



§HMI Developer Documentations§

Description: User guide, events & functions

Version: 1.0

Issue Date: Jan. 11, 2021

Approved By: Designed By:

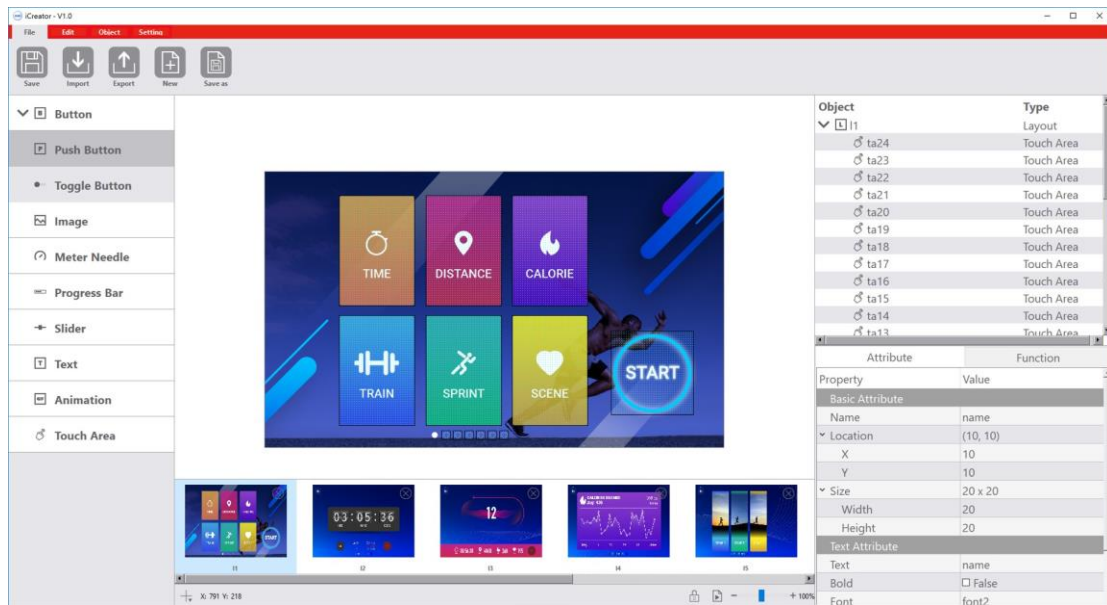
Peng Jun

Peter

Revision History

NO	Date	Description
V1.0	Jan. 11, 2021	Initial version.

1. UI View

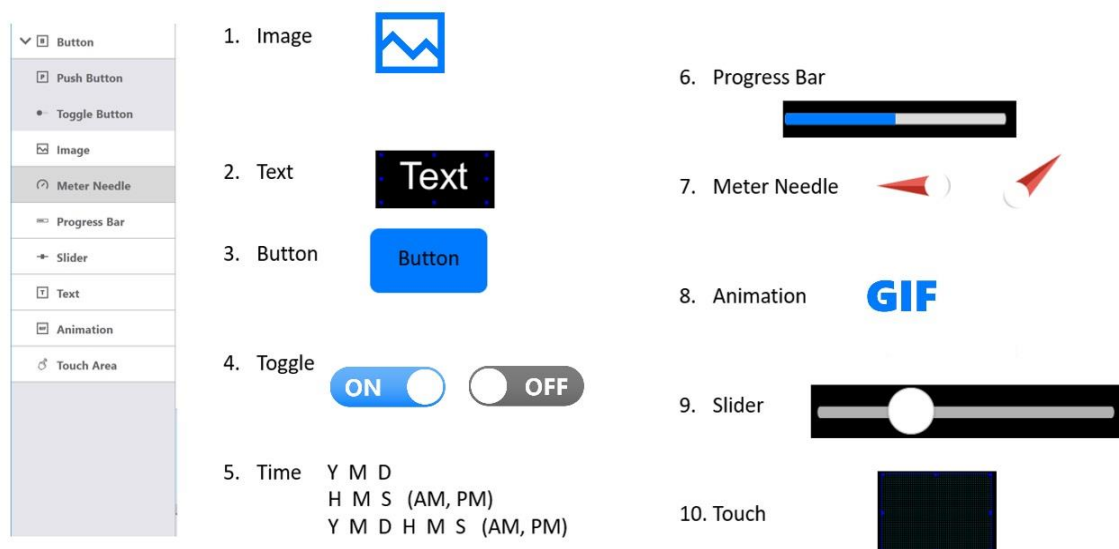


The iCreator Software Environment has been created for Programming, Control Configuration and Interface Design. The GUI is designed with the principle - “What You See is What You Get” for the ease in design.

