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Chapter 1 Create a Colorful HMI in the ISaGRAF WinCE PAC

The Soft-GRAF is an HMI (Human Machine Interface) software developed by ICP DAS which allows user to create his colorful HMI application running with the control logic in the same ISaGRAF WinCE series PAC. Users can edit the HMI page by using the graphical drag-and-drop operation in the Soft-GRAF Studio. And design the control logic by using PLC Languages (e.g., Ladder, ST, FBD, and so on) in the ISaGRAF.

Running HMI and Control Logic in the Same PAC

1.1 Installing the Soft-GRAF Studio

Users can install the Soft-GRAF Studio on a WinXP or WinVista or Win7 or any compatible PC that support .Net Framework V.3.5 or later version (You can download it at the Microsoft website: (http://www.microsoft.com/zh-tw/download/details.aspx?id=22)

File location:

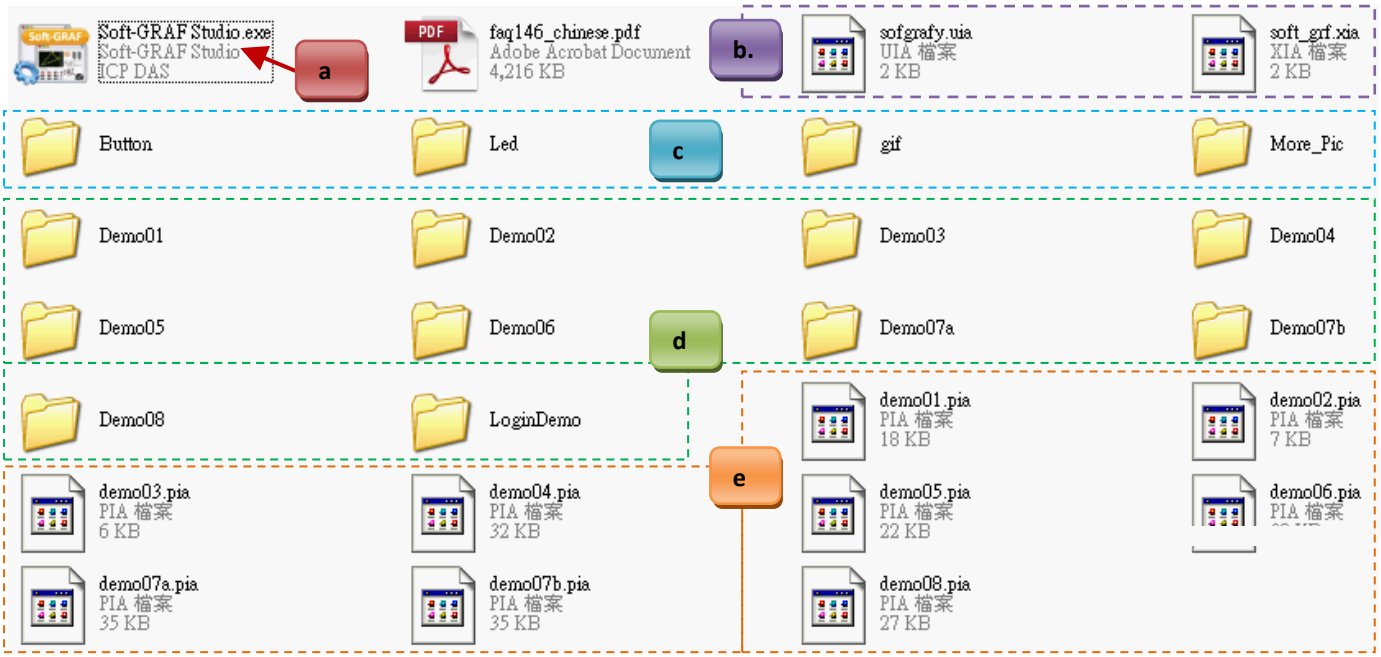
The latest Soft-GRAF Studio version is **1.11** now. Users can get this document ("faq146.pdf"), this software and demo programs at the following location:

1. The shipment CD – CD-ROM: \napdos\soft-graf\
2. ISaGRAF FAQ website:
   www.icpdas.com > Support > FAQ > ISaGRAF Soft-Logic PAC > 146
   http://www.icpdas.com/root/support/faq/isagraf.php > 146

Installation:

1. Unzip the downloaded file ("faq146_demo.zip").
2. Copy the **"Soft-GRAF Studio"** folder into **"D:\"**, this folder includes the following items:

   a. The Soft-GRAF Studio execute program
   b. ISaGRAF Libraries – C function (sofgrafy.uia) and IO complex equipment (soft_grf.xia)
   c. Built-in various HMI pictures
   d. Soft-GRAF Studio demo programs
   e. ISaGRAF demo programs



1.2 Installing the Related Software - ISaGRAF

1.2.1 ISaGRAF PAC driver

The following ISaGRAF driver versions support the Soft-GRAF Studio V. 1.11:

PAC Model	ISaGRAF Driver Version
XP-8xx7-CE6	V. 1.46 or later
XP-8xx7-Atom-CE6	V. 1.03 or later
WP-8xx7	V. 1.66 or later
WP-5147	V. 1.12 or later
VP-2xW7/4xx7	V. 1.59 or later

Download the driver here:

If your ISaGRAF Driver version is an earlier one, go to the website to download the new driver.

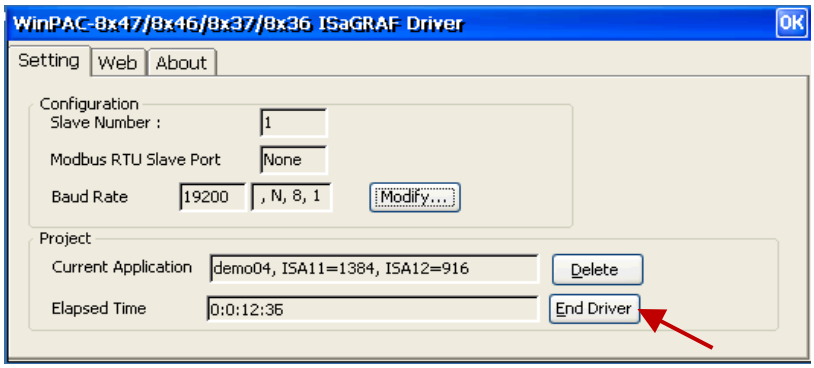
ISaGRAF Web Page > Download – Driver

http://www.icpdas.com/root/product/solutions/softplc_based_on_pac/isagraf/isagraf.html

Update the driver:

The following steps describe how to update the driver, the user can view the PDF file for more details in the downloaded driver folder.

1. In the "ISaGRAF Driver" window, click the "End Driver" button to stop the running driver in the PAC.



2. Unzip the downloaded file (e.g., “wp-8x47-1.xx.zip”) on your PC, and copy all files in its “Version No.” folder (e.g., “1.66”), and then paste these files to the correct path of the PAC (e.g., "\System_Disk\ ISaGRAF\") by using the FTP or USB Disk.
3. Then, reboot your PAC to complete the update.

ISaGRAF PAC	Driver Path
XP-8xx7-CE6/8xx7-Atom-CE6 WP-8xx7, VP-2xW7/4xx7	\System_Disk\ISaGRAF\
WP-5147	\Micro_SD\ISaGRAF\

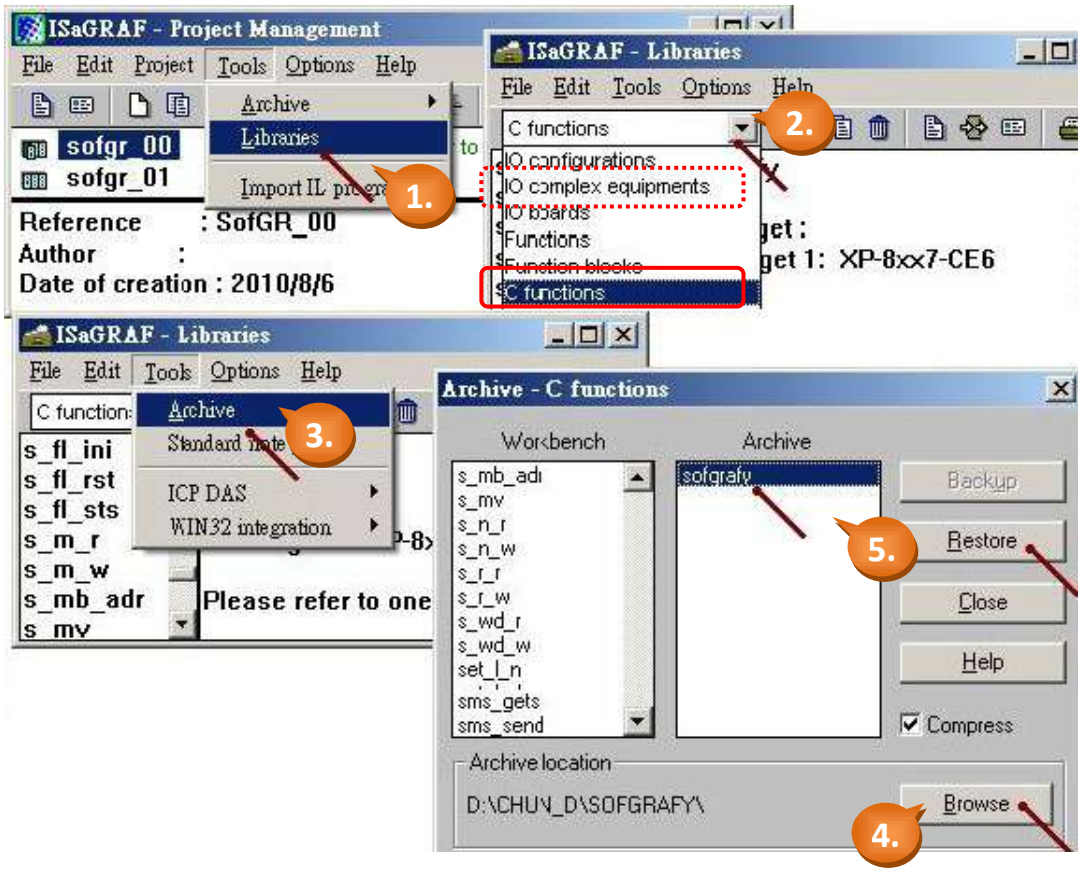
1.2.2 Restore the ISaGRAF library

For supporting the Soft-GRAF function, your ISaGRAF Library must have the "softgrafy.uia" (C function) and the "soft_grf.xia" (IO complex equipment) files. If these files exist in the ISaGRAF, you can ignore this section.

These files are located at the installation folder of the Soft-GRAF Studio (e.g., "D:\Soft-GRAF Studio", refer Section 1.1 – Installation) and then follow the steps to restore files:

C functions:

1. Click the menu bar "Tools → Libraries" in the "ISaGRAF – Project Management" window.
2. Select the "C functions" item and then click the menu bar "Tools → Archive" in the "ISaGRAF – Libraries" window.
3. In the "Archive – C functions" window, click the "Browse" button to assign the file location and then click the "sofgrafy", then click the "Restore" button to restore the "sofgrafy.uia" to the ISaGRAF Workbench.



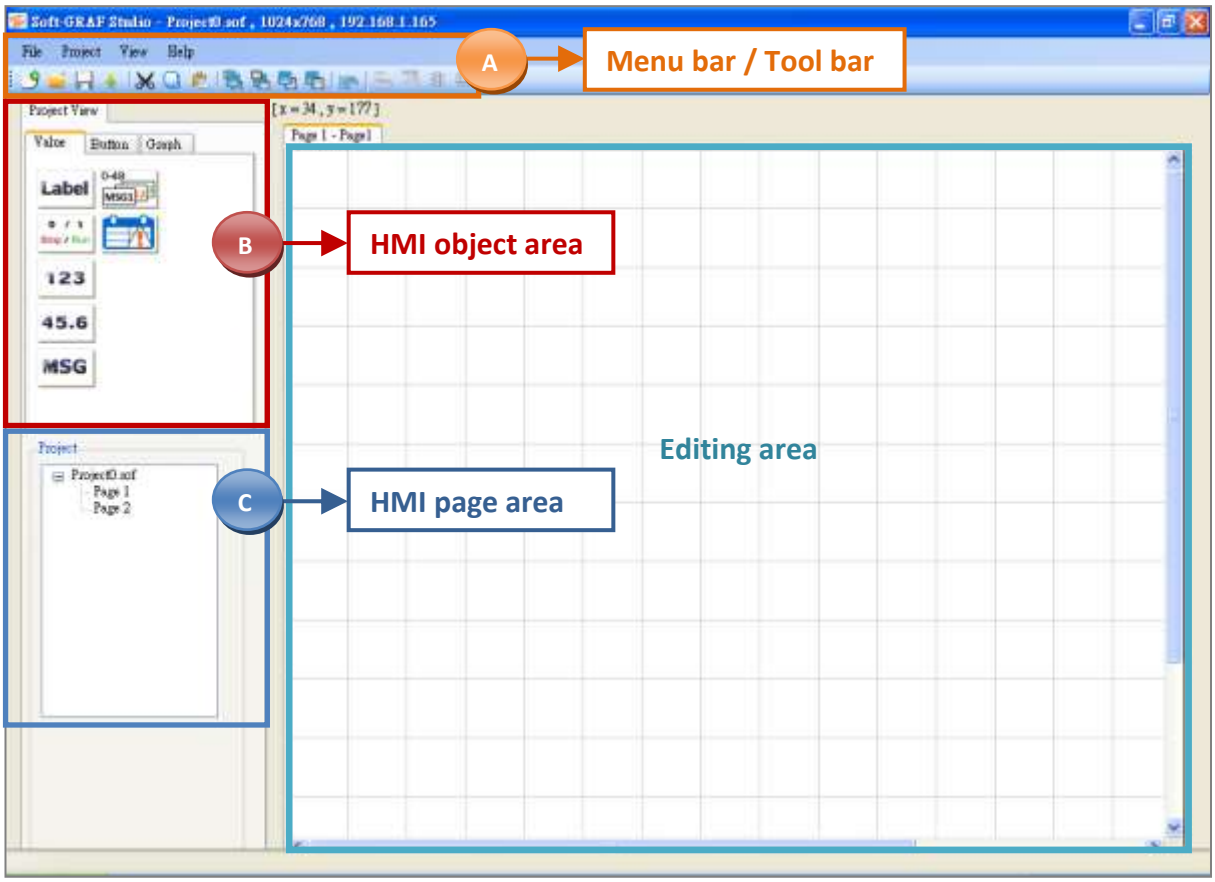
IO complex equipments:

As the previous steps, just change the step2 to select the "IO complex equipments" item and then restore the "soft_grf.xia" to the ISaGRAF.

Chapter 2 Edit the HMI by the Soft-GRAF Studio Software

Run the "Soft-GRAFStudio.exe" application from the installation folder of the Soft-GRAF Studio (e.g., "D:\Soft-GRAF Studio", refer Section 1.1 – Installation).

2.1 Software Operating Environment



A. 「Menu bar/ Tool bar」 (Refer Section 4.1 and the Section 4.2)

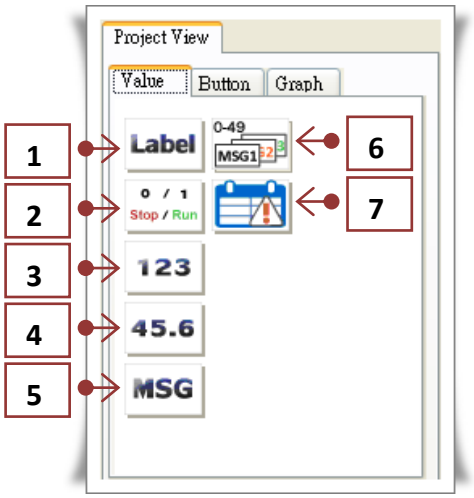
"File" menu, Tool bar: Basic file operations.
"Project" menu: IP Setting, Resolution Setting, Password (HMI Authority), Download.
"View" menu: "Old" / "Fashion" switching mode of HMI objects.
"Help" menu: Document, About, Revision History.

B. 「HMI object area」 (Refer Chapter 3)

There are three types of HMI Objects in the Soft-GRAF Studio:
"Value" objects, "Button" objects and "Graph" objects

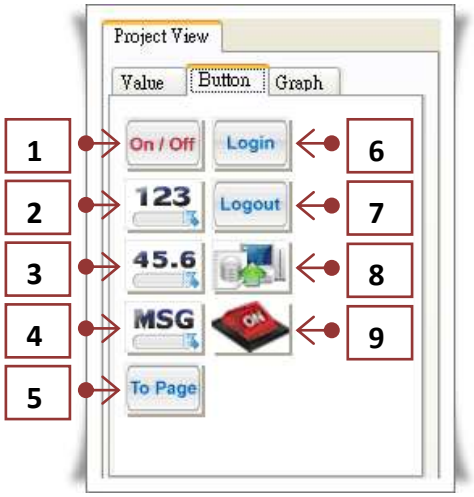
All items in the HMI object area can be shown as the graphic mode (by default) or text mode. (Refer Section 4.1.3)

"Value" objects



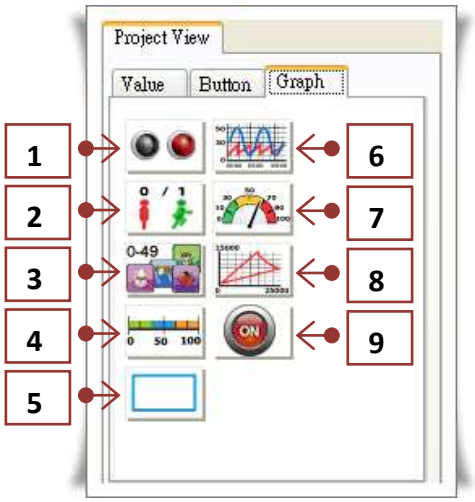
1. 「**g_Label**」: Display a Label.
2. 「**g_B_Val**」: Using a Text to show a Boolean value.
3. 「**g_ WD_Val / g_N_Val**」:
   Display a 16-bit or 32-bit Integer value.
   (Occupy 1 or 2 network address number)
4. 「**g_F_Val**」:
   Display a 32-bit Float value.
   (Occupy 2 network address number)
5. 「**g_M_Val**」: Display a Message value.
6. 「**g_N_Text**」: Display a text according to a different integer value.
7. 「**g_Alarm**」: Display an alarm list to show the triggered alarm message, and provide the FTP upload function.

"Button" objects



1. 「**g_B_Inp**」: Create a button to input a Boolean value.
2. 「**g_WD_Inp / g_N_Inp**」:
   Create a button to input a 16-bit or 32-bit Integer value.
   (Occupy 1 or 2 network address number)
3. 「**g_F_Inp**」:
   Create a button to input a 32-bit Float value.
   (Occupy 2 network address number)
4. 「**g_M_Inp**」: Create a button to input a Message value.
5. 「**g_ToPage**」: Create a switch-page button.
6. 「**g_Login**」: Create a Login button with a password.
7. 「**g_Logout**」: Create a Logout button.
8. 「**g_Logger1**」: Create a Data Logger button with FTP upload function.
   (Enabling this function to upload the data file to a location with a specified IP)
9. 「**g_B_Inp_Lib**」: Create a button to input a Boolean value. (With image library)

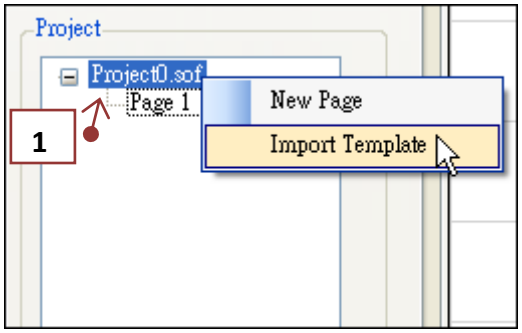
"Graph" objects



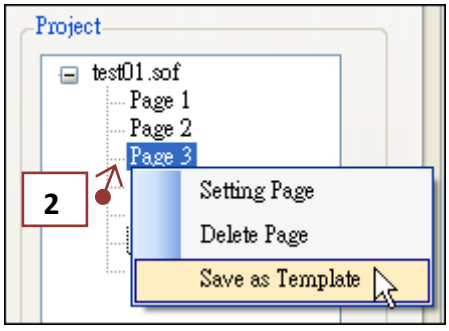
1. 「**g_B_Led**」: Display an LED to show a Boolean value.
2. 「**g_B_Pic**」:
   Display a specified picture to represent a Boolean value.
   (E.g., JPG, PNG, GIF, BMP, etc.)
3. 「**g_N_Pic**」:
   Display a specified picture to represent an Integer value.
   (E.g., JPG, PNG, GIF, BMP, etc.)
4. 「**g_Bar**」: Bar-meter (horizontal /vertical).
5. 「**g_Rect**」: Draw a Rectangle frame.
6. 「**g_Trend**」: Trend Charts (i.e. Run charts), used to show the value of up to three items changes over time and also provide the historical record function.
7. 「**g_Gauge**」: Angular Meter, used to show a Long int, Short int or Real value.
8. 「**g_Trace2**」: Moving Trace Chart, can be set to 2-axes (x , y) or 1-axis (x: Horizontal or y: Vertical).
9. 「**g_B_Pic_Lib**」: Display a specified picture to represent a Boolean value. (With an image library)

C. 「HMI page area」 (Refer Section 4.3)

The Soft-GRAF Studio allows max. 200 HMI pages (i.e., Page 1 to Page 200).
It will show the first HMI page (and only one page) on the screen while the PAC is running.



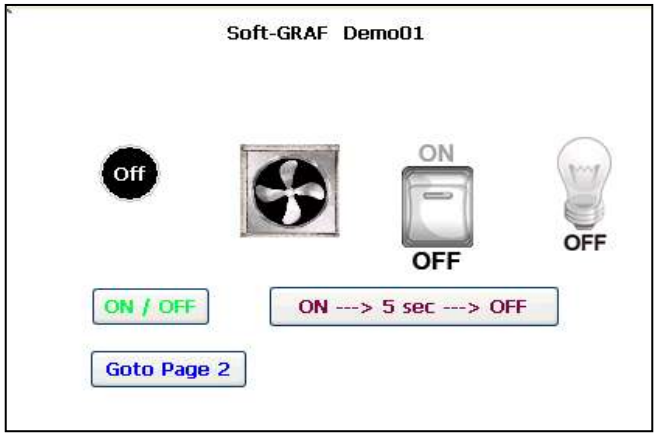
1. Right-click on the project name. (E.g., "Project0. sof")
   「**New Page**」: Add an HMI page.
   「**Import Template**」:
   Import a template page. (**Refer** Section 4.3.4)



2. Right-click on the page name. (E.g., "Page 3")
   「**Setting Page**」:
   Set the description and background color.
   「**Delete Page**」: Delete this page.
   「**Save as Template**」:
   Save this page as a template. (**Refer** Section 4.3.4)

2.2 Edit a Simple Soft-GRAF HMI

The following is a completed HMI page (i.e., Demo01) shown on the PAC screen, and we will describe this demo program later.



2.2.1 ISaGRAF related settings

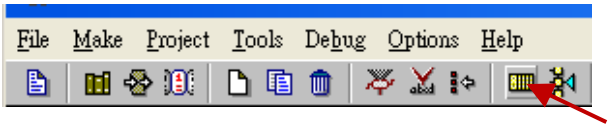
Before editing an HMI page, make sure the “soft_grf” function and the needed variables has been added to the ISaGRAF project (e.g., "demo01.pia"). This demo program is located in the installation folder of the Soft-GRAF Studio. If you are not familiar with ISaGRAF programming, please go to the website for more information:

ISaGRAF web page > Manual > ISaGRAF User’s Manual (Ch1.1, Ch1.2 and Ch2) or

ISaGRAF web page > Support - ISaGRAF Tutorial

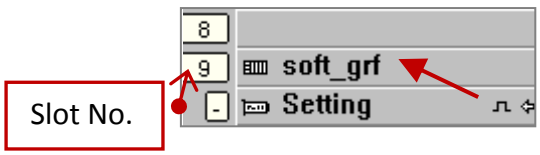
A. The “I/O Connection” function:

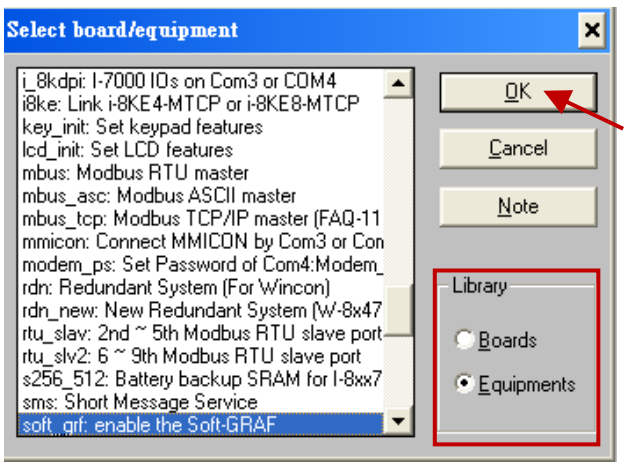
Open the ISaGRAF project (e.g., "Demo01") and click the “I/O Connection” button.



Double-click on the "Slot 9" (or any slot number after "8") to add the "soft_grf" function.

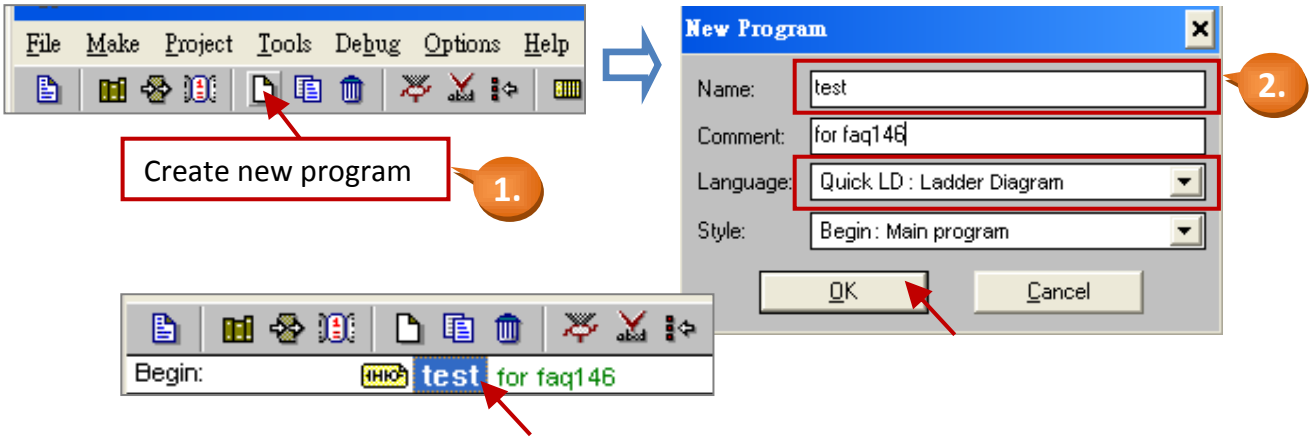
(Note: The slot 0 to slot 8 are reserved for the real I/O modules in the PAC.)





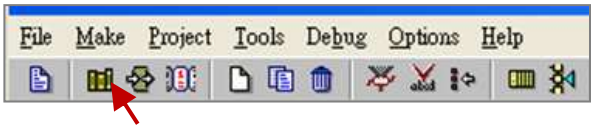
B. Create a new LD program:

Users can create a “Ladder” program to programing the control logic.

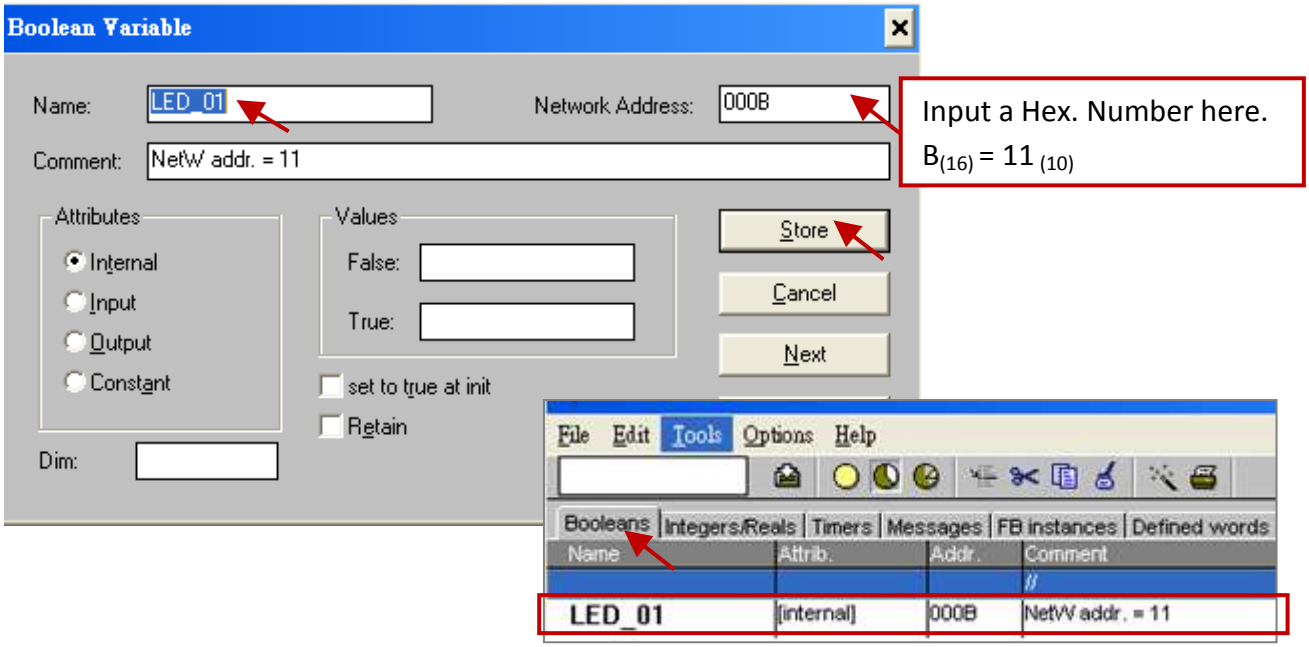


C. The ISaGRAF variables setting:

1. Open the ISaGRAF project (e.g., "Demo01") and click the “Dictionary” button.



2. In this example, add a boolean variable “LED_01” and set its network address to "11" (i.e., Hex. B).

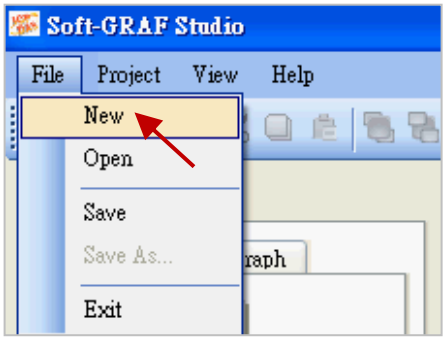


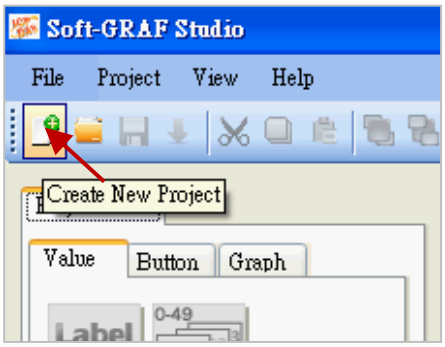
After programming the ISaGRAF SoftLogic, you must compile and download the ISaGRAF project to your PAC (refer Chapter2 of the ISaGRAF User’s manual for more information).

2.2.2 Create/Open a Soft-GRAF Studio project

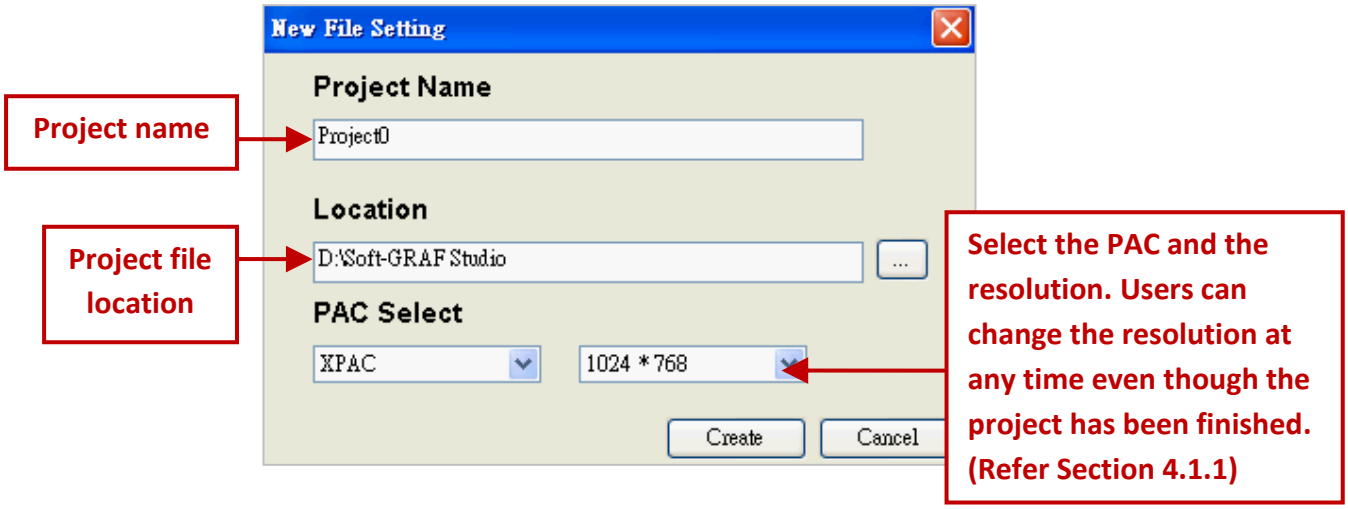
A. Create a new project:

1. Click the menu bar "File" → "New" or the "Create New Project" tool button.





2. Give a project name and select the proper PAC (or VGA) resolution.



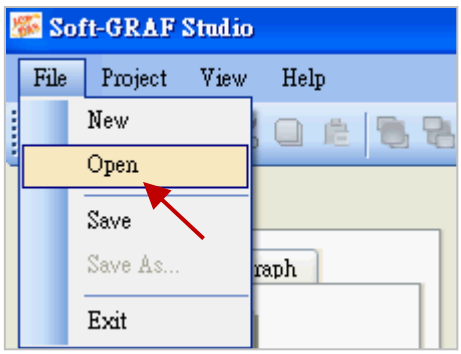
Supported resolution for each PAC:

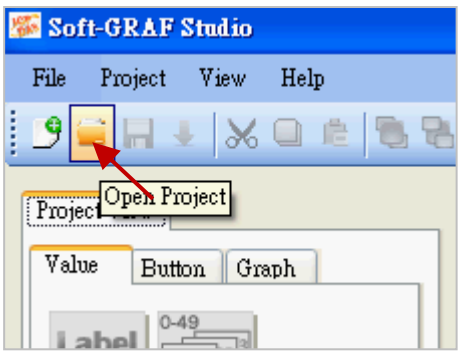
PAC		Supported VGA Resolution
XPAC	XP-8xx7-Atom-CE6	640*480, 800*600, 1024*768
	XP-8xx7-CE6	
WinPAC	WP-8x37	640*480, 800*600, 1024*768
	WP-8x47	640*480, 800*600
	WP-5147	
ViewPAC	VP-4137	640*480, 800*600
	VP-25W7	640*480
	VP-23W7	320*240

B. Open the project:

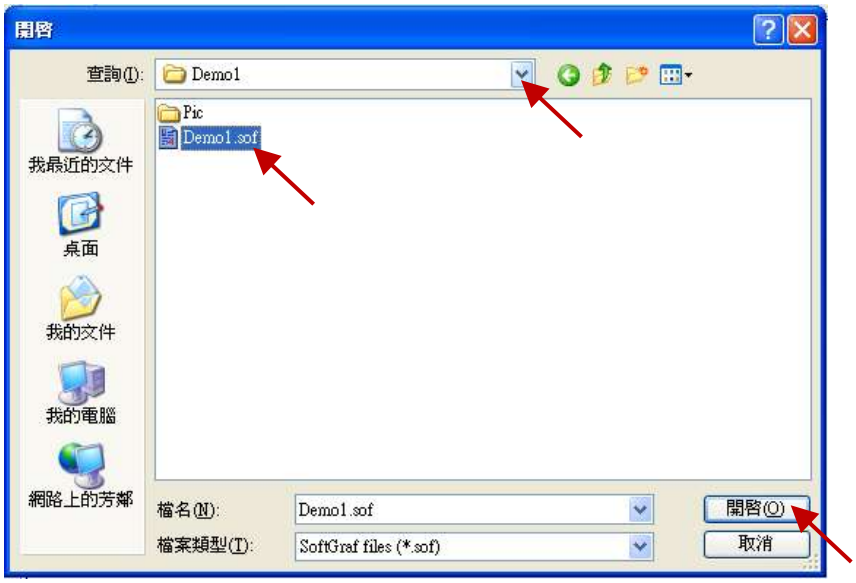
Steps to open an existing file:

1. Click the menu bar "File" → "Open" or the "Open Project" button.





2. Click the file name in the project folder to open it (e.g., D:\Soft-GRAF Studio\Demo01\Demo1.sof).



2.2.3 Description of the Soft-GRAF Studio project

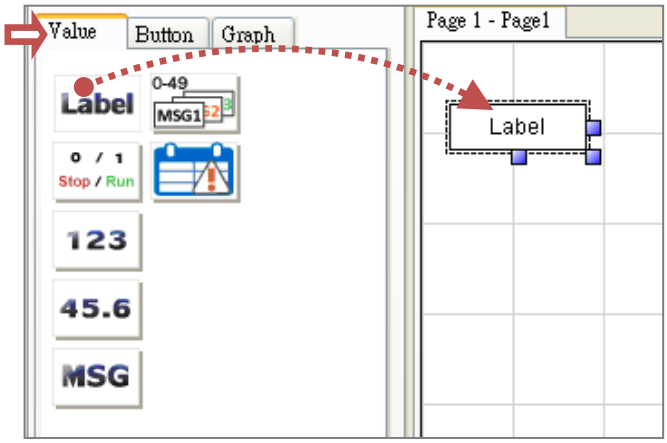
This section will describe how to design this Demo01 and then download it to the PAC.

Note: In this example, all the "Network Address" setting is "11", and it's defined in the ISaGRAF project. (Refer the Section 2.2.1 – C. The ISaGRAF variable setting, the network address of the "LED_01" boolean variable is "11".)

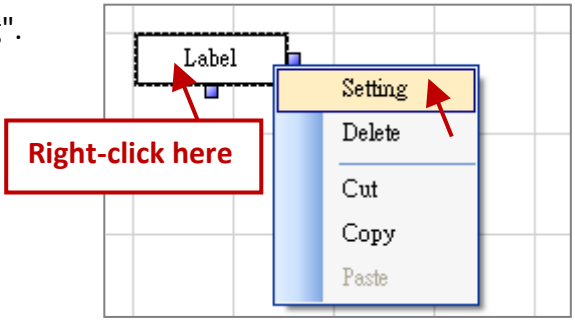
: This icon represents the items you need to set up.

