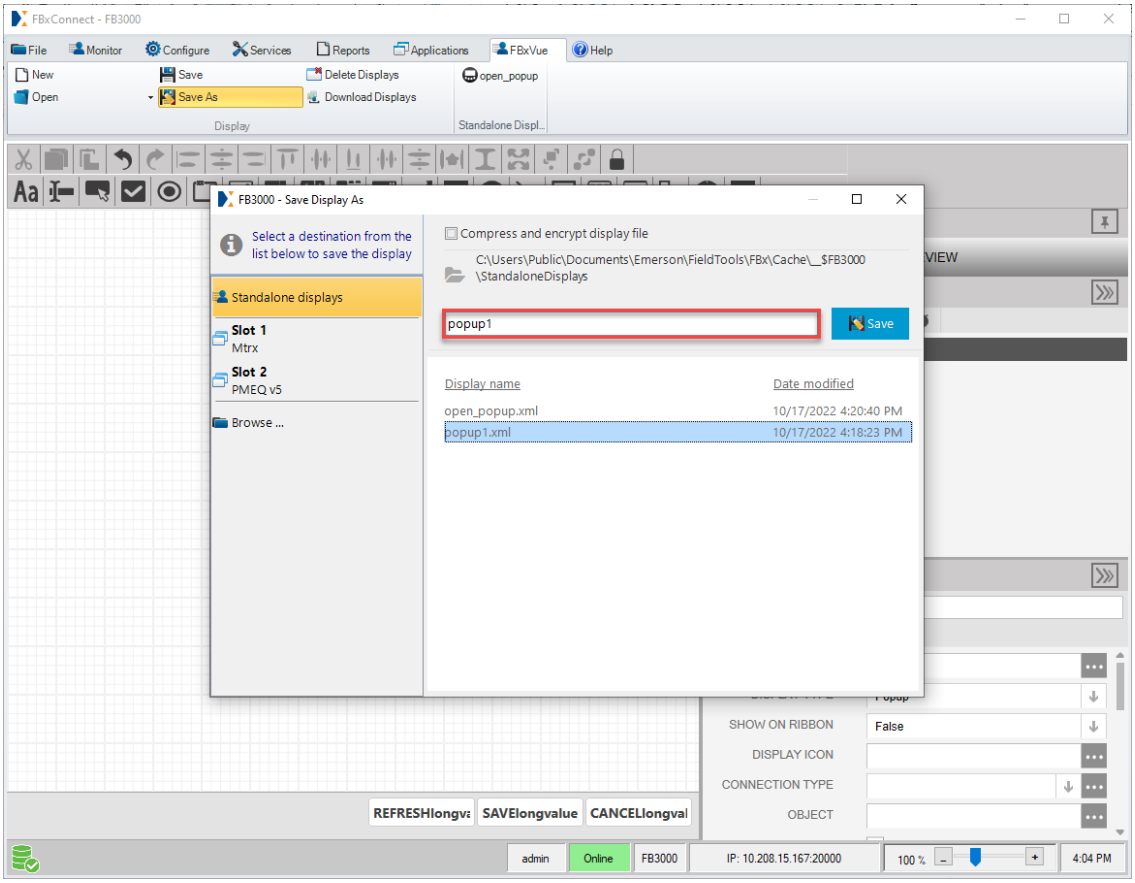
Figure 39. DISPLAY TYPE



3. Select **FBxVue** > **Save As** to open the Save As dialog.

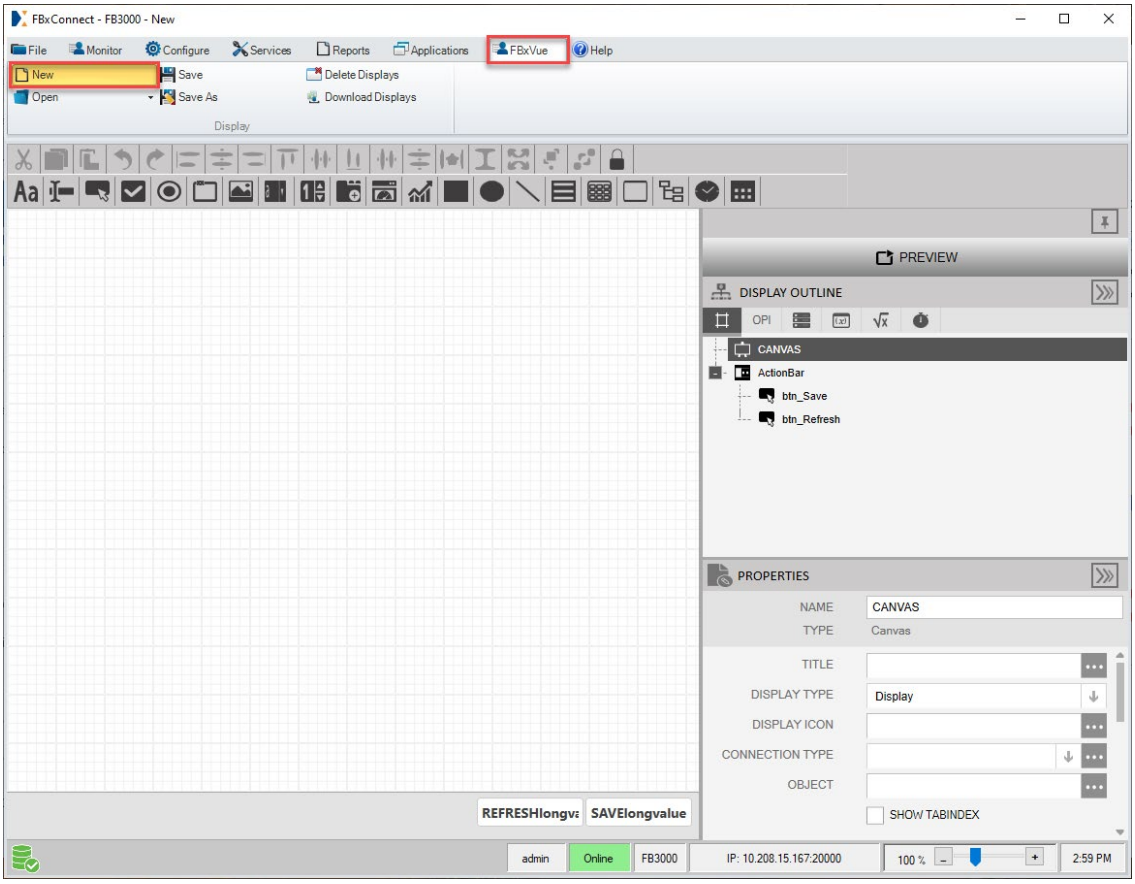
4. Enter **popup1** as the name of the display and select **Save**.

Figure 40. Save Display As



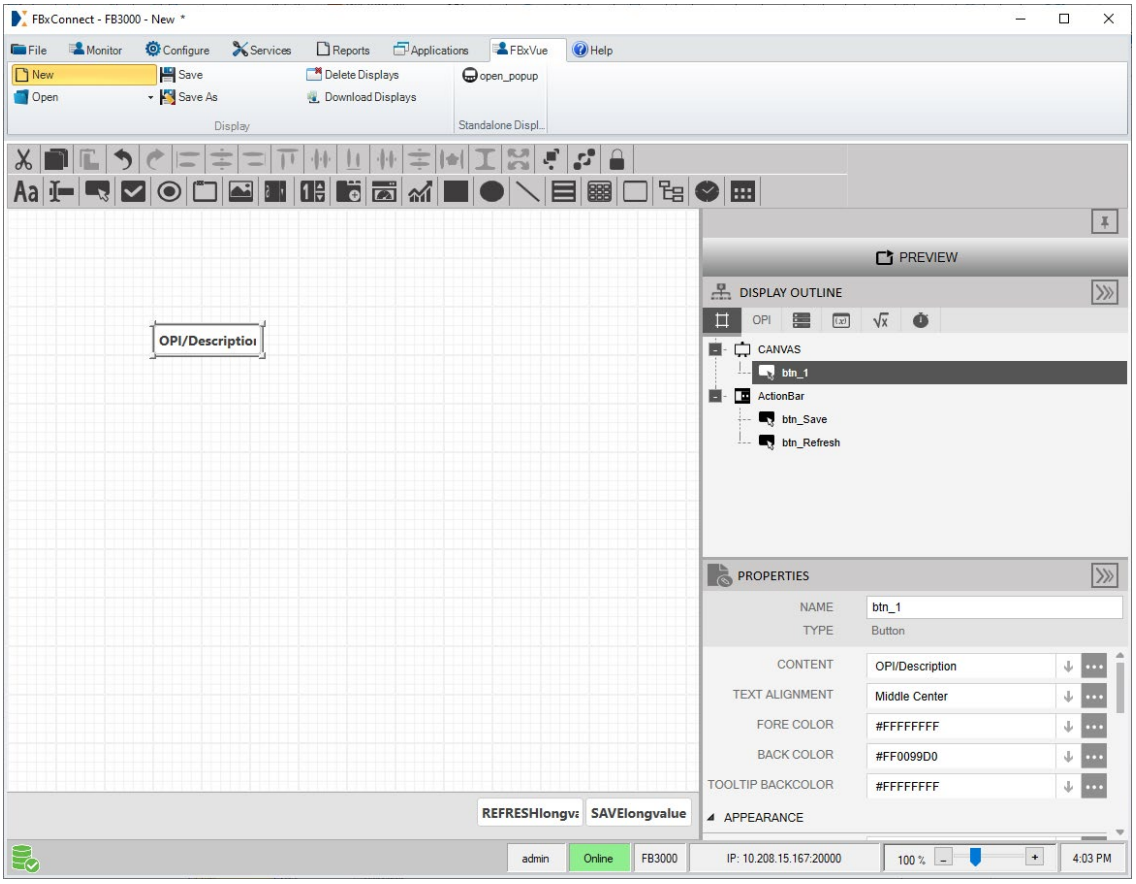
5. Select **FBxVue** > **New** to create a new display. This display will contain the button that opens the popup display.

Figure 41. New Display



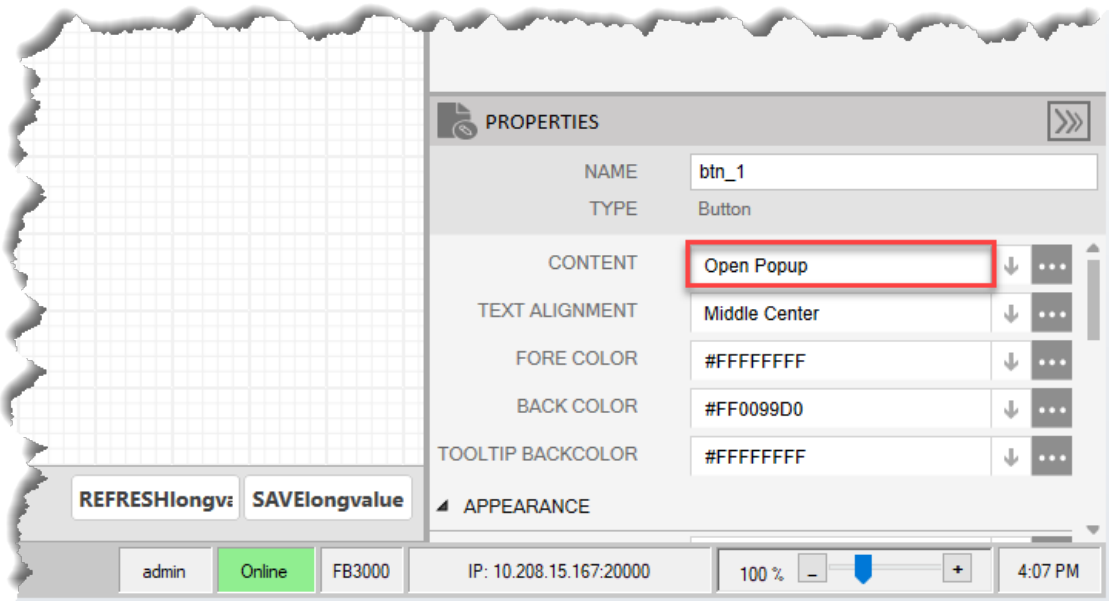
6. Add a button control to the display canvas by either dragging the icon () from the toolbar or right clicking an empty area on the canvas and selecting **Insert** > **Button**. In this example we added a Button control.

Figure 42. Add Button



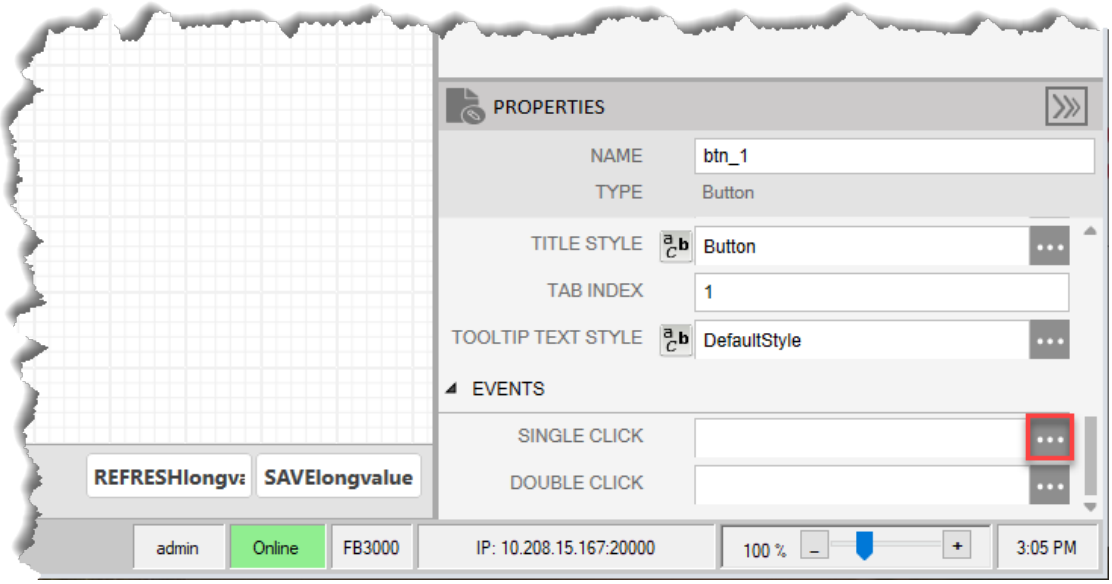
7. With the control selected, enter **Open Popup** in the CONTENT field of the PROPERTIES pane. This is the text that appears on the button in the finished display.

Figure 43. CONTENT



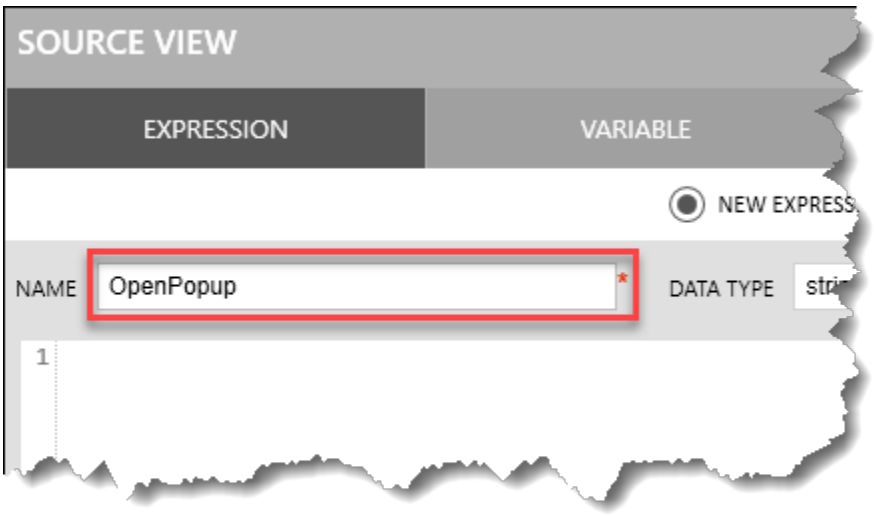
8. Click ••• next to the EVENTS > SINGLE CLICK field in the PROPERTIES pane to open the SOURCE VIEW expression editor.

Figure 44. SINGLE CLICK



9. Select the **NEW EXPRESSION** radio button to create a new expression.

Figure 45. SOURCE VIEW



10. In the NAME field, enter a unique name for the expression. In this example, we entered **OpenPopup**.

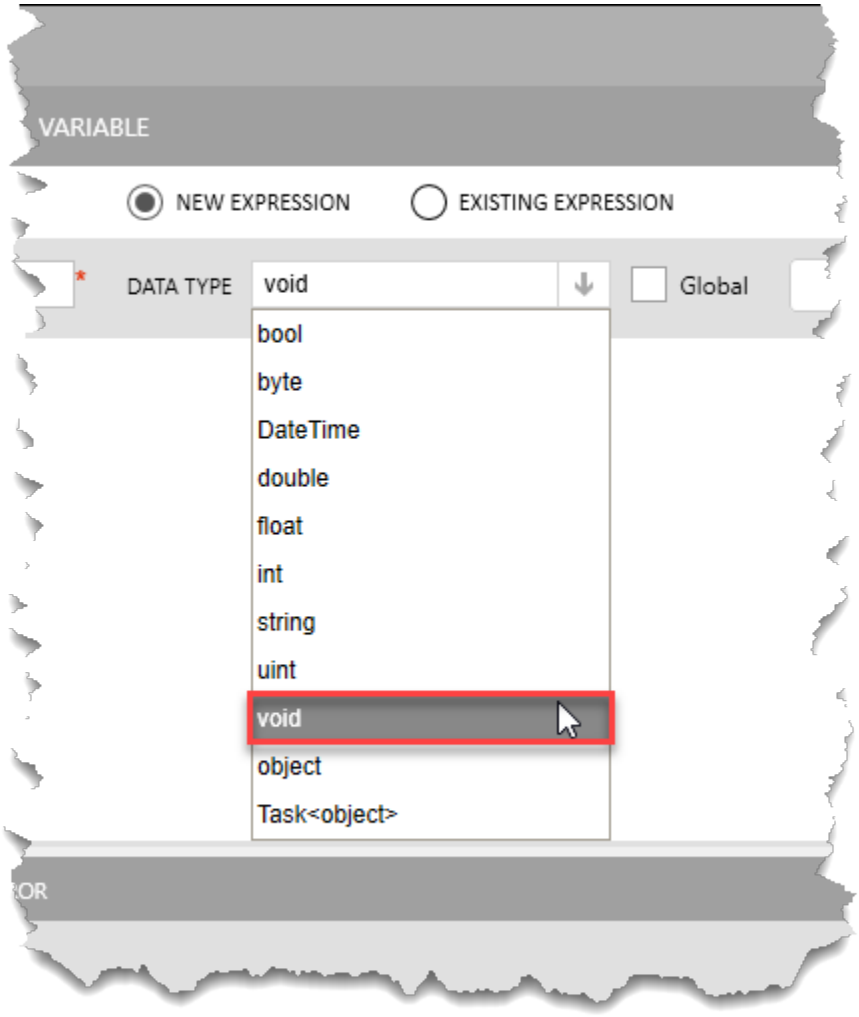
Note

No two expressions can share the same name.

11. In the DATA TYPE field, click ↓ and select the appropriate Data Type for the expression. In this example, we selected **void**.

- Expressions that return nothing (void) are typically used for events caused by user interaction (click, textchange, selection change, etc.).
- Expressions used for the properties of controls, such as ENABLE or VISIBLE, will return a value (boolean, strings, int, etc.).

Figure 46. DATA TYPE

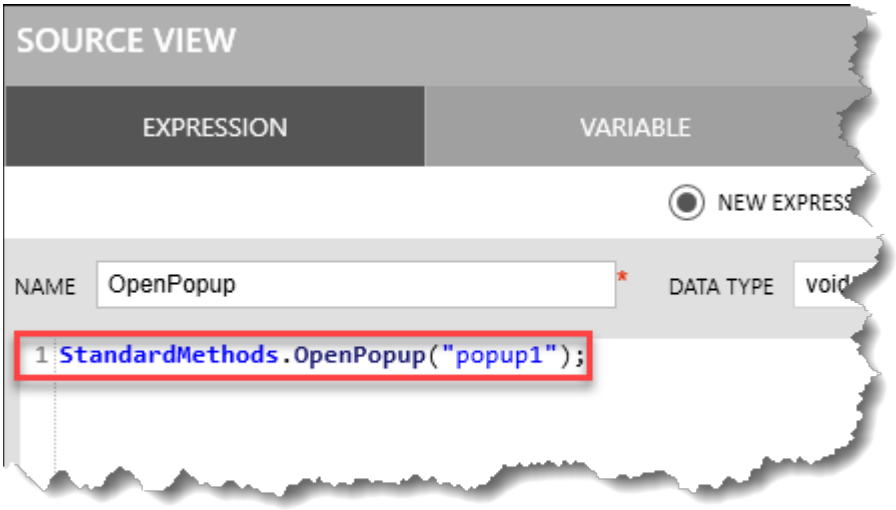


12. Write the code for your expression. In this example, we wrote **StandardMethods.OpenPopup("popup1");** to open the display named popup1 when the button is single clicked.

Note

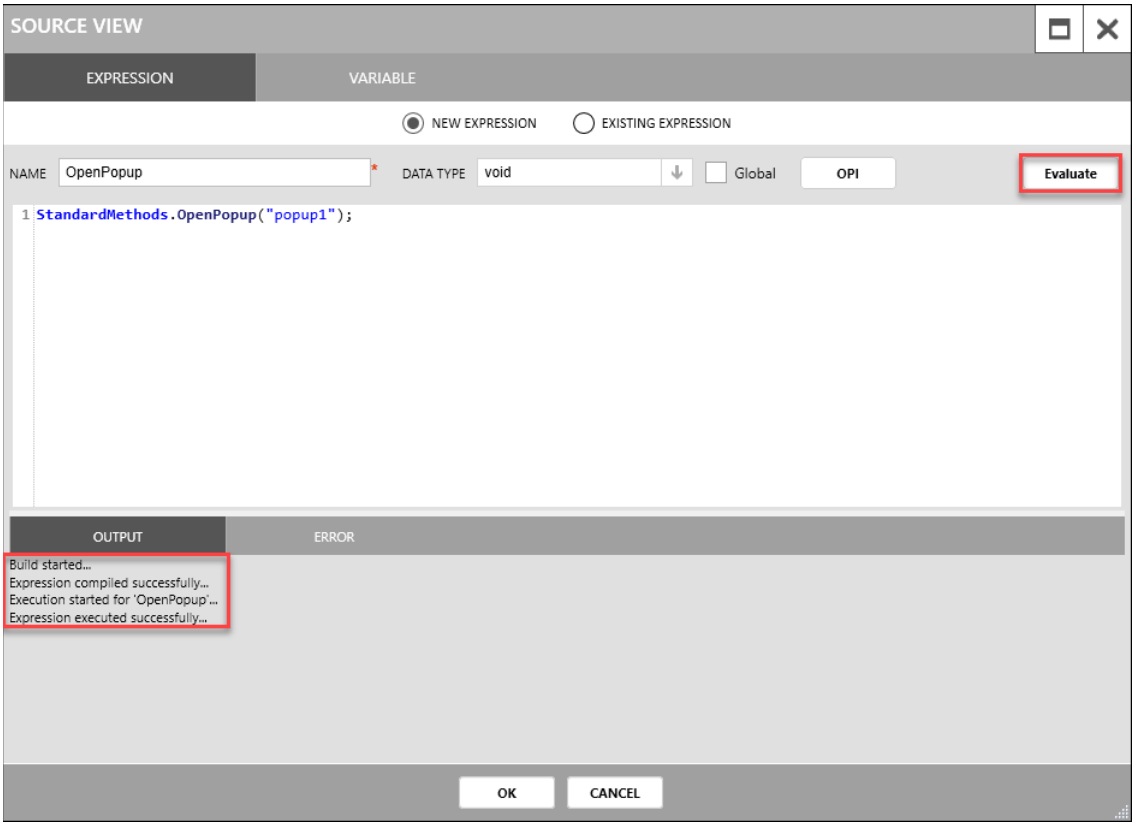
Replace “popup1” with the name of the popup display you want to open.

Figure 47. Expression Code



13. Click the **Evaluate** button. This action checks the syntax of the entered expression. The results of this evaluation are shown at the bottom of the SOURCE VIEW popup display.

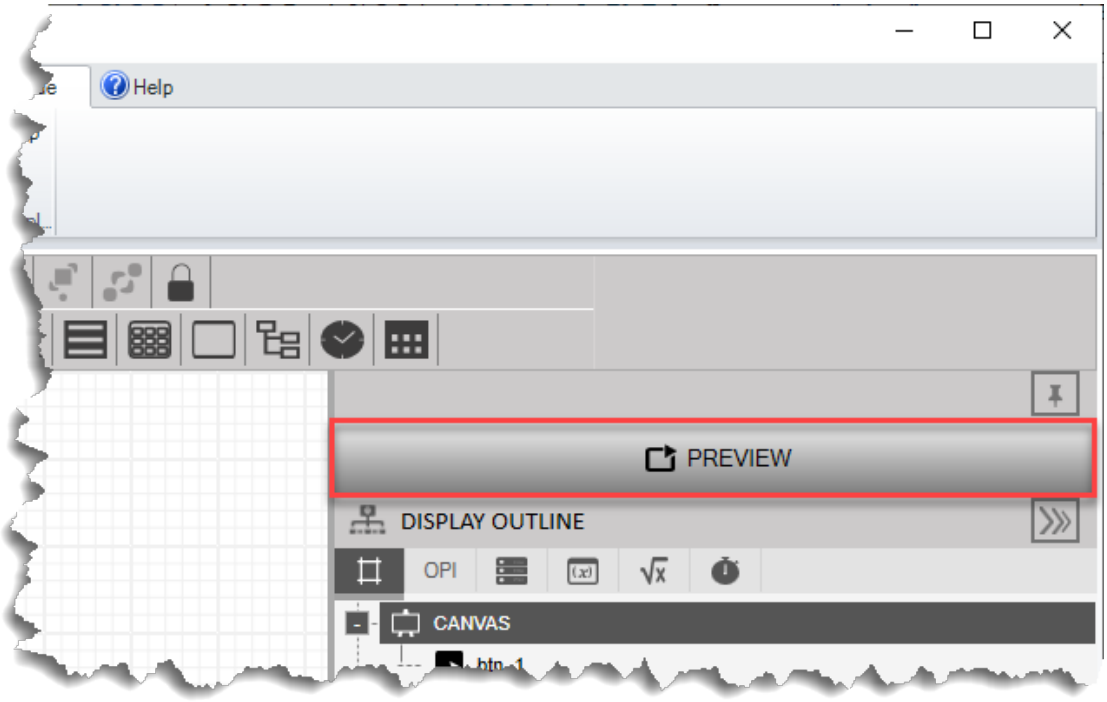
Figure 48. Evaluate



14. Click **OK** to close the SOURCE VIEW popup display. The expression has now been added to the control on your display.

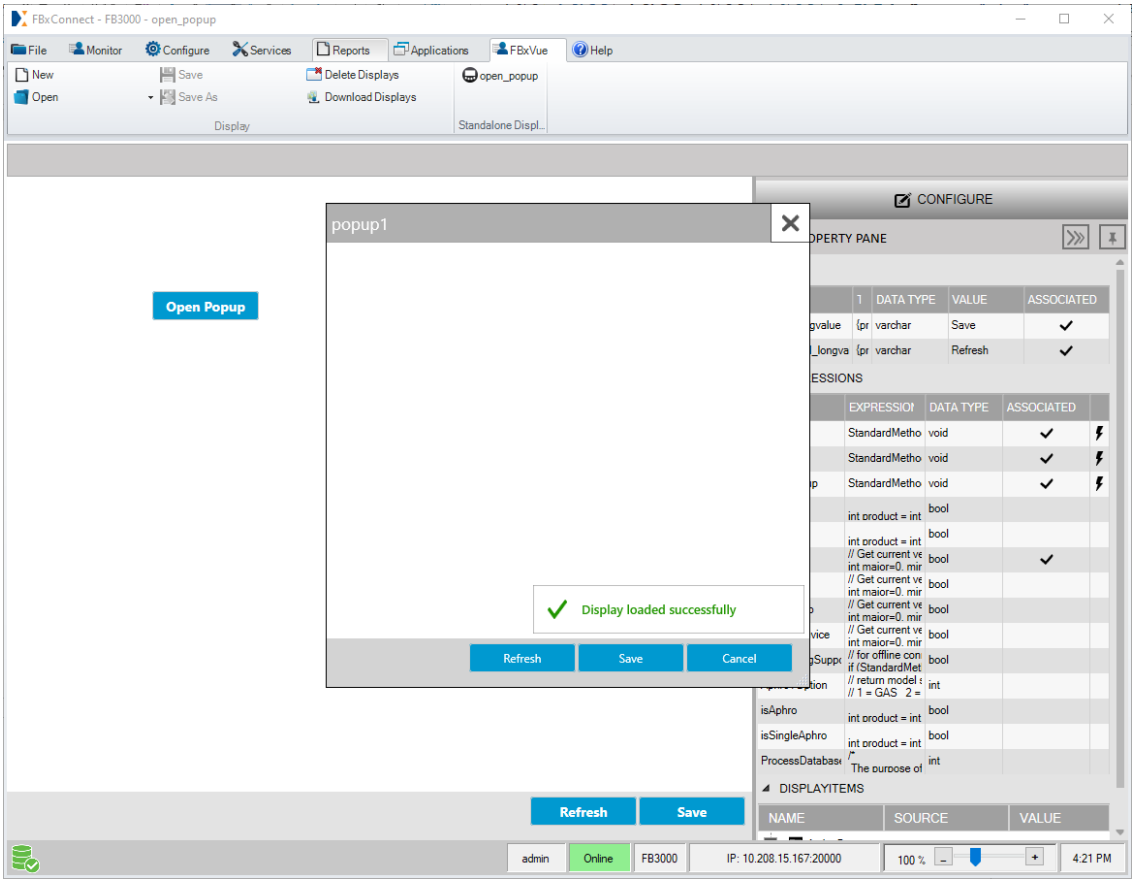
15. Select the **PREVIEW** button to view the display.

Figure 49. PREVIEW



16. Click the **Open Popup** button to verify that the popup display opens successfully.

Figure 50. Display Loaded Successfully



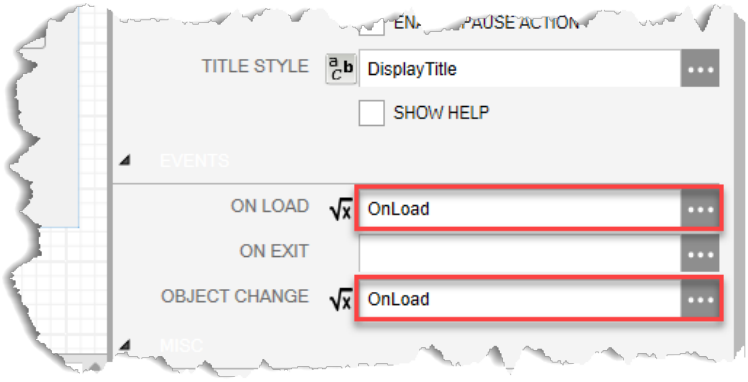
4.2 Mapping Additional Objects Using an Expression

A display is usually based on a single object (refer to Mapping a Single Object to a Display), and that object is automatically built into the database (if not already present). If you need additional objects in the display, you can add those objects to the database by configuring an expression in the ON LOAD field and OBJECT CHANGE field.

Use the following expression to add objects to the database:

Example: `StandardMethods.BuildDBObjects(new string[] {"System_"});`

Figure 51. ON LOAD and OBJECT CHANGE Fields



The ON LOAD field executes an expression every time the display opens, and this expression runs before the collection of OPIs and rendering of controls. Any expression in the ON LOAD field should be used to build other objects that are needed in the display.

The OBJECT CHANGE field executes an expression every time the instance is changed on the display. The OBJECT CHANGE field is **not** necessary if you do not require an action to be performed when the instance is changed from the ComboBox.

4.3 Collecting Parameters Using an ONLOAD Expression

Sometimes it's necessary to collect parameters from the FB Series product to properly format and render display controls in FBxConnect. Because of the order of operations (OPIs are not read from the FB Series product until after the ONLOAD expression finishes), it may be necessary to force FBxConnect to poll the FB Series product for specific parameters.

Note

- Force polling parameters should **only** be used in ONLOAD expressions.
- Force polling can be time consuming and should be used **only** when necessary.

Use the following method to collect these parameters in an ONLOAD expression:

Example: `StandardMethods.ForcePollParms(new string[]{"Mtr Setup_1.NUM%", "Mtr Setup_1.MAX_MTRS"}, Table.INTEGER);`

By grouping the parameters in ForcePollParms expression, the device collecting is much faster.

Note

- Parameter wildcards are allowed in the ForcePollParms expression.
- When polling for integers, use **Table.INTEGER**.
- When polling for doubles or floats, use **Table.REAL**.
- When polling for strings, use **Table.VARCHAR**.

In the example below, we are collecting FB Series product parameters that define the number of meters. The ForcePollParms expression allows you to collect a number of parameters in a single message. The ReadParmAttr expression then reads from the Field Tools database. If the last parameter is set to "false," the expression only fetches from the database> If the last parameter is left blank or set to "true," then the parameter is collected from the FB Series product.

Example:

```
StandardMethods.ForcePollParms(new string[]
{
 "Mtr Setup_1.NUM%",
 "Mtr Setup_1.MAX_MTRS"
}, Table.INTEGER);

// Get number of meters
int maxMeters = int.Parse(StandardMethods.ReadParmAttr("Mtr Setup_1.MAX_MTRS",
Table.INTEGER, "value", -1, false));
int numGasDPMtr = int.Parse(StandardMethods.ReadParmAttr("Mtr
Setup_1.NUM_DPMTRS", Table.INTEGER, "value", -1, false));
int numGasLinearMtr = int.Parse(StandardMethods.ReadParmAttr("Mtr
Setup_1.NUM_LINMTRS", Table.INTEGER, "value", -1, false));
```

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Section 5: Timers

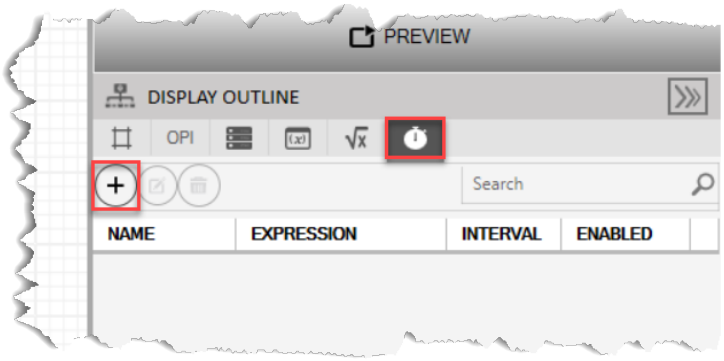
You can create timers that generate an event after a specified interval. Expressions can be executed when the display loads, when the display exits, or when the user takes an action (such as pressing a button). However, if you would like to have an expression execute in a periodic manner (such as once per second), a timer can be used to accomplish this functionality. Timers are not required for updating device data presented in standard controls associated with OPIs – this happens automatically. Instead, a timer may be used to update a graphical representation of a physical object (like a tank or a well). You can also use timers to hide or show aspects of a display based on the current process conditions.

5.1 Creating a Timer

To create a timer:

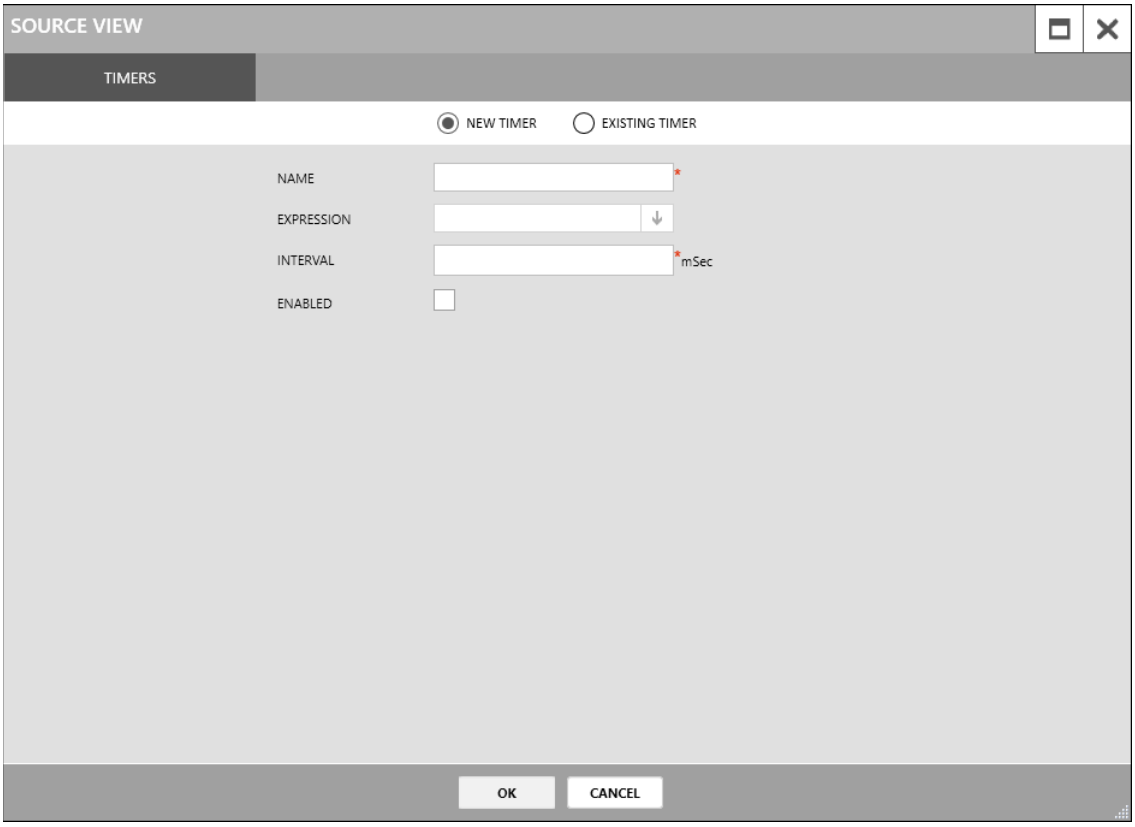
1. In the DISPLAY OUTLINE, select the TIMERS tab.

Figure 52. Timer Tab



2. Select ⊕ to open a SOURCE VIEW popup display. The SOURCE VIEW popup display opens, which provides the Timer editor.

Figure 53.



1. Enter the name of your timer in the NAME field.
2. Click ↓ in the EXPRESSION field and select the expression you want the timer to update.
3. Enter the amount of time, in milliseconds, in between each update in the Interval field.
4. Select the **ENABLED** checkbox to enable this timer on the display.
5. Select **OK** to close the SOURCE VIEW popup display. The timer is added to the list of existing timers in the DISPLAY OUTLINE and is also selectable on the TIMER tab in the SOURCE VIEW window.

Note

An example of creating a timer is covered in Creating a Timer to Execute the Expression.

Section 6: Building a Custom Tank Level Display

FBxVue allows you to build custom displays that are specific to your application. You can build a simple display that allows you to view multiple parameter values in a single location, and you can also build a complex display with multiple tabs that uses OPIs, Data Sources, Variables, Expressions, Timers, and scripts to monitor an entire well pad. The only limit when building displays is your imagination.

Note

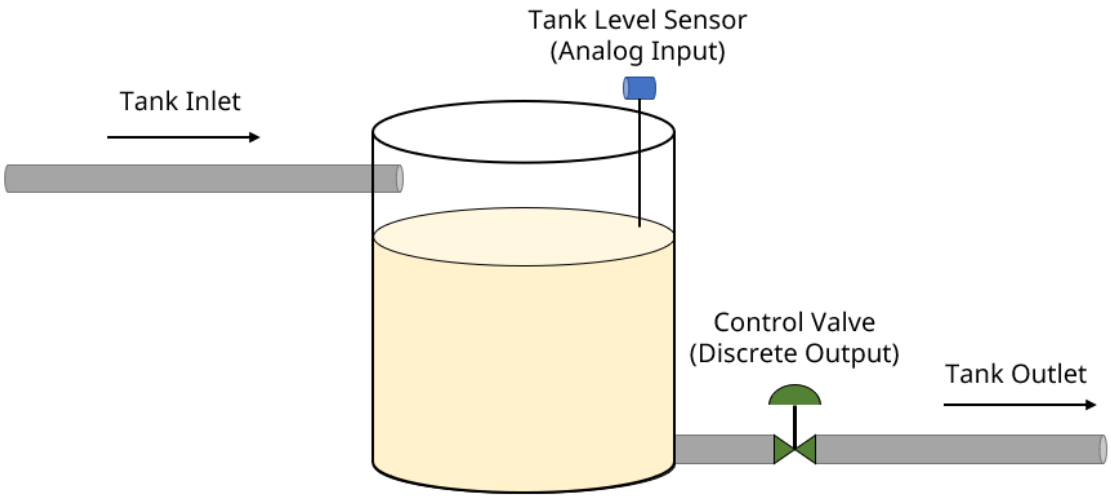
The following example builds a tank level display for the FB-Series Flow Computers. The process is similar for the FB3000 RTU.

In this example, we will build a display to monitor and control the level of a fluid in a tank. The result will be a display that simulates fluid filling and emptying from the tank.

The tank we are using in this example has the following components:

- A tank inlet that constantly fills the tank with fluid.
- A tank level sensor that monitors the level of the fluid in the tank.
- A control valve that opens and closes.
- A tank outlet that allows fluid to exit the tank.

Figure 54. Tank Diagram



The display you will build in this example consists of two tabs: a General tab and a Configuration tab. The General tab shows you the current level of the tank, if a low or high limit has been reached, the current position of the valve, and buttons that manually control the valve. The Configuration tab allows you to configure high and low setpoints that, when reached, automatically open or close the control valve.

In addition to building the display in FBxVue, you also need to configure one analog input, one digital output, two action blocks, and one math block. These parameters are used for the following:

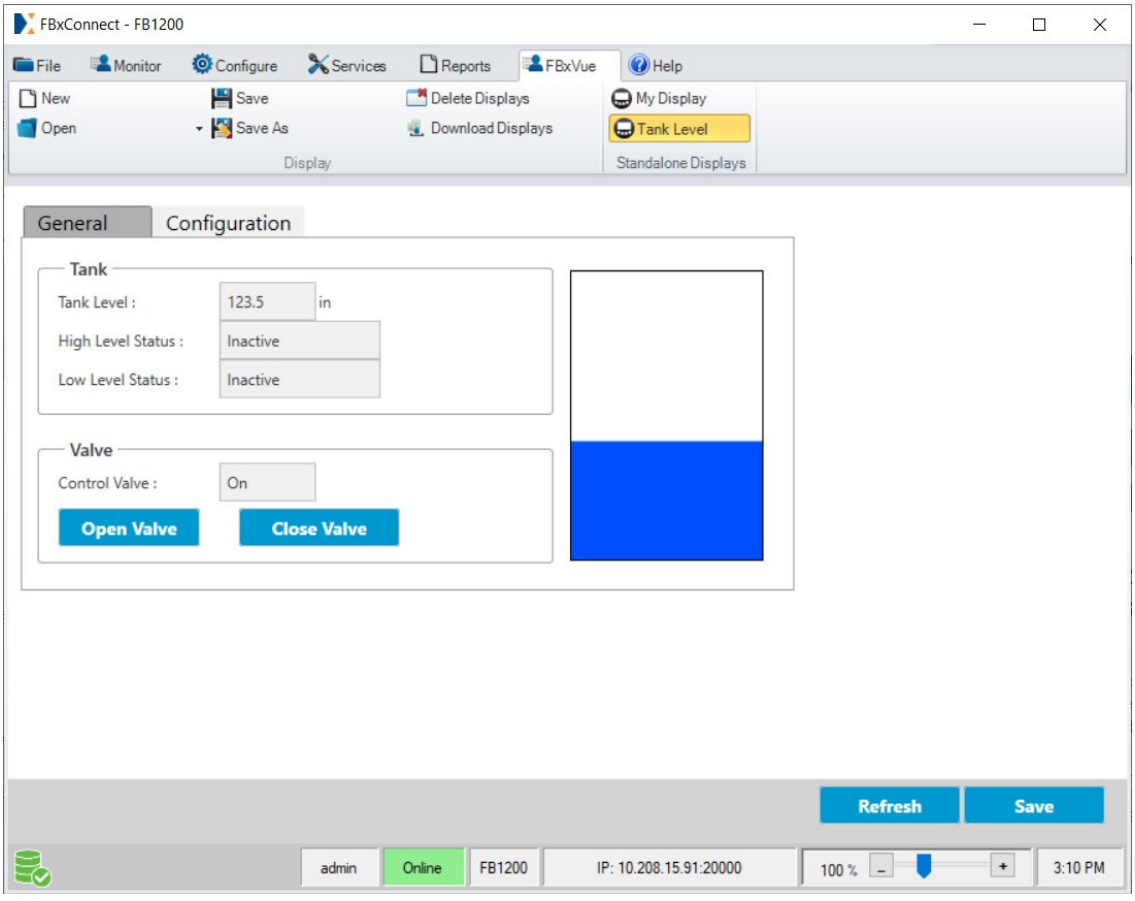
- **Analog Input** – Used to determine the level of the tank.
- **Digital Output** – Drives the control valve open or closed.
- **Action Blocks** – Opens or closes the control valve based on a high/low setpoint.
- **Math Block** – Simulates a rising and falling fluid level in the tank.

Note

Your FB Flow Computer must be licensed for Control options to use Action Blocks and Math Blocks.

The final Tank Level display will look like the picture below:

Figure 55. Tank Level Display



6.1 Configure the Flow Computer Parameters

The level of the tank comes from an analog input, a control valve is driven by a digital output, and two action blocks open or close the control valve. Before we build the display, we need to configure each of these parameters.

Note

This example assumes the following device configuration. If you configure different I/O channels or Action Blocks, use those when creating the display:

- Analog channel 1-1 is used for the Analog Input.
- Discrete channel 1-3 is used for the Digital Output.
- Action Blocks 1 and 2 are used for the Action Blocks.

Note

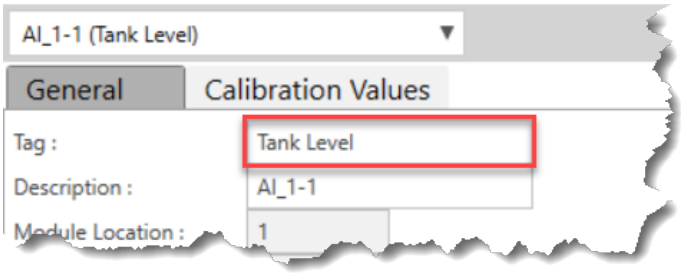
Your FB Flow Computer must be licensed for Control options to use Action Blocks.

6.1.1 Configure the Analog Input

The analog input is used to receive the signal from a tank level sensor and determine the level of fluid in the tank.

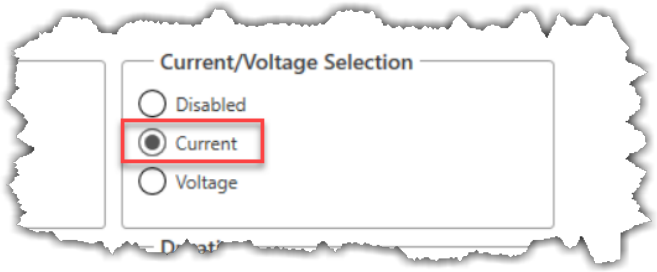
1. Select **Configure > I/O Setup > AI** from the main FBxConnect menu. The Analog Input display opens.
2. Enter **Tank Level** in the Tag field.

Figure 56. AI_1-1 – Tag



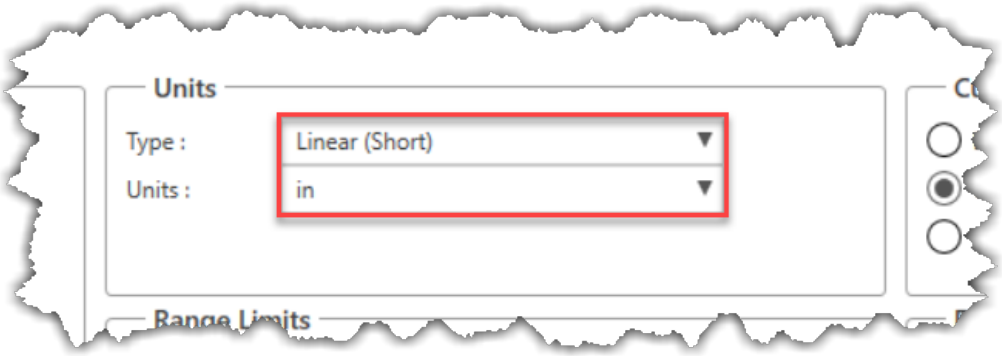
3. Select **Current** in the Current/Voltage field.

Figure 57. AI_1-1 – Current/Voltage Selection



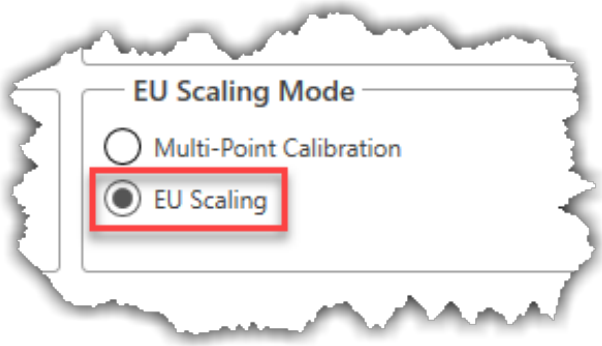
4. Select **Save** to save your changes.
5. In the Units frame, select **Linear (Short)** in the Type field.
6. In the Units frame, select **in** in the Units field.

Figure 58. AI_1-1 – Units



7. Select **EU Scaling** in the EU Scaling Mode field.

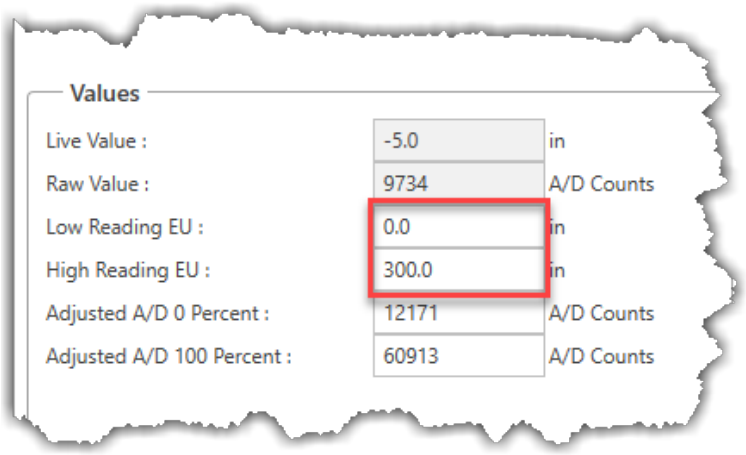
Figure 59. AI-1-1 – EU Scaling



8. In the Values frame, enter **0.0** in the Low Reading EU field.

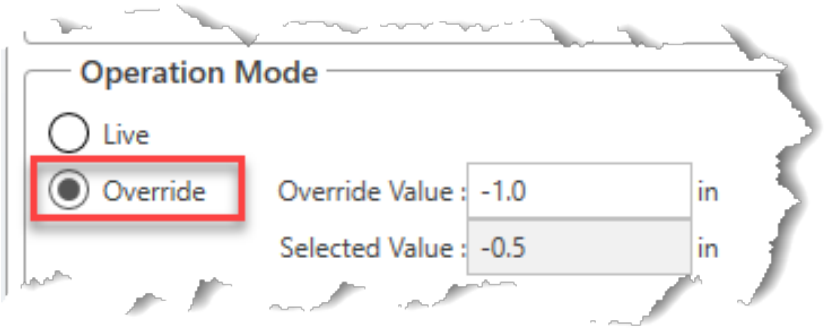
9. In the Values frame, enter **300.0** in the High Reading EU field.

Figure 60. AI_1-1 – Low/High Reading EU



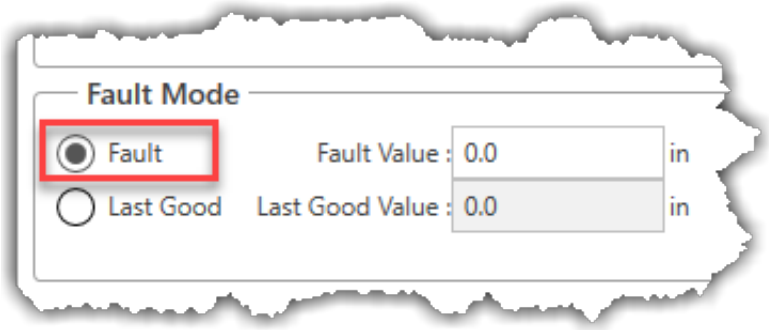
10. Select **Override** in the Operation Mode field.

Figure 61. AI_1-1 – Operation Mode



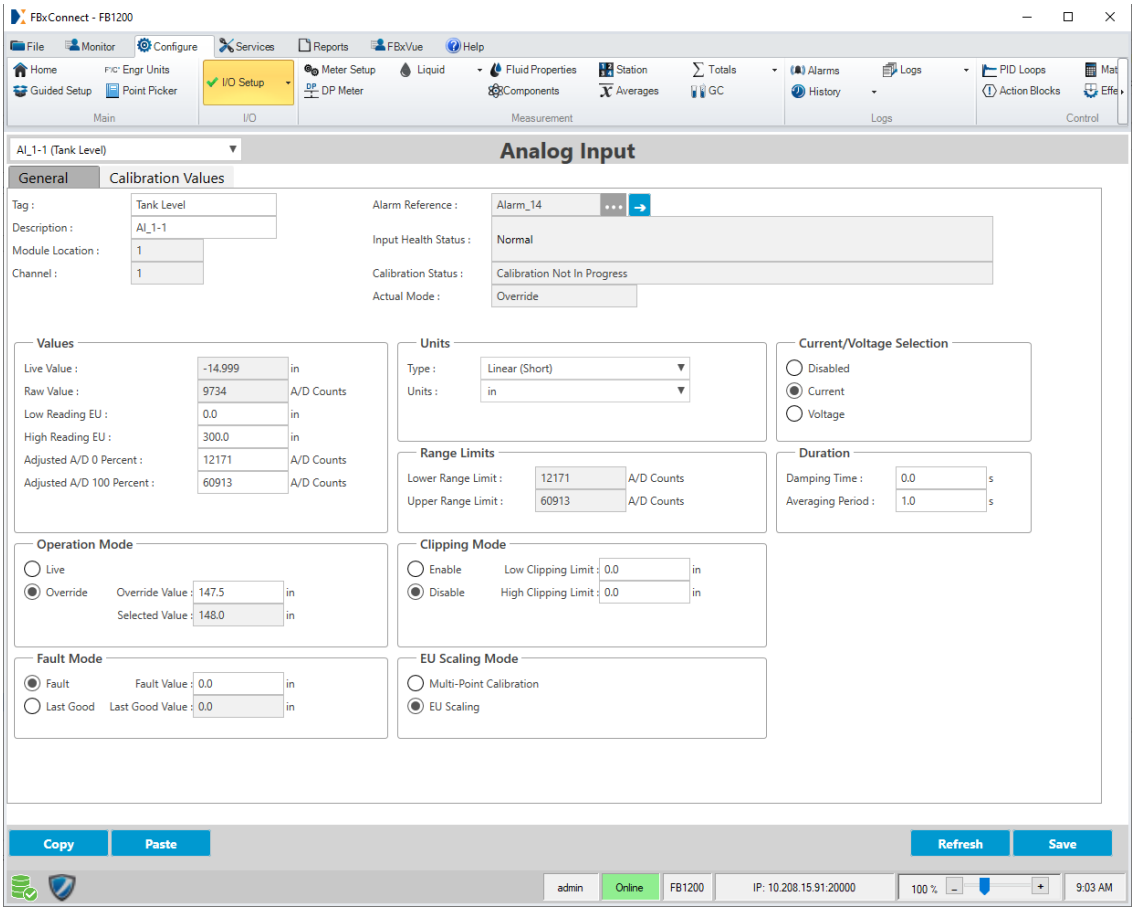
11. Select **Fault** in the Fault Mode field.