2. Design Components

2.1 Widget

There are numerous types of widget for the HMI app. User can design the interface with these widgets easily. However, transparent images are not currently supported.



This technical specification is subject to change without notice

2.2 Layout preview & setting

User can click any of the widgets. The corresponding icon will show on the preview window, and user can relocate and resize it. For a new layout, click "Create Layout" and start editing. Layout background image can be replaced. Each layout is changeable by the combo box of "Current Layout idx".



2.3 Widget attribute

Each widget has different attributes and settings. User can adjust these values after clicking the certain widget in the preview window.

Attribute	Function
Property	Value
Basic Attribute	
Name	Push_Button_0
▼ Location	(157, 68)
X	157
Y	68
▼ Size	107 x 29
Width	107
Height	29
Push Button Attribute	
Button release image	
Button press image	
Template	Template 1
Text	Button
Font	Arial Regular
Font Size	9

2.4 Event/ Function setting

Each widget has an event to trigger user function and drive function on other widget. Function can be customized and programmable for design flexibility.

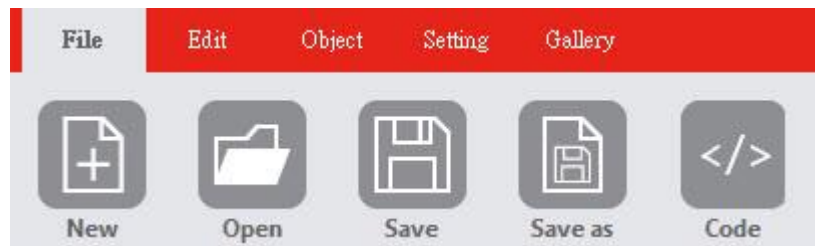
Attribute		Function
Event:	<input type="text" value="press"/>	<input type="button" value="v"/>
Item:	<input type="text" value="Image_0"/>	<input type="button" value="v"/>
Function:	<input type="text" value="set_image"/>	<input type="button" value="v"/>
Image ID:	<input type="text"/>	<input type="button" value="Browse"/>

Event	Item	Function	Param
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<input type="button" value="Delete"/>	<input type="button" value="Append"/>
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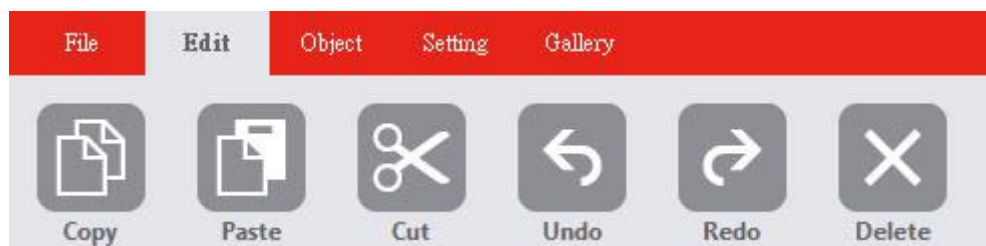
3. General Function

3.1 File



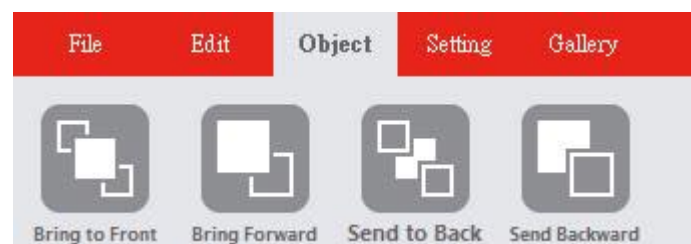
- New: click "New" button to start a new project.
- Open: click "Open" button to restore app setting. User needs to choose "hmi_folder" for the input.
- Save/Save as: click "Save/Save as" button to backup app setting.
- Code: click "Code" to view or write code.

