Bindings (PA)

This page covers bindings for Project Assist 2.0, version 10, for facilities. For DGLux5 bindings, see Bindings.

As part of configuring the objects in your pages and templates, you create *bindings*. You create a binding by dragging a *binding source* and dropping it on a *binding target*.

Binding Sources

You find binding sources in the *Project Assist Binding Dialog*. The Binding Dialog is not available in the **Image** tab of the Page Editor. The following image shows the Binding Dialog.

The Binding Dialog contains three tabs that hold the following four kinds of binding sources:

Source Type	Description
Points (Templates only)	Represents a relativized data metric available to this template. See Device Templates and Relativization. This binding retrieves a metric that is determined by the template instance. Auto action: Data Action List.
Project Tree non-device nodes	Represents a page or module in this project. This binding retrieves a project path. Auto action: Navigation.
Project Tree device nodes	Represents a device in this project. This binding retrieves a project path that is determined by the template instance and a metric that is determined by the layer. See also: Device Templates and Relativization, Layers. Auto action: Data Action List.
Data	Represents an absolute path in the data source. Retrieves a data node. Auto action: Data Action List.

Binding Targets

Binding targets can be divided into the following three categories:

Target type	Description
Single Metric	Includes zones and callouts, except for the Node List callout. These targets hold multiple pieces of information about one metric. A new Single Metric binding overrides the old one.
Series Metric	Includes charts, gauges, and Node List callouts. These targets have series; they hold multiple pieces of information about one or more metrics. A new Series Metric binding adds another series. See also: How to Work with Series.
Property	Includes any single property of an object. These targets determine a single property based on a single piece of information. If the target is an object, the binding source value determines the value of the object's default property. If the target is a property, the binding source value determines the value of that particular property. Conversion bindings can be created with this kind of binding target.

Typical Binding Behavior

Generally, a binding retrieves information from the source, displays that information in the target, and creates a default action called an Auto action.

You can override default actions by using custom actions. See Actions.

The following image shows an example of a Node List callout that has five metrics bound to it. The Node List callout displays metric information, and clicking a node list item invokes the default action type.

The following image demonstrates an example of a binding. Because the binding in this image has a Point source, this binding retrieves the **Damper_Position** metric for the currently open template and creates a Data Action List action. Because the binding in this image has a Property target, the metric value affects the HVAC tile's default property.

The following image demonstrates another binding example. Because this binding has a Point source, this binding will retrieve information for the currently open template, and a Data Action List action is created. Because this binding has a Series Metric target, the metric will be added as a series.

Conversion Bindings

If the binding target is in the **Property** category, you can optionally change that binding to a *conversion binding*. In a conversion binding, the target value is determined as the result of performing calculation, formatting, or mapping on the source value.

A binding that can be changed to a conversion binding is surrounded by a blue rectangle in the Project Assist Property Inspector, as shown in the following image.



How to Open and Close the Binding Dialog or Property Inspector

The Project Assist Binding Dialog is not available in the  **Image** tab of the Page Editor.

The following interactions open or close the Property Inspector. See also: Object Properties.

- Right-click the selected object, and choose **Edit Properties**.
- With the object selected, toggle the  **Properties** icon in the toolbar.

Note

To display the properties for a different object, you can keep the Project Assist Property Inspector open and select different objects.

The following interactions open or close the Binding Dialog. See also: Object Properties.

- Right-click the selected object, and choose **Bind Data**.
- With the object selected, toggle the  **Binding Dialog** icon in the toolbar.

How to Create a Drag-and-Drop Binding

See also: Binding Sources, Binding Targets

To create a drag-and-drop binding:

1. If this is a page, choose a layer group tab, or leave the layer group as **Default**. See Layers.

2. In the Project Assist Binding Dialog, select the **Points**, **Project**, or **Data** tab.
3. Drag the binding source, and drop it on the binding target.

   The binding has been created. You can click **Preview** in the toolbar to preview it.

The following image demonstrates dragging a binding source to a binding target.

How to Change a Drag-and-Drop Binding into a Conversion Binding

You can change any drag-and-drop binding into a conversion binding, except for bindings where the target is a zone, chart, gauge, or callout. In other words, any binding where the target is of the Property type can be changed to a conversion binding.

To create a conversion binding, first you must create a drag-and-drop binding as described above.

To change a binding into a conversion binding:

1. In the Project Assist Property Inspector, click the blue dot next to the property, as shown in the following image.

   This opens the Conversion Binding popup window.
2. In the Conversion Binding popup window, specify the following:
   - **Input Field**—This input field is an aspect of the binding source, such as name, status, or value.
   - **Conversion**—A conversion type. See Conversion Binding Types.
   - **The required information for the conversion type**—Each type of conversion binding requires different information. See Conversion Binding Types.
3. Close the Project Assist Property Inspector.

