

PanelPilot ACE



Design Studio | Guide to Graphics



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PanelPilotACE Design Studio Guide to Graphics & Text

1. Introduction

The key to making a successful PanelPilotACE Project has two elements to it. Firstly, as a developer you want to create a Project (App) that functions smoothly and efficiently. Secondly, it is also important to take time to consider the visual layout and graphics that you are going to create.

Using the tools and features within the PanelPilotACE Design Studio you will be able to create Projects that have accessible and well designed screens. These will compliment the App's functionality and help to deliver a positive user experience for your audience or customers.

This guide focuses on the graphic and text elements that are currently available in the PanelPilotACE Design Studio software.

For further information and guides to using the PanelPilotACE Design Studio please go to:

www.lascarelectronics.com/panelpilotace-university.

Make sure that you have the latest version of the PanelPilotACE Design Studio software installed on your PC. This can be download for free from:

www.lascarelectronics.com/software/panelpilot-software/panelpilotace-design-studio

There are also a number of PanelPilotACE App templates available for use and customisation. There is a selection included within the Design Studio Software and more can be downloaded from the PanelPilot University:

www.lascarelectronics.com/panelpilotace-university/project-templates

Free graphic and image elements are also available from here:

www.lascarelectronics.com/panelpilotace-university

We also offer a full Custom App design and build service for customers that would prefer our in-house PanelPilotACE experts to create an App. Contact us to discuss your requirements.

2. Graphic file types

Below is a list of common graphic and image formats and their compatibility with the PanelPilotACE Design Studio.

File Type	Design Studio Compatible
*.png	Yes
*.jpg	Yes
*.bmp	Yes
*.gif	Yes
*.svg	Yes
*.tiff	Yes
*.dwg	Yes
*.pbm	No
*.raw	No
*.pdf	No
*.eps	No
*.jpg (jpeg 2000)	No
*.wmf	No
*.tga	No
*.pct	No
*.ai	No

The recommended file formats for logos and vector graphics are *.png and *.svg. Both of these formats allow a graphic to have a transparent background.

Detailed images such as photos should ideally be formatted as *.jpeg or *.png.

We also recommend that any graphic and image files you want to use in a PanelPilotACE project are created in a specialised graphics application. These can output files as “Optimised” for screens. This will ensure that the graphics are of the highest quality and detail but have the smallest file size possible.

2.1 Importing Graphics

When importing a graphic or image into the Design Studio it will display on the screen as 100% actual size, unless its dimensions exceed the Project's screen size (PanelPilotACE model dependant). If so, the Design Studio will display the graphic smaller than 100% to fit the screen. If you require the graphic to display at its original size, click on the *Set to Image Size* button in the Properties Editor window.

The size of a graphic can be manually adjusted in the Properties Editor window by specifying its width and height values. The unit of measurement in the Design Studio is Pixels (px). A graphic can also be manually adjusted on-screen by selecting it and pulling the edges. If you want the dimensions of a graphic to resize proportionally, enable the *Maintain Aspect Ratio* toggle button.

Other options for manipulating a graphic or image in the Properties Editor are:

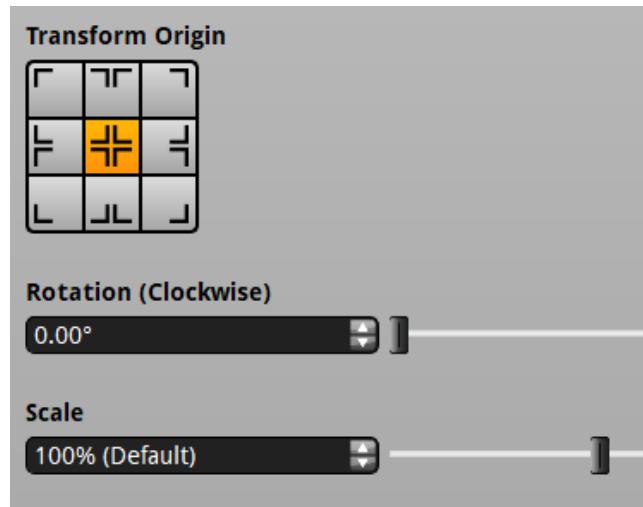
Optimise For - Optimises the graphic for either quality or speed. There maybe a drop in the quality of the graphic but it will help to make the Project run faster.