A. Create a "g_Label" object:

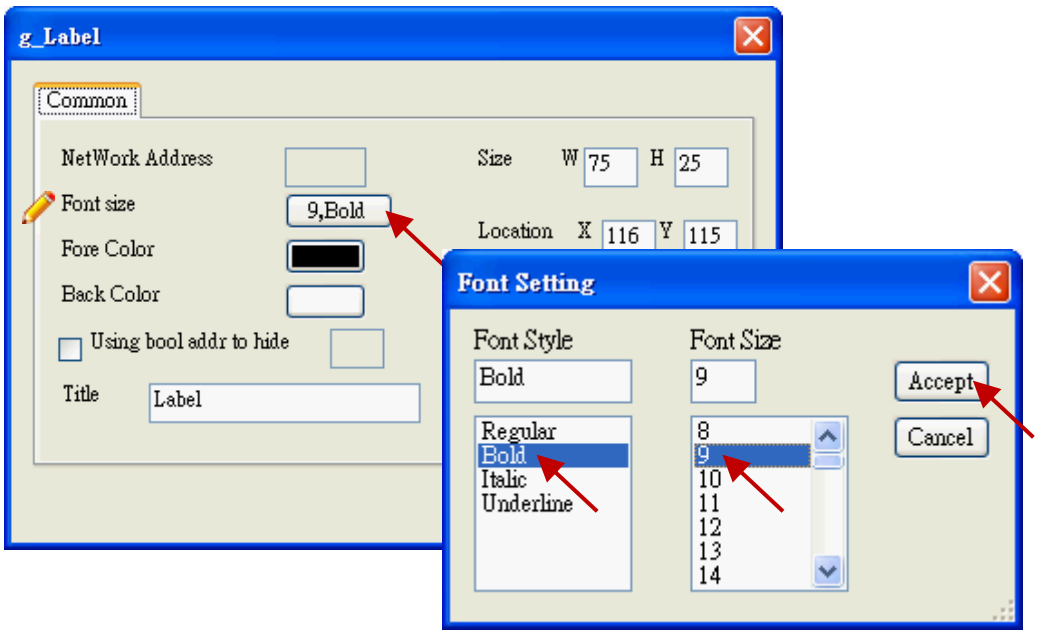
1. Drag and drop the "g_Label" object into the editing area.



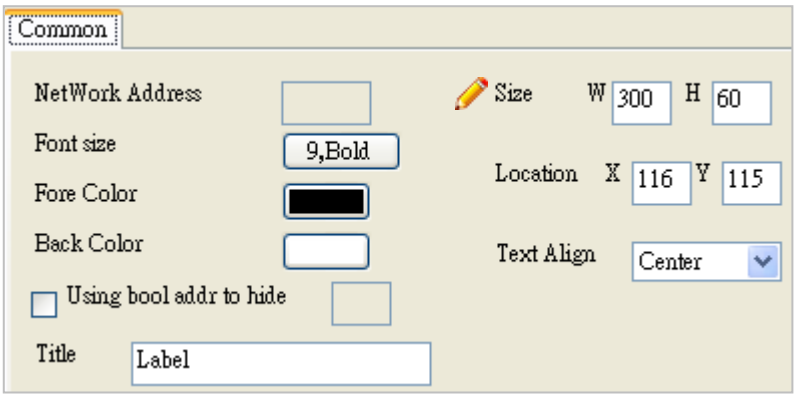
2. Right-click this object and then select the "Setting".



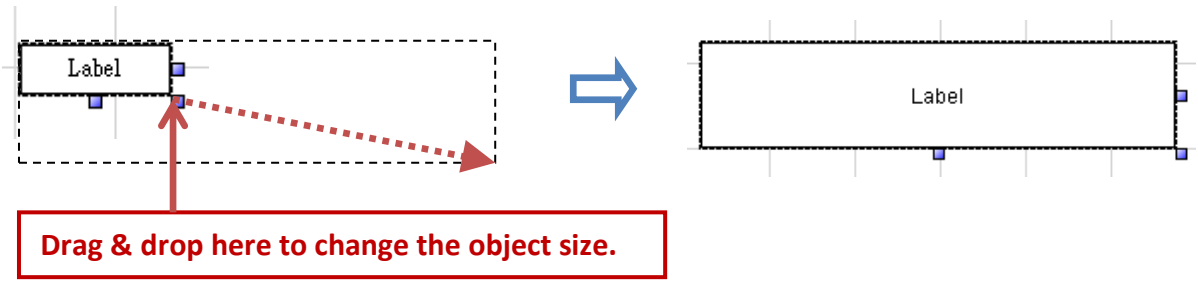
3. Click the "Font size" button to set it as "9,Bold" (or whatever you want).



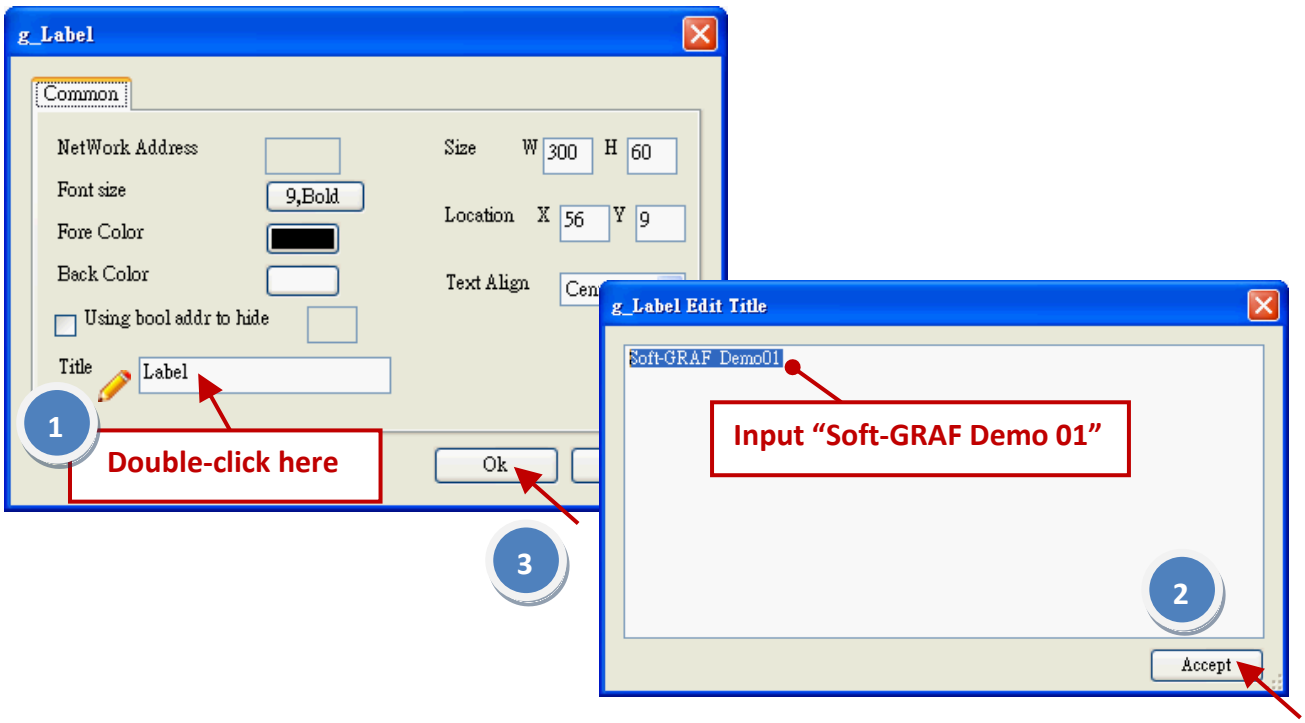
4. Set up the Object Size as Width (W): 300 , Heigh (H): 60.



Or press and hold the left mouse button and then drag it to adjust the object size.

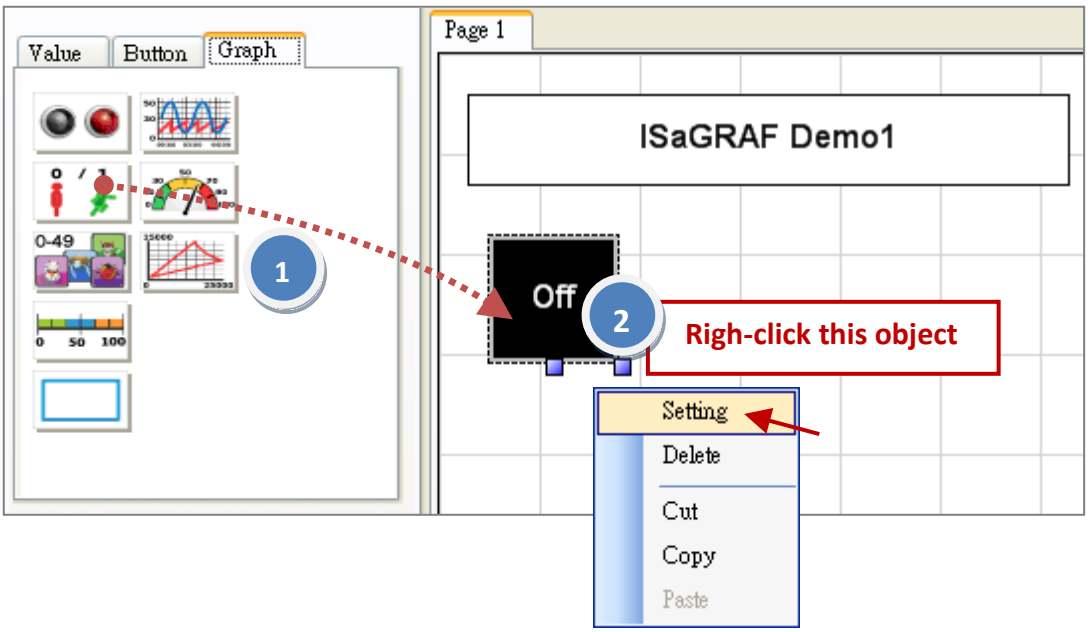


5. Double-click the "Title" text box to input “Soft-GRAF Demo01” in the edit window, and then click the “Accept” button to close this window. Then, click the “OK” button to end the settings.

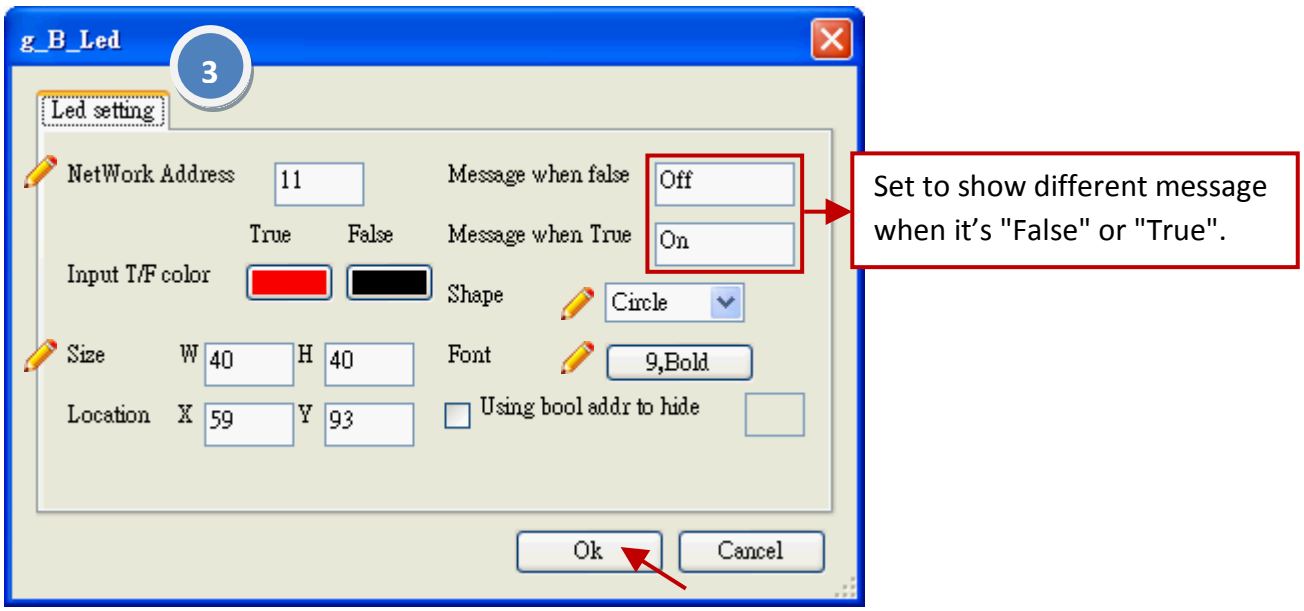


B. Create a "g_B_Led" object:

1. Drag & drop the "g_B_Led" object to the wanted position in the editing area.
2. Right-click this object and then select the "Setting" (or just double-click this object) to open the setting window.

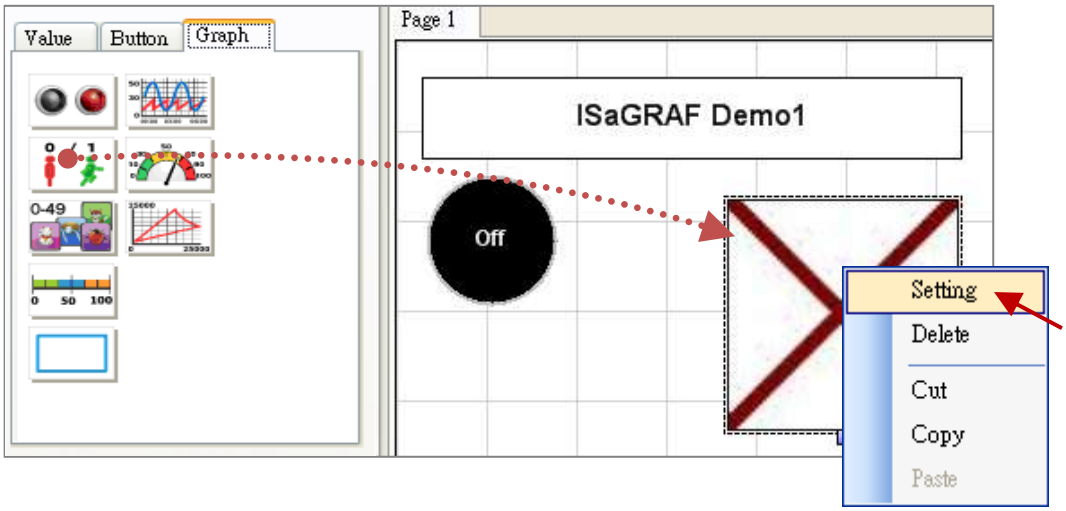


3. Set the "network address" to "11", the "Size" to Width: 40, Heigh: 40, the "Font" to "9, Bold" and the "Shpe" to "Circle".

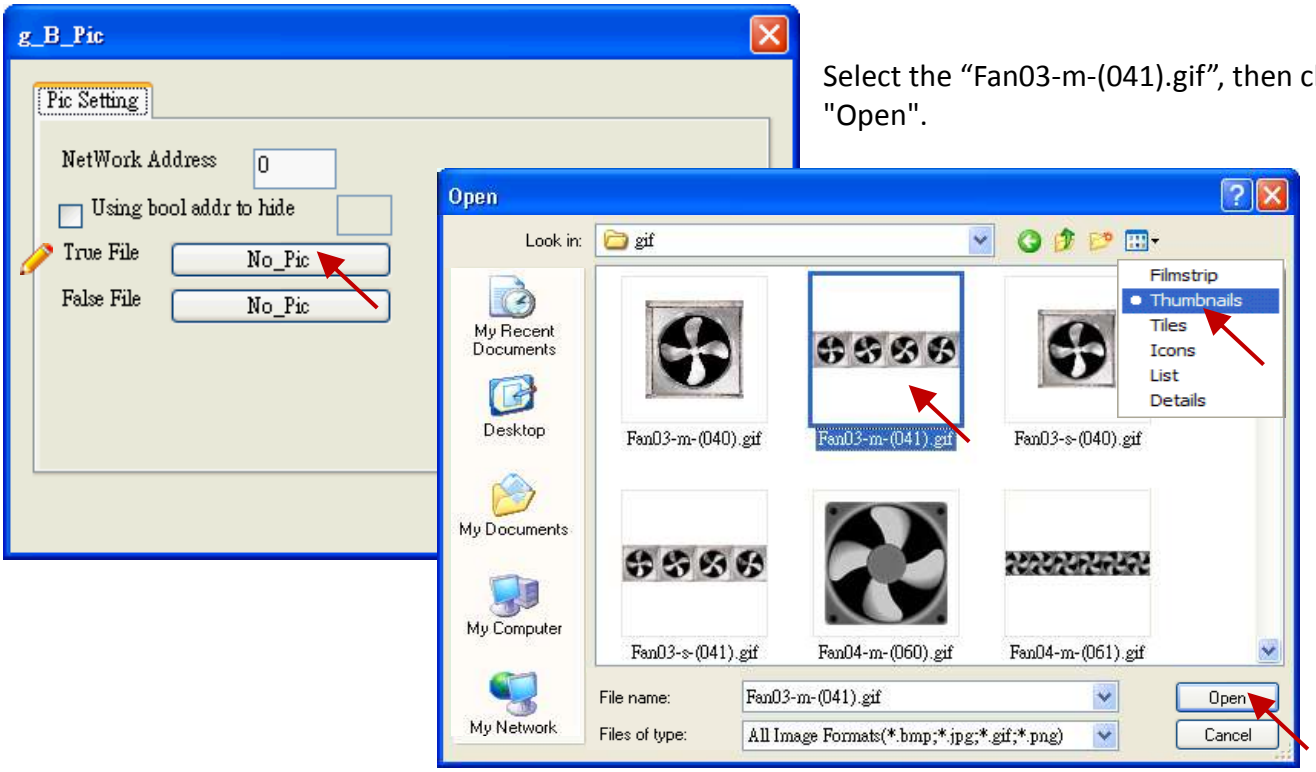


C. Create a "g_B_ Pic" object:

1. Drag & drop the "g_B_Pic" object into the editing area, right-click on it and select the "Setting".



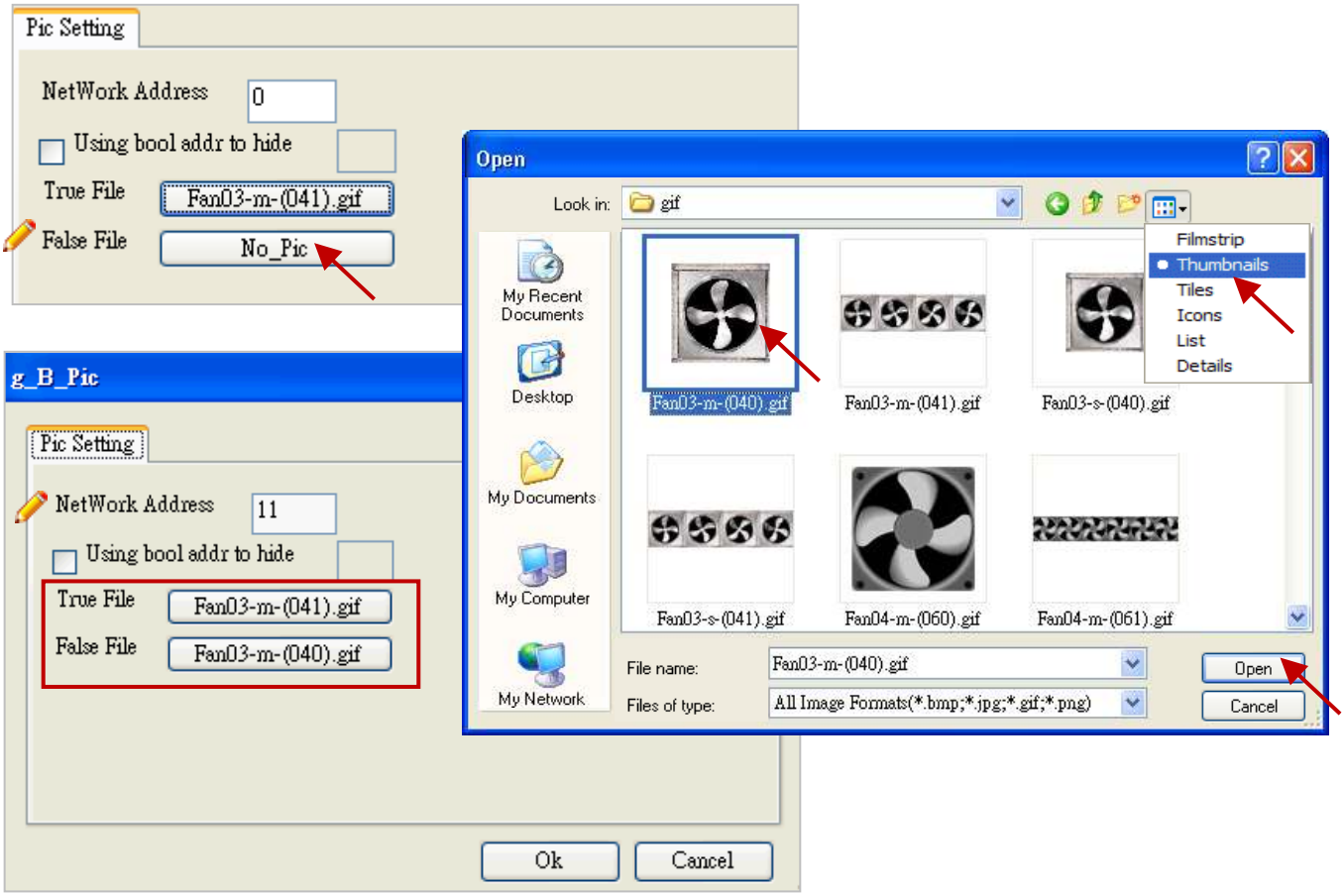
2. Set the "True File", which means to display a picture when read a "True" state, and you can also set it to a dynamic image (i.e., ".GIF", it must match the specific format of the Soft-GRAF). These pictures are located at the "\Soft-GRAF Studio\gif\" path in the "faq146_chinese_demo" zip file.



Select the “Fan03-m-(041).gif”, then click "Open".

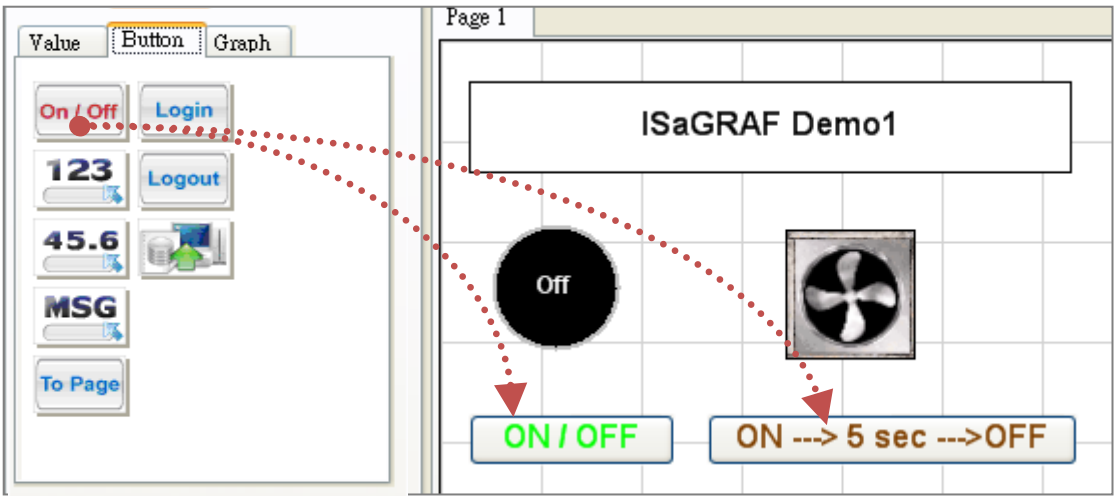
Note: More useful pictures are located at the "D:\Soft-GRAF Studio\button", "Led" and "more_pic" folder. (Refer Appendix B for more about the dynamic image format)

3. Set the "False File" to "Fan03-m-(040).gif", and set the "network address" to "11".

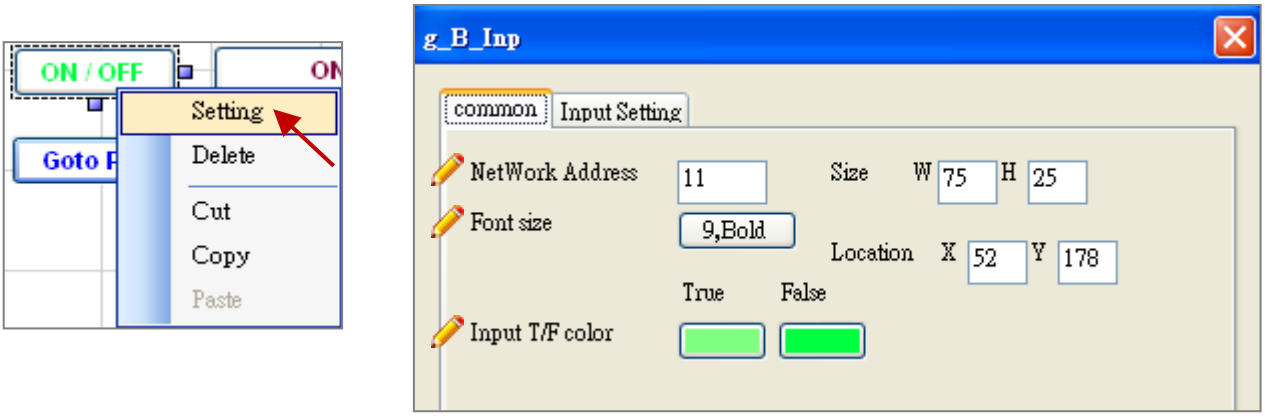


D. Create two "g_B_Inp" objects:

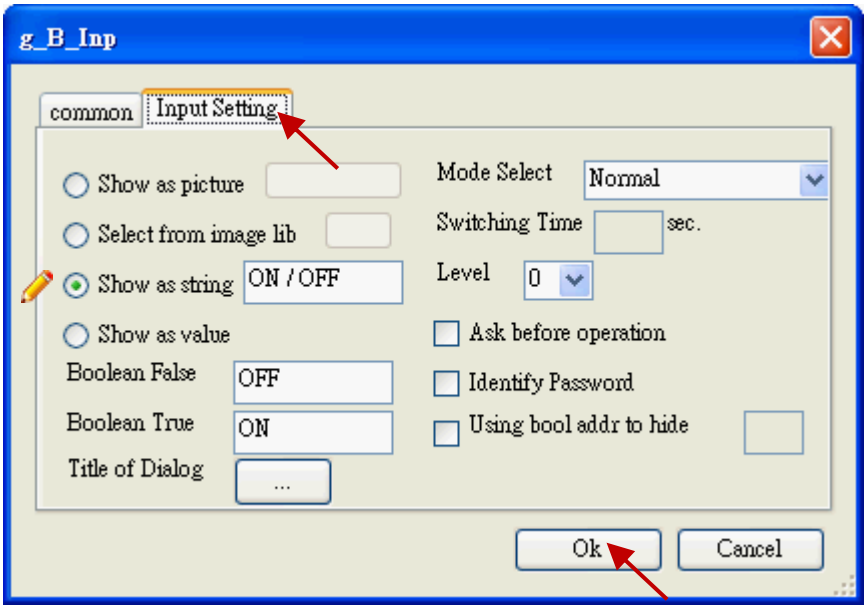
1. Drag & drop two "g_B_Inp" objects into the editing area by turns.



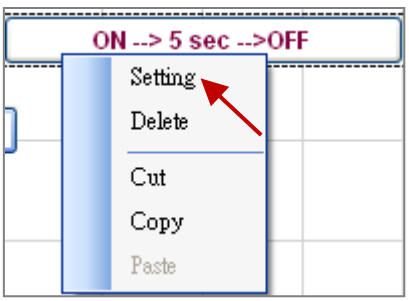
2. Right-click this object and select the “Setting” to open the settings window. Then, set the "network address" to "11“, the "Font size" to "9, Bold" and the "Input T/F color" to both the same color.



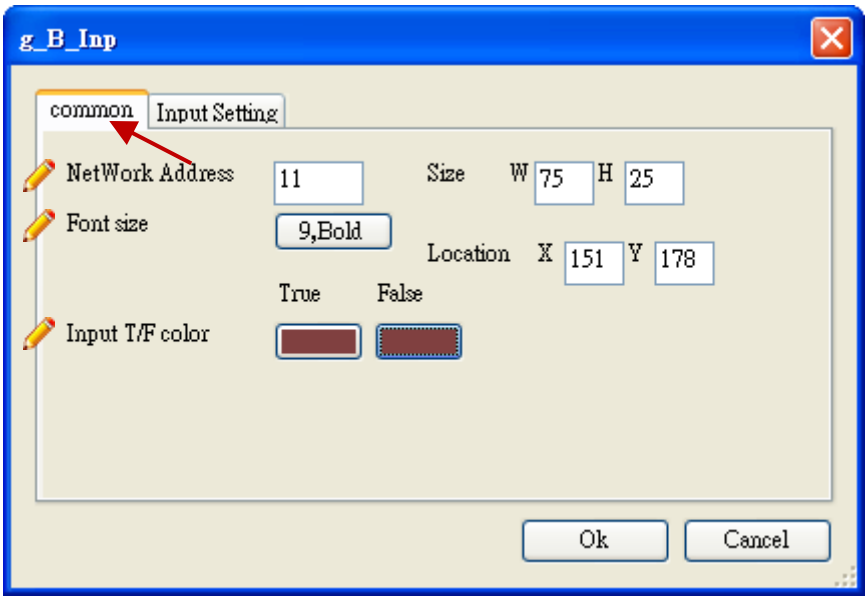
3. After clicking the “Input Setting” tab, enter the “ON / OFF“ in the “Show as string” text box and then click the “Ok” button to finish this setting.



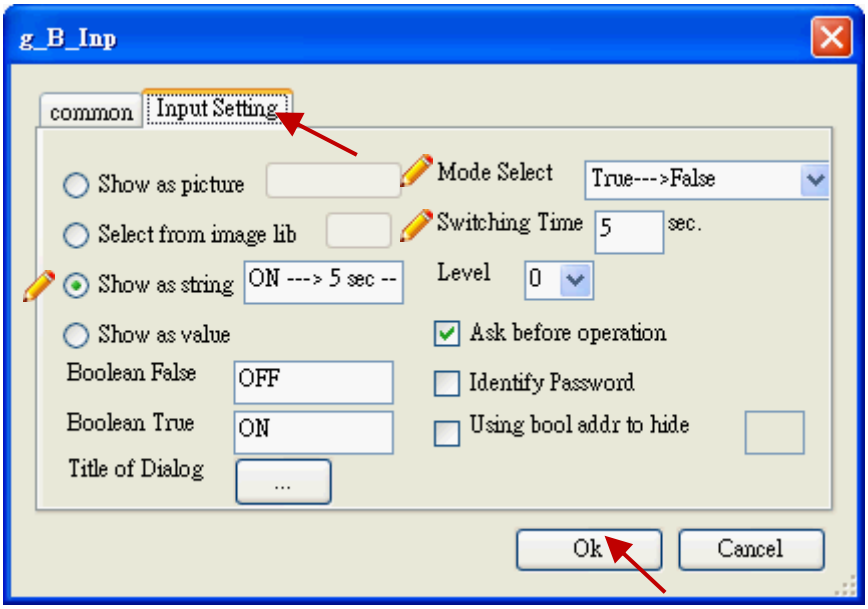
4. Next, set the 2nd "g_B_Inp" object, right-click on it and select "Setting" to open the settings window.



Set the "network address" to "11“, the "Font size" to "9, Bold" and the "Input T/F color" to both the same color.

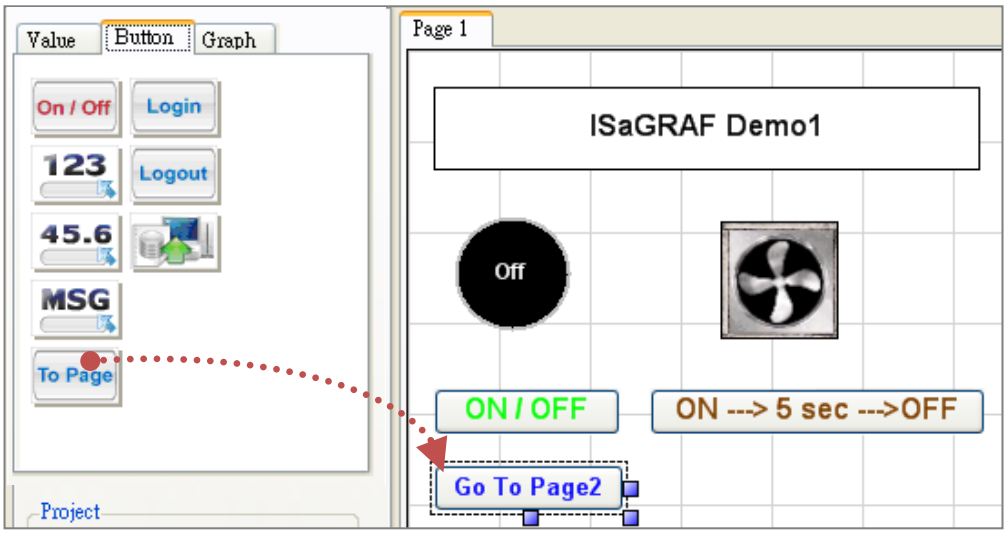


5. Click the “Input Setting” tab, and then enter “ON → 5 sec → OFF“ in the “Show as string” text box. Select the “True → False” option at the "Mode Select" item and set the “Switching Time” to 5 seconds. Then, check the "Ask before operation“ box and click the “Ok” button to finish this setting.

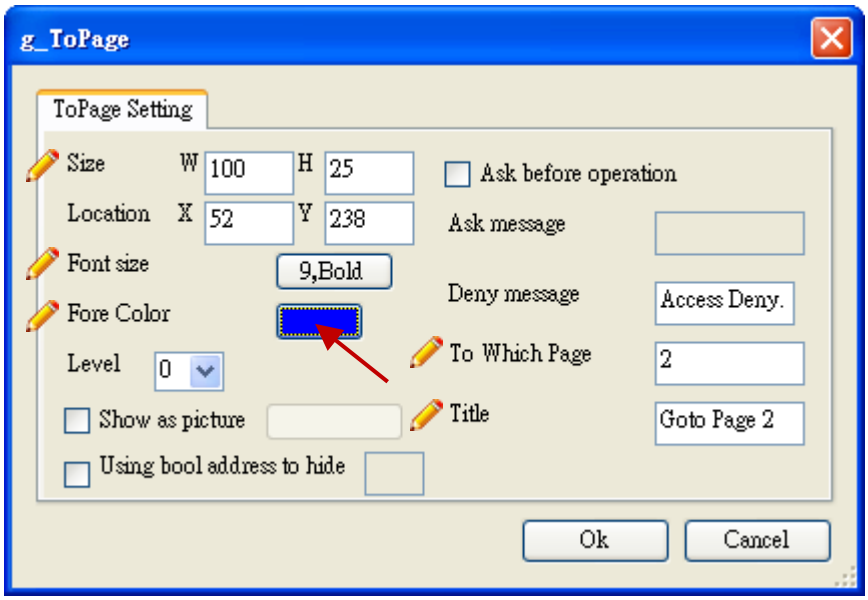


E. Create a "g_ToPage" object:

1. Drag & drop a "g_ToPage" object into the editing area.



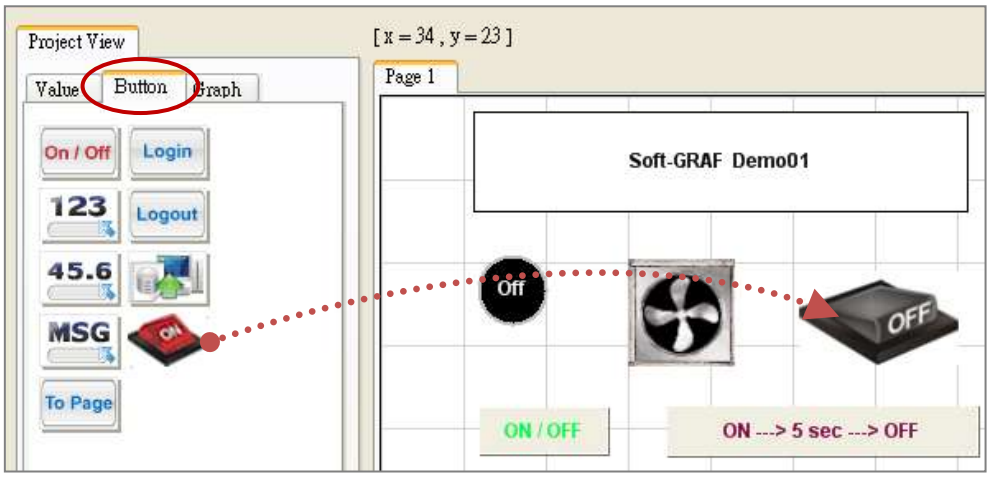
2. Right-click this object and select the “Setting” to open the settings window. Then, set the "Size" to Width: 100, Heigh: 25, the "Font size" to "9, Bold", the "Fore color" to the same color like the figure below, the “To Which Page” to "2" and set the “Title” to "Goto Page 2".



For easy to use, the Soft-GRAF Studio V.1.10 provides an image library function by adding a button object (i.e., "g_B_Inp_Lib") and a graph object (i.e., "g_B_Pic_Lib") in the "HMI object area" (refer Section 3.4 for details). The following steps will describe how to create these two objects in this Demo01.