Figure 62. AI_1-1 – Fault Mode



12. Select **Save** to save your changes. Your Analog Input display should look like the picture below:

Figure 63. Configured AI_1-1



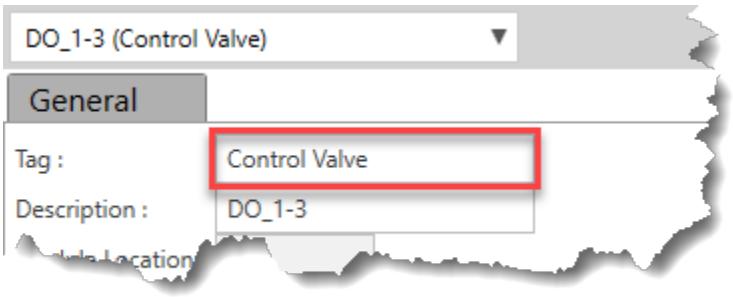
6.1.2 Configure the Digital Output

The digital output is used to open or close the control valve on the tank.

13. Select **Configure > I/O Setup > DO** from the main FBxConnect menu. The Digital Output display opens.

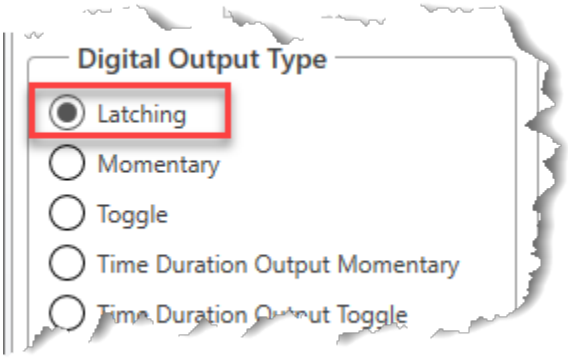
14. Enter **Control Valve** in the Tag field.

Figure 64. DO_1-3 – Tag



15. Select **Latching** in the Digital Output Type field.

Figure 65. DO_1-3 – Output Type

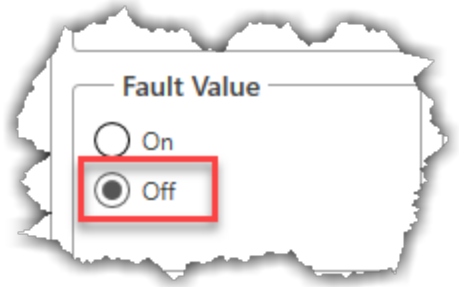


16. Select **Last Good** in the Fault Mode field.

Figure 66. DO_1-3 – Fault Mode

17. Select **Off** in the Fault Value field.

Figure 67. DO_1-3 – Fault Value

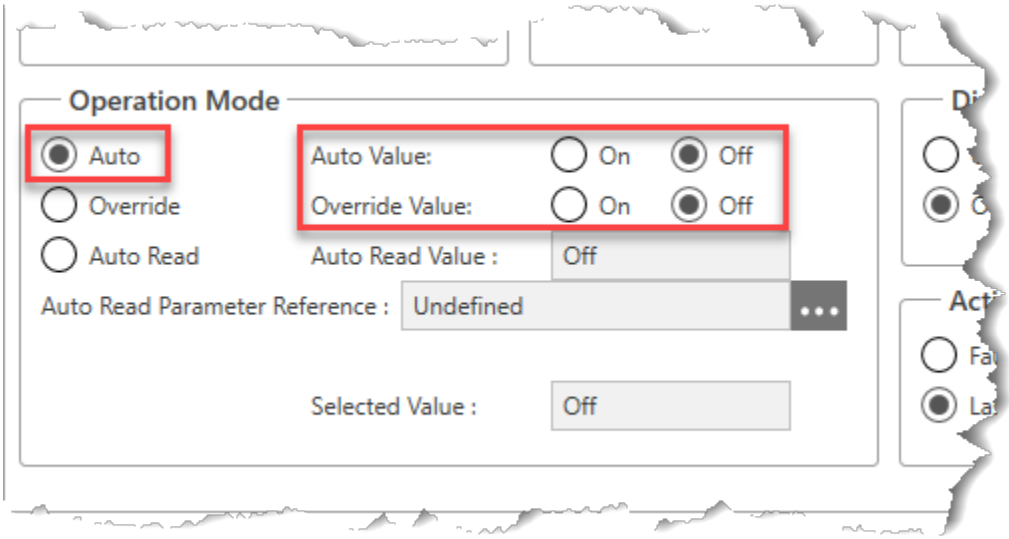


18. Select **Auto** in the Operation Mode field.

19. Select **Off** in the Auto Value field.

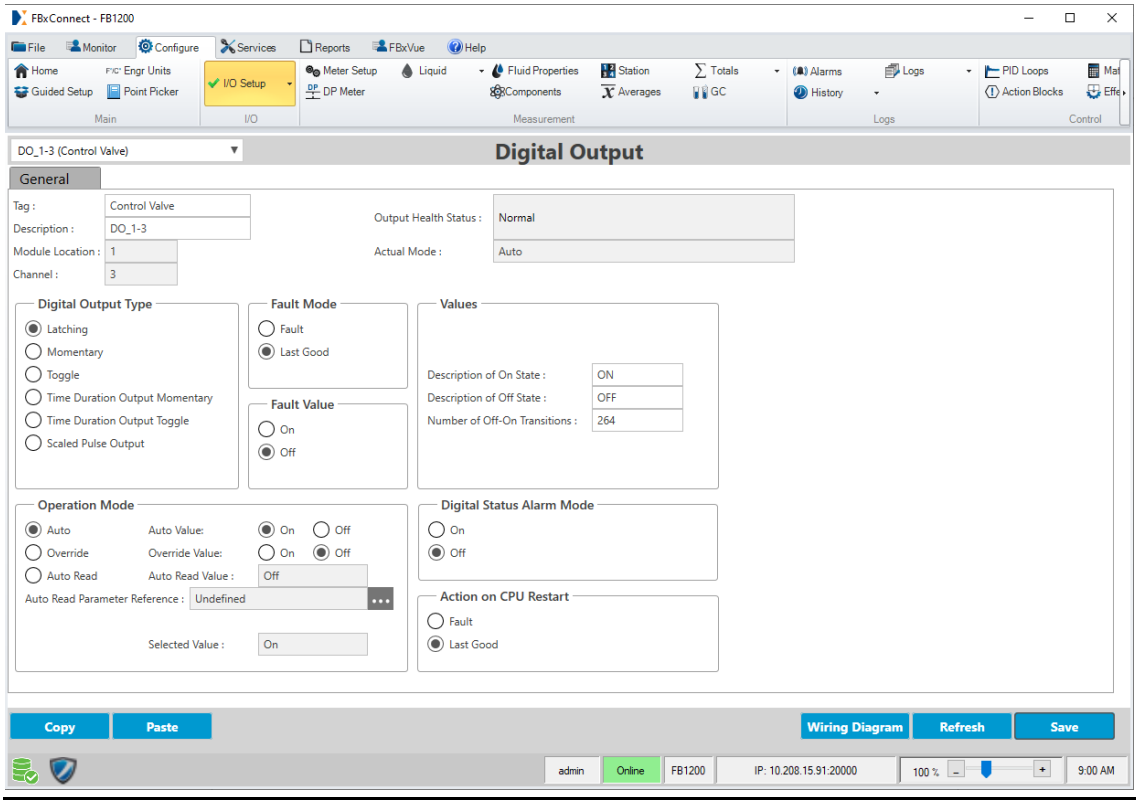
20. Select **Off** in the Override Value field.

Figure 68. DO_1-3 – Operation Mode



21. Select **Save** to save your changes. Your Digital Output display should look like the picture below:

Figure 69. DO_1-3 – Configuration Complete

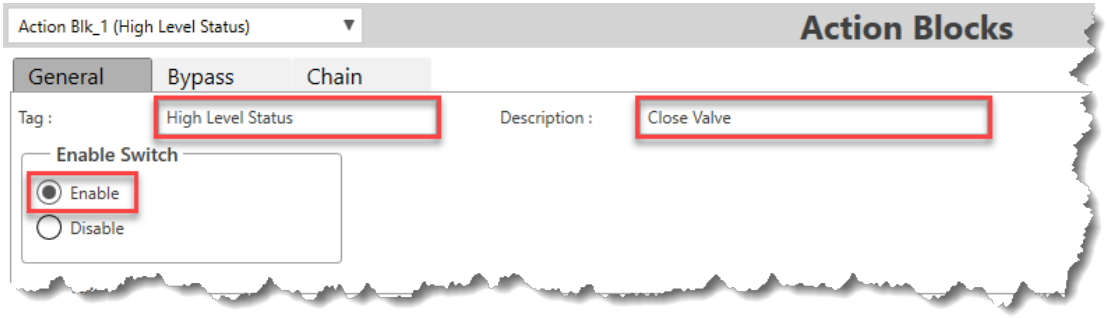


6.1.3 Configure Action Block 1

Action Block 1 is used to drive the control valve closed when the fluid in the tank reaches a high-level setpoint.

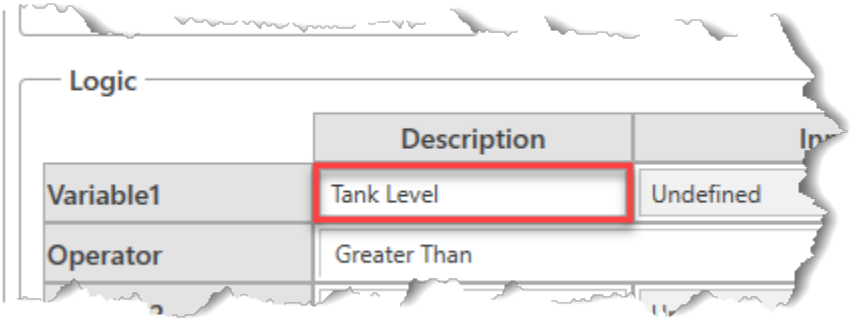
1. Select **Configure > Action Blocks** for the FBxConnect main menu. The Action Blocks Display opens.
2. Enter **High Level** in the Tag field.
3. Enter **Close Valve** in the Description field.
4. Select **Enable** in the Enable Switch field.

Figure 70. Action Block 1 – Tag, Description, Enable



5. Enter **Tank Level** in the Description field for Variable 1.

Figure 71. Action Block 1 – Variable1 Description



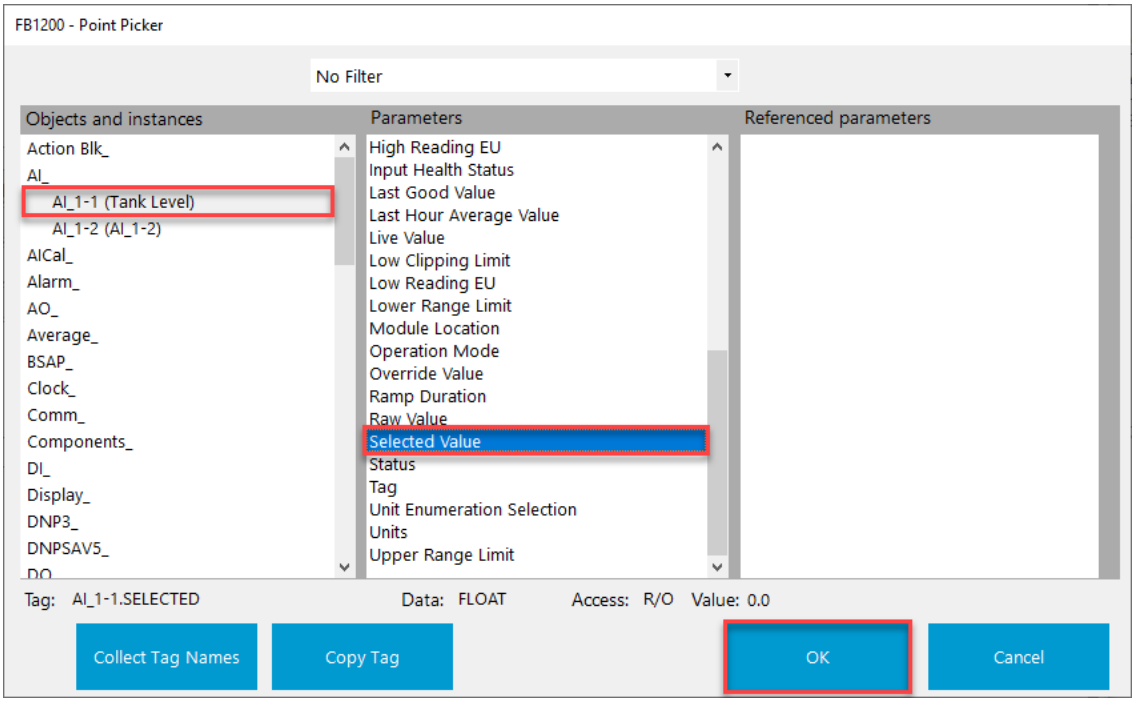
6. Select ... in the Input field for Variable 1 to open a Point Picker dialog.

7. Select **AI_1-1 (Tank Level)** in the Objects and Instances column.

8. Select **Selected Value** in the Parameters column.

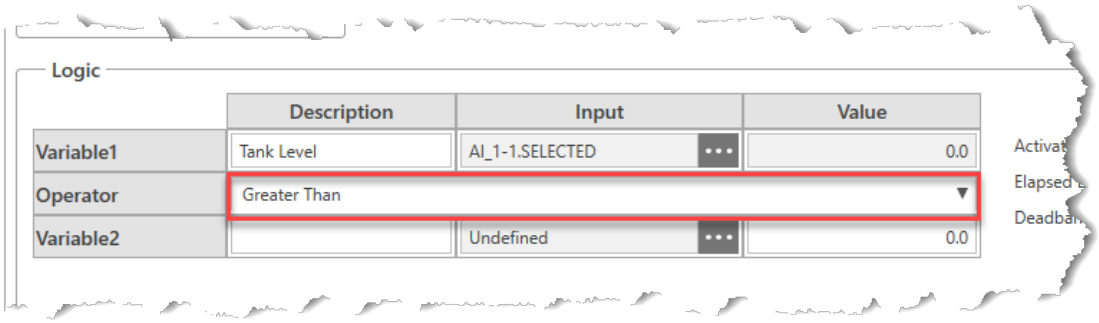
9. Select **OK** to close the Point Picker dialog.

Figure 72. Action Block 1 – Variable1 Point Picker



10. Select ▼ in the Operator field and select **Greater Than**.

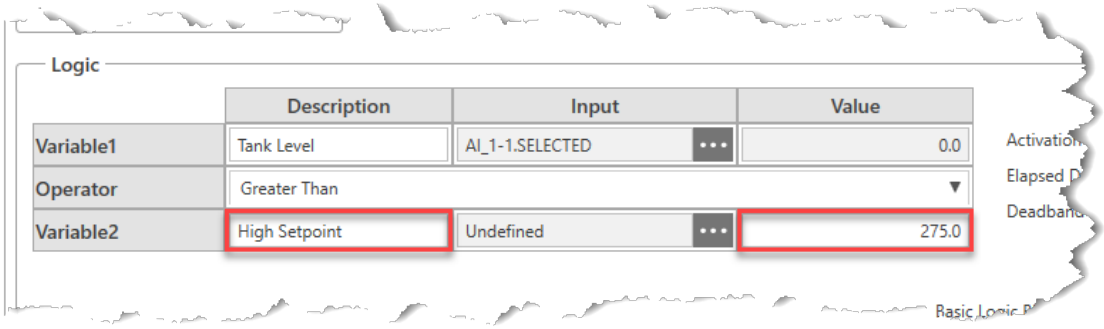
Figure 73. Action Block 1 – Operator



11. Enter **High Setpoint** in the Description field for Variable 2.

12. Enter **275.0** in the value field for Variable 2.

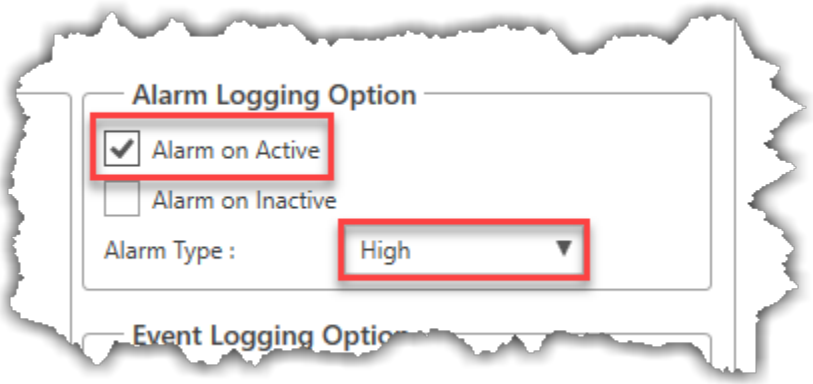
Figure 74. Action Block 1 – Variable 2



13. Place a checkmark next to **Alarm on Active** in the Alarm Logging Option frame.

14. Select ▼ in the Alarm Type field and select **High**.

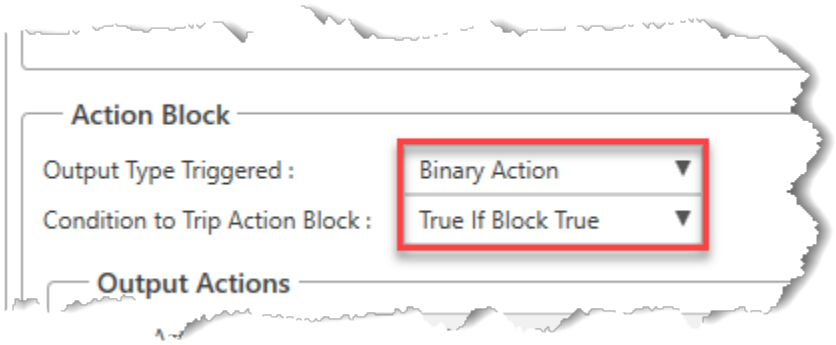
Figure 75. Action Block 1 – Alarm Logging Option



15. Select ▼ in in the Output Type Triggered field and select **Binary Action**.

16. Select ▼ in in the Condition to Trip Action Block field and select **True If Block True**.

Figure 76. Action Block 1 – Action Block



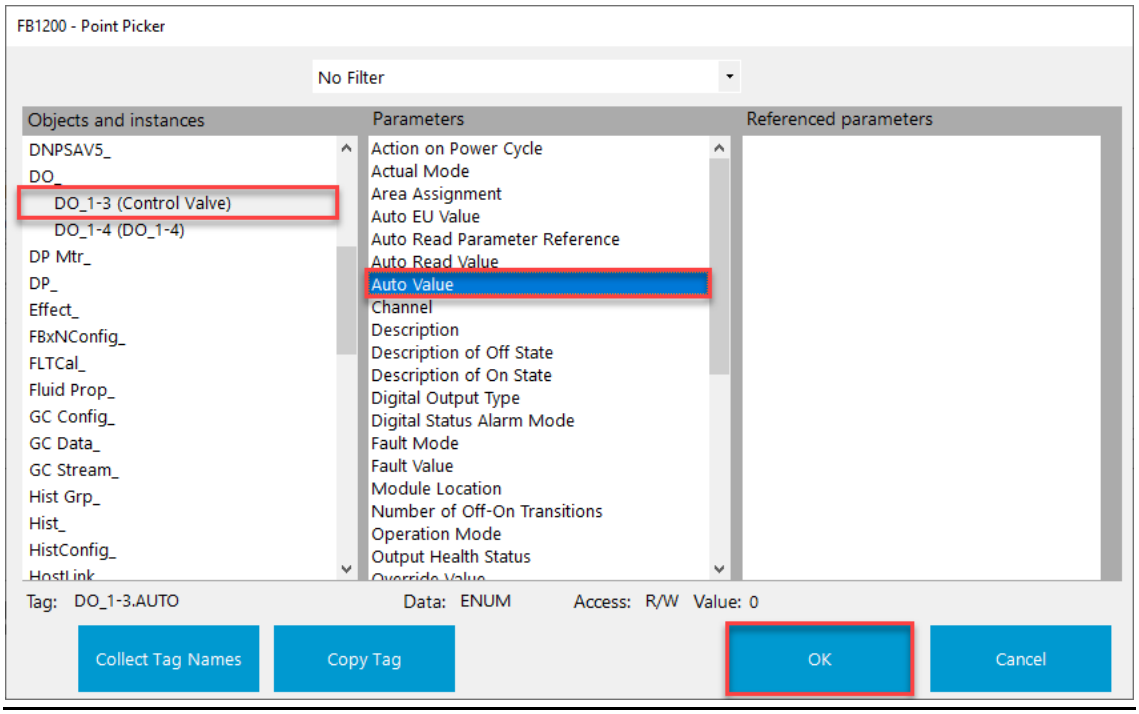
17. Select ... in the Output Action Point field to open a Point Picker dialog.

18. Select **DO_1-3 (Control Valve)** in the Objects and Instances column.

19. Select **Auto Value** in the Parameters column.

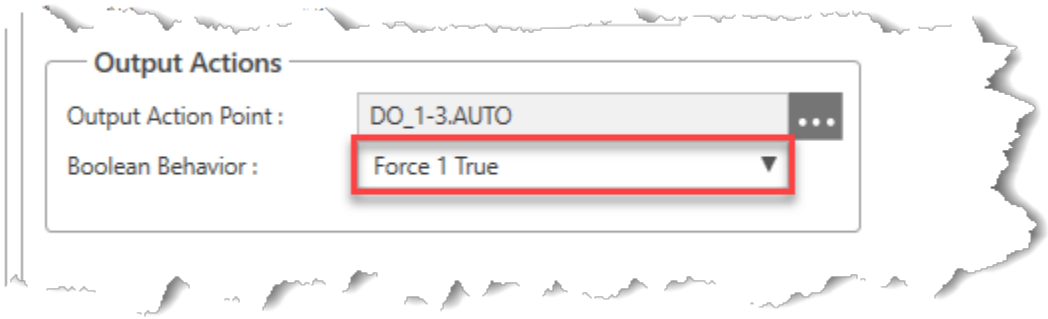
20. Select **OK** to close the Point Picker dialog.

Figure 77. Action Block 1 – Output Action Point Picker



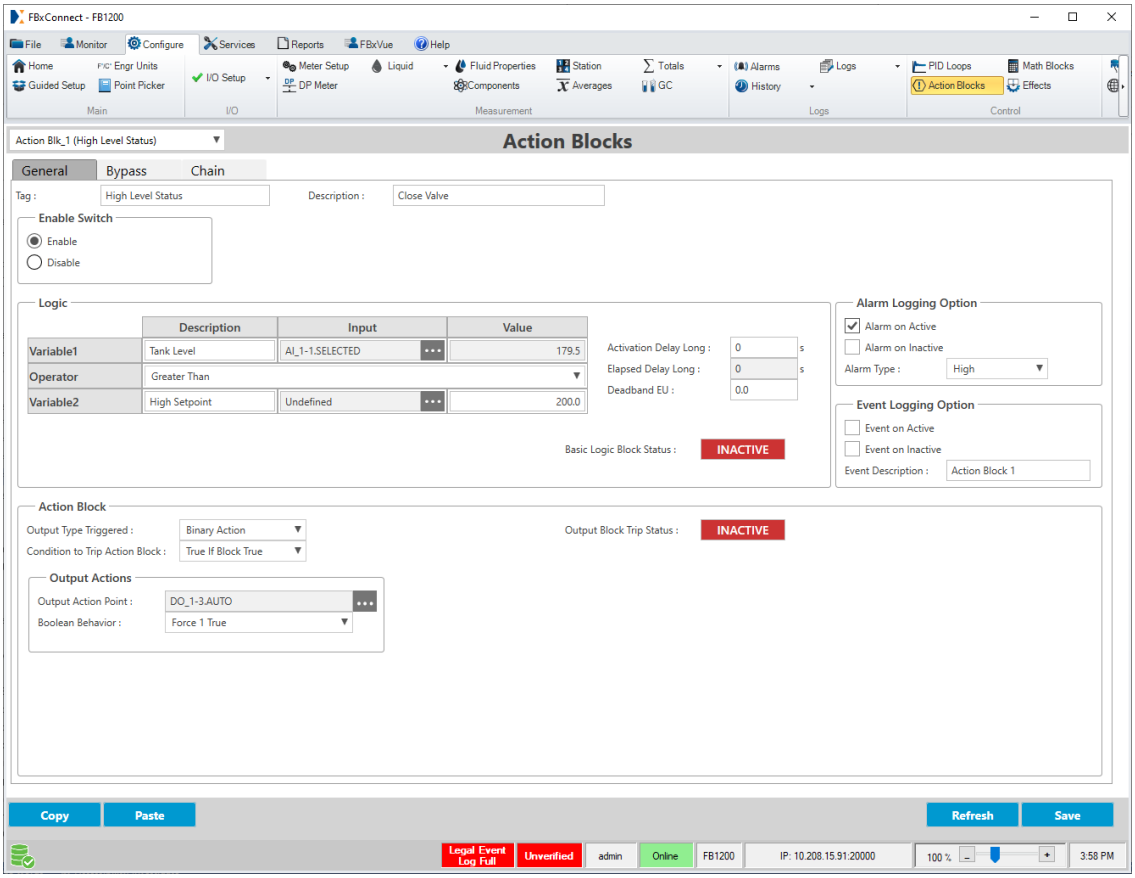
21. Select ▼ in the Boolean Behavior field and select **Force 1 True**.

Figure 78. Action Block 1 – Boolean Behavior



22. Select **Save** to save your changes to this Action Block. Your Action Block 1 display should look like the picture below:

Figure 79. Action Block 1 Configuration Complete

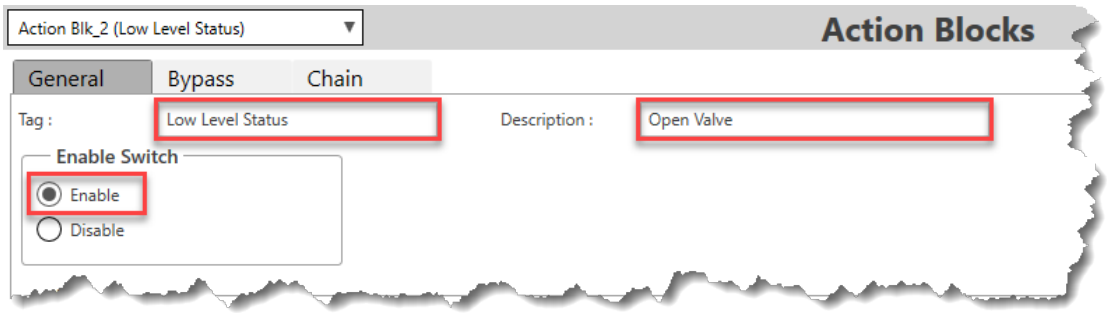


6.1.4 Configure Action Block 2

Action Block 2 drives the control valve open when the fluid in the tank reaches a low-level setpoint.

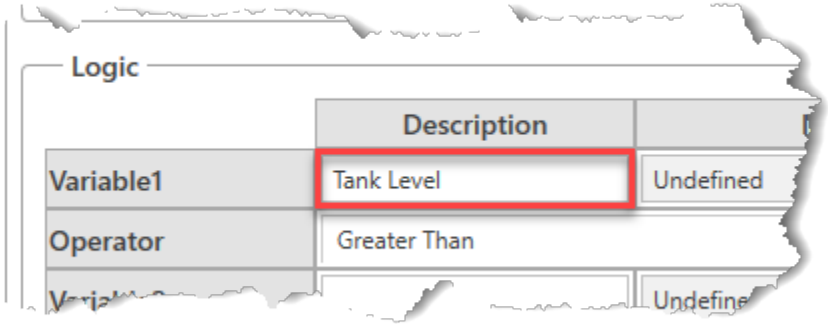
1. Select ▼ in the Action Block instance field at the top of the display and select **Action BLK_2**.
2. Enter **Low Level** in the Tag field.
3. Enter **Open Valve** in the Description field.
4. Select **Enable** in the Enable Switch field.

Figure 80. Action Block 2 – Tag, Description, Enable



5. Enter **Tank Level** in the Description field for Variable 1.

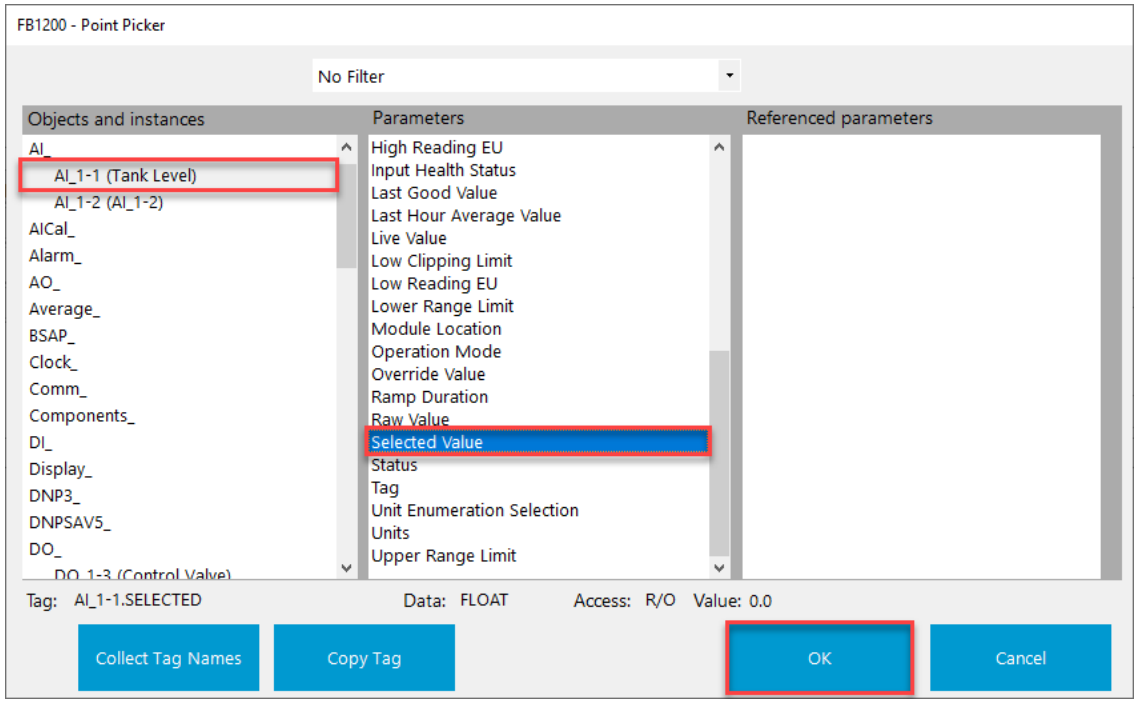
Figure 81. Action Block 2 – Variable1 Description



6. Select ... in the Input field for Variable 1 to open a Point Picker dialog.
7. Select **AI_1-1 (Tank Level)** in the Objects and Instances column.

8. Select **Selected Value** in the Parameters column.

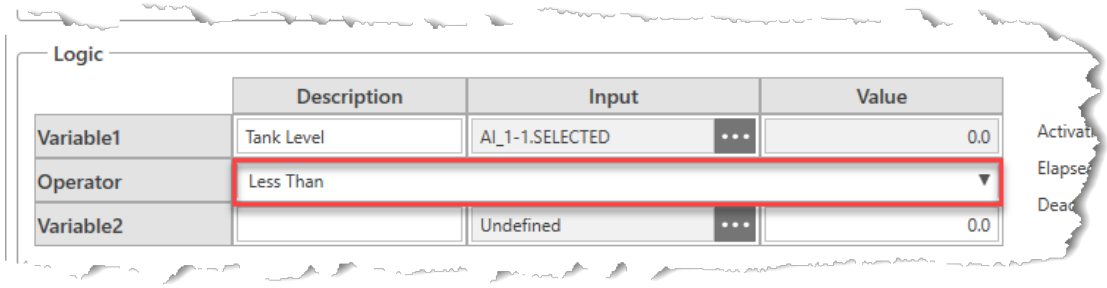
Figure 82. Action Block 2 – Variable 1 Point Picker



9. Select **OK** to close the Point Picker dialog.

10. Select ▼ in the Operator field and select **Less Than**.

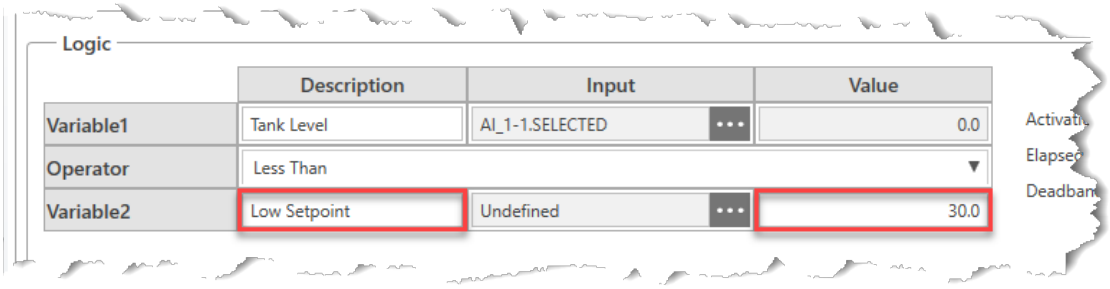
Figure 83. Action Block 2 – Operator



11. Enter **Low Setpoint** in the Description field for Variable 2.

12. Enter **30.0** in the value field for Variable 2.

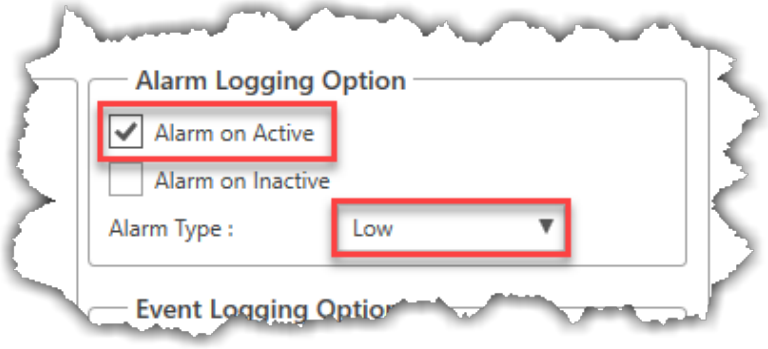
Figure 84. Action Block 2 – Variable 2



13. Place a checkmark next to **Alarm on Active** in the Alarm Logging Option frame.

14. Select ▼ in the Alarm Type field and select **Low**.

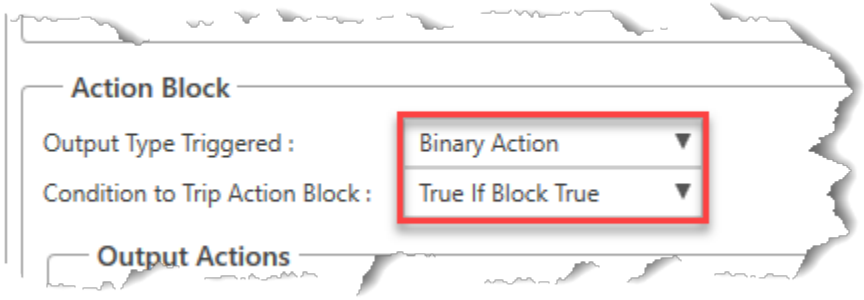
Figure 85. Action Block 2 – Alarm Logging Option



15. Select ▼ in in the Output Type Triggered field and select **Binary Action**.

16. Select ▼ in in the Condition to Trip Action Block field and select **True If Block True**.

Figure 86. Action Block 2 – Action Block

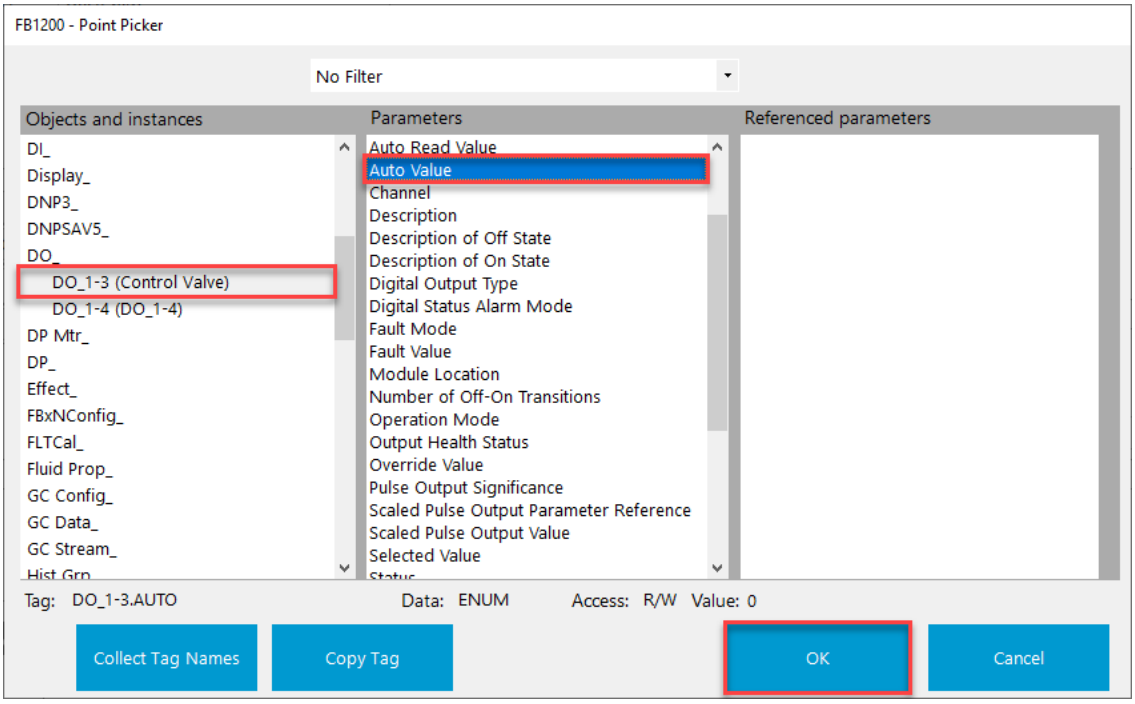


17. Select ... in the Output Action Point field to open a Point Picker dialog.

18. Select **DO_1-3 (Control Valve)** in the Objects and Instances column.

19. Select **Auto Value** in the Parameters column.

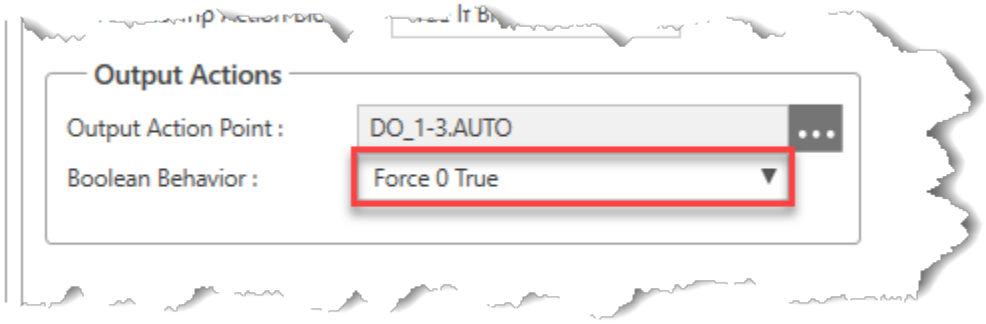
Figure 87. Action Block 2 – Output Action Point Picker



20. Select **OK** to close the Point Picker dialog.

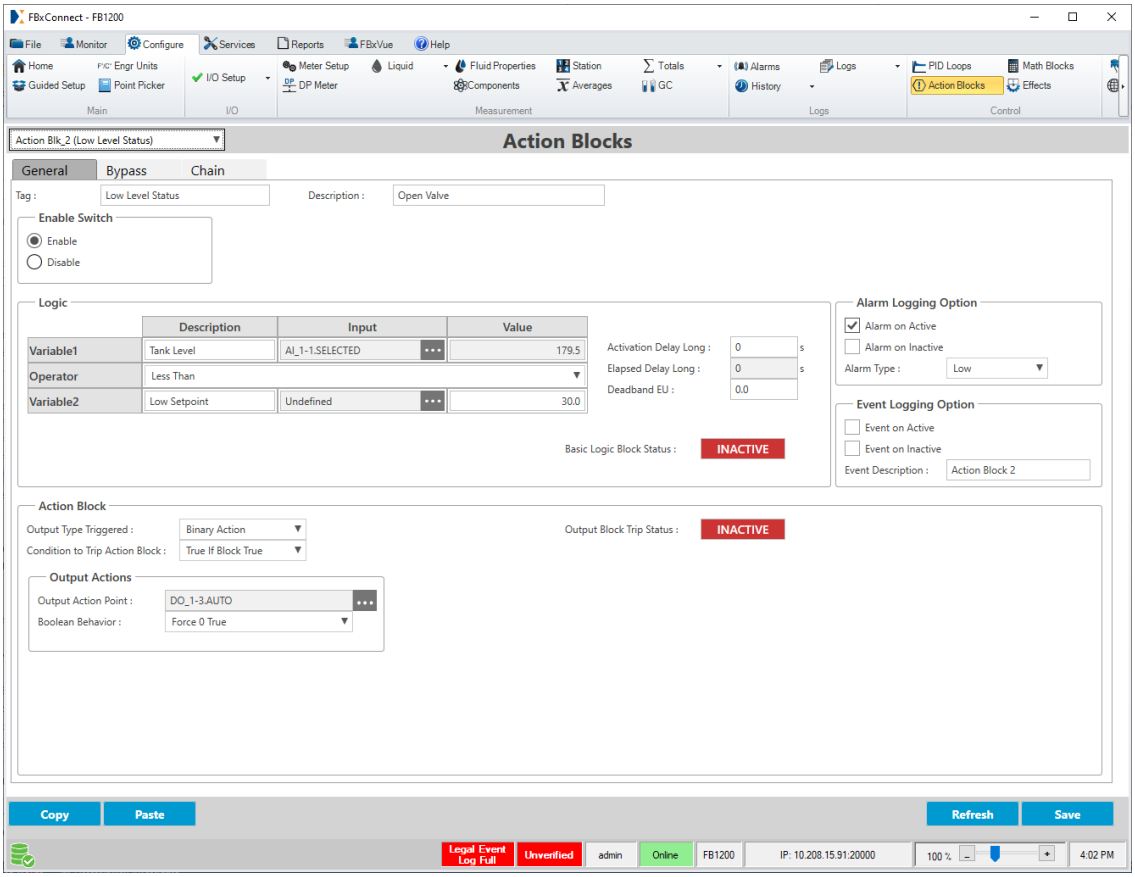
21. Select ▼ in in the Boolean Behavior field and select **Force 0 True**.

Figure 88. Action Block 2 – Boolean Behavior



22. Select **Save** to save your changes to this Action Block. Your Action Block 2 display should look like the picture below:

Figure 89. Action Block 2 – Configuration Complete



6.2 Creating a Tank Level Display with FBxVue

In this section we will create the Tank Level display with references to the I/O and Action Blocks we configured in the previous steps.

Note

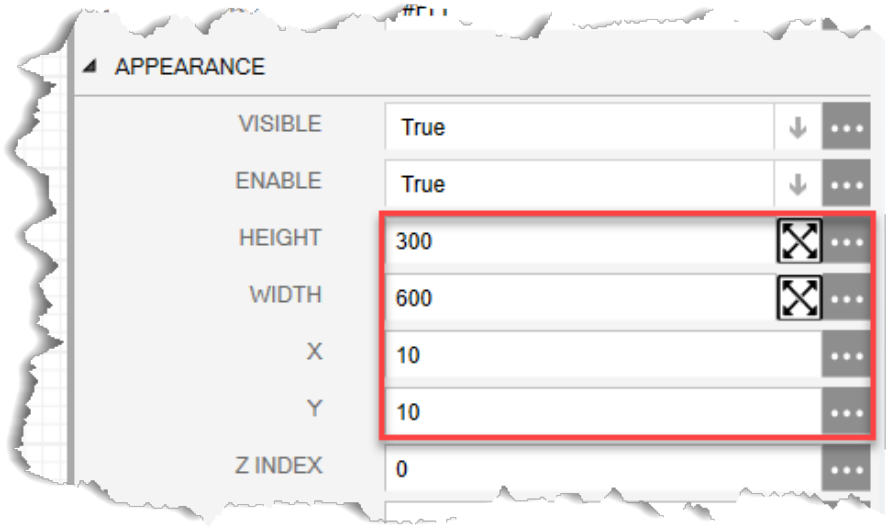
Remember to save the display (**FBxVue > Save**) often to avoid losing any progress you have made.

1. Select **FBxVue > New** from the FBxConnect main menu.

2. Drag and drop a **Tab Control** ( ) on the canvas. This control allows you to add multiple tabs to a single display.

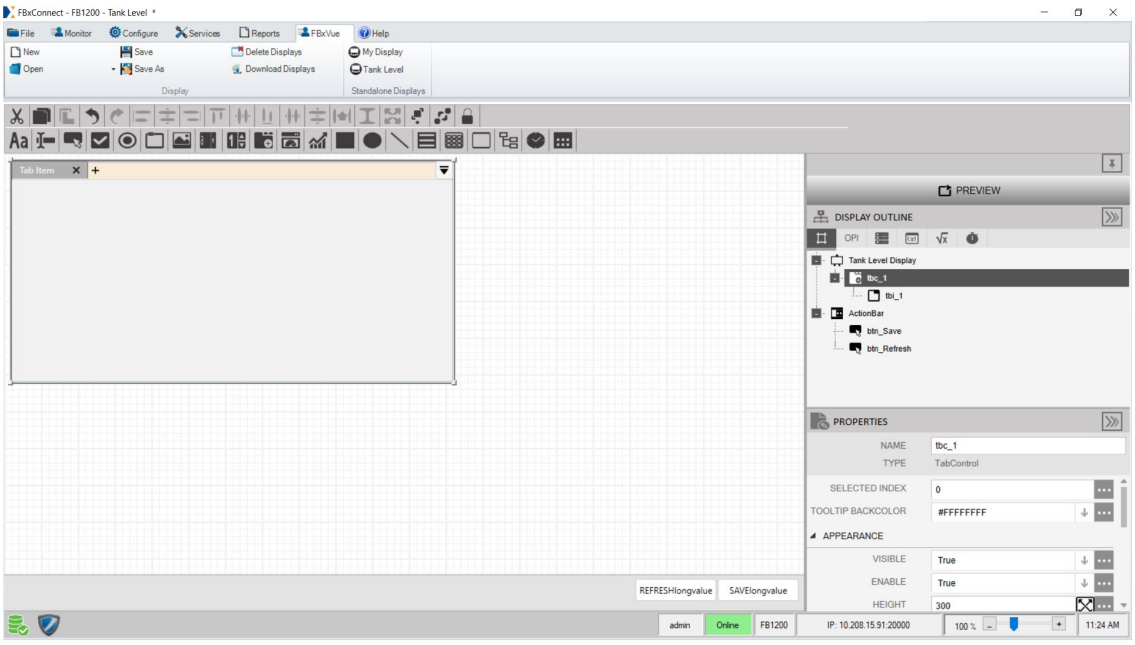
3. In the APPEARANCE section of the PROPERTIES pane, enter **300** in the HEIGHT field.
4. Enter **600** in the WIDTH field.
5. Enter **10** in the X field.
6. Enter **10** in the Y field.

Figure 90. Tab Control – PROPERTIES



Your display should look like the picture below:

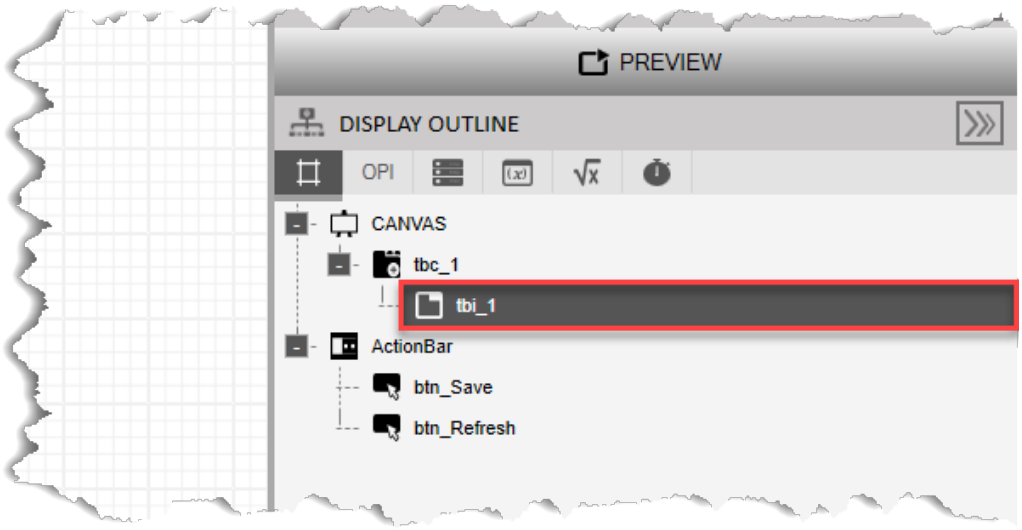
Figure 91. Tab Control



6.2.1 Adding the General Tab to the Display

1. Select **tbi_1** in the Display Outline to make the tab control active.

Figure 92. Display Outline – tbi_1 selected

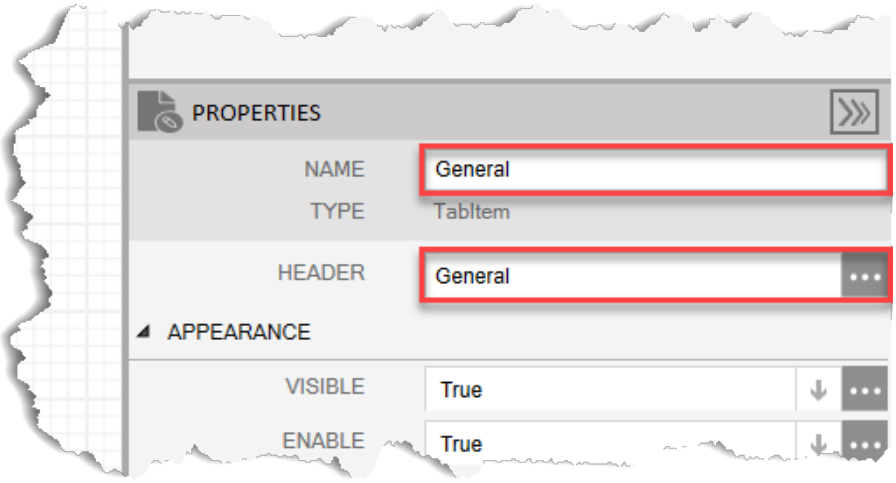


Note

You can either click a control on the Canvas or select a control in the Display Outline to make that control active.

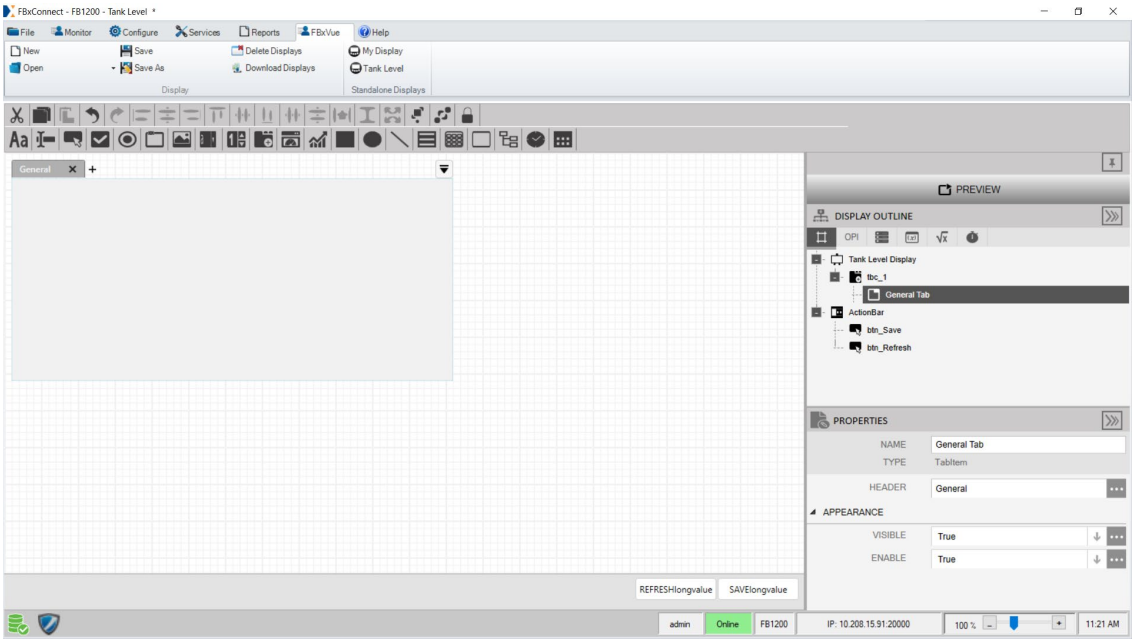
2. In the PROPERTIES pane, enter **General** in the NAME field. The name of the TabControl (tbi_1) in the Display Outline now shows General.
3. Enter **General** in the HEADER field. The name of the tab on the Canvas now says General.