Opacity - Controls the transparency of a graphic. (see 4.1 for more information).

Transform Origin - Defines where the axis co-ordinates of an element or shape are referenced from. This is useful when using the Rotation and Scale options.

Rotation - Allows a graphic or shape to be rotated on its axis from 0° to 360° degrees.

Scale - A shape or graphic can be resized between -500% and +500%.



Features found in the Properties Editor

3. Project screen sizes

The screen dimensions of both PanelPilotACE models are listed below:

SGD-43-A = 480 x 272 pixels

SGD-70-A = 1024 x 600 pixels

Resolution = 72dpi

The default orientation of the screens is landscape but this can be changed to portrait if required. This can be changed in the Properties Editor.

If creating a background image for either model that you want to fill the entire screen, then they should be created with these dimensions.

The maximum resolution of the screen is 72dpi. Using higher resolution images of more than 72dpi will result in larger file sizes that may slow down the speed and performance of the PanelPilotACE device.

Note: It is recommended that graphics are prepared at 100% the intended size. Enlarging graphics above 100% will result in loss of quality (pixelation).

The recommended minimum size for buttons and other user interactive (touch) elements is 40 x 40px.

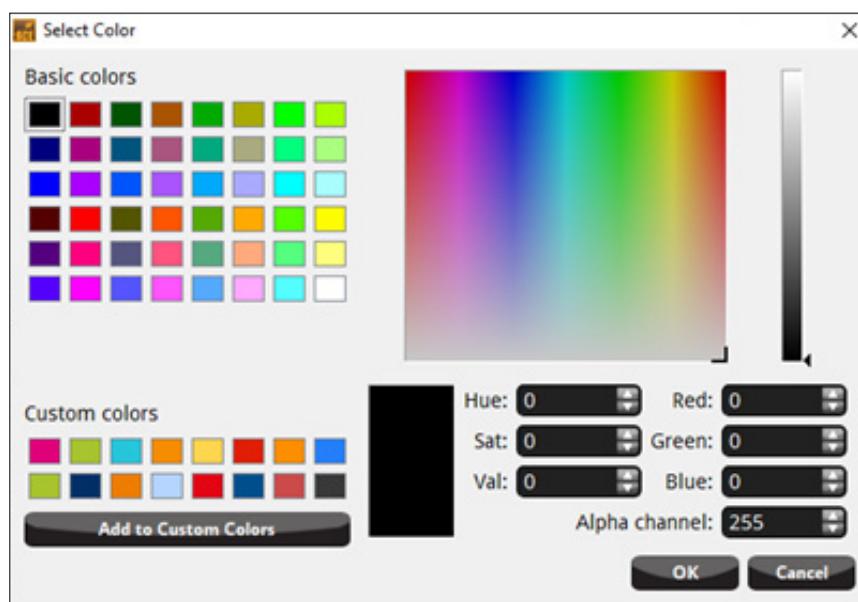
4. Color

All the Visual Elements in the Design Studio Library (except Images) can have their color properties customised via the Properties Editor window.

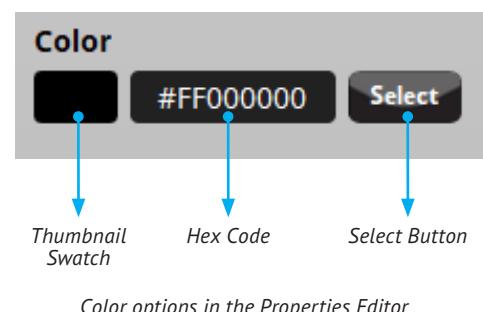
There you can see a thumbnail swatch showing the current color and the Hex Code representing it. The color can be changed by clicking on the thumbnail swatch or by clicking on the *Select* button.

This will activate the *Select Color* window. This window contains a pallet of basic colors to choose from or you can create a new custom color in either of the following ways:

1. Use the color picker and slider to manually move the selection cross-hairs around the spectrum box until the required color is generated. The lightness/darkness of a chosen color can be controlled using the slider. The current color selection is displayed under the Spectrum. Click *OK* to accept the new color or cancel to return to the project with no color changes made.
2. If you want to select a specific color for an object, it is possible to do that by specifying its Hex or RGB code. The Hex code can be specified directly in the Properties Editor, or the RGB code can be set in the Select Color window.