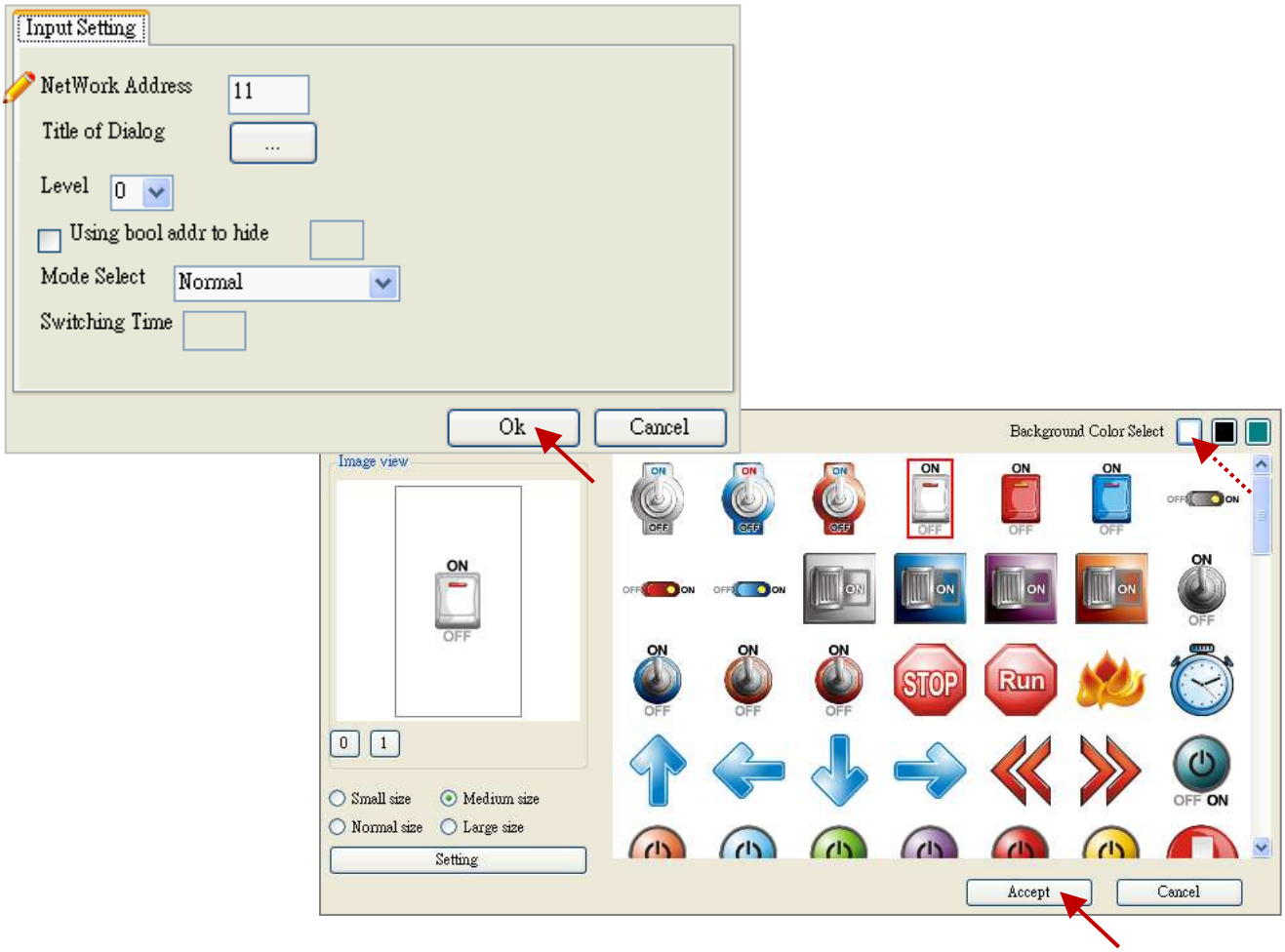
F. Create a "g_B_Inp_Lib" object:

1. Drag & drop the "g_B_Inp Lib" object from the "Button" HMI object area to the editing area.



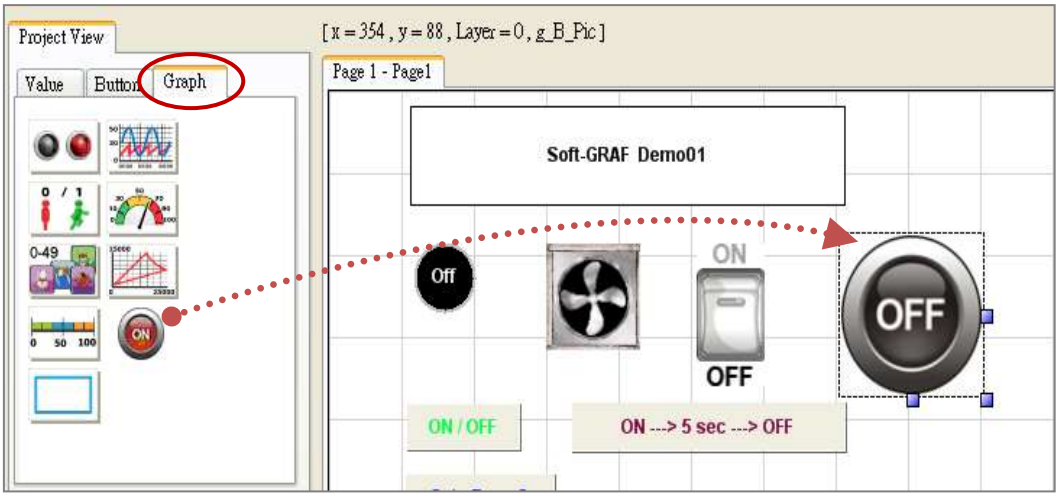
2. Double-click this object to open the "Image Library" window and then select an image (note: click the "0" or "1" button to preview the On/Off state for this image). Click the "Small size / Medium size / Normal size / Large size" option to change the image size. Moreover, click the top-right three color buttons to change the image background color. Then, click “Setting” button.

3. In the "Input Setting" tab, set the "network address" to "11“ and click the "Ok" button to back to the "Image Library" window and then click the "Accept" button to finish this setting.



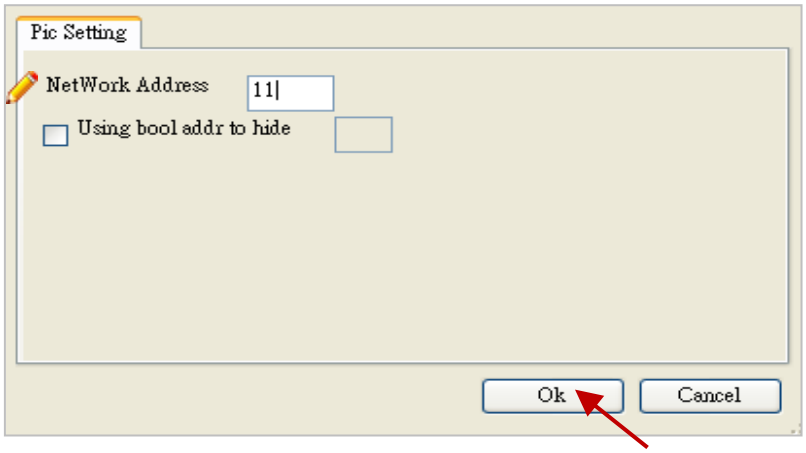
G. Create a "g_B_Pic_Lib" object:

1. Drag & drop the "g_B_Pic_Lib" object from the "Graph" HMI object area to the editing area.

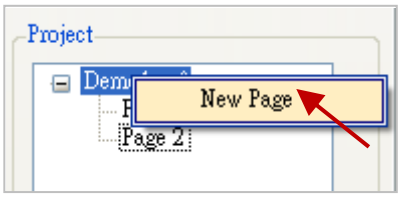


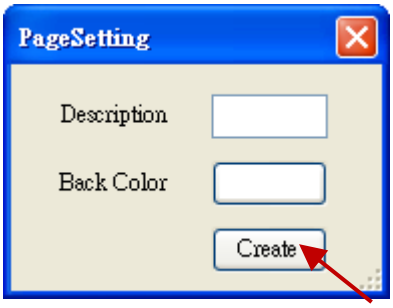
Double-click this object to open the "Image Library" window, and then select an image and click the "Setting" button.

Set the "network address" to "11" and click the "ok" button to back to the "Image Library" window, then click the "Accept" button to finish this setting.

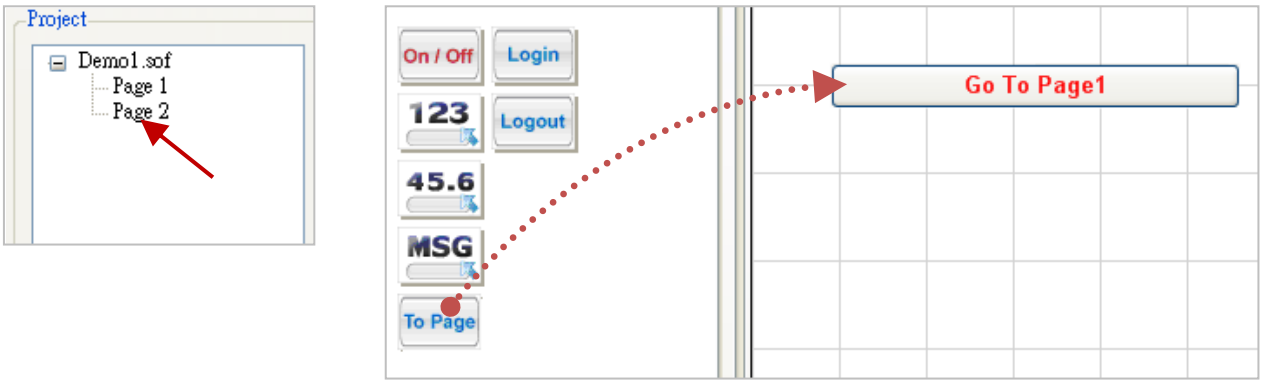


In the HMI page area, right-click on the "Demo1.sof" and select "New Page" to create the second page. Then, the user can only click the "Create" button without any setting.

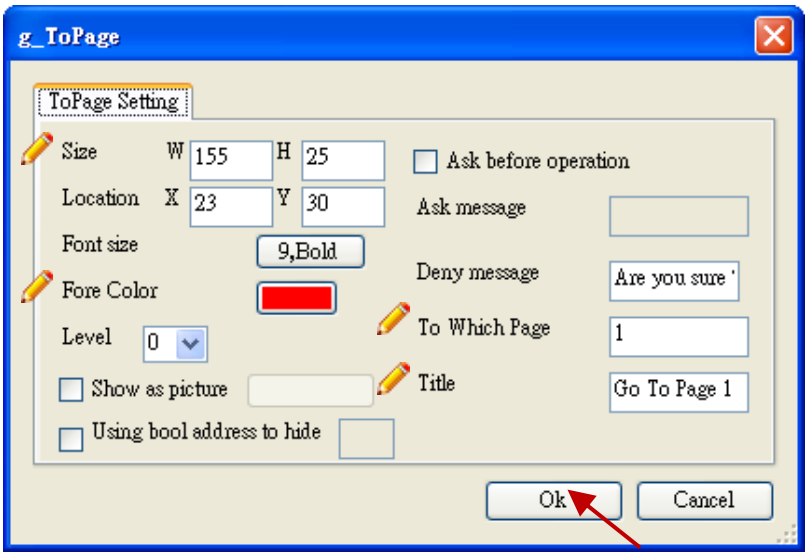




Click the "Page 2" to switch to the 2nd page, and then drag & drop the "g_ToPage" object to the editing area that used to switch to the 1st page.



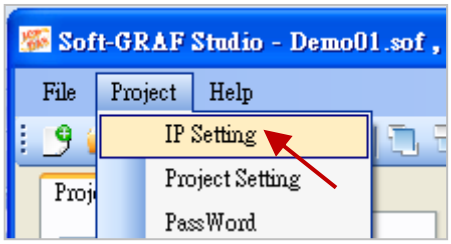
In the setting window, set the Size to W: "155", H: "25", the "Fore Color" to the color as the figure below, the "To Which Page" to "1" and the "Title" to "Go To Page 1", then click the "Ok" button to finish this setting.

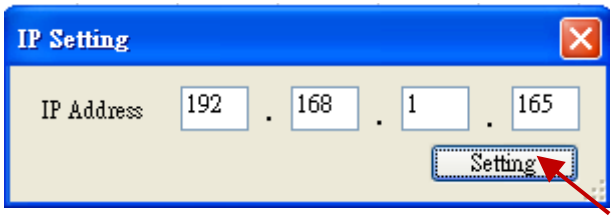


2.2.4 Download the Soft-GRAF Studio project

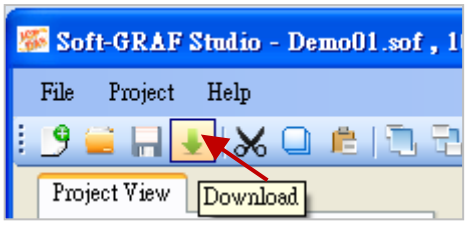
Download Setting:

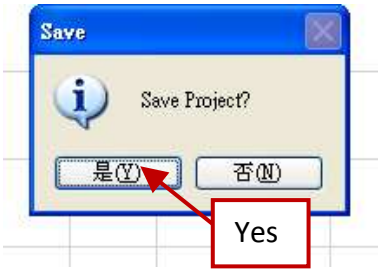
1. Click the menu bar "Project" → "IP Setting" and enter the IP address of the ISaGRAF PAC, then click the "Setting" button.



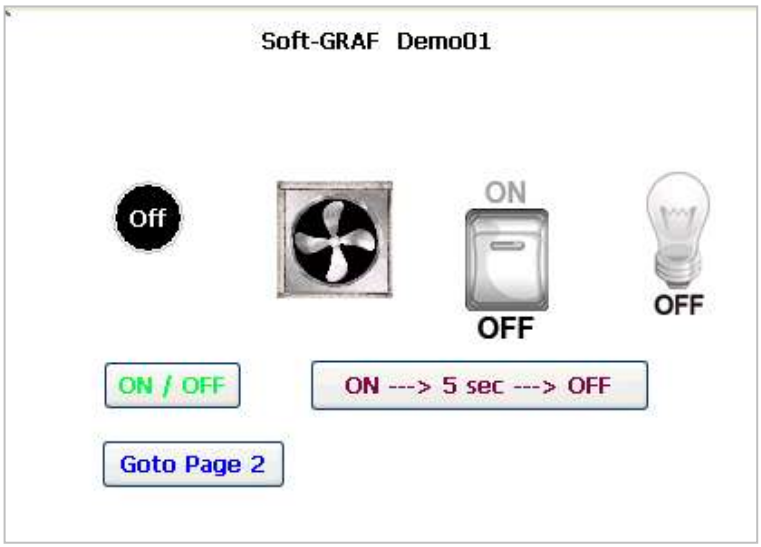


2. Click the "Download" tool button (or the menu bar "Project" → "Download") and click "Yes" in the "Save" window to start the download process.





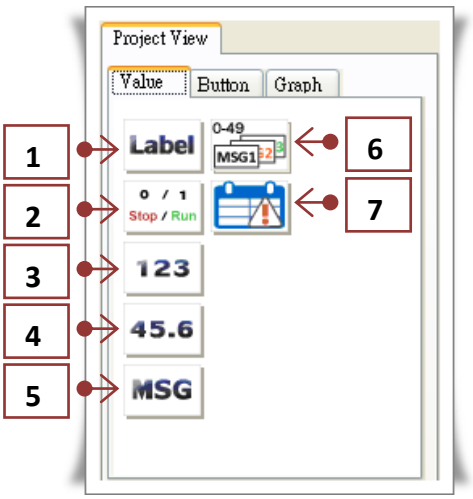
3. After downloading, the first HMI page (i.e. Page 1) will show on the PAC screen (or an external VGA monitor).



Chapter 3 Description of the HMI Object

The Soft-GRAF Studio provides three types of objects in the HMI object area, they are "Value", "Button" and "Graph" objects. This chapter will describe all settings for each objects one by one.

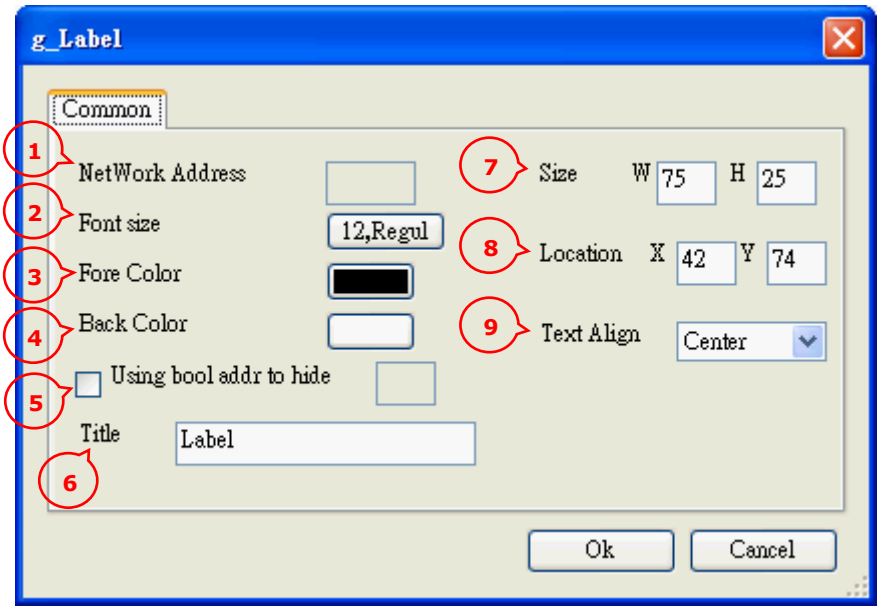
3.1 Introduction of the HMI Object Area – Value



HMI Object Area - Value		
1	g_Label	Display a label.
2	g_B_Val	Using a text to show a Boolean value (e.g., Run/Stop).
3	g_ WD_Val g_N_Val	Display an Integer value (16-bit or 32-bit) or a Float value (32-bit long).
4	g_F_Val	
5	g_M_Val	Display a Message value.
6	g_N_Text	Display a Text according to a different Integer value (16-bit).
7	g_Alarm	Display an Alarm list to show the triggered alarm message and provide the FTP upload function.

3.1.1 Value object - g_Label

Display a label.



Setting items:

(1) Network address: The defined network address of the ISaGRAF variable.
(Refer Section 2.2.1, useless for this g_Label object)

(2) Font size: Set the font style and size.

(3) Fore color: Set the text color.

(4) Back color: Set the background color of this object.

(5) Using bool address to hide:
Check this box and enter the address of the ISaGRAF Boolean variable. This object will become invisible if the boolean value is "True"; it will appear if the boolean value is "False".
(E.g., there is one ISaGRAF variable "Hide" with the network address as 10. Set this item to 10. It will hide the object if the "Hide" is "True", and show the object if the "Hide" is "False".)

(6) Size: Set the object size. "W" stands for Width and "H" stands for Height.

(7) Location: Set the X, Y position of this object. (Refer Section 4.3.1 for the axis range)

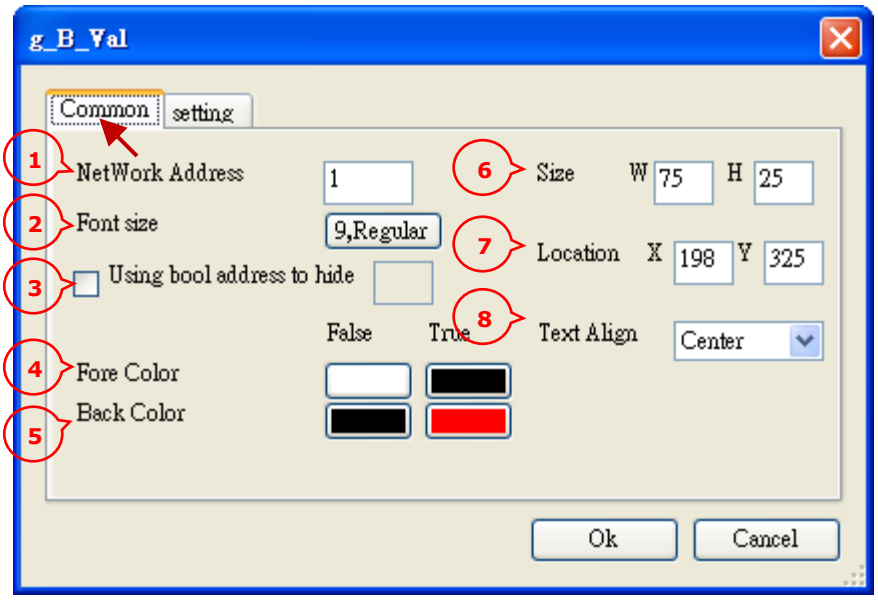
(8) Text align: Set the text alignment of this object (e.g., Left, Right or Center).

(9) Title: Set the text shown on the label.
(Double-click this text box to open the editing window if you need to enter a lot of text.)

3.1.2 Value object - g_B_Val

Using a text to show a Boolean value (e.g., Run/Stop).

Description:	Value = True	Value = False
Displayed Style:	Working	Stop



Setting items:

(1) Network address: Enter the defined network address of the ISaGRAF "Boolean" variable.
(Refer Section 2.2.1).

(2) Font size: Set the font style and size.

(3) Using bool address to hide:
Check this box and enter the address of the ISaGRAF Boolean variable. This object will become invisible if the boolean value is "True"; it will appear if the boolean value is "False".
(E.g., there is one ISaGRAF variable "Hide" with the network address as 10. Set this item to 10. It will hide the object if the "Hide" is "True", and show the object if the "Hide" is "False".)

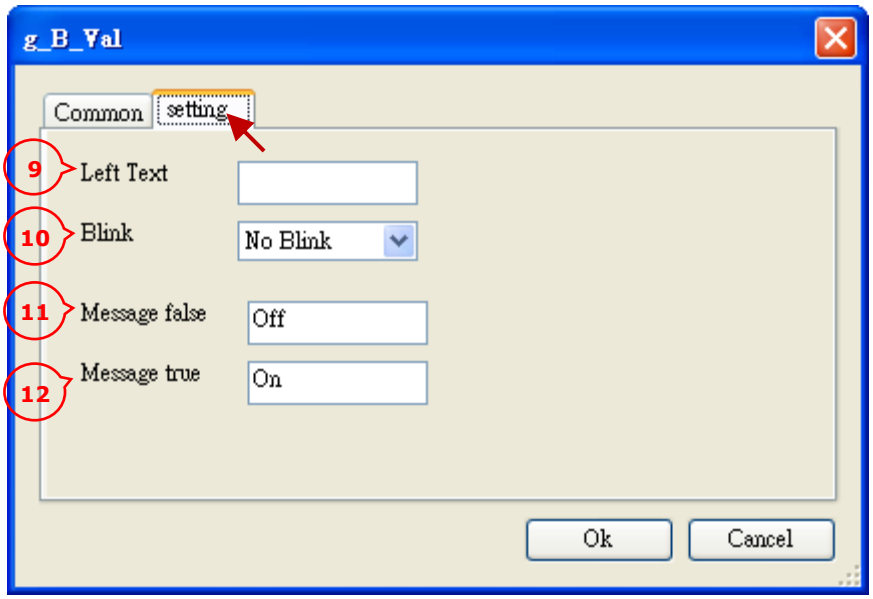
(4) Fore color: Set the text color.
True: Display a text color when this ISaGRAF Boolean value is "True".
False: Display a text color when this ISaGRAF Boolean value is "False".

(5) Back color: Set the background color of this object.
True: Display a background color when this ISaGRAF Boolean value is "True".
False: Display a background color when this ISaGRAF Boolean value is "False".

(6) Size: Set the object size. “W” stands for Width and “H” stands for Height.

(7) Location: Set the X, Y position of this object. (Refer Section 4.3.1 for the axis range)

(8) Text align: Set the text alignment of this object (e.g., Left, Right or Center).



(9) Left text: Set a fixed text to show on the left side of this object value. For example, set the text to "Status: ", and the PAC screen will show "Status: True" when this ISaGRAF Boolean value is “True”.

(10) Blink: Set to show a blinking text or not blinking.

No Blink: Display a text without blinking.

Blink when true: Blink when this Boolean value is "True".

Blink when false: Blink when this Boolean value is "False".

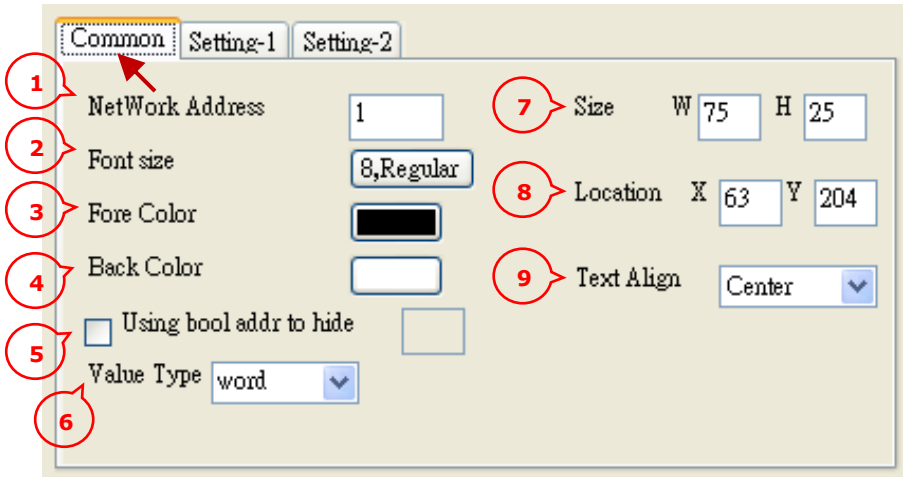
All Blink: Display a blinking text.

(11), (12): Set the displayed text when this Boolean value is "True" or "False".

3.1.3 Value object - g_WD_val, g_N_val, g_F_val

Display an integer value (16-bit signed or 32-bit long) or a float value (32-bit floating point).

	Soft-GRAF Studio:		PAC:	
Description:	**Set the fixed text**	**Show as value**	**Show the text & value**	**Show the value**
Displayed Style:	Pressure: ## Pa	Val	Pressure: 5 Pa	5



Setting items:

(1) Network address: Enter the defined network address of the ISaGRAF "Integer/Real" variable.

(**Note:** Using an ISaGRAF 32-bit Integer or a 32-bit Real variable must occupy two addresses, refer Section 2.2.1 or ISaGRAF Web Page > Manual > the section 4.2 of the "ISaGRAF User's Manual")

(2) Font size: Set the font style and size.

(3) Fore color: Set the text color.

(4) Back color: Set the background color of this object.

(5) Using bool address to hide:

Check this box and enter the address of the ISaGRAF Boolean variable. This object will become invisible if the boolean value is "True"; it will appear if the boolean value is "False".

(E.g., there is one ISaGRAF variable "Hide" with the network address as 10. Set this item to 10. It will hide the object if the "Hide" is "True", and show the object if the "Hide" is "False".)

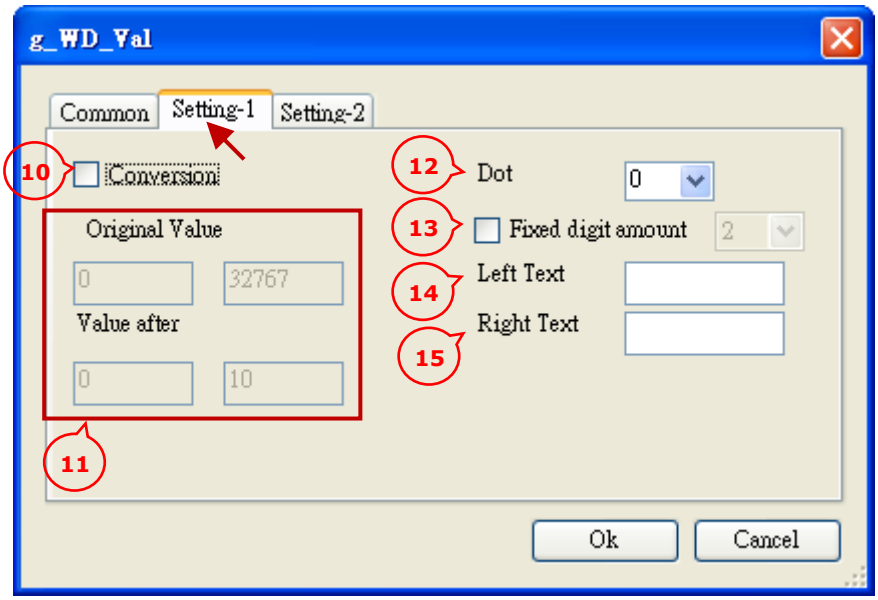
(6) Value type: Select the value type for ISaGRAF variable (e.g., 16-bit word or 32-bit long).

(The "g_F_Val" without using this setting)

(7) Size: Set the object size. "W" stands for Width and "H" stands for Height.

(8) Location: Set the X, Y position of this object. (Refer Section 4.3.1 for the axis range)

(9) Text align: Set the text alignment of this object (e.g., Left, Right or Center).



(10) Conversion: Select this check box to enable the value conversion.
(The "g_F_val" object allows to enter a floating value)

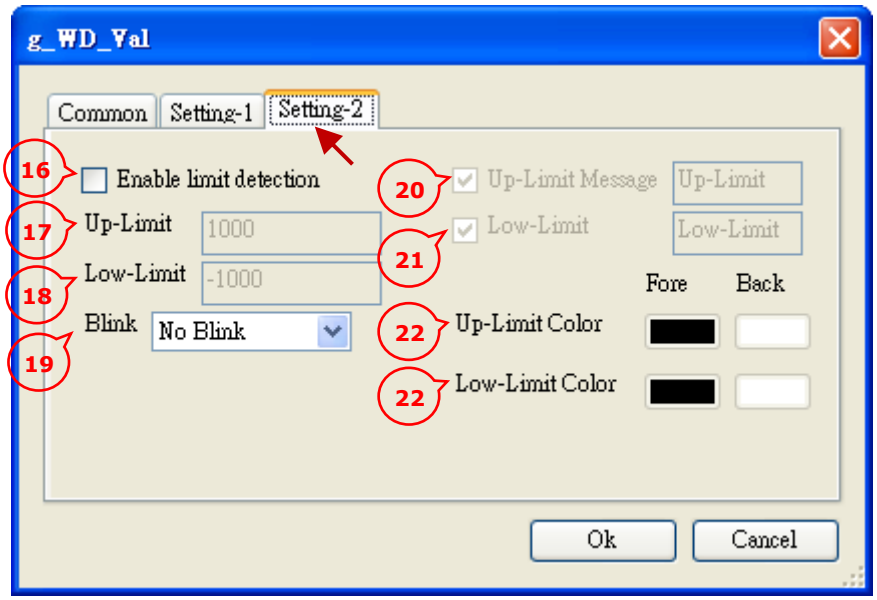
(11) Original value: Set the range of the received value (e.g., 0 to 32767 or 0 to 65535 or other).
Value after: Set the range of the converted value.
(E.g., If the "original value" is set to "0 to 32767" and the "Value after" is set to "0 to 1000", which means to convert the value ranging from 0 to 32767 into a range of 0 to 1000, that is, the value "16384" will be converted to "500".)

(12) Dot: Set to show the number of decimal places of the converting (or no converting) value.
(E.g., If set the "Dot" to "3", the original value "32767" will be shown as "32.767")

(13) Fixed digit amount: Set a fixed-length number to show leading zeros.
(Only for the "g_WD_Val" and "g_N_Val" objects).
(E.g., If set it to "3", the value "6" will be shown as "006" and the value "62" will be shown as "062".)

(14) Left text: Set a fixed text to show on the left side of this object value.

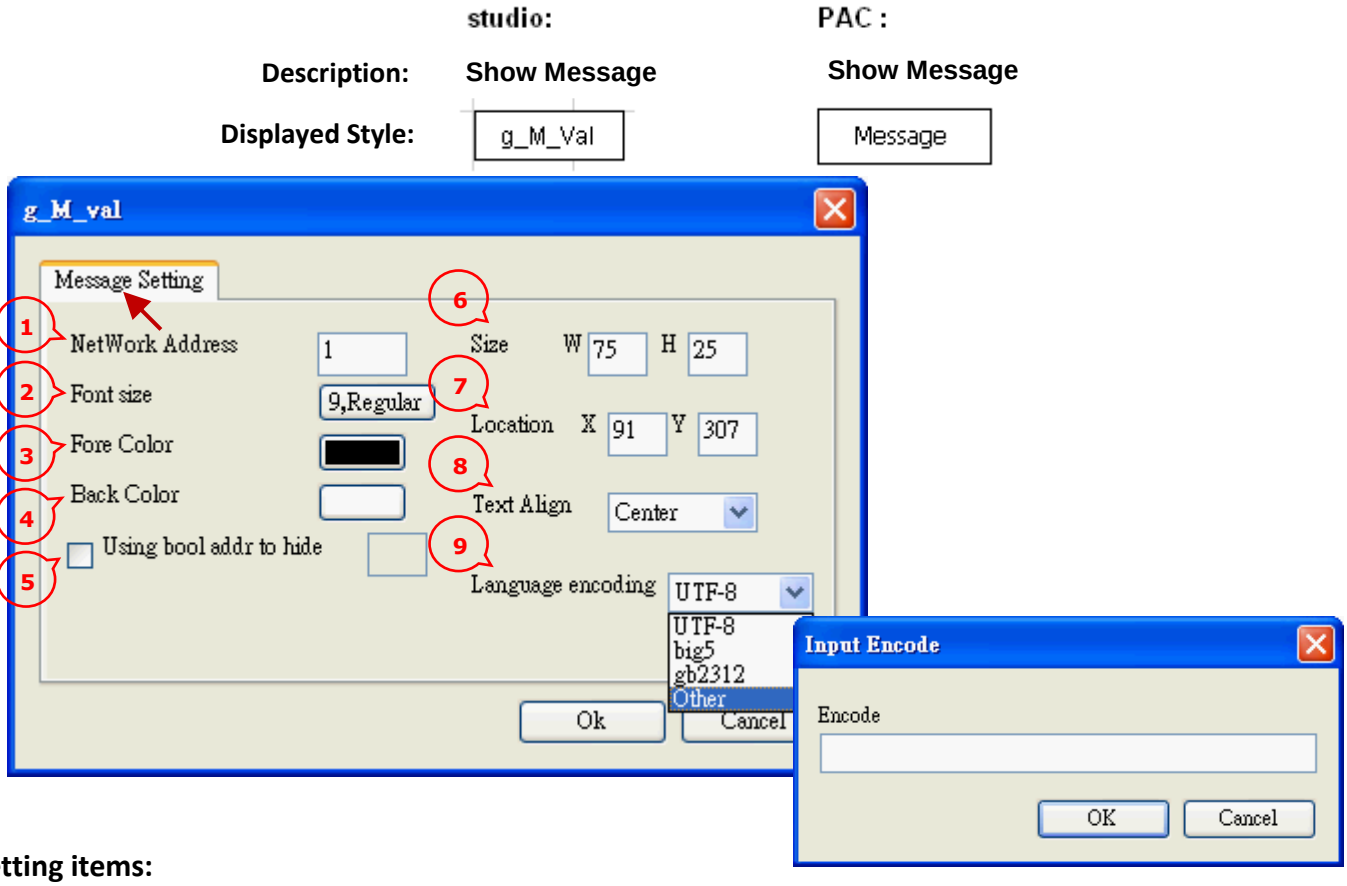
(15) Right text: Set a fixed text to show on the right side of this object value.



(16) Enable limit detection: Check this box to enable the detection of the limit value.
(17) Up-limit: The upper range value.
(18) Low-limit: The lower range value.
(19) Blink: Set to display a blinking content or not blinking.
(20) Up-limit message: Check the "Enable limit detection" box to allow this setting.
Set to show the text when a value is over the "Up-limit“ value.
(21) Low-limit message: Check the "Enable limit detection" box to allow this setting.
Set to show the text when a value is over the "Low-limit“ value.
(22) Up-limit color: Check the "Enable limit detection" box to allow this setting.
Set to show the text color and background color when a value is over the "Up-limit“ value.
(23) Low-limit color: Check the "Enable limit detection" box to allow this setting.
Set to show the text color and background color when a value is over the "Low-limit“ value.

3.1.4 Value object - g_M_val

Display a message value.



Setting items:

(1) Network address: Enter the defined network address of the ISaGRAF "Message" variable.
(Refer Section 2.2.1).

(2) Font size: Set the font style and size.

(3) Fore color: Set the text color.

(4) Back color: Set the background color of this object.

(5) Using bool address to hide:

Check this box and enter the address of the ISaGRAF Boolean variable. This object will become invisible if the boolean value is "True"; it will appear if the boolean value is "False".
(E.g., there is one ISaGRAF variable "Hide" with the network address as 10. Set this item to 10. It will hide the object if the "Hide" is "True", and show the object if the "Hide" is "False".)

(6) Size: Set the object size. “W” stands for Width and “H” stands for Height.

(7) Location: Set the X, Y position of this object. (Refer Section 4.3.1 for the axis range)

(8) Text align: Set the text alignment of this object (e.g., Left, Right or Center).

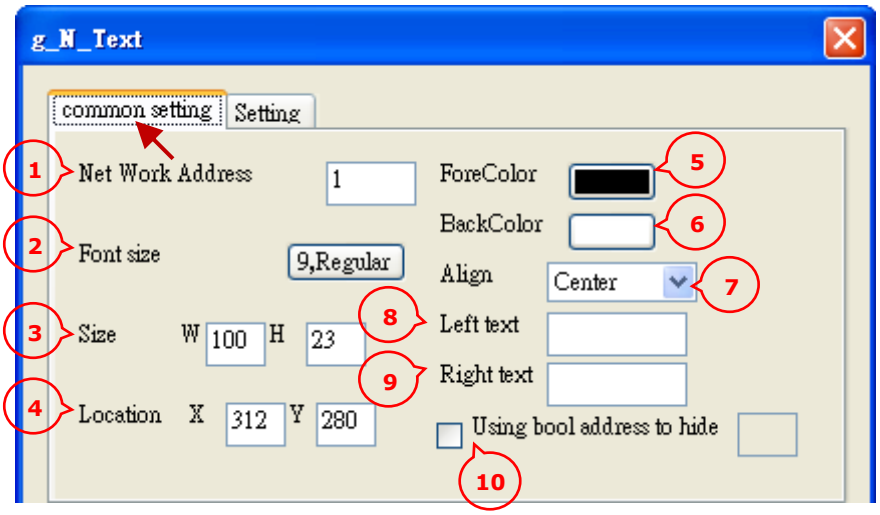
(9) Language encoding: Select the text encoding.

(UTF-8: English ; big5: Traditional Chinese ; gb2312: Simplified Chinese ;
Other: Select this option to input other encoding in the "Input Encode" window.)

3.1.5 Value object - g_N_Text

Display a text according to a different integer value (16-bit).

Studio:		PAC:		
Description:		**Value = 0**	**Value =1**	**Value = 2**
Displayed Style:	g_N_Text	OK! Enjoy it ~	OKay! Have fun ~	I like it, too !!



Setting items:

(1) Network address: Enter the defined network address of the ISaGRAF "Integer" variable.
(Refer Section 2.2.1)

(2) Font size: Set the font style and size.

(3) Size: Set the object size. “W” stands for Width and “H” stands for Height.

(4) Location: Set the X, Y position of this object. (Refer Section 4.3.1 for the axis range)

(5) Fore color: Set the text color.

(6) Back color: Set the background color of this object.