Figure 93. General Tab – PROPERTIES



Your display should look like the picture below:

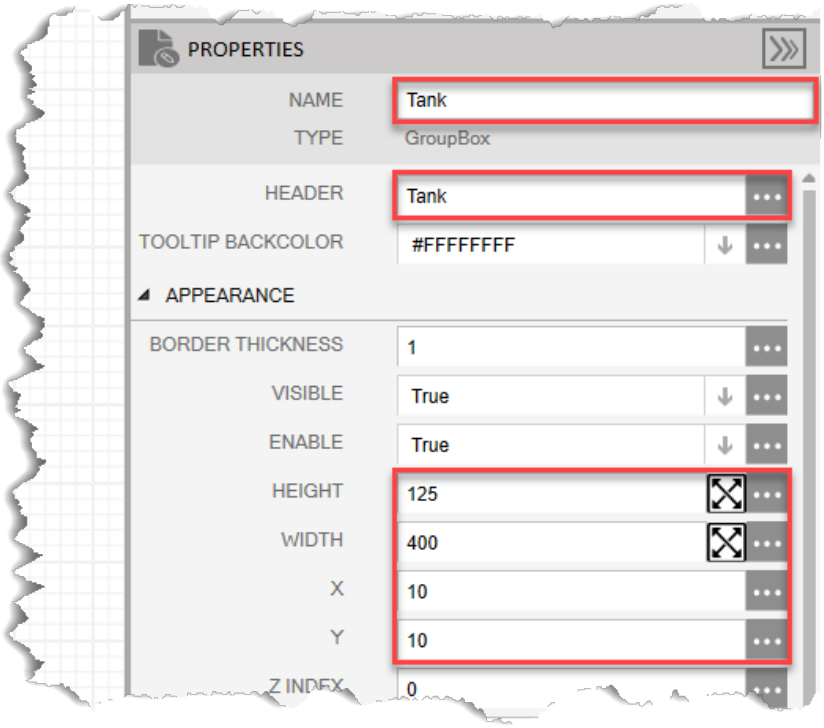
Figure 94. Tank Level Display – General Tab



6.2.1.1 Adding a Tank GroupBox to the General Tab

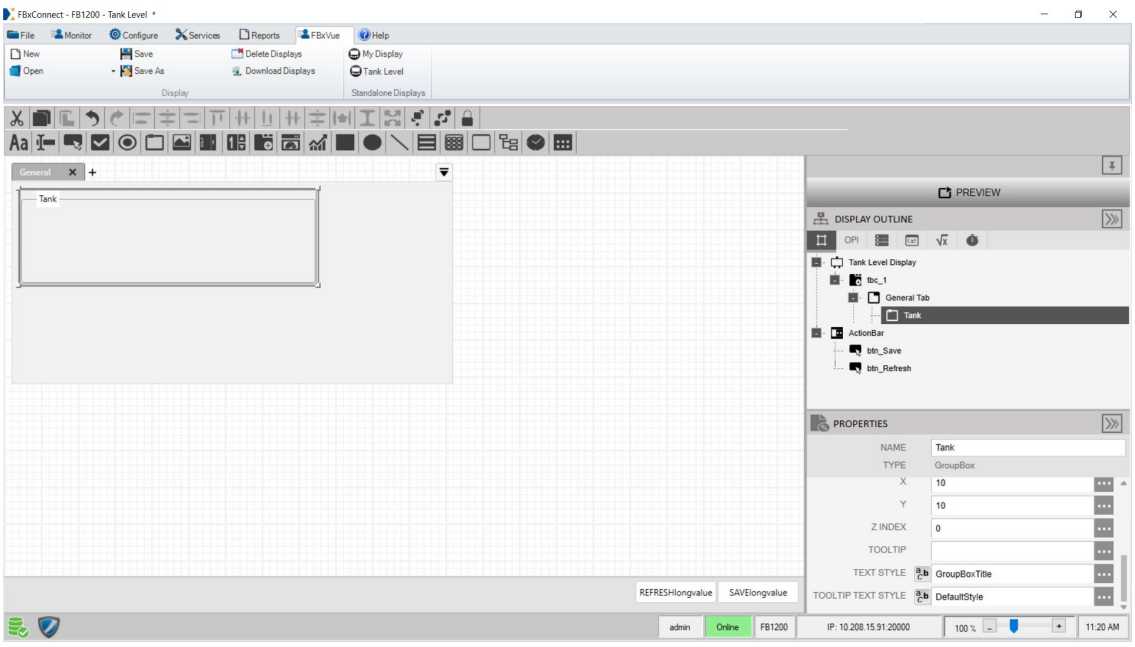
1. Drag and drop a **GroupBox**  into the General Tab control below the General Tab HEADER on the canvas. This adds a subitem to the General Tab in the Display Outline.
2. In the PROPERTIES pane, enter **Tank** in the NAME field. The name of the control (grb_1) in the Display Outline now shows Tank.
3. In the PROPERTIES pane, enter **Tank** in the HEADER field. The name of the tab header on the Canvas now says Tank.
4. In the APPEARANCE section of the PROPERTIES pane, enter **125** in the HEIGHT field.
5. Enter **400** in the WIDTH field.
6. Enter **10** in the X field.
7. Enter **10** in the Y field.

Figure 95. Tank GroupBox – PROPERTIES



Your display should look like the picture below:

Figure 96. Tank GroupBox



6.2.1.1.1 Adding a Tank Level TextBox to the Tank GroupBox

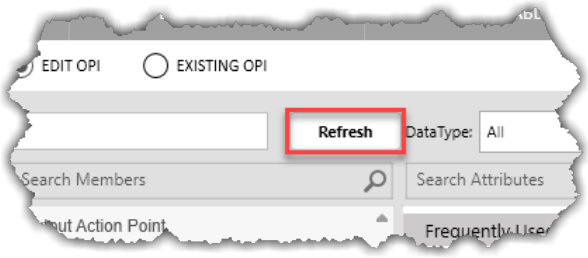
1. Drag and drop a **TextBox**  into the Tank GroupBox control below the Tank GroupBox HEADER on the canvas.

Figure 97. Tank Level TextBox – PROPERTIES

2. In the PROPERTIES pane, enter **Tank Level** in the NAME field.
3. Select  in the TITLE field to open a SOURCE VIEW popup display.
4. With the OPI tab selected, select **AI_ > Tank Level (Instance 1-1)** in the left column.

Note

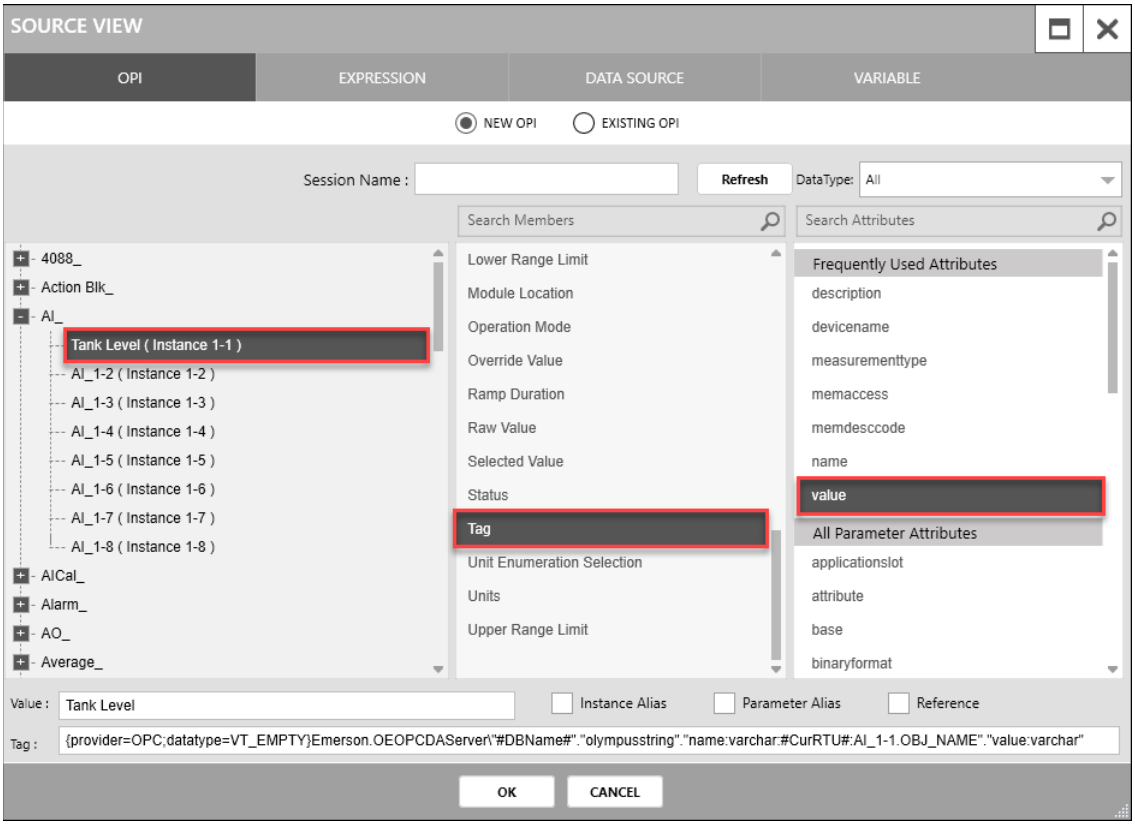
- If you configured a different analog input for your tank level sensor, select the instance you configured in Configure the Analog Input.
- To make it easier to differentiate objects in the FB Series product's database, the SOURCE VIEW popup display shows the configured Object Tag. In this example, the window shows the configured Object Tag of "High Level Status (Instance 1)" rather than the default Object Tag of "Action Block 1 (Instance 1)." If your SOURCE VIEW popup display does not show the configured Object Tag, select the **Refresh** button to update the list.



5. Select **Tag** in the middle column.

6. Select **value** in the right column.

Figure 98. Tank Level TextBox TITLE – SOURCE VIEW



7. Select **OK** to close the SOURCE VIEW popup display.

8. Select  in the VALUE field to open a SOURCE VIEW popup display.

9. With the OPI tab selected, select **AI_ > Tank Level (Instance 1-1)** in the left column.

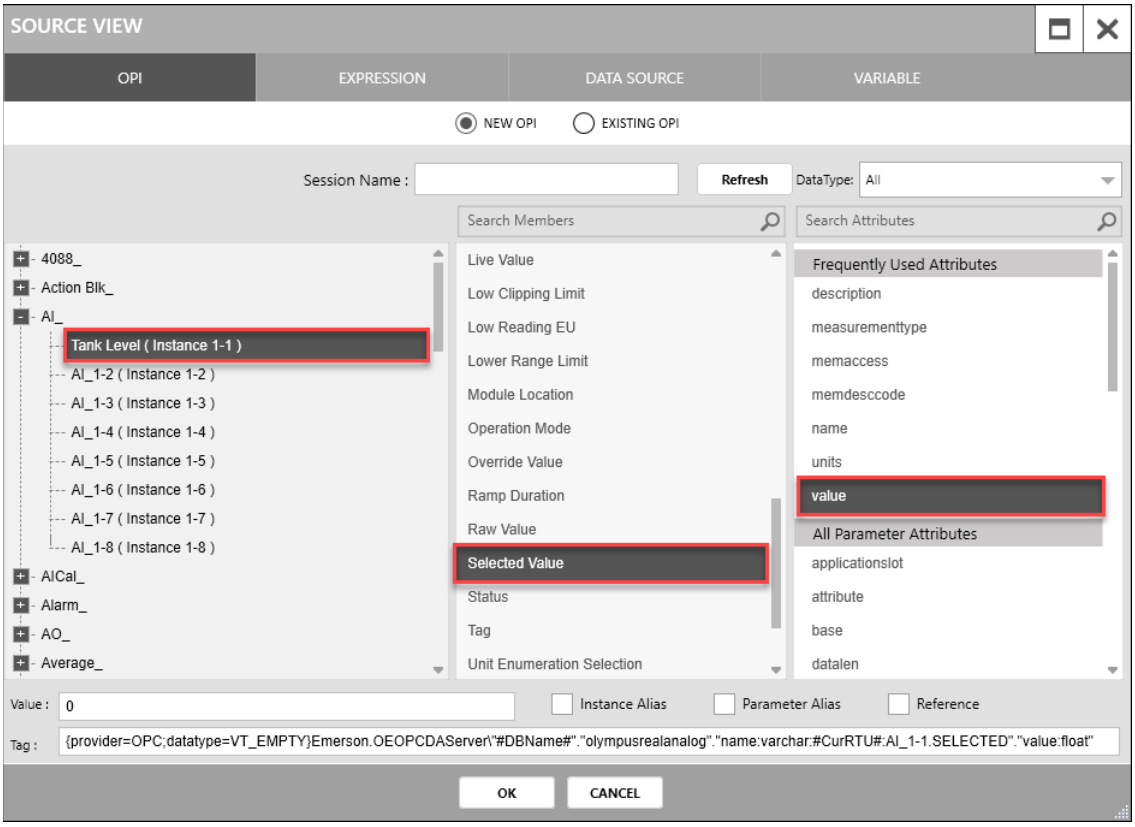
Note

If you configured a different analog input for your tank level sensor, select the instance you configured in Configure the Analog Input.

10. Select **Selected Value** in the middle column.

11. Select **value** in the right column.

Figure 99. Tank Level TextBox VALUE – SOURCE VIEW



12. Select **OK** to close the SOURCE VIEW popup display.

13. Select ••• in the **UNIT** field to open a SOURCE VIEW popup display.

14. With the OPI tab selected, select **AI_ > Tank Level (Instance 1-1)** in the left column.

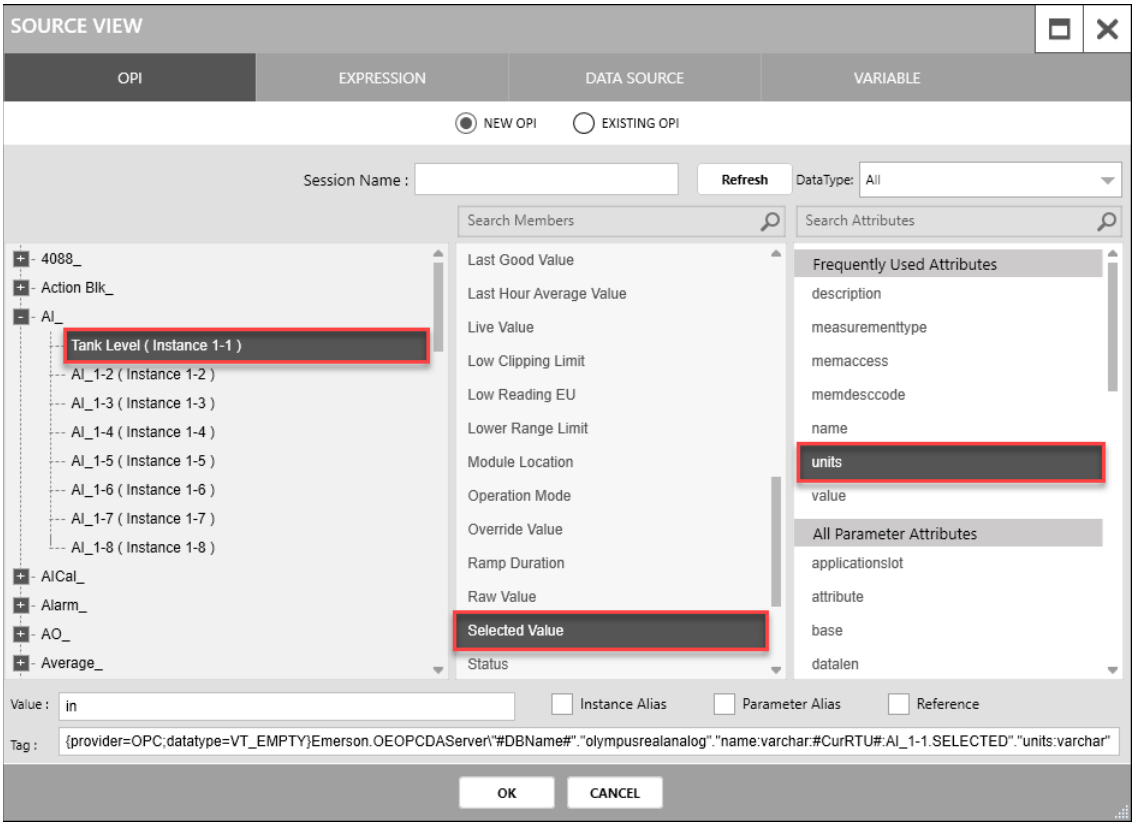
Note

If you configured a different analog input for your tank level sensor, select the instance you configured in Configure the Analog Input.

15. Select **Selected Value** in the middle column.

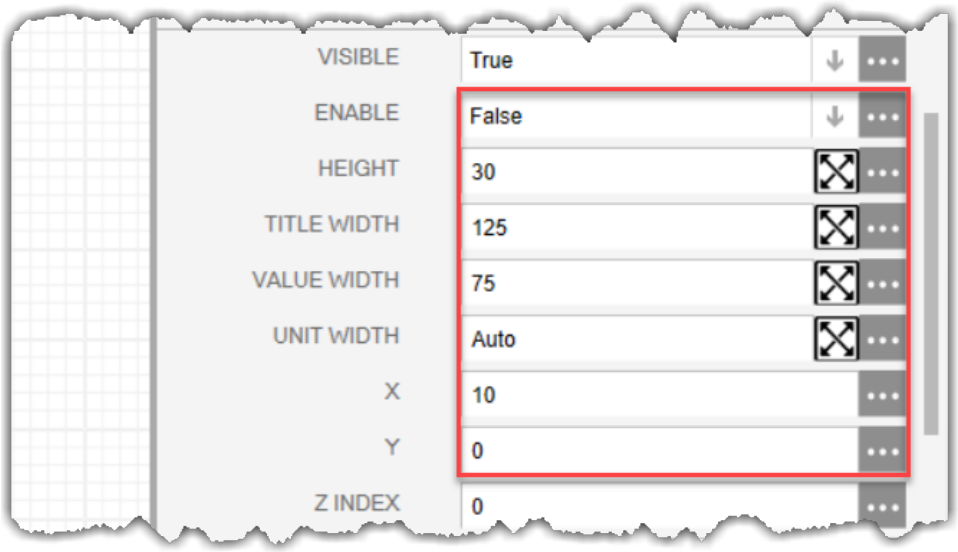
16. Select **units** in the right column.

Figure 100. Tank Level TextBox UNIT – SOURCE VIEW



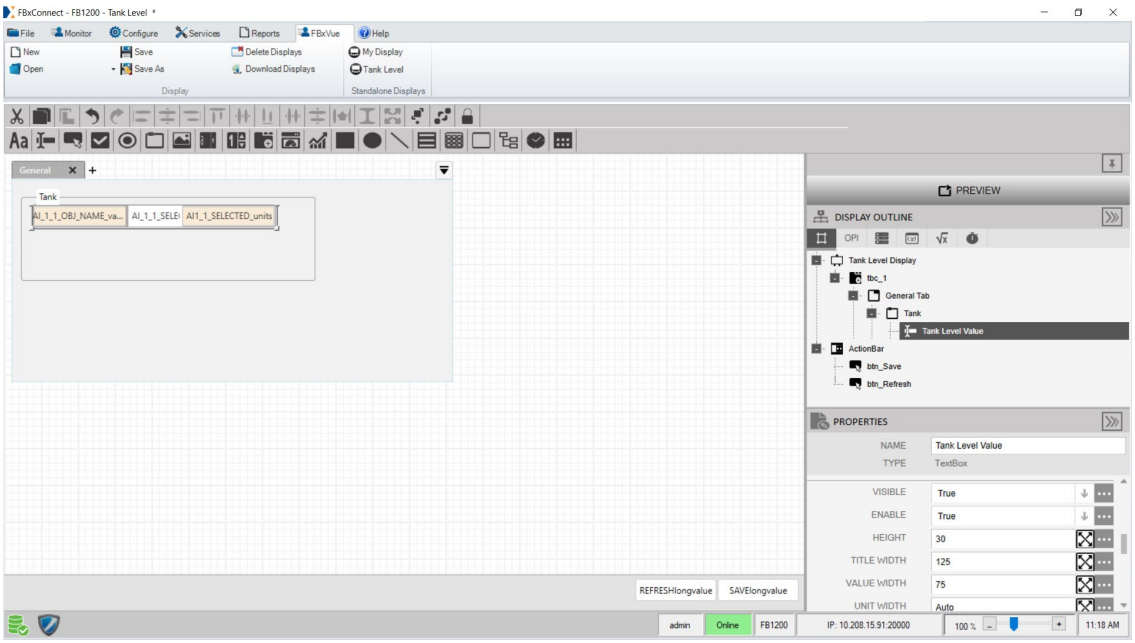
17. Select **OK** to close the SOURCE VIEW popup display.
18. In the APPEARANCE section of the PROPERTIES pane, select **False** in the ENABLE field. This sets the field to be read-only.
19. Enter **30** in the HEIGHT field.
20. Enter **125** in the TITLE WIDTH field.
21. Enter **75** in the VALUE WIDTH field.
22. Select  in the UNIT WIDTH to set to **Auto**.
23. Enter **10** in the **X** field.
24. Enter **0** in the **Y** field.

Figure 101. Tank Level TextBox – APPEARANCE



Your display should look like the picture below:

Figure 102. Tank Level TextBox



6.2.1.1.2 Adding a High Level Trip Status TextBox to the Tank GroupBox

1. Drag and drop a **TextBox**  into the Tank GroupBox control below the Tank Level TextBox on the canvas.

2. In the PROPERTIES pane, enter **High Level** in the NAME field.

Figure 103. High Level TextBox – PROPERTIES

3. Select ... in the TITLE field to open a SOURCE VIEW popup display.

4. With the OPI tab selected, select **Action Blk_ > High Level Status (Instance 1)** in the left column.

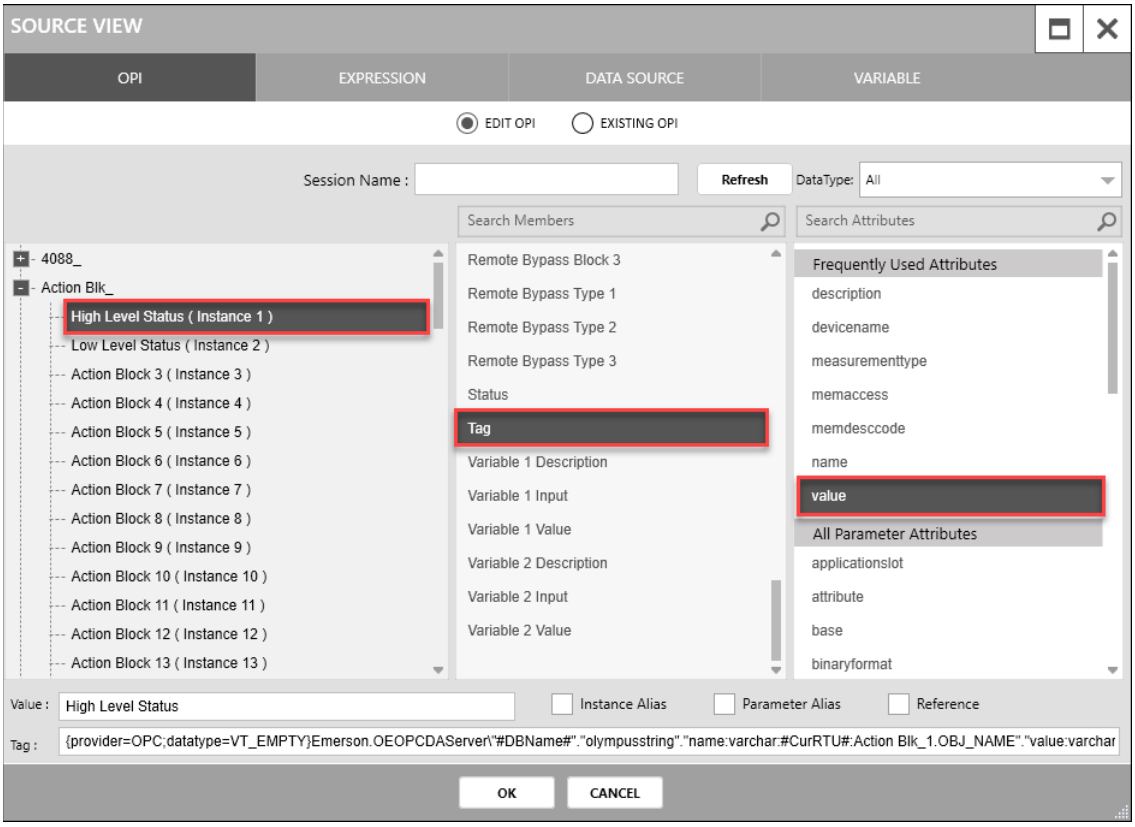
Note

If you configured a different Action Block drive the control valve closed, select the instance you configured in Configure Action Block 1.

5. Select **Tag** in the middle column.

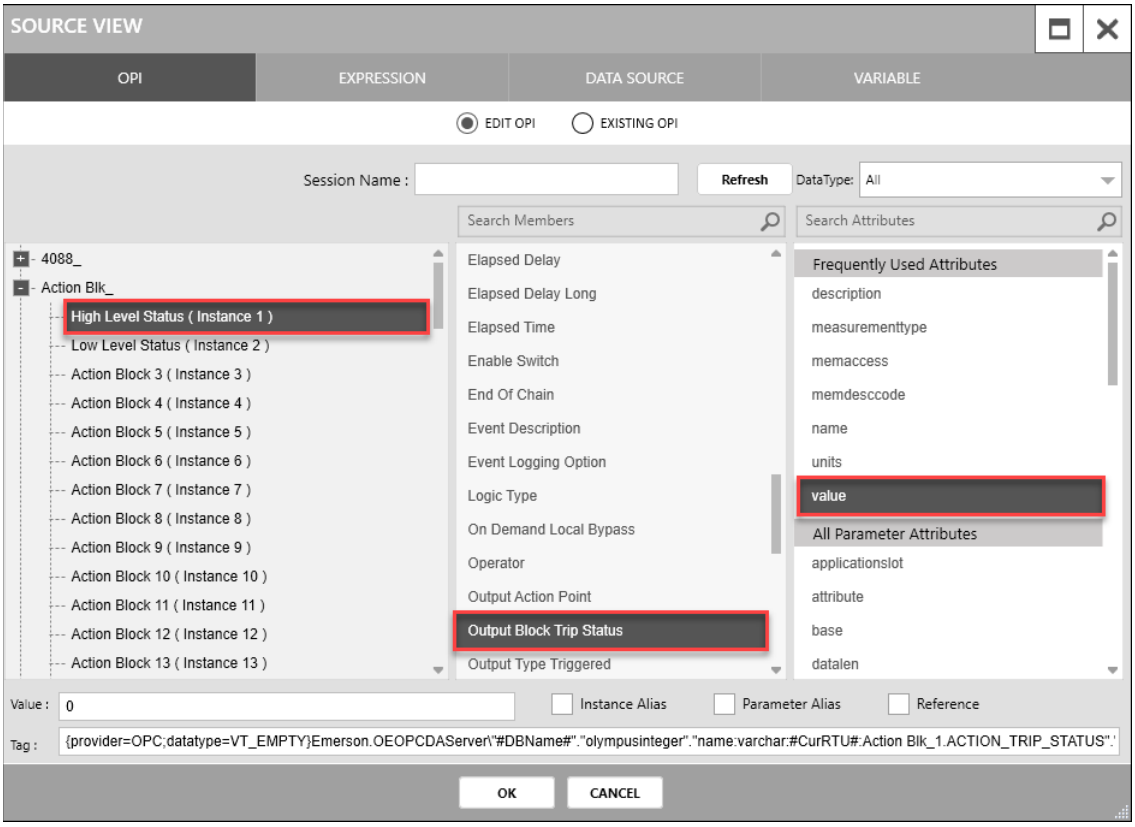
6. Select **value** in the right column.

Figure 104. High Level TextBox TITLE – SOURCE VIEW



7. Select **OK** to close the SOURCE VIEW popup display.
8. Select ••• in the VALUE field to open a SOURCE VIEW popup display.
9. With the OPI tab selected, select **Action Blk_ > High Level Status (Instance 1)** in the left column.
10. Select **Output Block Trip Status** in the middle column.
11. Select **Value** in the right column.

Figure 105. High Level TextBox VALUE – SOURCE VIEW



12. Select **OK** to close the SOURCE VIEW popup display.

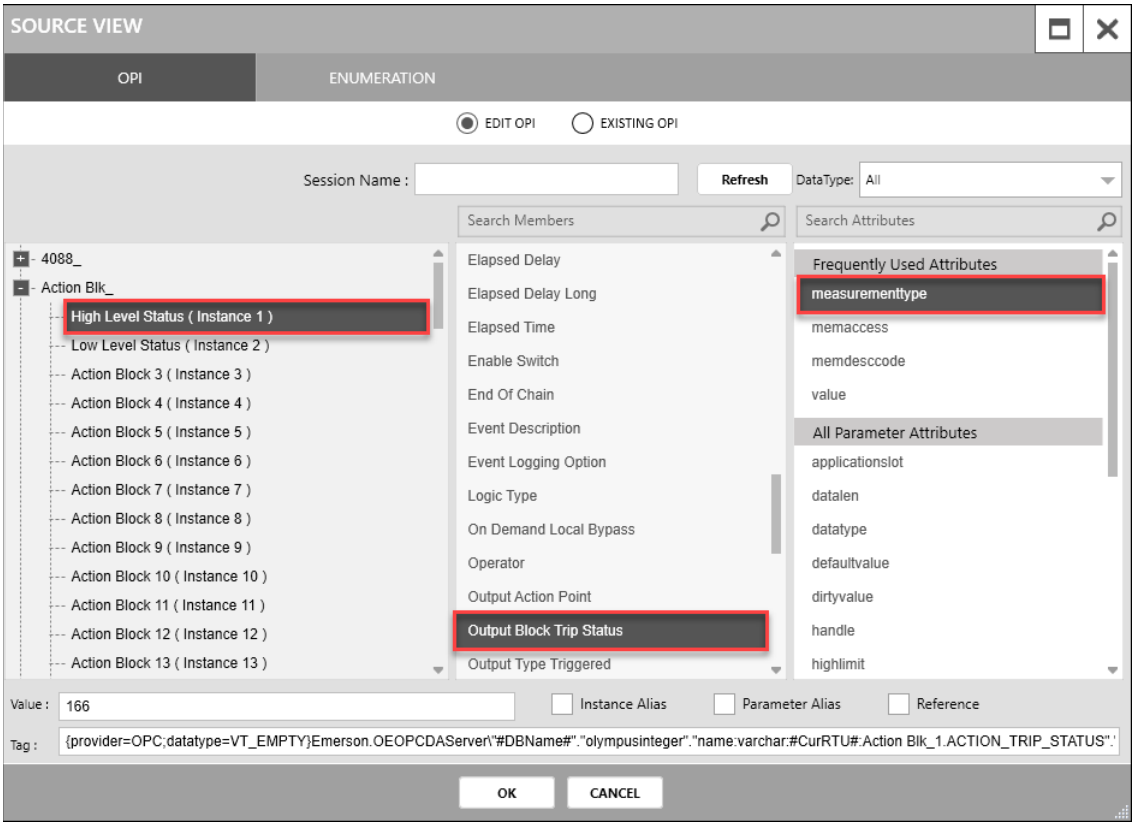
13. Select ... in the ENUMERATION field to open a SOURCE VIEW popup display.

14. With the OPI tab selected, select **Action Blk_ > High Level Status (Instance 1)** in the left column.

15. Select **Output Block Trip Status** in the middle column.

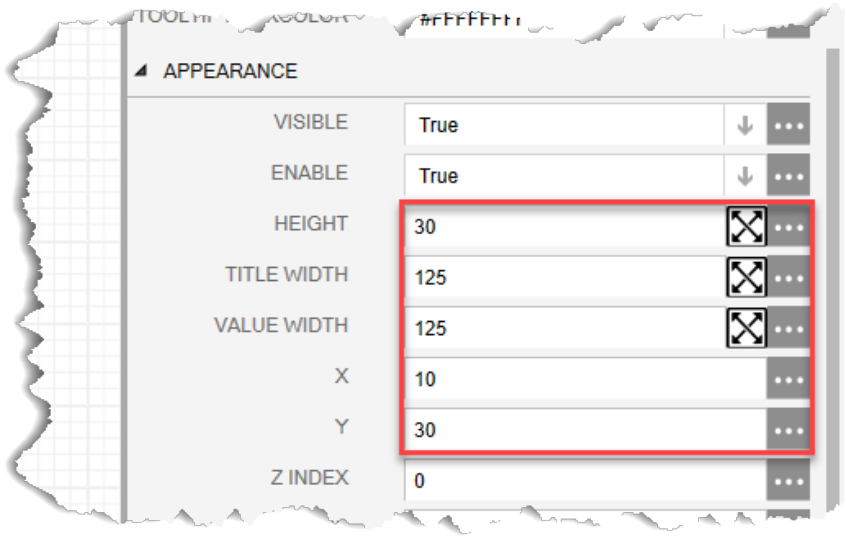
16. Select **measurementtype** in the right column.

Figure 106. High Level TextBox ENUMERATION – SOURCE VIEW



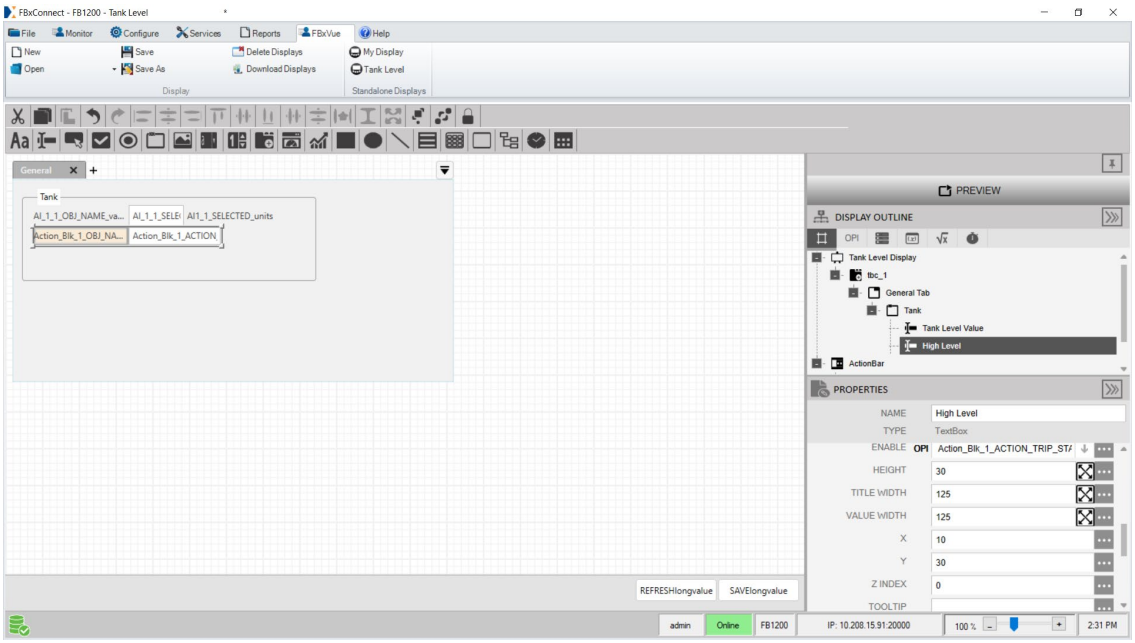
17. Select **OK** to close the SOURCE VIEW popup display.
18. In the APPEARANCE section of the PROPERTIES pane, enter **30** in the HEIGHT field.
19. Enter **125** in the TITLE WIDTH field.
20. Enter **125** in the VALUE WIDTH field.
21. Enter **10** in the X field.
22. Enter **30** in the Y field.

Figure 107. High Level TextBox – APPEARANCE



Your display should look like the picture below:

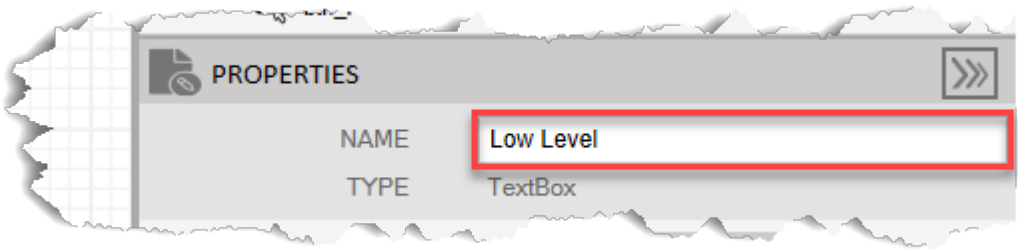
Figure 108. High Level TextBox



6.2.1.1.3 Adding a Low Level TextBox to the Tank GroupBox

1. Drag and drop a **TextBox**  into the Tank GroupBox control below the High Level TextBox on the canvas.
2. In the PROPERTIES pane, enter **Low Level** in the NAME field.

Figure 109. Low Level TextBox – PROPERTIES



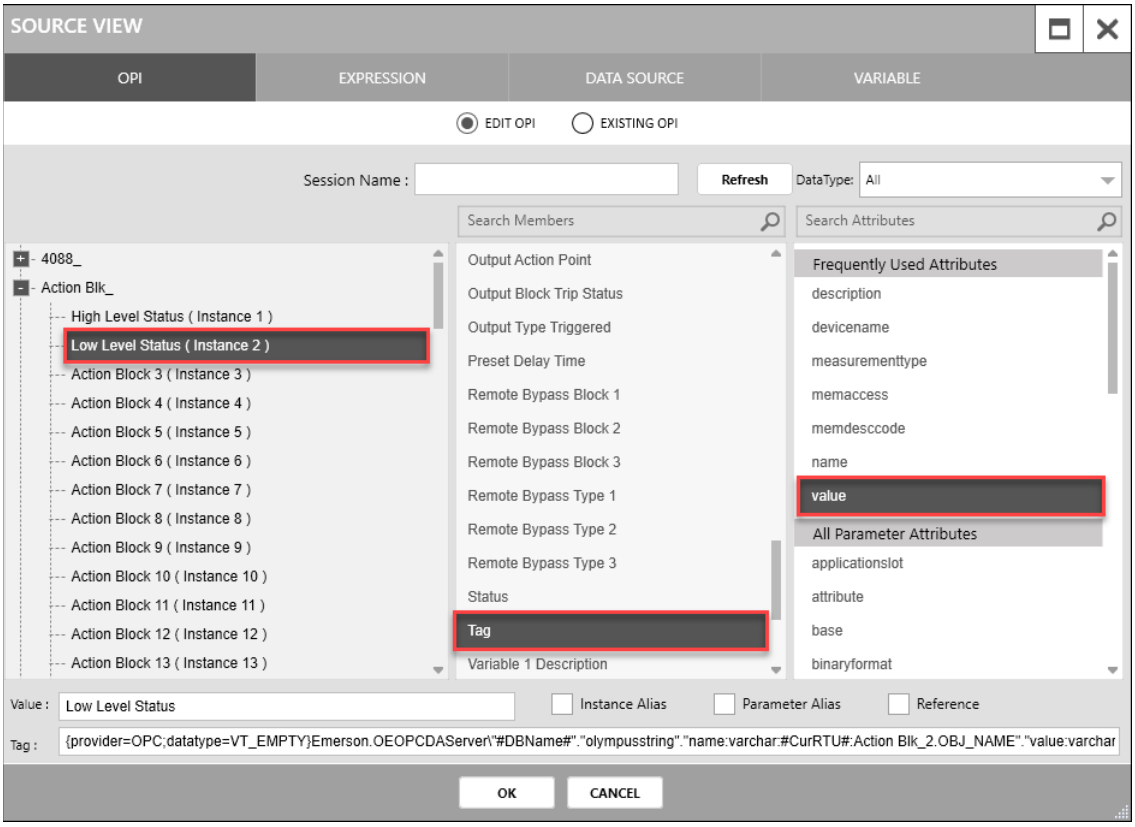
3. Select  in the TITLE field to open a SOURCE VIEW popup display.
4. With the OPI tab selected, select **Action Blk_ > Low Level Status (Instance 2)** in the left column.

Note

If you configured a different Action Block drive the control valve open, select the instance you configured in Configure Action Block 2.

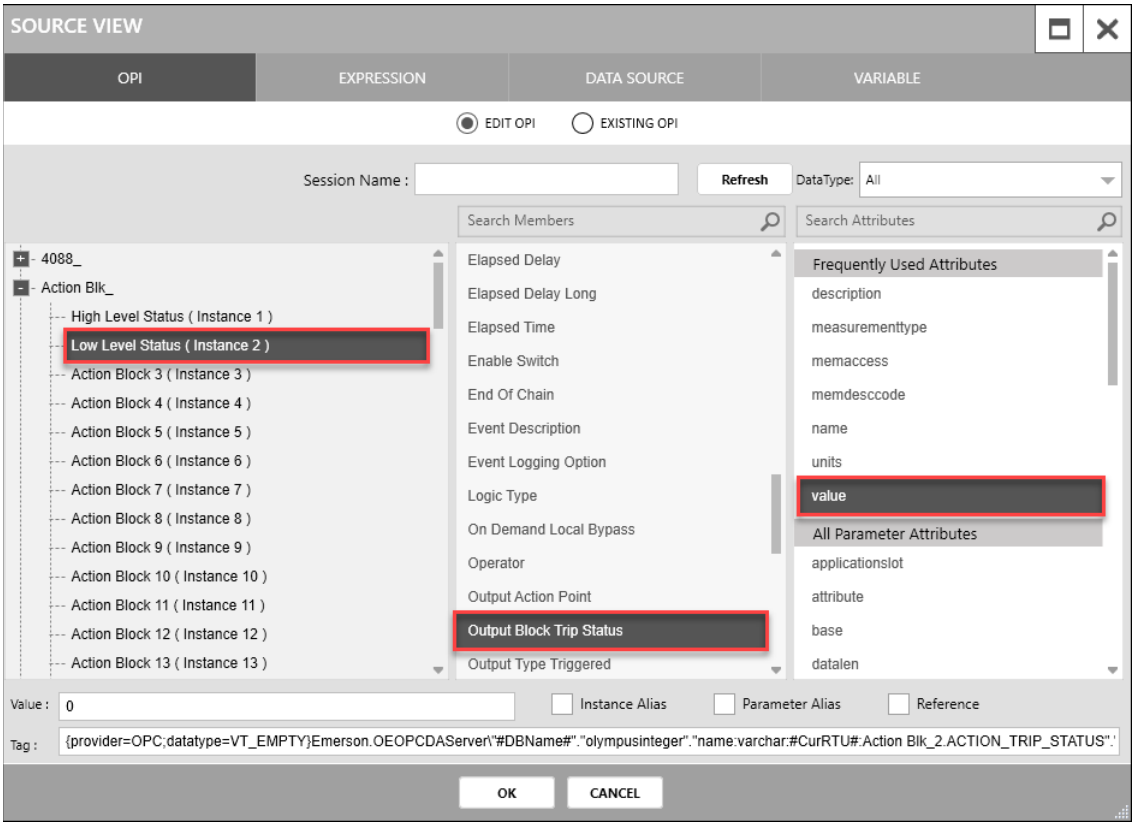
5. Select **Tag** in the middle column.
6. Select **value** in the right column

Figure 110. Low Level TextBox TITLE – SOURCE VIEW



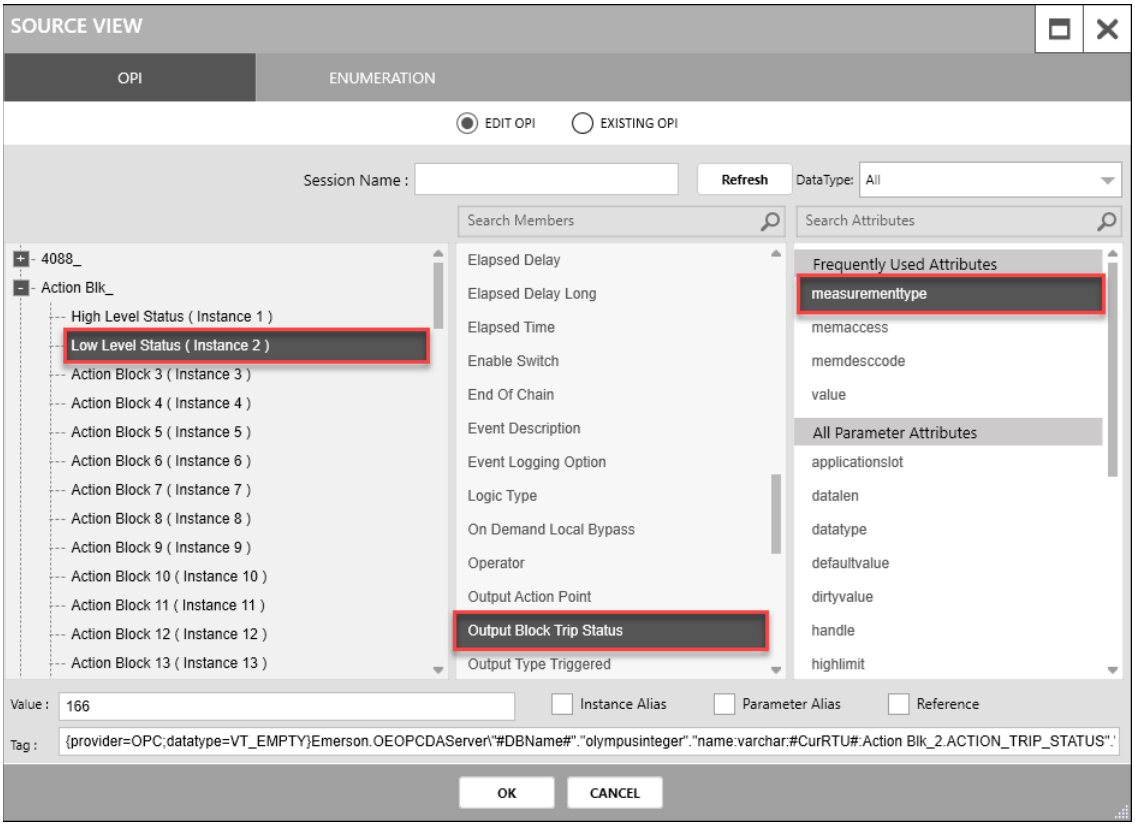
7. Select **OK** to close the SOURCE VIEW popup display.
8. Select ... in the **VALUE** field to open a SOURCE VIEW popup display.
9. With the OPI tab selected, select **Action Blk_ > Low Level Status (Instance 2)** in the left column.
10. Select **Output Block Trip Status** in the middle column.
11. Select **value** in the right column.

Figure 111. Low Level TextBox VALUE – SOURCE VIEW



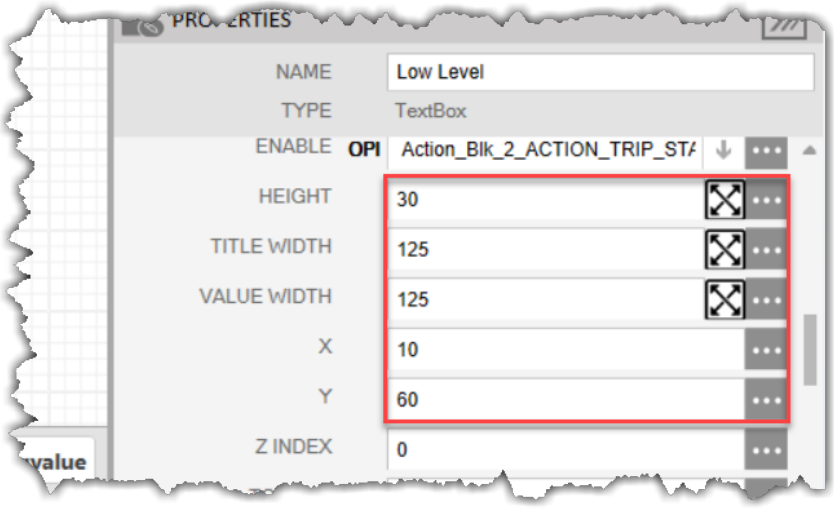
12. Select **OK** to close the SOURCE VIEW popup display.
13. Select ••• in the **ENUMERATION** field to open a SOURCE VIEW popup display.
14. With the OPI tab selected, select **Action Blk_ > Low Level Status (Instance 2)** in the left column.
15. Select **Output Block Trip Status** in the middle column.
16. Select **measurementtype** in the right column.

Figure 112. Low Level TextBox ENUMERATION – SOURCE VIEW



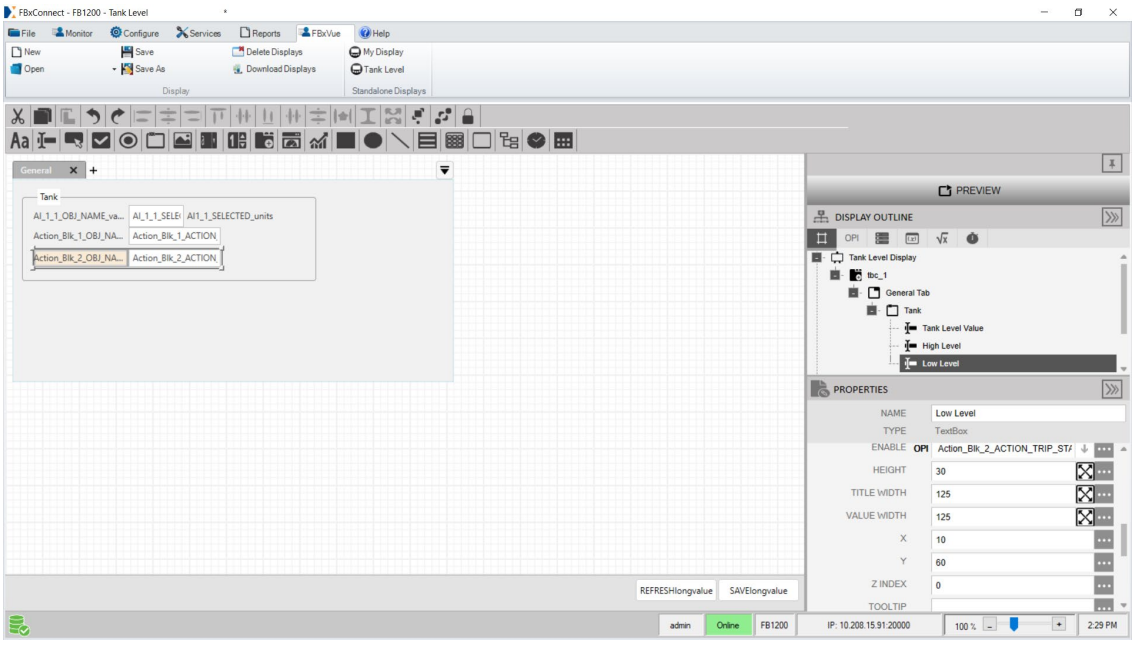
17. Select **OK** to close the SOURCE VIEW popup display.
18. In the APPEARANCE section of the PROPERTIES pane, enter **30** in the HEIGHT field.
19. Enter **125** in the WIDTH field.
20. Enter **125** in the VALUE WIDTH field.
21. Enter **10** in the X field.
22. Enter **60** in the Y field.

Figure 113. Low Level TextBox – APPEARANCE



Your display should look like the picture below:

Figure 114. Low Level TextBox



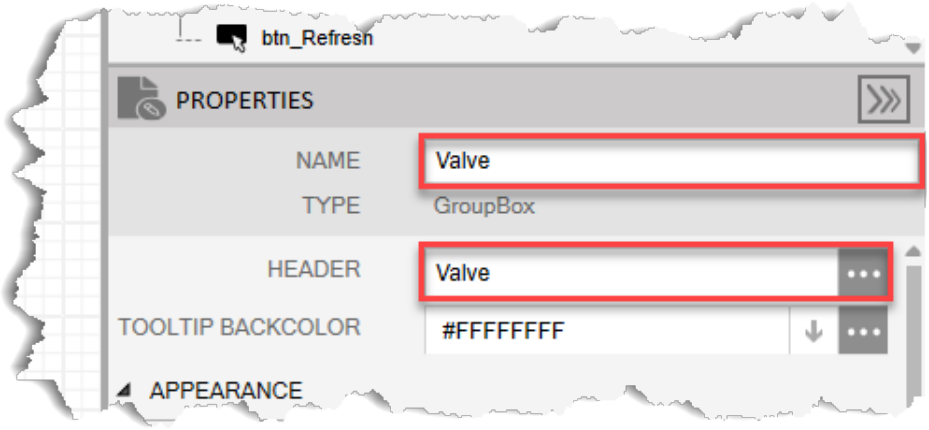
6.2.1.2 Adding the Valve GroupBox

1. Drag and drop a **GroupBox**  into the General Tab control below the Tank GroupBox on the canvas. This adds a subitem to the General tab in the Display Outline.

2. In the PROPERTIES pane, enter **Valve** in the **NAME** field. The name of the control (grb_1) in the Display Outline now shows Valve.

3. Enter **Valve** in the HEADER field. The name of the group box on the Canvas now shows Valve.

Figure 115. Valve GroupBox – PROPERTIES



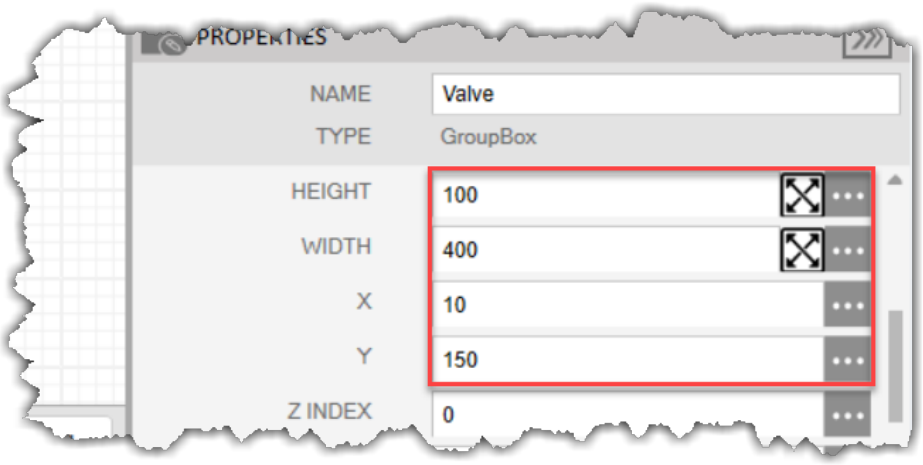
4. In the APPEARANCE section of the PROPERTIES pane, enter **100** in the HEIGHT field.

5. Enter **400** in the WIDTH field.

6. Enter **10** in the X field.

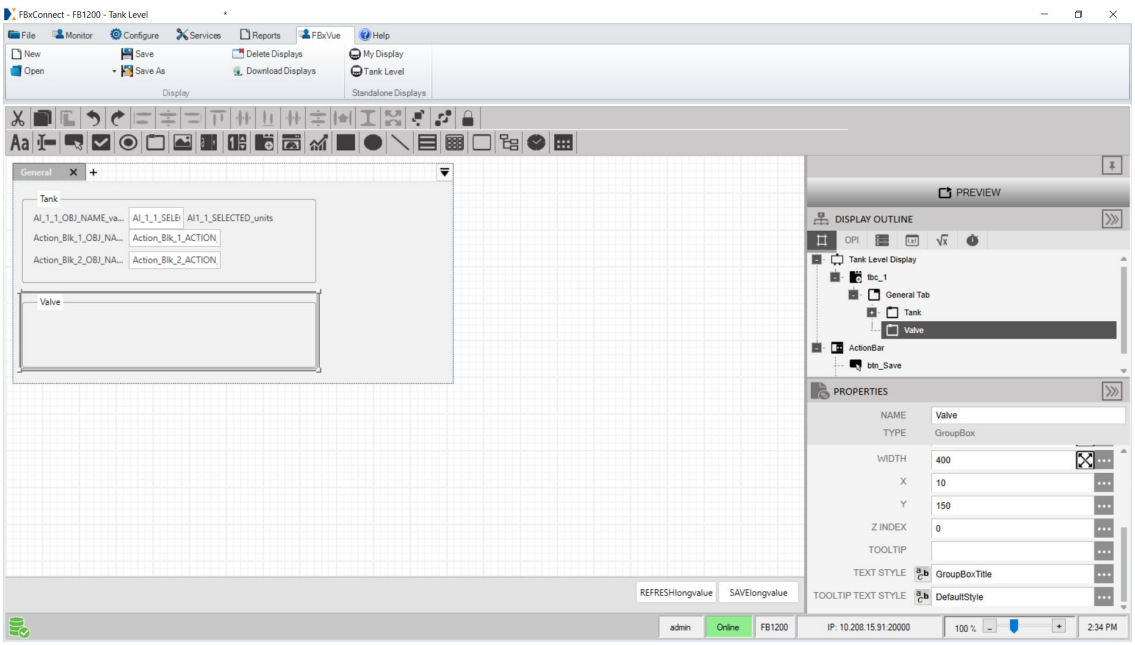
7. Enter **150** in the Y field.

Figure 116. Valve GroupBox – APPEARANCE



Your display should look like the picture below:

Figure 117. Valve GroupBox



6.2.1.2.1 Adding a Valve Control Output TextBox to the Valve GroupBox

1. Drag and drop a **TextBox**  into the Valve GroupBox below the Valve GroupBox HEADER on the canvas.
2. In the PROPERTIES pane, enter **Valve Control Output** in the NAME field.

