

Application Note #1175: Objects Over Graphs in GP-Pro EX

Problem:

During runtime "Parts" such as Graphs that have objects such as text placed in front of them may not appear in the same relative position between the foreground and background as they were in the GP-Pro EX editor. "Parts such as graphs may appear in front of some or all of those objects.

Examples of Affected Parts:

Graph
Historical Trend Graph
Data Block Display Graph
XY Scatter Graph
Alarm

Explanation:

By default GP-Pro uses built-in layer handling during runtime to improve performance. When animation is not used on a Screen the built-in layer handling places Graphs and similar "Parts" in the foreground. Screen objects can be moved forward to be displayed in front of "Parts" such as Graphs when animation or a "Layer Separator" is used on the screen.

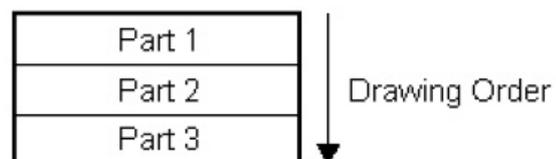
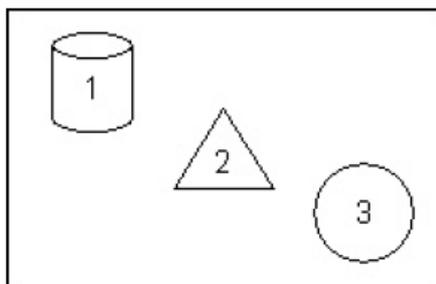
About layers:

A concept of the base layer and front layer is generated, which are to separate objects in the drawing order, from the first part or drawing is set up with Animation, and the rest of the parts and drawings. Likening it to celluloid animation, the base layers are the "background" and the front layers are "characters" performing on it.

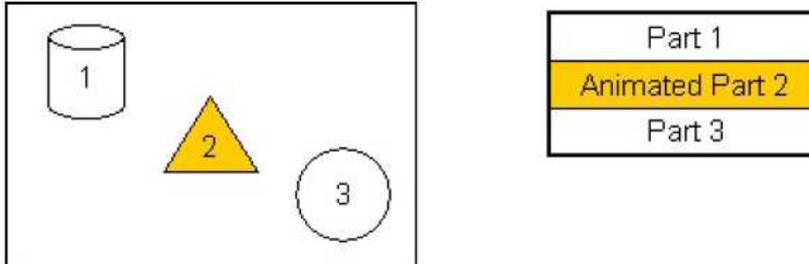
Note: Selecting a transparent background for an object is also animation.

When you set the first Animation on any object, a part called "Layer Separator" is created to separate the base layer and the front layer. Objects placed after the object on which Animation has been set are all placed on the front layer even if Animation is not set on them. The Layer Separator is invisible on the screen editor because it is a part that is processed internally.

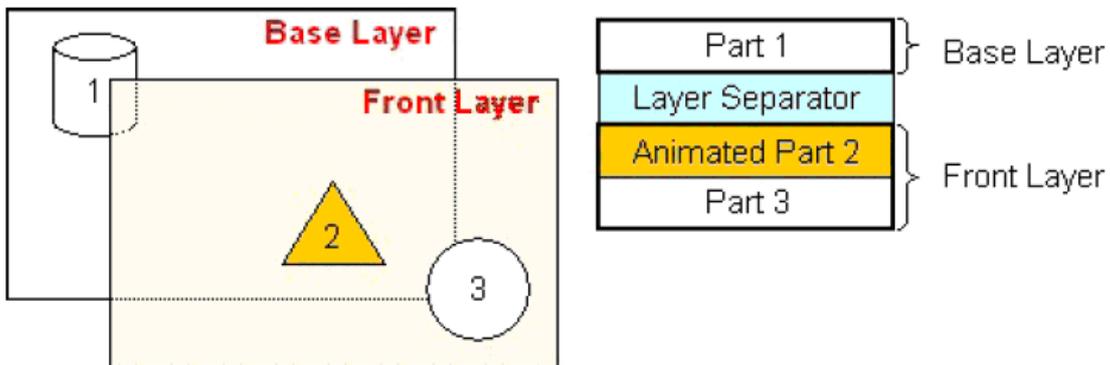
1. Place the Part 1, 2, and 3 on a base screen in order.



2. Set Animation on the Part 2



3. The base layer and the front layer separated by the Layer Separator is created. The Part 2 and the Part 3 which has been placed after it move to the front layer.



A Layer Separator can also be established on a screen by the user by enabling GP-Pro “Expert Mode” and selecting Adjust Layer. Using this method an object labeled "Layer Separator" appears in the Screen Data List. This method is used to make it possible to place objects in front of a "Part" when the Screen does not include animation.

About Headers and Footers:

When adding animation or a transparent background to an object in the header/footer all objects on the base screen that uses the header/footer will appear on the front layer.

About Call Screens:

When adding animation or a transparent background to an object in a Call Screen all objects on the base screen in front of the Call Screen will appear on the front layer.

When How to Place Objects such as Text in Front of Parts Such as Graphs:

Look at the Screen Data List to find the Layer Separator.

1> Does "Layer Separator" appear on the list? If so it takes precedence over animation objects and is the Layer Separator.

2> If not, do any animation objects exist on the Screen? Animation objects include:

a) Any object in the Screen Data List with an Icon in the Animation column.

b) Any Data Displays or object with a transparent background.