3.2 Edit



There are 6 basic operations for user to edit widgets.

3.3 Object

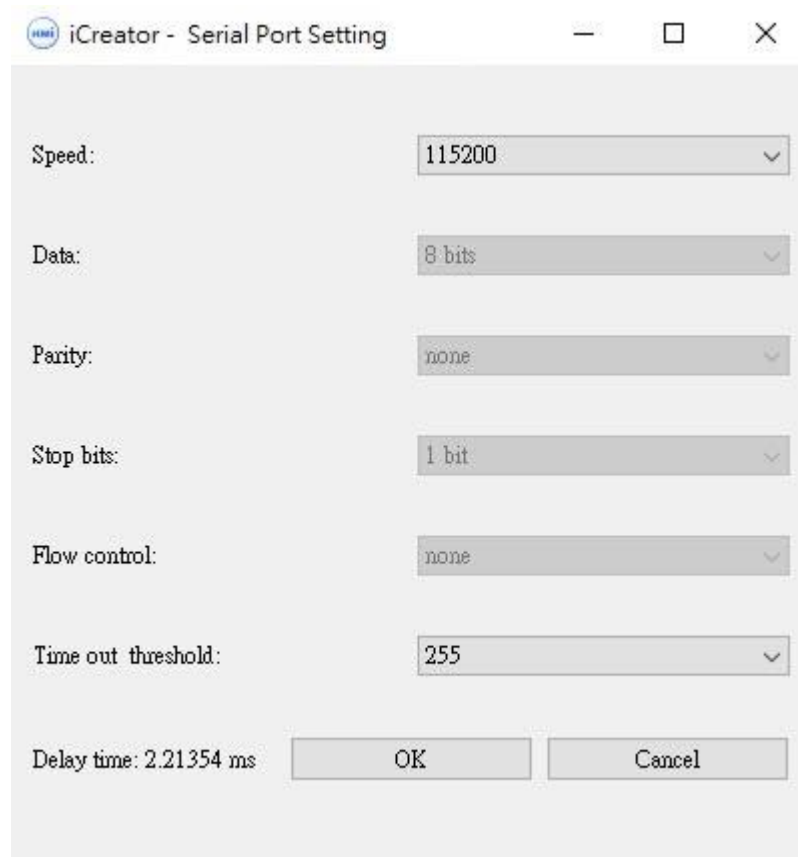


There are 4 object operations for user to determine which layer the widget is on.