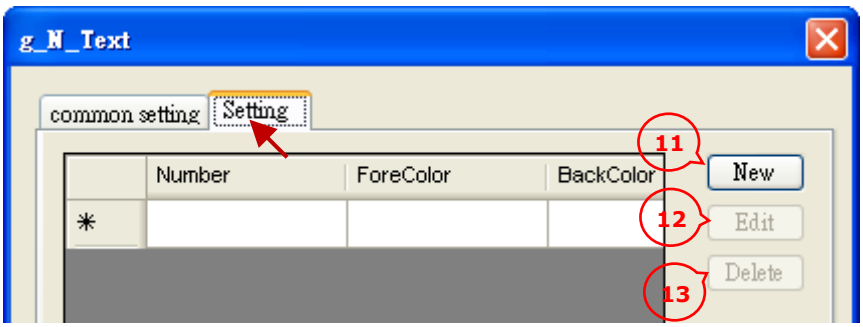
(7) Align: Set the text alignment of this object (e.g., Left, Right or Center).

(8) Left text: Set a fixed text to show on the left side of this object value.

(9) Right text: Set a fixed text to show on the right side of this object value.

(10) Using bool address to hide:

Check this box and enter the address of the ISaGRAF Boolean variable. This object will become invisible if the boolean value is "True"; it will appear if the boolean value is "False".
(E.g., there is one ISaGRAF variable "Hide" with the network address as 10. Set this item to 10. It will hide the object if the "Hide" is "True", and show the object if the "Hide" is "False".)



(11) New: Add a text and its corresponding value.
(12) Edit: Edit the selected item.
(13) Delete: Delete the selected item.

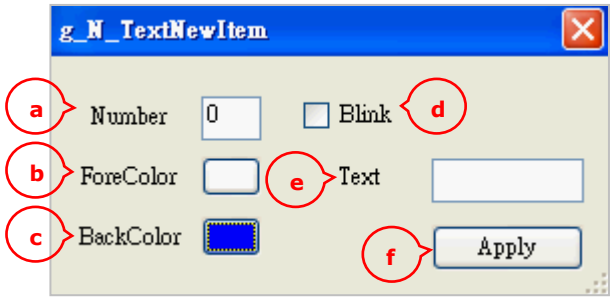
*** How to use?**

New: Click the "New" button to show this setting window.

(a) Number:

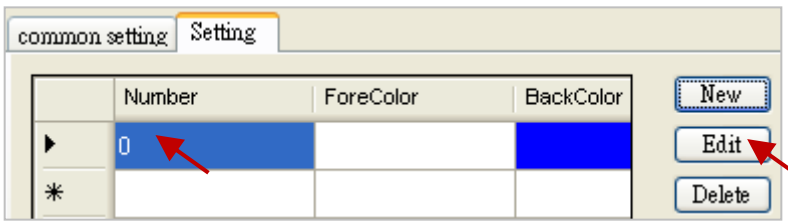
Assign a value (up to 50 numbers, 0 to 49).
When the Boolean value is equal to this value, it will show the corresponding text.

(b) Fore color: Set the text color.
(c) Back color: Set the background color.
(d) Blink: Check this box to enable blinking.
(e) Text: Set the corresponding text.
(f) Apply: Apply the settings.



Edit

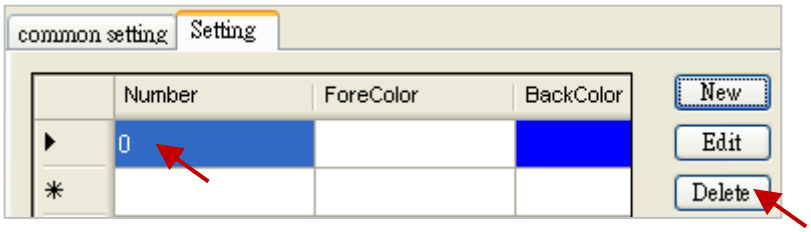
Select the item you want to edit, and click the "Edit" button to open the above setting window. Then, click "Apply" after completing settings.



Note: By default, the 1st item will be selected automatically if the user only click the button.

Delete

Select the item you want to delete, and click the "Delete" button to delete it.



3.1.6 Value object - g_Alarm

Display an alarm list to show the triggered alarm message and provide the FTP upload function.

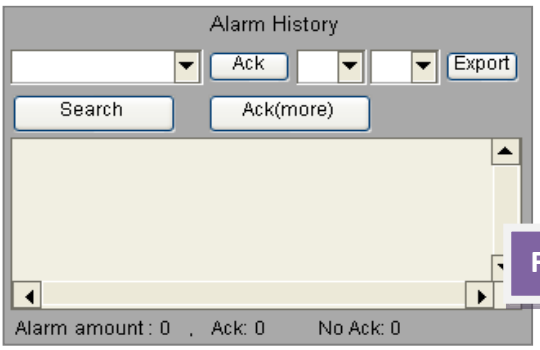
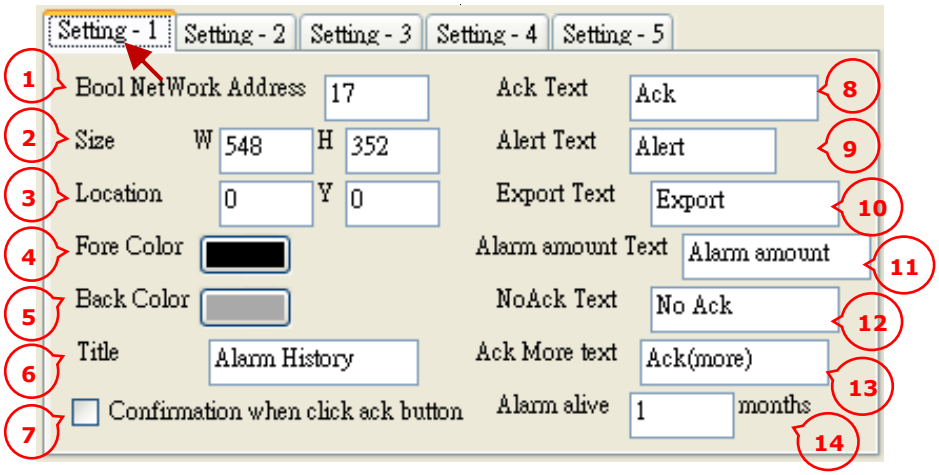


Figure 1

One PAC can enable one "g_Alarm" object only. Users can refer Section 5.4 - Demo07 to know how to use the ISaGRAF project to trigger and record alarm messages.



Setting items:

(1) Bool network address: Enter the defined network address of the ISaGRAF “Boolean” variable (refer Section 2.2.1). The ISaGRAF "MSGARY_W(-9, msg)" function can be used to trigger the alarm message (refer Section 5.4).

(2) Size: Set the object size. “W” stands for Width and “H” stands for Height.

(3) Location: Set the X, Y position of this object. (Refer Section 4.3.1 for the axis range)

(4) Fore color: Set the text color.

(5) Back color: Set the background color of this object.

(6) Title: Set the title of this alarm object (e.g., "Alarm History" in the Figure 1).

(7) Confirmation when click ack button:

Check this box to show up a confirmation window after clicking the “Ack” button.

(8) Ack text: Set a text shown on the "Acknowledge" button and status bar.

(E.g., "Ack" in the Figure 1).

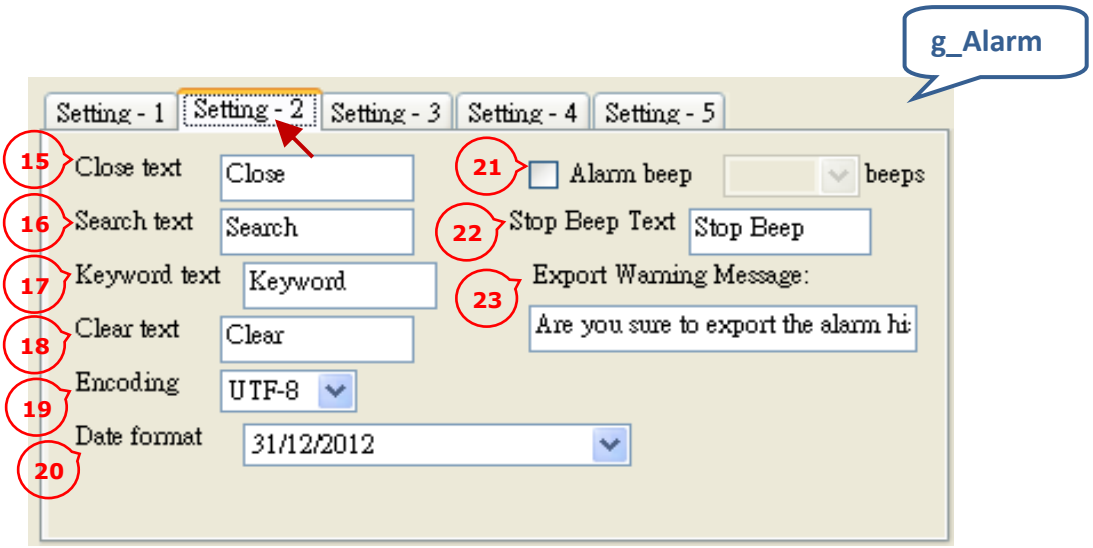
(9) Alert text: Set the title shown in the alarm confirmation window (e.g., "Alert" in the Figure 2).

(10) Export text: Set a text shown on the "Export" button (refer the Figure 1).

(11) Alarm amount text: Set a text to represent the number of alarms shown on the status bar.

(E.g., "Alarm amount" in the Figure 1).

(12) NoAck text: Set a text to represent the number of unconfirmed alarms shown on the status bar.
(E.g., "No Ack" in the above Figure 1).
(13) Ack, more text: Set a text shown on the button which used to confirm all alarms.
(E.g., the "Ack(More)" button in the above Figure 1).
(14) Alarm alive: Set the retention period for alarms (range: 1 to 12 months).



Refer the next page (Figure 2) to view the “g_Alarm” object shown on the PAC screen.
Users can use their local language to set the following content.
(15) Close text: Set a text shown on the "Close" button.
(16) Search text: Set a text shown on the "Search" button.
(17) Keyword text: Set a text used to mean "Keyword" in the "Search" window.
(18) Clear text: Set a text shown on the "Clear" button in the "Search" window.
(19) Encoding:
The text encoding for an ISaGRAF project to show alarm messages.
(UTF-8: English ; big5: Traditional Chinese ; gb2312: Simplified Chinese ;
Other: Select this option to input other encoding in the "Input Encode" window.)
(20) Date format: Set the date format shown on the "Alert" window.
(21) Alarm beep: Set the number of the PAC beeps for an alarm happened. (Only for the VP-25W7/23W7)
(22) Stop beep text: Set a text shown on the "Stop Beep" button.
(23) Export Warning Message:
Set the warning text shown in the "Export" window
E.g., "Are you sure to export the alarm history to the USB pen drive (Overwrite the existing files)?"

The operating PAC screen:

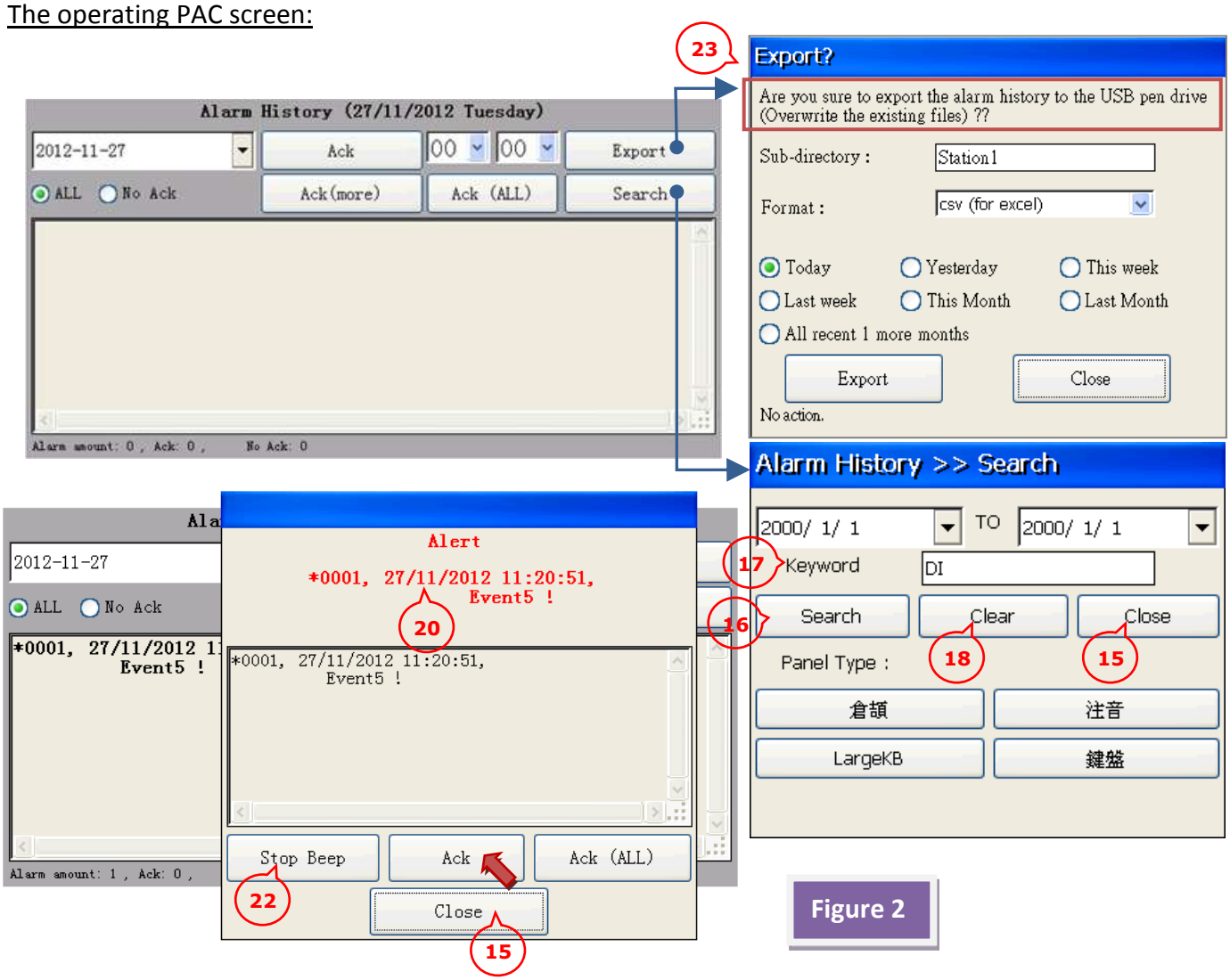


Figure 2

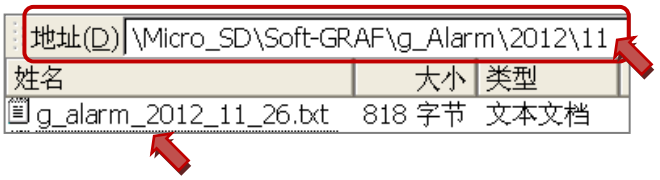
※ **Refer Section 5.4 - Demo07 How to trigger and record an alarm message via the ISaGRAF?**

※ Up to 3000 alarm messages can be recorded per day. (Do not record if over the limits of 3000).

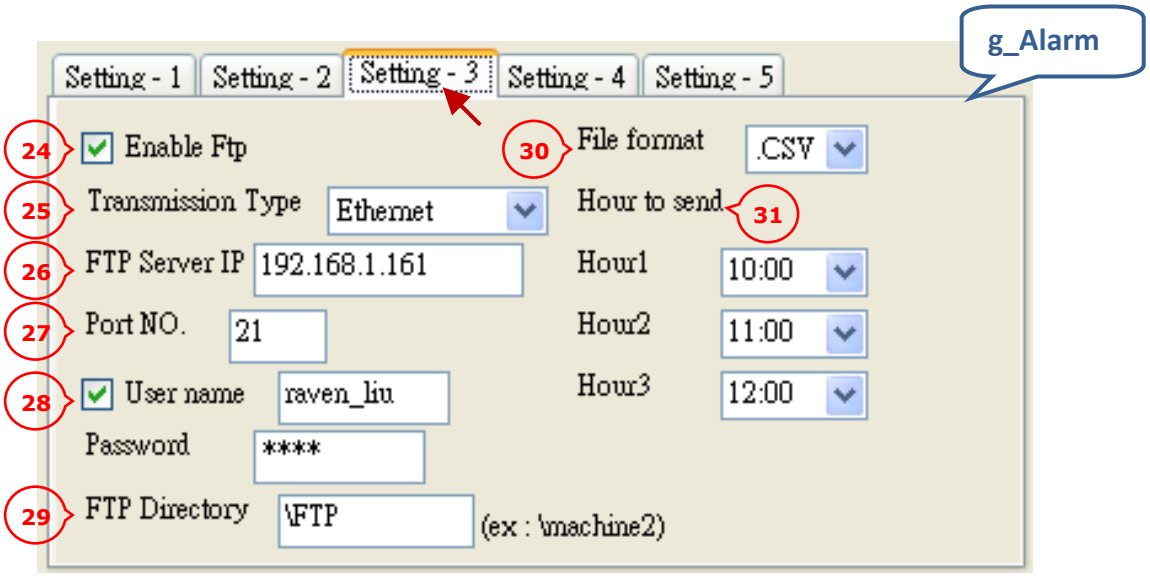
※ If you want to delete the alarm records, it needs to stop the ISaGRAF PAC Driver (Refer Section 1.2.1) and delete the log files in the correct folder, then reboot the PAC.

WP-5147, WP-8xx7, VP-2xW7/4xx7:
"**\Micro_SD**\Soft-GRAF\g_Alarm\"

XP-8xx7-CE6/8xx7-Atom-CE6:
"**\System_Disk2**\Soft-GRAF\g_Alarm\"



For instance, "\2012\11\g_alarm_2012_11_26.txt" (Auto created folder "\Year\Month\Log File").
Or, "**\Email_ETH**\g_Alarm\ g_alarm_2012_11_26.txt" (Temp file)



(24) Enable FTP:

Check this box to enable the FTP function to upload an alarm file from the PAC to the specified FTP Server.

(25) Transmission type:

"Ethernet" and "2G/3G Wireless" options are available. If using the "2G/3G Wireless" way to upload a file to an FTP Server, refer the Soft-GRAF Web Page > FAQ > FAQ-143 to set up the required software and hardware.

(26) IP: The IP address of an FTP Server (e.g., 192.168.1.161).

(27) Port no.: The communication port of an FTP Server, normally "21".

(28) User name & Password: Enter the username and password to log in to the FTP Server.

If the "User name" remains unchecked, users can log in by anonymous without the username and password.

(29) FTP directory: Upload a file to the specified folder on the FTP Server (defaults to the root: "\").

(E.g., if you want to upload a file to the"dir2" folder, set the path as "\dir2")

(30) File format: Select the file format (i.e., ".CSV" or ".TXT").

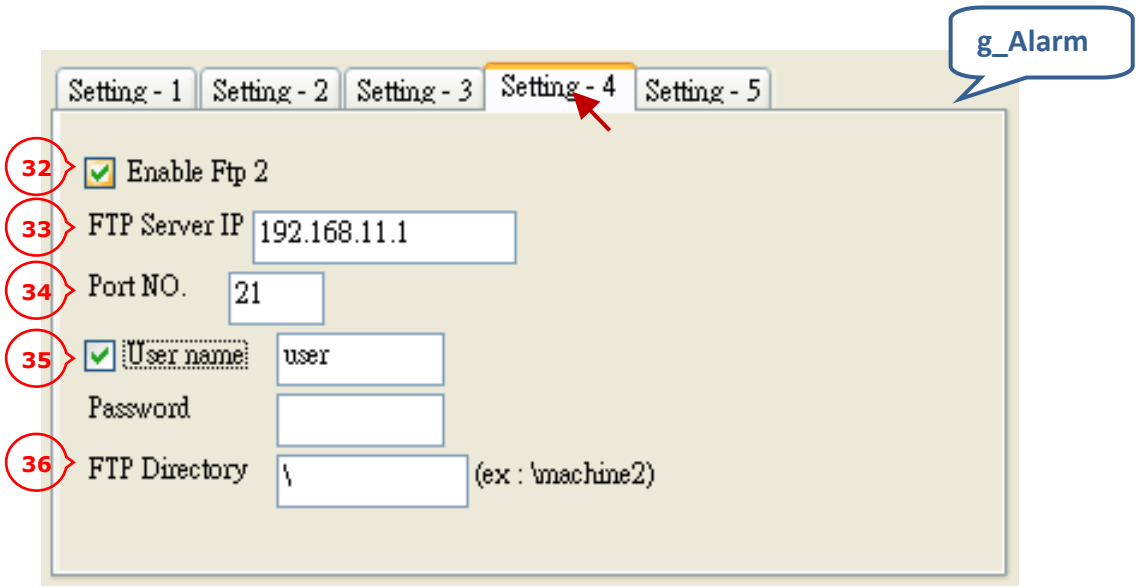
(31) Hour to send:

Set a daily time for file uploading. It allows to select three "n" o'clock sharp and the file will be sent after 3 minutes. (E.g., set it to "00:00" means that the file will be sent at 00:03)

(※ "Hour1": It will upload the data that be recorded from the previous day to the setting time.

"Hour2" or "Hour3":

It will upload the data that be recorded from today's 00:00 to the setting time.)



(32) Enable FTP 2:

Check this box to allow to upload the alarm file to the second FTP Server.

(33) FTP Server IP:

IP address of an FTP Server (e.g., 192.168.11.1).

(34) Port no.:

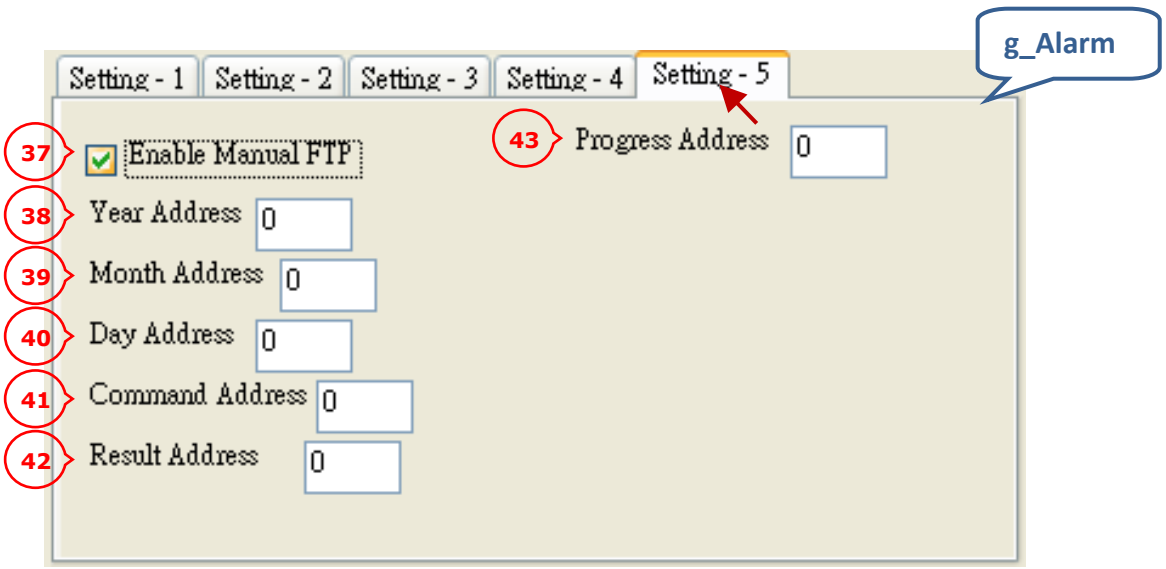
The communication port of an FTP Server, normally "21".

(35) User name & Password:

Enter the username and password to log in to the FTP Server.

(36) FTP directory:

Upload a file to the specified folder (e.g., default path: "\") on the FTP Server.



(37) Enable manual FTP setting:

Check this box to enable the FTP hand-operation uploading, it allows to upload the file with a specified date to the FTP Server.

※ **Refer the Demo8: Section 5.5- 4. FTP Loader or FAQ-158: Section 1.4 for more details.**

http://www.icpdas.com/root/support/faq/isagraf.php > FAQ-158

(38) Year address:

Enter the defined network address of the ISaGRAF “Integer” variable to access the "Year" data.

(39) Month address:

Enter the defined network address of the ISaGRAF “Integer” variable to access the "Month" data.

(40) Day address:

Enter the defined network address of the ISaGRAF “Integer” variable to access the "Date" data.

(41) Command address:

Enter the defined network address of the ISaGRAF “Integer” variable to start the file uploading.

(42) Result address:

Enter the defined network address of the ISaGRAF “Integer” variable to get the state of uploading.

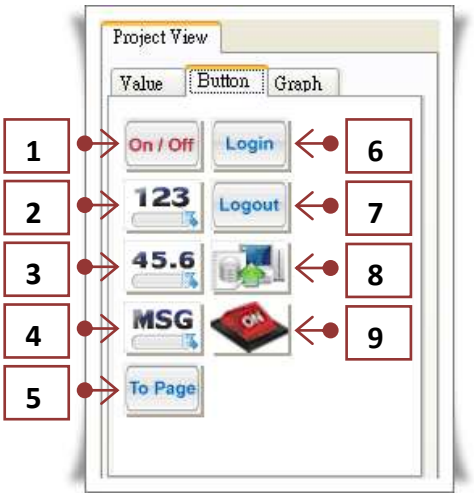
(0: No action; 1: The system is sending file; 21: Send O.K.; 101: File doesn't exist;

102: Fail to upload file to FTP Server; 103: The Soft-GRAF doesn't enable the FTP)

(43) Progress address:

Enter the defined network address of the ISaGRAF “Integer” variable to get the progress of uploading. (0 ~ 100)

3.2 Introduction of the HMI Object Area – Button



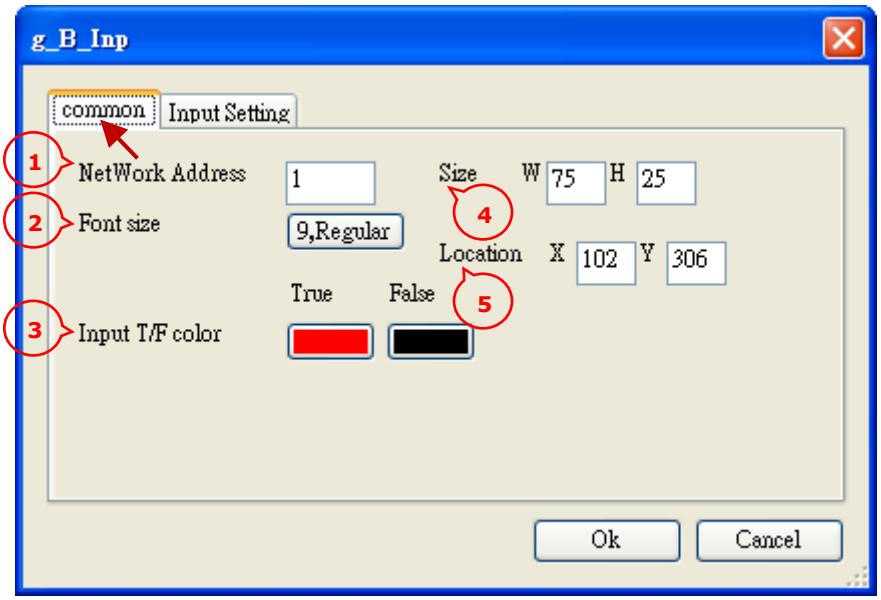
HMI Object Area - Button		
1	g_B_Inp	Create a button to input/show a Boolean value.
2	g_WD_Inp	Create a button to input/show a 16-bit Integer value. (Occupy one network address number)
	g_N_Inp	Create a button to input/show a 32-bit Integer value. (Occupy two network address number)
3	g_F_Inp	Create a button to input/show a 32-bit Float value. (Occupy two network address number)
4	g_M_Inp	Create a button to input/show a Message value.
5	g_ToPage	Create a switch-page button.
6	g_Login	Create a Login button with a password.
7	g_Logout	Create a Logout button.
8	g_Logger1	Create a Data Logger button, and enable the FTP function to upload the data file to the FTP Server with a specified IP.
9	g_B_Inp	Create a button to input/show a Boolean value. (With image library, Refer Section 3.4)

3.2.1 Button object - g_B_Inp

Create a button to input/show a boolean value (e.g., On/Off).

Description : **Show as string** **Show as value** **Show as picture**

Displayed Style :



Setting items:

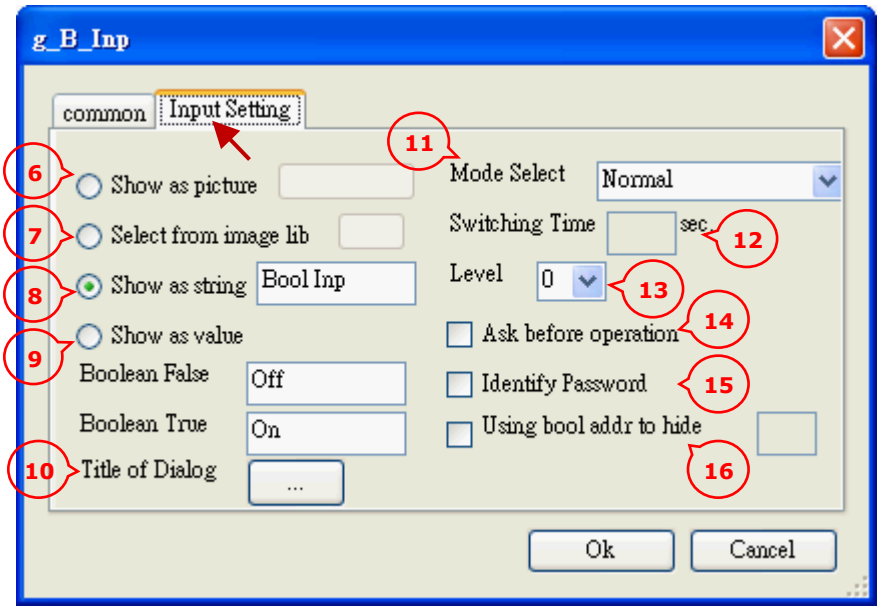
(1) Network address: Enter the defined network address of the ISaGRAF "Boolean" variable. (Refer Section 2.2.1).

(2) Font size: Set the font style and size.

(3) Input T/F color: Set to show the text color when this ISaGRAF Boolean value is "True" or "False".

(4) Size: Set the object size. "W" stands for Width and "H" stands for Height.

(5) Location: Set the X, Y position of this object. (Refer Section 4.3.1 for the axis range)



(6) Show as picture: Select a picture to show this button.

Picture format: JPG, GIF, PNG, BMP (note: the ".bmp" file will consume a large amount of memory)

(7) Select from image lib:

Select a picture in the "image library" window (refer Section 3.4) to show this button object.

(8) Show as string: Set the text shown on the button.

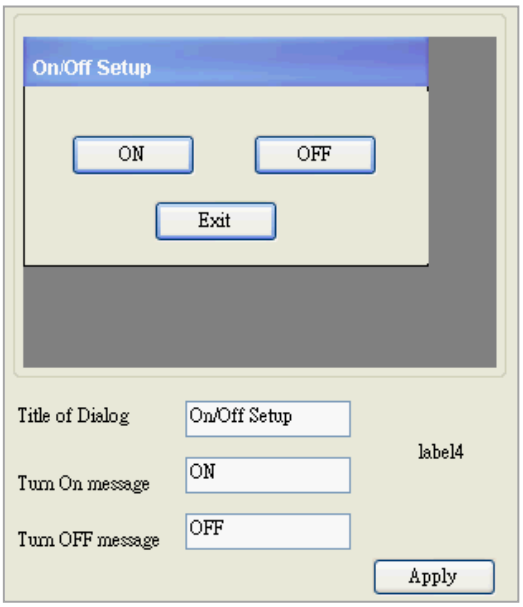
(9) Show as value: Show the current Boolean value on this button.

Boolean false: Set the text to represent the "False" value.

Boolean true: Set the text to represent the "True" value.

(10) Title of dialog: Set the title and the message text (True/False) for this dialog box.

Soft-GRAF Studio:



PAC side:

(11) Mode select: There are five modes on this button:

(a) Normal: Switch to "TRUE" or "FALSE".

(b) Only False: Click this button to set it to "FALSE".

(c) Only True: Click this button to set it to "TRUE".

(d) True → False:

Click this button to set it to "TRUE" and switch to "FALSE" after a specified time.

(e) False → True:

Click this button to set it to "FALSE" and switch to "TRUE" after a specified time.

The (f) and (g) options will appear only if the "(6) Show as picture" item is selected.

(f) ON (pressed), OFF (released): Press and hold this button to "ON" and release it to "OFF".

(g) OFF (pressed), ON (released): Press and hold this button to "OFF" and release it to "ON".

(12) Switching time:

If you select the "(d) True → False" or "(e) False → True" option in the "(11) Mode Select" setting, it needs to set the switching time. (Unit: second; Range: 1 to 10 seconds)

(13) Level:

Set the access permissions for this object (refer Section 4.1.2, HMI Access Permissions).

(14) Ask before operation:

Pop up a confirmation window before executing.

(15) Identify password:

Enter the login password again before executing.

(Refer Section 4.1.2, HMI Access Permissions)

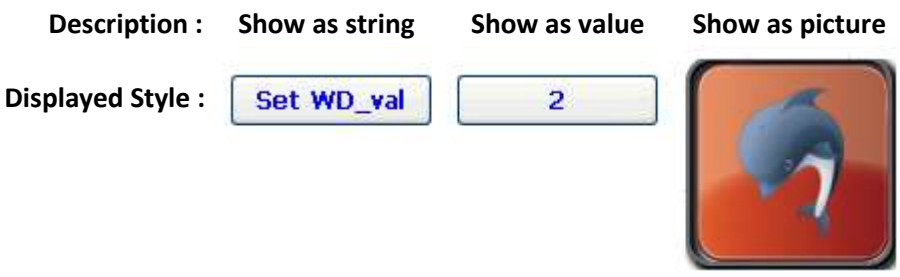
(16) Using bool address to hide:

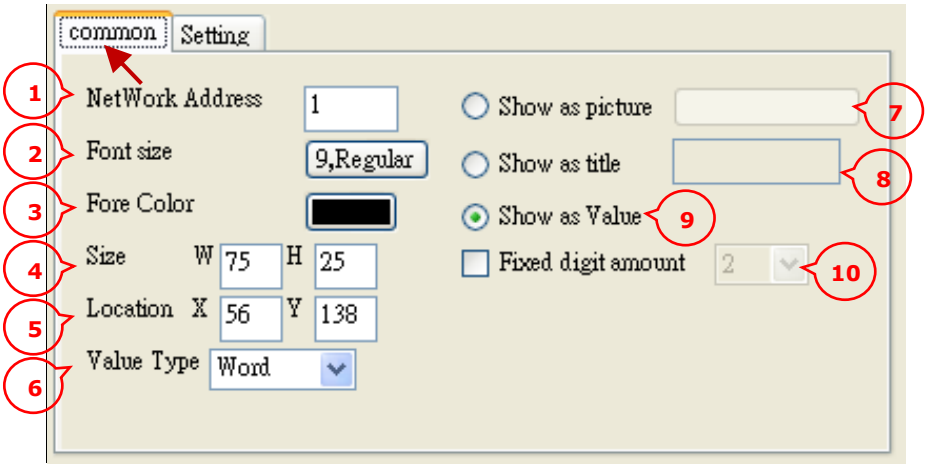
Check this box and enter the address of the ISaGRAF Boolean variable. This object will become invisible if the boolean value is "True"; it will appear if the boolean value is "False".

(E.g., there is one ISaGRAF variable "Hide" with the network address as 10. Set this item to 10. It will hide the object if the "Hide" is "True", and show the object if the "Hide" is "False".)

3.2.2 Button object - g_WD_Inp, g_N_Inp, g_F_Inp

Create a button to input an integer value (16-bit signed or 32-bit long) or real value (32-bit floating point).





Setting items:

(1) Network address: Enter the defined network address of the ISaGRAF “Integer/Real” variable.

(**Note:** Using an ISaGRAF 32-bit Integer or a 32-bit Real variable must occupy two addresses, refer Section 2.2.1 or ISaGRAF Web Page > Manual > the section 4.2 of the "ISaGRAF User’s Manual")

(2) Font size: Set the font style and size.

(3) Fore color: Set the text color.

(4) Size: Set the object size. “W” stands for Width and “H” stands for Height.

(5) Location: Set the X, Y position of this object. (Refer Section 4.3.1 for the axis range)

(6) Value type: Select the value type for ISaGRAF variable (e.g., 16-bit word or 32-bit long).

(The "g_F_Val" without using this setting)

(7) Show as picture: Select a picture to show this button.

Picture format: JPG, GIF, PNG, BMP (note: the “.bmp” file will consume a large amount of memory)

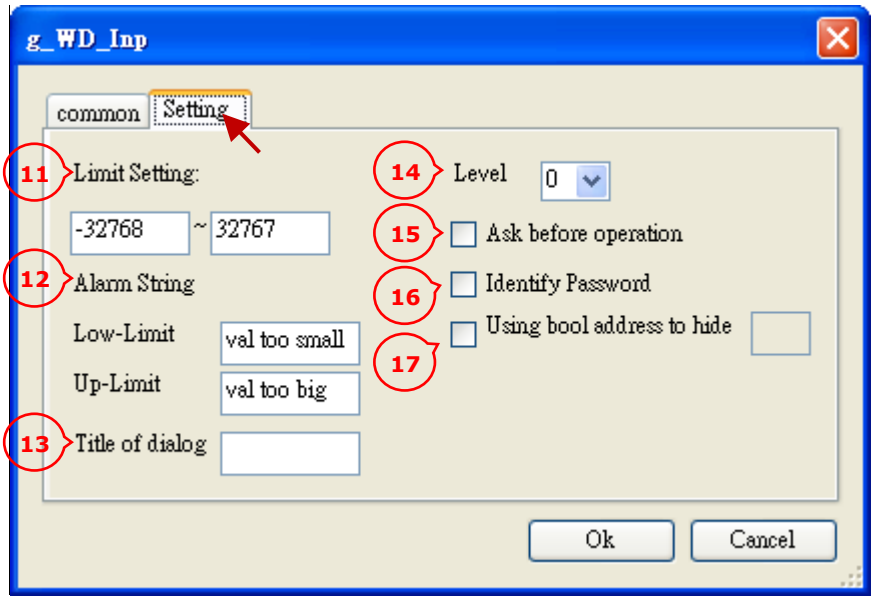
(8) Show as title: Set the text shown on the button.

(9) Show as value: Show the current Boolean value on this button.

(10) Fixed digit amount: Set a fixed-length number to show leading zeros.

(Only for the "g_WD_Inp" and "g_N_Inp" objects).

(E.g., If set it to "3", the value "6" will be shown as "006" and the value "62" will be shown as "062".)



(11) Limit setting: Set the input range for this button.