Select Color Window



Color options in the Properties Editor

4.1 Opacity

The visual transparency of an object can be customised. The amount of opacity is defined by %, 100% being the maximum (solid) value or 10%* being the minimum (fully see-through). These values can be controlled moving the *Opacity slider* within the Properties Editor.

Transparency can also be adjusted by changing the value of the Alpha Channel within the RGB settings in the Select Color window. 255 is the maximum (solid) value and 0 is the minimum (fully see-through).

* The minimum opacity that can be set with the slider is 10%. If complete invisibility is required, it is recommended to use the *Visible* property instead (available in the Properties Editor menu).

4.2 Custom Colors

If you have created a custom color as described by any of the methods above, then this can be saved for re-use in the project by clicking on the *Add to Custom Colors* button in the Select Color window. Clicking this button will add the new color to the *Custom Color* palette.

5. Borders

All shapes in the Library can be customised by adding an outer border if required. The border consists of a solid unbroken line that wraps itself around the entire outer of the shape. The width (thickness) and color of a border can be adjusted as preferred, the width is specified in pixels (px). The color of the border is also customisable via the Properties Editor.

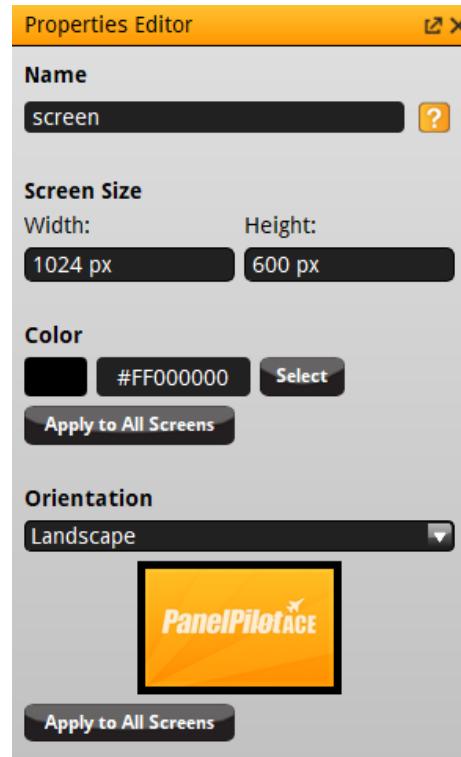


Ellipse with a border applied

6. Backgrounds

When creating a background for a Project, consider all the graphic elements that are to be shown on the screen. We recommend combining any visual elements that don't have a function associated with them into the background image. This reduces the number of image files required.

If a plain background is preferred, select a color for the screen in the Properties Editor. This can be used on all screens within a project by clicking the *Apply to All Screens* button.



The Properties Editor for Screens showing the "Apply to all screens" button

6.1 Gradient Fills

Gradient fills can be applied to shapes within the Design Studio. Gradient Fills blend 2 or more colors into each other and can simulate 3D and metallic effects. Backgrounds can be given more visual impact using gradients.

To create a background shape with a gradient fill do the following:

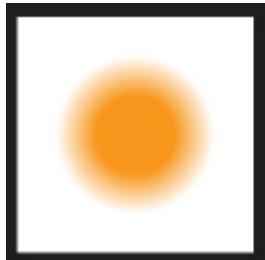
Add a *Rectangle* visual element to the screen and resize it to the PanelPilotACE's screen size (SGD-43-A = 480 x 272 pixels, SGD-70-A = 1024 x 600 pixels) or alternatively, manipulate the rectangle to the required size by pulling on the sides of the shape to the edges of the screen.

Next, right-click over the shape to access the sub menu and then select *Add Gradient Fill*.

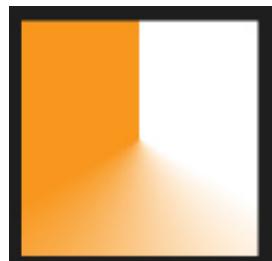
There are 3 gradient effects to choose from:



Linear Gradient



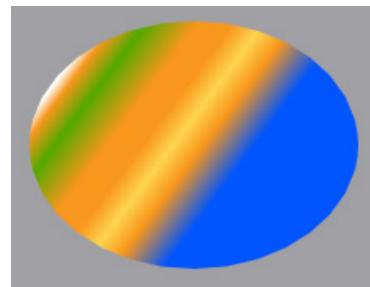
Radial Gradient



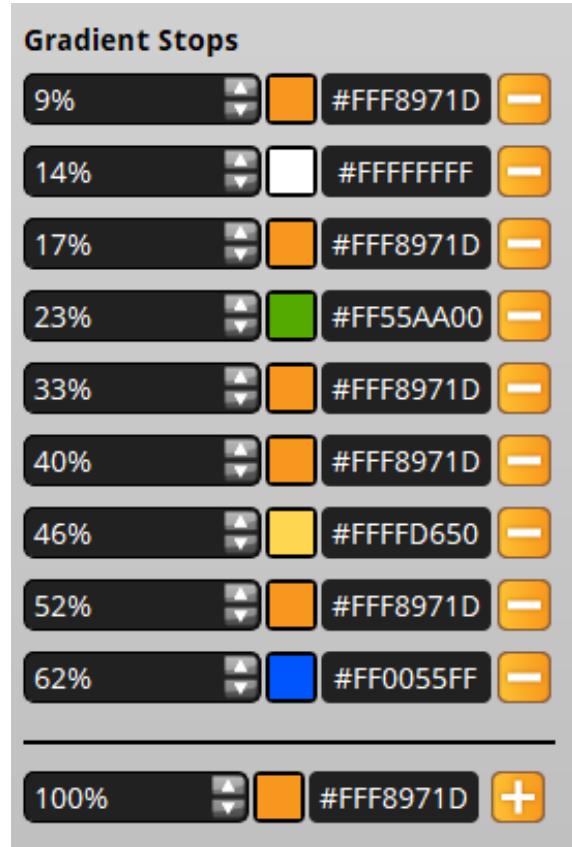
Conical Gradient

Selecting one these will apply the gradient to a copy of the shape you have chosen. The original shape will remain unchanged and can be reused or deleted as required.

The colors used for the gradient can be selected in the Properties Editor. They are applied at the *Gradient Stops*. A gradient stop is any point between 0% and 100%. The stops can be added or removed with the + and - buttons.



Above, An Ellipse with a linear gradient applied using lots of gradient stops. Below, the list of gradient stops used in the Ellipse.



The Start and Final Stops adjust the physical X and Y positions of the stops within the shape. These can be used to create different gradient effects.

If creating a background, make sure the background shape is ordered to the back of the screen below all other elements or if using layers in your project, set it to the bottom layer (usually layer 0).

7. Basic Options

The Design Studio has several basic options that can be applied to images and shape elements that are common to most computer programmes. These are: Cut, Copy, Paste and Delete. They can be accessed by right-clicking on a selected element to activate the submenu or by using keyboard short cuts:

Cut = Ctrl + X

Copy = Ctrl + C

Paste = Ctrl + V

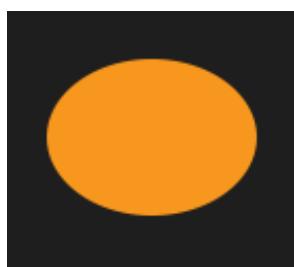
Delete = Delete Key

8. Basic Shapes

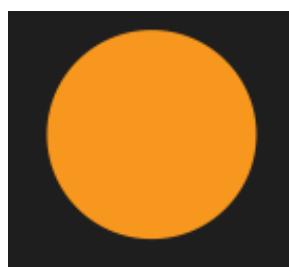
The Design Studio allows you to draw several basic shapes. These are:

Ellipse

The default Ellipse shape available from the *Visual Elements Library* is a non-proportionate circular shape (an ellipse) that is sized as W: 100px x H: 75px. Giving this shape an equal width and height e.g. 100px x 100px will transform it into a circle.



Non-proportionate ellipse



Proportionate ellipse (circle)

Line

The default Line shape is a straight horizontal rule that measures 100px by 2px.



Line default

Polygon (Irregular)

The Polygon (irregular) is by default an equilateral triangle (3 points) measuring W:157px by H:135.97px. The shape can be altered by adding or subtracting points within the Properties Editor. The X/Y values of the points can be changed individually and all points can be rotated through a 360-degree clockwise axis.



Polygon Irregular default



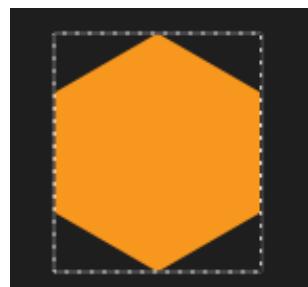
Polygon Irregular with 8 points creates an octagon

Polygon (Regular)

The Polygon (regular) shape is by default an equilateral triangle (3 edges). Each edge measures L: 50px. The number of edges can be increased or decreased and the length of edges can be changed. The edges will all be the same length.