Figure 118. Valve Control Output TextBox – PROPERTIES

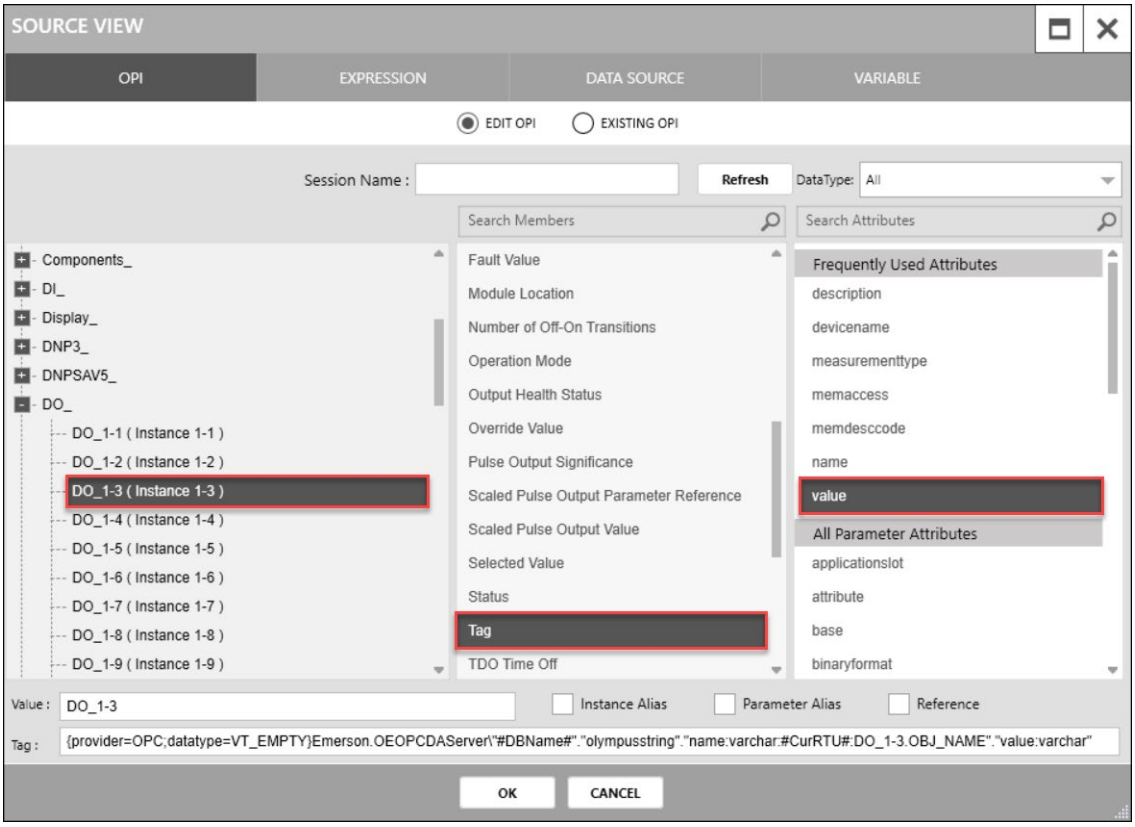
3. Select  in the TITLE field to open a SOURCE VIEW popup display.
4. With the OPI tab selected, select **DO_ > DO_1-3** in the left column.

Note

- If you configured a different Digital Output to open or close the control valve, select the instance you configured in Configure the Digital Output.
- The SOURCE VIEW popup display shows all possible objects even if your FB Series product does not contain those objects. In this example, the SOURCE VIEW popup display shows ten digital output instances (DO_1-1 through DO_1-10) even though the flow computer is only configured with DO_1-3 and DO_1-4. Verify that you are selecting the correct object from the list before proceeding.

5. Select **Tag** in the middle column.
6. Select **value** in the right column.

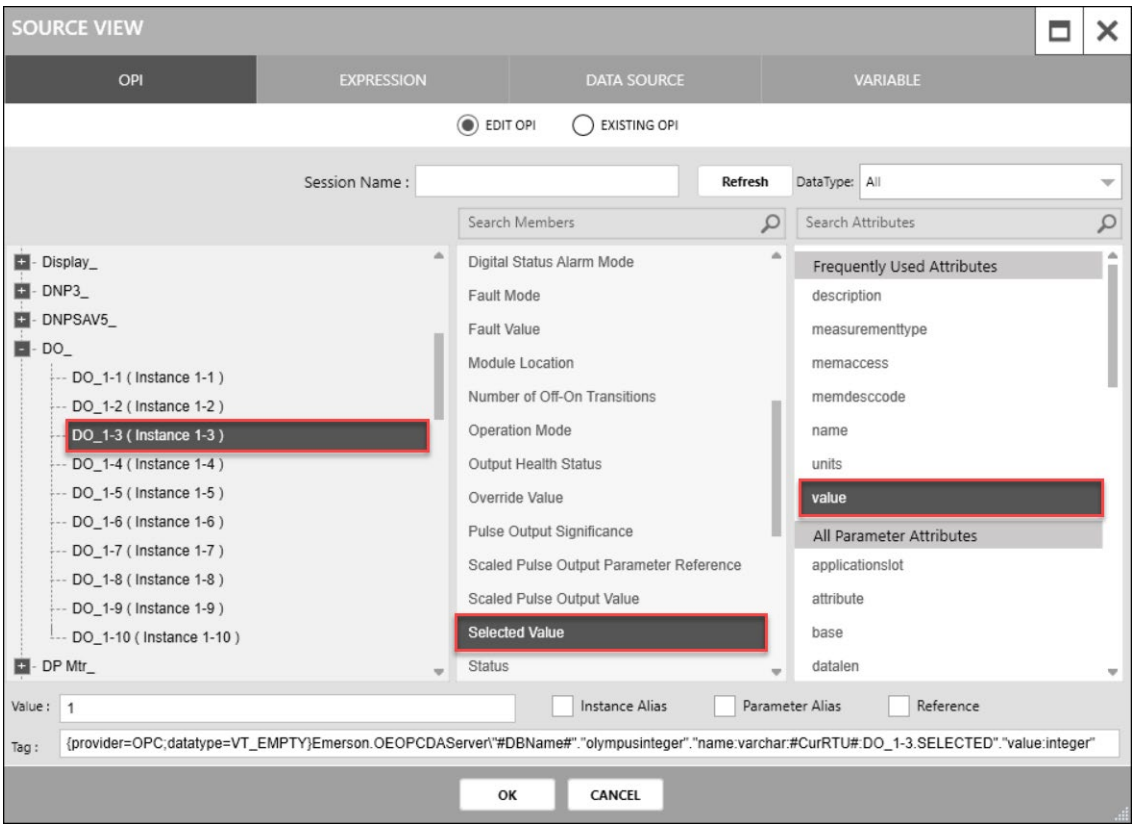
Figure 119. Valve Control Output TextBox TITLE – SOURCE VIEW



7. Select **OK** to close the SOURCE VIEW popup display.
8. Select ••• in the VALUE field to open a SOURCE VIEW popup display.

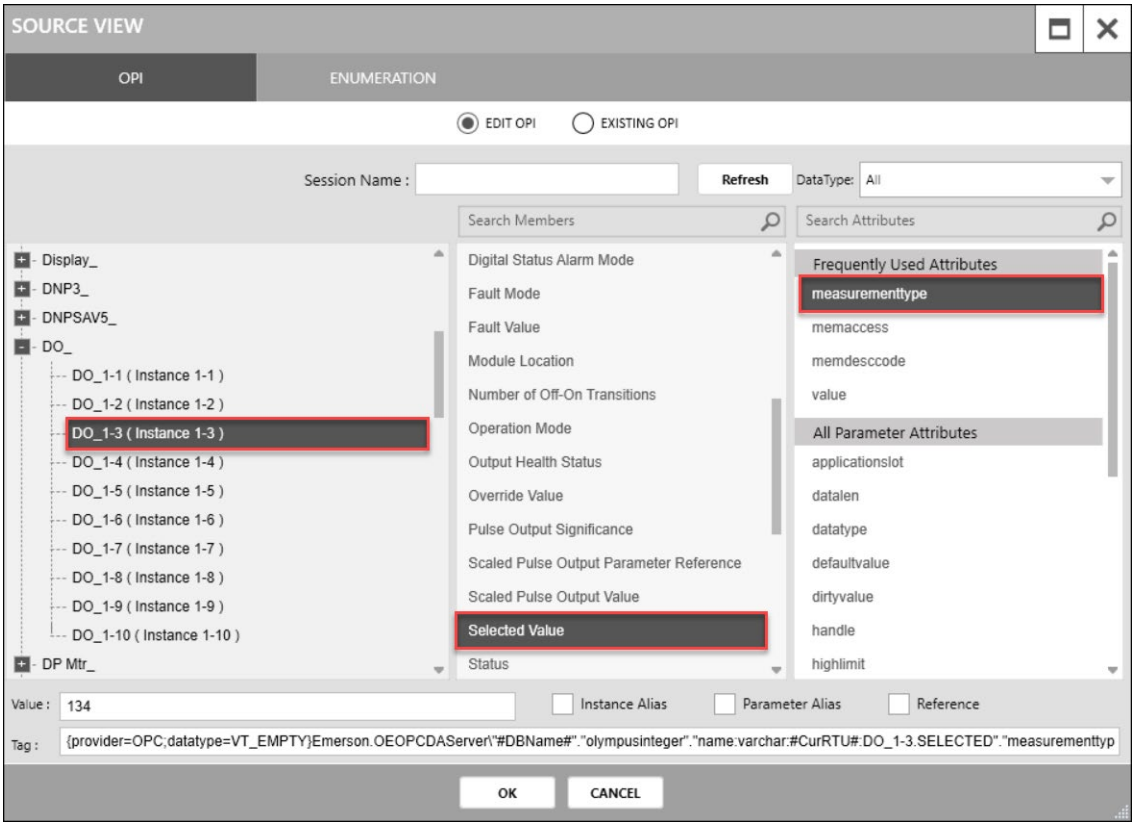
9. With the OPI tab selected, select **DO_ > DO_1-3** in the left column.
10. Select **Selected Value** in the middle column.
11. Select **value** in the right column.

Figure 120. Valve Control Output TextBox VALUE – SOURCE VIEW



12. Select **OK** to close the SOURCE VIEW popup display.
13. Select ••• in the **ENUMERATION** field to open a SOURCE VIEW popup display.
14. With the OPI tab selected, select **DO_ > DO_1-3** in the left column.
15. Select **Selected Value** in the middle column.
16. Select **measurementtype** in the right column.

Figure 121. Valve Control Output TextBox ENUMERATION – SOURCE VIEW



17. Select **OK** to close the SOURCE VIEW popup display.

18. In the APPEARANCE section of the PROPERTIES pane, enter **30** in the HEIGHT field.

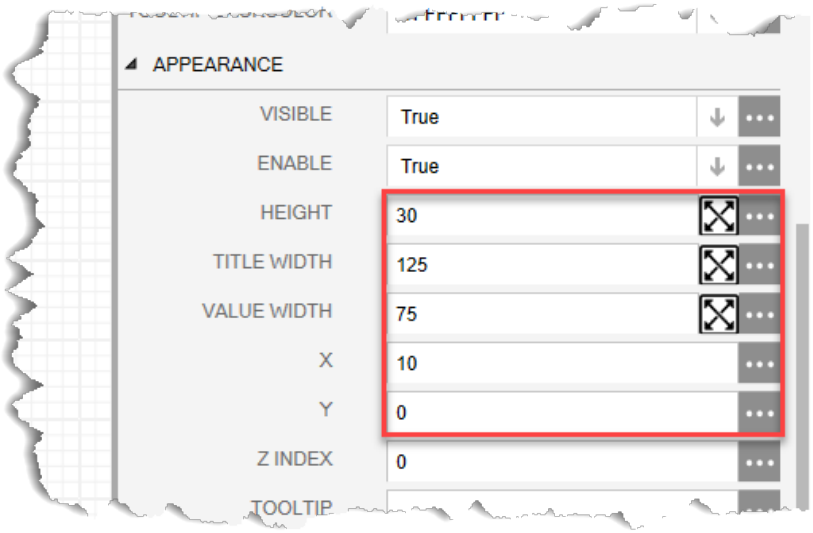
19. Enter **125** in the TITLE WIDTH field.

20. Enter **75** in the VALUE WIDTH field.

21. Enter **10** in the X field.

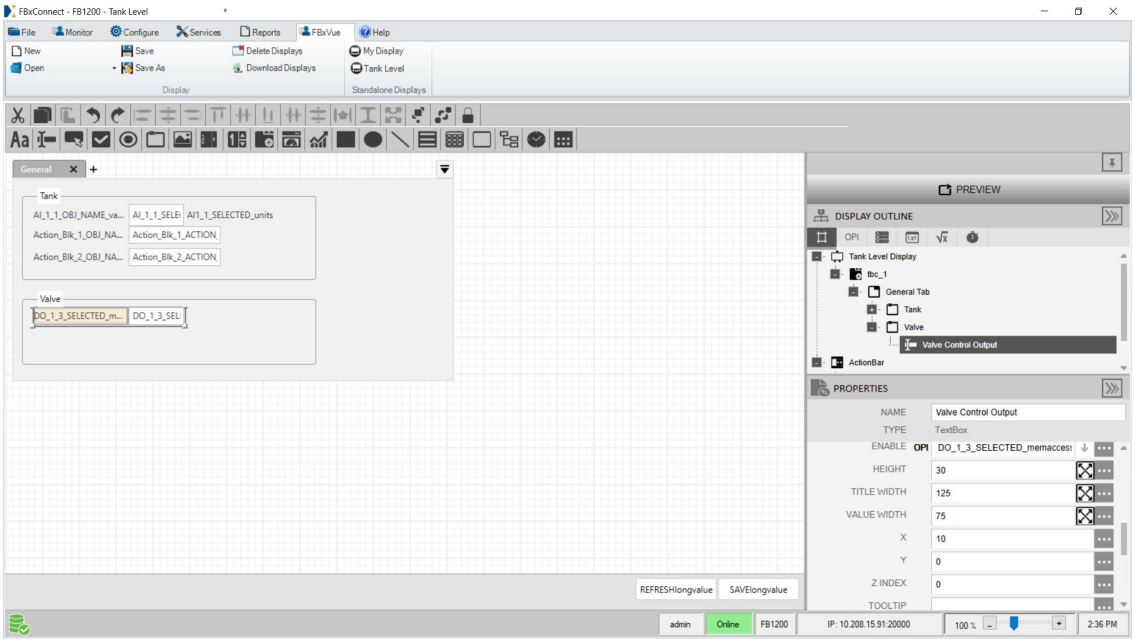
22. Enter **0** in the Y field.

Figure 122. Valve Control Output TextBox – APPEARANCE



Your display should look like the picture below:

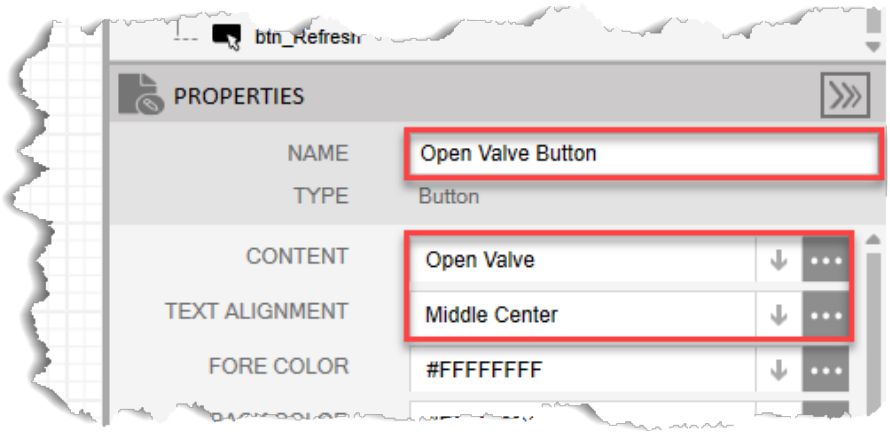
Figure 123. Valve Control Output TextBox



6.2.1.3 Adding the Open Valve Button

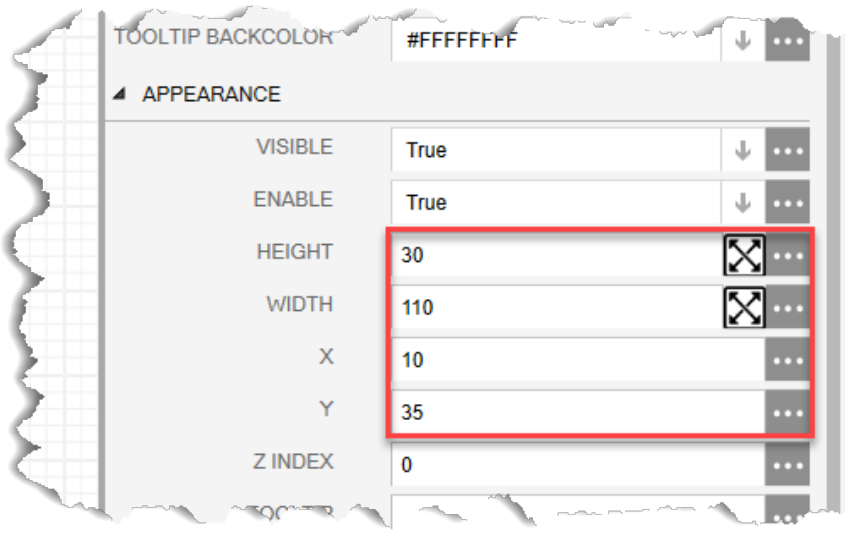
1. Drag and drop a **Button**  into the Valve GroupBox below the Valve Control Output TextBox on the canvas.
2. In the PROPERTIES pane, enter **Open Valve Button** in the NAME field.
3. Enter **Open Valve** in the CONTENT field.
4. Select  in the TEXT ALIGNMENT field and select the middle rectangle (**Middle Center**).

Figure 124. Open Valve Button – PROPERTIES



5. In the APPEARANCE section of the PROPERTIES pane, enter **30** in the HEIGHT field.
6. Enter **110** in the WIDTH field.
7. Enter **10** in the X field.
8. Enter **35** in the Y field.

Figure 125. Open Valve Button – APPEARANCE



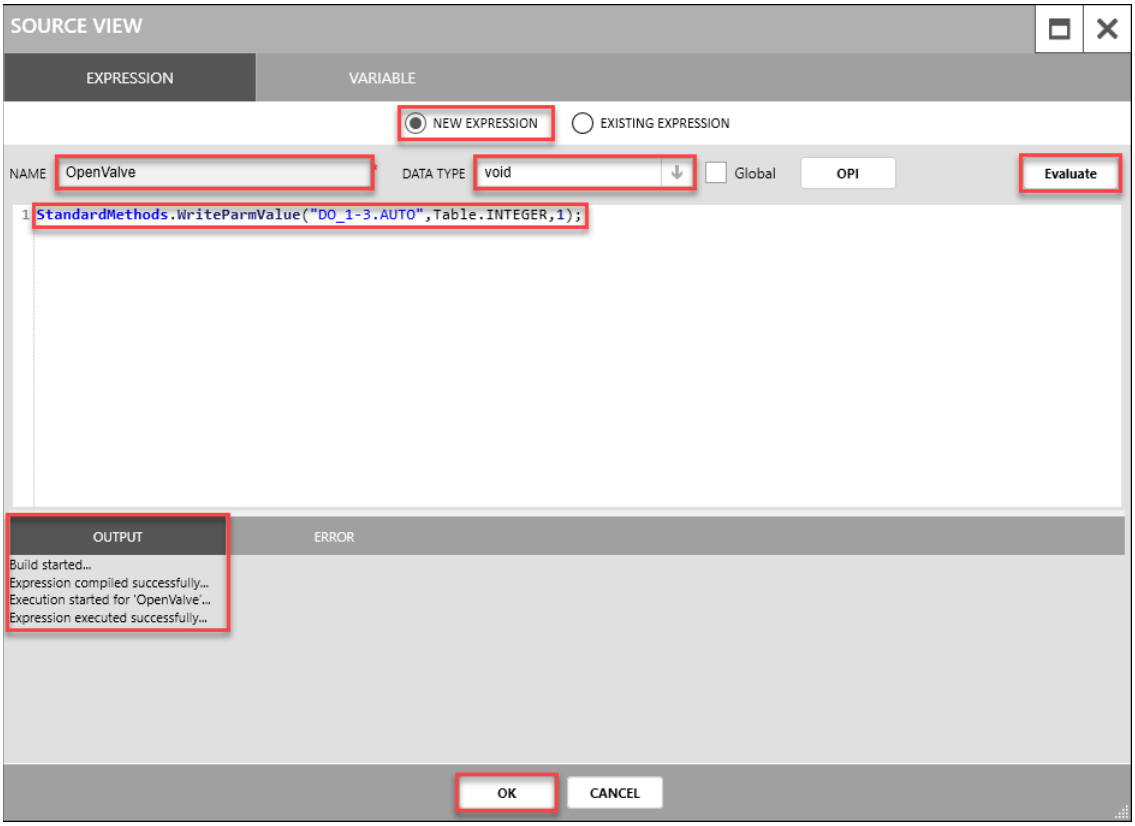
9. In the EVENTS section of the PROPERTIES pane, select ... in the SINGLE CLICK field to open a SOURCE VIEW popup display.
10. Select the **NEW EXPRESSION** radio button.
11. Enter **OpenValve** in the NAME field.
12. Select ↓ in the DATA TYPE field and select **void**.
13. Enter **StandardMethods.WriteParmValue("DO_1-3.AUTO",Table.INTEGER,1);** on line 1.

Note

- This expression will write a 1 to the selected DO's auto value and tell the valve to open.
- If you configured a different DO to act as the valve, replace **DO_1-3** with the DO instance you configured.

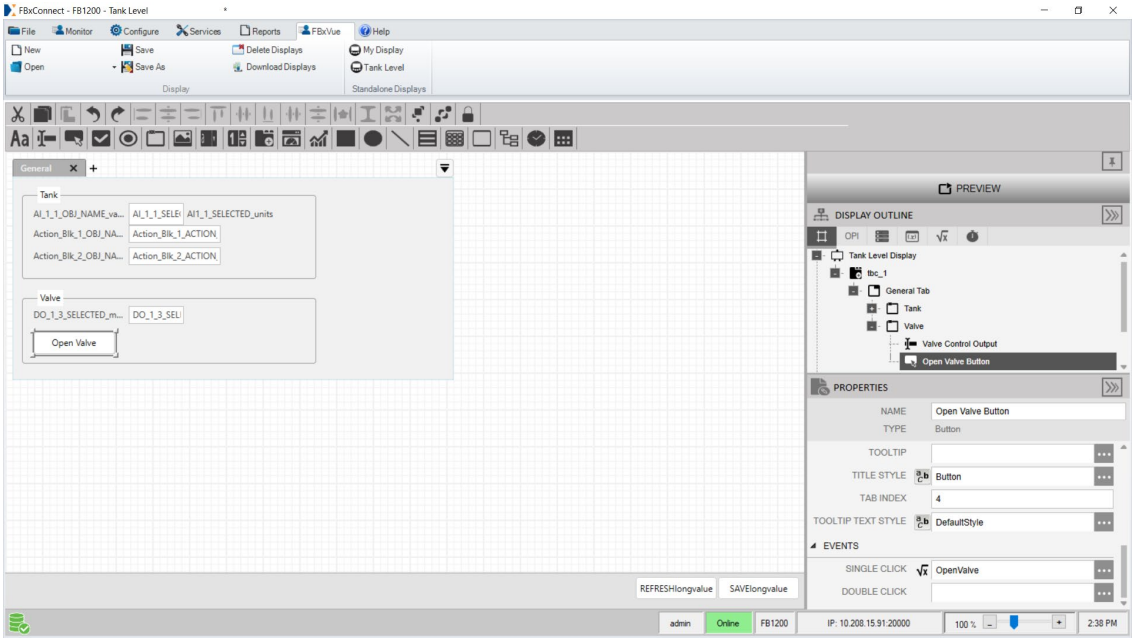
14. Select the **Evaluate** button. The OUTPUT field should indicate the expression was executed successfully.

Figure 126. Open Valve Button SINGLE CLICK – SOURCE VIEW



15. Select **OK** to close the SOURCE VIEW popup display. Your display should look like the picture below:

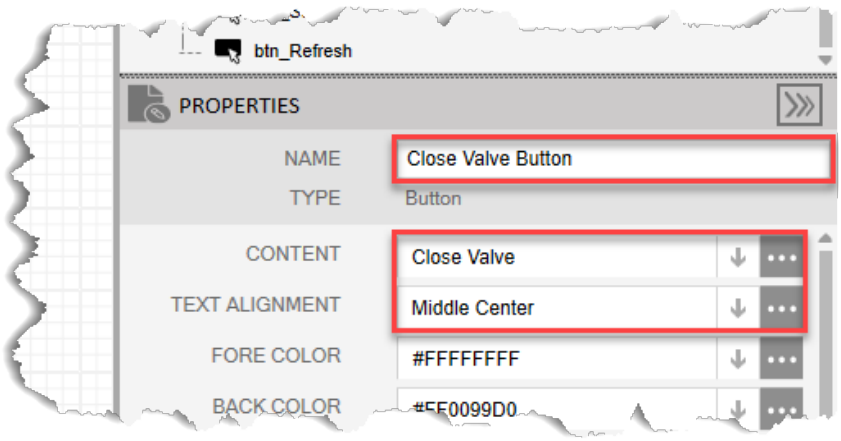
Figure 127. Open Valve Button



6.2.1.4 Adding the Close Valve Button

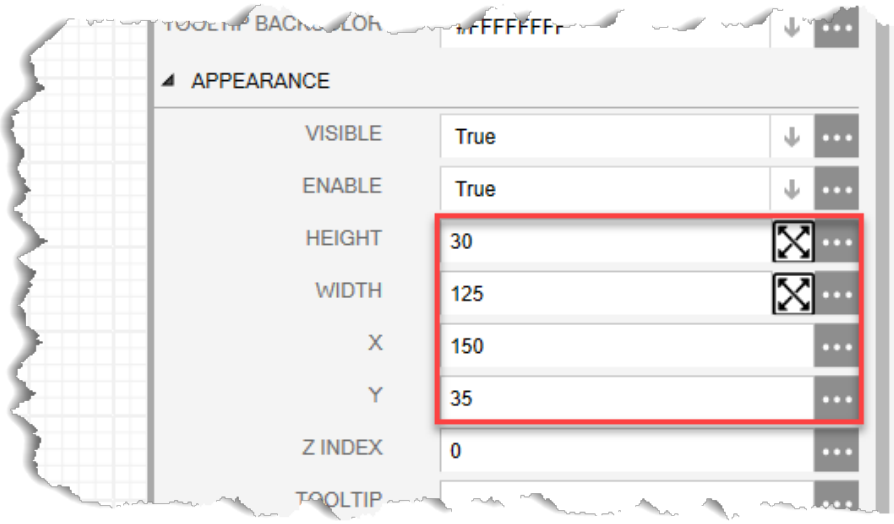
1. Drag and drop a **Button**  into Valve GroupBox to the right of the Open Valve Button on the canvas.
2. In the PROPERTIES pane, enter **Close Valve Button** in the NAME field.
3. Enter **Close Valve** in the CONTENT field.
4. Select  in the TEXT ALIGHMENT field and select the middle rectangle (**Middle Center**).

Figure 128. Close Valve Button – PROPERTIES



5. In the APPEARANCE section of the PROPERTIES pane, enter **30** in the HEIGHT field.
6. Enter **125** in the WIDTH field.
7. Enter **150** in the X field.
8. Enter **35** in the Y field.

Figure 129. Close Valve Button – APPEARANCE



9. In the EVENTS section of the PROPERTIES pane, select ... in the SINGLE CLICK field to open a SOURCE VIEW popup display.

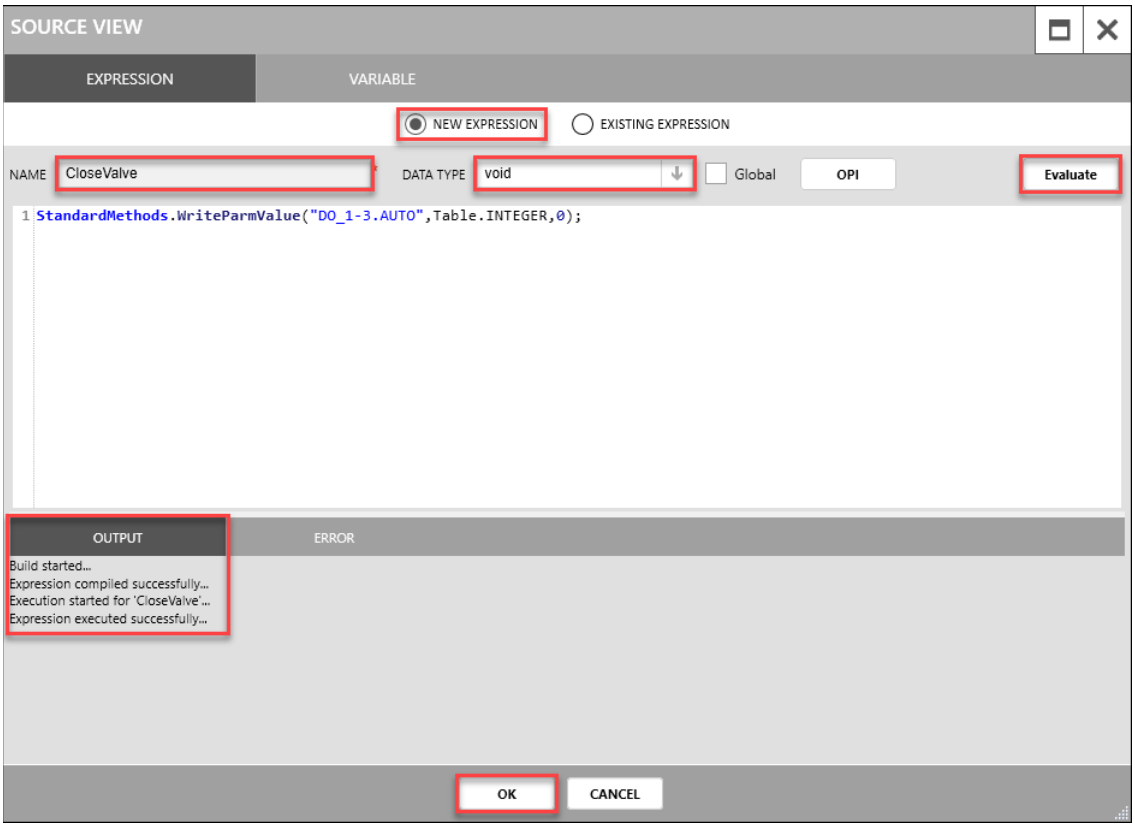
10. Select the **NEW EXPRESSION** radio button.
11. Enter **CloseValve** in the NAME field.
12. Select in the DATA TYPE field and select **void**.
13. Enter **StandardMethods.WriteParmValue("DO_1-3.AUTO",Table.INTEGER,0);** on line 1.

Note

- This expression will write a 0 to the selected DO's auto value and tell the valve to close.
- If you configured a different DO to act as the valve, replace **DO_1-3** with the DO instance you configured.

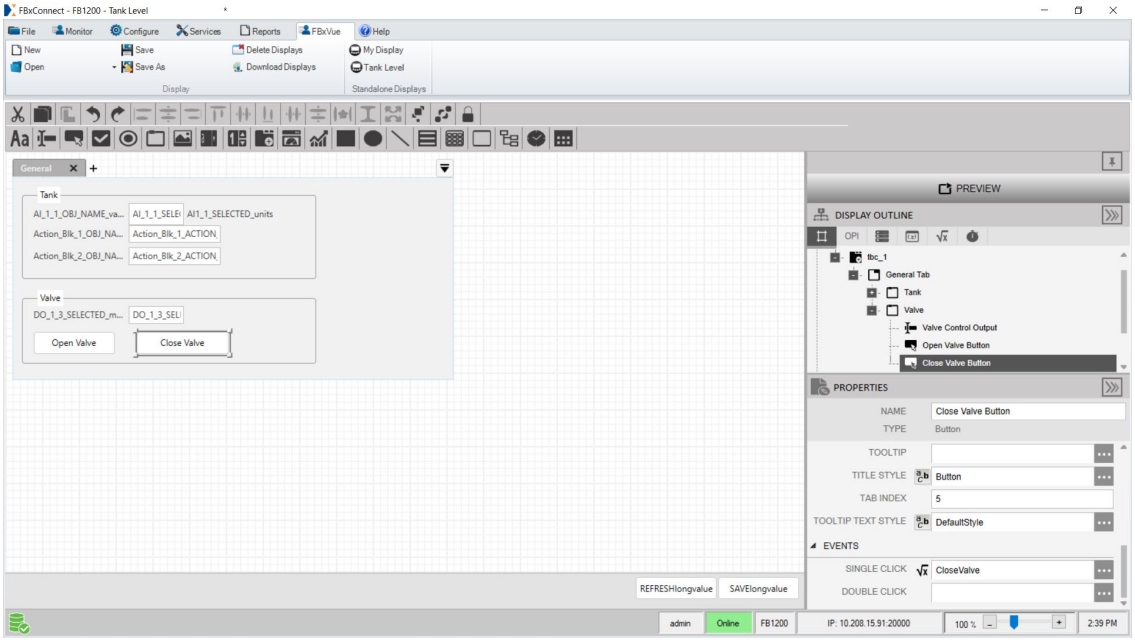
14. Select the **Evaluate** button. The OUTPUT field should indicate the expression was executed successfully.

Figure 130. Close Valve Button SINGLE CLICK – SOURCE VIEW



15. Select **OK** to close the SOURCE VIEW popup display. Your display should look like the picture below:

Figure 131. Close Valve Button



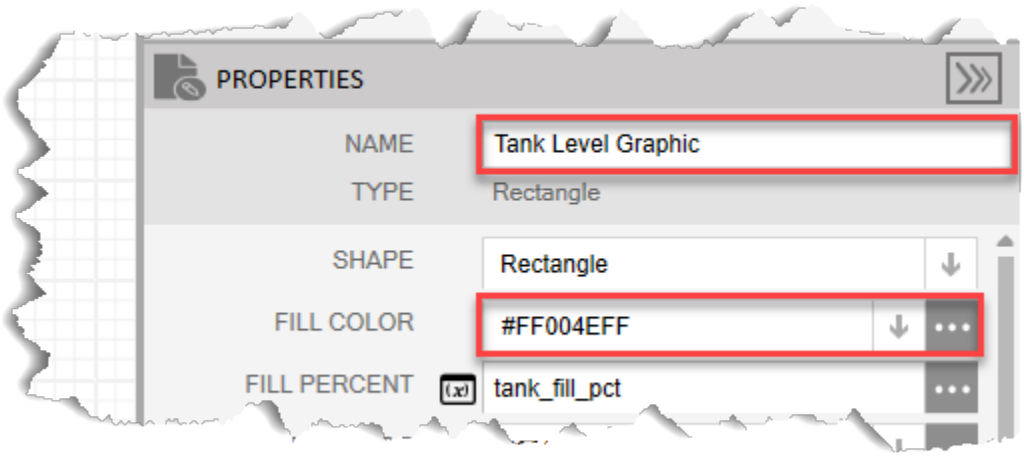
6.2.1.5 Adding the Tank Graphic

1. Drag and drop a **rectangle control**  into the General Tab control to the right of the Tank TextBox on the canvas.

2. In the PROPERTIES pane, enter **Tank Level Graphic** in the NAME field.

3. Select  in the FILL COLOR field and choose the color you want to represent the fill level of the tank (here we use **#FF004EFF**).

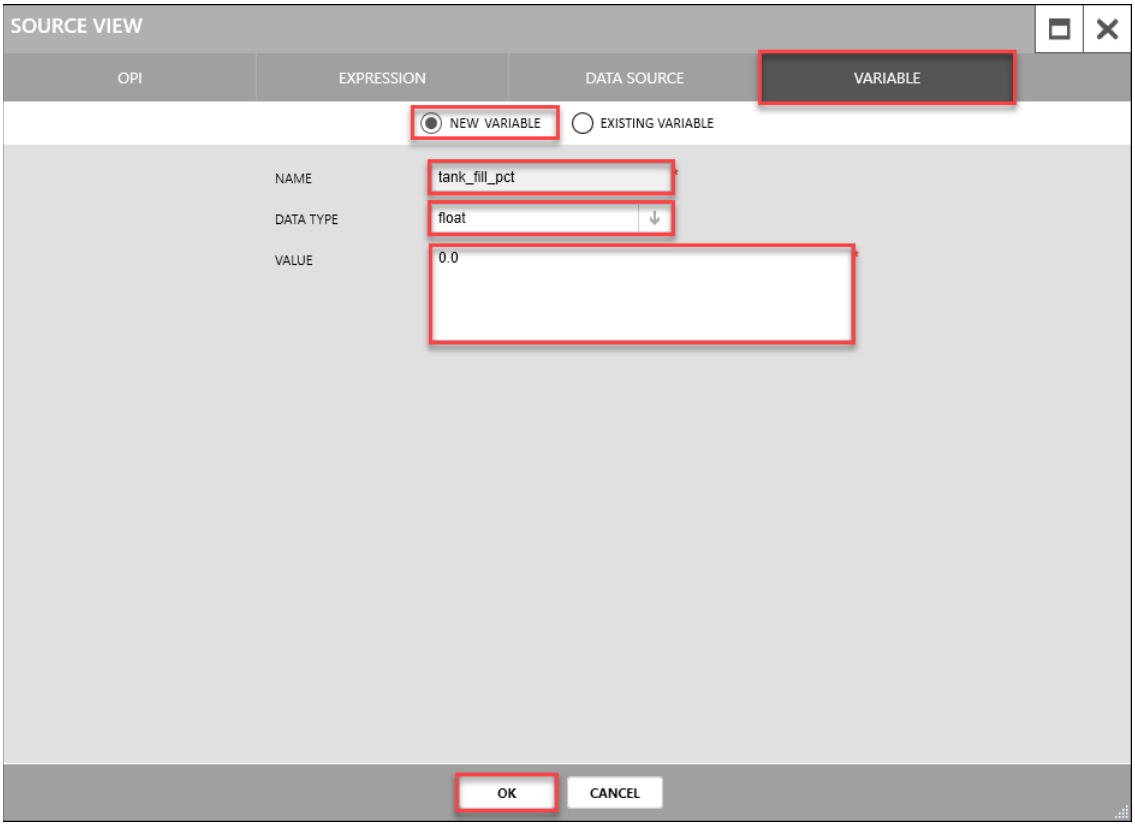
Figure 132. Tank Level Graphic – PROPERTIES



4. Select ... in the FILL PERCENT field to open a SOURCE VIEW popup display.

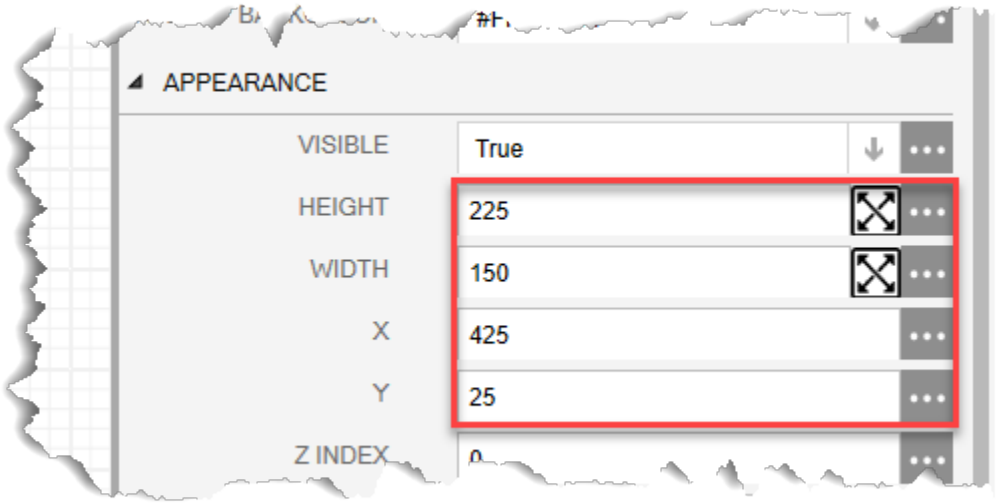
5. Select the **VARIABLE** tab at the top of the SOURCE VIEW popup display.

Figure 133. Tank Level Graphic FILL PERCENT – SOURCE VIEW



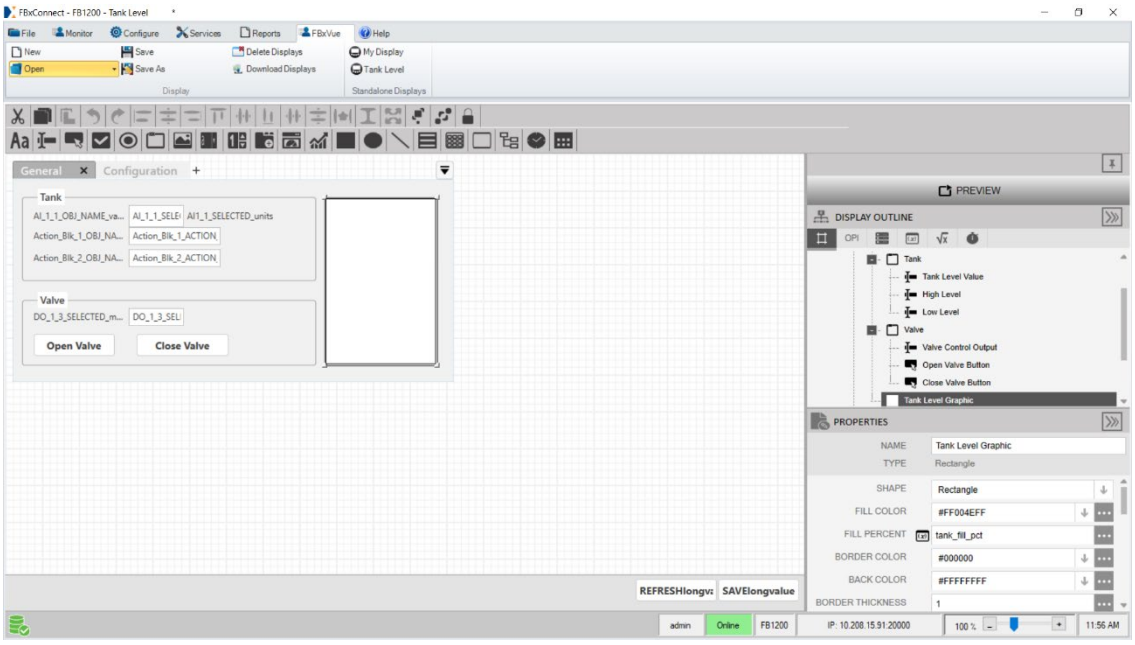
6. Select the **NEW VARIABLE** radio button.
7. Enter **tank_fill_pct** in the NAME field.
8. In the DATA TYPE field, select and choose **float**.
9. Enter **0.0** in the value field.
10. Select **OK** to close the SOURCE VIEW popup display.
11. In the APPEARANCE section of the PROPERTIES pane, enter **225** in the HIEGHT field.
12. Enter **150** the WIDTH field.
13. Enter **425** in the X field.
14. Enter **25** in the Y field.

Figure 134. Tank Level Graphic – APPEARANCE



Your display should look like the picture below:

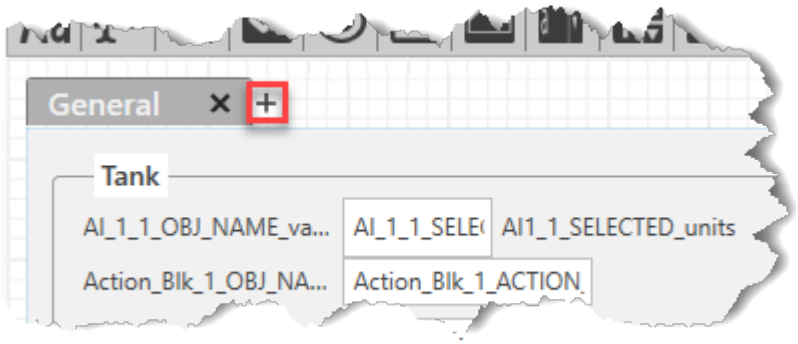
Figure 135. Tank Level Graphic



6.2.2 Adding the Configuration Tab

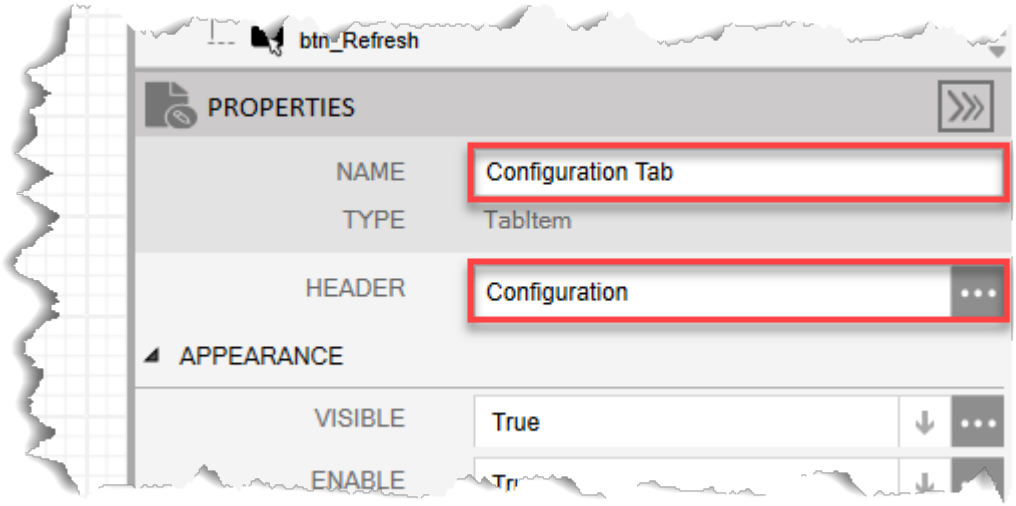
1. Next to the **General Tab** heading on the Canvas, click **+** to to add a new tab.

Figure 136. Add New Tab



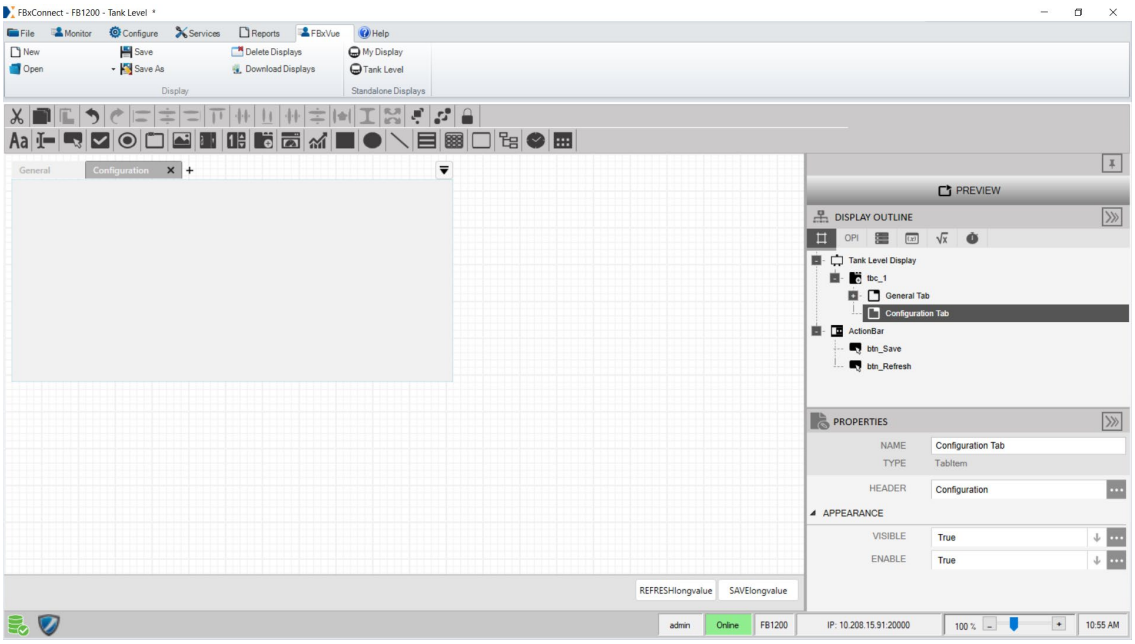
2. In the PROPERTIES pane, enter **Configuration Tab** in the NAME field.
3. Enter **Configuration** in the HEADER field.

Figure 137. Configuration Tab – PROPERTIES



Your display should look like the picture below:

Figure 138. Configuration Tab

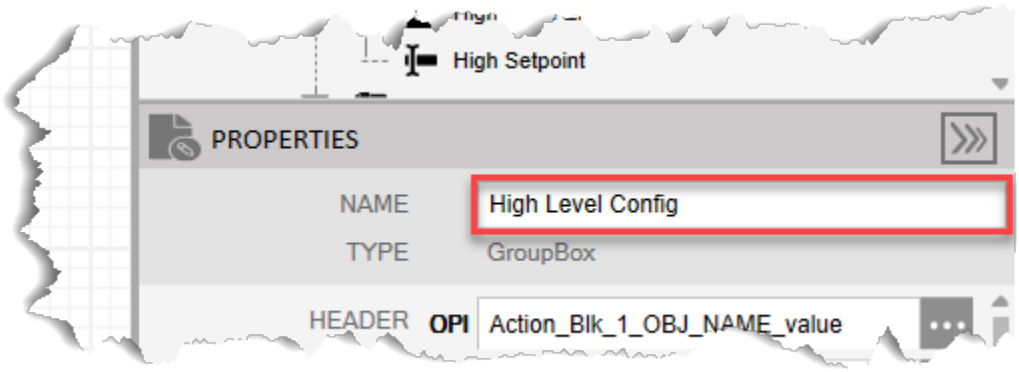


6.2.2.1 Adding a High Level Config GroupBox to the Configuration Tab

8. Drag and drop a **GroupBox** into the Configuration Tab below the Configuration TabItem HEADER on the canvas. This adds a subitem to the Configuration Tab in the Display Outline.

9. In the PROPERTIES pane, enter **High Level Config** in the NAME field. The name of the control in the Display Outline now shows High Level Config.

Figure 139. High Level Config GroupBox – PROPERTIES



10. Select ... in the HEADER field to open a SOURCE VIEW popup display.

11. With the OPI tab selected, select **Action Blk_> High Level Status (Instance 1)** in the left column.

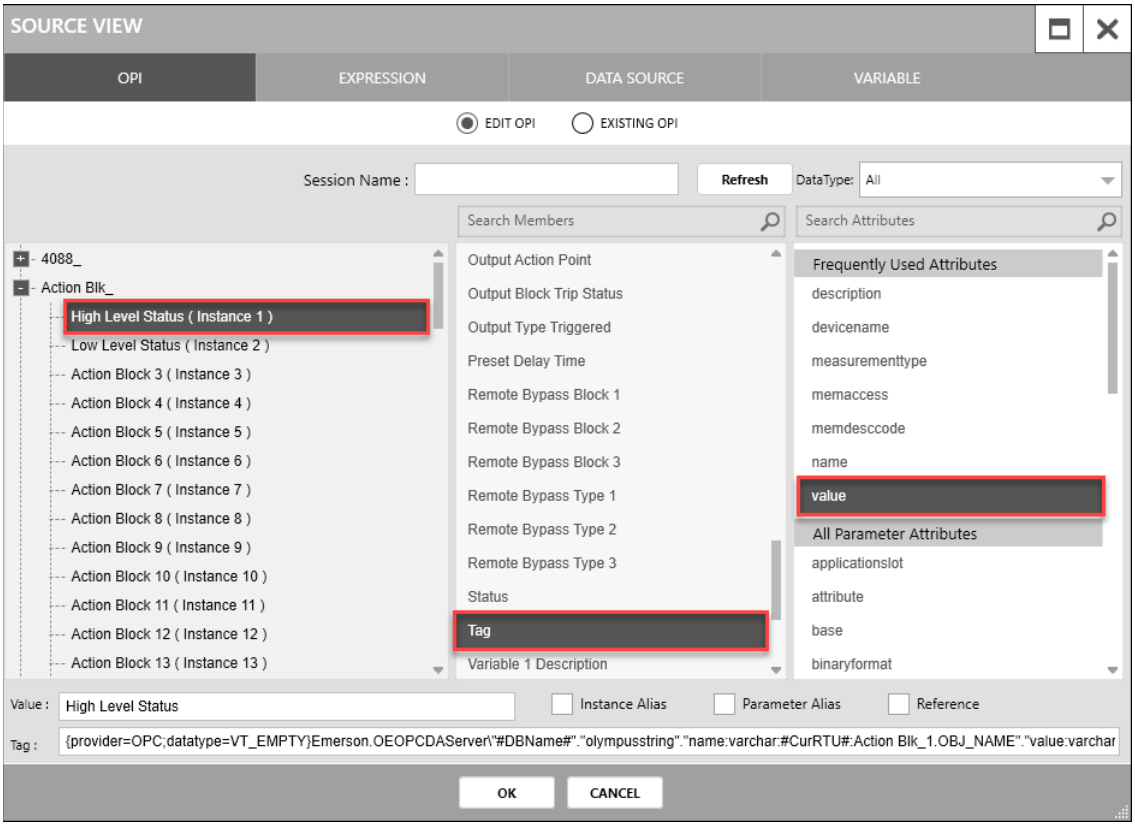
Note

If you configured a different Action Block to drive the control valve closed, select the instance you configured in Configure Action Block 1.

12. Select **Tag** in the middle column.

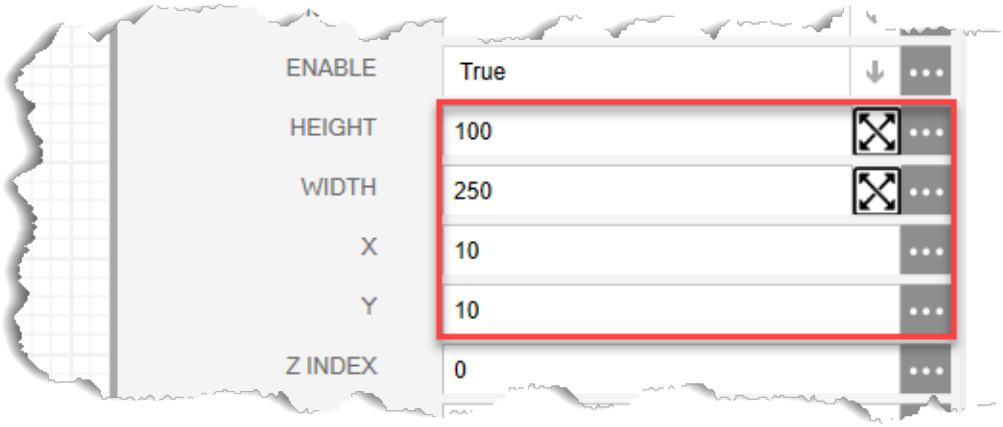
13. Select **value** in the right column. On the finished display, this shows the Tag you configured for Action Block 1 (High Level Status) as the header for the GroupBox.