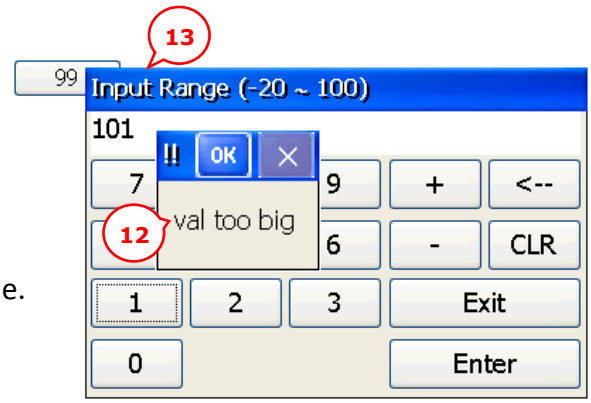
(12) Alarm string: If the input value is over the limited value, shows a warning text in a dialog.

Low-limit: Set the warning text to represent the current value is less than the lower limit value.

Up-limit: Set the warning text to represent the current value is greater than the upper limit value.

(13) Title of dialog:

Input the title of this dialog. (E.g., "Input Range")



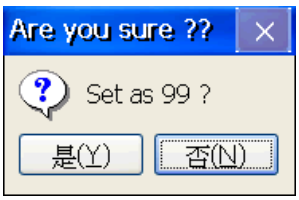
(14) Level:

Set the access permissions for this object.

(Refer Section 4.1.2, HMI Access Permissions)

(15) Ask before operation:

Pop up a confirmation window again after input a value.



(16) Identify password: Enter the login password again after clicking this object.

(Refer Section 4.1.2, HMI Access Permissions)

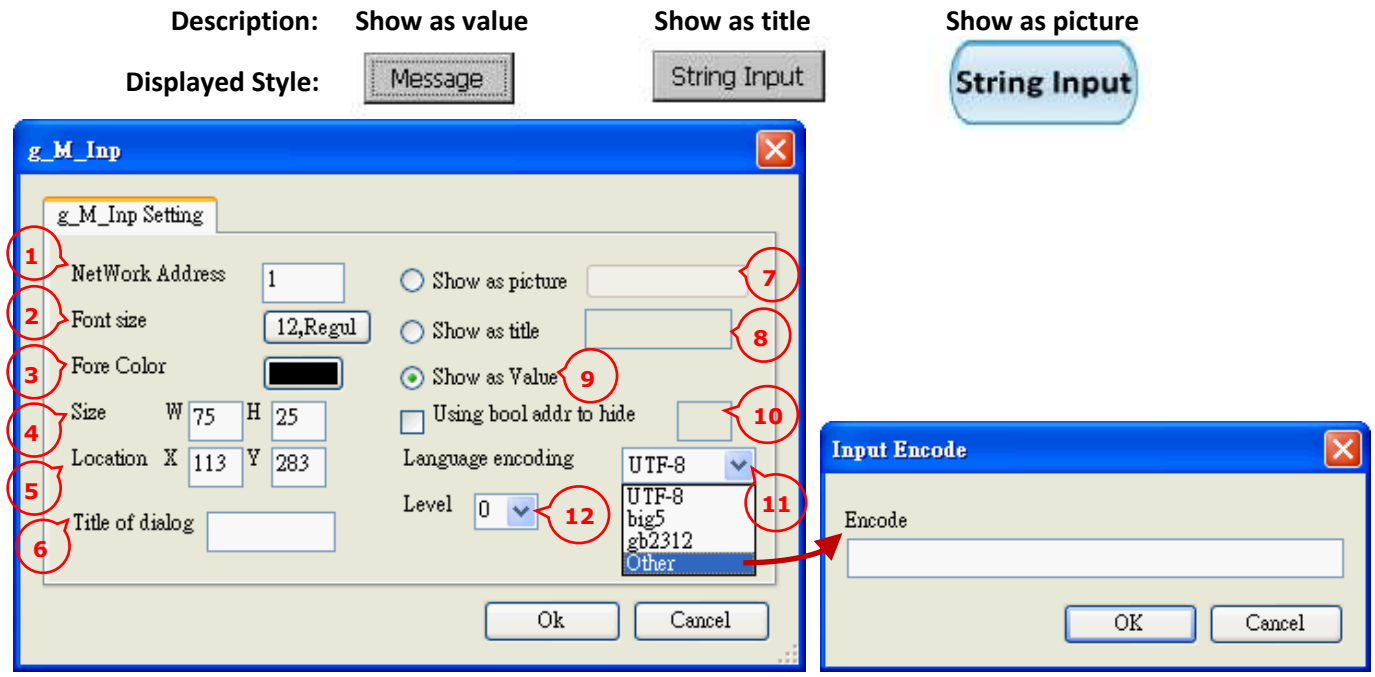
(17) Using bool address to hide:

Check this box and enter the address of the ISaGRAF Boolean variable. This object will become invisible if the boolean value is "True"; it will appear if the boolean value is "False".

(E.g., there is one ISaGRAF variable "Hide" with the network address as 10. Set this item to 10. It will hide the object if the "Hide" is "True", and show the object if the "Hide" is "False".)

3.2.3 Button object - g_M_Inp

Create a button to input/show a message value.



Setting items:

(1) Network address: Enter the defined network address of the ISaGRAF "Message" variable.
(Refer Section 2.2.1).

(2) Font size: Set the font style and size.

(3) Fore color: Set the text color.

(4) Size: Set the object size. "W" stands for Width and "H" stands for Height.

(5) Location: Set the X, Y position of this object. (Refer Section 4.3.1 for the axis range)

(6) Title of dialog: Set the title shown in the input window.

(7) Show as picture: Select a picture to show this button.
Picture format: JPG, GIF, PNG, BMP (note: the ".bmp" file will consume a large amount of memory)

(8) Show as title: Set the text shown on the button.

(9) Show as value: Show the current Boolean value on this button.

(10) Using bool address to hide:
Check this box and enter the address of the ISaGRAF Boolean variable. This object will become invisible if the boolean value is "True"; it will appear if the boolean value is "False".
(E.g., there is one ISaGRAF variable "Hide" with the network address as 10. Set this item to 10. It will hide the object if the "Hide" is "True", and show the object if the "Hide" is "False".)

(11) Language encoding: Select the text encoding.
(UTF-8: English ; big5: Traditional Chinese ; gb2312: Simplified Chinese ;
Other: Select this option to input other encoding in the "Input Encode" window.)

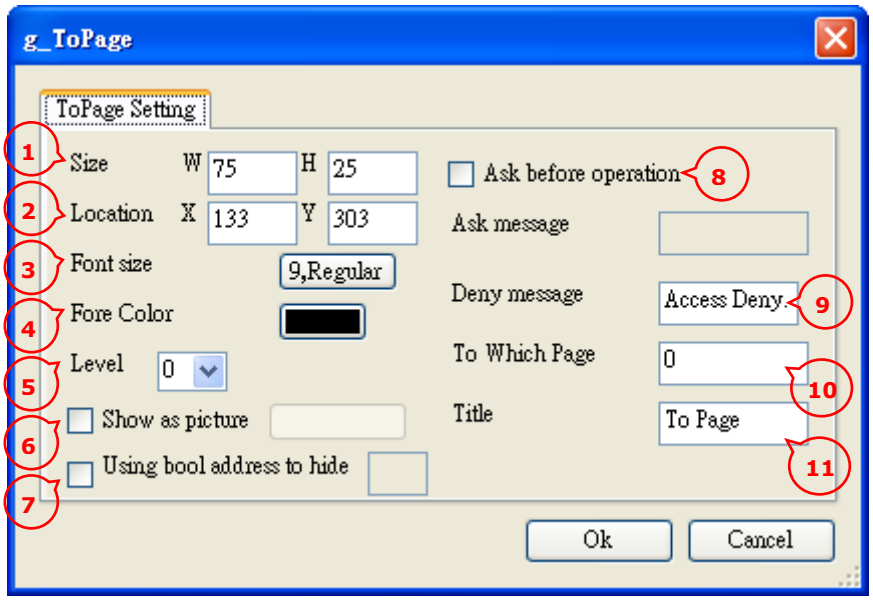
(12) Level: Set the access permissions for this object (refer Section 4.1.2, HMI Access Permissions).

3.2.4 Button object - g_ToPage

Create a switch-page button.

Description: **Show as title** **Show as picture**

Displayed Style: Goto Page2 Back



Setting items:

(1) Size: Set the object size. “W” stands for Width and “H” stands for Height.

(2) Location: Set the X, Y position of this object. (Refer Section 4.3.1 for the axis range)

(3) Font size: Set the font style and size.

(4) Fore color: Set the text color.

(5) Level: Set the access permissions for this object. (Refer Section 4.1.2, HMI Access Permissions)

(6) Show as picture: Select a picture to show this button.

Picture format: JPG, GIF, PNG, BMP (note: the “.bmp” file will consume a large amount of memory)

(7) Using bool address to hide:

Check this box and enter the address of the ISaGRAF Boolean variable. This object will become invisible if the boolean value is "True"; it will appear if the boolean value is "False".

(8) Ask before operation: Pop up a confirmation window before switching the HMI page.

Ask message: Set the confirmation message.

(9) Deny message:

Display the warning message when using a wrong permission level. (Default: "Access Denied ! ")

(10) To which page: Set the switching page no. (i.e., "1" to "200", "-1" and "201").

※ **Notice:** Enter **"-1"** means to return to the previous page.

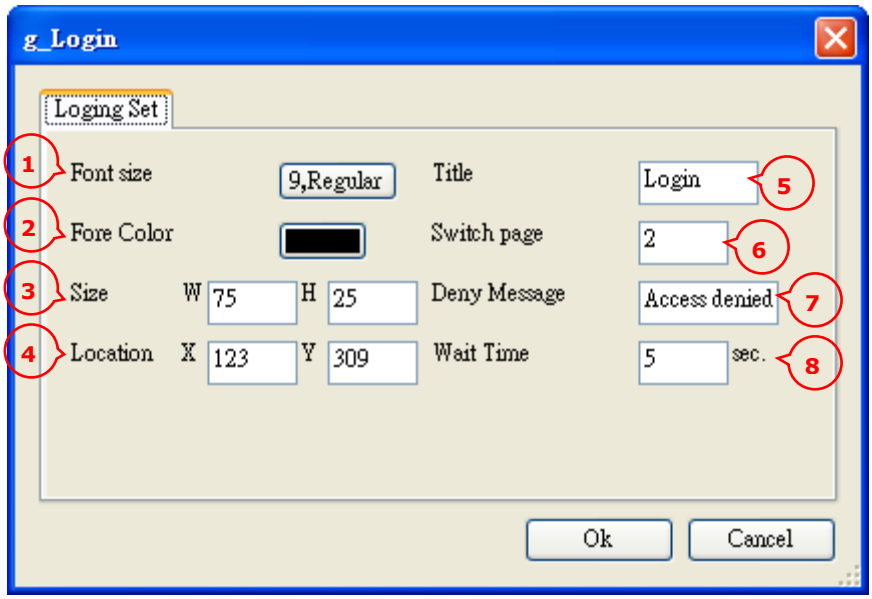
Enter **"201"**means to open the ISaGRAF Schedule-Control page (Refer Section 4.3.4)

(11) Title: Set the text shown on the button.

3.2.5 Button object - g_Login

Create a login button with a password. This object can only be located on the 1st page (i.e., Page 1) and only one g_Login is allowed to use. When user input the password, it will go to the specified page and allow the operation for objects depends on different permission level.
(Refer Section 4.1.2, HMI Access Permissions)

Displayed Style:



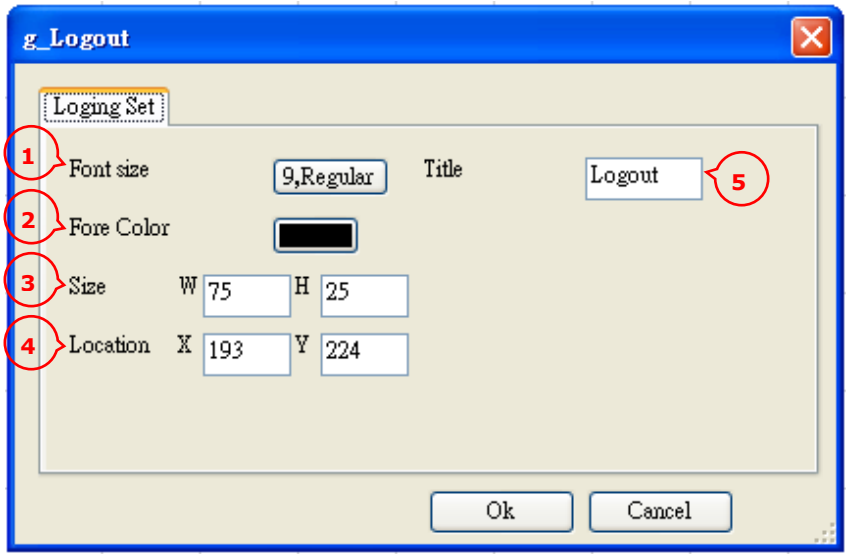
Setting items:

(1) Font size: Set the font style and size.
(2) Fore color: Set the text color.
(3) Size: Set the object size. “W” stands for Width and “H” stands for Height.
(4) Location: Set the X, Y position of this object. (Refer Section 4.3.1 for the axis range)
(5) Title: Set the text shown on the button (Default: "Login").
(6) Switch page: Switch to the specified page after logging in.
(7) Deny message: Show the message when failed to log in.
(8) Wait time: The period of time for auto-logout. The unit is second and the value can be 0 to 3600.
E.g., set to "0" means without using the auto-logout function (simply press the "g_Logout" button to log out). Set to "60" means that the Soft-GRAF will auto-logout and return to the Page1 if there is no operation for 60 seconds after logging in.

3.2.6 Button object - g_Logout

Logout button. After logout, it will go to the 1st page (i.e., Page 1).
(Refer Section 4.1.2, HMI Access Permissions)

Displayed Style:



Setting items:

(1) Font size: Set the font style and size.
(2) Fore color: Set the text color.
(3) Size: Set the object size. “W” stands for Width and “H” stands for Height.
(4) Location: Set the X, Y position of this object. (Refer Section 4.3.1 for the axis range)
(5) Title: Set the text shown on the button (Default: "Logout").

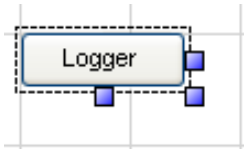
3.2.7 Button object - g_Logger1

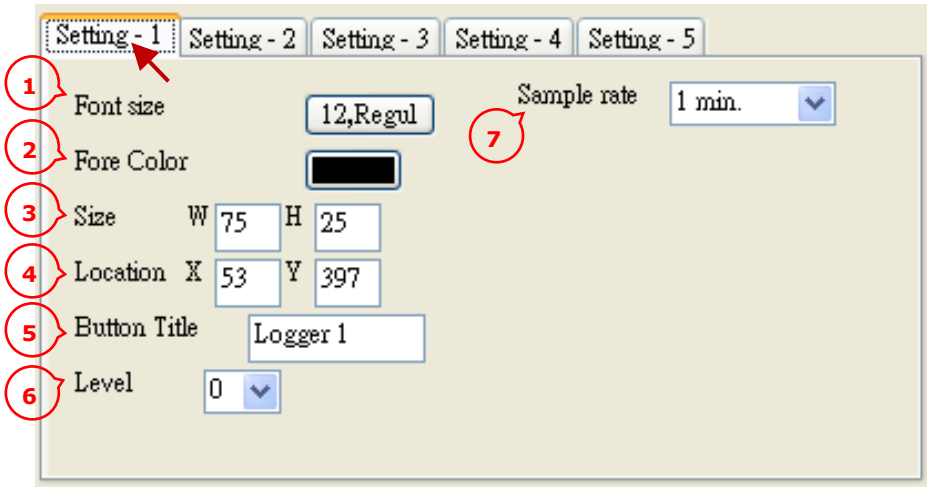
※ Create a data logger button to enable the FTP function to upload a data file to the specified IP address. (Refer Section 5.5 Demo08).

※ The "g_Logger1" supports to record up to 50 tags since the Soft-GRAF Studio V. 1.07.

※ One PAC supports only one "g_Logger1" object.

Displayed Style:





Setting items:

(1) Font size: Set the font style and size.

(2) Fore color: Set the text color.

(3) Size: Set the object size. “W” stands for Width and “H” stands for Height.

(4) Location: Set the X, Y position of this object. (Refer Section 4.3.1 for the axis range)

(5) Button title: Set the text shown on the button.

(6) Level: Set the access permissions for this object. (Refer Section 4.1.2, HMI Access Permissions)

(7) Sample rate: Set the object sampling time, which means the time interval to read data.

The “Sample rate”setting will affect the retaining days of data files. For example,

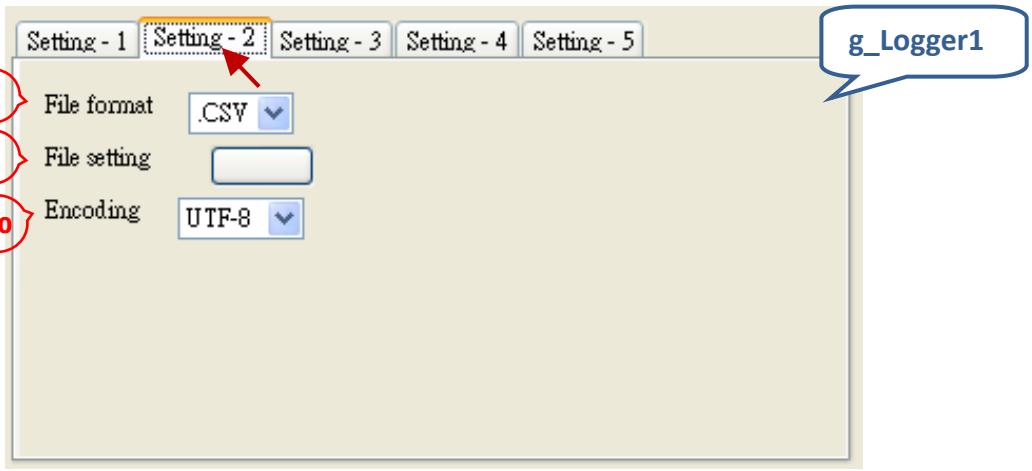
The data file can be stored for 10 days if set the "Sample rate" as 1 or 2 or 3 seconds.

The data file can be stored for 30 days if set the "Sample rate" as 5 to 30 seconds.

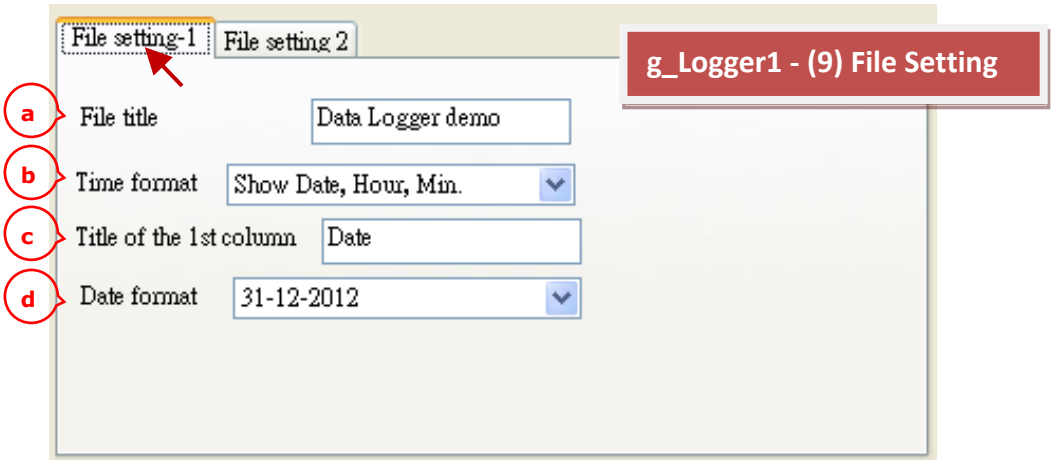
The data file can be stored for 3 months if set the "Sample rate" as 1 or 2 minutes.

The data file can be stored for 6 months if set the "Sample rate" as 3 or 5 minutes.

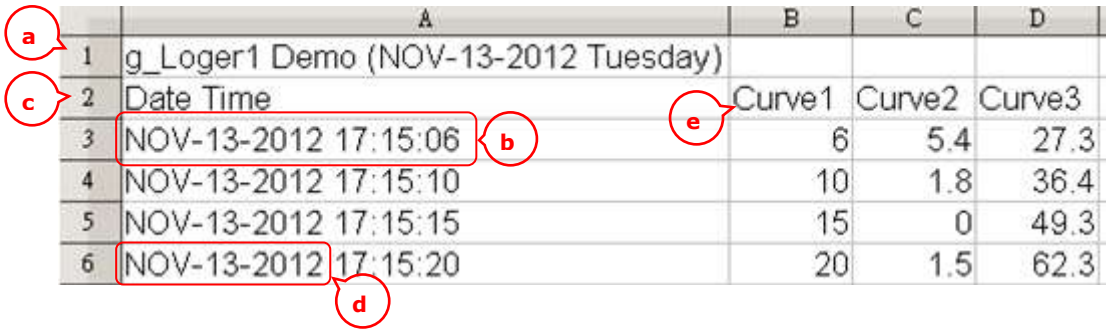
The data file can be stored for 12 months if set the "Sample rate" as 10 minutes or above.



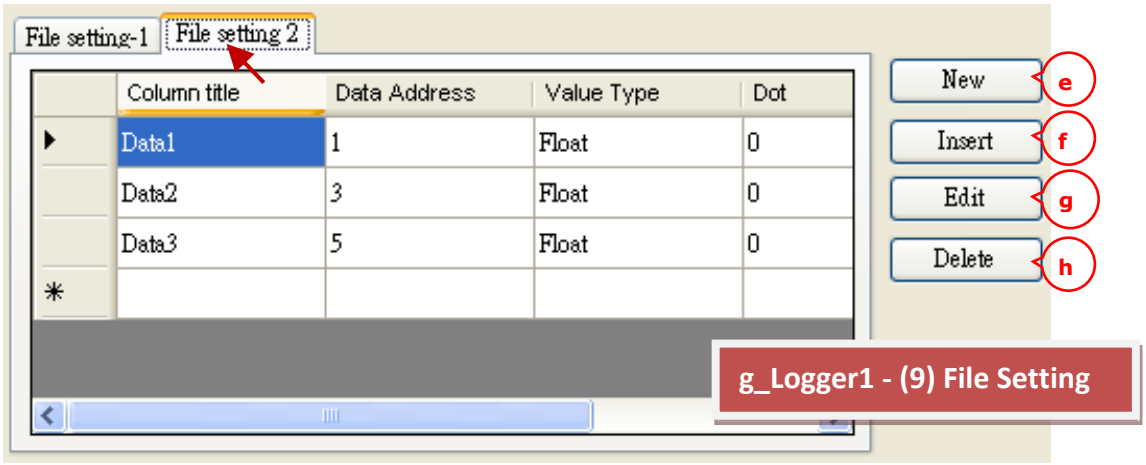
(8) File format: Select the file format to save; It can be ".CSV" or ".txt" file.
(9) File setting: Set the presenting data in the file. (See the figure below, "File setting-1"/"File setting-2").
(10) Encoding: Select the text encoding of data that defined in the ISaGRAF program (e.g., UTF-8: English; big5: Traditional Chinese; gb2312: Simplified Chinese; other: click it to input other encoding.



File setting-1:
(a) File title: Enter a title for this data file. (See the figure below)
(b) Time format: Select the date/time format. (E.g., NOV-13-2012 17:15:06).
(c) Title of 1st column: Enter a title for the date/time column. (E.g., "Date Time")
(d) Date format: Select the date format. (E.g., Moth-Day-Year)



File setting-2:

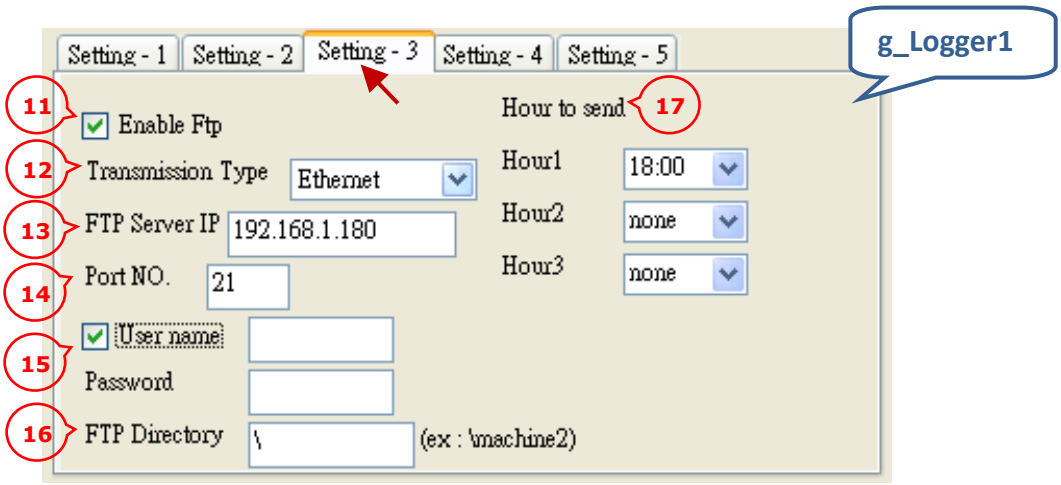


(e) New: Add an item to record data. The options:
Column title: The identity name for the record data. (E.g., Curve1).
Data Address: The defined network address of ISaGRAF variable for data logging.
Value type: The data type. (It can be "Boolean", "Word", "Long" and "Float")
Dot: Convert the original value to the value with specified decimal places. (E.g., if set “Dot” as 3, the original value "32767" will show as "32**.767**")

(f) Insert: Add an item above the selected item.

(g) Edit: Edit the selected item.

(h) Delete: Delete the selected item.



(11) Enable FTP:

Check this box to enable the FTP function to upload the data file from the PAC to the specified FTP Server.

(12) Transmission type:

It can be set to "Ethernet" or "2G/3G Wireless". If using the "2G/3G Wireless" way to upload file to the FTP Server, visit the web page Soft-GRAF Studio > FAQ > FAQ-143 to install the related software and hardware.

(13) FTP Server IP:

Enter the IP address of the FTP Server. (E.g., 192.168.1.180)

(14) Port no.:

The communication port of the FTP Server, normally "21”.

(15) User name & Password:

Enter the username and password to log in to the FTP Server. If the user unchecked the “User name" box that means to log in anonymously (i.e., without the username and password).

(16) FTP directory: Upload a file to the specified folder on the FTP Server (defaults to the root: "\").
(E.g., if you want to upload a file to the"dir2" folder, set the path as "\dir2")

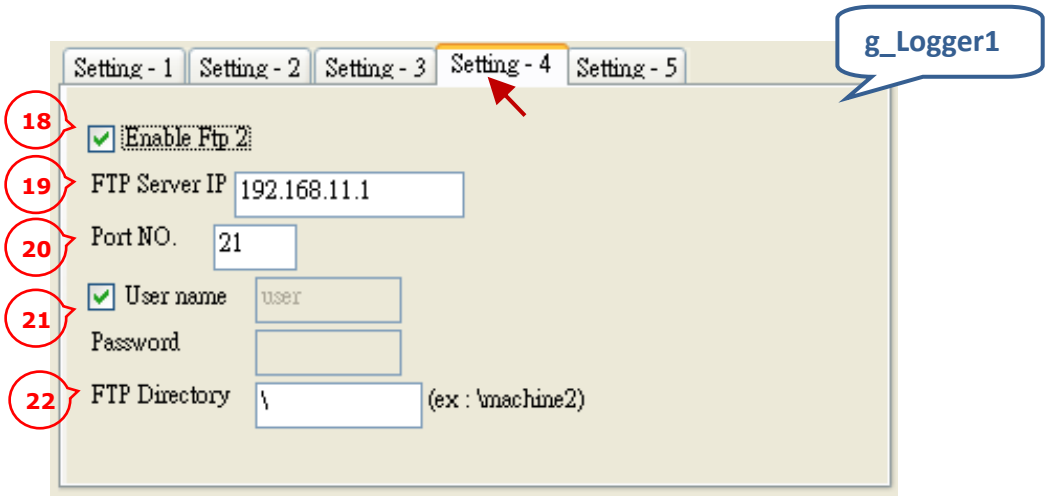
(17) Hour to send:

Set up the daily uploading time, optional three hour time, and the data file will be sent at the setup time plus 3 minutes.

For example, set it as "00:00", the data file will upload to the FTP Server at "00:03”.

(※ The uploading time of the "Hour1” is from the previous day to the setting time.

The uploading time of the "Hour2” and "Hour3” is from today’s "00:00" to the setting time.)



(18) Enable FTP 2:

Checked “Enable FTP 2“ box to enable uploading data file to the 2nd FTP Server (PC).

(19) FTP Server IP:

Enter the IP address of the FTP Server. (E.g., 192.168.11.1).

(20) Port no.:

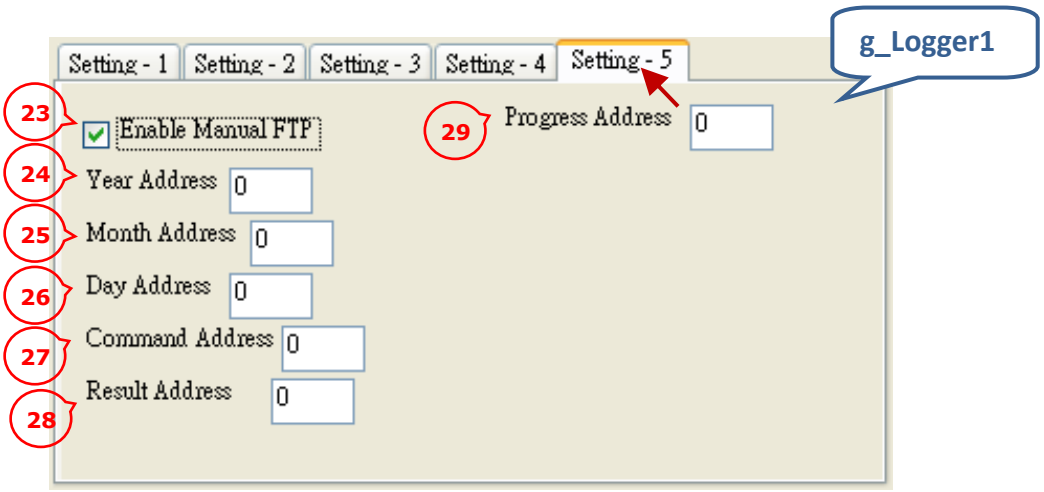
The communication port of the FTP Server, normally "21”.

(21) User name & Password:

Enter the valid username and password to log in to the FTP Server.

(22) FTP directory:

Upload the data file to the specified folder on the FTP Server. (Defaults to the root: "\")



(23) Enable manual FTP setting:

Check this box to enable the FTP hand-operation uploading, it allows to upload the file with a specified date to the FTP Server.

※ **Refer the Demo8: Section 5.5- 4. FTP Loader or FAQ-158: Section 1.4 for more details.**

http://www.icpdas.com/root/support/faq/isagraf.php > FAQ-158

(24) Year address:

Enter the defined network address for ISaGRAF “Integer” variable to access the "Year" data.

(25) Month address:

Enter the defined network address of the ISaGRAF “Integer” variable to access the "Month" data.

(26) Day address:

Enter the defined network address of the ISaGRAF “Integer” variable to access the "Date" data.

(27) Command address:

Enter the defined network address of the ISaGRAF “Integer” variable to start the file uploading.

(28) Result address:

Enter the defined network address of the ISaGRAF “Integer” variable to get the state of uploading.

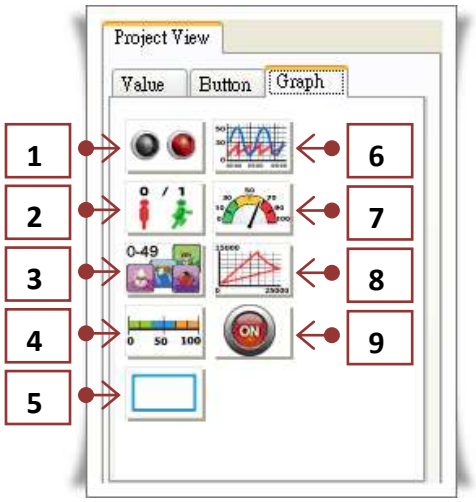
(0: No action; 1: The system is sending file; 21: Send O.K.; 101: File doesn't exist;

102: Fail to upload file to FTP Server; 103: The Soft-GRAF doesn't enable the FTP)

(29) Progress address:

Enter the defined network address of the ISaGRAF “Integer” variable to get the progress of uploading. (0 ~ 100)

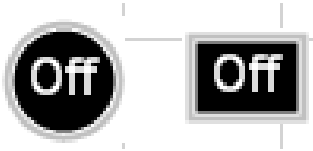
3.3 Introduction of the HMI Object Area – Graph

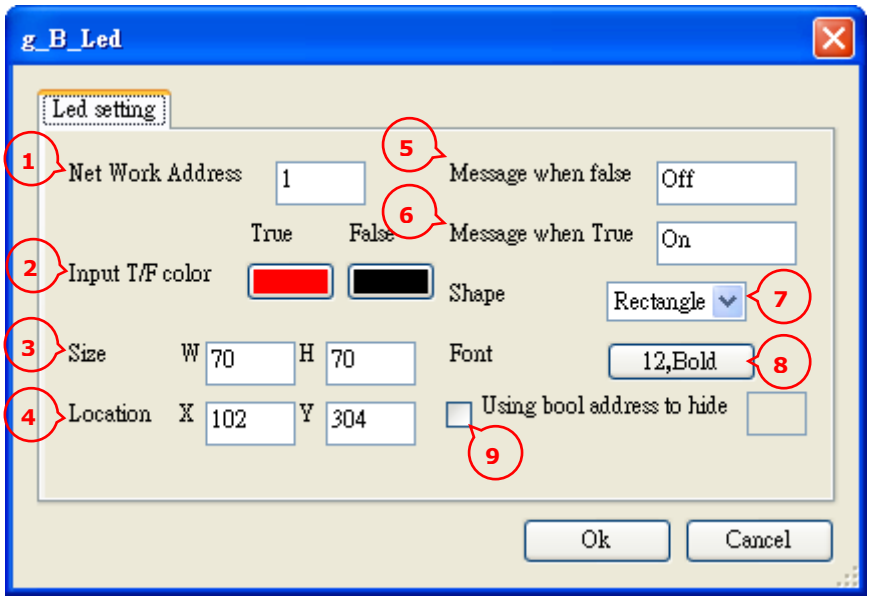


HMI Object Area - Graph		
1	g_B_Led	Display an LED to show a Boolean value.
2	g_B_Pic	Display a specified picture to represent a Boolean value. (E.g., JPG, PNG, GIF, BMP, etc.)
3	g_N_Pic	Display a specified picture to represent an Integer value. (E.g., JPG, PNG, GIF, BMP, etc.)
4	g_Bar	Bar-meter (horizontal /vertical).
5	g_Rect	Draw a Rectangle frame.
6	g_Trend	Trend Charts, used to show the value of up to three items changes over time and also provide the historical record function.
7	g_Gauge	Angular Meter, used to show a Long, Word or Real value.
8	g_Trace2	Moving Trace Chart, can be set to 2-axes (x , y) or 1-axis (x: Horizontal or y: Vertical).
9	g_B_Pic_Lib	Display a specified picture to represent a Boolean value. (Support the image library, refer Section 3.4)

3.3.1 Graph object - g_B_Led

Display an LED to show a boolean value.

Displayed Style: 



Setting items:

(1) Network address: Enter the defined network address of the ISaGRAF “Boolean” variable.
(Refer Section 2.2.1)

(2) Input T/F color: Set the displayed text color when the ISaGAR Boolean value is "True" or "False".

(3) Size: Set the object size. “W” stands for Width and “H” stands for Height.

(4) Location: Set the X, Y position of this object. (Refer Section 4.3.1 for the axis range)

(5) Message when False: Set the displayed text when the ISaGAR Boolean value is "False".

(6) Message when True: Set the displayed text when the ISaGAR Boolean value is "True".

(7) Shape: Select the LED style. ("Rectangle" or "Circle" selectable)

(8) Font size: Set the font style and size.

(9) Using bool address to hide:

Check this box and enter the address of the ISaGRAF Boolean variable. This object will become invisible if the boolean value is "True"; it will appear if the boolean value is "False".

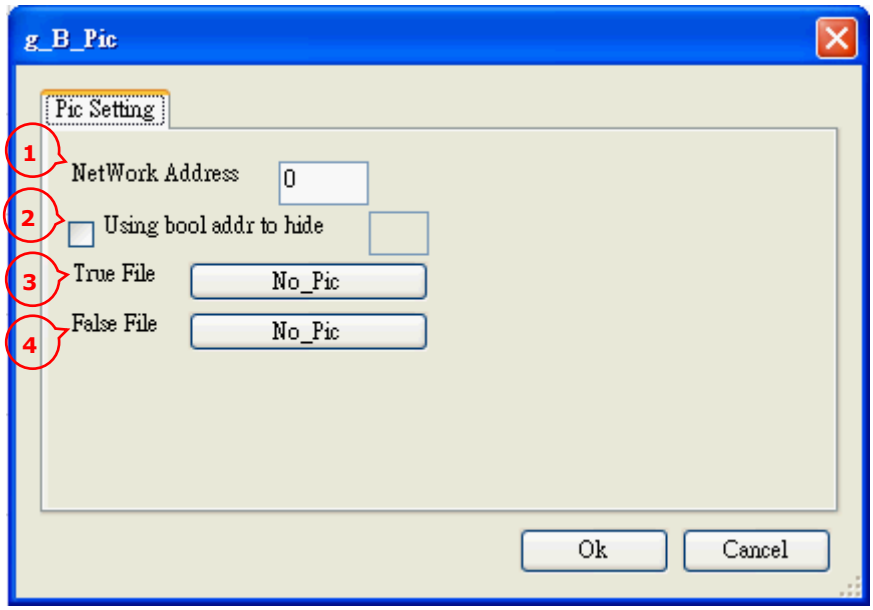
(E.g., there is one ISaGRAF variable "Hide" with the network address as 10. Set this option to 10. It will hide the object if the "Hide" is "True", and show the object if the "Hide" is "False".)

3.3.2 Graph object - g_B_Pic

Display a specified picture to represent a boolean value.

Supported formats: JPG, PNG, GIF and BMP. Recommend not to use ".bmp" to reduce the memory size.

Displayed Style:
(ON/OFF)



Setting items:

(1) Network address:

Enter the defined network address of the ISaGRAF "Boolean" variable. (Refer Section 2.2.1)

(2) Using bool address to hide:

Check this box and enter the address of the ISaGRAF Boolean variable. This object will become invisible if the boolean value is "True"; it will appear if the boolean value is "False".

(E.g., there is one ISaGRAF variable "Hide" with the network address as 10. Set this item to 10. It will hide the object if the "Hide" is "True", and show the object if the "Hide" is "False".)

(3) True File:

Display a specified picture when this ISaGRAF Boolean value is "True".

