GraphWorX64
Responsive Design using Grid Panels

APPLICATION NOTE

October 2015

Description: Guide to creating GraphWorX64 Displays which are able to scale according to their clients display resolution, as well as offering user customization based on resolution during runtime.
General Requirement: GENESIS64 version 10.90 or later, understanding of GraphWorX64 Grid Mode.

Introduction

GraphWorX64 version 10.90 has introduced new functionality to allow for user driven grid customization for dynamic displays regardless of the target platform.

Enabling Grid Mode

In GraphWorX64 under the File Menu, there is an option called New Settings which allows for choosing the default properties of New GraphWorX64 Displays as shown in Figure 1.

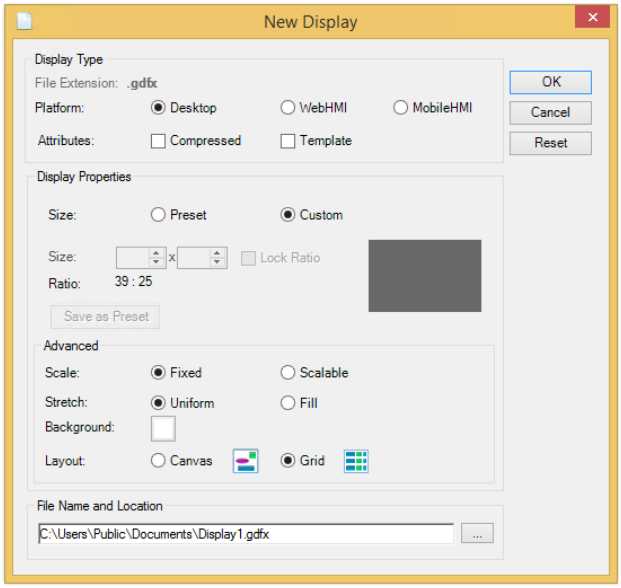

Figure 1 - New GraphWorX64 Display Settings

Selecting Grid from the Layout options and selecting OK will create a brand new display. It is possible to tell the displays is using a Grid Layout due to the presence of a blue boundary box around the drawing area and the Properties panel having the heading "This Display : Grid Panel" when no objects are selected.

Adding Columns/Rows

The blue boundary box has a context menu available by right-clicking on it and it allows for the creation of Rows or Columns if none are present as well as additional options if Rows/Columns are present.

Right-clicking on the boundary box will show either the Row or Column context menu when clicking on the Left or Top area respectively as shown in Figure 2.

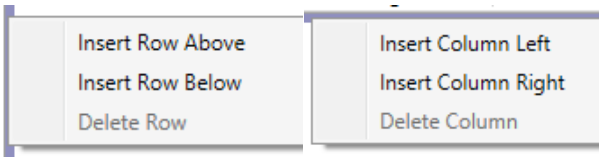

Figure 2 - Insert Row/Column

After inserting multiple rows and columns, the drawing area will be split into multiple parts of equal sizes as shown in Figure 3.

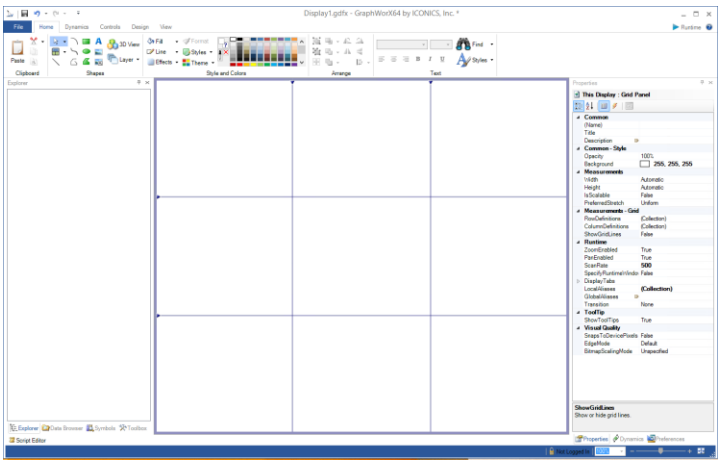

Figure 3 - Grid Panel

Each Row/Column will be set to 1 Star by default which will create an evenly spaced display. After creating a Row/Column the context menu will update to give the user the ability to Remove or Reposition the item or change the length type as shown in Figure 4.

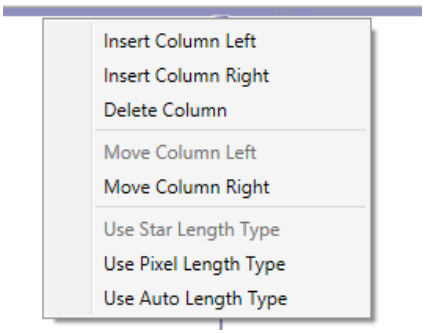

Figure 4 - Increased Context Menu

Manual Grid Resizing

Each Grid Line will show the Resize Mouse Cursor when hovered over, this allows for the dynamic changing of the display as shown in Figure 5.