Polygon Regular default



Polygon Regular with 6 points creates a hexagon

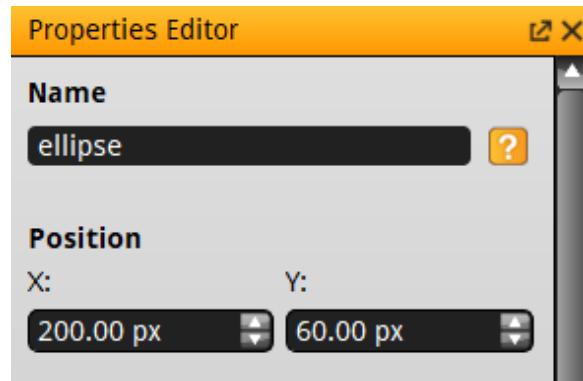
Rectangle

The Rectangle shape is by default a 4-sided shape measuring W: 100px x H: 75px. The width and height can be altered in the same way as previous shapes via the Properties Editor. One feature unique to the rectangle shape is that the 4 corners of the shape can be rounded using the *Corner Radius* selector and slider.

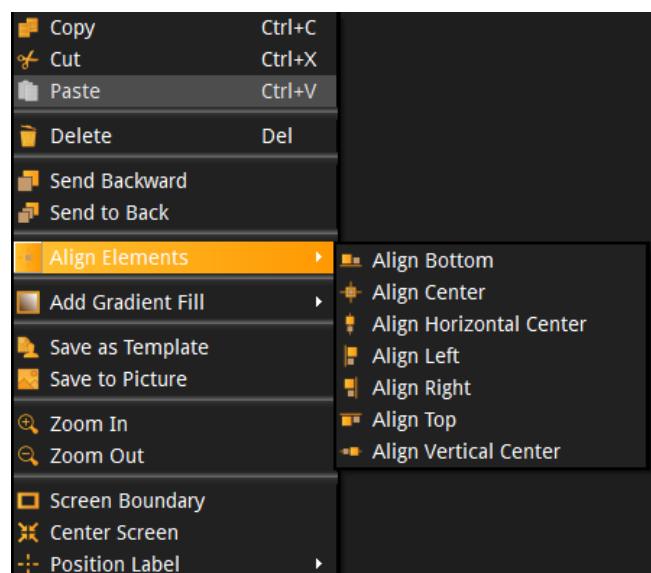


Rectangle default

Rectangle with rounded corners



X & Y Coordinates



The Align Elements sub menu

9. Positioning Graphics & Images

The position of any image or shape on-screen can be manipulated by selecting the element and moving it around the screen with the mouse. They can also be moved by setting their X and Y positions in the Properties Editor.

The X and Y axes run horizontally and vertically from the top left-hand corner of the screen. The axes are measured in pixels. An elements position on the screen is described by the X and Y pixel coordinates.

Images and shapes can be layered on-top of each other. The order of layering can be changed by right-clicking on an element and choosing from the arranging options of *Send to Back*, *Send Backward*, *Bring Forward* or *Bring to Front*.

Images and shapes can also be positioned relative to the screen or other elements. If one element is selected then it will align itself to the screen. If more than one element is selected, then the elements will align relative to each other. Right-click on the element or elements that you want to align and then choose from the alignment options available under the *Align Elements* submenu.

10. Building Graphics with Shapes

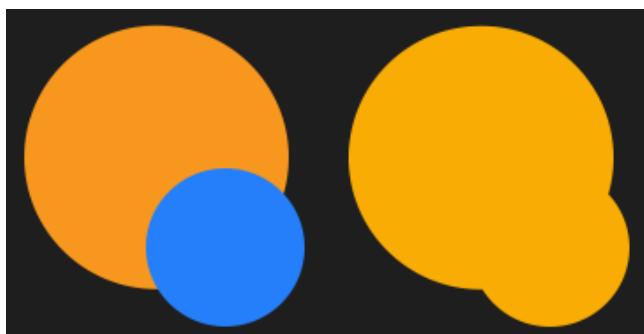
The Design Studio allows you to draw several basic shapes. These are Ellipse, Line, Polygon (Irregular), Polygon (Regular) and Rectangle. See the Basic Options section for a description of these shapes.