(Refer Appendix B if you want to display a dynamic picture)

(4) False File:

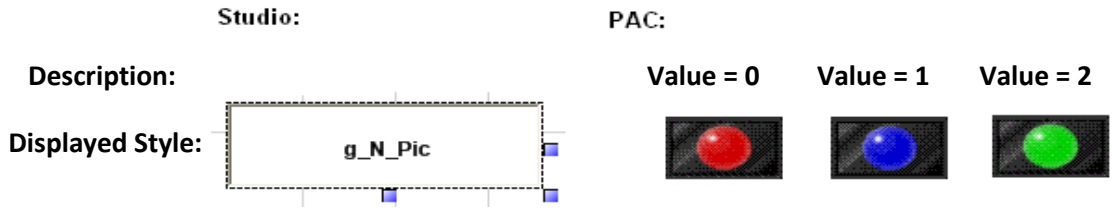
Display a specified picture when this ISaGRAF Boolean value is "False".

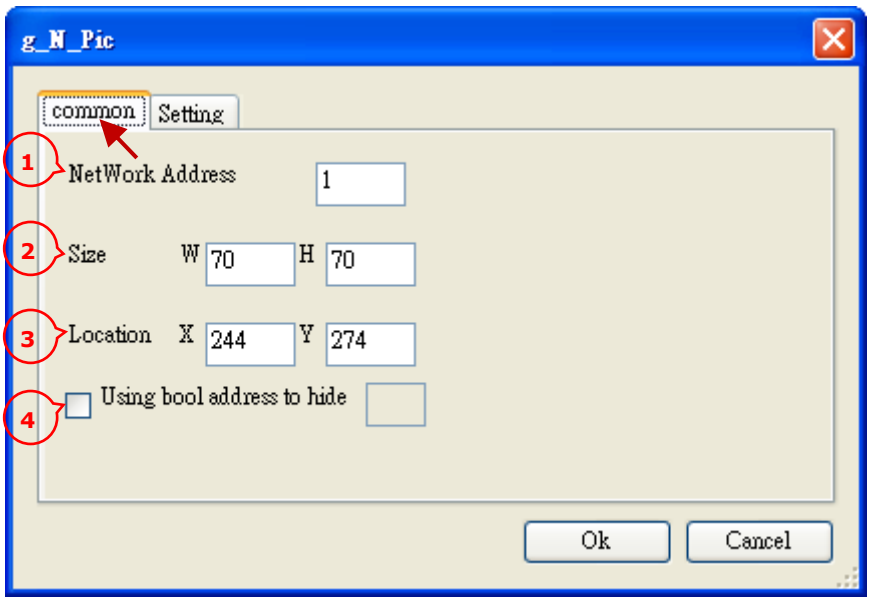
(Refer Appendix B if you want to display a dynamic picture)

3.3.3 Graph object - g_N_pic

Display a specified picture to represent a 16-bit integer value.

Supported formats: JPG, PNG, GIF and BMP. Recommend not to use ".bmp" to reduce the memory size.





Setting items:

(1) Network address:

Enter the defined network address of the ISaGRAF "Integer" variable. (Refer Section 2.2.1)

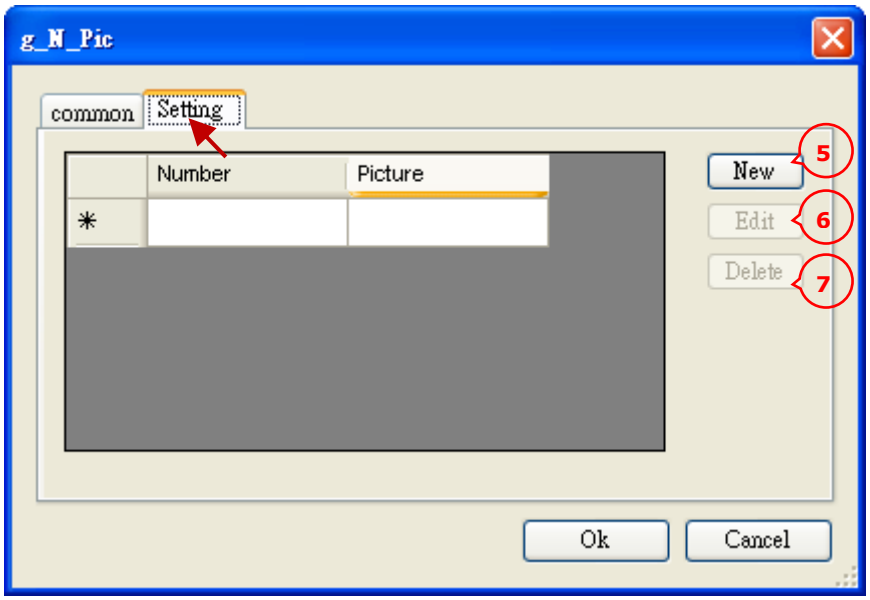
(2) Size: Set the object size. "W" stands for Width and "H" stands for Height.

(3) Location: Set the X, Y position of this object. (Refer Section 4.3.1 for the axis range)

(4) Using bool address to hide:

Check this box and enter the address of the ISaGRAF Boolean variable. This object will become invisible if the boolean value is "True"; it will appear if the boolean value is "False".

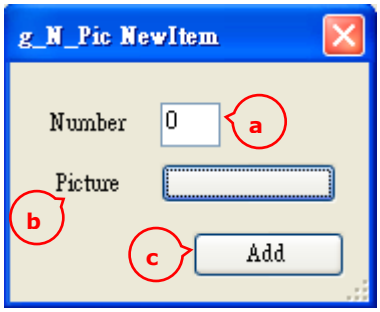
(E.g., there is one ISaGRAF variable "Hide" with the network address as 10. Set this item to 10. It will hide the object if the "Hide" is "True", and show the object if the "Hide" is "False".)



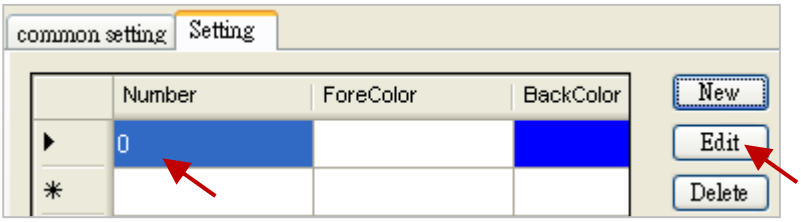
(5) New: Add a picture and its corresponding value. (Max. 50)
(6) Edit: Edit the selected item.
(7) Delete: Delete the selected item.

*** How to use?**

New: Click the "New" button to show this setting window.
(a) Number: Assign a value (from 0 to 49).
The corresponding picture will show up when reading a matched variable value.
(b) Picture: Set the corresponding picture.
(c) Add: Add this new setting.

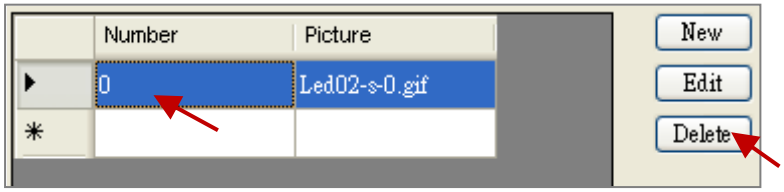


Edit
Select the item you want to edit, and click the "Edit" button to open the above setting window. Then, click "Add" after completing settings.



Note: By default, the 1st item will be selected automatically if the user only click the button.

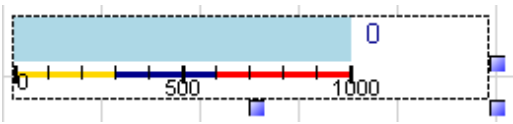
Delete
Select the wanted item, and click the "Delete" button to delete it.

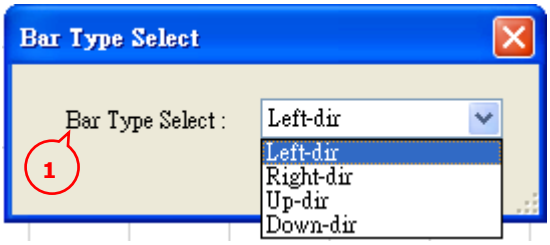


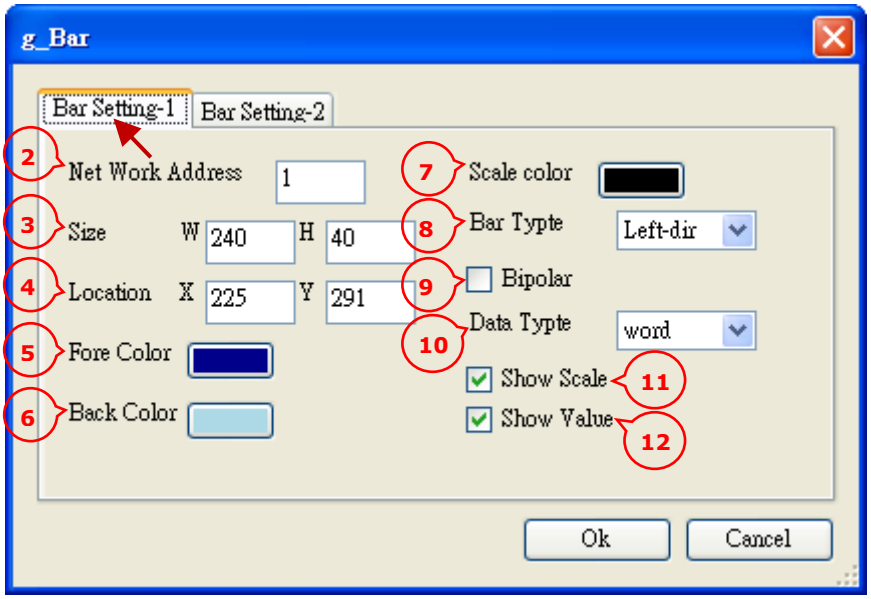
3.3.4 Graph object - g_Bar

Bar-meter (horizontal /vertical).

Displayed Style:
(Right-dir)







Setting items:

(1) Bar type select: Select the moving direction of this bar-meter.
(Horizontal: to the left or right, Vertical: upwards or downwards)

(2) Network address: Enter the defined network address of the ISaGRAF “Integer/Real” variable.
(**Note:** Using an ISaGRAF 32-bit Integer or a 32-bit Real variable must occupy two addresses, refer Section 2.2.1 or ISaGRAF Web Page > Manual > the section 4.2 of the "ISaGRAF User’s Manual")

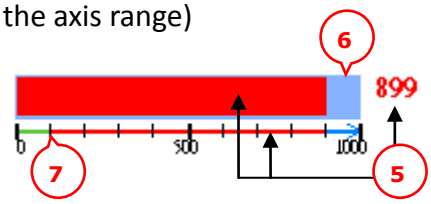
(3) Size: Set the object size. “W” stands for Width and “H” stands for Height.

(4) Location: Set the X, Y position of this object. (Refer Section 4.3.1 for the axis range)

(5) Fore color: Set the displayed color for normal values.

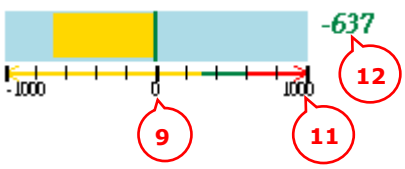
(6) Back color: Set the background color of this bar-meter.

(7) Scale color: Set the color of the scale.



(8) Bar type: Change the bar type, like the item (1).

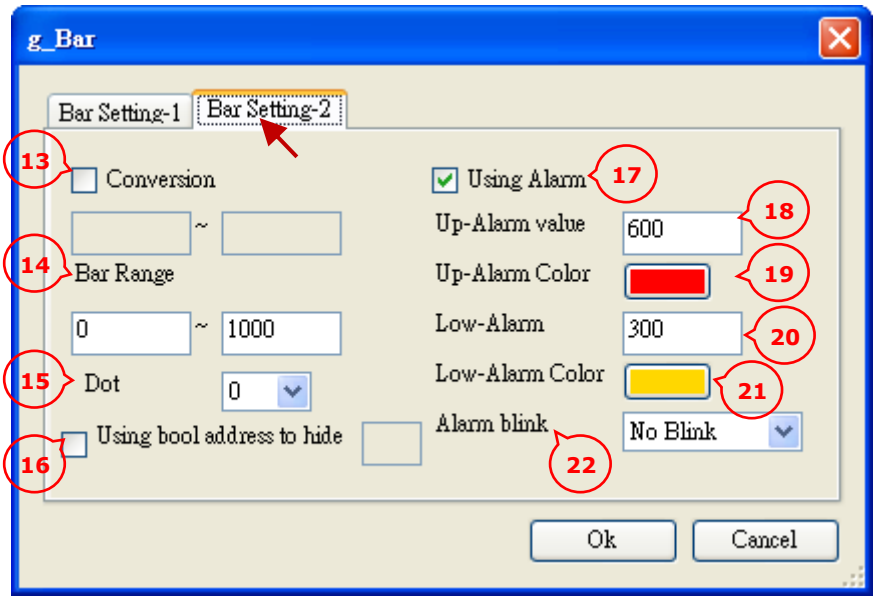
(9) Bipolar: Two-directional display, start from the median value of the "Bar Range". (E.g., if the "Bar Range" value is from "-1000" to "1000", the start value of this bar-meter is "0".)



(10) Data type: Set the data type as "long", "word" or "real".

(11) Show scale: Check this box to show the scale and bar range.

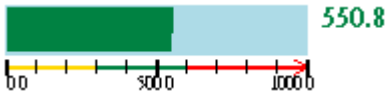
(12) Show value: Check this box to show the current value.



(13) Conversion: Ratio conversion, convert the received value to the "Bar Range" value in proportion.
(E.g., checked the "Conversion" box and set its range as "0 ~ 32767", and then set "Bar Range" as "0 ~ 1000". When the received value is "16383", the bar-meter will show "500".)

(14) Bar range: Set the range of the converted value.

(15) Dot: Display the number of decimals. (Range: 0 ~ 6)



(16) Using bool address to hide:
Check this box and enter the address of the ISaGRAF Boolean variable. This object will become invisible if the boolean value is "True"; it will appear if the boolean value is "False".
(E.g., there is one ISaGRAF variable "Hide" with the network address as 10. Set this item to 10. It will hide the object if the "Hide" is "True", and show the object if the "Hide" is "False".)

(17) Using alarm: Check the box to enable the alarm function.

(18) Up-alarm value: Set the upper-limit value. (E.g., 600)

(19) Up-alarm color:
Display the specific color if the value is over the upper-limit. (E.g., "600 ~ 1000", display in red.)

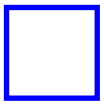
(20) Low-alarm: Set the lower-limit value. (E.g., 300)

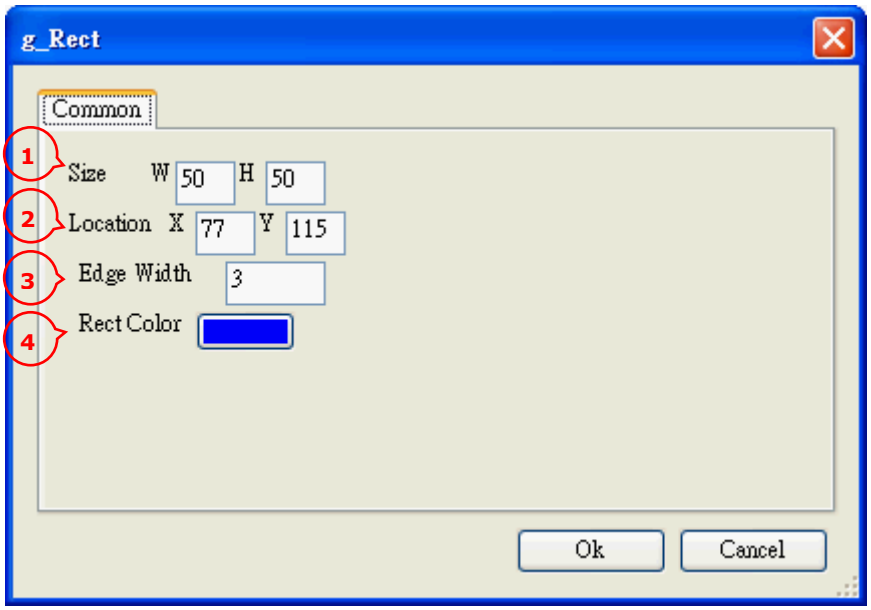
(21) Low-alarm color:
Display the specific color if the value is over the lower-limit. (E.g., "0 ~ 300", display in yellow.)

(22) Alarm blink: Set the alarm blinking function. There are four options:
(a) No Blink: Display the alarm value without blinking.
(b) Up-Alarm: Blink if larger than the Up-Alarm value.
(c) Low-Alarm: Blink if smaller than the Low-Alarm value.
(d) All Blink: Display the blinking alarm value.

3.3.5 Graph object - g_Rect

Draw a rectangle frame.

Displayed Style: 



Setting items:

(1) Size: Set the object size. “W” stands for Width and “H” stands for Height.

(2) Location:

Set the X, Y position of this object. (Refer Section 4.3.1 for the axis range)

(3) Edge width:

Set the border width. (Range: 1 ~ 10)

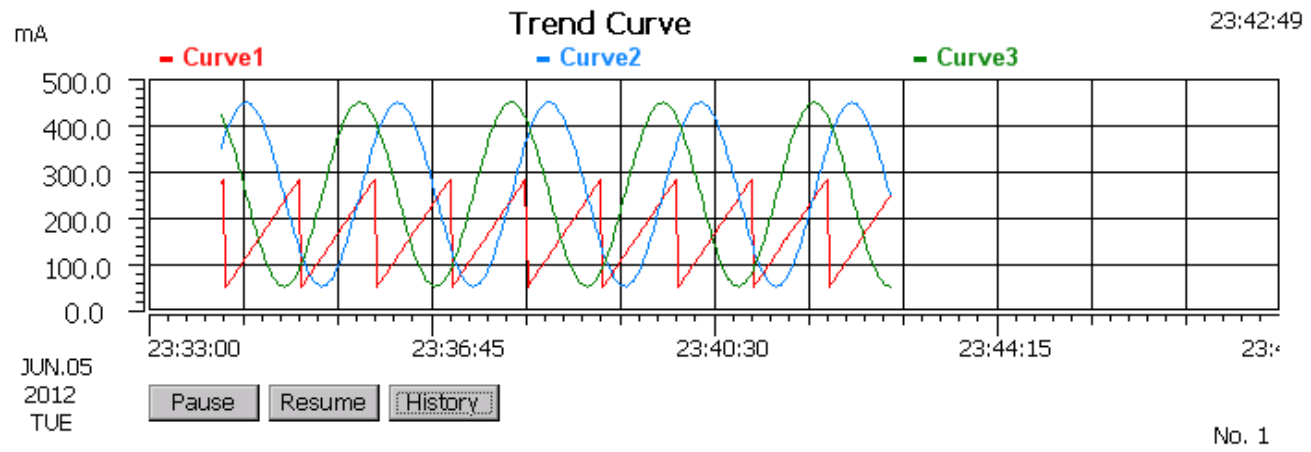
(4) Rect color:

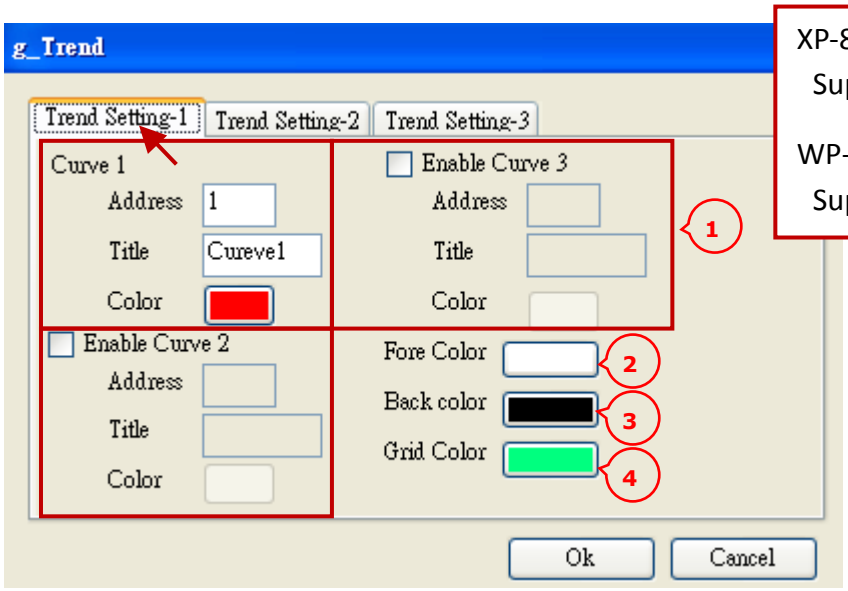
Set the border color.

3.3.6 Graph object - g_Trend

Trend Charts (i.e. Run charts), used to show the value of up to three items changes over time and also provide the historical record function.

(Related information: Section 5.3: Demo06)





XP-8xx7-CE6, XP-8xx7-Atom-CE6:
Support a max. of **100** "g_Trend".

WP-8xx7, WP-5147, VP-2xW7/4xx7:
Support a max. of **30** "g_Trend".

Setting items:

(1) Curve: Set the address, name and color of the three curves.

Address: Enter the defined network address of the ISaGRAF "Real" variable. (Refer Section 2.2.1).

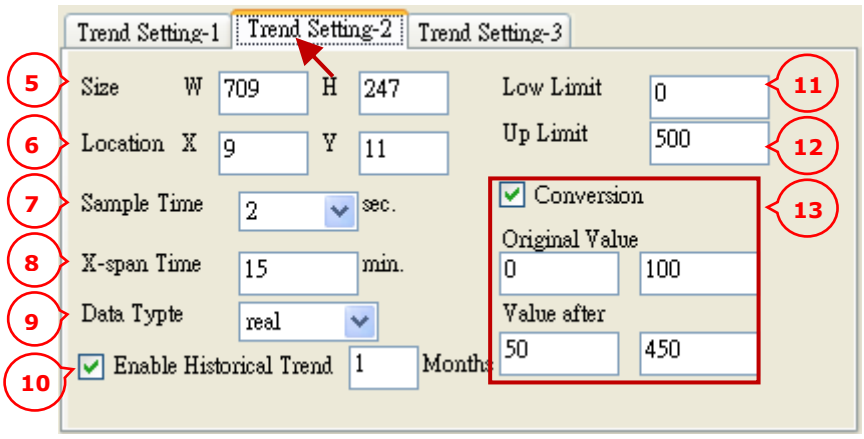
Title: The identity name of the curve.

Color: The color of the curve.

(2) Fore color: Set the color of the scale and the text.

(3) Back color: Set the background color.

(4) Grid color: Set the border color.



(5) Size: Set the object size. “W” stands for Width and “H” stands for Height.

(6) Location: Set the X, Y position of this object. (Refer Section 4.3.1 for the axis range)

(7) Sample time:

Sampling time of the trend. (Unit: second, only support values within the drop-down list)

(E.g., select “2” means to read data and show the curve every two seconds.)

(8) X-span time: Set the displayed range of the time-axis for this trend chart (Unit: minute)

The limitation:

"Sample time" * 60 ≦ "X-span time" ≦ "Sample time" * 1000

E.g., if the "Sample time" is 1 second, the "X-span time" can be 1 ~ 16 minutes (60 ~ 1000 seconds).

(9) Data type:

Select the defined data type of the ISaGRAF variable. It can be "long", "word" or "real".

(10) Enable historical trend ：check this box to enable the record function and then set the retained time.

The limitation:

If the "Sample time" is set to 1 second, the data can be retained max. 3 months.

If the "Sample time" is set to 2 seconds, the data can be retained max. 6 months.

If the "Sample time" is set to 3 seconds, the data can be retained max. 9 months.

If the "Sample time" is set to more than 4 seconds, the data can be retained max. 12 months.

Note: Enabling the record function of g_Trend will consume a lot of Micro_SD (or the Compact Flash used in the XP-8xx7-CE6 PAC) memory capacity. Please set a smaller retained time to reduce the memory consumption, if it is not really necessary to retain.

The memory consumption is approximately estimated as below:

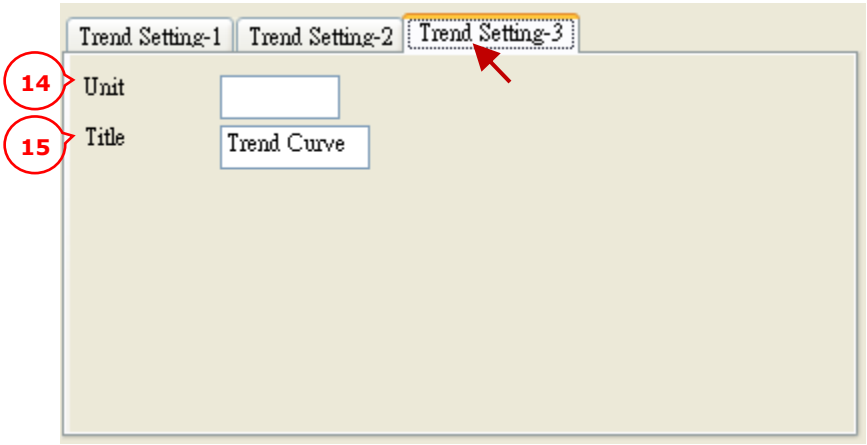
- If the "Sample time" is set to **1** second, and enable **1** curve, it consumes about 0.48 MB for retaining 1 day, about 15 MB for 1 month, and about max. 45 MB for 3 months.
- If the "Sample time" is set to **1** second, and enable **3** curves, it consumes about 1.44 MB for retaining 1 day, about 4 MB for 1 month, and about max. 135 MB for 3 months.

- If the "Sample time" is set to **2** seconds, and enable **1** curve, it consumes about 0.24 MB for retaining 1 day, about 7.5 MB for 1 month, and about max. 45 MB for 6 months.
- If the "Sample time" is set to **2** seconds, and enable **3** curves, it consumes about 0.72 MB for retaining 1 day, about 22.5 MB for 1 month, and about max. 135 MB for 6 months.
- If the "Sample time" is set to **3** seconds, and enable **1** curve, it consumes about 0.16 MB for retaining 1 day, about 5 MB for 1 month, and about max. 45 MB for 9 months.
- If the "Sample time" is set to **3** seconds, and enable **3** curves, it consumes about 0.48 MB for retaining 1 day, about 15 MB for 1 month, and about max. 135 MB for 9 months.

The rest is the same. If the user enable 10 "g_Trend" record functions, use three curves for each object, set the "Sample time" as 1 second and the retain time as 3 months, then the max. of the memory consumption is about 135 MB x 10 = 1.35 GB.

(11) Low limit: Set the minimum value of the Y-axis in the trend map.
(12) Up limit: Set the maximum value of the Y-axis in the trend map.
(13) Conversion: Select this check box to enable the value conversion.
Original value: Set the range of the received value. (E.g., "0 ~ 32767", "0 ~ 65535", etc.)
Value after: Set the range of the converted value.

(E.g., if the "Original value" is set to "0 to 32767"and the "Value after" is set to "0 to 1000", then the original value "16384" will be converted to "500")

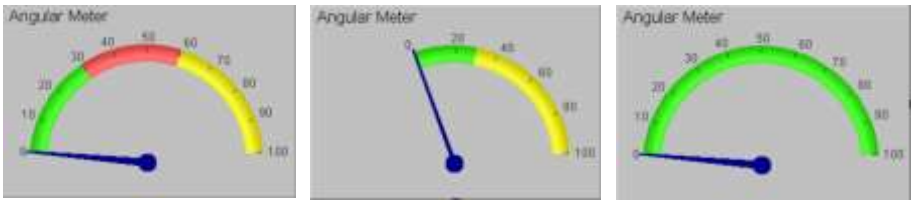


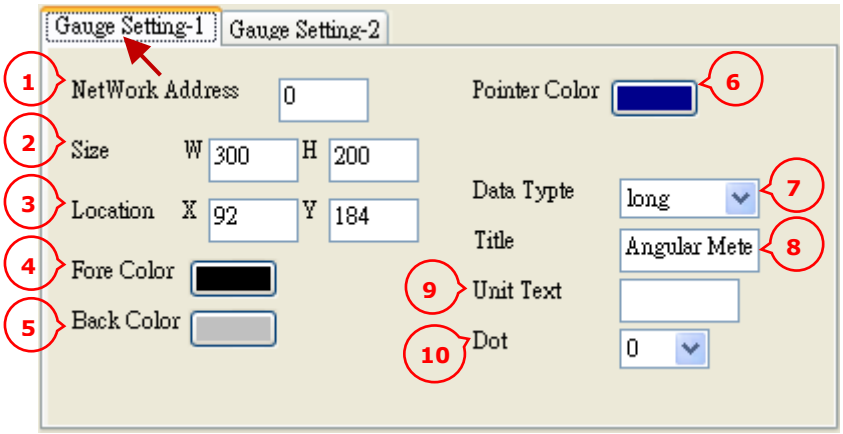
(14) Unit: Enter the unit for the y-axis value. (E.g., "mA", " ℃ ")
(15) Title: Enter the title of this trend chart. (Default: "Trend Curve")

3.3.7 Graph object - g_Gauge

Gauge meter, it allows to show a Long integer, Short integer or Real value.
(Related information: Section 5.3: Demo06)

Displayed Style:





Setting items:

(1) Network address: Enter the defined network address of the ISaGRAF “Integer/Real” variable.
(Refer Section 2.2.1).

(2) Size: Set the object size. “W” stands for Width and “H” stands for Height.

(3) Location: Set the X, Y position of this object. (Refer Section 4.3.1 for the axis range)

(4) Fore color: Set the color of the scale and the text.

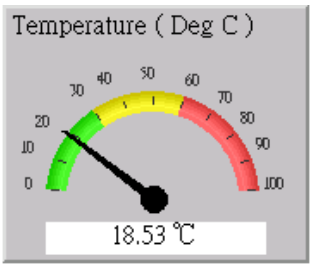
(5) Back color: Set the background color.

(6) Pointer color: Set the pointer color of the gauge.

(7) Data type:
Set the data type as "Long", "Word" or "Real".

(8) Title: The title of the object. (Default: "Angular Meter")

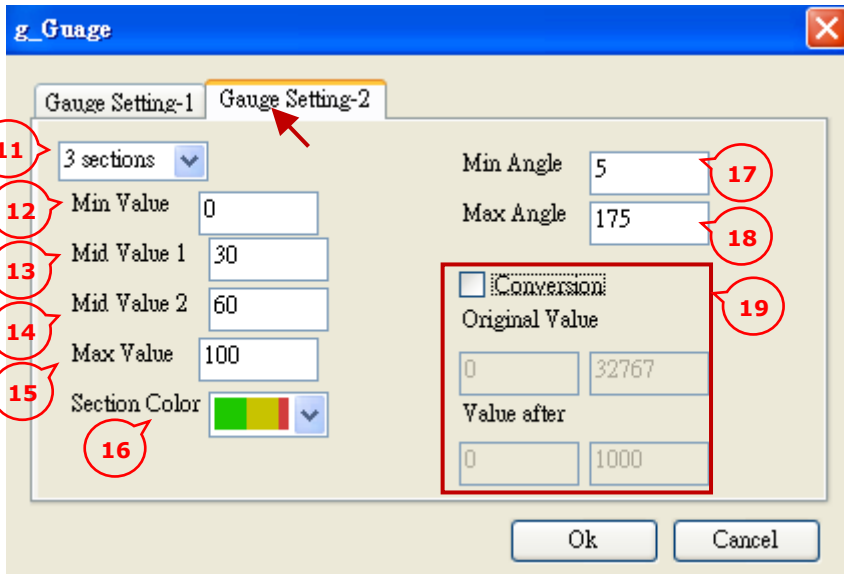
(9) Unit Text: Enter the unit for values. (E.g., "mA", " ℃ ")



(10) Dot: Specify the number of decimal places for the converted value.

Note: **If the data type is "long" or "word", the user must enable "Conversion" function (like item 19) for displaying decimal places.**

For example, if the "Dot" is set to "2", the converted value will display as two decimal places, such as 1.23 and 345.67. In addition, if the "Data type" is set to "real" and the "Dot" is set to "1", the value will show as one decimal place, such as 48.5 and 223.6.



(11) Sections: Choose the section numbers for this gauge meter (range: 1 ~ 3), and then set the values and the sectional color (refer the item 12 ~ 16).

Note: **(Max Value - Min Value) must be divisible by 10.**
(E.g., If "Max Value" = 100, "Min Value" = 0 , it is ok.
If "Max Value" = 95, "Min_Value" = 0, it is not ok.)

(12) Min value: Set the minimum value of the gauge range.
(13) Mid value 1: Set 1st middle value. (If the gauge meter display as "2 sections" or "3 sections")
(14) Mid value 2: Set 2nd middle value. (If the gauge meter display as "3 sections")
(15) Max value: Set the maximum value of the gauge range.
(16) Section color: Choose the style of the sectional color.
(17) Min angle: Set the start angle of the arc. (Range: 5 ~ 135 degrees)
(18) Max angle: Set the end angle of the arc. (Range: 45 ~ 175 degrees)

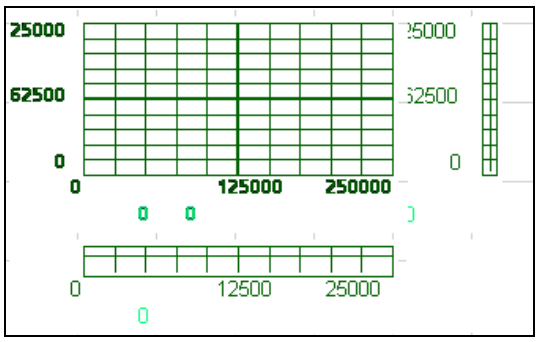
Note:
By default, the "Min Angle" is "5" and the "Max Angle" is "175" that will form a semicircular arc.
5 degrees, 90 degrees and 175 degrees mean the 9-o'clock, 12-o'clock and 3-o'clock directions.

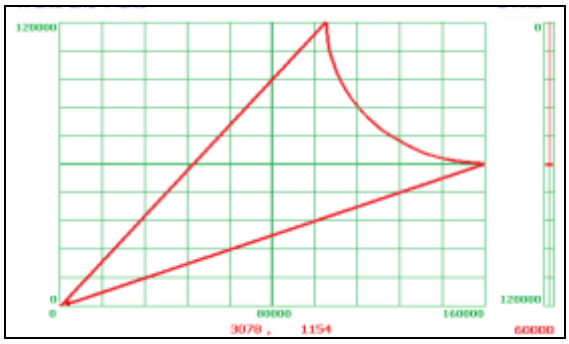
(19) Conversion: Select this check box to enable the value conversion.
Original value: Set the range of the received value. (E.g., "0 ~ 32767", "0 ~ 65535", etc.)
Value after: Set the range of the converted value.

(E.g., if the "Original value" is set to "0 to 32767"and the "Value after" is set to "0 to 1000", then the original value "16384" will be converted to "500")

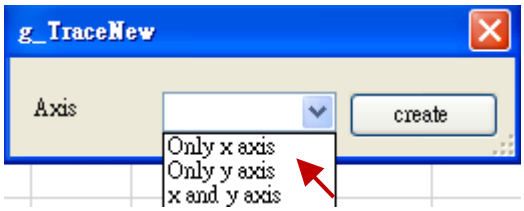
3.3.8 Graph object - g_Trace2

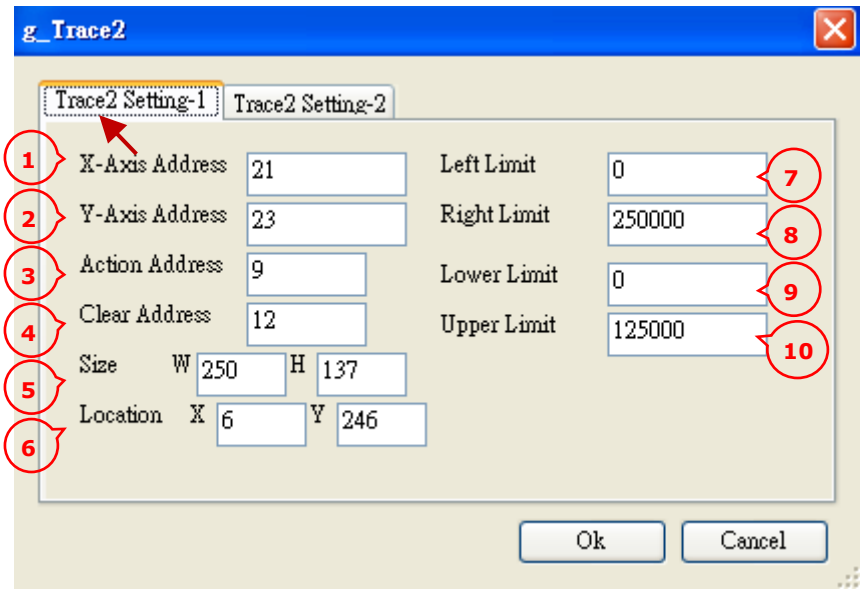
Moving Trace Chart, can be set to 2-axes (x , y) or 1-axis (x: Horizontal or y: Vertical).
(Related information: Section 5.1: Demo04)





After dragging and dropping the "g_Trace2" object into the editing area, the "Axis" dialog will show up, it provides three ways to show the data (1. Only x-axis 2. Only y-axis 3. x and y axis).





Setting items:

(1) X-Axis address: Enter the defined network address of the ISaGRAF 32-bit “Integer” variable. (Refer Section 2.2.1).

(2) Y-Axis address: Enter the defined network address of the ISaGRAF 32-bit “Integer” variable.

(**Note:** Using an ISaGRAF 32-bit Integer or a 32-bit Real variable must occupy two addresses, refer Section 2.2.1 or ISaGRAF Web Page > Manual > the section 4.2 of the "ISaGRAF User’s Manual")

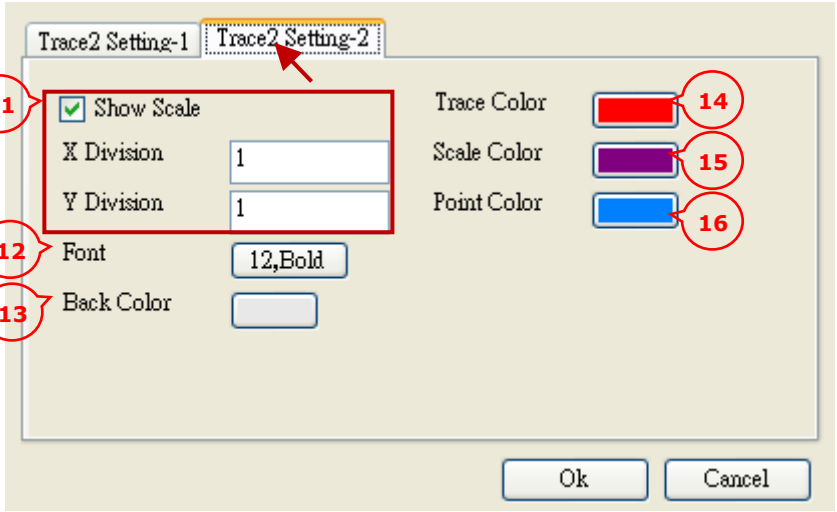
(3) Action address: Enter the defined network address of the ISaGRAF 16-bit “Integer” variable.
If the network address is between 1 and 8191, it’s Type 1, otherwise, it’s Type 2.
If the variable value is

0: Stop drawing (Type 0)； 1: Draw the current trace curve and point. (Type 1).