3.4 Setting



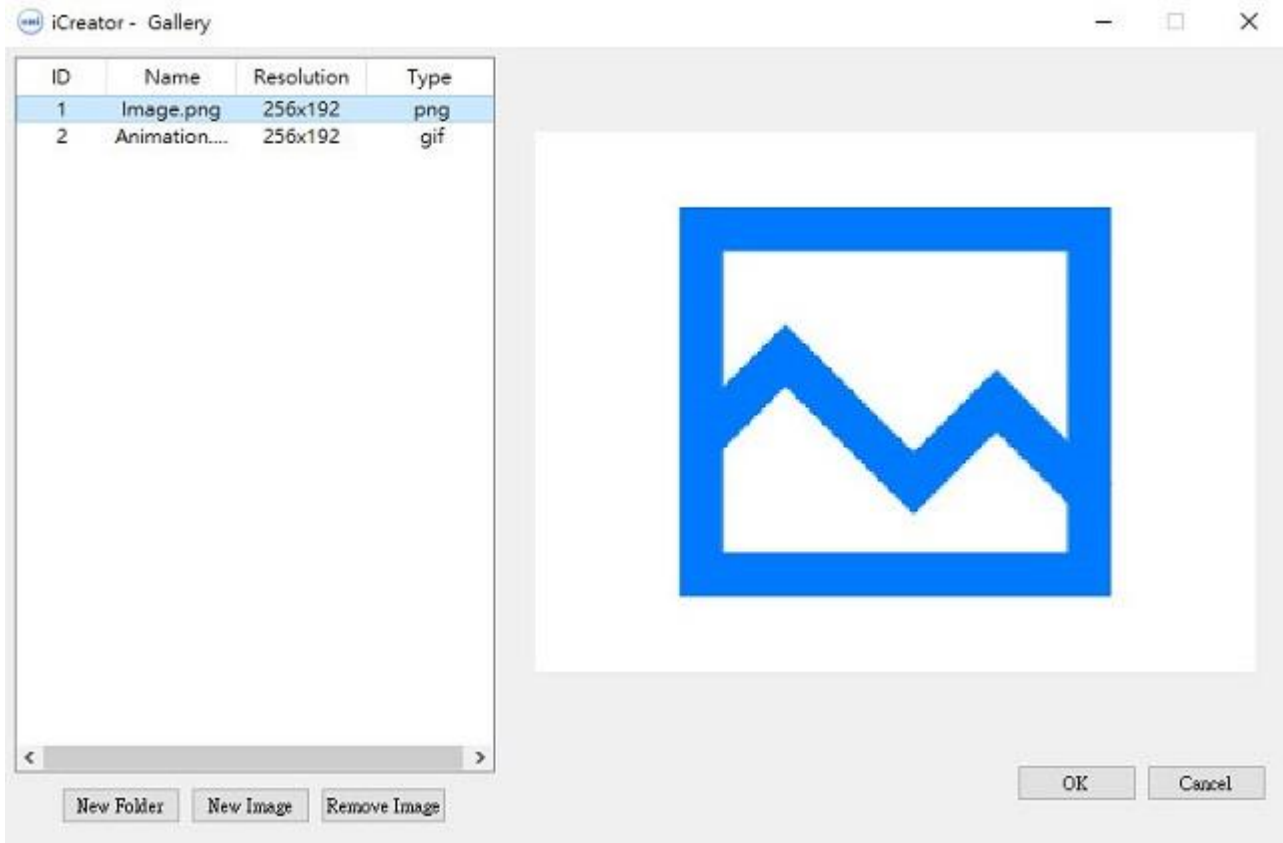
- Update: click "Update" button when the edit is finished. The app will create user's setting information, and download the setting to device.
- Serial Port setup: click "Serial Port setup" to set serial port.
- Update Setting: click "Update Setting" to download serial setting to device.
- Language: click "Language" button to change whole app language.



3.5 Gallery



Click "Gallery Folder" to open dialog to add image to gallery.



4. Functions

4.1 Description

This section is for explain event and function, and list all function support widget.

4.2 Total function list

Function	Description	Support Widget
layout_change_to_layout	Change the displayed Layout widget	Push Button, Touch
button_set_text	Change the displayed PushButton widget text	Push Button, Toggle Button, Meter Needle, Progress Bar, Slider , Touch
button_set_text_color	Change the displayed Button widget color	Push Button, Toggle Button, Meter Needle, Progress Bar, Slider Touch
image_set_image	Change the displayed source from Image widget	Push Button, Toggle Button, Touch
animation_set_frame_idx	Change the displayed Animation widget which frame idx	Push Button, Toggle Button, Touch
animation_set_animation	Change the displayed source from Animation widget	Push Button, Toggle Button, Touch
text_set_text	Change the displayed Text widget text	Push Button, Toggle Button, Meter Needle, Progress Bar, Slider, Touch
text_set_text_color	Change the displayed Text widget color	Push Button, Toggle Button, Meter Needle, Progress Bar, Slider , Touch
meter_needle_set_value	Change the displayed Meter Needle widget value	Push Button, Toggle Button, Meter Needle, Touch
progress_bar_set_value	Change the displayed Progress Bar widget value	Push Button, Toggle Button, Progress Bar, Touch
slider_set_value	Change the displayed Slider widget value	Push Button, Toggle Button, Slider , Touch
set_backlight	Change backlight on device	Push Button, Toggle Button, Meter Needle, Progress Bar, Slider , Touch