They can be manipulated in size, proportion and color as previously described. These shapes can also be connected together to create other shapes or images.

The shapes can combine, subtract or intersect with each other. These features are available by selecting more than one shape, then right clicking over the selection and choosing an option from the *Merge* submenu.

10.1 Combine Option

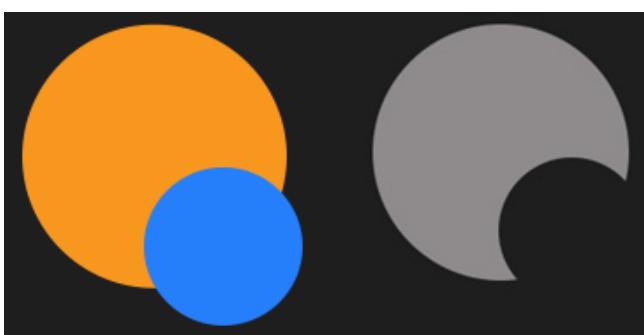
Selecting *Combine Elements* will merge two or more shapes into one.



Two ellipse shapes (left) combined to create one new shape (right)

10.2 Subtract Option

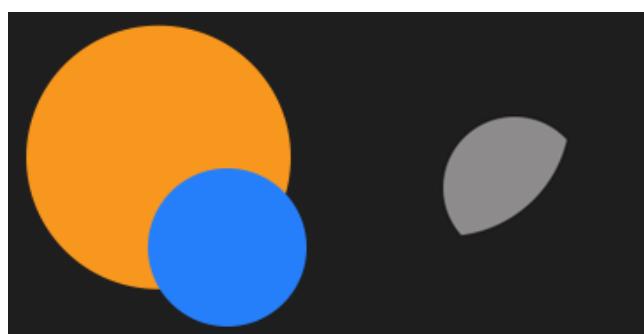
Selecting *Subtract Elements* will remove the upper shape from the lower one leaving a void or cut-out where the upper shape was.



Two ellipse shapes (left) using Subtract. The upper blue ellipse is subtracted from the bottom orange one.

10.3 Intersect Option

Selecting *Intersect Elements* will remove all areas of the shapes, except where they overlap. This will leave behind a new element that is called a *Path*. This has the same editable properties as a shape has.



Two ellipse shapes (left) using Intersect. All areas of both ellipses are subtracted apart from the areas that overlapped.

10.4 Exporting Graphics

Any shape element that you have created in the Design Studio can be exported as a *.png or *.jpeg image file for use in other applications. To do this, right-click over the shapes that you want to export (hold down the *Ctrl* key if selecting more than one shape). Choose the *Save to Picture* option from the drop-down menu. This will activate a Windows Explorer screen to select your *Save As* options from.

10.5 Saving Graphics and Images as Templates

It is possible to select a number of visual elements including images and shapes to create a new PanelPilotACE Template where they can be saved for reuse. Select the elements that you want to use (hold down the *Ctrl* key if selecting more than one shape). Right-click with the mouse to select the submenu and select *Save As Template*. This will activate the *Image Resource* window. Here you can select any other available visual elements within the current project to include in the new template. Click *Abort* (Cancel), *Skip* (Ignore) or *Continue* to complete this action.

The *User Defined* section of the Library will appear with a sub-heading called *My User Template#* If you click on this heading it will bring all of the visual elements saved in the Template into the current project.

Alternatively, a new project containing those elements can be accessed via the *Home Screen*.

11. Using Text & Fonts

Text can be added to a Project by adding a *Text Box* Visual Element to a screen. The content of the text box is created in the Properties Editor. As with shapes, the position and size of the text box can be customised. The alignment of the text, color, font type and some style attributes can also be customised. The aim is to provide Good Readability of the text on each screen.

As a general rule, a Sans-serif fonts such as Arial, Helvetica and Open Sans are easier to read on a screen than Serif fonts such as Times Roman.

The recommended minimum font sizes to ensure good readability are:

Headings: 14px +

Body text: 11px (Open Sans)

The Design Studio is supplied with a set of licence-free fonts. These are recommended for use with PanelPilotACE projects. They have been tested to work well with PanelPilotACE screens.

