GraphWorX64
2D Controls Quick Start

APPLICATION NOTE

October 2015

Description: Guide to using a selection of the 2D controls available in GraphWorX64.

Introduction

In addition to the existing viewer controls, GraphWorX64 has some other powerful controls. The two highlighted in this Application Note are the Scale and Pipe Controls. These controls can help simplify what can be a tedious process and drastically reduce development time.

Figure 1 - Controls ribbon highlighting the Scale, Pipe, and Video Controls

In this Application Note, we will go over the basic functionality and some useful tips for these controls.

Scale Control

Some of the more difficult aspects of designing a gauge or scale can include evenly spacing the tick marks, adjusting the numbering, and creating a precise arc if necessary. With the use of the Scale Control, these hurdles no longer apply.

Let us explore the Scale Control through an example:

1. Open a GraphWorX64 Display from Start → All Programs → ICONICS → GENESIS64 → GraphWorX64 → GraphWorX64.
2. Select Controls and then the Scale Control.
3. Click and drag anywhere on the display to create a new Scale Control.

   NOTE: Depending on the overall shape of the rectangle you drew to create the Scale Control, it will have either created a Vertical Scale Type if you drew a tall rectangle, Horizontal Scale Type if you drew a wide rectangle, or Radial Scale Type if you drew a square shaped rectangle. The Scale Type can be changed at any time after creation.

4. If it is not already a Vertical Scale Type, you may change the **ScaleType** property to **Vertical** by selecting the Scale Control and selecting the **Properties** tab. Notice that when you resize the Scale Control all of the Tick marks remain proportional.
5. In the properties of the Scale Control, change the **MajorDivisions** property, located in the Scale category, from 5 to 10.
6. Draw a **Polygon** to represent an arrow and place it to the right of the scale. Give it some color if you wish.
7. Add a **Location** Dynamic to the Polygon so that it starts at the bottom and ends at the top of the scale as shown in Figure 2.

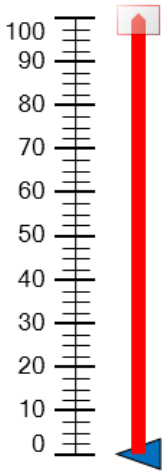

Figure 2 - Scale Control and polygon with Location Dynamic

8. Set the DataSource of the new Location Dynamic to **localsim:ramp**. This tag can be found under the Simulation tab in the Data Browser.
9. Enter **Runtime** mode and view the arrow move up the scale as it corresponds to the ramp simulation signal.

Pipe Control

Similar to the Scale Control, the Pipe Control has simplified the task of designing a unified pipe system, including joints and end caps.

1. Open a GraphWorX64 Display from Start → All Programs → ICONICS → GENESIS64 → GraphWorX64 → GraphWorX64.
2. Select **Controls** and then the **Pipe Control**.
3. **Click and drag** anywhere on the display to create a new Pipe Control.

   NOTE: Depending on the overall shape of the rectangle you drew to create the Pipe Control, it will have either created a Vertical Pipe if you drew a tall rectangle or a Horizontal Pipe if you drew a wide rectangle. The orientation can be changed once it has been created.

4. Double-click on your new Pipe Control and you will see a red line with a white box at the beginning and end of the pipe as shown in Figure 3.

Figure 3 - Editing the Pipe Control's Vertices

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5. You should now able to add new vertices by clicking anywhere along the red line and dragging the new vertex as needed. This behaves similarly to the location dynamic.
6. After you have created some additional vertices, you can see how they smoothly blend together to form one pipe.
7. Go to the **Properties** of the Pipe Control. In the **Pipe** category, change the **StartCap** and **EndCap** from Flat to Round. The ends should now have rounded tips. Placing a Pipe Control below this one can give off the impression that the top one bends into the bottom one.

Figure 4 - Rounded end pipes on top of one another

8. Place an **Ellipse** object on one end of the pipe.
9. Add a **Location** Dynamic to the new Ellipse object. You do not need to specify a path at this time.
10. **Select** the Ellipse and then the Pipe Control using the **Shift** key and selecting them from the Object Explorer or display.
11. Right-click on them and you will see a **Copy Path To Dynamic Location** option.
12. It may not be apparent at this time what has just occurred, but if you select the Ellipse's Location Dynamic and click **Edit Dynamic On-Screen** at the bottom of the Properties window you will see something similar to Figure 5.

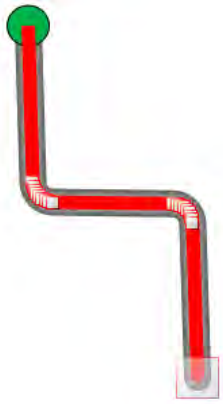

Figure 5 - Location Dynamic Mapped to Path of the Pipe Control

13. The path of the Location Dynamic was automatically set to follow the same path as the Pipe Control.
14. Set the DataSource of this Location Dynamic to **localsim:ramp**.
15. Enter **Runtime** mode and watch the Ellipse move along the path of the Pipe Control.

Additional Controls

For information on how to configure other 2D GraphWorX64 controls, please refer to other Application Notes and the documentation in the Help files.