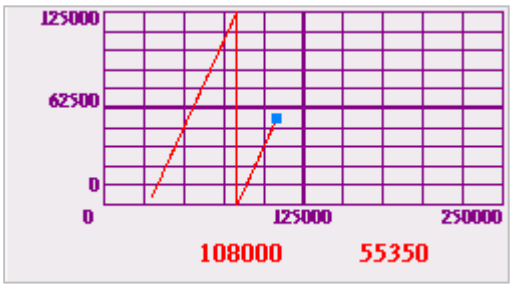
2: Draw only the current trace point without a curve. (Type 2).

(Type 2)

(4) Clear address: Enter the defined network address (range: 1 ~ 8191) of the ISaGRAF “Boolean” variable. When this Boolean value is "True", the trace curve will be cleared and then its value will automatically reset to "False".
(5) Size: Set the object size. “W” stands for Width and “H” stands for Height.
(6) Location: Set the X, Y position of this object. (Refer Section 4.3.1 for the axis range)
(7) Left limit: Set the limit value of the X-axis on the left.
(8) Right limit: Set the limit value of the X-axis on the right.
(9) Lower limit: Set the limit value of the Y-axis on the bottom.
(10) Upper limit: Set the limit value of the Y-axis on the top.



(11) Show scale: Check this box to show the XY coordinate values and the dynamic values.
X division: To do division before showing dynamic values (i.e., X-coordinate value ÷ set value).
Y division: To do division before showing dynamic values (i.e., Y-coordinate value ÷ set value).
(12) Font: Set the font size (range: 6 ~ 10) and style.
(13) Back color: Set the background color.
(14) Trace color: Set the color of the trace curve.
(15) Board color: Set the color of the mesh and the border.
(16) Point color: Set the color of the current trace point.

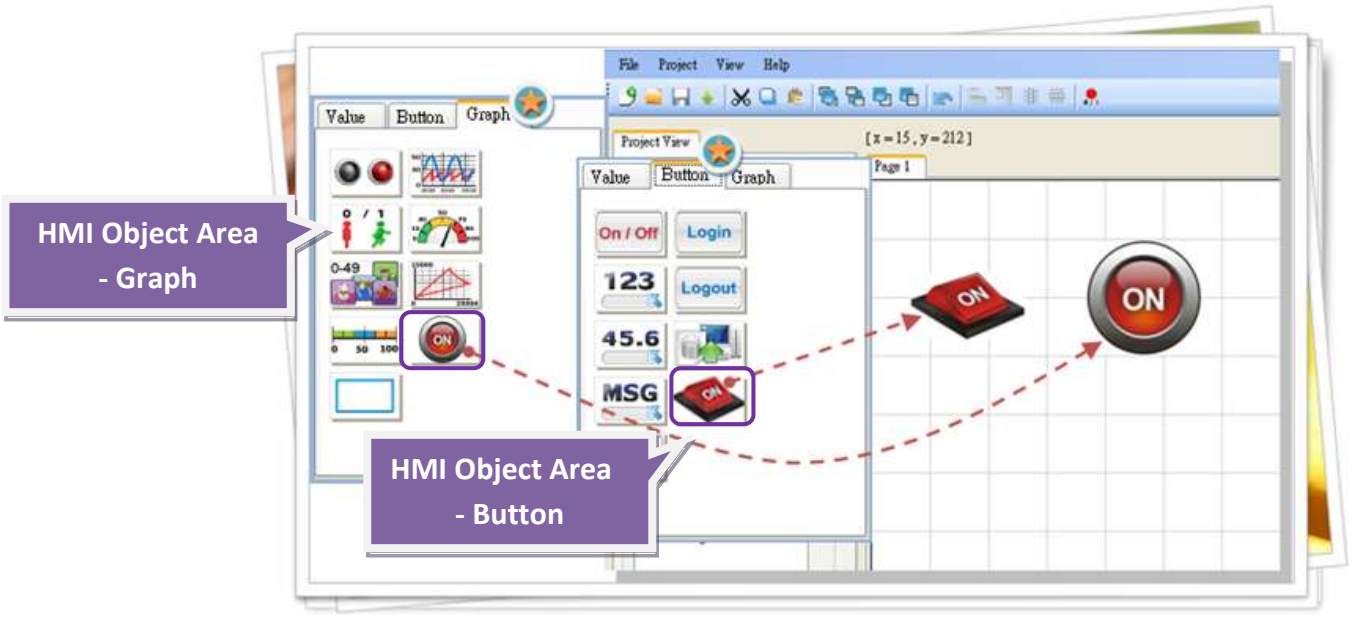


3.4 Using the Image Library (g_B_Inp_Lib, g_B_Pic_Lib)

Since the Soft-GRAF Studio v1.10 provides an image library. User can create this object by using the new icon in the "HMI Object Area". Then, select an image that has two status (On/Off) and four sizes selectable. The user can see the changing of selected image in the preview window. The usages for this object and image library are described as follows.

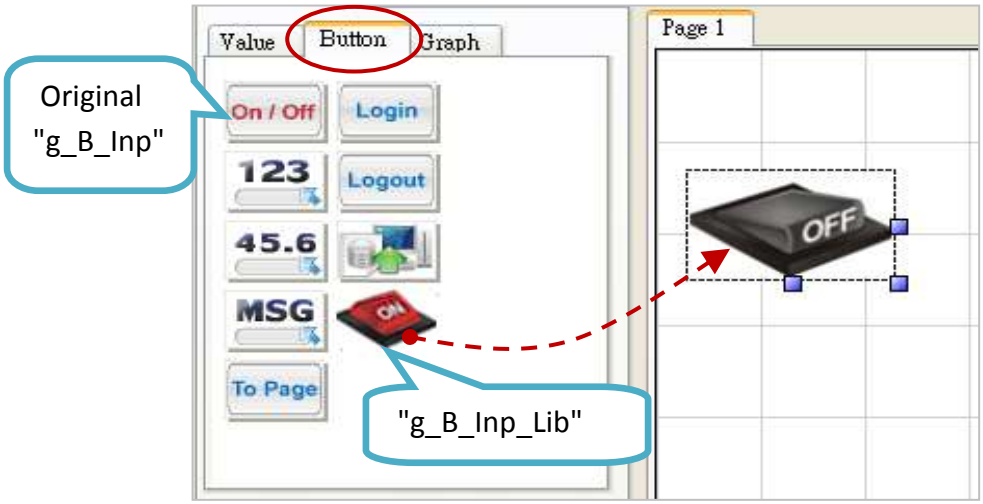
Create the image object:

For the purpose of easy-to-use, the Soft-GRAF Studio adds two objects that are "g_B_Inp_Lib" (button) and "g_B_Pic_Lib" (graph) in the "HMI Object Area". Users can simply choose the designed images in the image library and the setting page is more simpler.



How to use:

1. Mouse drag and drop the "g_B_Inp_**Lib**" object (or "Graph – g_B_Pic_**Lib** ") into the editing area.



2. Mouse double-click this object to open the "Image Library" window and select the wanted image, background color and image size.

3. Click the "Setting" button to set the "network address" or other related items (refer Section 3.2.1 "g_B_Inp" or Section 3.3.2 "g_B_Pic"), and then click "Accept" to finish.

The following content describes the details of setting items.

Setting items:

(1) Image library:

The Soft-GRAF Studio features the image library for users to choose any designed images.

(2) Background Color Select:

The background color of the image button. It can be black, white and the system color.

The user can change it to match the background color of the HMI page.

(3) Image View:

Preview the selected image and size. (The default status is ON)

(4) Switching status:

Click the "1" or "0" button to see the change of the "ON" or "OFF" status of the selected image.

(5) Image Size:

Four image sizes selectable, it can be small, medium, normal and large.

(6) Setting:

Click this button to set the "network address" and other related items.

(Refer Section 3.2.1 "g_B_Inp" or Section 3.3.2 "g_B_Pic")

(7) Accept/Cancel:

Click the "Accept" button to apply all settings or click the "Cancel" without saving any settings.

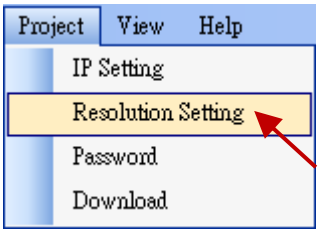
Chapter 4 The Related Functions

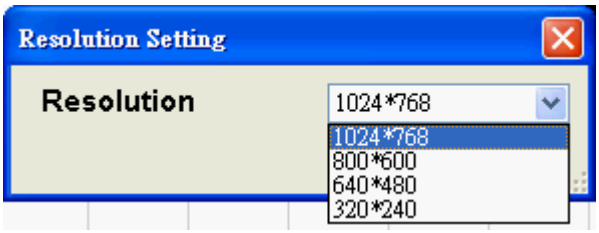
4.1 “Menu Bar” Operations

4.1.1 How to change the project resolution?

The user can modify the resolution setting in the project anytime if changed the used PAC.

After opening the project, click “Project”, click “Resolution Setting” to change the resolution.





There are four resolution options now. Please choose a proper one for your PAC.

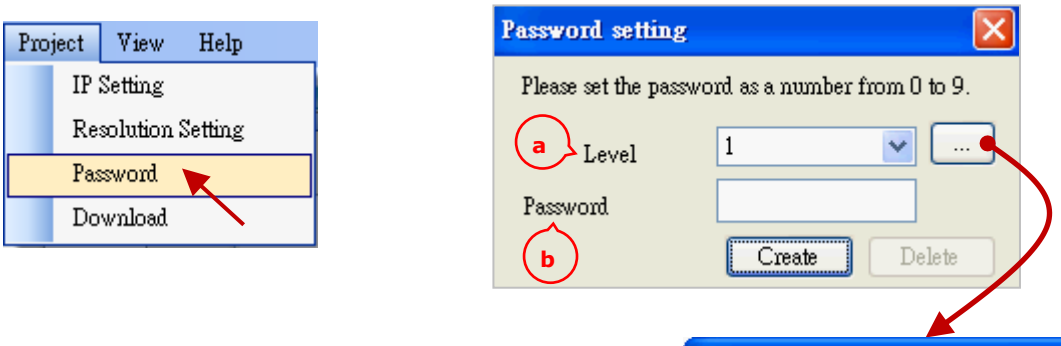
PAC		Supported VGA Resolutions
XPAC	XP-8xx7-Atom-CE6	640*480, 800*600, 1024*768
	XP-8xx7-CE6	
WinPAC	WP-8x37	640*480, 800*600, 1024*768
	WP-8x47	640*480, 800*600
	WP-5147	
ViewPAC	VP-4137	640*480, 800*600
	VP-25W7	640*480
	VP-23W7	320*240

4.1.2 How to set up the access permission of HMI?

The Soft-GRAF Studio provides an HMI password security that can be accomplished by using the "Login" and the "Logout" button object (refer Section 3.2.5, 3.2.6). The user can log in to an HMI page with the different level password to manage the access permission of objects. Refer the following description or open this demo project - "LoginDemo" in the Soft-GRAF Studio installation folder. (If you are not considering the HMI password security, go to the next section.)

Follow these steps:

(1) After opening the project, click “Project”, click “Password” to open the "Password setting" window.



(2) The "Password setting" window has two items:

(a) Level:

Set the security level (1 ~ 10).

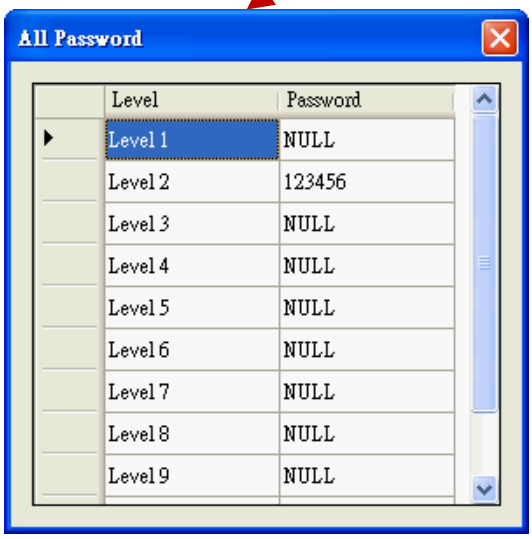
The larger number has the higher authority.

(Click the button ... to view all levels and passwords. "NULL" means no settings.)

(b) Password:

Set the password for this level.

(Without setting a password will keep blank.)

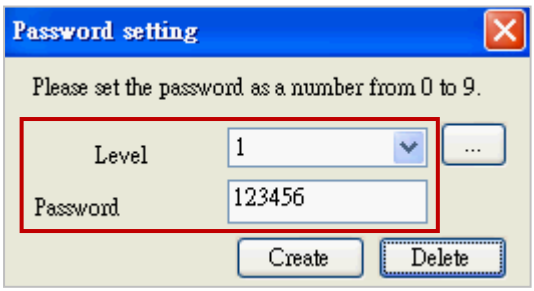


(3) Create a new password:

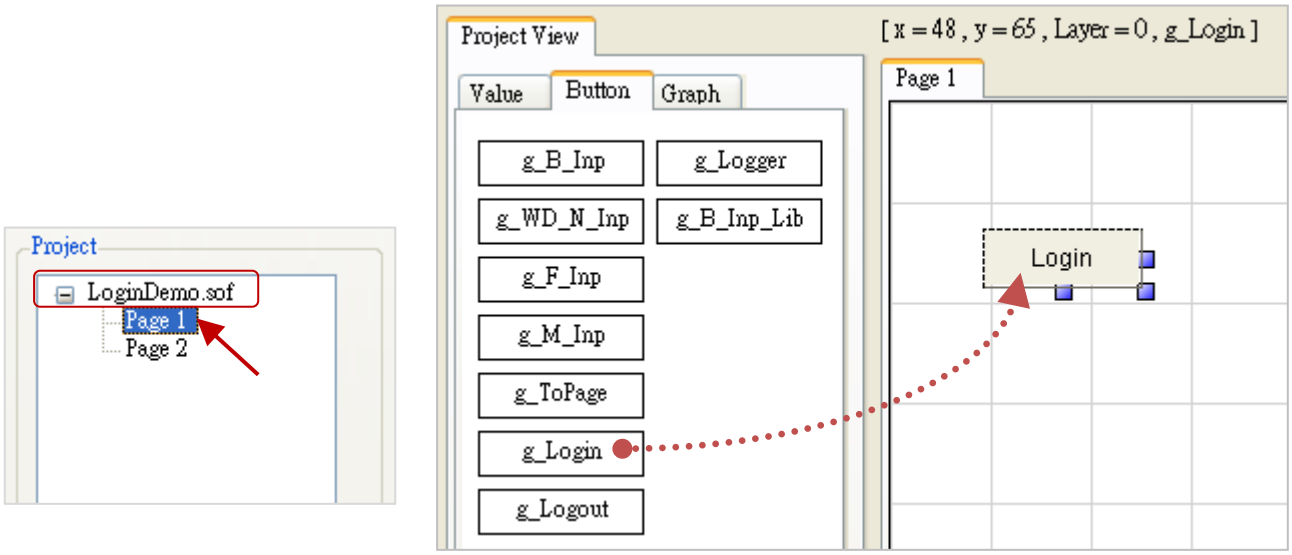
Select a "Level" number and set its password, and then click the "Create" button to complete the setting.

(4) Change/Delete a password:

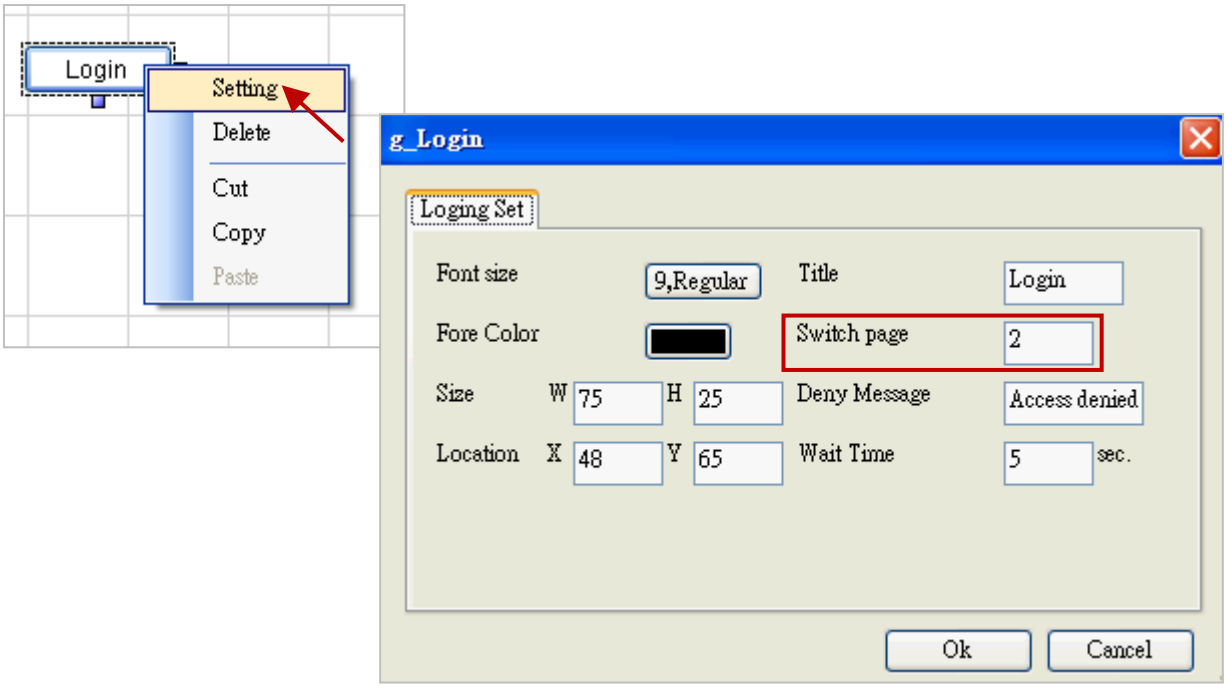
Select a "Level" number, simply enter a new password to replace the old one, and then click the "Create" button to complete this change. Moreover, to remove the password, just click "Delete".



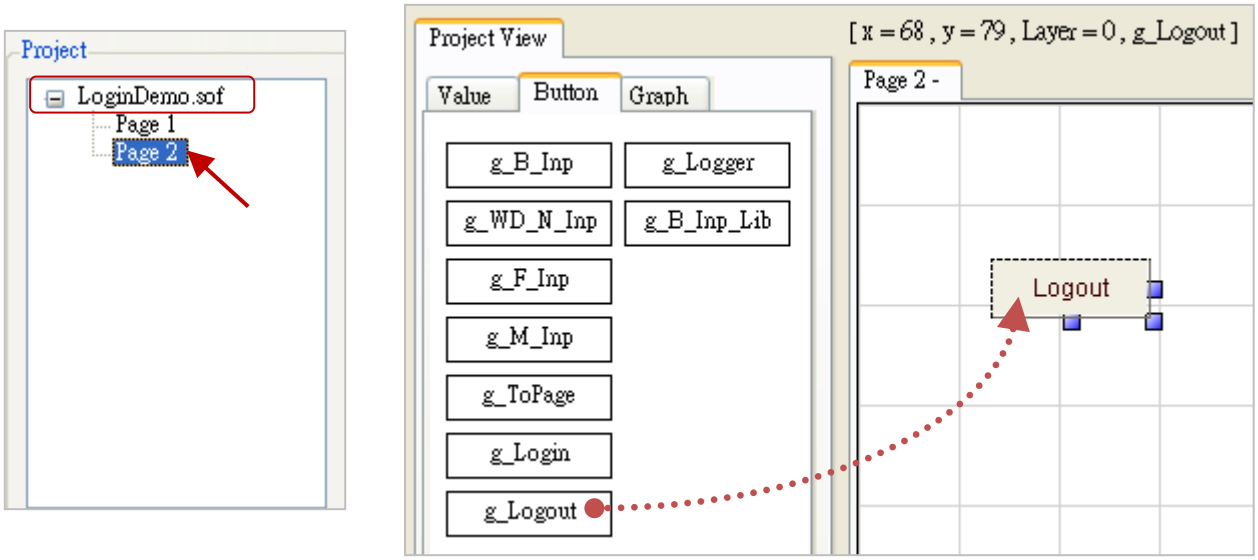
(5) In the HMI object area, drag the g_Login object into the editing area (Page 1).
Note: The "g_Login" object can only add to the 1st HMI page (i.e., Page 1).



(6) Mouse right-click on this object and then click "Setting" to open the "g_Login" setting window. In the "Switch page" field, enter a page number (e.g., Page 2) that you want to switch to after a successful logon.



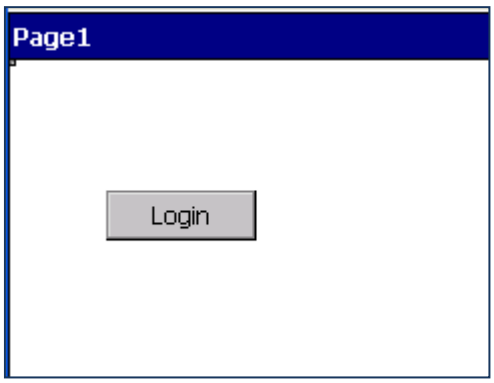
(7) Then, select the "Page 2" (i.e., the page number you set in the step 6), and drag the "g_Logout" object into the editing area. For now, this page is protected by the password security.



(8) Download this project to the PAC (refer Section 2.2.4).

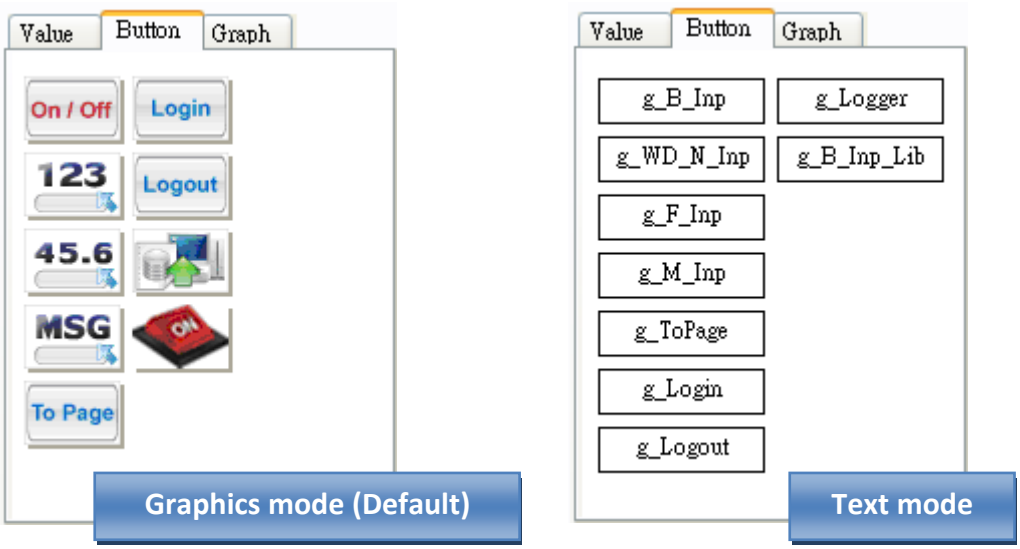
Test:

In the PAC, click the "Login" button and enter its password to log in to the HMI page (i.e., Page 2), and then click the "Logout" button to exit this HMI page.



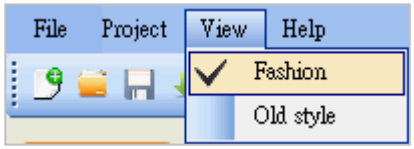
4.1.3 How to switch to the Fashion or Old Style mode?

The Soft-GRAF Studio provides two display modes in the HMI object area (as the figure below).



Switching mode:

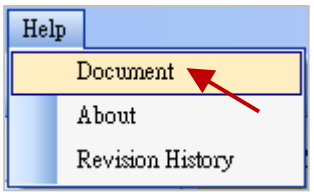
On the “View” menu, select “Fashion” (Graphics) or “Old style” (Text) to change the mode.

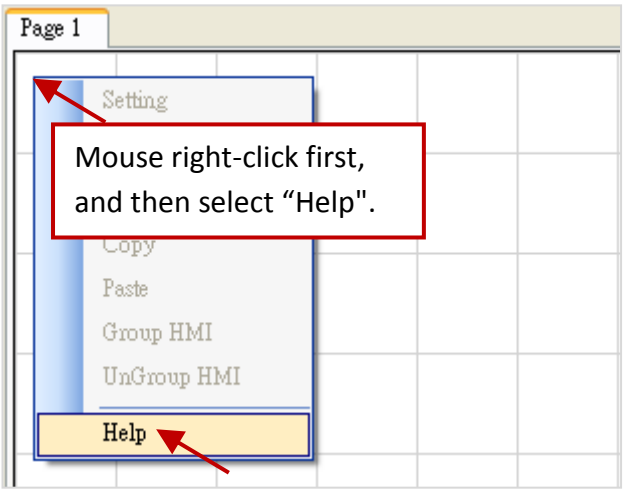


4.1.4 How to open the user manual in the Soft-GRAF Studio?

The Soft-GRAF Studio provides two ways to open the user manual.

1. Mouse right-click on the editing area, and then select "Help".
2. On the “Help” menu, select “Document”.





4.2 “Tool Bar” Operations

4.2.1 How to "Cut", "Copy" and "Paste" HMI objects?

There are three ways to do "Cut", "Copy” and “Paste" operations.

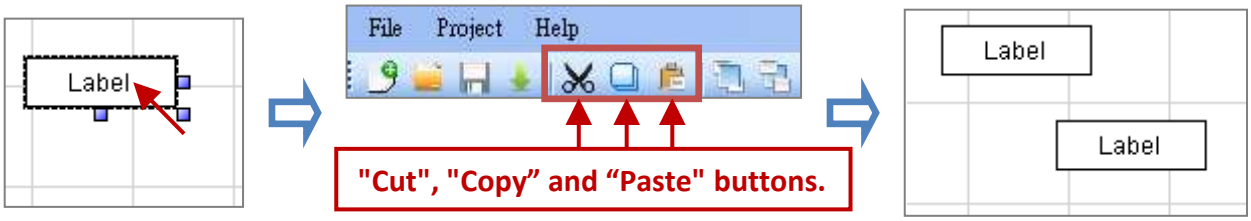
(1) Using keyboard shortcuts:

Ctrl+X: Cut the object ; **Ctrl+C**: Copy the object ; **Ctrl+V**: Paste the object
(The “Paste” operation will be undone if you don’t cut or copy any object.)

How-to:

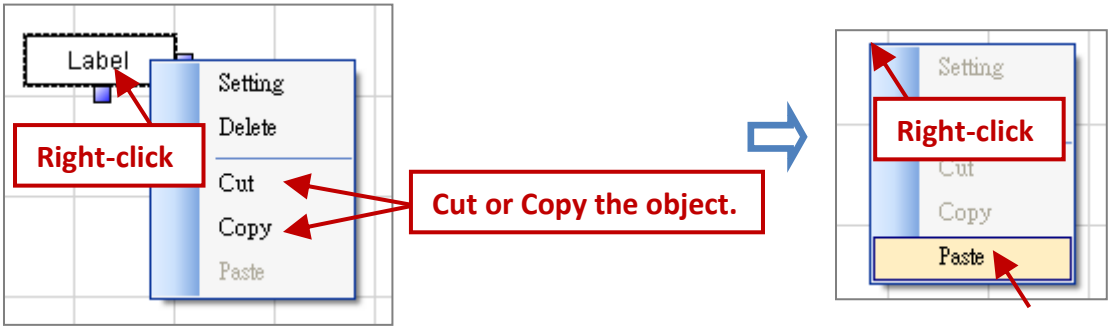
(2) Using the toolbar: The Soft-GRAF studio provides "Cut", "Copy” and “Paste" toolbar buttons.

How-to: Mouse click on any object, click the “Cut” or the “Copy” button, and then click the “Paste” button to paste this object.



(3) Using right-click menu:

How-to: Mouse right-click on the object, select "Cut" or "Copy", and then right-click on the editing area, select "Paste" to paste this object.

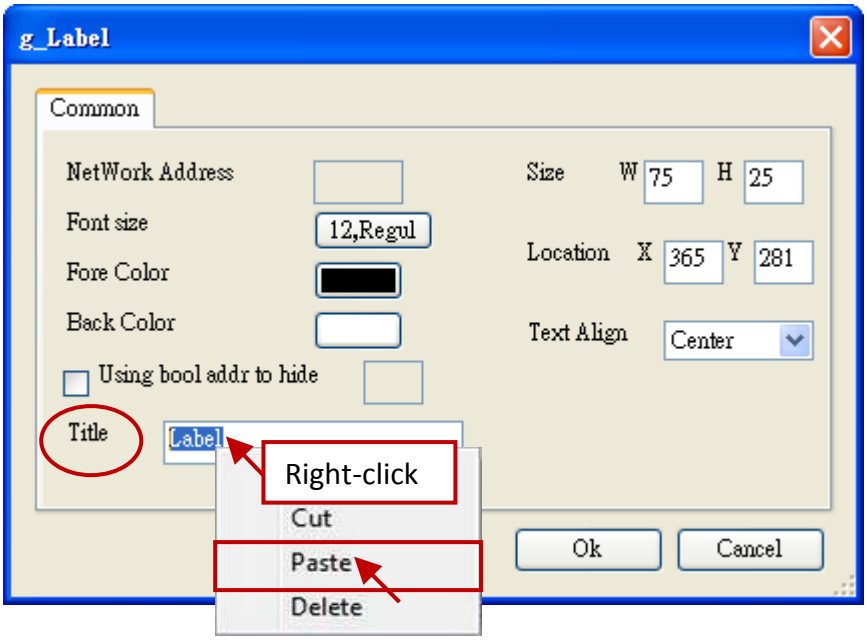


4.2.2 How to edit large amounts of text in the HMI object?

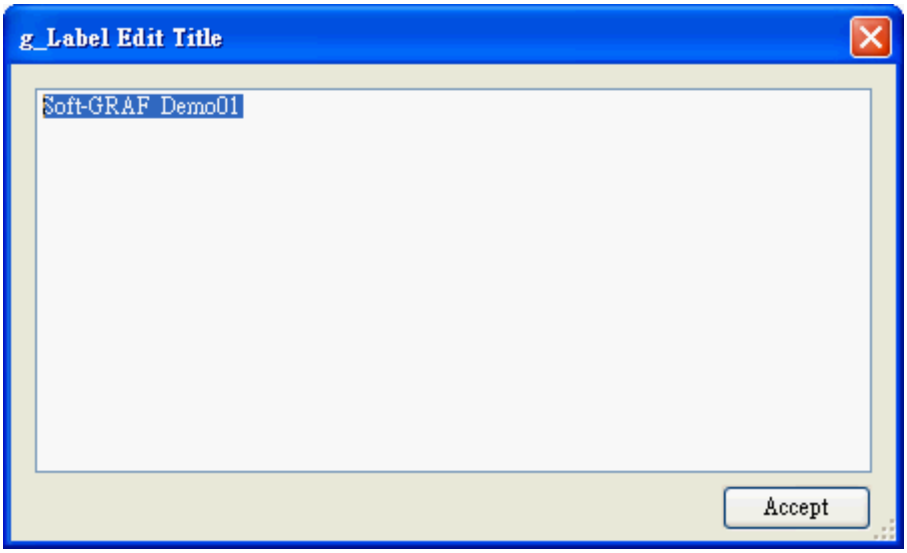
The user can copy and paste large amounts of text in any HMI object which provides a text input box.

How-to:

In the "g_Label" setting window, select or delete the default text (i.e., Label) in the "Title" text box, and then right-click on this text box and click "Paste" (or press "Ctrl+V" on your keyboard) to paste all the copied text.



Or, double-click the "Title" text box and then paste all the copied text in the editing window.



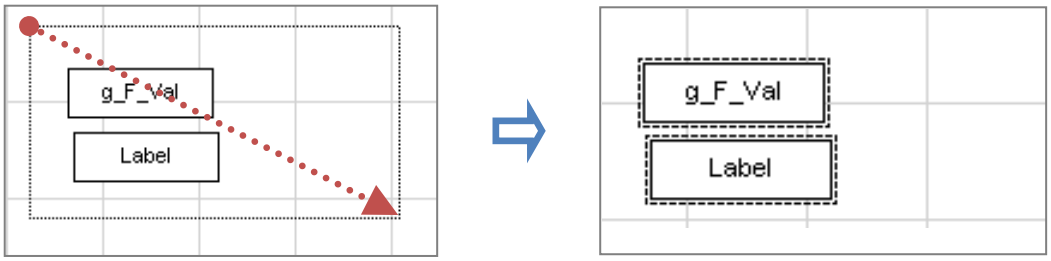
4.2.3 How to multiple select and move HMI objects?

These functions are supported by the Soft-GRAF Studio version 1.03 (or later).

1. Using the following ways to select multiple HMI objects:

   (a) Range selection:

   Click and drag out a rectangular selection to select multiple HMI objects.



   (b) Individual selection:

   While holding down the Ctrl key we can left click to select multiple objects.

2. Refer Section 4.2.1 to know how to "Cut", "Copy" and "Paste" multiple HMI objects.
3. Using your keyboard arrow keys (⬅ ➡ ⬆ ⬇) to fine tune the selected object (one or more). (I.e., moving your selection one pixel at a time.)

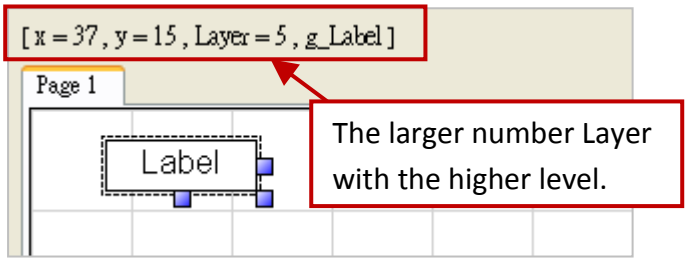
4.2.4 How to adjust the layer of the HMI object?

The Soft-GRAF Studio provides a layer selection for the HMI object.

(From left to right)

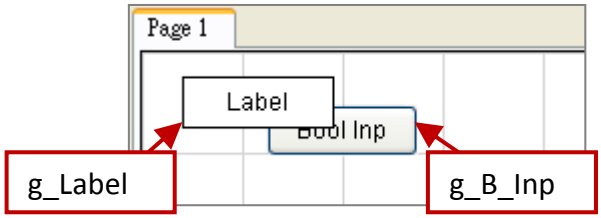
a. Send To Front
b. Send To Back
c. Forward One
d. Backward One

The first created object in the Soft-GRAF Studio default has the highest level Layer. When the objects overlap, the higher layer object will cover the lower layer object. So, the user can use the above tool buttons to change the Layer level. In addition, when you click on an object, its layer level (a higher number means a higher level) and position will show on the left-up corner of the HMI editing area.

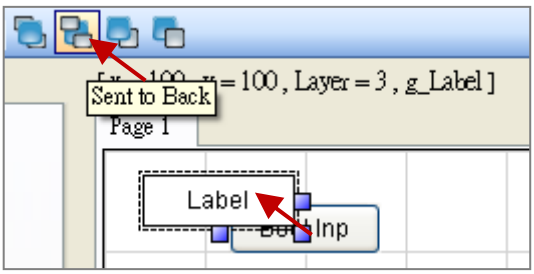


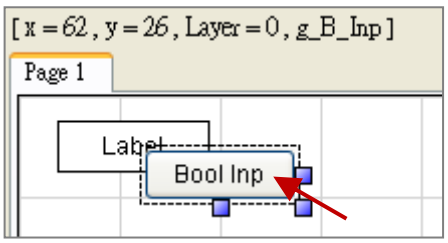
For example:

There are two overlapped objects – "g_Label" and "g_B_Inp". The object g_Label has the higher Layer than the g_B_Inp and covered on it.



To see the "g_B_Inp", simply click "g_Label" and click the “Sent to Back” toolbar button.

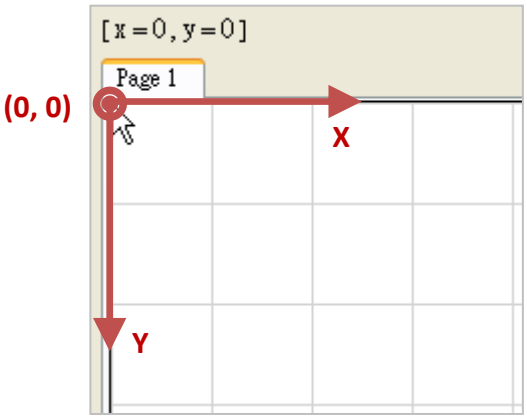




4.3 “HMI Page Area” Operations

4.3.1 The origin of the axes position in the editing area

In the Soft-GRAF Studio, the origin of the axes position (i.e., “0, 0”) is in the upper-left corner of the editing area.



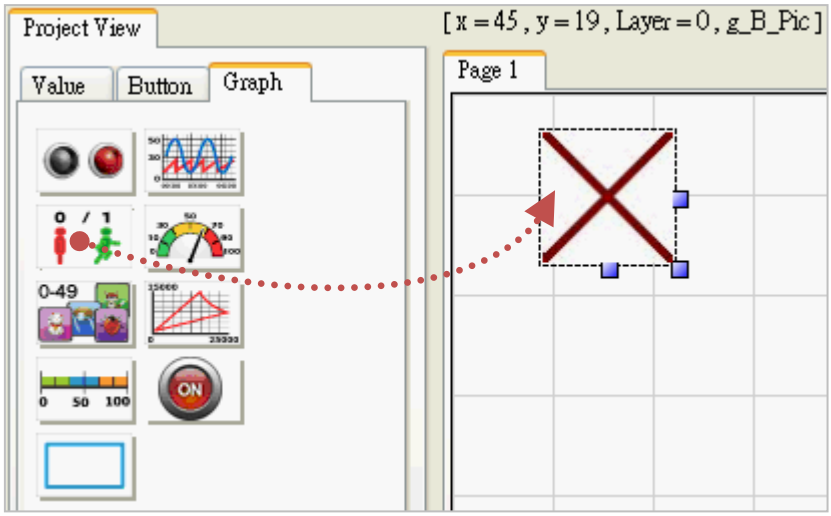
The horizontal axis in the monitor called "X axis", and the vertical axis called "Y axis". The original position of (X , Y) is (0 , 0) which resides at the most top-left corner of the monitor. The value of X coordinate is increasing from left to right direction. The value of Y coordinate is increasing from top to bottom direction. The unit of the (X , Y) coordinate is "Pixel" . For example, the default resolution setting of the WP-8847 is 800 x 600, so its X coordinate ranges from 0 to 799, while ranges from 0 to 599 for Y coordinate; The default resolution setting of the VP-25W7 is 640 x 480, so its X coordinate ranges from 0 to 639, while ranges from 0 to 479 for Y coordinate.