If any exist then the layer separator is directly above the first animation object.

3> If neither a Layer Separator or animation exist, the screen does not have front and base layers. In that case establish a layer separator as described in the section below titled "Expert Mode".

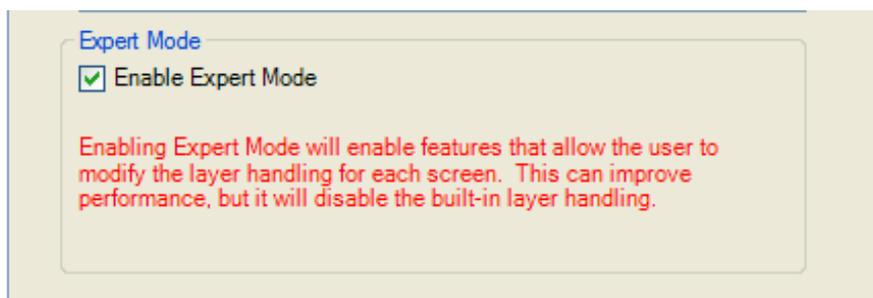
4> Once you have located the layer separator Move the text or other object down the Screen Data List until it is in the front layer (below the layer separator.)

If you place too many objects on the front layer, display performances can get low. Moving the objects, on which Animation is not set, from the front layer to the base layer allows the performances to improve.

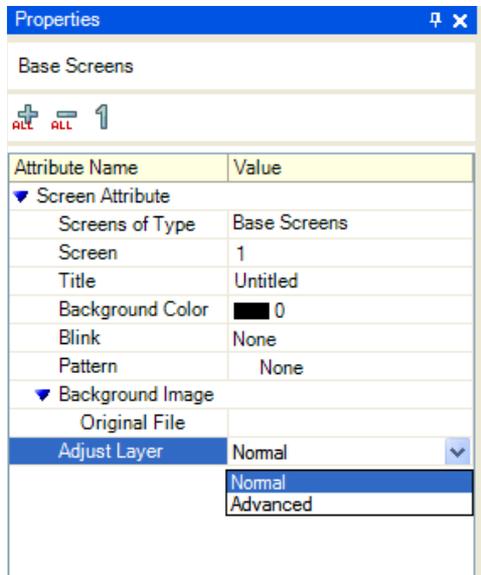
Expert Mode:

Follow the steps below to edit in Expert Mode.

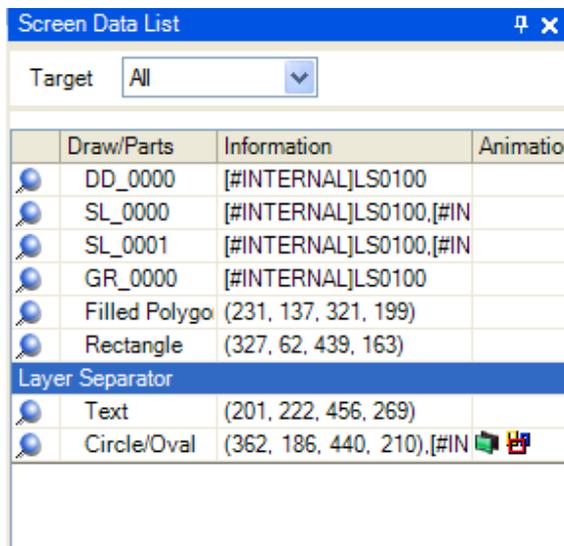
1> From the [Project] menu, point to [Information] and then click [Project Information]. Select [File Information], and in the [Expert Mode] area select the [Enable Expert Mode] check box.



2 > From the [View (V)] menu, point to [Work Space (W)] and click [Properties (P)]. Select the Base Screen. In the [Properties] dialog box, expand [Background Image] and set [Adjust Layer] to [Advanced].



3 > From the [View (V)] menu, point to [Work Space (W)] and click [Screen Data List (L)]. The layer separator is displayed between the base layer and front layer objects.



In the figure above the Layer Separator was moved above the Text on the list so the Text will appear in front of the Graph (GR_0000) during runtime.

The Expert Mode is a feature that allows you to change the position of the layer separator, the interface between the base layer and the front layer, and to move an object to another layer by hand. An example of use could be putting animation on the base layer of an object when the display speed is slow because of too many objects on the front layer.

Historical Trend Graphs:

When using a graph with no shape on base screen 9000 or higher, drawing is normally done in the following order:

1. Graph Area Color
2. Drawings such as Grid Lines or a Rectangle
3. Graph trend lines

To draw the graph in this order the graph must also be above (behind) the animation layer.

For more information about historical trend graphs see the GP-Pro EX manual section 19.17.2 Restrictions for Historical Trend Graphs

Note: When animation is run on the base layer behind Parts or objects a change of animation state may redraw a rectangular area over them when the animation state changes.

References: For additional information see:

- GP-Pro EX reference Manual > section 21.8 About Object Position and the Layer Separator When Setting Up Animation
- GP-Pro EX manual section 19.17.2 Restrictions for Historical Trend Graphs
- Otasuke Pro! > FAQ > GP3000 > What are the base layer and the front layer?
http://www.hmisource.com/otasuke/qa/3000/animation08_e.html

For more information on Pro-face and our full line of HMI, Operator Interface and Industrial PC products please visit our web site at www.profaceamerica.com.

For technical support email: support@profaceamerica.com or call: 800.289.9266.

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