Figure 140. High Level Config GroupBox HEADER – SOURCE VIEW



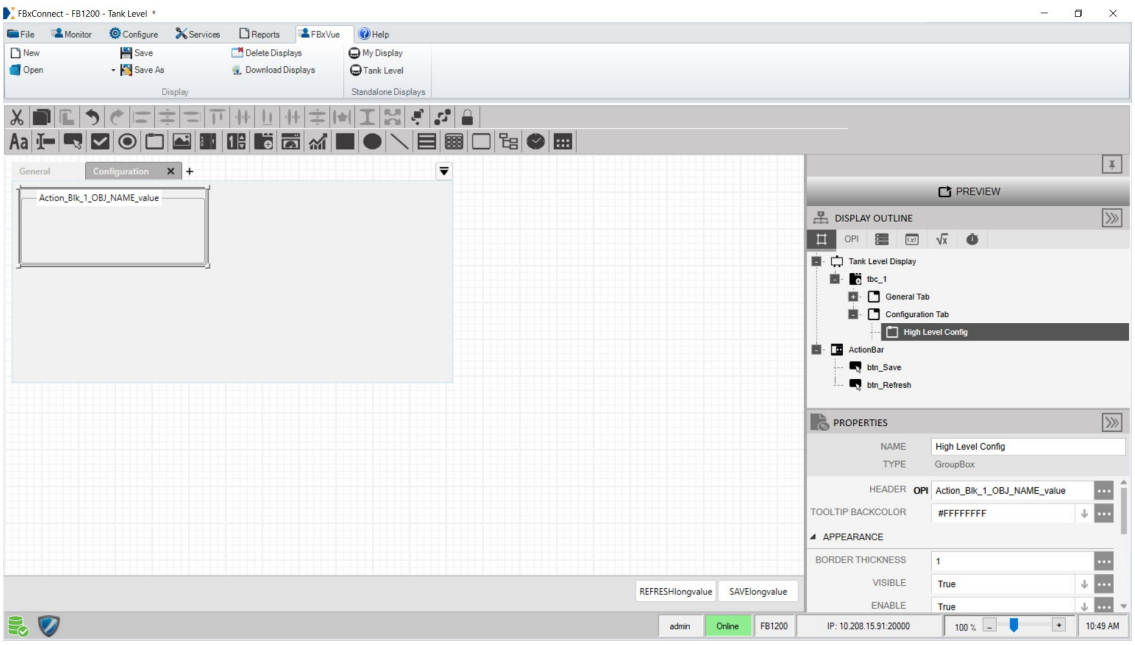
14. Select **OK** to close the SOURCE VIEW popup display.
15. In the APPEARANCE section of the PROPERTIES pane, enter **100** in the HEIGHT field
16. Enter **250** in the WIDTH field
17. Enter **10** in the X field
18. Enter **10** in the Y field.

Figure 141. High Level Config GroupBox – APPEARANCE



Your display should look like the picture below:

Figure 142. High Level Config GroupBox

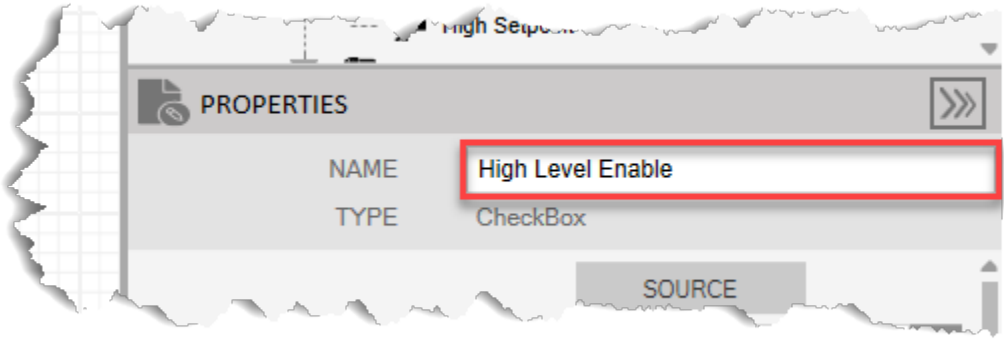


6.2.2.1.1 Adding a High Level Enable CheckBox to the High Level Config GroupBox

1. Drag and drop a **CheckBox**  into the High Level Config GroupBox below the High Level Config HEADER on the canvas. This adds a subitem to the High Level GroupBox in the Display Outline.

2. In the PROPERTIES pane, enter **High Level Enable** in the NAME field.

Figure 143. High Level Enable CheckBox – PROPERTIES



3. Select ... in the **TITLE** field to open a SOURCE VIEW popup display.

4. With the OPI tab selected, select **High Level Status (Instance 1)** in the left column.

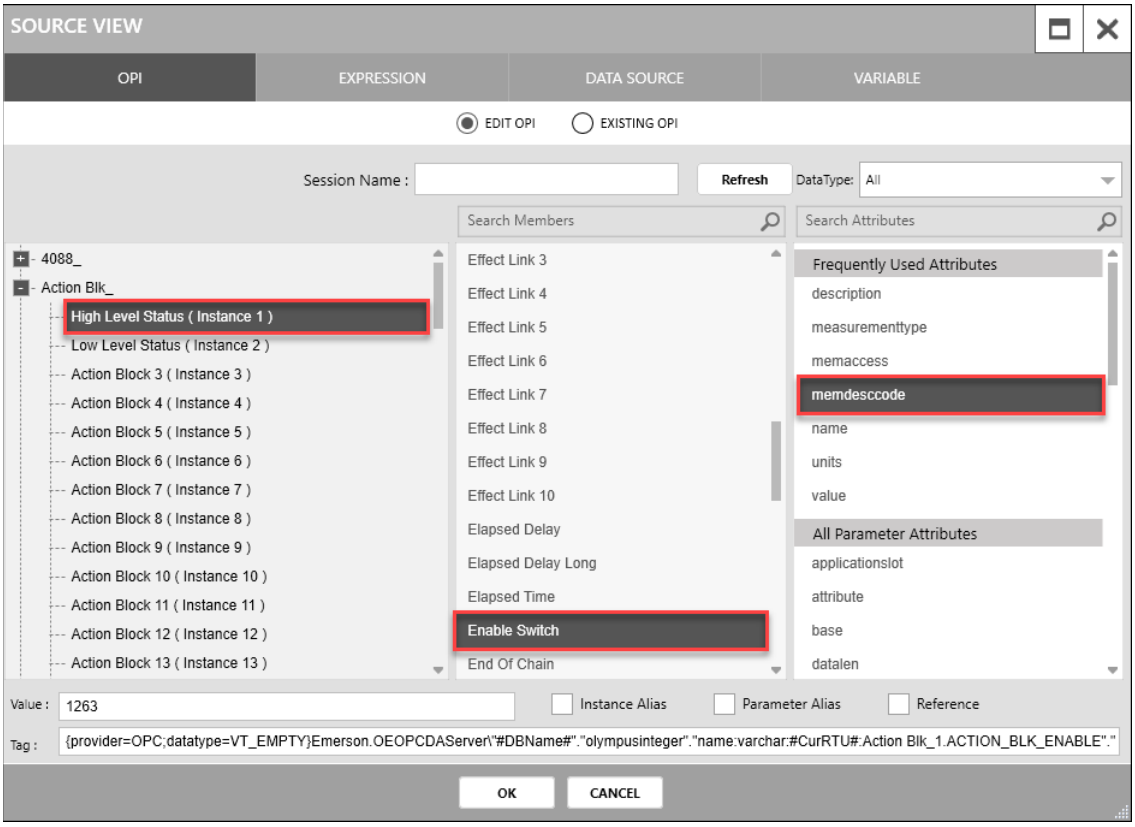
Note

If you configured a different Action Block to drive the control valve closed, select the instance you configured in Configure Action Block 1.

5. Select **Enable Switch** in the middle column.

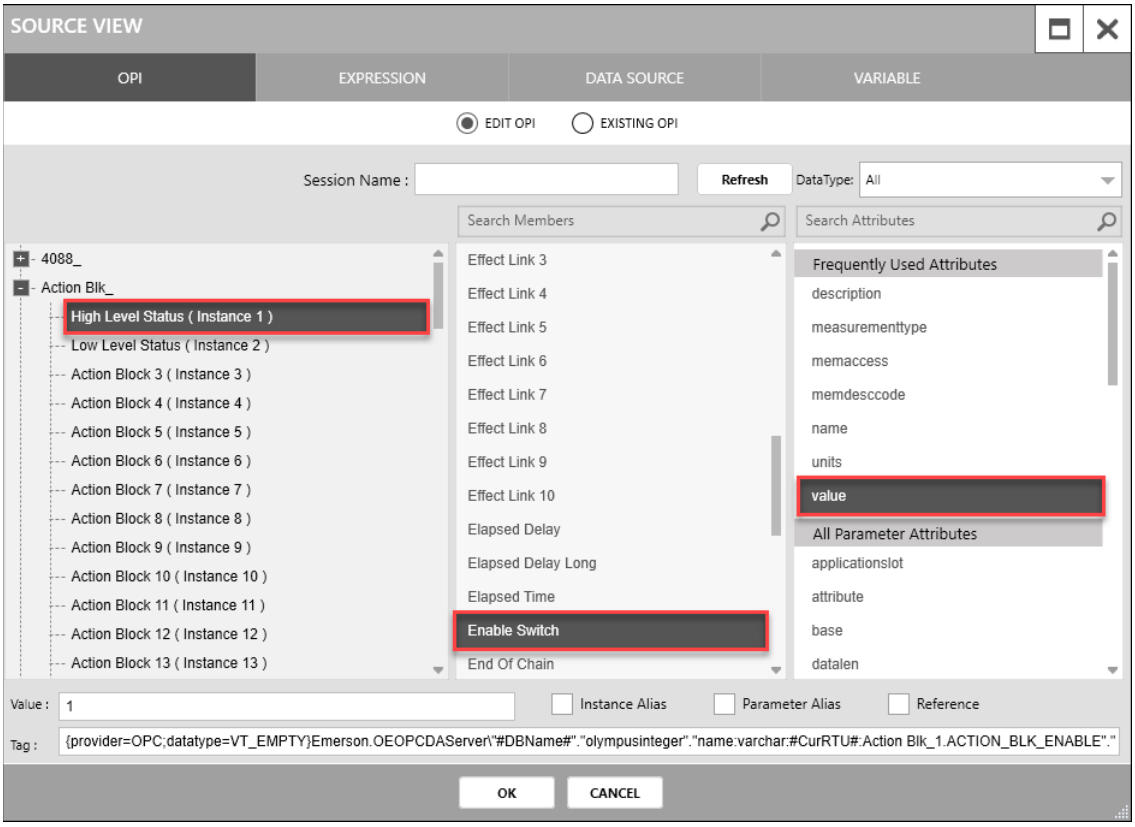
6. Select **memdesccode** in the right column.

Figure 144. High Level Enable CheckBox TITLE – SOURCE VIEW



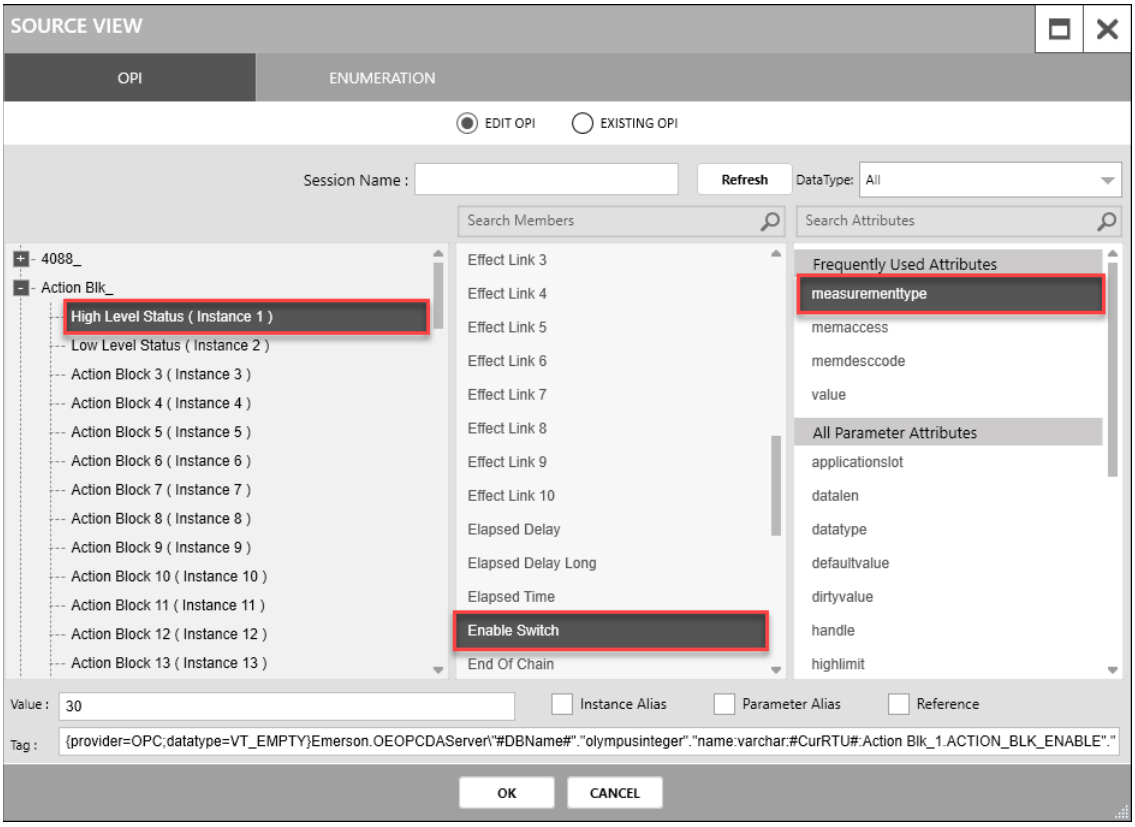
7. Select **OK** to close the SOURCE VIEW popup display.
8. Select ••• in the **VALUE** field to open a SOURCE VIEW popup display.
9. With the OPI tab selected, select **Action Blk_ > High Level Status (Instance 1)** in the left column.
10. Select **Enable Switch** in the middle column.
11. Select **value** in the right column.

Figure 145. High Level Enable CheckBox VALUE – SOURCE VIEW



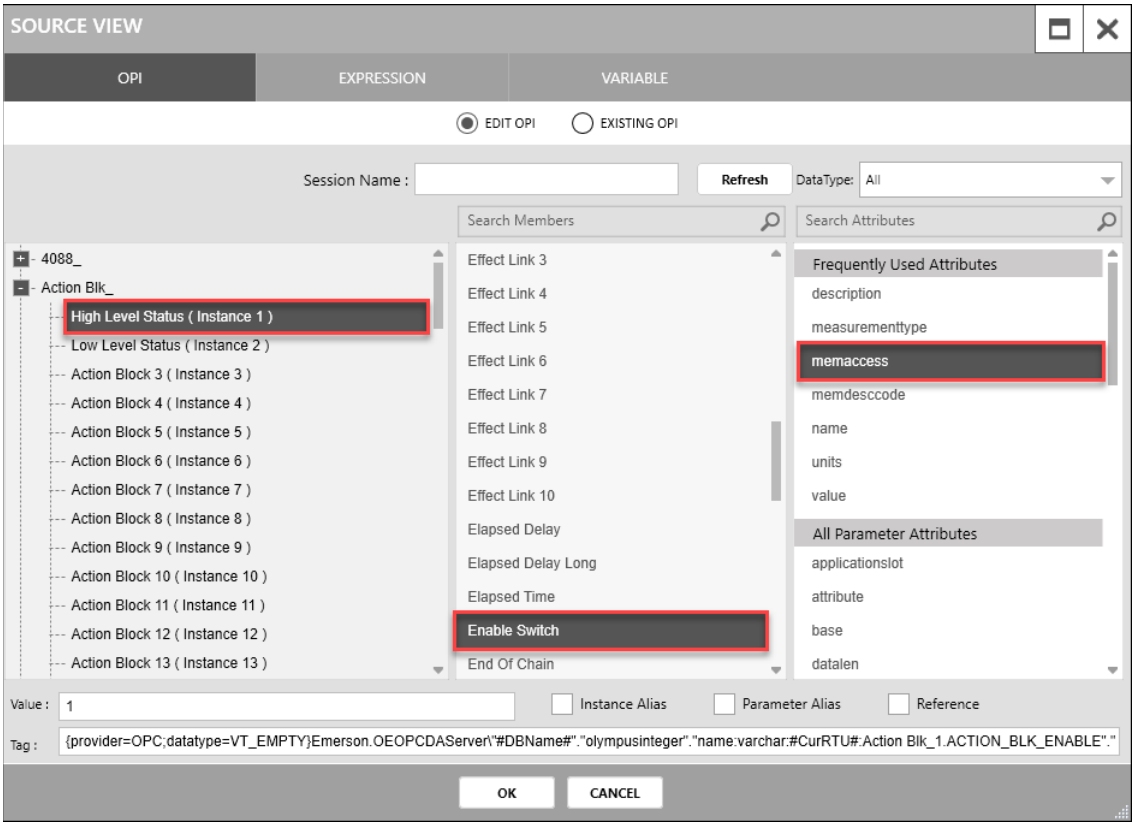
12. Select **OK** to close the SOURCE VIEW popup display.
13. Select ... in the **ENUMERATION** field to open a SOURCE VIEW popup display.
14. With the OPI tab selected, select **Action Blk_ > High Level Status (Instance 1)** in the left column.
15. Select **Enable Switch** in the middle column.
16. Select **measurementtype** in the right column.

Figure 146. High Level Enable CheckBox ENUMERATION – SOURCE VIEW



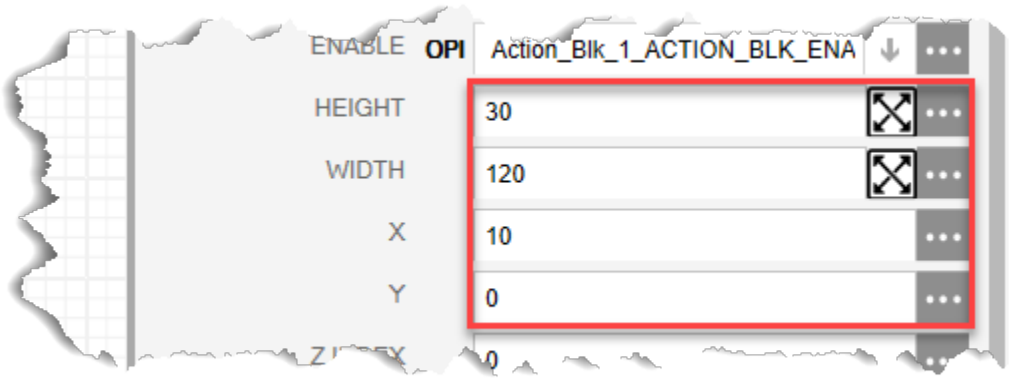
17. Select **OK** to close the SOURCE VIEW popup display.
18. In the APPEARANCE section of the PROPERTIES pane, select ••• in the **ENABLE** field to open a SOURCE VIEW popup display.
19. With the OPI tab selected, select **Action Blk_ > High Level Status (Instance 1)** in the left column.
20. Select **Enable Switch** in the second column.
21. Select **memaccess** in the right column.

Figure 147. High Level Enable CheckBox ENABLE – SOURCE VIEW



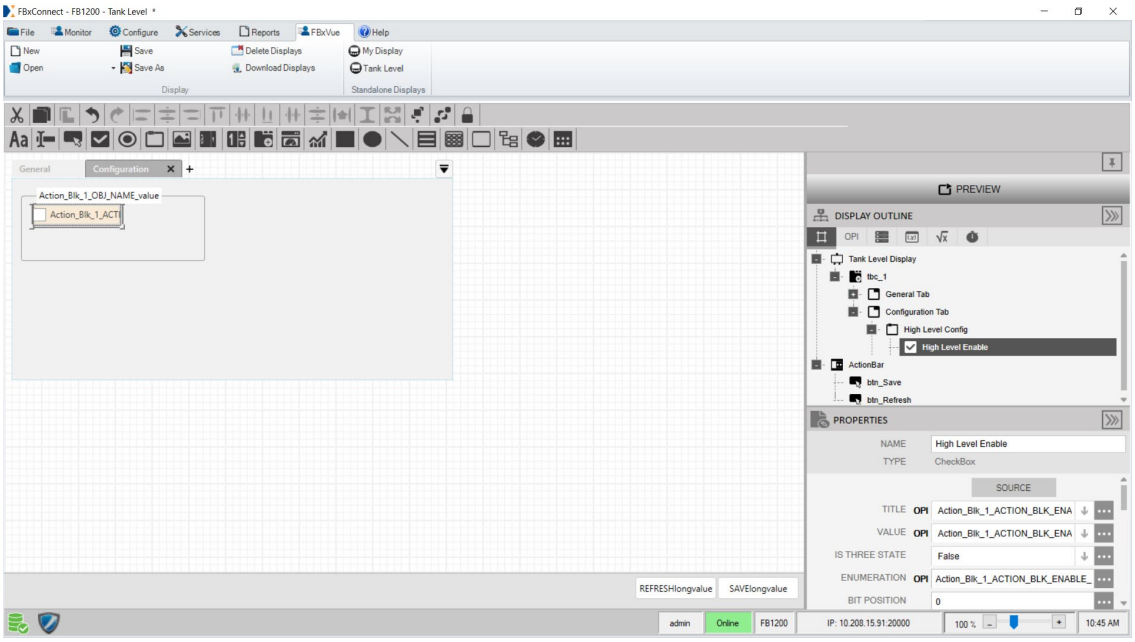
22. Select **OK** to close the SOURCE VIEW popup display.
23. In the APPEARANCE section of the PROPERTIES pane, enter **30** in the HEIGHT field.
24. Enter **120** in the WIDTH field.
25. Enter **10** in the X field.
26. Enter **0** in the Y field.

Figure 148. High Level Enable CheckBox – APPEARANCE



Your display should look like the picture below:

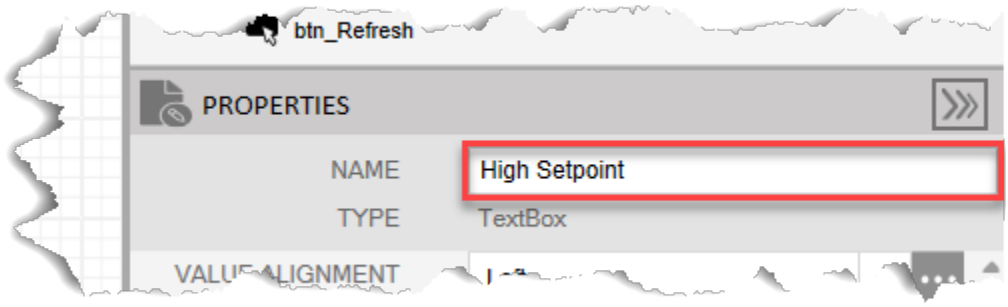
Figure 149. High Level Enable CheckBox



6.2.2.1.2 Adding a High Level Setpoint to the High Level GroupBox

1. Drag and drop a **TextBox**  into the High Level Config GroupBox below the High Level Enable CheckBox on the canvas.
2. In the PROPERTIES pane, enter **High Setpoint** in the NAME field.

Figure 150. High Setpoint TextBox – PROPERTIES



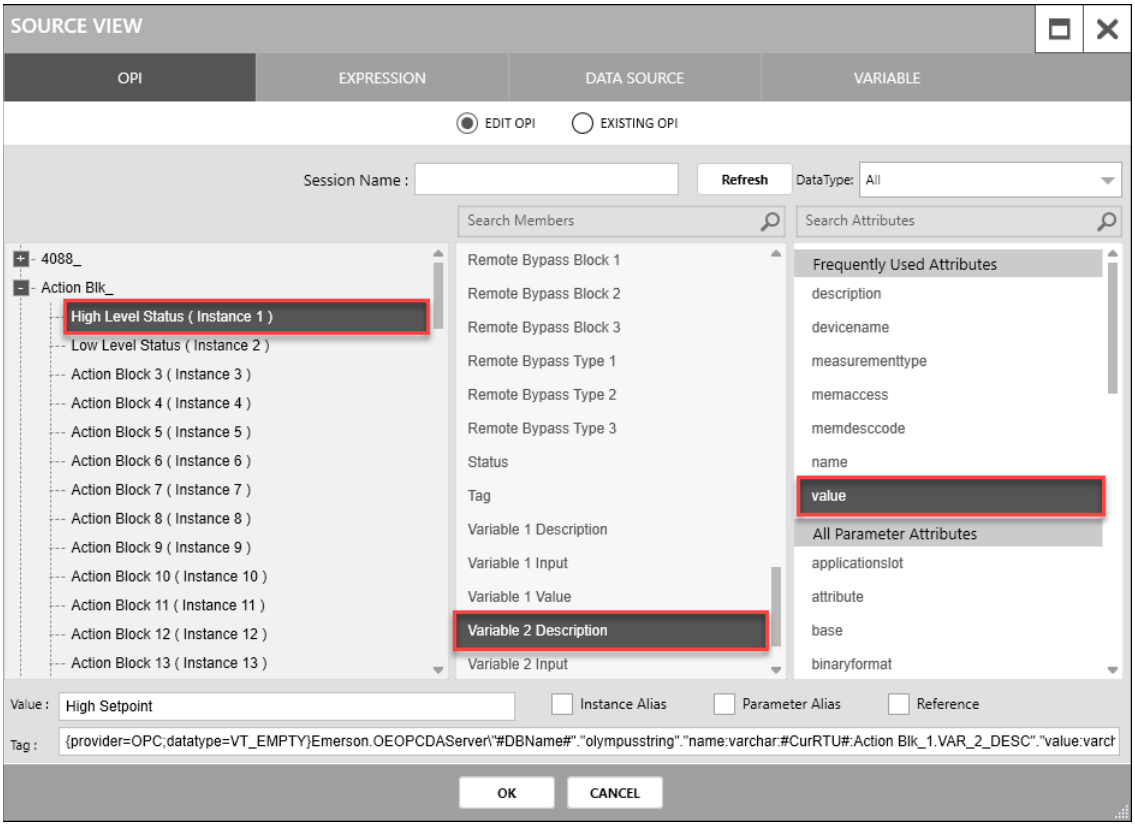
3. Select ... in the **TITLE** field to open a SOURCE VIEW popup display.
4. With the OPI tab selected, select **Action Blk_ > High Level Status (Instance 1)** in the left column.

Note

If you configured a different Action Block to drive the control valve closed, select the instance you configured in Configure Action Block 1.

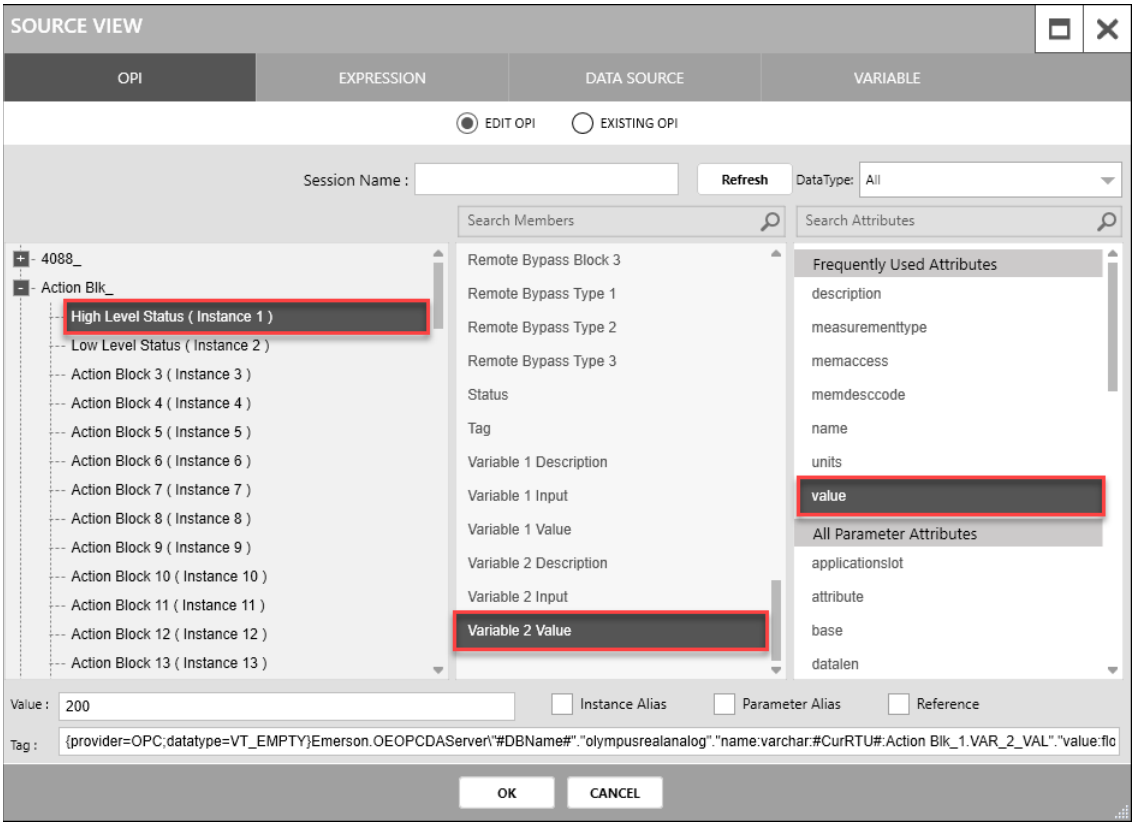
5. Select **Variable 2 Description** in the middle column.
6. Select **value** in the right column.

Figure 151. High Setpoint TextBox TITLE – SOURCE VIEW



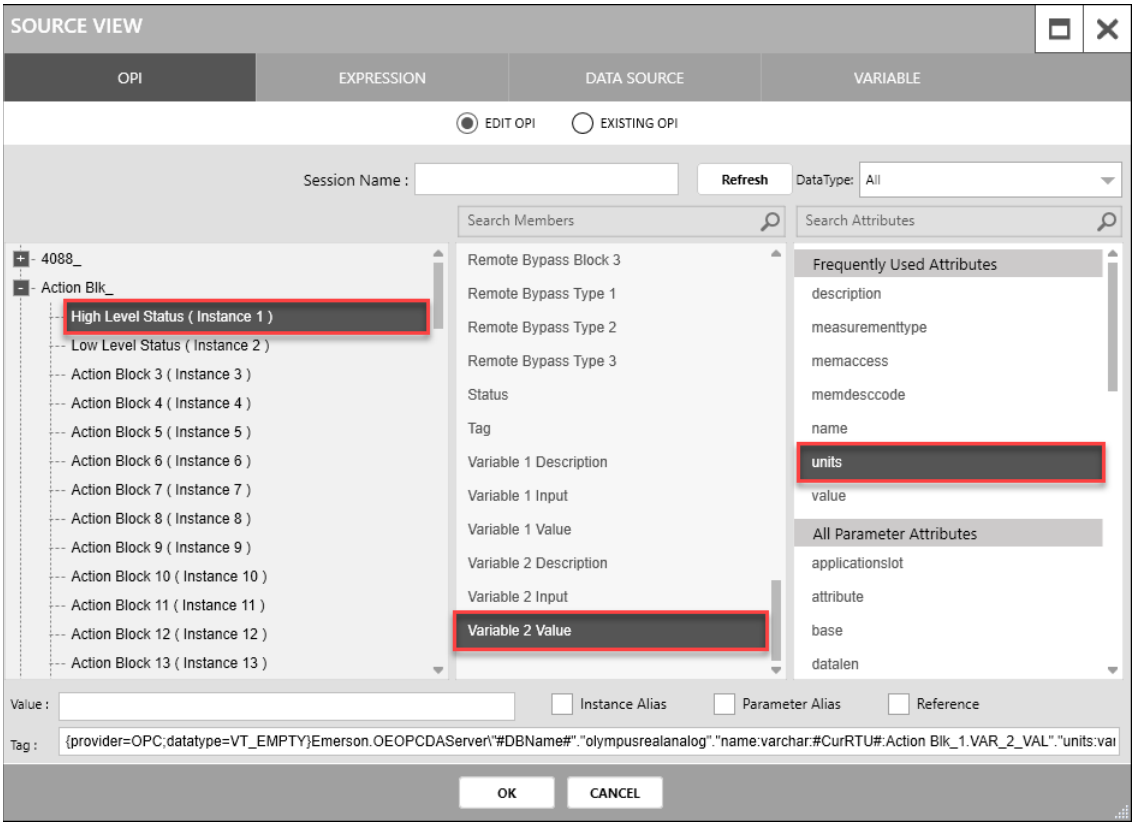
7. Select **OK** to close the SOURCE VIEW popup display
8. Select ••• in the **VALUE** field to open a SOURCE VIEW popup display.
9. With the OPI tab selected, select **Action Blk_ > High Level Status (Instance 1)** in the left column.
10. Select **Variable 2 Value** in the middle column.
11. Select **value** in the right column.

Figure 152. High Setpoint TextBox VALUE – SOURCE VIEW



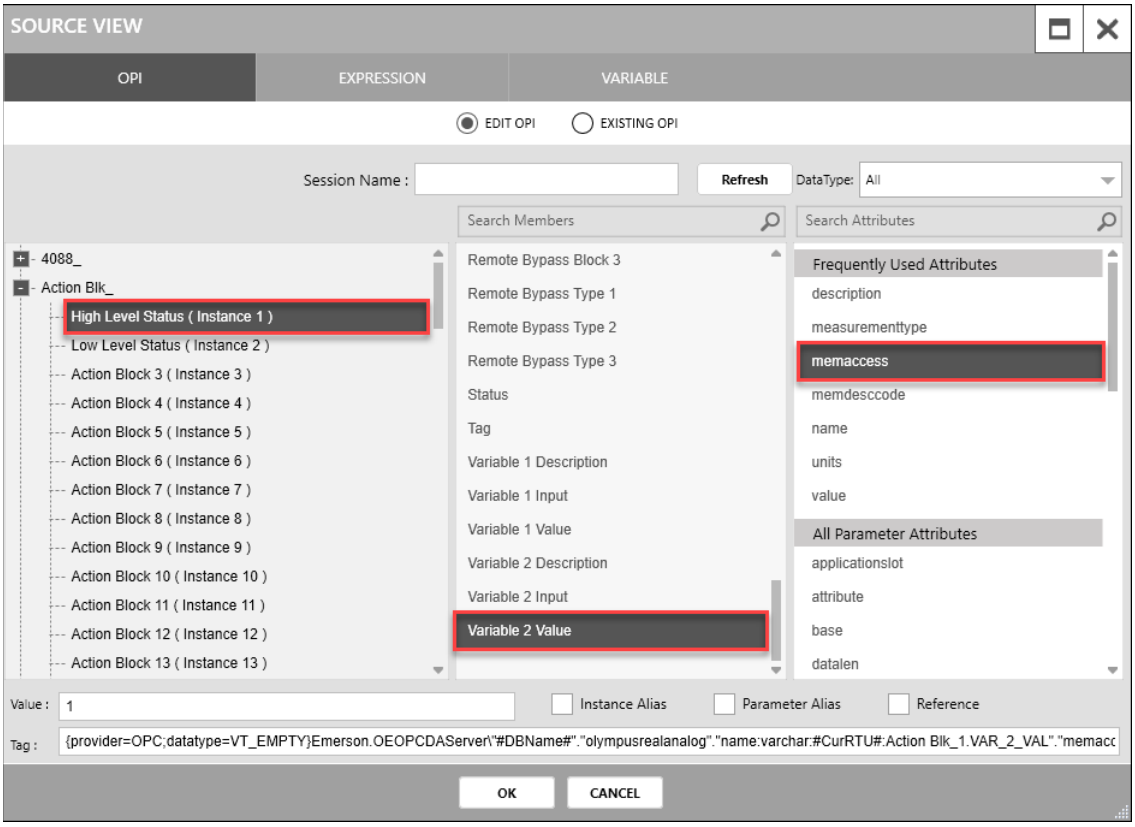
12. Select **OK** to close the SOURCE VIEW popup display.
13. Select ... in the **UNIT** field to open a SOURCE VIEW popup display.
14. With the OPI tab selected, select **Action Blk_ > High Level Status (Instance 1)** in the left column.
15. Select **Variable 2 Value** in the middle column.
16. Select **units** in the right column.

Figure 153. High Setpoint TextBox UNIT – SOURCE VIEW



17. Select **OK** to close the SOURCE VIEW popup display.
18. In the APPEARANCE section of the PROPERTIES pane, select ••• in the **ENABLE** field to open a SOURCE VIEW popup display.
19. With the OPI tab selected, select **Action Blk_ > High Level Status (Instance 1)** in the left column.
20. Select **Variable 2 Value** in the second column.
21. Select **memaccess** in the right column.

Figure 154. High Setpoint TextBox ENABLE – SOURCE VIEW



22. Select **OK** to close the SOURCE VIEW popup display.

23. In the APPEARANCE section of the PROPERTIES pane, enter **30** in the HEIGHT field.

24. Enter **125** in the TITLE WIDTH field.

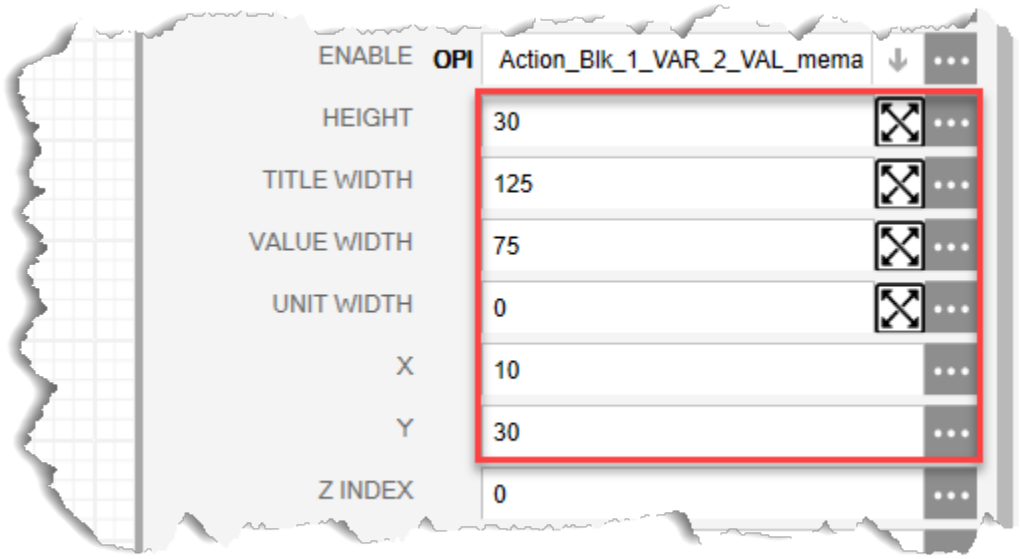
25. Enter **75** in the VALUE WIDTH field.

26. Enter **0** in the UNIT WIDTH field.

27. Enter **10** in the X field.

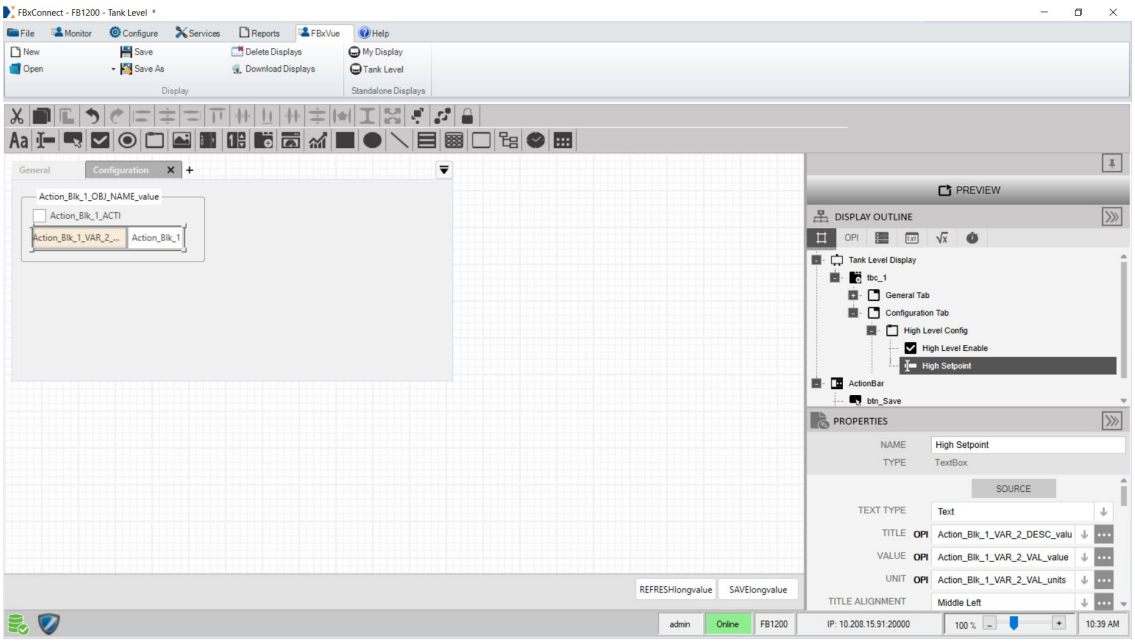
28. Enter **30** in the Y field.

Figure 155. High Setpoint TextBox – APPEARANCE



Your display should look like the picture below:

Figure 156. High Setpoint TextBox



6.2.2.2 Adding a Low Level GroupBox to the Configuration Tab

1. Drag and drop a **GroupBox**  into the Configuration Tab below the High Setpoint TextBox on the canvas. This adds a subitem to the Configuration Tab in the Display Outline.
2. In the PROPERTIES pane, enter **Low Level Config** in the NAME field. The name of the control in the Display Outline now shows Low Level Config.

Figure 157. Low Level Config GroupBox – PROPERTIES

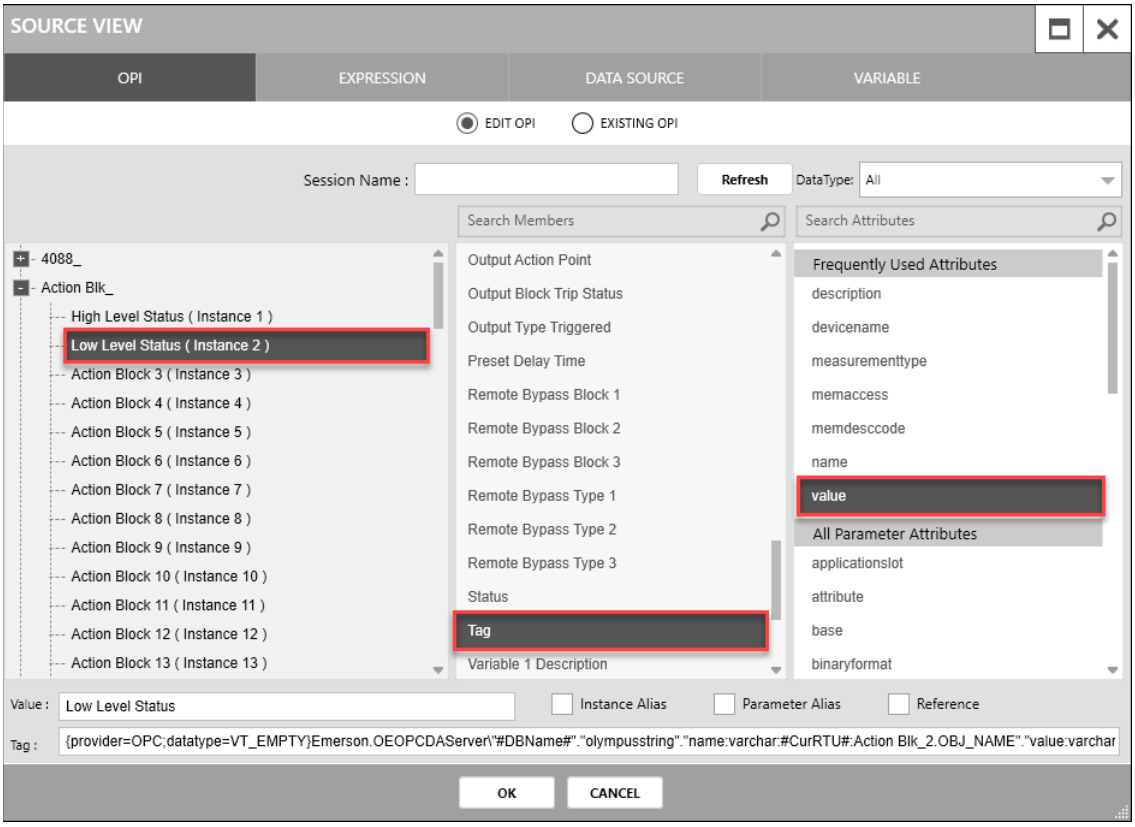
3. Select  in the HEADER field to open a SOURCE VIEW popup display.
4. With the OPI tab selected, select **Action Blk_> Low Level Status (Instance 2)** in the left column.

Note

If you configured a different Action Block to drive the control valve open, select the instance you configured in Configure Action Block 2.

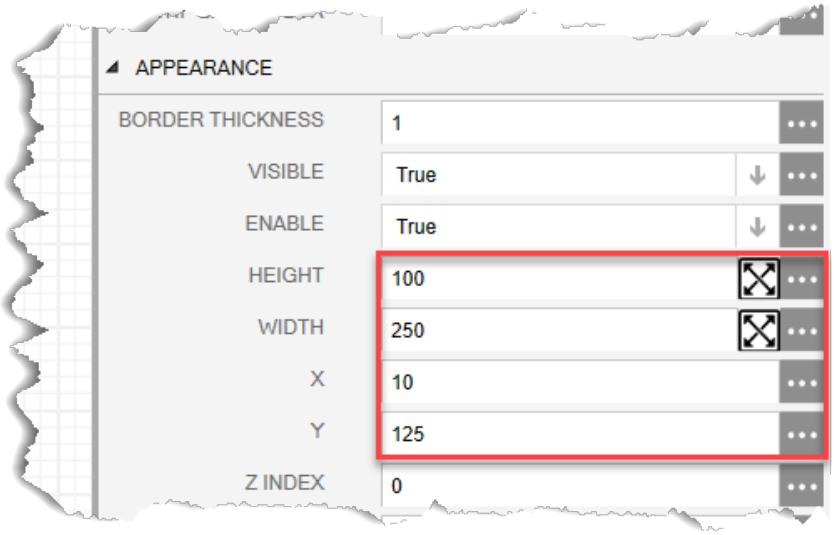
5. Select **Tag** in the middle column.
6. Select **value** in the right column.

Figure 158. Low Level Config GroupBox HEADER – SOURCE VIEW



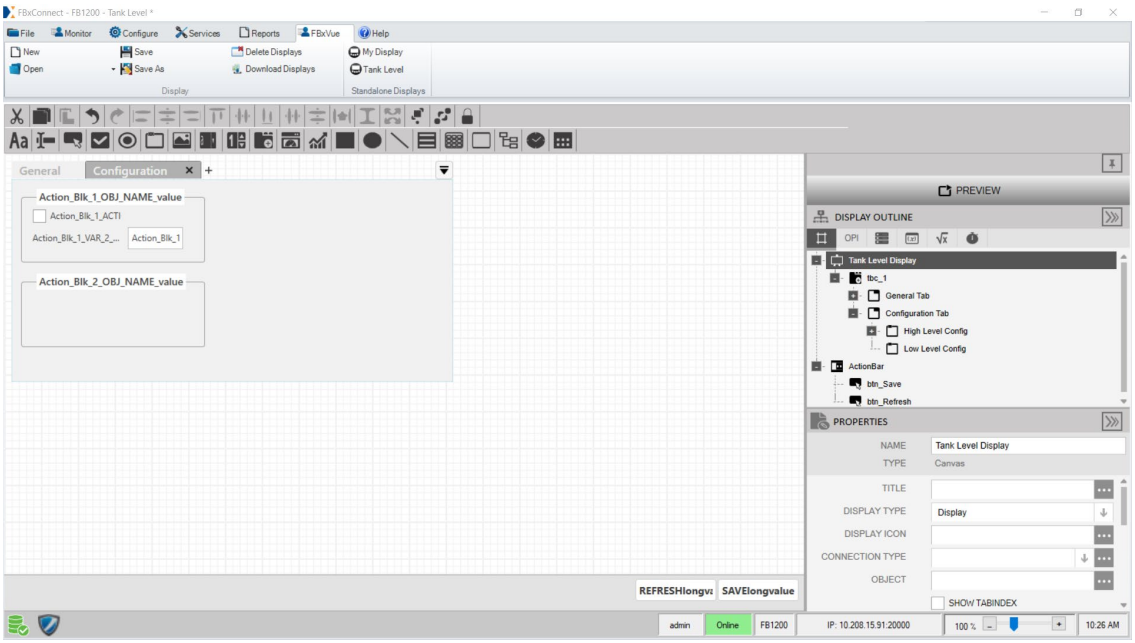
7. Select **OK** to close the SOURCE VIEW popup display.
8. In the APPEARANCE section of the PROPERTIES pane, enter **100** in the HEIGHT field
9. Enter **250** in the WIDTH field
10. Enter **10** in the X field
11. Enter **125** in the Y field.

Figure 159. Low Level Config GroupBox – APPEARANCE



Your display should look like the picture below:

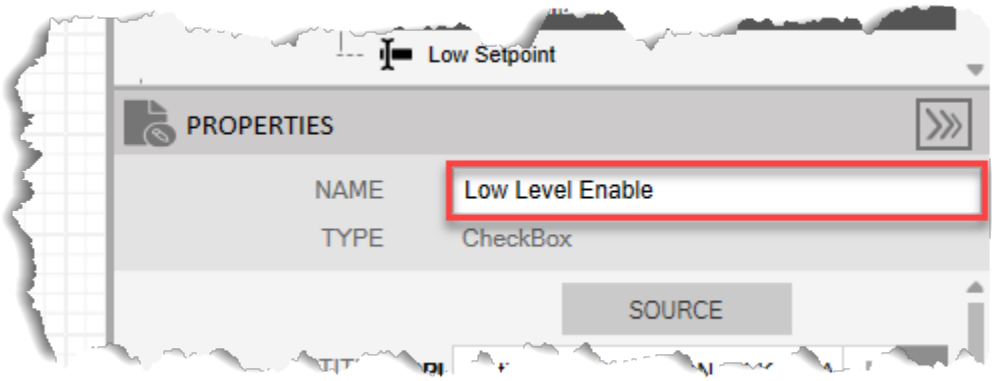
Figure 160. Low Level Config GroupBox



6.2.2.2.1 Adding an Enable CheckBox to the Low Level GroupBox

1. Drag and drop a **CheckBox**  into the Low Level Config GroupBox below the Low Level Config GroupBox HEADER on the canvas. This adds a subitem to the Low Level Config GroupBox.
2. In the PROPERTIES pane, enter **Low Level Enable** in the NAME field.

Figure 161. Low Level Enable CheckBox – PROPERTIES



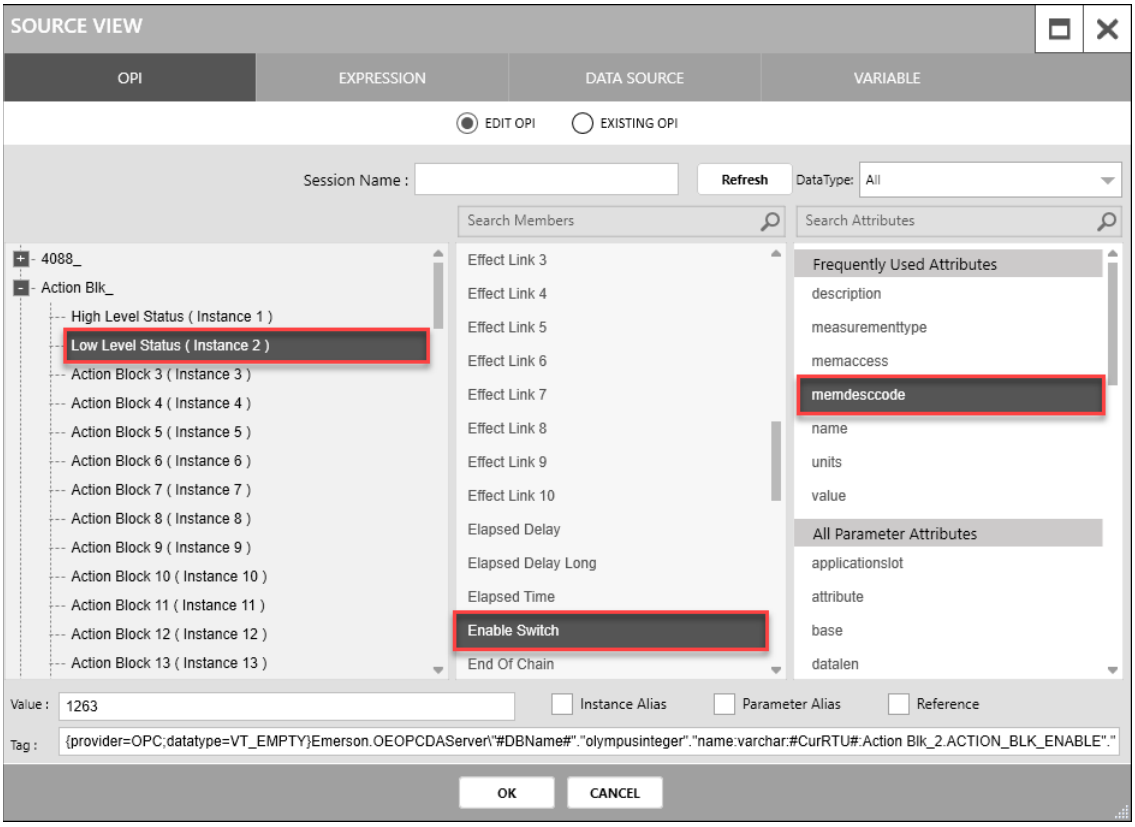
3. Select  in the TITLE field to open a SOURCE VIEW popup display.
4. With the OPI tab selected, select **Action Blk_> Low Level Status (Instance 2)** in the left column.

Note

If you configured a different Action Block to drive the control valve open, select the instance you configured in Configure Action Block 2.

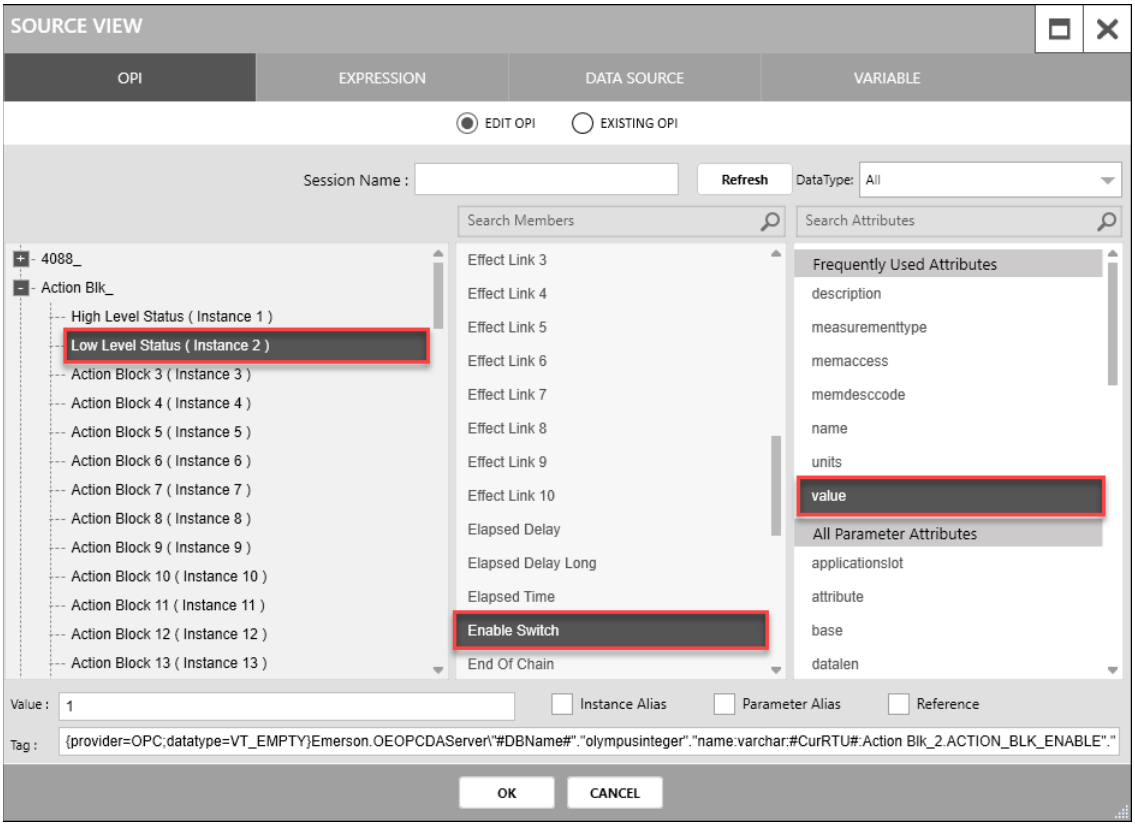
5. Select **Enable Switch** in the middle column.
6. Select **memdesccode** in the right column.