Bitstream Vera Sans

Bitstream Vera Serif

DejaVu Sans

DejaVu Serif

Droid Sans

Droid Serif

Lascar Digital

Liberation Sans

Liberation Serif

Nanum Gothic

Open Sans

PT Sans

PT Serif

Any font can be loaded for use into the Design Studio. See the main Design Studio User Guide for instructions on how to do this.

When a new text box is added to a screen it will be displayed as a transparent box outlined with a grey and white dashed line. Within the box is a default sample of [text]. This is duplicated in the *Text* section of the Properties Editor. To edit the content, highlight [text] in the Properties Editor and then type your text over it. This will be duplicated in the text box you have placed on-screen.



The default text box when initially added to a screen.



The text window in the Properties Editor.



*The content has been edited in the text window.
This also appears in the text box (left).*

11.1 Font Selection and Properties

The default font used in the Design Studio is Droid Sans (24pt). The font type can be changed by clicking on the dropdown menu in the Properties Editor and selecting a new font from the list. The font size can be changed by either typing a new value in the *Pixel Size* field or by using the Up / Down arrows on the right side of the field. The font size range is between 5 – 999 pixels.

If the size of the text box is too small the text will appear cut off, or if you have reduced the font size it may be too big. The text box can be adjusted manually by pulling the sides of text box in or out as required.

Alternatively, you can right-click over the text box to activate the sub menus. Here you will see the two *Auto-Fit* options.

Auto-Fit to Content will resize a text box to exactly fit the text currently within the box.

Auto-Fit to Text Box will resize the text to fit the text box.

Fonts can be further customised by using the Font Properties buttons.

Bold

Bold will make the font display at a heavier weight (thicker) than its default or regular state.



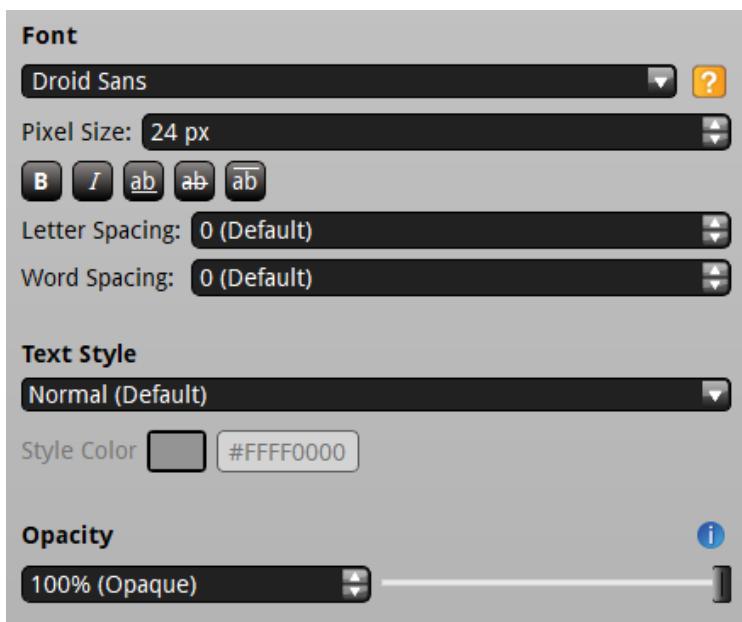
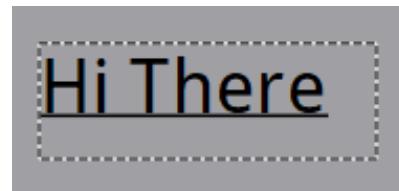
Italic

Italic will slant the font slightly to the right.

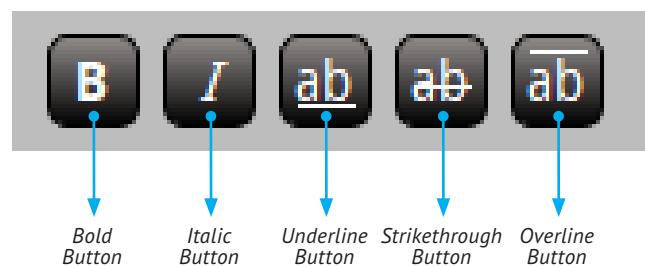


Underline

Underline will add a horizontal rule to the bottom of the font.



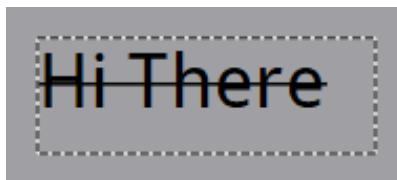
Font Properties and styles in the Properties Editor.