Function	Description	Support Widget
buzzle_set_frequency	Change the buzzle frequency, the sound effect will play one time when widget trigger	Push Button, Toggle Button, Touch
PWM_set_frequency	Change frequency value to pin	Push Button, Toggle Button, Meter Needle, Progress Bar, Slider , Touch
PWM_set_percentage	Change percentage value to pin	Push Button, Toggle Button, Meter Needle, Progress Bar, Slider , Touch
UART_transfer_message	Transfer message from UART	Push Button, Toggle Button, Touch
USB_transfer_message	Transfer message from USB	Push Button, Toggle Button, Touch

4.3 Events

Widget	Event	Description
Push Button	Press	Detect button press
	Release	Detect button release
Toggle Button	Set_true	Trigger function when toggle button is true state
	Set_false	Trigger function when toggle button is false state
Progress Bar	Value_change	Progress bar value change
Meter Needle	Value_change	Meter Needle value change
Slider	Value_change	Slider value change
Touch	Touch	Touch panel
Timer	Time_out	Set timer second, trigger function

4.4 Functions

Function	Description
<code>layout_change_to_layout</code>	Change the displayed Layout widget
<code>button_set_text</code>	Change the displayed Push Button widget text
<code>button_set_text_color</code>	Change the displayed Push Button widget text
<code>image_set_image</code>	Change the displayed source from Image widget
<code>animation_set_frame_idx</code>	Change the displayed Animation widget which frame idx
<code>animation_set_animation</code>	Change the displayed source from Animation widget
<code>text_set_text</code>	Change the displayed Text widget text
<code>text_set_text_color</code>	Change the displayed Text widget color
<code>meter_needle_set_value</code>	Change the displayed Meter Needle widget value
<code>progress_bar_set_value</code>	Change the displayed Progress Bar widget value
<code>slider_set_value</code>	Change the displayed Slider widget value
<code>set_backlight</code>	Change backlight on device
<code>buzzle_set_frequency</code>	Change the buzze frequency, the sound effect will play one time when the widget is triggered
<code>PWM_set_frequency</code>	Change frequency value to pin
<code>PWM_set_percentage</code>	Change percentage value to pin
<code>UART_transfer_message</code>	Transfer message from UART
<code>USB_transfer_message</code>	Transfer message from USB

◆ `layout_change_to_layout`

```
layout_change_to_layout(&Change Layout widget array index)
```

◆ `button_set_text`

```
button_set_text(&Button widget name, "value")
```

◆ `button_set_text_color`

```
button_set_text_color(&Button widget name, "Red decimal", "Green decimal", "Blue decimal")
```

◆ `image_set_image`

```
image_set_image(&Image widget name, "gallery idx")
```

◆ `animation_set_frame_idx`

```
animation_set_frame_idx(&Animation widget name, "frame idx")
```

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◆ **animation_set_animation**

```
animation_set_animation(&Animation widget name, "gallery idx")
```

◆ **text_set_text**

```
text_set_text(&Text widget name, "value")
```

◆ **text_set_text_color**

```
text_set_text_color(&Text widget name, "Red decimal", "Green decimal",  
"Blue decimal")
```

◆ **meter_needle_set_value**

```
meter_needle_set_value(&Meter Needle widget name, "value")
```

◆ **progress_bar_set_value**

```
progress_bar_set_value(&Progress Bar widget name, "value")
```

◆ **slider_set_value**

```
slider_set_value(&Slider widget name, "value")
```

◆ **set_backlight**

```
set_backlight("value")
```

◆ **buzzle_set_frequency**

```
buzzle_set_frequency("value")
```

◆ **PWM_set_frequency**

```
PWM_set_frequency("value")
```

◆ **PWM_set_percentage**

```
PWM_set_percentage("value")
```

◆ **UART_transfer_message**

UART_transfer_message(array, "array length")

Example: transfer data "1", "2", "3" from UART

- ✧ First parameter: uint8_t tmp[3] = {0x31, 0x32, 0x33};
- ✧ Second parameter: 3

◆ **USB_transfer_message**

USB_transfer_message(array, "array length")

Example: transfer data "1", "2", "3" from USB

- ✧ First parameter: uint8_t tmp[3] = {0x31, 0x32, 0x33};
- ✧ Second parameter: 3