Figure 162. Low Level Enable CheckBox TITLE – SOURCE VIEW



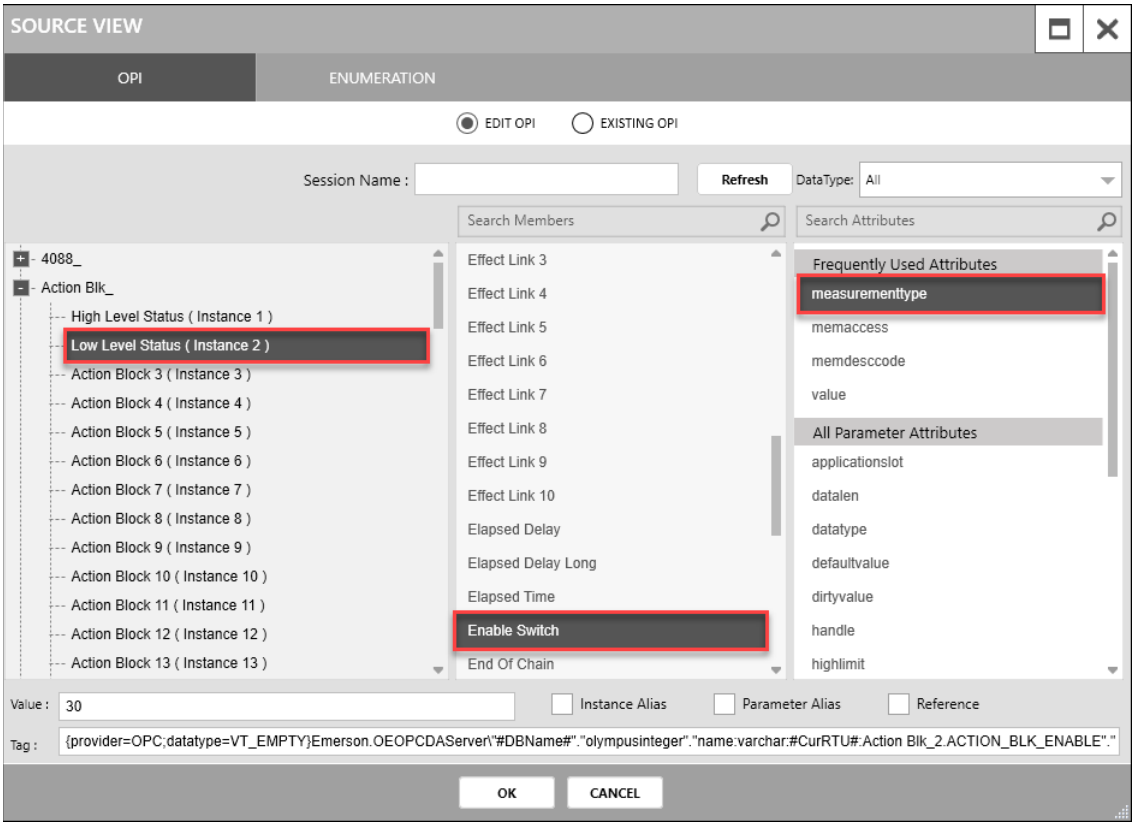
7. Select **OK** to close the SOURCE VIEW popup display.
8. Select ... in the VALUE field to open a SOURCE VIEW popup display.
9. With the OPI tab selected, select **Action Blk_ > Low Level Status (Instance 2)** in the left column.
10. Select **Enable Switch** in the middle column.
11. Select **value** in the right column.

Figure 163. Low Level Enable CheckBox VALUE – SOURCE VIEW



12. Select **OK** to close the SOURCE VIEW popup display.
13. Select ••• in the **ENUMERATION** field to open a SOURCE VIEW popup display.
14. With the OPI tab selected, select **Action Blk_ > Low Level Status (Instance 2)** in the left column.
15. Select **Enable Switch** in the middle column.
16. Select **measurementtype** in the right column.

Figure 164. Low Level Enable CheckBox ENUMERATION – SOURCE VIEW



17. Select **OK** to close the SOURCE VIEW popup display.

18. In the APPEARANCE section of the PROPERTIES pane, enter **30** in the HEIGHT field.

19. Enter **120** in the WIDTH field.

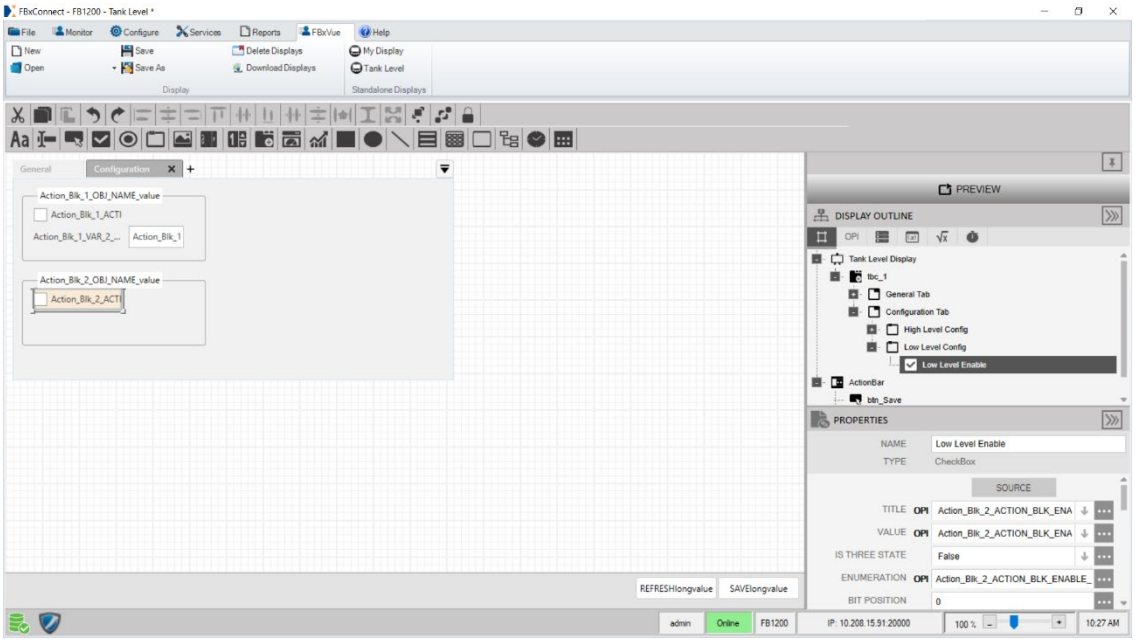
20. Enter **10** in the X field.

21. Enter **0** in the Y field.

Figure 165. Low Level Enable CheckBox – APPEARANCE

Your display should look like the picture below:

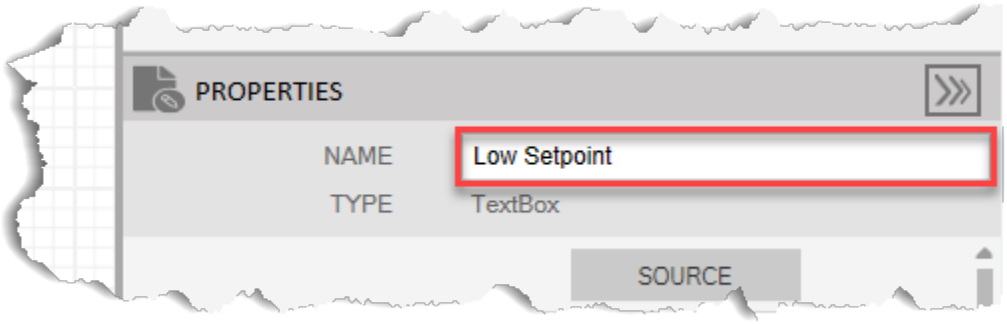
Figure 166. Low Level Enable CheckBox



6.2.2.2.2 Adding a Low Setpoint to the Low Level GroupBox

1. Drag and drop a **TextBox**  into the Low Level GroupBox below the Low Level Enable CheckBox on the canvas.
2. In the PROPERTIES pane, enter **Low Setpoint** in the NAME field.

Figure 167. Low Setpoint GroupBox – PROPERTIES



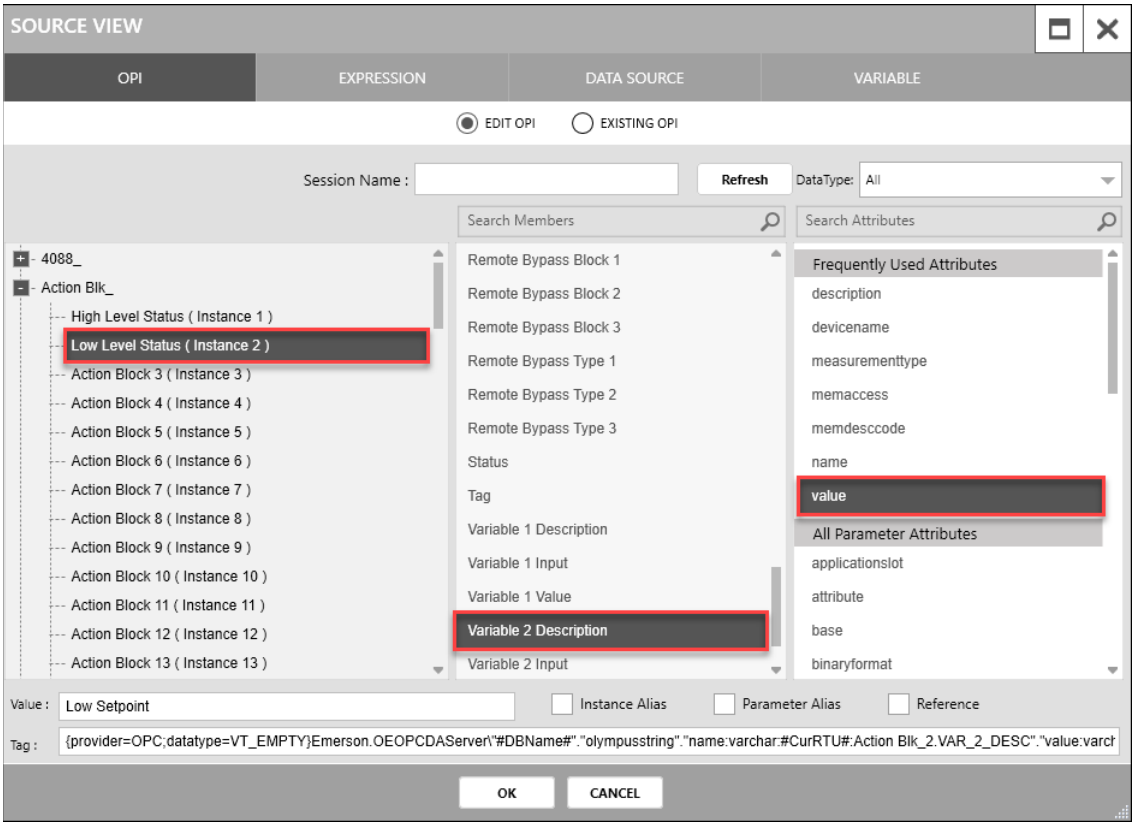
3. Select ••• in the TITLE field to open a SOURCE VIEW popup display.
4. With the OPI tab selected, select **Action Blk_ > Low Level Status (Instance 2)** in the left column.

Note

If you configured a different Action Block to drive the control valve open, select the instance you configured in Configure Action Block 2.

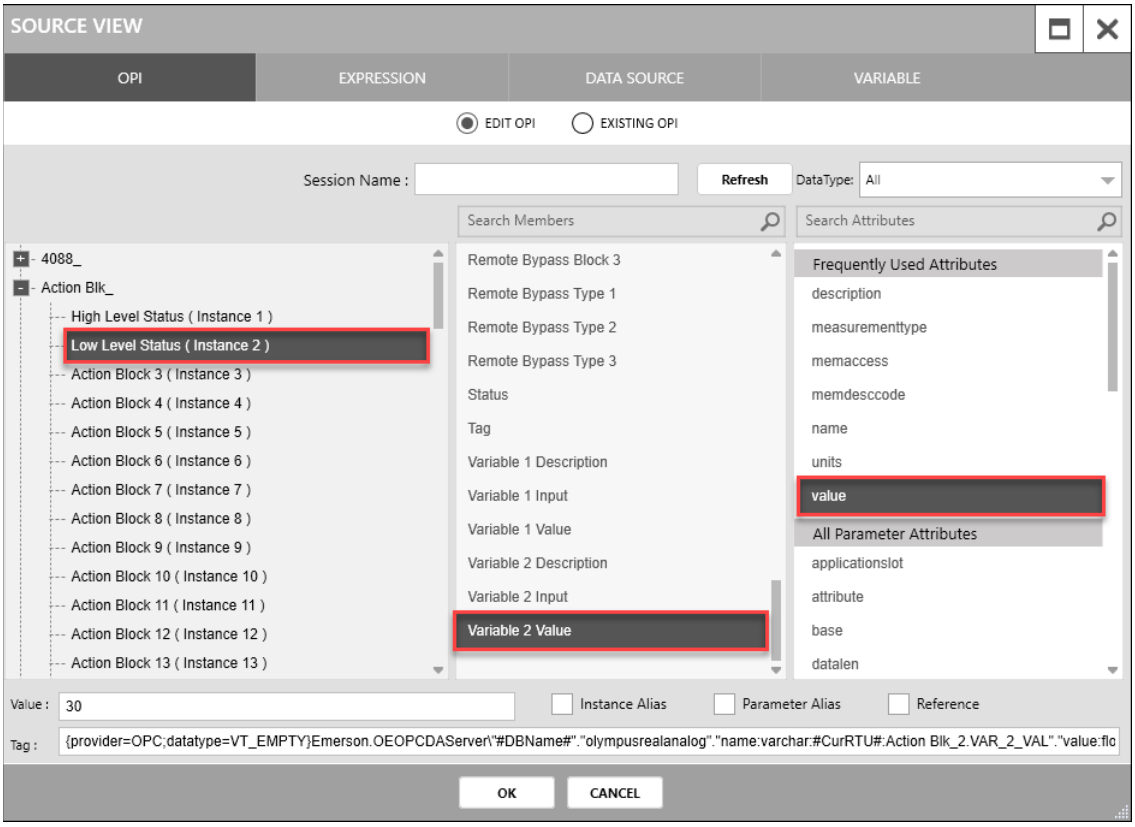
5. Select **Variable 2 Description** in the middle column.
6. Select **value** in the right column.

Figure 168. Low Setpoint GroupBox TITLE – SOURCE VIEW



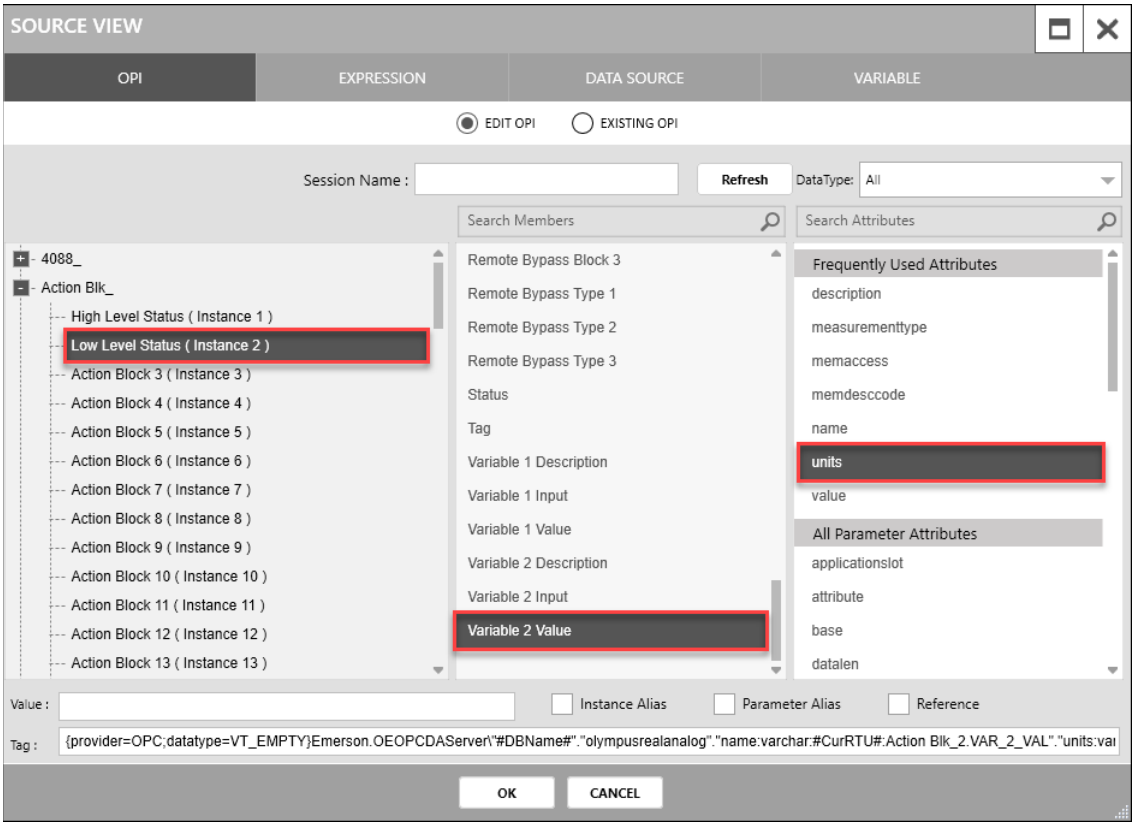
7. Select **OK** to close the SOURCE VIEW popup display.
8. Select ••• in the VALUE field to open a SOURCE VIEW popup display.
9. With the OPI tab selected, select **Action Blk_ > Low Level Status (Instance 2)** in the left column.
10. Select **Variable 2 Value** in the middle column.
11. Select **value** in the right column.

Figure 169. Low Setpoint GroupBox VALUE – SOURCE VIEW



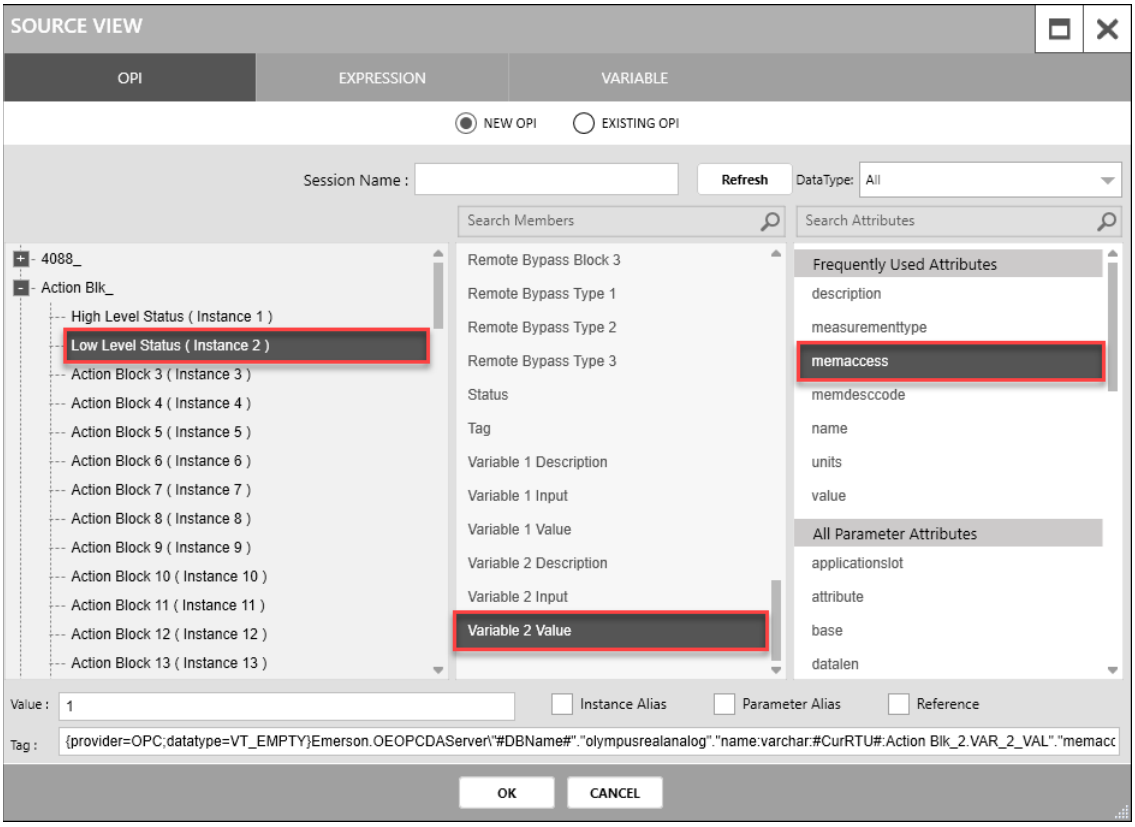
12. Select **OK** to close the SOURCE VIEW popup display.
13. Select ... in the UNIT field to open a SOURCE VIEW popup display.
14. With the OPI tab selected, select **Action Blk_ > Low Level Status (Instance 2)** in the left column.
15. Select **Variable 2 Value** in the middle column.
16. Select **units** in the right column.

Figure 170. Low Setpoint GroupBox UNIT – SOURCE VIEW



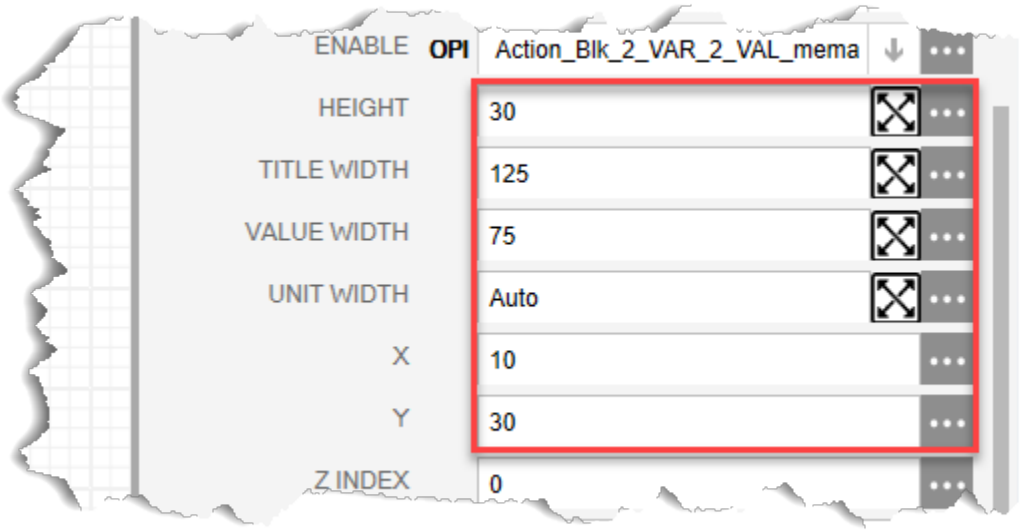
17. Select **OK** to close the SOURCE VIEW popup display.
18. In the APPEARANCE section of the PROPERTIES pane, select ••• in the ENABLE field to open a SOURCE VIEW popup display.
19. With the OPI tab selected, select **Action Blk_ > Low Level Status (Instance 2)** in the left column.
20. Select **Variable 2 Value** in the second column.
21. Select **memaccess** in the right column.

Figure 171. Low Setpoint GroupBox ENABLE – SOURCE VIEW



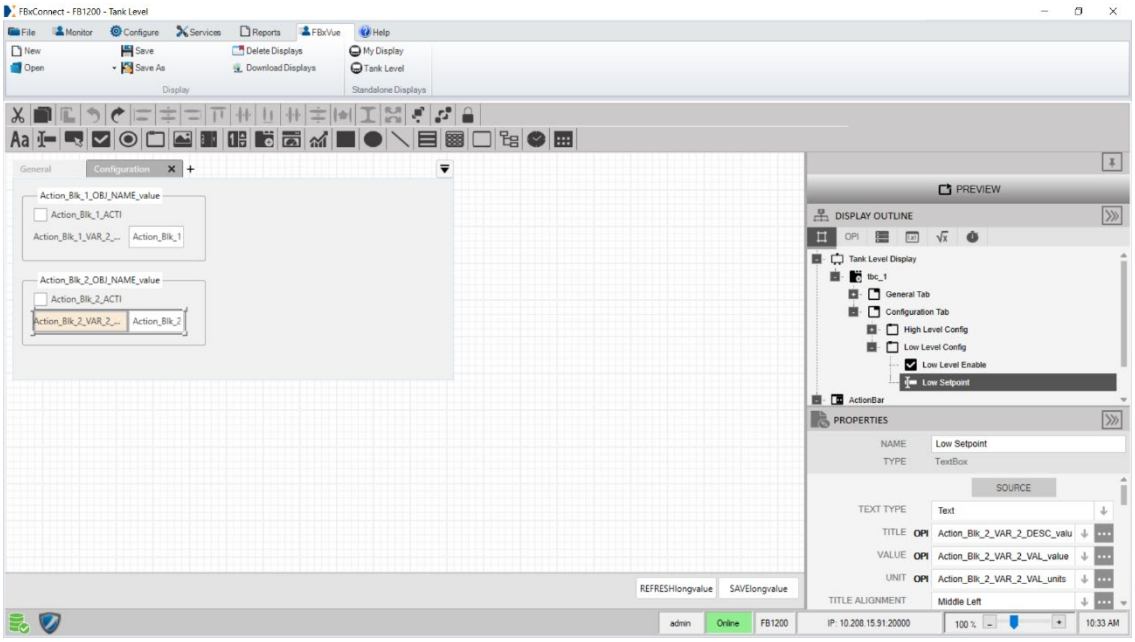
22. Select **OK** to close the SOURCE VIEW popup display.
23. In the APPEARANCE section of the PROPERTIES pane, enter **30** in the HEIGHT field.
24. Enter **125** in the TITLE WIDTH field.
25. Enter **75** in the VALUE WIDTH field.
26. Enter **0** in the UNIT WIDTH field.
27. Enter **10** in the X field.
28. Enter **30** in the Y field.

Figure 172. Low Setpoint GroupBox – APPEARANCE



Your display should look like the picture below:

Figure 173. Low Setpoint GroupBox



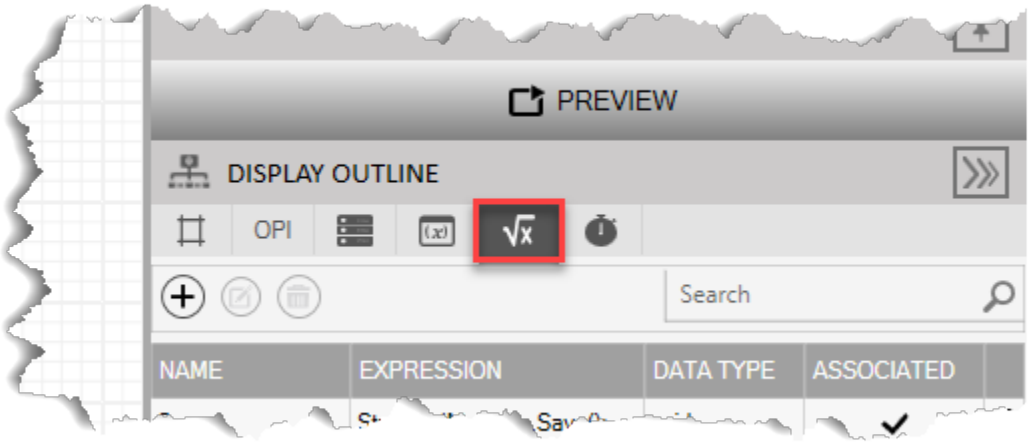
6.2.3 Dynamic Tank Level Expression

The FBxVue display developed thus far includes a rectangle control on the General tab that represents the tank level. The fill precent of the rectangle control can be made to

dynamically update as the tank level value changes. The following section shows how this is done while providing an example use of an expression, a display variable, and a display timer.

19. From the Display Outline frame, on the left, select the **EXPRESSIONS** tab.

Figure 174. Expressions Tab



20. Click the ⊕ button to add a new Expression. The SOURCE VIEW popup display opens, which provides the expression editor.

21. Enter **UpdateTankLevel** in the NAME field.

22. Click ↓ in the DATA TYPE field and select **void**.

23. Enter the following Expression code.

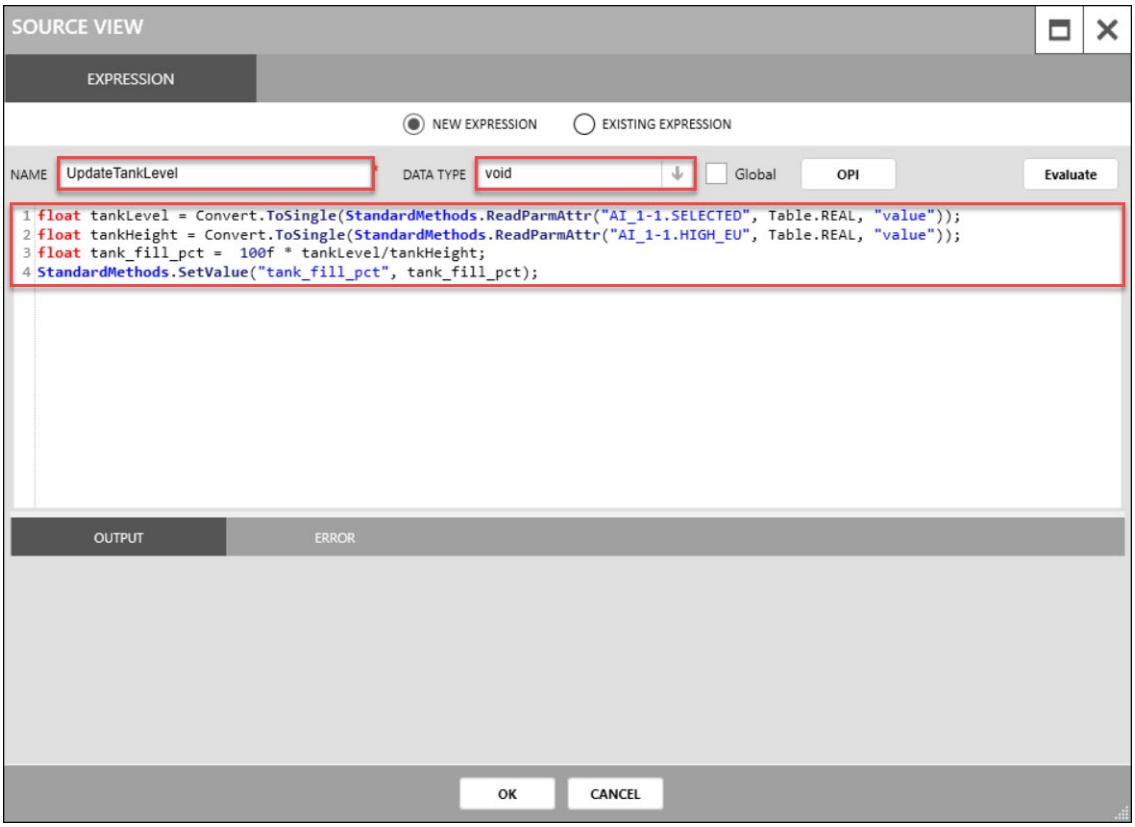
```
float tankLevel = Convert.ToSingle(StandardMethods.ReadParmAttr("AI_1-1.SELECTED", Table.REAL, "value"));
float tankHeight = Convert.ToSingle(StandardMethods.ReadParmAttr("AI_1-1.HIGH_EU", Table.REAL, "value"));
float tank_fill_pct = 100f * tankLevel/tankHeight;
StandardMethods.SetValue("tank_fill_pct", tank_fill_pct);
```

Note

- The first line reads the current Analog Input value, converts it to a single precision floating point, and then stores the results in the "tankLevel" variable.

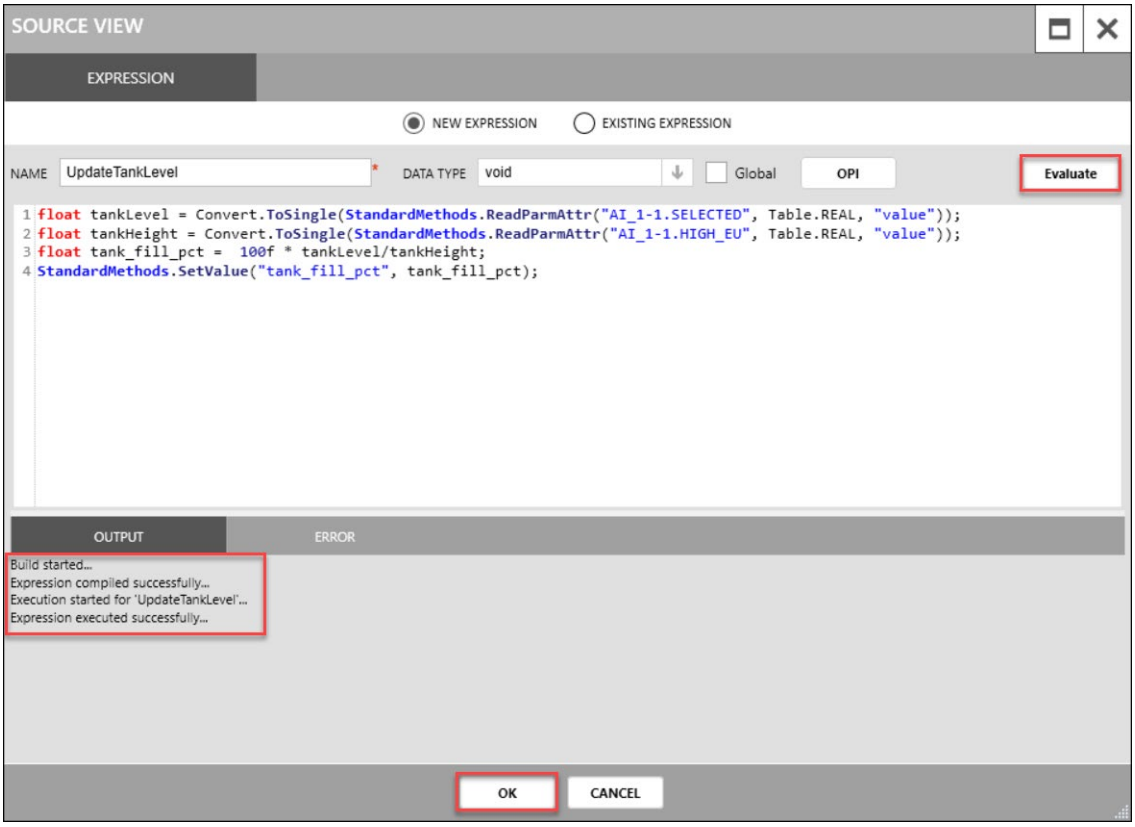
- The second line reads the Analog Input high level value, converts it to a single precision floating point, and then stores the results in the "tankHeight" variable.
- The third line uses the variables to scale the current tank level to a value between 0 and 100% and then stores the results in the "tank_fill_pct" variable.
- The local variable "tank_fill_pct" is stored into the display global variable created previously. This variable will be used to update the fill percent of the rectangle representing the tank level.

Figure 175. UpdateTankLevel Expression



24. Select the **Evaluate** button. The OUTPUT field should indicate the expression was executed successfully.

Figure 176. UpdateTankLevel Expression – Evaluate



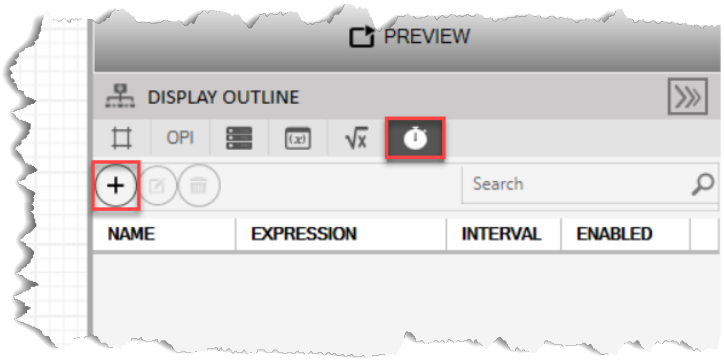
25. Select **OK** to close the SOURCE VIEW popup display.

6.2.4 Creating a Timer to Execute the Expression

Expressions will not execute automatically – they need to be triggered by an action (such as a button press) or an event (such as a timer). The next series of steps will create a timer to periodically execute the UpdateTankLevel expression.

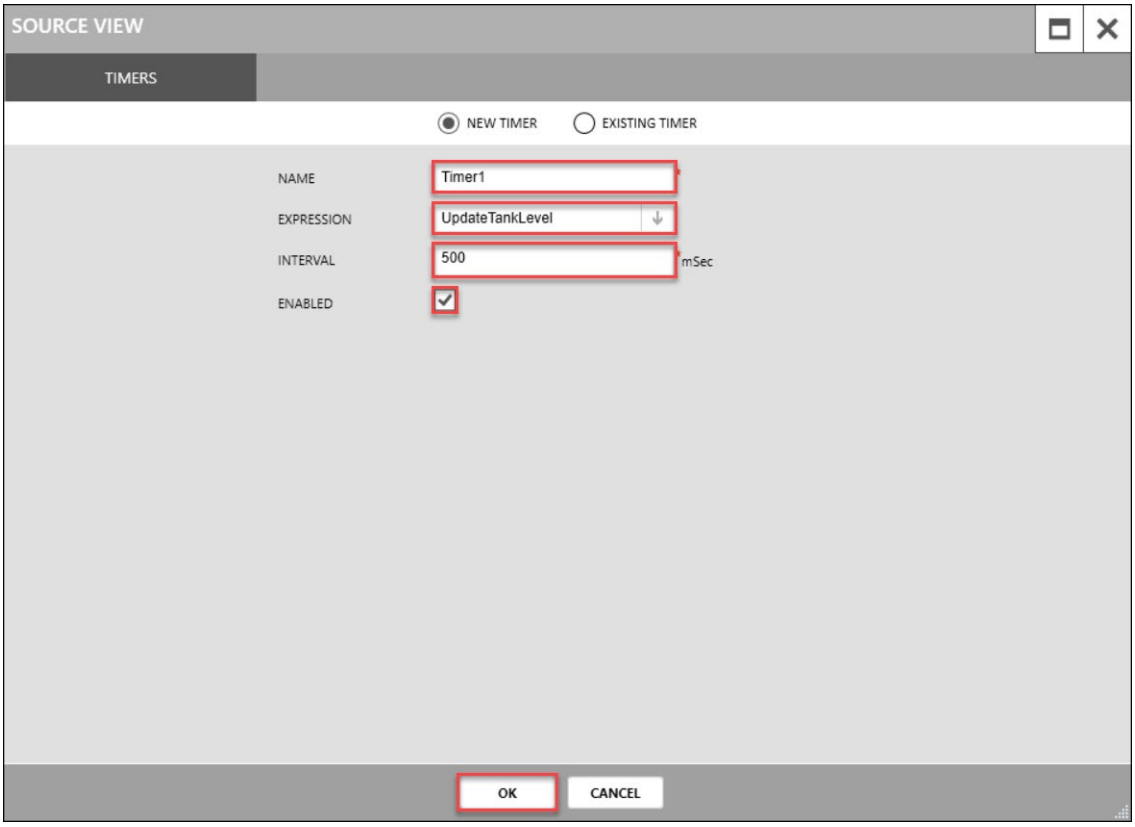
1. Select the TIMERS tab in the DISPLAY OUTLINE.

Figure 177. Timer Tab



2. Click the ⊕ button to add a new display timer. The SOURCE VIEW popup display opens, which provides the Timer editor.
3. Enter **Timer1** in the NAME field.
4. Click ↓ in the EXPRESSION field and select **UpdateTankLevel**.
5. Enter **500** in the Interval field.
6. Select the **ENABLED** checkbox.

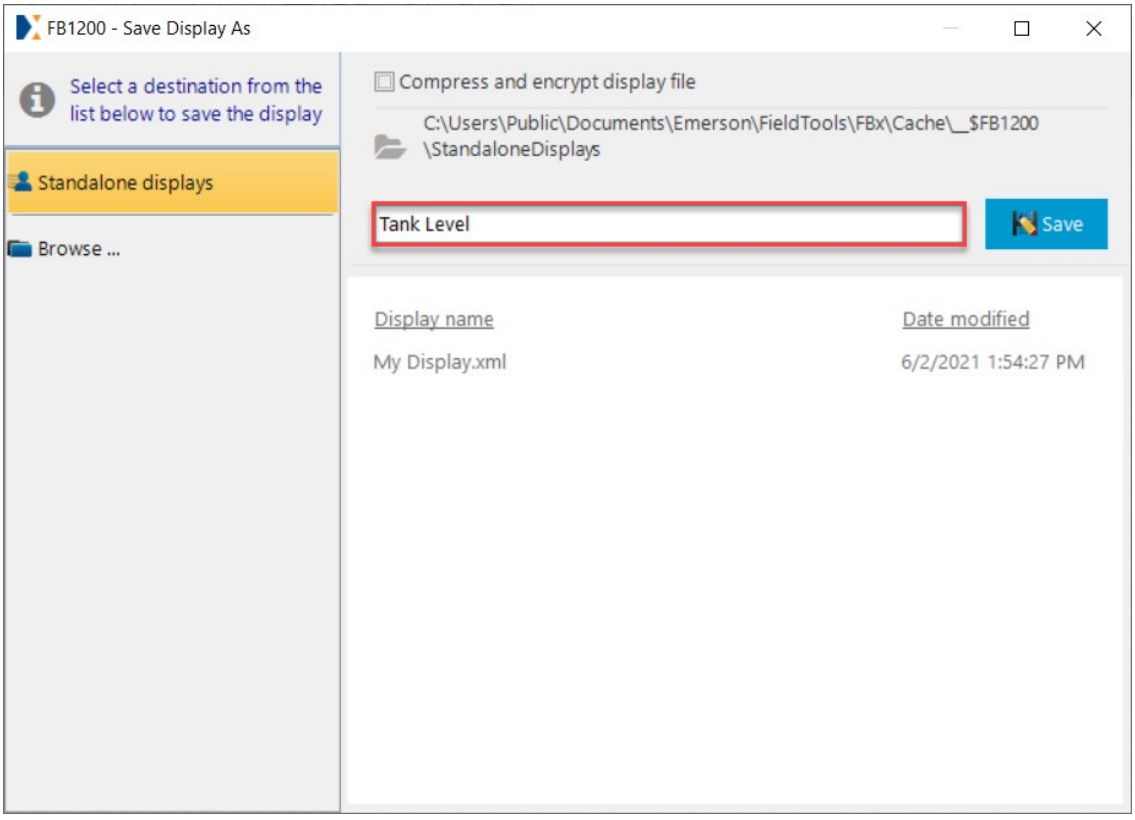
Figure 178. Timers – Timer1



7. Select **OK** to close the SOURCE VIEW popup display.

8. Select **FBxVue > Save** for the main FBxConnect menu to save your display. A Save Display AS display opens:

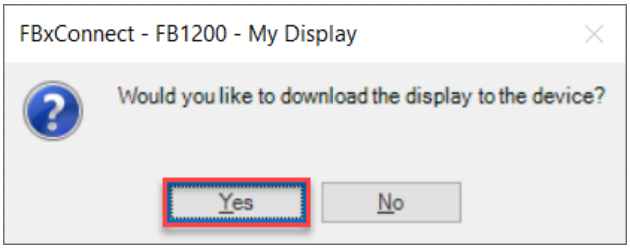
Figure 179. Save Display As



9. Enter **Tank Level** for the Name.

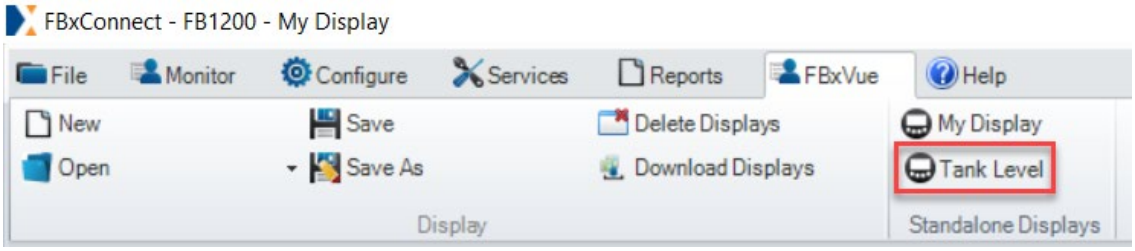
10. Select **Save** to save your display. A message opens asking if you want to download the display to your device:

Figure 180. Download to Device



11. Select **Yes** to download to display to you FB Series product. After the download, the display appears in the Standalone Displays section in the FBxVue menu.

Figure 181. FBxVue Menu



6.2.5 Tank Level Simulation with Math Blocks

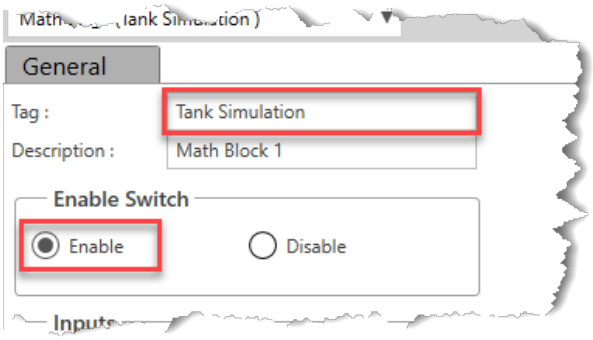
The example FBxVue display created above is intended for use with a live process. This process can be simulated, using logic from a Math Block to update the tank level. The following section is optional and is used to mimic the behavior of the live tank level, which allows the display to be observed in operation.

Note

Your FB Flow Computer must be licensed for Control options to use Math Blocks.

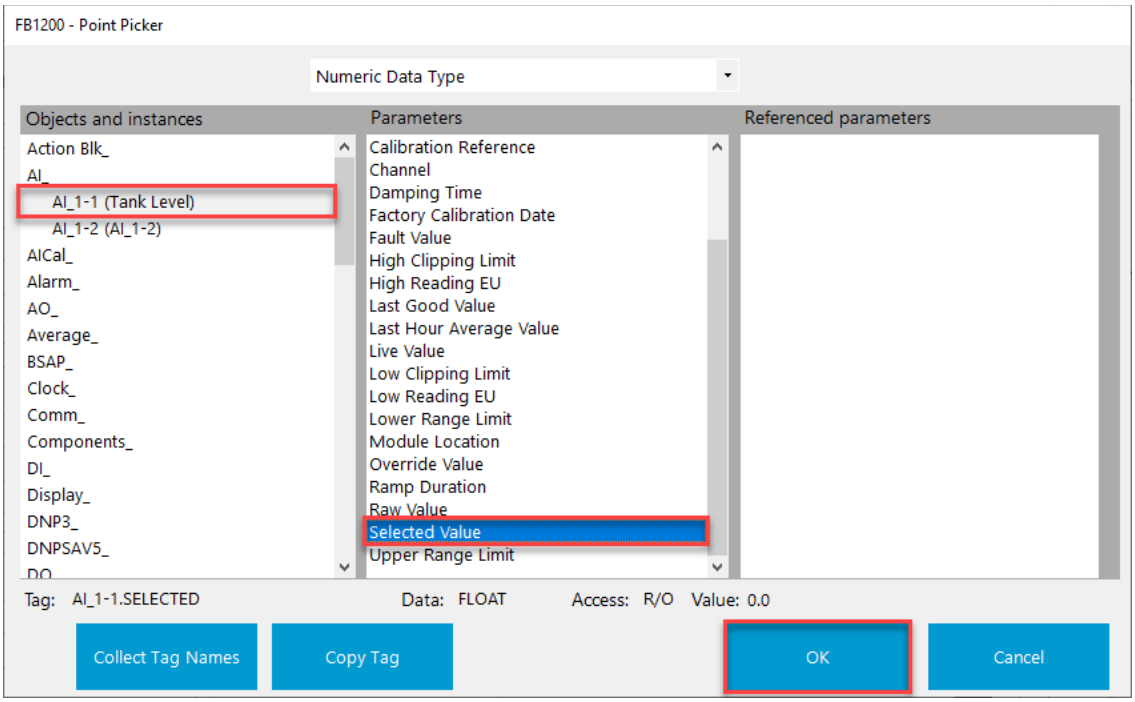
1. Select **Configure > Math Blocks** for the FBxConnect main menu. The Math Blocks Display opens.
2. Enter **Tank Simulation** in the Tag field.
3. Set the Enable Switch to **Enable**.

Figure 182. Math Blocks – Tag



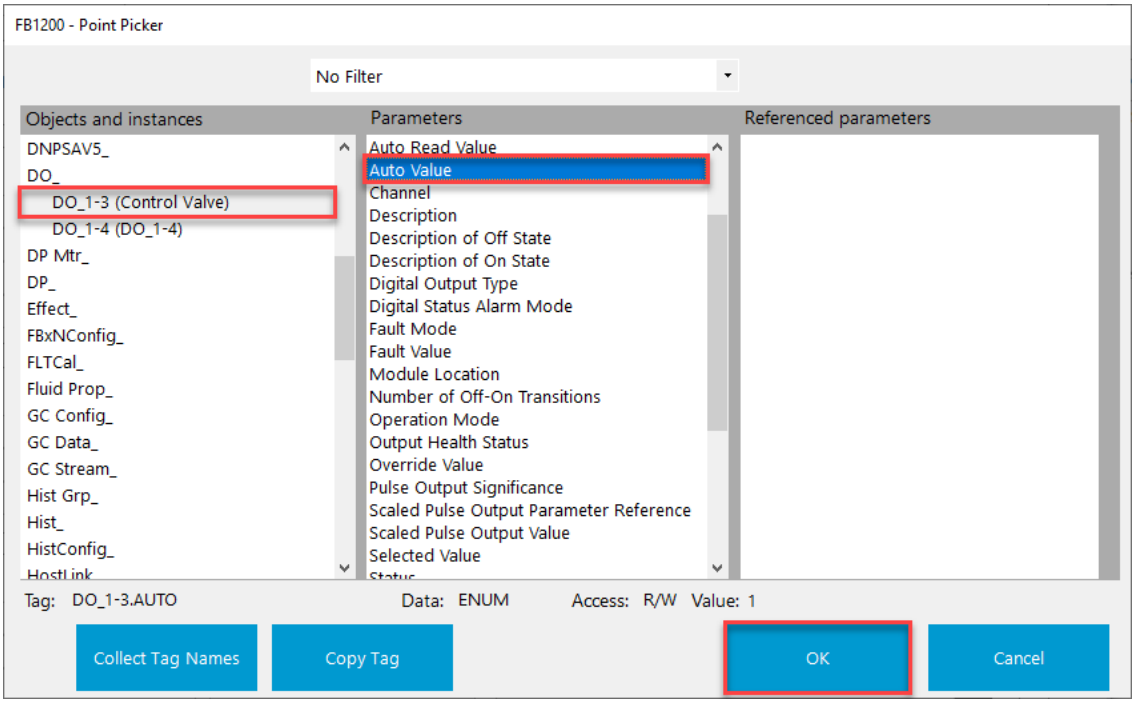
4. In the Inputs group box, select ••• in the Input Definition field for Variable A to open a Point Picker dialog.
5. Select **AI_ > AI_1-1 (Tank Level)** in the Objects and Instances column.
6. Select **Selected Value** in the Parameters column.
7. Select **OK** to close the Point Picker dialog.

Figure 183. Math Blocks – Variable A Input Definition



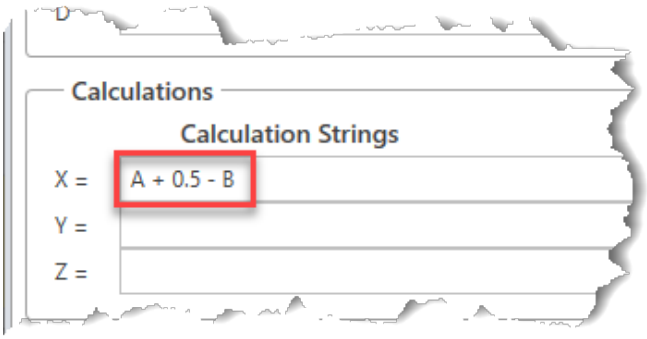
8. In the Inputs group box, select ••• in the Input Definition field for Variable B to open a Point Picker dialog.
9. Select **DO_ > DO_1-3 (Control Valve)** in the Objects and Instances column.
10. In the filter drop down at the top of the dialog box, select **No Filter** to display all available parameters
11. Select **Auto Value** in the Parameters column.
12. Select **OK** to close the Point Picker dialog.

Figure 184. Math Blocks – Variable B Input Definition



13. In the Calculations group box, enter the following calculation string for X = : "**A + 0.5 - B**". This will take the analog input tank level, and raise, or lower it, depending on the state of the valve. Leave the other calculation strings blank.

Figure 185. Math Blocks – Calculation X



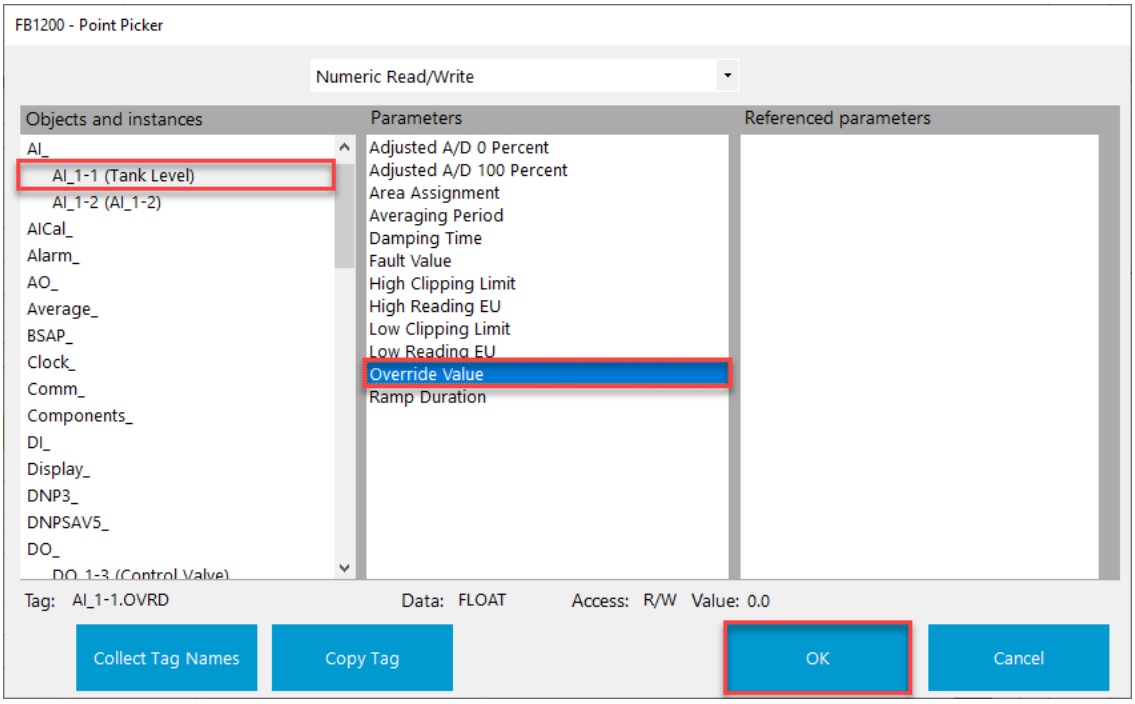
14. In the Results group box, select ••• in the Output Definition field for Result X (the first row) to open a Point Picker dialog.