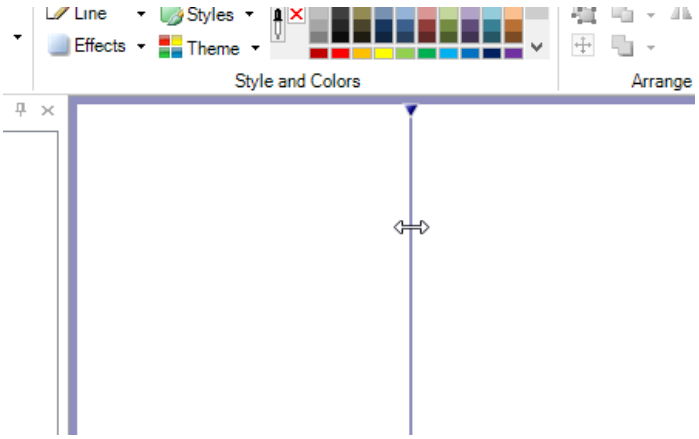

Figure 5 - Manual Grid Resizing

After resizing a Row or Column, the Row or Column Properties will update to show their respective new values. These are available from the "Measurements – Grid" of the This Display properties, under the RowDefinitions or ColumnDefinitions as shown in Figure 6.

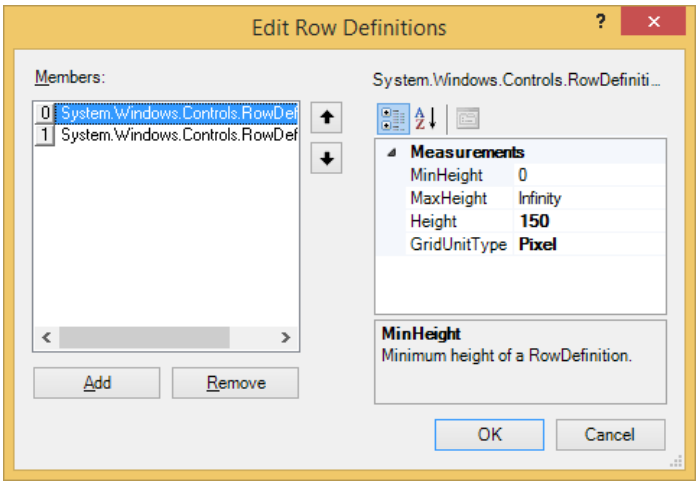

Figure 6 - Row Definition Properties

Any changes made here will be reflected on the drawing area and vice versa.

Creating a Responsive Page

Modern HMI display pages need to show the information the customer needs to see whilst still offering easy navigation and user configuration. All of this needs to be available on multiple platforms and displays whilst remaining easy to configure and deploy.

Using a Frame approach, a responsive page can be easily created using the following steps:

1. Using the above steps create a brand new Grid Panel display
2. Using the Context Menu options add two Rows and two Columns
3. Change the first Row to "Use Pixel Length Type" from the context Menu
4. Change the first Column to "Use Pixel Length Type" from the context Menu
5. Change the RowDefinitions Height property to 150
6. Change the ColumnDefinitions Width property to 200

The base frame layout will appear similar to the following layout, as shown in Figure 7.

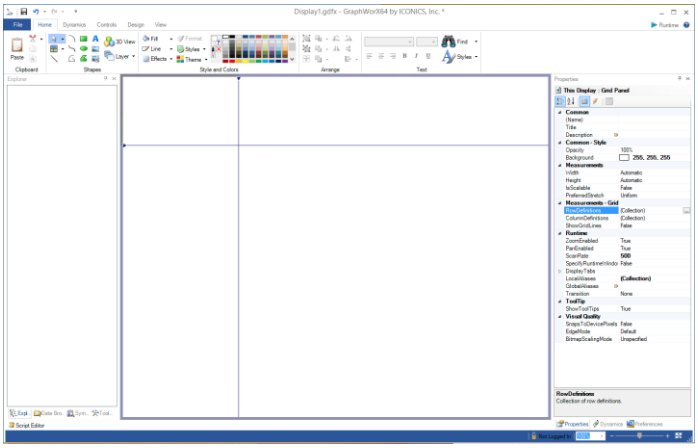

Figure 7 - Empty Frame Layout

Alarming

By default the Alarm Viewer will be at the top of the page, as that is where the human eye will naturally start looking. Selecting the AlarmWorX64 Viewer control from the Controls tab and drawing it across the areas of the grid to add it into. This will highlight those areas light-grey as shown in Figure 8.