   The conversion binding is created.

Conversion Binding Types

The following are the possible types of conversion bindings:

- **None**—No conversion is used. The binding target equals the binding source.
- **Value Map**—The binding compares the source value to one or more **Input** values in order from top to bottom, until it encounters a true statement. Then, it returns the **Output** associated with the true statement. If none of the statements is true, it returns the **Default** value.

  The following image shows an example of a Value Map conversion. In this example, the zone is green if the source value is true, then red if the source value is false, and then black if the source value is neither true nor false.

  

  Note

  For numbers, a Value Map conversion evaluates whether the source value is less than or equal to each **Input** value. For other data types, a Value Map conversion checks whether the source value is equal to each **Input** value.

  To create a Value Map conversion, you must define the following: **Input Field**, **Inputs**, **Outputs**, and **Default**. To add more **Inputs** and **Outputs**, click the green dot. To delete an Input and Output pair, click the red dot.

- **Expression**—A custom expression determines the string that displays the value. The expression can include a number formatting string within square brackets. See Scripting and Syntax. The expression can also include other strings, such as unit names. To create an Expression conversion, you must define the following: **Input Field** and **Expression**.

  The following image shows an example of an Expression conversion.

  

  An Expression conversion can also call the value of other key/value pairs associated with this metric. For example, to call the status, use `[status]`. The following can be called:

  - `status`
  - `formattedValue`
  - `updateTime`
  - `valueName`
  - `type`
  - `icon`
  - `path`
  - `point`

- `meta`
- `value`
- `vFormatted`
- `vTooltip`
- `status`
- `update` (DVR time or the last update time)

- **Number Offset**—The target value is calculated based on the source value, an operator, and a number. To create a Number Offset conversion, you must define the following: **Input Field**, **Offset**, and **Offset Val**.

  The following image shows an example of a Number Offset conversion. In this example, the gauge maximum is set as the current value plus 20.

  

- **Number Scale**—Based on the source value's relationship to a scale, the target value is calculated as the corresponding value on a different scale. To create a Number Scale conversion, you must define the following: **Input Field**, **Input Min** and **Max**, and **Output Min** and **Max**.
- **Gradient Scale**—Based on the source value's relationship to a scale, the target value is calculated as the corresponding value on a color gradient. To create a Gradient Scale conversion, you must define the following: **Input Field**, **Input Min** and **Max**, and **Gradient**.

Conversion Binding Properties

The following are properties that you configure as part of a conversion binding.

Property	Relevant Bindings	Purpose
Input Field	All	Specifies the aspect of the input data metric that is used for the binding. For example, this might be Status, Value, or Name.
Binding Path	All	Specifies the absolute path to the data metric. For templates, if the original binding source is a Point, then when you edit the **Binding Path** property you change the binding source to an absolute location.
Conversion	All	Specifies the type of conversion.
Inputs	Value Map	Specifies each test value to compare with the source value.
Outputs	Value Map	Specifies each value to assign to the target if the expression with the corresponding **Input** evaluates to TRUE.
Default	Value Map	Specifies a value to assign to the target if none of the expressions evaluate to TRUE.

Property	Relevant Bindings	Purpose
Expression	Expression	Specifies the string to use to format the source value. This creates the target value as a formatted string. The **Expression** can include a number format pattern. See Scripting and Syntax. The **Expression** can also include other strings, such as units. Number format patterns must be in square brackets ([]). The string value enclosed in square brackets becomes the exact source value, as a string.
Offset	Number Offset	Specifies the offset operator that is used to modify the target value. The value of the Offset property can be one of the following: • **add**—The source value and **Offset Value** property are added together. • **subtract**—The **Offset Value** property is subtracted from the source value. • **multiply**—The source value and **Offset Value** property are multiplied together. • **divide**—The source value is divided by the **Offset Value** property. A decimal value is returned.
Offset Val	Number Offset	Specifies the number that is used to modify the target value.
Input Min	Number Scale, Gradient Scale	Specifies the lower bound of the original scale.
Input Max	Number Scale, Gradient Scale	Specifies the upper bound of the original scale.
Output Min	Number Scale	Specifies the lower bound of the new scale.
Output Max	Number Scale	Specifies the upper bound of the new scale.
Gradient	Number Scale	Determines the colors for a gradient. To add colors, click below the track in the dialog box. To delete colors, right-click them in the dialog box.

How to Preview a Binding

To view tooltips that indicate the sources of all bindings, and to preview user interactions with target objects, you can preview the page or template. See How to Begin Previewing Content.

How to Delete a Binding

To delete a series, see How to Work with Series.

You can’t delete a binding to a Single Metric binding target. Instead, you can replace the old binding with a new one.

To delete other bindings:

1. Click the blue dot next to the property.

   This opens the Conversion Binding popup window.

2. In the popup window, click **Unbind**.

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