15. Select **AI_ > AI_1-1** (Tank Level) in the Objects and Instances column.

16. Select **Override Value** in the Parameters column.

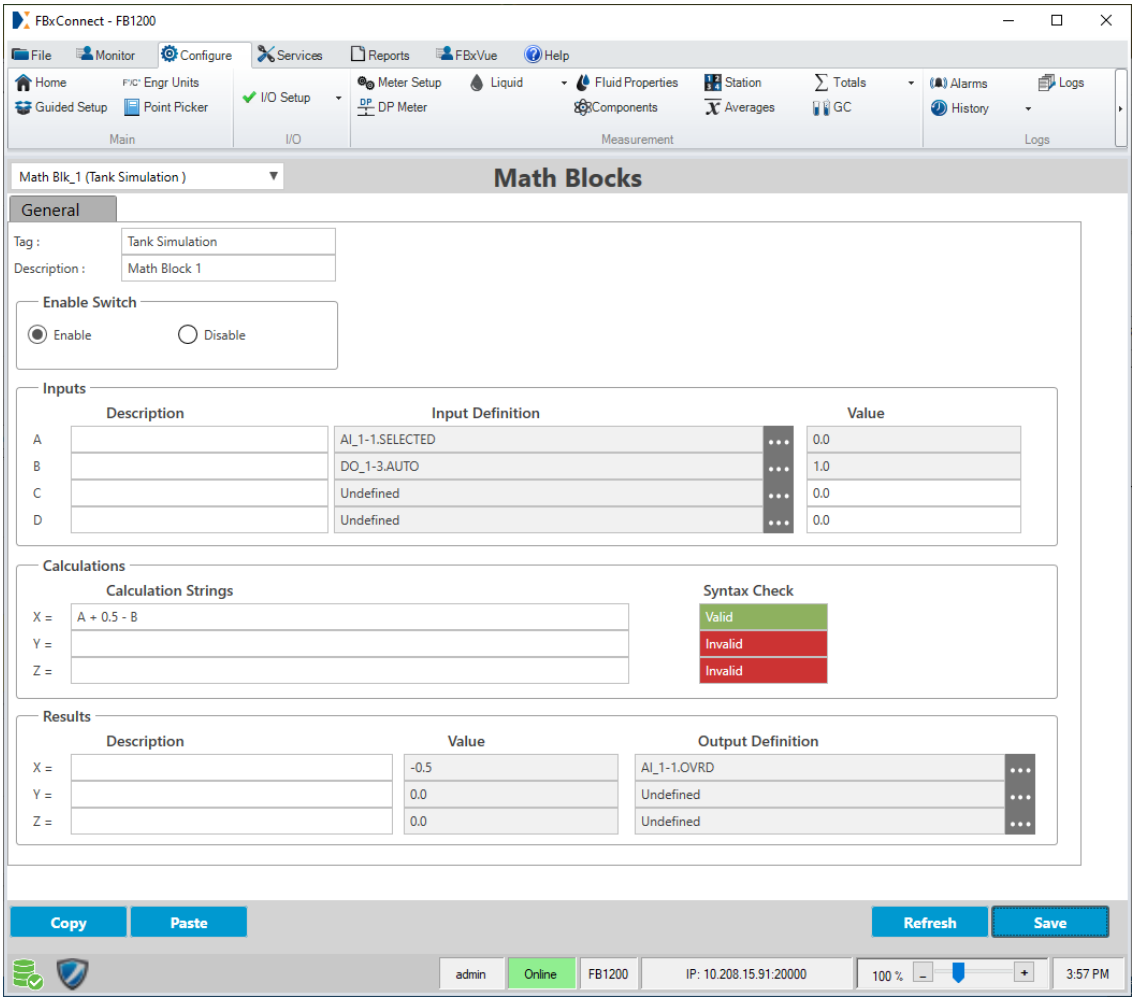
17. Select **OK** to close the Point Picker dialog.

Figure 186. Math Blocks – Results Output Definition



18. Select **Save** to apply the changes to the Math Block.

Figure 187.



6.2.6 Tank Level Display

Use tank level display view the fluid level in a tank, configure the upper and lower limits of the tank, and manually open or close the control valve.

The Tank Level display contains the following tab:

General Tab – Use this tab to view the current tank level and manually open or close the control valve.

Configuration Tab – Use this tab to configure the high and low tank level setpoints.

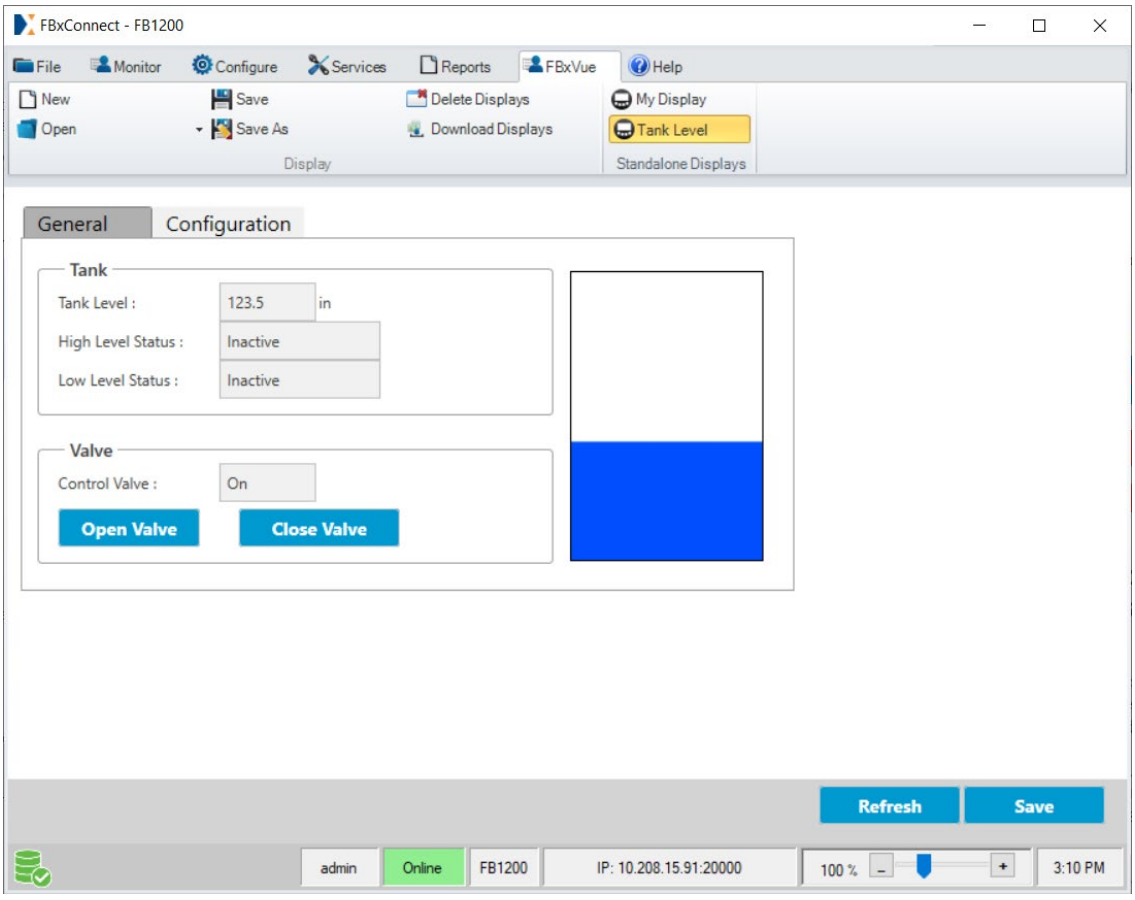
6.2.6.1 Tank Level – General Tab

Use this tab to view the current tank level, view the high- and low-level trip statuses, and manually open or close the control valve.

To access this screen:

1. Select **FBxVue > Tank Level**. The Tank Level screen displays showing the General tab.

Figure 188. Tank Level – General Tab



2. Review – and change as necessary – the values in the following fields:

Field	Description
Tank Level	This **read-only** field shows the current value of the tank level sensor.
High Level Trip Status	This **read-only** field shows the status of the high-level trip status that, when reached, automatically opens the control valve to allow fluid to exit the tank.

Field	Description
Low Level Trip Status	This **read-only** field shows the status of the low-level trip status that, when reached, automatically closes the control valve to prevent fluid from exiting the tank.
Control Valve	This **read-only** field shows the current status the control valve. Possible values are On (open) or Off (closed).
Open Valve	Select this button to manually open the control valve and allow fluid to exit the tank.
Close Valve	Select this button to manually open the control valve and allow fluid to exit the tank.
Tank Graphic	Shows a graphical representation of the current fluid level in the tank (as determined by the tank level sensor).

3. Select **Save** the save your changes to this display.

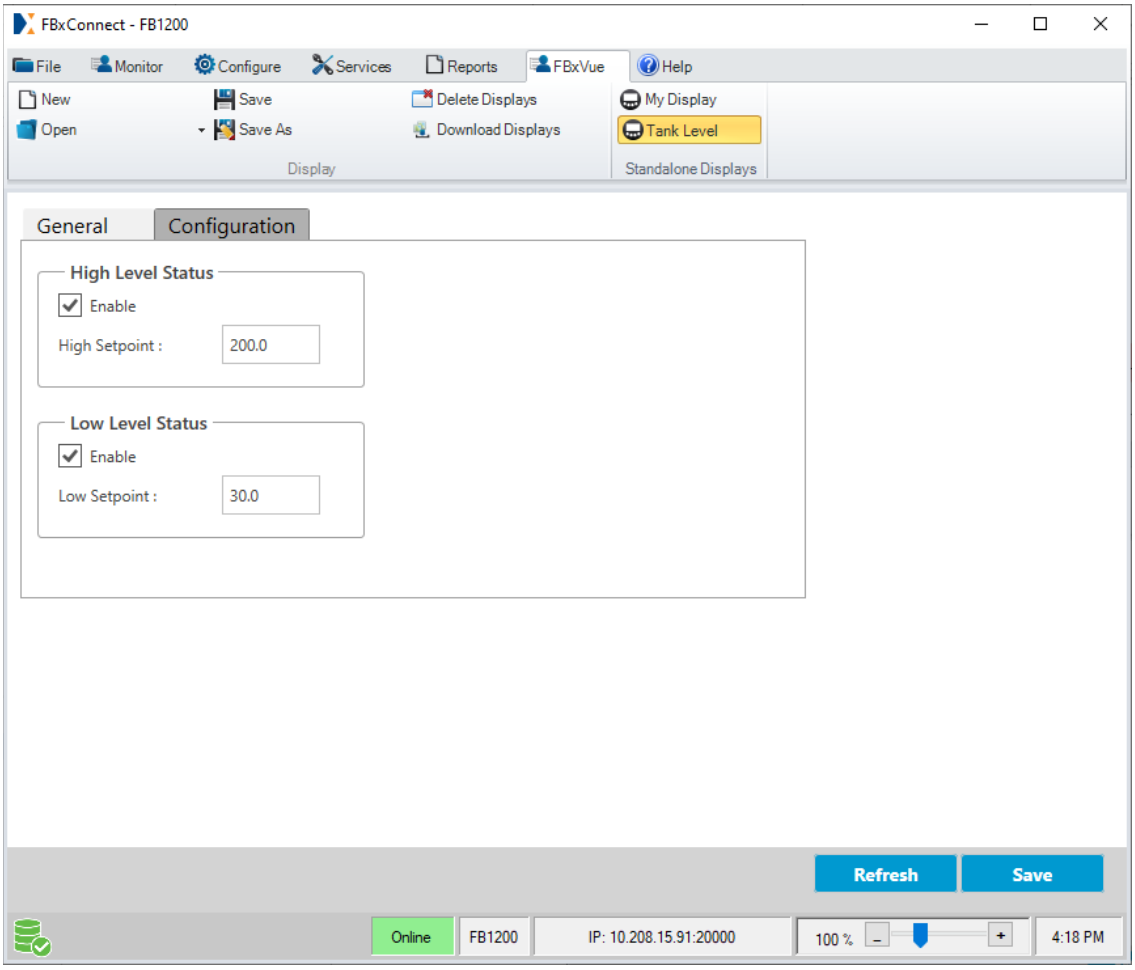
6.2.6.2 Tank Level – Configuration Tab

Use this tab to configure the high and low tank level setpoints.

To access this screen:

1. Select **FBxVue > Tank Level**. The Tank Level screen displays.
2. Select the **Configuration** tab.

Figure 189. Tank Level – Configuration Tab



3. Review – and change as necessary – the values in the following fields:

Field	Description
High Level Enable	Enables, if checked, the High Setpoint value that, when the tank reaches or exceeds this value, causes the system to log an alarm and automatically drive the control valve open so fluid can exit the tank.
High Setpoint	Sets the value used for the high tank level when the High Level Enable field is checked.
Low Level Enable	Enables, if checked, a Low Setpoint value that, when the tank reaches or falls below this value, causes the system to log an alarm and automatically drive the control valve closed prevents fluid from exiting the tank.

Field	Description
Low Setpoint	Sets the value used for the low tank level when the Low Level Enable field is checked.

4. Select **Save** the save your changes to this display.

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Section 7: Reference

The reference section contains the properties associated with each control type and lists commonly used expressions.

7.1 Control Properties

The following section lists the available properties for each control type.

7.1.1 Canvas

Sets properties for the entire canvas including the display type, the location in the FBxConnect™ ribbon menu, and setting a database object associated with the display.

Property	Description	
NAME	Sets an identifier for the selected control. **Note** This identifier is **not** shown on the display.	
TYPE	This **read-only** field shows the category for the currently selected control.	
TITLE	Enter text to be shown at the top of the finished display. Select ••• to open the SOURCE VIEW popup display and add a new or existing OPI, Expression, Data Source, or Variable that writes a value to this property.	
DISPLAY TYPE	Sets the type of display you are creating. Possible options are:	
	Display	The custom display fills the entire display area in FBxConnect™.
	Popup	The custom display appears over another display when you select an option.

Property	Description	
	Custom Control	Allows you to create your own control (that consists of other controls) that can be reused on multiple displays. After saving, the custom control is added as a new control icon on the Developer Toolbar. **Note** • Once you add the custom control to a new display, you cannot adjust the configuration of items from within the new display. • To remove the custom control from the Developer Toolbar, single-click the custom control icon and select the red scissors icon.
SHOW ON RIBBON	Sets if the display is selectable from the FBxConnect main menu. **Note** This field applies **only** if you select **Popup** in the DISPLAY TYPE field.	
	False	The display is **not** selectable from the FBxConnect main menu. You must access the display from another display.
	True	The display is selectable from the FBxConnect main menu.
DISPLAY ICON	Sets an icon to use for the finished display shown in the FBxConnect™ main menu. **Note** The size of the icons **must** be 16x16 pixels.	
CONNECTION TYPE	Select ↓ to set if the finished display is available in FBxConnect™ when you are connected to an FB Series product. Select ••• to open a SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. Possible options are:	
	OnLine	Sets the display to only be available if you are connected to an FB Series product (online).
	OffLine	Sets the display to only be available if you are not connected to an FB Series product (offline).
	Both	Sets the display to be available if you are connected or if you are not connected to an FB Series product.

Property	Description
OBJECT	Defines the main object for the display. During Preview / Run-time mode, a ComboBox is automatically added to the top of the display and is populated with all the active/valid/licensed instances of that object. Example, if OBJECT is set to "User Data_", then every single User Data instance (User Data_1 through User Data_n) is selectable. When the end user changes the object instance, all controls that reference OPIs that were defined as instance aliases will be refreshed. Select ••• to open a SOURCE VIEW popup display and assign an OPI to the entire display.
SHOW TAB INDEX	Place a checkmark to show icons that contain a zero-based number that corresponds to the tabbing order of focusable controls on the finished display. To change the tabbing order of a control, click on the icon to increment to the desired number or select the control and change the TAB INDEX field in the PROPERTIES pane.
ACTION BAR	Select ↓ to set if the Refresh and Save buttons appear at the bottom of your display. Possible options are: **False** — The Action Bar does **not** appear on the display. **True** — The Action Bar does appear on the display.
ENABLE COPY & PASTE	Select this option to display Copy and Paste buttons on the bottom of the display that allow you to copy and paste data entered on the display.
ENABLE PAUSE ACTION	Place a check mark in this field to show a Pause button on the bottom of the display that, when selected, stops any values from updating.
TITLE STYLE	Select ••• to open the TEXT STYLE popup display where you can select a preconfigured text style or create your own text style to use for the display. Select ⊕ to define a new text style. Select ✎ to edit the currently selected text style. Select 🗑 to delete the currently selected text style. **Note** Changes to the predefined styles apply to **all** displays in FBxConnect™.

Property	Description
SHOW HELP	Place a check mark in this field to show a help button on the bottom of the display that opens the online help file.
HEIGHT	Sets the height, in pixels, of the finished display. **Note** This field applies **only** if you select **Popup** in the DISPLAY TYPE field.
WIDTH	Sets the width, in pixels, of the finished display. **Note** This field applies **only** if you select **Popup** in the DISPLAY TYPE field.
MODAL	Sets if the popup display is a modal or modeless window. **Note** This field applies **only** if you select **Popup** in the DISPLAY TYPE field.
	False — The popup display is a modeless window. You can interact with the parent display without closing the popup display.
	True — The popup display is a modal window. You must close the popup display to interact with the main parent display.
ON LOAD	Select ... to open the SOURCE VIEW popup display and add a new or existing expression that executes when to display is first opened.
ON EXIT	Select ... to open the SOURCE VIEW popup display and add a new or existing expression that executes when to display is closed.
OBJECT CHANGE	Select ... to open the SOURCE VIEW popup display and add a new or existing expression that executes when the object instance is changed on the display.
TOPIC ID	Enter the MAP ID of a page in a help file to open when calling help from the finished display.

7.1.2 Label (Aa)

Adds a label to identify a control or group of controls on the canvas.

Property	Description	
NAME	Sets an identifier for the selected control. **Note** This identifier is **not** shown on the display.	
TYPE	This **read-only** field shows the category of the currently selected control.	
TEXT TYPE	During Preview / Run-time mode, the value of the OPI is read and the associated text is displayed (not the numerical value, rather the textual representation of the enumeration). Click ↓ to select the type of data displayed in the control. Possible options are:	
	IPv4	The control shows a parameter that is an IP Address.
	Text	Allows you to map the control to an OPI that is a string, integer, or float data type.
	EnumerationText	Allows you to map the control to an OPI that is of datatype ENUM16.
	StatusField	Allows you to map the control to an OPI that is a bin data type.
	Hyperlink	The control shows a clickable link.
TEXT	Enter text that appears on the control. Click ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.	
ENUMERATION	Map this property to the 'measurementtype' attribute of a parameter. Click ••• to open the SOURCE VIEW popup display and configure an OPI or Enumeration that writes a value to this property. **Note** This field appears **only** if you select **StatusField** or **EnumerationText** in the TEXT TYPE field.	

Property	Description	
TEXT ALIGNMENT	Sets the alignment of the text that appears on the control. Click  to view possible options (Top Left, Top Center, Top Right, Middle Left, Middle Center, Middle Right, Bottom Left, Bottom Center, Bottom Right). Click  to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
TEXT WRAP	Sets if the text breaks at the edge of the control and starts a new line. Click  to view possible options. Click  to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
	Wrap	For text wider than the control width, the text breaks at the edge of the control and starts a new line.
	NoWrap	For text wider than the control width, the text does not break at the edge of the control. Text that is wider than the width of the control is hidden.
FORE COLOR	Sets the Hex color code (with transparency) of the text for the selected control. Click  to view the default color options. Click  to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. Valid codes are in the format #00AABBCC where: • 00 indicates the transparency level (00→FF) • AA is red (00→FF) • BB is green (00→FF) • CC is blue (00→FF) **Note** This field applies **only** if you select **IPv4**, **Text**, **EnumerationText**, or **StatusField** in the TEXT TYPE field.	

Property	Description
BACK COLOR	Sets the Hex color code (with transparency) of the background for the selected control. Click  to view the default color options. Click  to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. Valid codes are in the format #00AABBCC where: • 00 indicates the transparency level (00→FF) • AA is red (00→FF) • BB is green (00→FF) • CC is blue (00→FF)
BORDER COLOR	Sets the Hex color code (with transparency) of the border for the selected control. Click  to view the default color options. Click  to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. Valid codes are in the format #00AABBCC where: • 00 indicates the transparency level (00→FF) • AA is red (00→FF) • BB is green (00→FF) • CC is blue (00→FF)
ANGLE	Sets, in degrees, the angle of the control on the canvas. Click  to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.
BORDER THICKNESS	Sets, in percent, the thickness of the border of the selected control. Click  to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.
DECIMAL PLACES	Sets the number of decimal places to show for the selected OPI. **Note** The number of decimal places shown is also limited by the number of decimal places you have configured on the **Configure > Engr Units** display.

Property	Description	
TOOLTIP BACKCOLOR	Sets the Hex color code (with transparency) of the background of the tooltip for the selected control. Click ↓ to view the default color options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. Valid codes are in the format #00AABBCC where: • 00 indicates the transparency level (00→FF) • AA is red (00→FF) • BB is green (00→FF) • CC is blue (00→FF)	
VISIBLE	Sets the visibility of the control on the finished display. Click ↓ to view possible options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
	False	The control is **not** visible on the finished display.
	True	The control is visible on the finished display.
HEIGHT	Sets the height, in pixels, of the selected control. Click ⤢ to automatically adjust the height based on the data contained in the field. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
WIDTH	Sets the width, in pixels, of the selected control. Click ⤢ to automatically adjust the width based on the data contained in the field. Click ••• open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
X	Sets the horizontal location on the canvas, in pixels, of the selected control. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	

Property	Description
Y	Sets the vertical location on the canvas, in pixels, of the selected control. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.
Z INDEX	Sets the stack order of the selected control on the canvas. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.
TOOLTIP	Enter a visual tip that appears if you hover your cursor over the control on the display. Click ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.
Apply Style	Place a checkmark to apply the style configured in the TEXT STYLE field to the hyperlink. **Note** This field applies **only** if you select **Hyperlink** in the TEXT TYPE field.
TEXT STYLE	Sets a text style to use for the selected control. Select ••• to open the TEXT STYLE popup display where you can select a preconfigured text style or create your own. Select ⊕ to define a new text style. Select ✎ to edit the currently selected text style. Select 🗑 to delete the currently selected text style. **Note** Changes to the predefined styles apply to **all** displays in FBxConnect™.
TOOLTIP TEXT STYLE	Sets a text style of the tooltip for the selected control. Select ••• to open the TEXT STYLE popup display where you can select a preconfigured text style or create your own. Select ⊕ to define a new text style. Select ✎ to edit the currently selected text style. Select 🗑 to delete the currently selected text style. **Note** Changes to the predefined styles apply to **all** displays in FBxConnect™.

7.1.3 TextBox ( )

Adds a data entry field.

Property	Description	
NAME	Sets an identifier for the selected control. **Note** This identifier is **not** shown on the display.	
TYPE	This **read-only** field shows the category of the currently selected control.	
SOURCE	Click to open a SOURCE VIEW popup display and select an OPI reference to use for the selected control. Once you select an OPI, the system automatically configures various fields based on your selection. Automatically configured fields display the text "OPI" next to the value.	
TEXT TYPE	Click to select the type of data displayed in the control. Possible options are:	
	IPv4	The control shows a parameter that is an IP Address.
	Text	The control shows a string, integer, or float data type. You can also display Enumeration and BIN data types. In Preview / Run-time mode, the control shows the numerical representation / value of the parameter.
	EnumerationText	The control shows a parameter that is an Enumeration.
	StatusField	The control shows a bin data type.
TITLE	Enter text to be shown in the title field for this control. Select to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.	

Property	Description
VALUE	Sets the value to show in the control on the finished display. Select ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.
UNIT	Sets the type of units to show on the finished display. Select ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property. **Note** This field appears **only** if you select **Text** in the TEXT TYPE field.
ENUMERATION	Map this property to the 'measurementtype' attribute of a parameter. Click ••• to open the SOURCE VIEW popup display and configure an OPI or Enumeration that writes a value to this property. **Note** This field appears **only** if you select **EnumerationText** or **StatusField** in the TEXT TYPE field.
TITLE ALIGNMENT	Sets the alignment of the text that appears on the control. Click ↓ to view possible options (Top Left, Top Center, Top Right, Middle Left, Middle Center, Middle Right, Bottom Left, Bottom Center, Bottom Right). Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.
VALUE ALIGNMENT	Sets the alignment of the value that appears on the control. Click ↓ to view possible options (Top Left, Top Center, Top Right, Middle Left, Middle Center, Middle Right, Bottom Left, Bottom Center, Bottom Right). Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.
VALUE WRAP	Sets if the value breaks at the edge of the control and starts a new line. Click ↓ to view possible options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.

Property	Description	
	Wrap	The value breaks at the edge of the control and starts a new line.
	NoWrap	The value **does not** break at the edge of the control.
TITLE WRAP	Sets if the text breaks at the edge of the control and starts a new line. Click ↓ to view possible options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
	Wrap	The text breaks at the edge of the control and starts a new line.
	NoWrap	The text **does not** break at the edge of the control.
FORE COLOR	Sets the Hex color code (with transparency) of the text for the selected control. Click ↓ to view the default color options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. Valid codes are in the format #00AABBCC where: • 00 indicates the transparency level (00→FF) • AA is red (00→FF) • BB is green (00→FF) • CC is blue (00→FF)	
BACK COLOR	Sets the Hex color code (with transparency) of the background for the selected control. Click ↓ to view the default color options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. Valid codes are in the format #00AABBCC where: • 00 indicates the transparency level (00→FF) • AA is red (00→FF) • BB is green (00→FF) • CC is blue (00→FF)	

Property	Description
DECIMAL PLACES	Sets the number of decimal places to show for the selected OPI. **Note** The number of decimal places shown is also limited by the number of decimal places you have configured on the **Configure > Engr Units** display.
TOOLTIP BACKCOLOR	Sets the Hex color code (with transparency) of the background of the tooltip for the selected control. Click ↓ to view the default color options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. Valid codes are in the format #00AABBCC where: • 00 indicates the transparency level (00→FF) • AA is red (00→FF) • BB is green (00→FF) • CC is blue (00→FF)
VISIBLE	Sets the visibility of the control on the finished display. Click ↓ to view possible options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. **False** — The control is **not** visible on the finished display. **True** — The control is visible on the finished display.
ENABLE	Sets if you can change the value of this control on the finished display. Click ↓ to view possible options. Select ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. **False** — This control is **read-only** on the finished display. **True** — You can change the value of this control on the finished display.

Property	Description
HEIGHT	Sets the height, in pixels, of the selected control. Click  to automatically adjust the height based on the data contained in the field. Click  to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.
TITLE WIDTH	Sets, in pixels, the width of the area to show the title. Click  to automatically adjust the title area to show all the title text. Click  to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.
VALUE WIDTH	Sets, in pixels, the width of the area to show the value. Click  to automatically adjust the value area to show all the value text. Click  to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.
UNIT WIDTH	Sets, in pixels, the width of the area to show the units. Click  to automatically adjust the unit area to show all the unit text. Click  to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. **Note** This field appears **only** if you select **Text** in the TEXT TYPE field.
X	Sets the horizontal location on the canvas, in pixels, of the selected control. Click  to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.
Y	Sets the vertical location on the canvas, in pixels, of the selected control. Click  to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.
Z INDEX	Sets the stack order of the selected control on the canvas. Click  to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.

Property	Description
TOOLTIP	Enter a visual tip that appears if you hover your cursor over the control on the display. Click ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.
TEXT STYLE	Sets a text style to use for the selected control. Select ••• to open the TEXT STYLE popup display where you can select a preconfigured text style or create your own. Select ⊕ to define a new text style. Select ✎ to edit the currently selected text style. Select 🗑 to delete the currently selected text style. **Note** Changes to the predefined styles apply to **all** displays in FBxConnect™.
TAB INDEX	Enter a zero-based number that corresponds to the tabbing order of focusable controls on the finished display.
TOOLTIP TEXT STYLE	Sets a text style of the tooltip for the selected control. Select ••• to open the TEXT STYLE popup display where you can select a preconfigured text style or create your own. Select ⊕ to define a new text style. Select ✎ to edit the currently selected text style. Select 🗑 to delete the currently selected text style. **Note** Changes to the predefined styles apply to **all** displays in FBxConnect™.
ON CHANGE	Select ••• to open the SOURCE VIEW popup display and configure an Expression that executes when the value in this control changes on the finished display.
ON GOT FOCUS	Select ••• to open the SOURCE VIEW popup display and configure an Expression that executes when this control gains focus on the finished display.
ON LOST FOCUS	Select ••• to open the SOURCE VIEW popup display and configure an Expression that executes when this control loses focus on the finished display.

Property	Description
ON KEY DOWN	Select ••• to open the SOURCE VIEW popup display and configure an Expression that executes when you press the on your PC keyboard when viewing the finished display.
ON KEY UP	Select ••• to open the SOURCE VIEW popup display and configure an Expression that executes when you press the on your PC keyboard when viewing the finished display.

7.1.4 Button ()

Adds a selectable button to the canvas.

Property	Description
NAME	Sets an identifier for the selected control. **Note** This identifier is **not** shown on the display.
TYPE	This **read-only** field shows the category of the currently selected control.
CONTENT	Enter text that appears on the control. Click ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.
TEXT ALIGNMENT	Sets the alignment of the text that appears on the control. Click ↓ to view possible options (Top Left, Top Center, Top Right, Middle Left, Middle Center, Middle Right, Bottom Left, Bottom Center, Bottom Right). Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.

Property	Description
FORE COLOR	Sets the Hex color code (with transparency) of the text for the selected control. Click ↓ to view the default color options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. Valid codes are in the format #00AABBCC where: • 00 indicates the transparency level (00→FF) • AA is red (00→FF) • BB is green (00→FF) • CC is blue (00→FF)
BACK COLOR	Sets the Hex color code (with transparency) of the background for the selected control. Click ↓ to view the default color options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. Valid codes are in the format #00AABBCC where: • 00 indicates the transparency level (00→FF) • AA is red (00→FF) • BB is green (00→FF) • CC is blue (00→FF)
TOOLTIP BACKCOLOR	Sets the Hex color code (with transparency) of the background of the tooltip for the selected control. Click ↓ to view the default color options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. Valid codes are in the format #00AABBCC where: • 00 indicates the transparency level (00→FF) • AA is red (00→FF) • BB is green (00→FF) • CC is blue (00→FF)
VISIBLE	Sets the visibility of the control on the finished display. Click ↓ to view possible options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.

Property	Description	
	False	The control is **not** visible on the finished display.
	True	The control is visible on the finished display.
ENABLE	Sets if you can select this control on the finished display. Click ↓ to view possible options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
	False	This control is **read-only** on the finished display.
	True	You can change the value of this control on the finished display.
HEIGHT	Sets the height, in pixels, of the selected control. Click ⤢ to automatically adjust the height based on the data contained in the field. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
WIDTH	Sets the width, in pixels, of the selected control. Click ⤢ to automatically adjust the width based on the data contained in the field. Click ••• open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
X	Sets the horizontal location on the canvas, in pixels, of the selected control. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
Y	Sets the vertical location on the canvas, in pixels, of the selected control. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
Z INDEX	Sets the stack order of the selected control on the canvas. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
TOOLTIP	Enter a visual tip that appears if you hover your cursor over the control on the display. Click ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.	

Property	Description
TITLE STYLE	Sets a text style to use for the selected control. Select ••• to open the TEXT STYLE popup display where you can select a preconfigured text style or create your own. Select ⊕ to define a new text style. Select ✎ to edit the currently selected text style. Select 🗑 to delete the currently selected text style. **Note** Changes to the predefined styles apply to **all** displays in FBxConnect™.
TAB INDEX	Enter a zero-based number that corresponds to the tabbing order of focusable controls on the finished display.
TOOLTIP TEXT STYLE	Sets a text style of the tooltip for the selected control. Select ••• to open the TEXT STYLE popup display where you can select a preconfigured text style or create your own. Select ⊕ to define a new text style. Select ✎ to edit the currently selected text style. Select 🗑 to delete the currently selected text style. **Note** Changes to the predefined styles apply to **all** displays in FBxConnect™.
SINGLE CLICK	Select ••• to open the SOURCE VIEW popup display and configure an Expression that executes when you click the control one time on the finished display.
DOUBLE CLICK	Select ••• to open the SOURCE VIEW popup display and configure an Expression that executes when you click the control twice in a row on the finished display.

7.1.5 CheckBox ( )

Adds a check box to the canvas for multiple selections. Intended to be used for representing parameters that are BIN data types.

Note

Bits are offset by 1. This is because the 0th bit is always represented by “Normal.”

Property	Description	
NAME	Sets an identifier for the selected control. **Note** This identifier is **not** shown on the display.	
TYPE	This **read-only** field shows the category of the currently selected control.	
SOURCE	Click to open a SOURCE VIEW popup display and select an OPI reference to use for the selected control. Once you select an OPI, the system automatically configures various fields based on your selection. Automatically configured fields display the text "OPI" next to the value.	
TITLE	Enter text that appears in the title field of the control. Select ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.	
VALUE	Boolean indicator of whether there is a check mark or not. Click ↓ to select True or False. Select ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.	
	False	The default state is checked.
	True	The default state is unchecked.
IS THREE STATE	Sets the number of states for the CheckBox. Select ↓ to view possible options. Select ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.	
	False	The CheckBox has two states: checked and unchecked.
	True	The CheckBox has three states: checked, unchecked, and indeterminate. **Note** The indeterminate state shows as a grayed-out CheckBox and indicates some child items are checked and some child items are unchecked.

Property	Description
ENUMERATION	Map this property to the 'measurementtype' attribute of a parameter. Select ••• to open the SOURCE VIEW popup display and configure an OPI or Enumeration that writes a value to this property.
BIT POSITION	Sets the bit position, based on the value configured in the VALUE field, required to show the CheckBox as checked.
FORE COLOR	Sets the Hex color code (with transparency) of the text for the selected control. Select ↓ to view the default color options. Select ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. Valid codes are in the format #00AABBCC where: • 00 indicates the transparency level (00→FF) • AA is red (00→FF) • BB is green (00→FF) • CC is blue (00→FF)
BACK COLOR	Sets the Hex color code (with transparency) of the background for the selected control. Click ↓ to view the default color options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. Valid codes are in the format #00AABBCC where: • 00 indicates the transparency level (00→FF) • AA is red (00→FF) • BB is green (00→FF) • CC is blue (00→FF)

Property	Description	
TOOLTIP BACKCOLOR	Sets the Hex color code (with transparency) of the background of the tooltip for the selected control. Click ↓ to view the default color options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. Valid codes are in the format #00AABBCC where: • 00 indicates the transparency level (00→FF) • AA is red (00→FF) • BB is green (00→FF) • CC is blue (00→FF)	
VISIBLE	Sets the visibility of the control on the finished display. Click ↓ to view possible options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
	False	The control is **not** visible on the finished display.
	True	The control is visible on the finished display.
ENABLE	Sets if you can change the value of this control on the finished display. Click ↓ to view possible options. Select ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
	False	This control is **read-only** on the finished display.
	True	You can change the value of this control on the finished display.
HEIGHT	Sets the height, in pixels, of the selected control. Click ⤢ to automatically adjust the height based on the data contained in the field. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	

Property	Description	
WIDTH	Sets the width, in pixels, of the selected control. Click  to automatically adjust the width based on the data contained in the field. Click  open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
X	Sets the horizontal location on the canvas, in pixels, of the selected control. Click  to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
Y	Sets the vertical location on the canvas, in pixels, of the selected control. Click  to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
Z INDEX	Sets the stack order of the selected control on the canvas. Click  to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
TOOLTIP	Enter a visual tip that appears if you hover your cursor over the control on the display. Click  to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.	
SLIDER STYLE	Sets the CheckBox control to appear as a slider. Click  to view the default color options.	
	False	The CheckBox control appears as a checkbox.
	True	The CheckBox control appears as a slider.

Property	Description
SLIDER BACKCOLOR	Sets the Hex color code (with transparency) of the background for the selected control when the slider is in the "on" position (the CheckBox is selected). Click to view the default color options. Click to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. Valid codes are in the format #00AABBCC where: • 00 indicates the transparency level (00→FF) • AA is red (00→FF) • BB is green (00→FF) • CC is blue (00→FF) **Note** This fields shows **only** if you select **True** in the SLIDER STYLE field.
TEXT STYLE	Sets a text style to use for the selected control. Select to open the TEXT STYLE popup display where you can select a preconfigured text style or create your own. Select to define a new text style. Select to edit the currently selected text style. Select to delete the currently selected text style. **Note** Changes to the predefined styles apply to **all** displays in FBxConnect™.
TAB INDEX	Enter a zero-based number that corresponds to the tabbing order of focusable controls on the finished display.
FLOW DIRECTION	Sets the direction (right to left or left to right) of the slider style CheckBox.
TOOLTIP TEXT STYLE	Sets a text style of the tooltip for the selected control. Select to open the TEXT STYLE popup display where you can select a preconfigured text style or create your own. Select to define a new text style. Select to edit the currently selected text style. Select to delete the currently selected text style. **Note** Changes to the predefined styles apply to **all** displays in FBxConnect™.

Property	Description
CHECKED	Select ••• to open the SOURCE VIEW popup display and configure an expression that executes when you place a check mark in this field on the finished display.
UNCHECKED	Select ••• to open the SOURCE VIEW popup display and configure an expression that executes when you remove a check mark from this field on the finished display.

7.1.6 RadioButton ( )

Adds a radio button to the canvas to limit input to a single selection.

Property	Description
NAME	Sets an identifier for the selected control. **Note** This identifier is **not** shown on the display.
TYPE	This **read-only** field shows the category of the currently selected control.
SOURCE	Click to open a SOURCE VIEW popup display and select an OPI reference to use for the selected control. Once you select an OPI, the system automatically configures various fields based on your selection. Automatically configured fields display the text "OPI" next to the value.
TITLE	Enter text that appears in the title field of the control. Select ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.
VALUE	Map this property to the 'value' attribute of the parameter. Click ↓ to view possible options. Select ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.
	False The radio button is **not** selected.

Property	Description	
	True	The radio button is selected.
ENUMERATION	Map this property to the 'measurementtype' attribute of a parameter. Click ••• to open the SOURCE VIEW popup display and configure an OPI or Enumeration that writes a value to this property.	
GROUP NAME	Enter a name that associates multiple RadioButtons. RadioButtons that are associated with other RadioButtons **must** share the same GROUP NAME.	
SELECTED WHEN	Sets a number that, when the VALUE property is equal to this number, determines when the RadioButton is selected.	
TOOLTIP BACKCOLOR	Sets the Hex color code (with transparency) of the background of the tooltip for the selected control. Click ↓ to view the default color options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. Valid codes are in the format #00AABBCC where: • 00 indicates the transparency level (00→FF) • AA is red (00→FF) • BB is green (00→FF) • CC is blue (00→FF)	
VISIBLE	Sets the visibility of the control on the finished display. Click ↓ to view possible options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
	False	The control is **not** visible on the finished display.
	True	The control is visible on the finished display.
ENABLE	Sets if you can change the value of this control on the finished display. Click ↓ to view possible options. Select ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
	False	This control is **read-only** on the finished display.

Property	Description	
	True	You can change the value of this control on the finished display.
HEIGHT	Sets the height, in pixels, of the selected control. Click  to automatically adjust the height based on the data contained in the field. Click  to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
WIDTH	Sets the width, in pixels, of the selected control. Click  to automatically adjust the width based on the data contained in the field. Click  open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
X	Sets the horizontal location on the canvas, in pixels, of the selected control. Click  to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
Y	Sets the vertical location on the canvas, in pixels, of the selected control. Click  to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
Z INDEX	Sets the stack order of the selected control on the canvas. Click  to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
TOOLTIP	Enter a visual tip that appears if you hover your cursor over the control on the display. Click  to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.	

Property	Description
TEXT STYLE	Sets a text style to use for the selected control. Select ••• to open the TEXT STYLE popup display where you can select a preconfigured text style or create your own. Select ⊕ to define a new text style. Select ✎ to edit the currently selected text style. Select 🗑 to delete the currently selected text style. **Note** Changes to the predefined styles apply to **all** displays in FBxConnect™.
TAB INDEX	Enter a zero-based number that corresponds to the tabbing order of focusable controls on the finished display.
TOOLTIP TEXT STYLE	Sets a text style of the tooltip for the selected control. Select ••• to open the TEXT STYLE popup display where you can select a preconfigured text style or create your own. Select ⊕ to define a new text style. Select ✎ to edit the currently selected text style. Select 🗑 to delete the currently selected text style. **Note** Changes to the predefined styles apply to **all** displays in FBxConnect™.
CHECKED	Select ••• to open the SOURCE VIEW popup display and configure an expression that executes when you select a radio button in this field on the finished display.
UNCHECKED	Select ••• to open the SOURCE VIEW popup display and configure an expression that executes when you deselect a radio button in this field on the finished display.

7.1.7 GroupBox ()

Adds a non-scrollable container with a caption that can contain additional controls.

Property	Description	
NAME	Sets an identifier for the selected control. **Note** This identifier is **not** shown on the display.	
TYPE	This **read-only** field shows the category of the currently selected control.	
HEADER	Enter the title text that shows at the top of the control.	
TOOLTIP BACKCOLOR	Sets the Hex color code (with transparency) of the background of the tooltip for the selected control. Click ↓ to view the default color options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. Valid codes are in the format #00AABBCC where: • 00 indicates the transparency level (00→FF) • AA is red (00→FF) • BB is green (00→FF) • CC is blue (00→FF)	
BORDER THICKNESS	Sets, in percent, the thickness of the border of the selected control. Click ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.	
VISIBLE	Sets the visibility of the control on the finished display. Click ↓ to view possible options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
	False	The control is **not** visible on the finished display.
	True	The control is visible on the finished display.

Property	Description	
ENABLE	Sets if you can change the value of this control on the finished display. Click ↓ to view possible options. Select ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
	False	This control is **read-only** on the finished display.
	True	You can change the value of this control on the finished display.
HEIGHT	Sets the height, in pixels, of the selected control. Click ⤢ to automatically adjust the height based on the data contained in the field. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
WIDTH	Sets the width, in pixels, of the selected control. Click ⤢ to automatically adjust the width based on the data contained in the field. Click ••• open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
X	Sets the horizontal location on the canvas, in pixels, of the selected control. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
Y	Sets the vertical location on the canvas, in pixels, of the selected control. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
Z INDEX	Sets the stack order of the selected control on the canvas. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
TOOLTIP	Enter a visual tip that appears if you hover your cursor over the control on the display. Click ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.	

Property	Description
TEXT STYLE	Sets a text style to use for the selected control. Select ••• to open the TEXT STYLE popup display where you can select a preconfigured text style or create your own. Select ⊕ to define a new text style. Select ✎ to edit the currently selected text style. Select 🗑 to delete the currently selected text style. **Note** Changes to the predefined styles apply to **all** displays in FBxConnect™.
TOOLTIP TEXT STYLE	Sets a text style of the tooltip for the selected control. Select ••• to open the TEXT STYLE popup display where you can select a preconfigured text style or create your own. Select ⊕ to define a new text style. Select ✎ to edit the currently selected text style. Select 🗑 to delete the currently selected text style. **Note** Changes to the predefined styles apply to **all** displays in FBxConnect™.

7.1.8 Image ( )

Adds an image (.JPG, .BMP, .PNG, .GIF, or other graphic formats) to the canvas from a file.

Property	Description	
NAME	Sets an identifier for the selected control. **Note** This identifier is **not** shown on the display.	
TYPE	This **read-only** field shows the category of the currently selected control.	
SOURCE	Sets the location of the image. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
STRETCH	Sets how an Image should be stretched to fill the display.	
	None	The content retains its original size.

Property	Description	
	Fill	The content is resized to fill the destination dimensions. The aspect ratio is not preserved.
	Uniform	The content is resized to fit in the destination dimensions while it preserves its native aspect ratio.
	UniformToFill	The content is resized to fill the destination dimensions while it preserves its native aspect ratio. If the aspect ratio of the destination rectangle differs from the source, the source content is clipped to fit in the destination dimensions.
TOOLTIP BACKCOLOR	Sets the Hex color code (with transparency) of the background of the tooltip for the selected control. Click ↓ to view the default color options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. Valid codes are in the format #00AABBCC where: • 00 indicates the transparency level (00→FF) • AA is red (00→FF) • BB is green (00→FF) • CC is blue (00→FF)	
VISIBLE	Sets the visibility of the control on the finished display. Click ↓ to view possible options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
	False	The control is **not** visible on the finished display.
	True	The control is visible on the finished display.
HEIGHT	Sets the height, in pixels, of the selected control. Click ⤢ to automatically adjust the height based on the data contained in the field. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	

Property	Description
WIDTH	Sets the width, in pixels, of the selected control. Click  to automatically adjust the width based on the data contained in the field. Click  open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.
X	Sets the horizontal location on the canvas, in pixels, of the selected control. Click  to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.
Y	Sets the vertical location on the canvas, in pixels, of the selected control. Click  to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.
Z INDEX	Sets the stack order of the selected control on the canvas. Click  to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.
TOOLTIP	Enter a visual tip that appears if you hover your cursor over the control on the display. Click  to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.
HOTSPOT	Sets a border around the control when a mouse hovers over the control on the finished display. Click  to view possible options. Click  to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.
HOVER THICKNESS	Sets the thickness, in pixels, of the hotspot border. Click  to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property. **Note** This field appears **only** if you select **ENABLE** in the **HOTSPOT** field.

Property	Description
HOVER COLOR	Sets the Hex color code (with transparency) of the tooltip background for the selected control. Click ↓ to view the default color options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. Valid codes are in the format #00AABBCC where: • 00 indicates the transparency level (00→FF) • AA is red (00→FF) • BB is green (00→FF) • CC is blue (00→FF) **Note** This field appears **only** if you select **ENABLE** in the **HOTSPOT** field.
TOOLTIP TEXT STYLE	Sets a text style of the tooltip for the selected control. Select ••• to open the TEXT STYLE popup display where you can select a preconfigured text style or create your own. Select ⊕ to define a new text style. Select ✎ to edit the currently selected text style. Select 🗑 to delete the currently selected text style. **Note** Changes to the predefined styles apply to **all** displays in FBxConnect™.
CLICK	Select ••• to open the SOURCE VIEW popup display and configure an Expression that executes when you select the control on the finished display.

7.1.9 ComboBox ( )

Adds a list of options to the canvas that opens when you click ▼.

Property	Description
NAME	Sets an identifier for the selected control. **Note** This identifier is **not** shown on the display.

Property	Description
TYPE	This **read-only** field shows the category of the currently selected control.
SOURCE	Click to open a SOURCE VIEW popup display and select an OPI reference to use for the selected control. Once you select an OPI, the system automatically configures various fields based on your selection. Automatically configured fields display the text "OPI" next to the value.
TITLE	Enter text that appears in the title field of the control. Click ↓ to view possible options. Select ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.
ENUMERATION	Map this property to the 'measurementtype' attribute of a parameter. The ComboBox is populated with the enumerations of the associated OPI. Select ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property. **Note** You can also fill the ComboBox with your own custom enumerations. • Click on the ••• button and select ENUMERATION from the SOURCE VIEW popup display. • Click the ⊕ button and add their own values and textual representations.
SELECTED INDEX	The numerical value associated with the current index of the ComboBox. This property is typically mapped to the 'value' attribute of the parameter, but it can also represent the numerical value of a custom enumeration.
TITLE ALIGNMENT	Sets the alignment of the text that appears on the control. Click ↓ to view possible options (Top Left, Top Center, Top Right, Middle Left, Middle Center, Middle Right, Bottom Left, Bottom Center, Bottom Right). Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.

Property	Description	
TITLE WRAP	Sets if the text breaks at the edge of the control and starts a new line. Click ↓ to view possible options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
	Wrap	The text breaks at the edge of the control and starts a new line.
	NoWrap	The text **does not** break at the edge of the control.
TITLE WIDTH	Sets, in pixels, the width of the title area. Click ⤢ to automatically adjust the title area to show all the title text. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
FORE COLOR	Sets the Hex color code (with transparency) of the text for the selected control. Click ↓ to view the default color options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. Valid codes are in the format #00AABBCC where: • 00 indicates the transparency level (00→FF) • AA is red (00→FF) • BB is green (00→FF) • CC is blue (00→FF)	
BACK COLOR	Sets the Hex color code (with transparency) of the background for the selected control. Click ↓ to view the default color options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. Valid codes are in the format #00AABBCC where: • 00 indicates the transparency level (00→FF) • AA is red (00→FF) • BB is green (00→FF) • CC is blue (00→FF)	

Property	Description	
ENABLE RANGE CHECK	Sets if range checking is performed on the value of the selected control. Range checking allows you configure the control to only show a subset of the possible values. For example, suppose the configured ENUMERATION has four possible values (value 1, value 2, value 3, and value 4). You can configure the control to only show value 2 and value 3 by setting this field to True and configuring the LOW LIMIT and HIGH LIMIT fields.	
	False	Range checking **is not** performed on the value of the selected control.
	True	Range checking is performed on the value of the selected control. **Note** You **must** also configure the LOW LIMIT and HIGH LIMIT fields.
LOW LIMIT	Sets the low limit of the range check. **Note** This field appears **only** if you select **True** in the ENABLE RANGE CHECK field.	
HIGH LIMIT	Sets the high limit of the range check. **Note** This field appears **only** if you select **True** in the ENABLE RANGE CHECK field.	
TOOLTIP BACKCOLOR	Sets the Hex color code (with transparency) of the background of the tooltip for the selected control. Click  to view the default color options. Click  to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. Valid codes are in the format #00AABBCC where: • 00 indicates the transparency level (00→FF) • AA is red (00→FF) • BB is green (00→FF) • CC is blue (00→FF)	

Property	Description	
VISIBLE	Sets the visibility of the control on the finished display. Click ↓ to view possible options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
	False	The control is **not** visible on the finished display.
	True	The control is visible on the finished display.
ENABLE	Sets if you can change the value of this control on the finished display. Click ↓ to view possible options. Select ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
	False	This control is **read-only** on the finished display.
	True	You can change the value of this control on the finished display.
HEIGHT	Sets the height, in pixels, of the selected control. Click ⤢ to automatically adjust the height based on the data contained in the field. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
WIDTH	Sets the width, in pixels, of the selected control. Click ⤢ to automatically adjust the width based on the data contained in the field. Click ••• open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
X	Sets the horizontal location on the canvas, in pixels, of the selected control. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
Y	Sets the vertical location on the canvas, in pixels, of the selected control. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	

Property	Description
Z INDEX	Sets the stack order of the selected control on the canvas. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.
MAX COUNT	Sets the maximum number of options available when you click ▼ on the finished display.
TOOLTIP	Enter a visual tip that appears if you hover your cursor over the control on the display. Click ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.
TEXT STYLE	Sets a text style to use for the selected control. Select ••• to open the TEXT STYLE popup display where you can select a preconfigured text style or create your own. Select ⊕ to define a new text style. Select ✎ to edit the currently selected text style. Select 🗑 to delete the currently selected text style. **Note** Changes to the predefined styles apply to **all** displays in FBxConnect™.
TAB INDEX	Enter a zero-based number that corresponds to the tabbing order of focusable controls on the finished display.
TOOLTIP TEXT STYLE	Sets a text style of the tooltip for the selected control. Select ••• to open the TEXT STYLE popup display where you can select a preconfigured text style or create your own. Select ⊕ to define a new text style. Select ✎ to edit the currently selected text style. Select 🗑 to delete the currently selected text style. **Note** Changes to the predefined styles apply to **all** displays in FBxConnect™.
SELECTION CHANGE	Click ••• to open the SOURCE VIEW popup display and configure an Expression that executes when the value in this control changes.

7.1.10 NumericUpDown ( )

Adds a spin box (also known as an up-down control) to the canvas that allows you to navigate through a numbered list using up and down arrows.

Property	Description
NAME	Sets an identifier for the selected control. **Note** This identifier is **not** shown on the display.
TYPE	This **read-only** field shows the category of the currently selected control.
SOURCE	Click to open a SOURCE VIEW popup display and select an OPI reference to use for the selected control. Once you select an OPI, the system automatically configures various fields based on your selection. Automatically configured fields display the text "OPI" next to the value.
TITLE	Enter text that appears in the title field of the control. Select ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.
VALUE	Sets the value to show in the control on the finished display. Select ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.
TITLE ALIGNMENT	Sets the alignment of the text that appears on the control. Click ↓ to view possible options (Top Left, Top Center, Top Right, Middle Left, Middle Center, Middle Right, Bottom Left, Bottom Center, Bottom Right). Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.
VALUE ALIGNMENT	Sets the alignment of the value that appears on the control. Click ↓ to view possible options (Left, Right, or Center). Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.

Property	Description	
TITLE WRAP	Sets if the text breaks at the edge of the control and starts a new line. Click ↓ to view possible options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
	Wrap	The text breaks at the edge of the control and starts a new line.
	NoWrap	The text **does not** break at the edge of the control.
TITLE WIDTH	Sets, in pixels, the width of the title area. Click ⤢ to automatically adjust the title area to show all the title text. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
DECIMAL PLACE	The number of decimal places to display.	
INTERVAL	The value to increment or decrement when the up or down buttons are clicked.	
MINIMUM	The minimum allowed value.	
MAXIMUM	The maximum allowed value.	
TOOLTIP BACKCOLOR	Sets the Hex color code (with transparency) of the background of the tooltip for the selected control. Click ↓ to view the default color options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. Valid codes are in the format #00AABBCC where: • 00 indicates the transparency level (00→FF) • AA is red (00→FF) • BB is green (00→FF) • CC is blue (00→FF)	
VISIBLE	Sets the visibility of the control on the finished display. Click ↓ to view possible options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	

Property	Description	
	False	The control is **not** visible on the finished display.
	True	The control is visible on the finished display.
ENABLE	Sets if you can change the value of this control on the finished display. Click ↓ to view possible options. Select ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
	False	This control is **read-only** on the finished display.
	True	You can change the value of this control on the finished display.
HEIGHT	Sets the height, in pixels, of the selected control. Click ⤢ to automatically adjust the height based on the data contained in the field. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
WIDTH	Sets the width, in pixels, of the selected control. Click ⤢ to automatically adjust the width based on the data contained in the field. Click ••• open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
X	Sets the horizontal location on the canvas, in pixels, of the selected control. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
Y	Sets the vertical location on the canvas, in pixels, of the selected control. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
Z INDEX	Sets the stack order of the selected control on the canvas. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
TOOLTIP	Enter a visual tip that appears if you hover your cursor over the control on the display. Click ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.	

Property	Description
TEXT STYLE	Sets a text style to use for the selected control. Select ••• to open the TEXT STYLE popup display where you can select a preconfigured text style or create your own. Select ⊕ to define a new text style. Select ✎ to edit the currently selected text style. Select 🗑 to delete the currently selected text style. **Note** Changes to the predefined styles apply to **all** displays in FBxConnect™.
TAB INDEX	Enter a zero-based number that corresponds to the tabbing order of focusable controls on the finished display.
TOOLTIP TEXT STYLE	Sets a text style of the tooltip for the selected control. Select ••• to open the TEXT STYLE popup display where you can select a preconfigured text style or create your own. Select ⊕ to define a new text style. Select ✎ to edit the currently selected text style. Select 🗑 to delete the currently selected text style. **Note** Changes to the predefined styles apply to **all** displays in FBxConnect™.
ON CHANGE	Click ••• to open the SOURCE VIEW popup display and configure an Expression that executes when the value in this control changes.