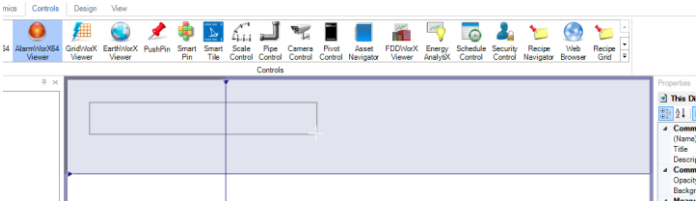

Figure 8 - Span Multiple Grid Sections

The item will be added in the center of the grid sections spanned, deleting the Row/Height values of the object in the Property Grid will cause it to automatically fill all of the available space.

Navigation

After the alarming section is added, a navigation panel is needed to allow for easy navigation of the displays. The AssetWorX Navigator would be added into the first column/second row section.

Selecting the Asset Navigator option from the Controls section and clicking on the empty grid section will fill the entire section with the control when released, as shown in Figure 9.

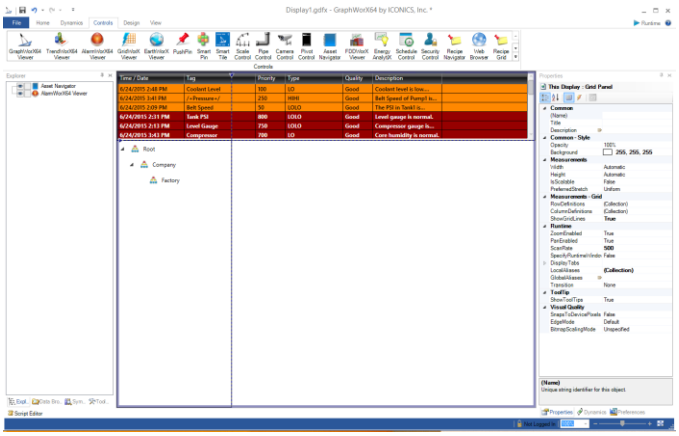

Figure 9 - AssetWorX Navigator

Content Panel

After the Alarming and Navigation areas have been added, an area will need to be available for the graphical content to be loaded into. This can be added by selecting the GraphWorX64 Viewer control and clicking in the remaining empty grid section.

After the GraphWorX64 Viewer has been added and automatically expanded to fill the available space, it will need to be given a unique name so that any commands executed from the Asset Navigator have a valid target to load in as shown in Figure 10.

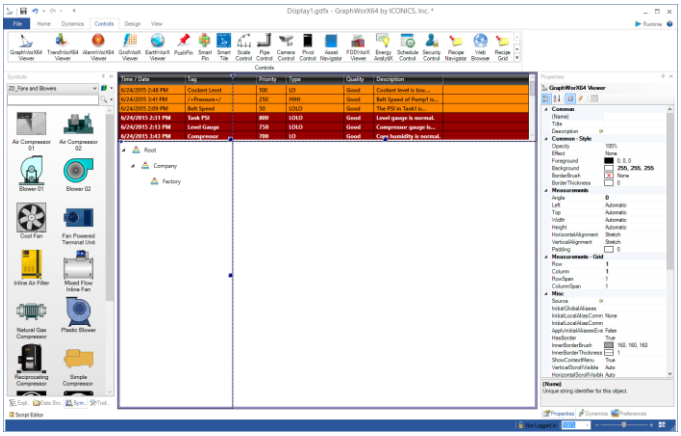

Figure 10 - GraphWorX64 Viewer

This display will then need to be saved with a descriptive name and a new display will be created.

Split Panels

GraphWorX64 v10.90 has introduced two new panel options named "Vertical Split Panel" and "Horizontal Split Panel". These panels can contain objects or controls and can be dynamically changed in configuration or runtime mode. The Split Panels are available from the Panels option inside the Shapes section, as shown in Figure 11.

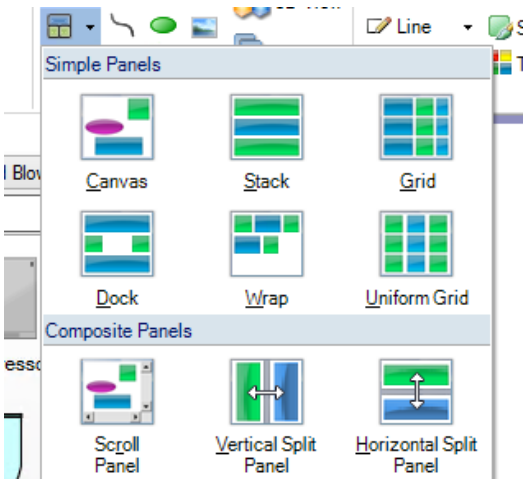

Figure 11 – Panels

Double clicking inside one of the panel sections will enable the user to edit the highlighted section which will highlighted by a blue boundary box. It is possible to drag/drop symbols out of any loaded symbol library into the selected grid section as shown in Figure 12.