Font Properties Buttons

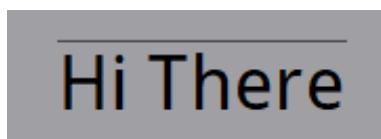
Strikethrough

Strikethrough will add a horizontal rule through the middle of the font.



Overline

Overline will add a horizontal rule above the font.



Letter Spacing

Letter spacing controls the distance between the characters of a font. The characters will appear further apart as the value is increased. The range is between 0 (default) and 30.



Word Spacing

Word spacing controls the distance between words used in the text box. The words will appear further apart as the value is increased.



11.2 Text Styles

Additional to font properties, there are four *Text Styles* that can be applied to text:

Normal (Default) – no style applied to text.

Outline

A colored outline is applied to the text. The color can be changed by clicking on the *Style Color* thumbnail or by manually entering a new hex value in the color field.



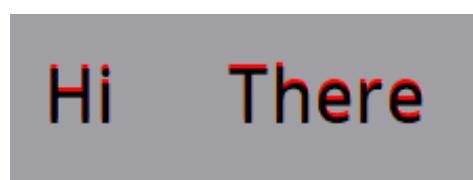
Raised

Raised will add a “shadow” to the text making it appear to be raised from the screen. The color can be changed by clicking on the *Style Color* thumbnail or by manually entering a new hex value in the color field.



Sunken

Sunken will add a “shadow” to the text making it appear to be sunken into the screen. The color can be changed by clicking on the *Style Color* thumbnail or by manually entering a new hex value in the color field.



11.3 Text Alignment

Text Alignment is the position of the content within a text box. The Design Studio allows you 6 options for positioning in both horizontal and vertical dimensions.

As with most word processing or design tools, the Design Studio allows Left, Centre and Right alignment. These 3 positions can also include Top, Middle and Bottom of the text box. These positions can be selected by clicking on the required position as shown in the diagram below.



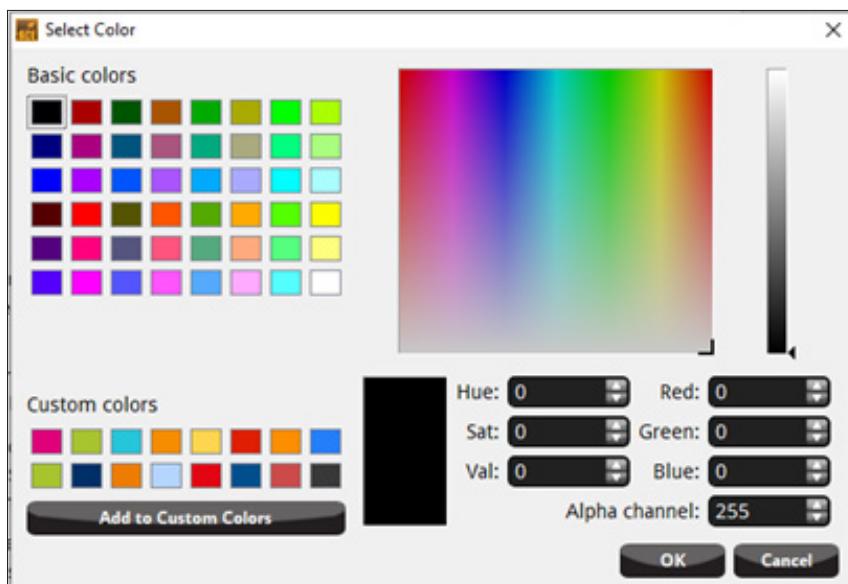
Text Alignment Options

11.4 Font Color

The default font color is Black (#FF000000). The color can be customised by clicking on the thumbnail swatch or by clicking on the *Select* button.

Use the color picker and slider to manually move the selection cross-hairs around the Spectrum element until the required color is generated. The lightness/darkness of a chosen color can be changed using the slider. The current color selection is displayed under the Spectrum. Click *OK* to accept the new color or cancel to return to the project with no color change made.

If you want to select a specific color for an object, it is possible to do that by specifying its Hex or RGB code. The Hex code can be specified directly in the Properties Editor, or the RGB code can be set in the *Select Color* window.



Select Color Window



Color Options in the Properties Editor

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