7.1.11 TabControl ( )

Adds a one-tab image to the canvas, to which you can add more tabs. This control allows multiple items that share the same space on the display. The TabControl properties apply to the entire control. To configure individual tab properties, see TabItem.

Property	Description
NAME	Sets an identifier for the selected control. **Note** This identifier is **not** shown on the display.
TYPE	This **read-only** field shows the category of the currently selected control.

Property	Description
SELECTED INDEX	A zero-based number indicating the selected tab item of the tab control.
TOOLTIP BACKCOLOR	Sets the Hex color code (with transparency) of the background of the tooltip for the selected control. Click ↓ to view the default color options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. Valid codes are in the format #00AABBCC where: • 00 indicates the transparency level (00→FF) • AA is red (00→FF) • BB is green (00→FF) • CC is blue (00→FF)
VISIBLE	Sets the visibility of the control on the finished display. Click ↓ to view possible options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.
False	The control is **not** visible on the finished display.
True	The control is visible on the finished display.
ENABLE	Sets if you can change the value of this control on the finished display. Click ↓ to view possible options. Select ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.
False	This control is **read-only** on the finished display.
True	You can change the value of this control on the finished display.
HEIGHT	Sets the height, in pixels, of the selected control. Click ⤢ to automatically adjust the height based on the data contained in the field. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.

Property	Description	
WIDTH	Sets the width, in pixels, of the selected control. Click  to automatically adjust the width based on the data contained in the field. Click  open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
X	Sets the horizontal location on the canvas, in pixels, of the selected control. Click  to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
Y	Sets the vertical location on the canvas, in pixels, of the selected control. Click  to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
Z INDEX	Sets the stack order of the selected control on the canvas. Click  to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
TOOLTIP	Enter a visual tip that appears if you hover your cursor over the control on the display. Click  to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.	
TEXT STYLE	Sets a text style to use for the selected control. Select  to open the TEXT STYLE popup display where you can select a preconfigured text style or create your own. Select  to define a new text style. Select  to edit the currently selected text style. Select  to delete the currently selected text style. **Note** Changes to the predefined styles apply to **all** displays in FBxConnect™.	
TAB STYLE	Controls the placement of TabItems in the TabControl.	
	Horizontal	TabItems are placed in a horizontal row.
	Vertical	TabItems are placed in a vertical row.

Property	Description
TOOLTIP TEXT STYLE	Sets a text style of the tooltip for the selected control. Select ••• to open the TEXT STYLE popup display where you can select a preconfigured text style or create your own. Select ⊕ to define a new text style. Select ✎ to edit the currently selected text style. Select 🗑 to delete the currently selected text style. **Note** Changes to the predefined styles apply to **all** displays in FBxConnect™.
SELECTION CHANGE	Click ••• to open the SOURCE VIEW popup display and configure an Expression that executes when the value in this control changes.

7.1.11.1 TabItem

TabItem contains properties for each individual tab defined in TabControl. Select a Tab heading on the TabControl to view the PROPERTIES for a TabItem. Select ⊕ to the right of the Tab headings to add a new TabItem to the TabControl.

Property	Description	
NAME	Sets an identifier for the selected control. **Note** This identifier is **not** shown on the display.	
TYPE	This **read-only** field shows the category of the currently selected control.	
HEADER	Enter a name that appears at the top of the tab. Select ••• to open a SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.	
VISIBLE	Sets the visibility of the control on the finished display. Click ↓ to view possible options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
	False	The control is **not** visible on the finished display.
	True	The control is visible on the finished display.

Property	Description	
ENABLE	Sets if you can change the value of this control on the finished display. Select ↓ to view possible options. Select ••• to open a SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
	False	This control is **read-only** on the finished display.
	True	You can change the value of this control on the finished display.

7.1.12 Gauge ( )

Adds a gauge to the canvas that allows you to visualize data on the display.

Property	Description
NAME	Sets an identifier for the selected control. **Note** This identifier is **not** shown on the display.
TYPE	This **read-only** field shows the category of the currently selected control.
SOURCE	Click to open a SOURCE VIEW popup display and select an OPI reference to use for the selected control. Once you select an OPI, the system automatically configures various fields based on your selection. Automatically configured fields display the text "OPI" next to the value.
LABEL	Enter text that appears at the top of the control. Select ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.
VALUE	Enter the value of this control. Select ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.

Property	Description	
UNIT	Sets the type of units to show on the finished display. Select ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.	
MINIMUM	Sets the minimum value shown on the gauge. Select ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.	
MAXIMUM	Sets the maximum value shown on the gauge. Select ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.	
DECIMAL PLACE	Sets the number of decimal places to show for numbers that are shown on the gauge along the range of the gauge (aka bands).	
NO FLOW CUT-OFF	Optional; used for DP Meter where a value special tick mark is shown on the gauge at the value of this property. Click ↓ to view possible options. **Note** This property appears **only** if you select **Radial** in the STYLE field.	
	False	The control does not have a no flow cut-off value.
	True	The control does have a no flow cut-off value. **Note** You **must** also set a value in the NO FLOW CUT-OFF VALUE field.
NO FLOW CUT-OFF VALUE	Sets a value to use for the NO FLOW CUT-OFF property. **Note** This property appears **only** if you select **True** in the NO FLOW CUT-OFF field.	
STYLE	Sets the type of gauge to show on the display. Click ↓ to view possible options.	
	Radial	Shows a radial gauge on the display.
	Linear	Shows a vertical gauge on the display.

Property	Description	
ORIENTATION	Sets the positioning of the gauge. Click ↓ to view possible options. **Note** This field applies **only** if you select **Linear** in the STYLE field.	
	Horizontal	Shows the gauge. in a horizontal position.
	Vertical	Shows the gauge. in a vertical position.
BANDS	Sets the number of sections (bands) the gauge is divided into. You can configure each band with unique limits and colors along the range of the gauge.	
TOOLTIP BACKCOLOR	Sets the Hex color code (with transparency) of the background of the tooltip for the selected control. Click ↓ to view the default color options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. Valid codes are in the format #00AABBCC where: • 00 indicates the transparency level (00→FF) • AA is red (00→FF) • BB is green (00→FF) • CC is blue (00→FF)	
VISIBLE	Sets the visibility of the control on the finished display. Click ↓ to view possible options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
	False	The control is **not** visible on the finished display.
	True	The control is visible on the finished display.
HEIGHT	Sets the height, in pixels, of the selected control. Click ⤢ to automatically adjust the height based on the data contained in the field. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	

Property	Description
WIDTH	Sets the width, in pixels, of the selected control. Click  to automatically adjust the width based on the data contained in the field. Click  open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.
X	Sets the horizontal location on the canvas, in pixels, of the selected control. Click  to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.
Y	Sets the vertical location on the canvas, in pixels, of the selected control. Click  to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.
Z INDEX	Sets the stack order of the selected control on the canvas. Click  to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.
TOOLTIP	Enter a visual tip that appears if you hover your cursor over the control on the display. Click  to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.
TEXT STYLE	Sets a text style to use for the selected control. Select  to open the TEXT STYLE popup display where you can select a preconfigured text style or create your own. Select  to define a new text style. Select  to edit the currently selected text style. Select  to delete the currently selected text style. **Note** Changes to the predefined styles apply to **all** displays in FBxConnect™.

Property	Description
TOOLTIP TEXT STYLE	Sets a text style of the tooltip for the selected control. Select ••• to open the TEXT STYLE popup display where you can select a preconfigured text style or create your own. Select ⊕ to define a new text style. Select ✎ to edit the currently selected text style. Select 🗑 to delete the currently selected text style. **Note** Changes to the predefined styles apply to **all** displays in FBxConnect™.

7.1.13 Chart ( )

Adds a line graph chart to the canvas used to represent data graphically. The chart contains the following buttons to control the data shown:

- **Start** – Select this button to begin displaying data in the chart.
- **Stop** – Select this button to prevent new data from being added to the chart. Data collected before selecting this button is preserved in the chart.
- **Clear** – Select this button to remove all data from the chart.

When viewing a chart on the display, your mouse has the following functionality:

- **Mouse Wheel –** Scroll the mouse wheel to zoom the x-axis and y-axis based on your cursor position. You can zoom each axis individually (by placing your cursor over a single axis) or simultaneously (by placing your cursor over the chart.
- **Right Button –** Click and drag the right mouse button to pan the chart. You can pan each axis individually (by placing your cursor over a single axis) or simultaneously (by placing your cursor over the chart).

Note

You can view real-time data by configuring what figures display on the chart. After you configure the chart, you can view the display and select Auto-Scan. The chart shows the collected data in real-time. You cannot save the chart data to system memory.

Property	Description
NAME	Sets an identifier for the selected control. **Note** This identifier is **not** shown on the display.
TYPE	This **read-only** field shows the category of the currently selected control.
HEADER	Enter text that appears at the top of the control.
INTERVAL	Sets, in seconds, the refresh rate of the graph data.
DATA POINTS	Sets if the chart shows specific points on the graph line each time data is updated. Click ↓ to view possible options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.
False	The chart **does not** show specific points on the graph line each time data is updated.
True	The chart shows specific points on the graph line each time data is updated.
SETTINGS	Click to open the GRAPH window and configure the data shown in the chart. Select ⊕ to add items to chart. Each item you add is represented by its own row in the chart. 
SOURCE	Click to open a SOURCE VIEW popup display and select an OPI reference to use for the selected control. Once you select an OPI, the system automatically configures various fields based on your selection. Automatically configured fields display the text "OPI" next to the value.

Property	Description	
	Name	Sets an identifier for the selected control. **Note** This identifier is **not** shown on the display.
	Label	Sets a label for the selected item. This label is shown to the side of the chart followed by the configured units. This label is also shown in the chart legend.
	Value	Sets the value to show in the control on the finished display. Select ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.
	Visibility	Sets if the selected item is shown on the chart.
	Thickness	Sets, in percent, the thickness of the line shown on the chart for the selected item. Click ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.
	Unit	Sets the units for the selected item. The units are shown to the side of the chart directly after the configured label.
	Y-Minimum	Sets the minimum scale value of the y-axis.
	Y-Maximum	Sets the maximum scale value of the y-axis.
	Color	Sets the Hex color code (with transparency) of the background of the tooltip for the selected control. Click ↓ to view the default color options. Valid codes are in the format #00AABBCC where: • 00 indicates the transparency level (00→FF) • AA is red (00→FF) • BB is green (00→FF) • CC is blue (00→FF)

Property	Description	
	Line Style	Sets the line style shown on the chart for the selected item. Click  to view possible options.
TIME DURATION	Sets, in seconds, the maximum amount of time that values are shown on the chart before the oldest value is deleted and the newest value is added to the chart.	
TOOLTIP BACKCOLOR	Sets the Hex color code (with transparency) of the background of the tooltip for the selected control. Click  to view the default color options. Click  to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. Valid codes are in the format #00AABBCC where: • 00 indicates the transparency level (00→FF) • AA is red (00→FF) • BB is green (00→FF) • CC is blue (00→FF)	
VISIBLE	Sets the visibility of the control on the finished display. Click  to view possible options. Click  to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
	False	The control is **not** visible on the finished display.
	True	The control is visible on the finished display.
HEIGHT	Sets the height, in pixels, of the selected control. Click  to automatically adjust the height based on the data contained in the field. Click  to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
WIDTH	Sets the width, in pixels, of the selected control. Click  to automatically adjust the width based on the data contained in the field. Click  open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	

Property	Description
X	Sets the horizontal location on the canvas, in pixels, of the selected control. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.
Y	Sets the vertical location on the canvas, in pixels, of the selected control. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.
Z INDEX	Sets the stack order of the selected control on the canvas. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.
TOOLTIP	Enter a visual tip that appears if you hover your cursor over the control on the display. canvas. Click ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.
TEXT STYLE	Sets a text style to use for the selected control. Select ••• to open the TEXT STYLE popup display where you can select a preconfigured text style or create your own. Select ⊕ to define a new text style. Select ✎ to edit the currently selected text style. Select 🗑 to delete the currently selected text style. **Note** Changes to the predefined styles apply to **all** displays in FBxConnect™.
LEGEND LOCATION	Sets, in addition to the LEGEND PLACEMENT field, the location of the chart legend. Click ↓ to view the possible options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.

Property	Description	
LEGEND PLACEMENT	Sets, in addition to the LEGEND LOCATION field, the location of the chart legend. Click to view the possible options. Click to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
	Outside	The chart legend is shown outside of the chart.
	Inside	The chart legend is shown inside of the chart.
TOOLTIP TEXT STYLE	Sets a text style of the tooltip for the selected control. Select to open the TEXT STYLE popup display where you can select a preconfigured text style or create your own. Select to define a new text style. Select to edit the currently selected text style. Select to delete the currently selected text style. **Note** Changes to the predefined styles apply to **all** displays in FBxConnect™.	

7.1.14 Rectangle ( )

Adds either a rectangle or a triangle to the canvas.

Property	Description	
NAME	Sets an identifier for the selected control. **Note** This identifier is **not** shown on the display.	
TYPE	This **read-only** field shows the category of the currently selected control.	
SHAPE	Sets the shape of the rectangle control. Click to view the possible options.	
	Rectangle	Adds a rectangle to the canvas.
	RightTriangle	Adds a right triangle to the canvas.
	ScaleneTriangle	Adds a scalene triangle to the canvas.

Property	Description
FILL COLOR	Sets the Hex color code (with transparency) of the fill color for the selected control. Click ↓ to view the default color options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. Valid codes are in the format #00AABBCC where: • 00 indicates the transparency level (00→FF) • AA is red (00→FF) • BB is green (00→FF) • CC is blue (00→FF)
FILL PERCENT	Sets, in percent, the portion of the ellipse that contains the selected fill color. Valid values are 0 to 100. Click ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.
BORDER COLOR	Sets the Hex color code (with transparency) of the border for the selected control. Click ↓ to view the default color options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. Valid codes are in the format #00AABBCC where: • 00 indicates the transparency level (00→FF) • AA is red (00→FF) • BB is green (00→FF) • CC is blue (00→FF)
BACK COLOR	Sets the Hex color code (with transparency) of the background for the selected control. Click ↓ to view the default color options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. Valid codes are in the format #00AABBCC where: • 00 indicates the transparency level (00→FF) • AA is red (00→FF) • BB is green (00→FF) • CC is blue (00→FF)

Property	Description
BORDER THICKNESS	Sets, in percent, the thickness of the border of the selected control. Click ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.
ANGLE	Sets, in degrees, the angle of the control on the canvas. Click ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.
RadiusX	Sets the x-axis radius of the rectangle. This property is used to round the corners of the rectangle. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. **Note** This field appears **only** if you select **Rectangle** in the SHAPE field.
RadiusY	Sets the y-axis radius of the rectangle. This property is used to round the corners of the rectangle. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. **Note** This field appears **only** if you select **Rectangle** in the SHAPE field.
TOOLTIP BACKCOLOR	Sets the Hex color code (with transparency) of the background of the tooltip for the selected control. Click ↓ to view the default color options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. Valid codes are in the format #00AABBCC where: • 00 indicates the transparency level (00→FF) • AA is red (00→FF) • BB is green (00→FF) • CC is blue (00→FF)

Property	Description	
VISIBLE	Sets the visibility of the control on the finished display. Click ↓ to view possible options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
	False	The control is **not** visible on the finished display.
	True	The control is visible on the finished display.
HEIGHT	Sets the height, in pixels, of the selected control. Click ⤢ to automatically adjust the height based on the data contained in the field. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
WIDTH	Sets the width, in pixels, of the selected control. Click ⤢ to automatically adjust the width based on the data contained in the field. Click ••• open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
X	Sets the horizontal location on the canvas, in pixels, of the selected control. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
Y	Sets the vertical location on the canvas, in pixels, of the selected control. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
Z INDEX	Sets the stack order of the selected control on the canvas. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
TOOLTIP	Enter a visual tip that appears if you hover your cursor over the control on the display. Click ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.	

Property	Description
HOTSPOT	Sets a border around the control when a mouse hovers over the control on the finished display. Click ↓ to view possible options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.
HOVER THICKNESS	Sets the thickness, in pixels, of the hotspot border. Click ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property. **Note** This field appears **only** if you select **ENABLE** in the **HOTSPOT** field.
HOVER COLOR	Sets the Hex color code (with transparency) of the tooltip background for the selected control. Click ↓ to view the default color options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. Valid codes are in the format #00AABBCC where: • 00 indicates the transparency level (00→FF) • AA is red (00→FF) • BB is green (00→FF) • CC is blue (00→FF) **Note** This field appears **only** if you select **ENABLE** in the **HOTSPOT** field.
TOOLTIP TEXT STYLE	Sets a text style of the tooltip for the selected control. Select ••• to open the TEXT STYLE popup display where you can select a preconfigured text style or create your own. Select ⊕ to define a new text style. Select ✎ to edit the currently selected text style. Select 🗑 to delete the currently selected text style. **Note** Changes to the predefined styles apply to **all** displays in FBxConnect™.
CLICK	Select ••• to open the SOURCE VIEW popup display and configure an Expression or variable that executes when the control is clicked on the finished display.

Property	Description
ENTER	Select ••• to open the SOURCE VIEW popup display and configure an Expression or variable that executes when the control gains focus on the finished display.
LEAVE	Select ••• to open the SOURCE VIEW popup display and configure an Expression or variable that executes when the control loses focus on the finished display.

7.1.15 Ellipse ( )

Adds an oval to the canvas.

Property	Description
NAME	Sets an identifier for the selected control. **Note** This identifier is **not** shown on the display.
TYPE	This **read-only** field shows the category of the currently selected control.
FILL COLOR	Sets the Hex color code (with transparency) of the fill color for the selected control. Click ↓ to view the default color options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. Valid codes are in the format #00AABBCC where: • 00 indicates the transparency level (00→FF) • AA is red (00→FF) • BB is green (00→FF) • CC is blue (00→FF)
FILL PERCENT	Sets, in percent, the portion of the ellipse that contains the selected fill color. Valid values are 0 to 100. Click ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.

Property	Description
BORDER COLOR	Sets the Hex color code (with transparency) of the border for the selected control. Click ↓ to view the default color options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. Valid codes are in the format #00AABBCC where: • 00 indicates the transparency level (00→FF) • AA is red (00→FF) • BB is green (00→FF) • CC is blue (00→FF)
BACK COLOR	Sets the Hex color code (with transparency) of the background for the selected control. Click ↓ to view the default color options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. Valid codes are in the format #00AABBCC where: • 00 indicates the transparency level (00→FF) • AA is red (00→FF) • BB is green (00→FF) • CC is blue (00→FF)
BORDER THICKNESS	Sets, in percent, the thickness of the border of the selected control. Click ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.
VISIBLE	Sets the visibility of the control on the finished display. Click ↓ to view possible options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. **False** — The control is **not** visible on the finished display. **True** — The control is visible on the finished display.

Property	Description
HEIGHT	Sets the height, in pixels, of the selected control. Click  to automatically adjust the height based on the data contained in the field. Click  to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.
WIDTH	Sets the width, in pixels, of the selected control. Click  to automatically adjust the width based on the data contained in the field. Click  open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.
X	Sets the horizontal location on the canvas, in pixels, of the selected control. Click  to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.
Y	Sets the vertical location on the canvas, in pixels, of the selected control. Click  to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.
Z INDEX	Sets the stack order of the selected control on the canvas. Click  to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.
TOOLTIP	Enter a visual tip that appears if you hover your cursor over the control on the display. Click  to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.
HOTSPOT	Sets a border around the control when a mouse hovers over the control on the finished display. Click  to view possible options. Click  to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.
HOVER THICKNESS	Sets the thickness, in pixels, of the hotspot border. Click  to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property. **Note** This field appears **only** if you select **Enable** in the HOTSPOT field.

Property	Description
HOVER COLOR	Sets the Hex color code (with transparency) of the tooltip background for the selected control. Click ↓ to view the default color options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. Valid codes are in the format #00AABBCC where: • 00 indicates the transparency level (00→FF) • AA is red (00→FF) • BB is green (00→FF) • CC is blue (00→FF) **Note** This field appears **only** if you select **Enable** in the HOTSPOT field.
TOOLTIP TEXT STYLE	Sets a text style of the tooltip for the selected control. Select ••• to open the TEXT STYLE popup display where you can select a preconfigured text style or create your own. Select ⊕ to define a new text style. Select ✎ to edit the currently selected text style. Select 🗑 to delete the currently selected text style. **Note** Changes to the predefined styles apply to **all** displays in FBxConnect™.
CLICK	Select ••• to open the SOURCE VIEW popup display and configure an Expression that runs when you select the control on the finished display.
ENTER	Select ••• to open the SOURCE VIEW popup display and configure an Expression or variable that executes when the control gains focus on the finished display.
LEAVE	Select ••• to open the SOURCE VIEW popup display and configure an Expression or variable that executes when the control loses focus on the finished display.

7.1.16 Line ( )

Adds a line to the canvas.

Property	Description
Name	Sets an identifier for the selected control. **Note** This identifier is **not** shown on the display.
Type	This **read-only** field shows the category of the currently selected control.
X1	Sets the starting position of the line on the x-axis.
Y1	Sets the starting position of the line on the y-axis.
X2	Sets the ending position of the line on the x-axis.
Y2	Sets the ending position of the line on the y-axis.
BORDER COLOR	Sets the Hex color code (with transparency) of the border for the selected control. Click to view the default color options. Click to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. Valid codes are in the format #00AABBCC where: • 00 indicates the transparency level (00→FF) • AA is red (00→FF) • BB is green (00→FF) • CC is blue (00→FF)
BORDER THICKNESS	Sets, in percent, the thickness of the border of the selected control. Click to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.

Property	Description
TOOLTIP BACKCOLOR	Sets the Hex color code (with transparency) of the background of the tooltip for the selected control. Click ↓ to view the default color options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. Valid codes are in the format #00AABBCC where: • 00 indicates the transparency level (00→FF) • AA is red (00→FF) • BB is green (00→FF) • CC is blue (00→FF)
VISIBLE	Sets the visibility of the control on the finished display. Click ↓ to view possible options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.
	False — The control is **not** visible on the finished display.
	True — The control is visible on the finished display.
X	Sets the horizontal location on the canvas, in pixels, of the selected control. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.
Y	Sets the vertical location on the canvas, in pixels, of the selected control. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.
Z INDEX	Sets the stack order of the selected control on the canvas. ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.
TOOLTIP	Enter a visual tip that appears if you hover your cursor over the control on the display. Click ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.

Property	Description
HOTSPOT	Sets a border around the control when a mouse hovers over the control on the finished display. Click ↓ to view possible options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.
HOVER THICKNESS	Sets the thickness, in pixels, of the hotspot border. Click ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property. **Note** This field appears **only** if you select **Enable** in the HOTSPOT field.
HOVER COLOR	Sets the Hex color code (with transparency) of the tooltip background for the selected control. Click ↓ to view the default color options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. Valid codes are in the format #00AABBCC where: • 00 indicates the transparency level (00→FF) • AA is red (00→FF) • BB is green (00→FF) • CC is blue (00→FF) **Note** This field appears **only** if you select **Enable** in the HOTSPOT field.
TOOLTIP TEXT STYLE	Sets a text style of the tooltip for the selected control. Select ••• to open the TEXT STYLE popup display where you can select a preconfigured text style or create your own. Select ⊕ to define a new text style. Select ✎ to edit the currently selected text style. Select 🗑 to delete the currently selected text style. **Note** Changes to the predefined styles apply to **all** displays in FBxConnect™.
ENTER	Select ••• to open the SOURCE VIEW popup display and configure an Expression or variable that executes when the control gains focus on the finished display.

Property	Description
LEAVE	Select ••• to open the SOURCE VIEW popup display and configure an Expression or variable that executes when the control loses focus on the finished display.

7.1.17 Accordion ( )

Adds an accordion to the canvas that contains additional data when you click ▼. Select ⊕ to add additional Tab Items within the Accordion, each with individual controls. The Accordion properties apply to the entire control. To configure properties for an individual Tab Item within the Accordion, see AccordionItem.

Property	Description
NAME	Sets an identifier for the selected control. **Note** This identifier is **not** shown on the display.
TYPE	This **read-only** field shows the category of the currently selected control.
SELECTED INDEX	Sets a zero-based number indicating the selected Tab Item of the Accordion control.
TOOLTIP BACKCOLOR	Sets the Hex color code (with transparency) of the background of the tooltip for the selected control. Click ↓ to view the default color options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. Valid codes are in the format #00AABBCC where: • 00 indicates the transparency level (00→FF) • AA is red (00→FF) • BB is green (00→FF) • CC is blue (00→FF)

Property	Description	
VISIBLE	Sets the visibility of the control on the finished display. Click ↓ to view possible options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
	False	The control is **not** visible on the finished display.
	True	The control is visible on the finished display.
ENABLE	Sets if you can change the value of this control on the finished display. Click ↓ to view possible options. Select ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
	False	This control is **read-only** on the finished display.
	True	You can change the value of this control on the finished display.
HEIGHT	Sets the height, in pixels, of the selected control. Click ⤢ to automatically adjust the height based on the data contained in the field. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
WIDTH	Sets the width, in pixels, of the selected control. Click ⤢ to automatically adjust the width based on the data contained in the field. Click ••• open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
X	Sets the horizontal location on the canvas, in pixels, of the selected control. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
Y	Sets the vertical location on the canvas, in pixels, of the selected control. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
Z INDEX	Sets the stack order of the selected control on the canvas. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	

Property	Description
TOOLTIP	Enter a visual tip that appears if you hover your cursor over the control on the display. Click ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.
TEXT STYLE	Sets a text style to use for the selected control. Select ••• to open the TEXT STYLE popup display where you can select a preconfigured text style or create your own. Select ⊕ to define a new text style. Select ✎ to edit the currently selected text style. Select 🗑 to delete the currently selected text style. **Note** Changes to the predefined styles apply to **all** displays in FBxConnect™.
TOOLTIP TEXT STYLE	Sets a text style of the tooltip for the selected control. Select ••• to open the TEXT STYLE popup display where you can select a preconfigured text style or create your own. Select ⊕ to define a new text style. Select ✎ to edit the currently selected text style. Select 🗑 to delete the currently selected text style. **Note** Changes to the predefined styles apply to **all** displays in FBxConnect™.
SELECTION CHANGE	Click ••• to open the SOURCE VIEW popup display and configure an Expression that executes when the value in this control changes.

7.1.17.1 AccordionItem

Contains properties for each individual accordion defined in Accordion.

Property	Description
NAME	Sets an identifier for the selected control. **Note** This identifier is **not** shown on the display.
TYPE	This **read-only** field shows the category of the currently selected control.

Property	Description	
HEADER	Enter text that appears at the top of the tab. Select ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.	
HEIGHT	Sets the height, in pixels, of the selected control. Click ⤢ to automatically adjust the height based on the data contained in the field. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
VISIBLE	Sets the visibility of the control on the finished display. Click ↓ to view possible options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
	False	The control is **not** visible on the finished display.
	True	The control is visible on the finished display.
ENABLE	Sets if you can change the value of this control on the finished display. Click ↓ to view possible options. Select ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
	False	This control is **read-only** on the finished display.
	True	You can change the value of this control on the finished display.

7.1.18 Grid ( )

Adds a grid to the canvas that contains three columns and three rows. You can add or remove columns and rows, and you can configure the data for each cell in the grid. The Grid properties apply to the entire control. To configure the first row of cells, see GridHeader. To configure individual cell properties, see GridCell.

Property	Description	
NAME	Sets an identifier for the selected control. **Note** This identifier is **not** shown on the display.	
TYPE	This **read-only** field shows the category of the currently selected control.	
HEADER TYPE	Sets the placement of header cells in the grid. Click ↓ to view possible options.	
	None	No header cells appear in the grid.
	Both	Header cells appear at the top of each column and on the left side of each row.
	Column	Header cells appear at the top of each column.
	Row	Header cells appear on left side of each row.
ROWS	Sets the number of rows to show in the grid.	
COLUMNS	Sets the number of columns to show in the grid.	
CLEAR	Select to delete all content in the selected control.	
AUTO RESIZE	Select to automatically adjust the size of the grid to the configured grid content.	
TOOLTIP BACKCOLOR	Sets the Hex color code (with transparency) of the background of the tooltip for the selected control. Click ↓ to view the default color options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. Valid codes are in the format #00AABBCC where: • 00 indicates the transparency level (00→FF) • AA is red (00→FF) • BB is green (00→FF) • CC is blue (00→FF)	
VISIBLE	Sets the visibility of the control on the finished display. Click ↓ to view possible options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
	False	The control is **not** visible on the finished display.

Property	Description	
	True	The control is visible on the finished display.
ENABLE	Sets if you can change the value of this control on the finished display. Click ↓ to view possible options. Select ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
	False	This control is **read-only** on the finished display.
	True	You can change the value of this control on the finished display.
HEIGHT	Sets the height, in pixels, of the selected control. Click ⤢ to automatically adjust the height based on the data contained in the field. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
WIDTH	Sets the width, in pixels, of the selected control. Click ⤢ to automatically adjust the width based on the data contained in the field. Click ••• open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
X	Sets the horizontal location on the canvas, in pixels, of the selected control. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
Y	Sets the vertical location on the canvas, in pixels, of the selected control. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
Z INDEX	Sets the stack order of the selected control on the canvas. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
TOOLTIP	Enter a visual tip that appears if you hover your cursor over the control on the display. Click ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.	

Property	Description
HEADER STYLE	Sets a text style to use for the headers in the grid. Select ••• to open the TEXT STYLE popup display where you can select a preconfigured text style or create your own. Select ⊕ to define a new text style. Select ✎ to edit the currently selected text style. Select 🗑 to delete the currently selected text style. **Note** Changes to the predefined styles apply to **all** displays in FBxConnect™.
CELL STYLE	Sets a text style to use for the cells in the grid. Select ••• to open the TEXT STYLE popup display where you can select a preconfigured text style or create your own. Select ⊕ to define a new text style. Select ✎ to edit the currently selected text style. Select 🗑 to delete the currently selected text style. **Note** Changes to the predefined styles apply to **all** displays in FBxConnect™.
TAB INDEX	Enter a zero-based number that corresponds to the tabbing order of focusable controls on the finished display.
TOOLTIP TEXT STYLE	Sets a text style of the tooltip for the selected control. Select ••• to open the TEXT STYLE popup display where you can select a preconfigured text style or create your own. Select ⊕ to define a new text style. Select ✎ to edit the currently selected text style. Select 🗑 to delete the currently selected text style. **Note** Changes to the predefined styles apply to **all** displays in FBxConnect™.

7.1.18.1 GridHeader

GridHeader contains properties for the first row of cells in the Grid. To view these properties, select any one of the cells in the first row of the Grid.

Property	Description	
NAME	Sets an identifier for the selected control. **Note** This identifier is **not** shown on the display.	
TYPE	This **read-only** field shows the category of the currently selected control.	
HEADER	Enter text that appears in the header. Click ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.	
TEXT WRAP	Sets if the text breaks at the edge of the control and starts a new line. Click ↓ to view possible options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
	Wrap	For text wider than the control width, the text breaks at the edge of the control and starts a new line.
	NoWrap	For text wider than the control width, the text does not break at the edge of the control. Text that is wider than the control width is hidden.
HEADER ALIGNMENT	Sets the alignment of the text that appears on the control. Click ↓ to view possible options (Top Left, Top Center, Top Right, Middle Left, Middle Center, Middle Right, Bottom Left, Bottom Center, Bottom Right). Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
CLEAR	Select this button to delete all configured content in the selected control.	
AUTO RESIZE	Adjust the size of the control on the canvas to the content.	

7.1.18.2 GridCell

GridCell contains properties for each individual cell defined in the Grid.

Property	Description	
NAME	Sets an identifier for the selected control. **Note** This identifier is **not** shown on the display.	
TYPE	This **read-only** field shows the category of the currently selected control.	
CONTENT TYPE	Configures the type of data in the selected cell. Your selection in this field determines the remaining available properties. Click ↓ to view possible options.	
	Button	Places a Button control in the selected cell. For a description of the available properties, see Button.
	Checkbox	Places a Checkbox control in the selected cell. For a description of the available properties, see Checkbox.
	ComboBox	Places a ComboBox control in the selected cell. For a description of the available properties, see ComboBox.
	Image	Places an Image control in the selected cell. For a description of the available properties, see Image.
	Label	Places a Label control in the selected cell. For a description of the available properties, see Label.
	NumericUpDown	Places a NumericUpDown control in the selected cell. For a description of the available properties, see NumericUpDown.
	RadioButton	Places a RadioButton control in the selected cell. For a description of the available properties, see RadioButton.

Property	Description	
	TextBox	Places a TextBox control in the selected cell. For a description of the available properties, see TextBox.
CLEAR	Select this button to delete all configured content in the selected control.	

7.1.19 Panel ( )

Adds a scrollable container without a caption to the canvas that can contain additional controls.

Property	Description	
NAME	Sets an identifier for the selected control. **Note** This identifier is **not** shown on the display.	
TYPE	This **read-only** field shows the category of the currently selected control.	
BORDER THICKNESS	Sets, in percent, the thickness of the border of the selected control. Click ... to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.	
VISIBLE	Sets the visibility of the control on the finished display. Click ↓ to view possible options. Click ... to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
	False	The control is **not** visible on the finished display.
	True	The control is visible on the finished display.
ENABLE	Sets if you can change the value of this control on the finished display. Click ↓ to view possible options. Select ... to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	

Property	Description	
	False	This control is **read-only** on the finished display.
	True	You can change the value of this control on the finished display.
HEIGHT	Sets the height, in pixels, of the selected control. Click  to automatically adjust the height based on the data contained in the field. Click  to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
WIDTH	Sets the width, in pixels, of the selected control. Click  to automatically adjust the width based on the data contained in the field. Click  open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
CORNER RADIUS	Sets, in pixels, the roundness of the panel corners.	
X	Sets the horizontal location on the canvas, in pixels, of the selected control. Click  to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
Y	Sets the vertical location on the canvas, in pixels, of the selected control. Click  to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
Z INDEX	Sets the stack order of the selected control on the canvas. Click  to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
TOOLTIP	Enter a visual tip that appears if you hover your cursor over the control on the display. Click  to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.	

Property	Description
TOOLTIP TEXT STYLE	Sets a text style of the tooltip for the selected control. Select ••• to open the TEXT STYLE popup display where you can select a preconfigured text style or create your own. Select ⊕ to define a new text style. Select ✎ to edit the currently selected text style. Select 🗑 to delete the currently selected text style. **Note** Changes to the predefined styles apply to **all** displays in FBxConnect™.
BORDER COLOR	Sets the Hex color code (with transparency) of the border for the selected control. Click ↓ to view the default color options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. Valid codes are in the format #00AABBCC where: • 00 indicates the transparency level (00→FF) • AA is red (00→FF) • BB is green (00→FF) • CC is blue (00→FF)
BACK COLOR	Sets the Hex color code (with transparency) of the background for the selected control. Click ↓ to view the default color options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. Valid codes are in the format #00AABBCC where: • 00 indicates the transparency level (00→FF) • AA is red (00→FF) • BB is green (00→FF) • CC is blue (00→FF)

Property	Description
TOOLTIP BACKCOLOR	Sets the Hex color code (with transparency) of the background of the tooltip for the selected control. Click to view the default color options. Click to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. Valid codes are in the format #00AABBCC where: • 00 indicates the transparency level (00→FF) • AA is red (00→FF) • BB is green (00→FF) • CC is blue (00→FF)
CLICK	Click to open the SOURCE VIEW popup display and configure an Expression or Variable that executes when the panel is clicked on the finished display.
ENTER	Click to open the SOURCE VIEW popup display and configure an Expression or Variable that executes when the panel gains focus on the finished display.
LEAVE	Click to open the SOURCE VIEW popup display and configure an Expression or Variable that executes when the panel loses focus on the finished display.

7.1.20 TreeNode ( )

Adds a check box (node) for an object to the canvas and additional subordinate check boxes (child nodes) for all instances of the selected object.

Property	Description
NAME	Sets an identifier for the selected control. **Note** This identifier is **not** shown on the display.
TYPE	This **read-only** field shows the category of the currently selected control.

Property	Description
OBJECT	Sets the object from the device database to associate with this control. Click ••• to open the SOURCE VIEW popup display and select an OPI.
BACK COLOR	Sets the Hex color code (with transparency) of the background for the selected control. Click ↓ to view the default color options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. Valid codes are in the format #00AABBCC where: • 00 indicates the transparency level (00→FF) • AA is red (00→FF) • BB is green (00→FF) • CC is blue (00→FF)
TOOLTIP BACKCOLOR	Sets the Hex color code (with transparency) of the background of the tooltip for the selected control. Click ↓ to view the default color options. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property. Valid codes are in the format #00AABBCC where: • 00 indicates the transparency level (00→FF) • AA is red (00→FF) • BB is green (00→FF) • CC is blue (00→FF)
X	Sets the horizontal location on the canvas, in pixels, of the selected control. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.
Y	Sets the vertical location on the canvas, in pixels, of the selected control. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.
HEIGHT	Sets the height, in pixels, of the selected control. Click ⤢ to automatically adjust the height based on the data contained in the field. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.

Property	Description	
WIDTH	Sets the width, in pixels, of the selected control. Click to automatically adjust the width based on the data contained in the field. Click open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
Z INDEX	Sets the stack order of the selected control on the canvas. Click to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
TOOLTIP	Enter a visual tip that appears if you hover your cursor over the control on the display. Click to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.	
VISIBLE	Sets the visibility of the control on the finished display. Click to view possible options. Click to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
	False	The control is **not** visible on the finished display.
	True	The control is visible on the finished display.
ENABLE	Sets if you can change the value of this control on the finished display. Click to view possible options. Select to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
	True	You can change the value of this control on the finished display.
	False	This control is **read-only** on the finished display.
TEXT STYLE	Sets a text style to use for the selected control. Select to open the TEXT STYLE popup display where you can select a preconfigured text style or create your own. Select to define a new text style. Select to edit the currently selected text style. Select to delete the currently selected text style. **Note** Changes to the predefined styles apply to **all** displays in FBxConnect™.	

Property	Description
TOOLTIP TEXT STYLE	Sets a text style of the tooltip for the selected control. Select ••• to open the TEXT STYLE popup display where you can select a preconfigured text style or create your own. Select ⊕ to define a new text style. Select ✎ to edit the currently selected text style. Select 🗑 to delete the currently selected text style. **Note** Changes to the predefined styles apply to **all** displays in FBxConnect™.

7.1.21 TimePicker ( )

Adds a time selector to the canvas with a NumericUpDown control to set the hours, minutes, and seconds.

Property	Description
NAME	Sets an identifier for the selected control. **Note** This identifier is **not** shown on the display.
TYPE	This **read-only** field shows the category of the currently selected control.
HOURS	Sets the hour shown on the finished display. Click ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.
MINS	Sets the minute shown on the finished display. Click ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.
SECS	Sets the second shown on the finished display. Click ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.

Property	Description
TIME FORMAT	Sets the 12-hour time period (AM or PM) shown on the finished display. Click ↓ to view possible options. Click ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property. **Note** This field applies **only** if you select **Twelve** in the HOURS FORMAT field.
HOURS FORMAT	Sets the format of the hours (12 or 24) shown on the finished display. Click ↓ to view possible options. Click ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.
X	Sets the horizontal location on the canvas, in pixels, of the selected control. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.
Y	Sets the vertical location on the canvas, in pixels, of the selected control. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.
HEIGHT	Sets the height, in pixels, of the selected control. Click ⤢ to automatically adjust the height based on the data contained in the field. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.
WIDTH	Sets the width, in pixels, of the selected control. Click ⤢ to automatically adjust the width based on the data contained in the field. Click ••• open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.
Z INDEX	Sets the stack order of the selected control on the canvas. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.
TOOLTIP	Enter a visual tip that appears if you hover your cursor over the control on the display. Click ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.

Property	Description	
VISIBLE	Sets the visibility of the control on the finished display. Click  to view possible options. Click  to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
	False	The control is **not** visible on the finished display.
	True	The control is visible on the finished display.
ENABLE	Sets if you can change the value of this control on the finished display. Click  to view possible options. Select  to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
	False	This control is **read-only** on the finished display.
	True	You can change the value of this control on the finished display.
TEXT STYLE	Sets a text style to use for the selected control. Select  to open the TEXT STYLE popup display where you can select a preconfigured text style or create your own. Select  to define a new text style. Select  to edit the currently selected text style. Select  to delete the currently selected text style. **Note** Changes to the predefined styles apply to **all** displays in FBxConnect™.	

7.1.22 DatePicker ()

Adds a date selector to the canvas that shows the month, day, and year and an icon that opens an interactive calendar to choose a date.

Property	Description
NAME	Sets an identifier for the selected control. **Note** This identifier is **not** shown on the display.

Property	Description	
TYPE	This **read-only** field shows the category of the currently selected control.	
DAY	Sets the numerical day shown on the finished display. Click ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.	
MONTH	Sets the month shown on the finished display. Click ↓ to view possible options. Click ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property	
YEAR	Sets the year shown on the finished display. Click ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.	
DATE FORMAT	Set how the date is shown on the finished display. Click ↓ to view possible options. Click ••• to open the SOURCE VIEW popup display and configure an OPI, Expression, Data Source, or Variable that writes a value to this property.	
	Short	The date is shown as MM/DD/YY.
	Long	The date is shown as DAY OF WEEK, MONTH, DAY, FOUR-DIGIT YEAR.
X	Sets the horizontal location on the canvas, in pixels, of the selected control. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
Y	Sets the vertical location on the canvas, in pixels, of the selected control. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
HEIGHT	Sets the height, in pixels, of the selected control. Click ⤢ to automatically adjust the height based on the data contained in the field. Click ••• to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	

Property	Description	
WIDTH	Sets the width, in pixels, of the selected control. Click  to automatically adjust the width based on the data contained in the field. Click  open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
VISIBLE	Sets the visibility of the control on the finished display. Click  to view possible options. Click  to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
	False	The control is **not** visible on the finished display.
	True	The control is visible on the finished display.
ENABLE	Sets if you can change the value of this control on the finished display. Click  to view possible options. Select  to open the SOURCE VIEW popup display and configure an Expression or Variable that writes a value to this property.	
	False	This control is **read-only** on the finished display.
	True	You can change the value of this control on the finished display.

7.2 Common Functions

Below is a list of common functions used when writing expressions for displays in FBxVue.

7.2.1.1 BuildDBObjects

Description: Adds objects to the database when opening a display.

Data Type: void

Arguments: an array of strings

Example: `StandardMethods.BuildDBObjects(new string[] {"System_","User Data_"});`

7.2.1.2 CloseAllPopup

Description: Close all open popup windows.

Data Type: void

Arguments: none

Example: **StandardMethods**.**CloseAllPopup**();

7.2.1.3 ClosePopup

Description: Close a single popup window.

Data Type: void

Arguments:

- string displayName – Filename of popup window to close.

Example: **StandardMethods**.**ClosePopup**("popup1");

7.2.1.4 ForcePollParams

Description: Collect parameters to properly format and render display controls.

Data Type: void

Arguments: array of strings and tables

Example:

```
StandardMethods.ForcePollParms(new string[]
{
 "Mtr Setup_1.NUM%",
 "Mtr Setup_1.MAX_MTRS"
}, Table.INTEGER);

// Get number of meters
int maxMeters = int.Parse(StandardMethods.ReadParmAttr("Mtr Setup_1.MAX_MTRS",
Table.INTEGER, "value", -1, false));
int numGasDPMtr = int.Parse(StandardMethods.ReadParmAttr("Mtr
Setup_1.NUM_DPMTRS", Table.INTEGER, "value", -1, false));
int numGasLinearMtr = int.Parse(StandardMethods.ReadParmAttr("Mtr
Setup_1.NUM_LINMTRS", Table.INTEGER, "value", -1, false));
```

7.2.1.5 Get

Description: To get property value of the control .

Data Type: object

Event/Non Event: Non Event

Arguments:

- controlName – Name of control to get value
- property – Name of the property
- index(optional parameter) – index of Band for Gauge control(for getting limit and color property)

Example 1: **DisplayControls.GetValue**("chk_FCALC_ALM_1",ControlProperties.Title);

Example 2: **DisplayControls.SetValue**("gug_1",ControlProperties.Limit,3);

Example 3: **DisplayControls.SetValue**("gug_1",ControlProperties.Color,2);

7.2.1.6 LoadDisplay

Description: Load display based on display filename.

Data Type: bool – true if successful

Arguments:

- string displayfile – name of the display to load
- string instance – name of the object instance to load
- bool isInstanceEnabled – enable/disable instance combo box
- object alias – internal use only
- bool isInstanceVisible - enable/disable visibility of the instance combo box

Example 1: return **StandardMethods.LoadDisplay**("sampledisplay", "User Data_1", **true**, **null**, **true**);

Example 2: **StandardMethods.LoadDisplay**("sampledisplay", "User Data_1", **true**, **null**, **true**);

Note

- If the display developer is not concerned whether or not the display was loaded, they can set the SOURCE VIEW DATA TYPE to "void" and just call the method LoadDisplay.
- The display to be opened must have an OBJECT defined. The OBJECT property dictates the instances in the dropdown list (whether they are needed or not).

7.2.1.7 OpenLink

Description: Open the link, it might be file or browser.

Data Type: void

Arguments:

- string link – link to open

Example: `StandardMethods.OpenLink("https://www.emerson.com/");`

7.2.1.8 OpenPopup

Description: Open a popup display.

Data Type: void

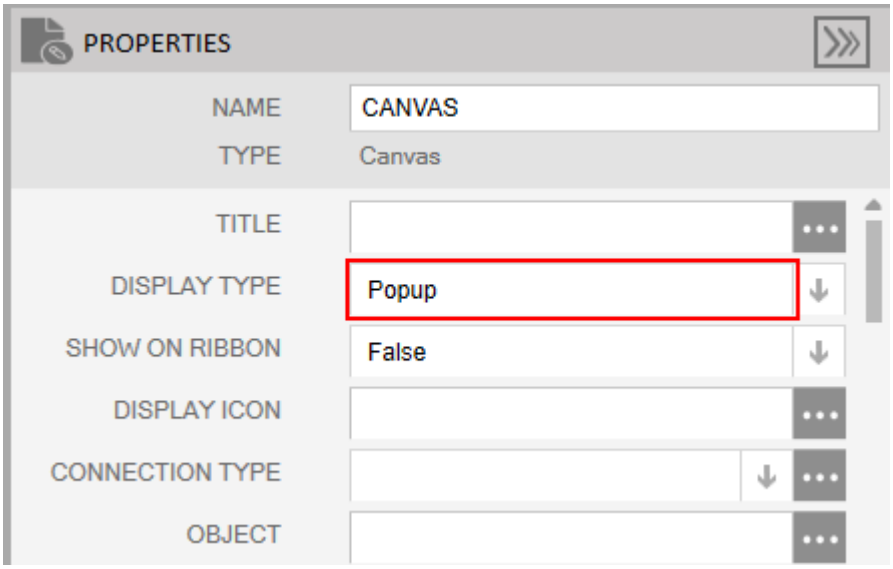
Arguments:

- string displayName – name of the display to load
- string opiInstance – name of the object instance to load
- bool isInstanceEnabled – enable/disable instance combo box
- object alias – internal use only

Example: `StandardMethods.OpenPopup("popup1");`

Note

Popup displays must be configured with the DISPLAY TYPE property set to "Popup."



7.2.1.9 Refresh

Description: Refresh the values in the display.

Data Type: bool – true if successful

Arguments: none

Example: return **StandardMethods**.**Refresh**();

7.2.1.10 Save

Description: Save the dirty values on the display.

Data Type: bool – true if successful

Arguments: none

Example: return **StandardMethods**.**Save**();

7.2.1.11 Set

Description: To get property value of the control .

Data Type: object

Event/Non Event: Non Event

Arguments:

- controlName – Name of control to get value
- property – Name of the property
- index(optional parameter) – Index of Band for Gauge control(for getting limit and color property)

Example 1: `DisplayControls.GetValue("chk_FCALC_ALM_1",ControlProperties.Title);`

Example 2: `DisplayControls.SetValue("gug_1",ControlProperties.Limit,3);`

Example 3: `DisplayControls.SetValue("gug_1",ControlProperties.Color,2);`

7.2.1.12 SetDecimalPlaces

Description: Sets the number of decimal places for a given units type

Data Type: void

Arguments:

- string unitsType – units type to set decimal places
- int iDecimalPlaces – number of decimal places when displaying values with these units

Example: `StandardMethods.SetDecimalPlaces(string unitsType, int iDecimalPlaces)`

7.2.1.13 ShowNotification

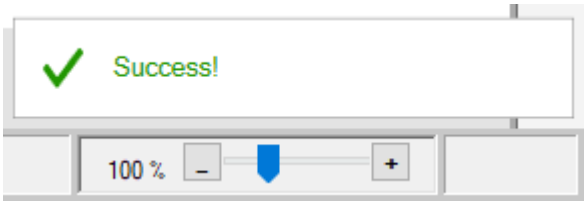
Description: Showing notification to UI for the duration passed

Data Type: void

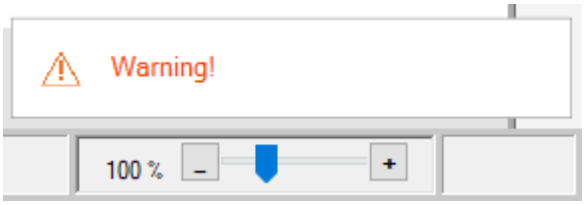
Arguments:

- string text – Text to display
- Notification type – ICON style to display
  - Success
  - Warning
  - Error
- int duration – how long to display [OPTIONAL]
- bool isOverlay – internal use

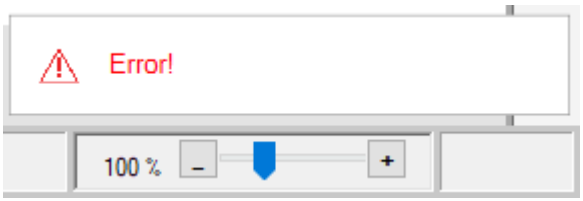
Example 1: **StandardMethods.ShowNotification**("Success!", Notification.Success);



Example 2: **StandardMethods.ShowNotification**("Warning!", Notification.Warning);



Example 3: **StandardMethods.ShowNotification**("Error!", Notification.Error);



7.2.1.14 ShowProgress

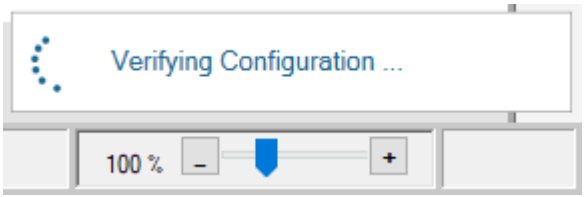
Description: Show the progress message with an animated glyph. Typically used during long-running processes where the end is not known.

Data Type: void

Arguments:

- string text – text to show in progress bar
- bool isOverlay – internal use

Example: **StandardMethods.ShowProgress**("Verifying Configuration ..."");



Note

- The method can be called more than once if they want the end user to be updated throughout a known process. For example, a display developer can keep calling it with difference messages to be displayed.
- This type of notification remains until the display developer hides it with: **StandardMethods.HideProgress**();

7.2.1.15 UserRoleInstance

Description: Gets a property based on the role for the user currently signed on to the device. Where 1 = Admin, 2 = Engineer, 3 = Measurement Tech, 4 = Operator, 5 = Auditor. A value of 0 indicates an offline (configuration) session.

Data Type: Uint

Arguments: None

Example: **StandardMethods**.UserRoleInstance > 2) {return **true**;} **else** {return **false**;}

Note

Use this property in an expression that returns a bool for the ENABLE field to determine if a control is editable based on the user's assigned role.

7.2.1.16 WriteOPI

Description: Writes a new value to a parameter.

Data Type: void

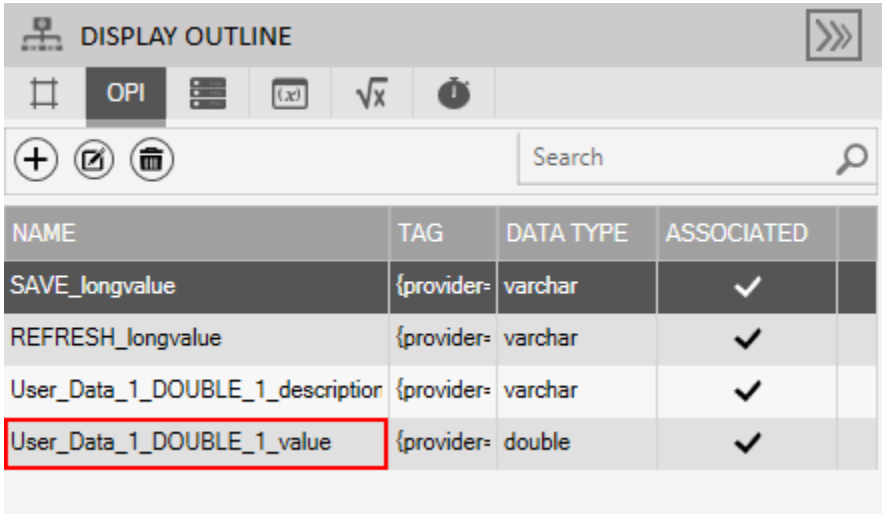
Arguments:

- string – opiName
- object – value

Example: **StandardMethods.WriteOPI**("User_Data_1_DOUBLE_1_value", 1.234);

Note

- The OPI must have already been added to the display.



- This method cannot be used in an OnLoad expression or any expression called by OnLoad. OPIs are not processed until after the display loads.

7.2.1.17 WriteParmAttr

Description: Writes a new value to a parameter attribute.

Data Type: bool

Arguments:

- string parameter
- Table olympusTable
  - Depending on the target parameter's datatype, the appropriate internal database table can be one of the following:
    - Table.REAL – Floats and Doubles
    - Table.INTEGER – Bytes, Integers, BIN, ENUM
    - Table.VARCHAR – strings (all lengths)
- string attribute

  - In nearly all cases, the only writeable attribute a display developer should be using is “value”. Nearly all other attributes are R/O. Anything other than “value” should be considered for internal use only.

- object value

Example 1: return **StandardMethods**.**WriteParmAttr**("User Data_1.DOUBLE_1", Table.REAL, "value", 1.234);

Example 2: return **StandardMethods**.**WriteParmAttr**("User Data_1.BYTE_1", Table.INTEGER, "value", 1);

Example 3: return **StandardMethods**.**WriteParmAttr**("User Data_1.DESC", Table.INTEGER, "value", 1);

Note

The Data Type can be void if the display developer is not concerned with success or failure of WriteParmAttr. In that case, change the dropdown in the expression editor to “void” and remove the “return” in the code snippet example above.

7.2.1.18 WriteParmValue

Description: Writes a new value to a parameter.

Data Type: bool

Arguments:

- string parameter – formatted like “User Data_1.DOUBLE_4”
- Table olympusTable
  - Depending on the target parameter’s datatype, the appropriate internal database table can be one of the following:
    - Table.REAL – Floats and Doubles
    - Table.INTEGER – Bytes, Integers, BIN, ENUM
- Table.VARCHAR – strings (all lengths)
- object - value

Example 1: **StandardMethods**.**WriteParmValue**("User Data_1.DOUBLE_4", Table.REAL, 1.234);

Example 2: **StandardMethods**.**WriteParmValue**("User Data_1.DESC", Table.VARCHAR, “Meter 1”);

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