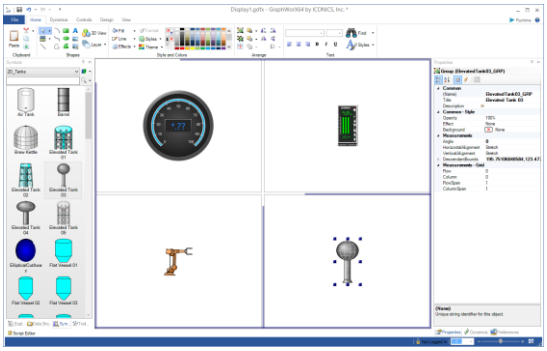

Figure 12 - Multi Split Panel Display

The Split Panel objects show the resize options when hovering over the grid zone boundaries.

Viewbox

GraphWorX64 version 10.90 introduced the ability to convert any selected items into a Viewbox. This will automatically stretch the objects to fill the dimensions of the view box.

The Viewbox option is available under the Arrange section of the Home Ribbon, and will become clickable when a valid selection of objects (including a single object) is selected as shown in Figure 13.

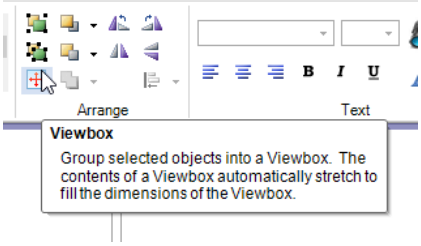

Figure 13 - Viewbox

After selecting each individually added symbol and clicking on the Viewbox option, the Split Panel display will appear similar to the image as shown in Figure 14.

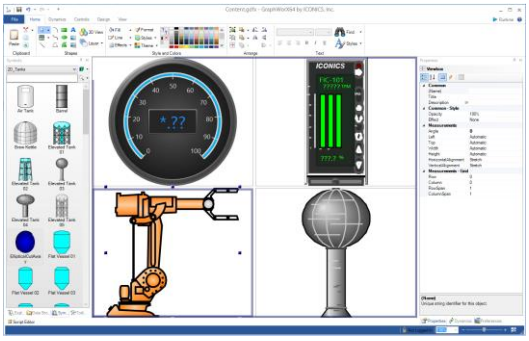

Figure 14 - Viewbox Objects

This display should then be saved with a descriptive name, and the original frame display reopened. The GraphWorX64 Viewer in the frame display will need to have the Source property changed to point to the recently created content display file.

Runtime Alterations

Now that the content page has been loaded into the frame, when put into runtime the display will appear the same as it did in configuration mode. Similarly to configuration mode it is possible to resize the Grid Sections in runtime and the objects will automatically scale based on the Viewbox dimensions as shown in Figure 15.

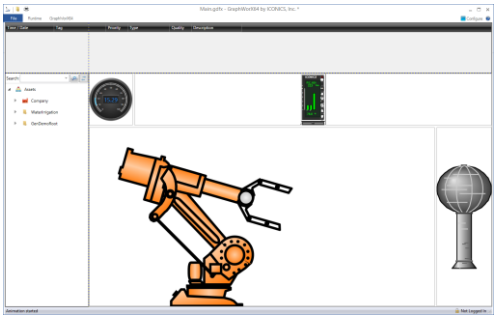

Figure 15 - Resized Display

Disabling Resizing

Runtime/Configuration mode resizing of the Split Panel is an optional choice. After configuring the Split Panel, the "SplitterVisible" and "SplitterEnabled" properties can be turned off to lock the current layout, as shown in Figure 16.

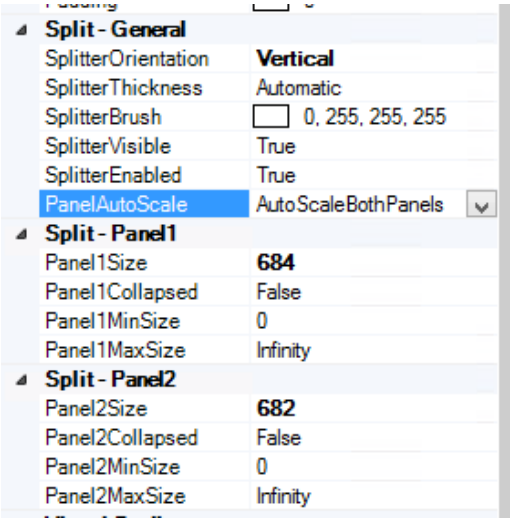

Figure 16 - Split Panel Properties