4.3.2 How do I make a background picture?

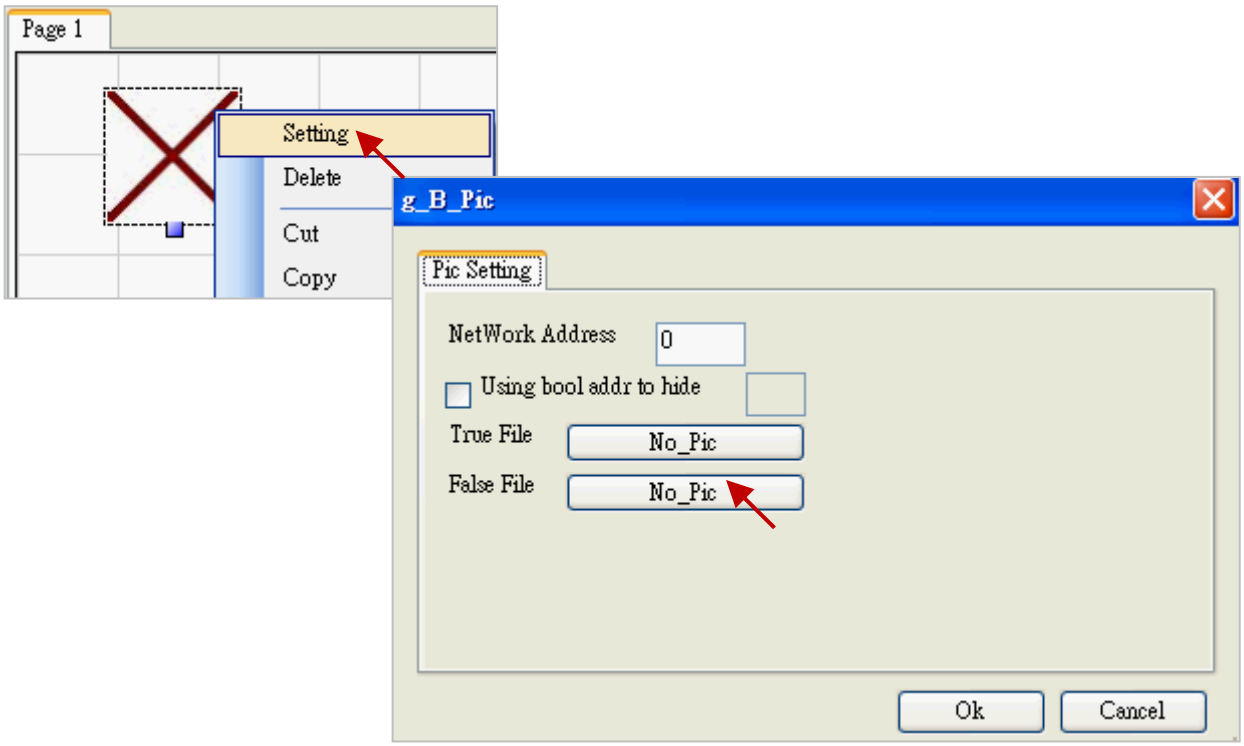
The user can use the "g_B_Pic" object to add a background picture in the HMI page.

Note: Considering the object layer issue (refer Section 4.2.4), we recommend adding the background picture at the final step.

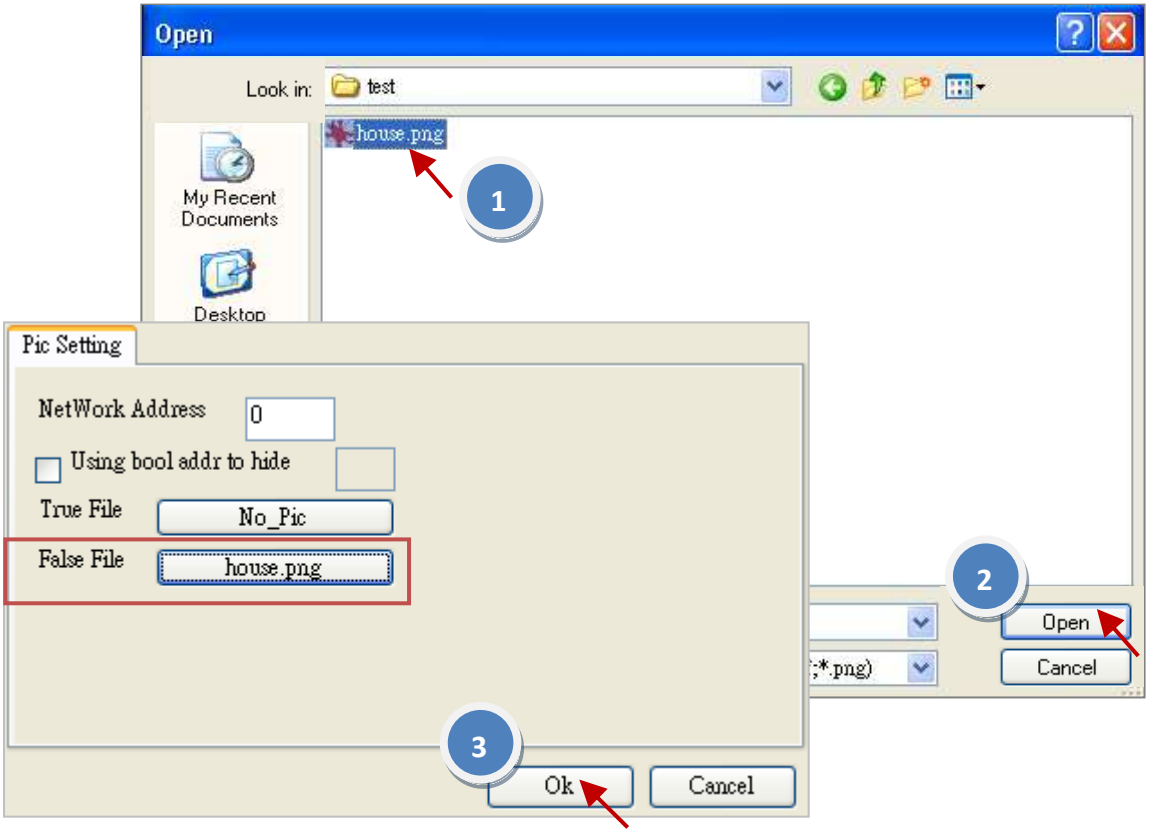
1. First, mouse drags the "g_B_Pic" object into the editing area.



2. Right-click on this object and select "Setting" to open the setting window, and then click “False File” to choose a picture.



3. After selecting and opening the wanted picture, click “ok”.



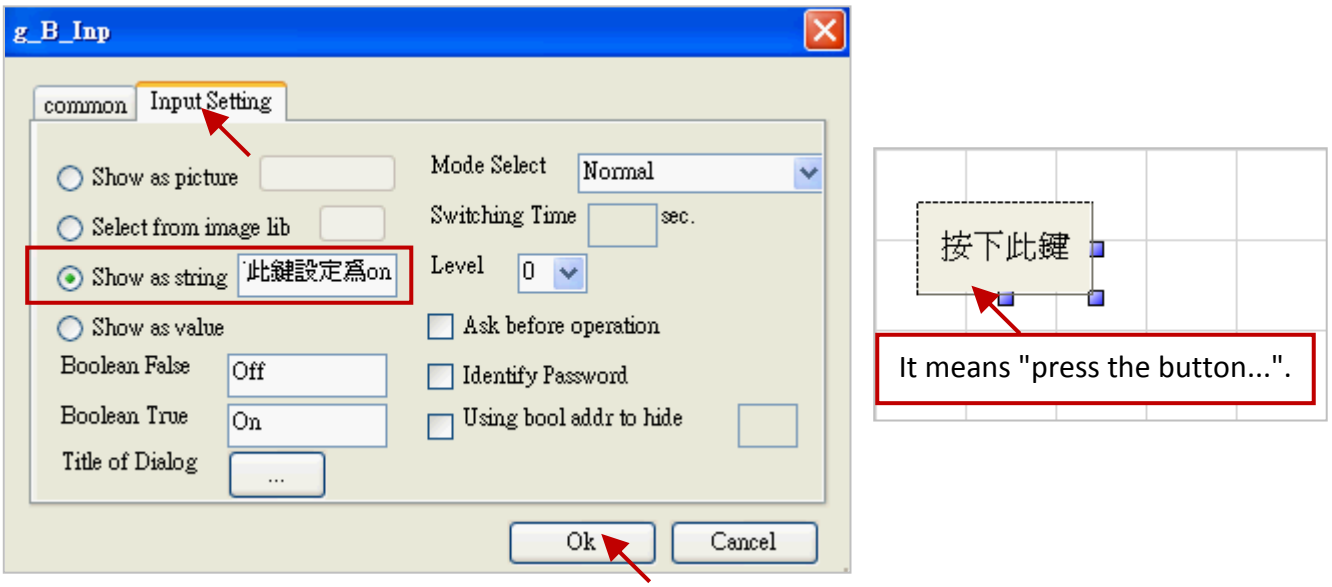
If the background picture overlaps the other objects, simply click this picture and click “Sent to Back” toolbar button to put it on the lowest layer.

4.3.3 How to show two-line or multi-line text on the button object?

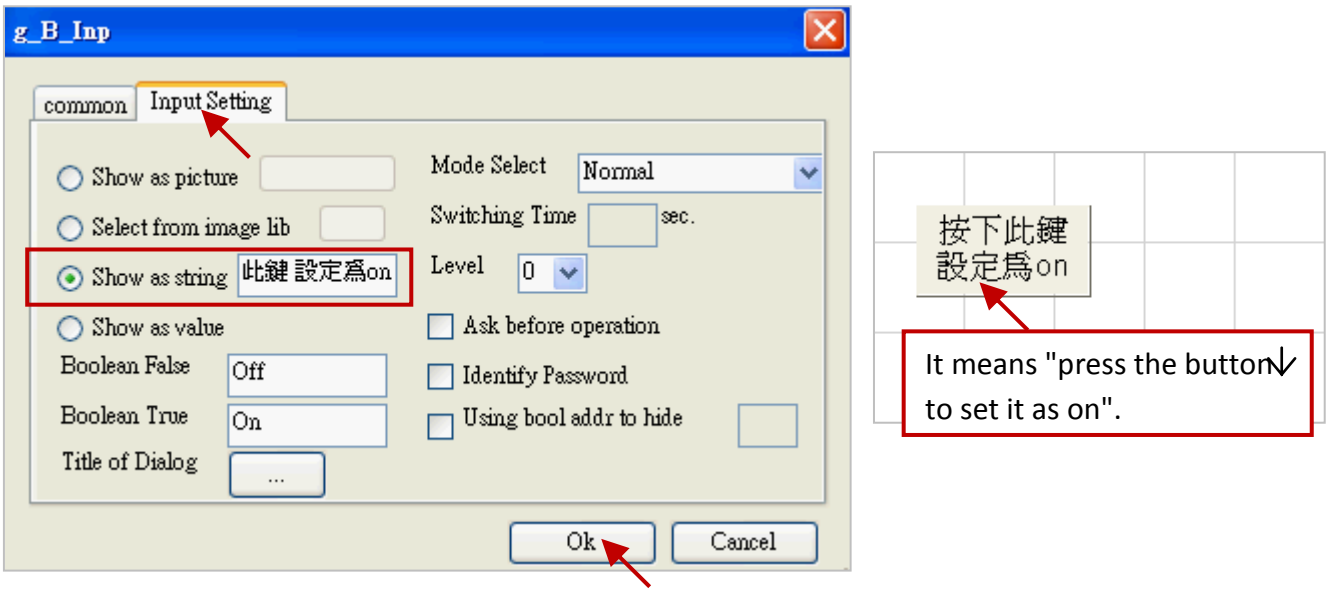
The user can type some text to show on the "button" object, and the field name of the text box may be "Show as title/ string" (for g_B_Inp , g_N_Inp , g_F_Inp and g_M_Inp) or "Title" (for g_ToPage , g_Login and g_Logout) in the setting window. Normally, if you enter a series of characters that exceeds the length of an object, you will be unable to see the entire text. For now, you can add a space character (" ") to start a new line and show as two-line text.

How-to:

Using the "g_B_Inp" object as an example. If you enter "**按下此鍵設定為 on**" in the "Show as string" field in the setting window and click "Ok", you can see this text is too long to show on the object.



If we change this text to "**按下此鍵 設定為 on**" (add a space) and click "Ok", it will show as two-line.



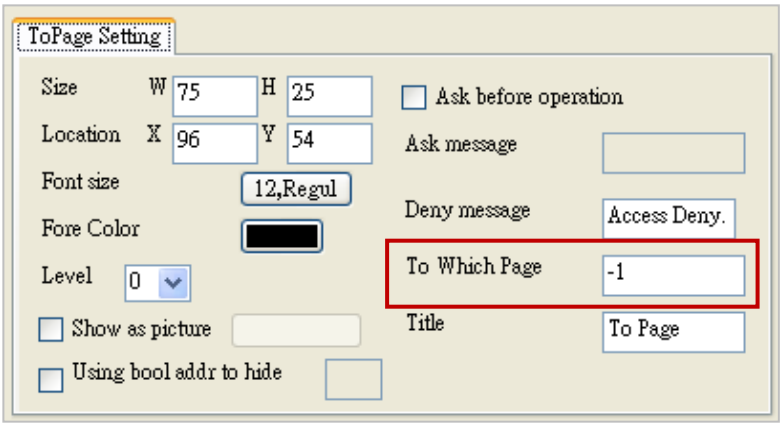
4.3.4 How to use "g_Topage" to return the previous page or to enable the Schedule-Control Utility?

The Soft-GRAF provides these functions since the version 1.26. The user can refer ISaGRAF FAQ-166 for more about the schedule-control utility.

http://www.icpdas.com/root/support/faq/isagraf.php > FAQ-166

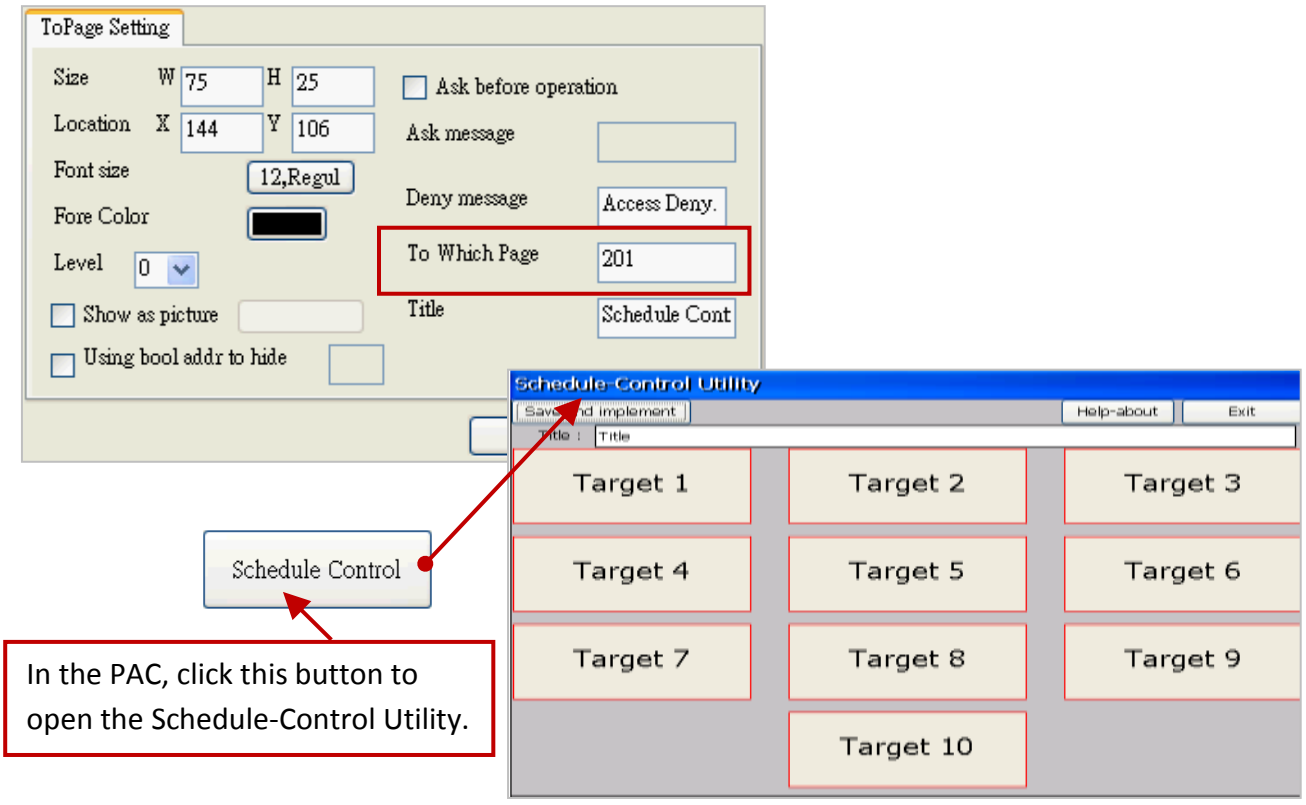
Back to the Previous Page:

In the "g_ToPage" setting window, enter "-1" in the "To Which Page" field to complete the setting.



Enable the ISaGARF Scheduling Function:

Enter "201" in the "To Which Page" field to enable the Schedule-Control Utility.

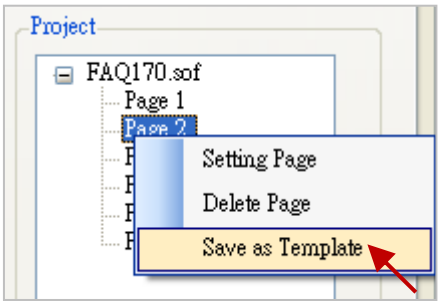


4.3.5 How to import or export an HMI page as a "Template"?

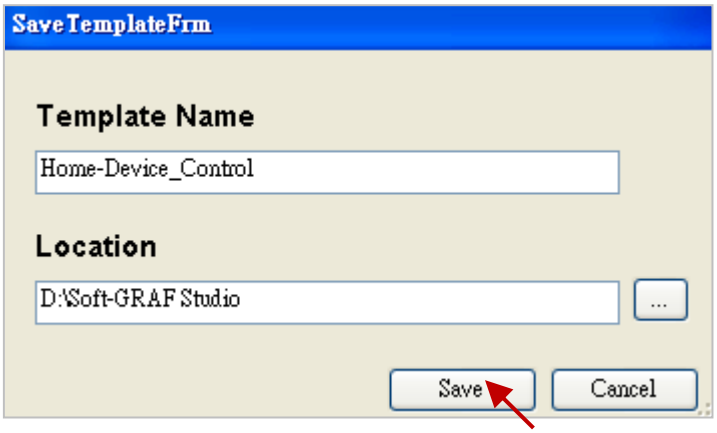
This "Template" function is supported by the Soft-GRAF Studio version 1.10 (or later). The user can save any designed HMI page as a template, and then use all its HMI objects in the new project afterwards.

Export an HMI Page (Save as Template):

1. In the HMI page area, mouse right-click on any page number(e.g., Page 2) and then click "Save as Template".



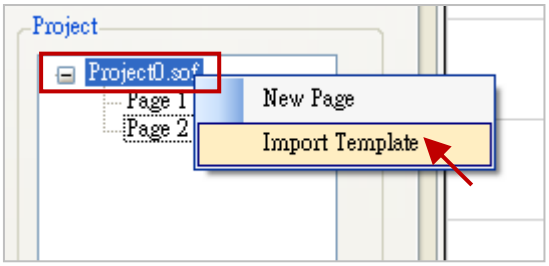
2. Enter a template name and assign a location, and then click the "Save" button.



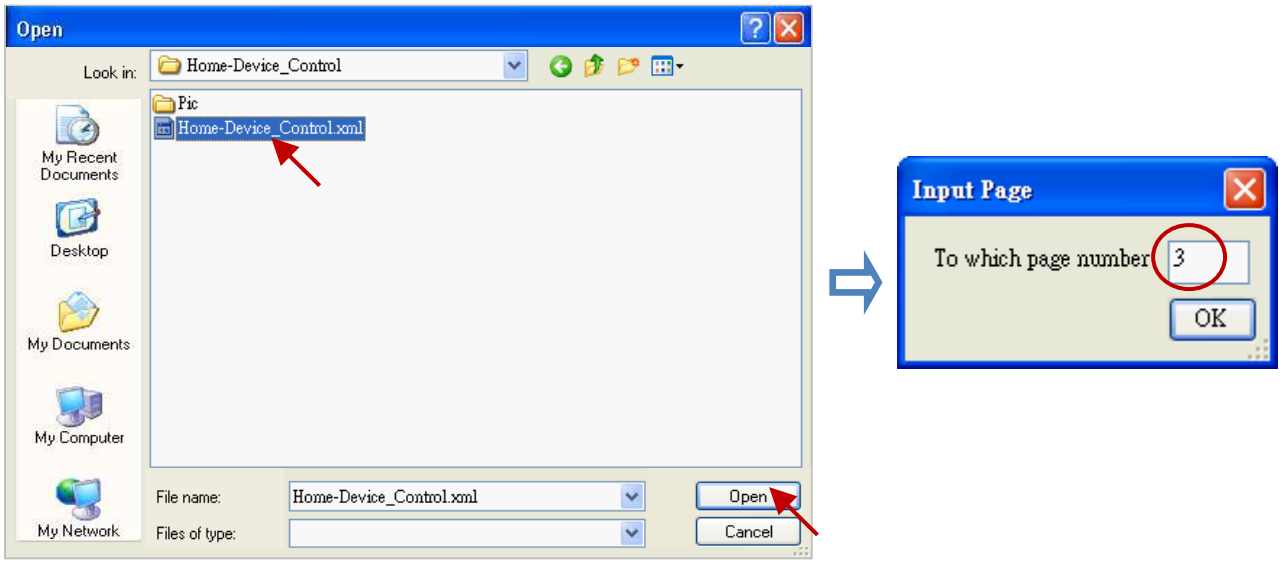
3. Then, it will create a new folder with the specific name and includes an .xml file and an image folder.

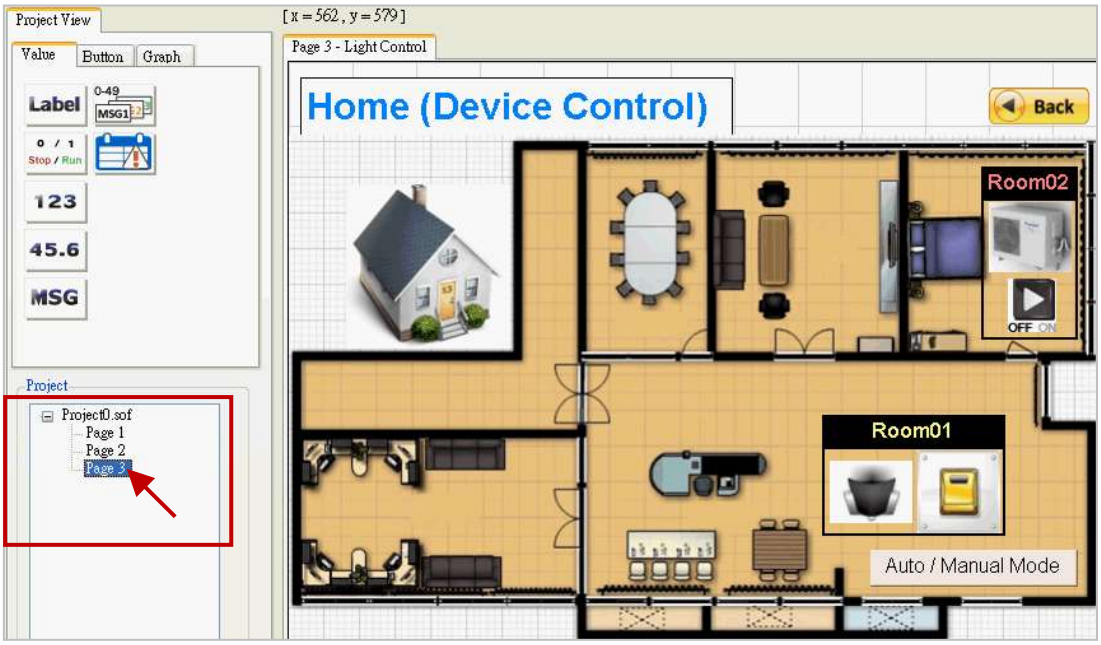
Import an HMI Page (Import Template):

1. In the HMI page area, mouse right-click on the project name (e.g., Project0.sof) and then click "Import Template".



2. Select and open the wanted template file (.xml), and then enter a page number to add it.
   Note: Don‘t enter an existing page number, or you will be unable to import this template.





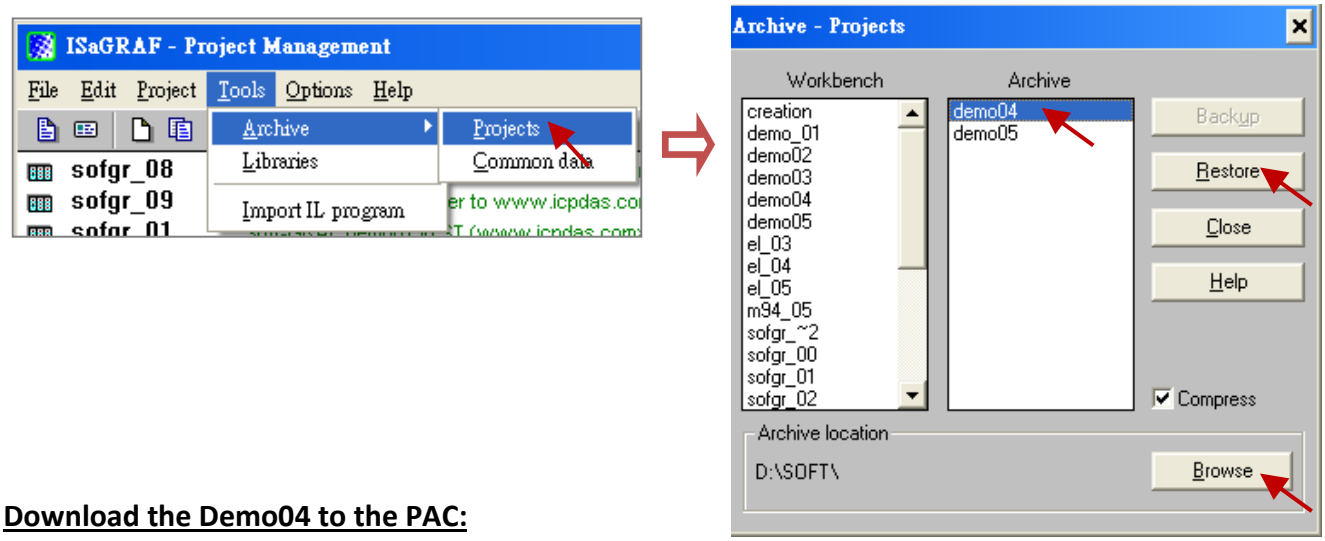
Chapter 5 Description of Soft-GRAF Studio Demo Projects

In the installation folder (e.g., D:\ Soft-GRAF Studio, refer Section 1.1), the user can find out all the related demo projects that described in this chapter.

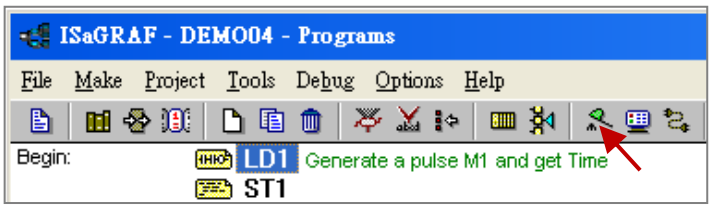
5.1 Demo04: Showing HMI Objects and Operations

The demo04 will show all HMI objects and some basic operations. First, restore the "demo04.pia" file to the PC/ISaGRAF, and then download it to the ISaGRAF PAC.

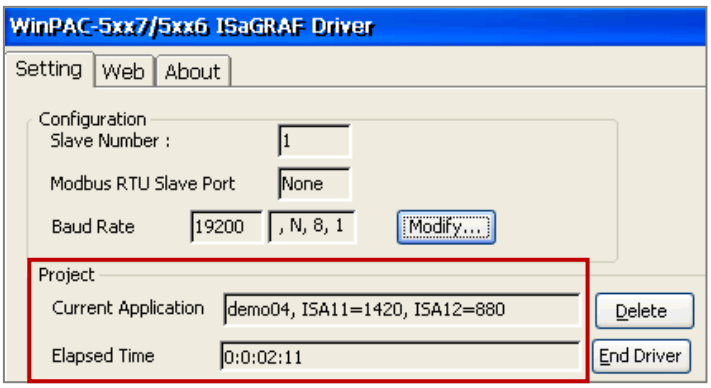
Restore the ISaGRAF Project (Demo04):



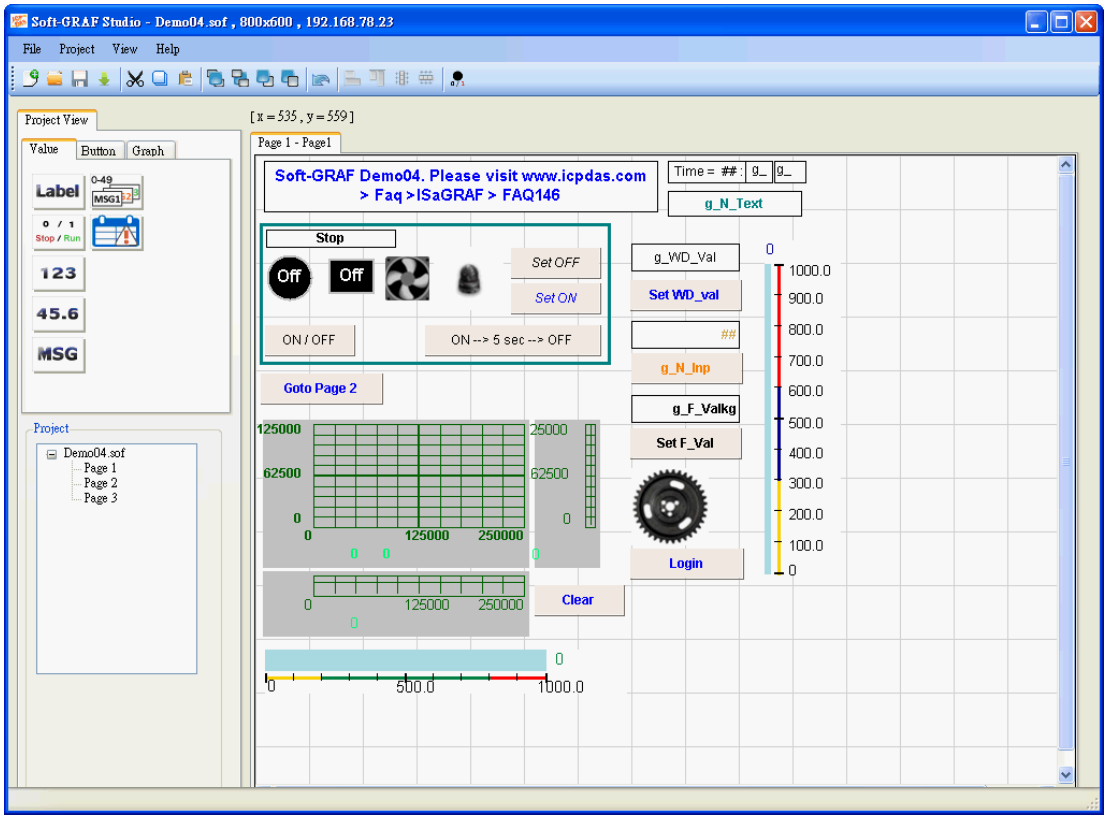
Download the Demo04 to the PAC:



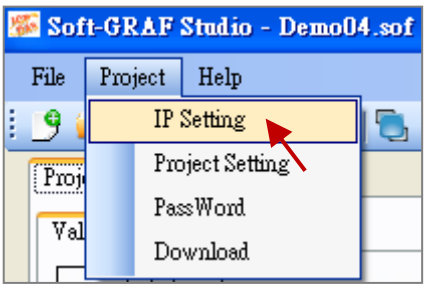
In the PAC:

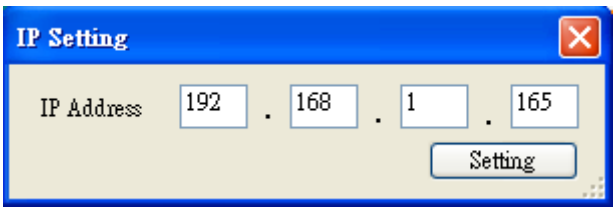


1. Use the Soft-GRAF Studio to open the "Demo04.sof" project as the figure below.
   (Refer Section 2.2.2 B. Open a Soft-GRAF Studio Project)



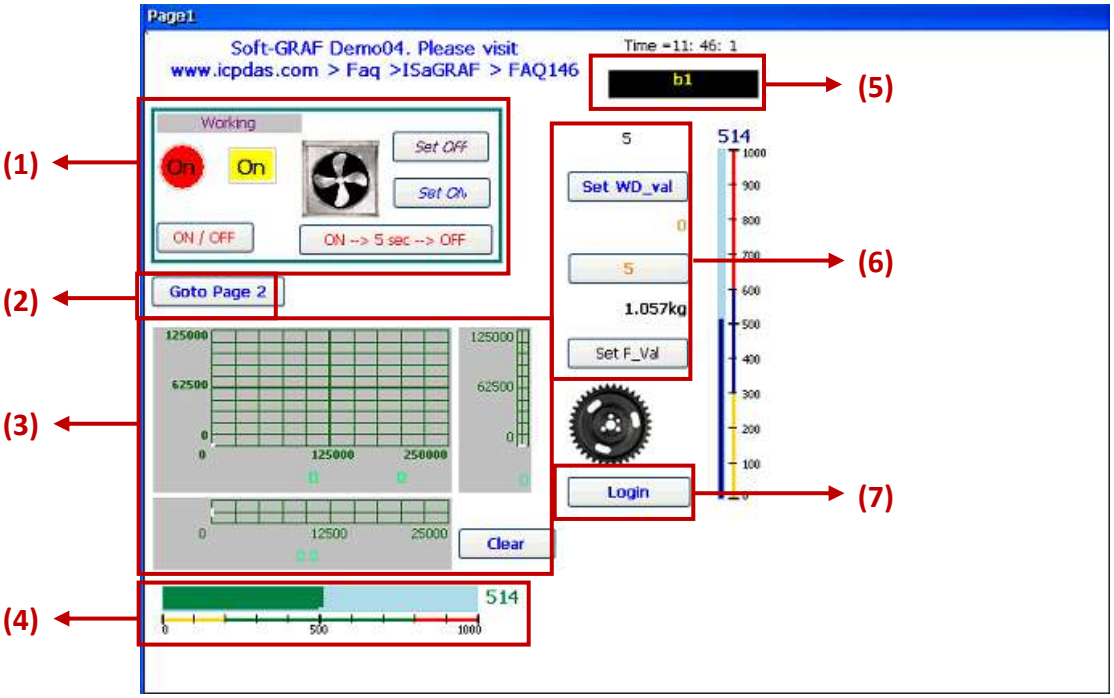
2. In the “Project” menu, click "IP Setting" to set up the download IP (i.e., PAC’s IP), and then click the “Download” toolbar button to download this HMI project.





3. The following are HMI pages that show on the PAC's screen.
   This Demo04 contains three HMI pages: Page1 displays all objects, and Page2 & Page3 display the security function and the using ways.

Page1:



The description of HMI pages and testing:

(1) As the figure above, we use a Boolean variable to test "g_B_val", "g_B_Led", "g_B_Pic" and "g_B_Inp" objects. And, the "g_B_Inp" button can be set to different switching modes (refer Section 3.2.1) so that you can click it to to switch the status (e.g., click the "ON → 5 sec → OFF" button to switch to "ON", and it will automatically switch to "OFF" after 5 seconds).

(2) Click this button to switch to Page2.

(3) Trend chart, it used to draw a trace curve depends on the reading values. Moreover, the user can set "Action Address" to decide how to draw, and set "Clear Address" to remove the trace curve manually. (E.g., click the "Clear" button like the figure above to remove the trace curve.)

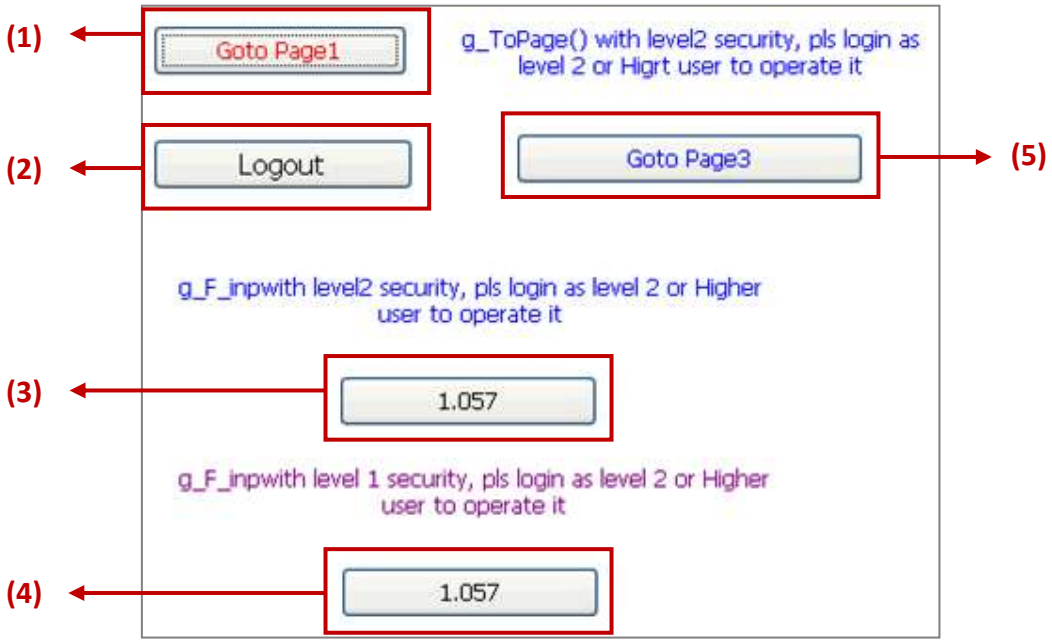
(4) Display a Bar-meter.

(5) The "g_N_Text" object, it allows to show the specified text depends on the reading values.

(6) Here, we use three "Value" objects and three "Button" objects to show the Word, Integer or Float value that depends on the reading values.

(7) The login button (e.g., click it to switch to the Page2).

Page2:



(1) Click this "Goto Page1" button to switch to the Page1.
(2) Click this "Logout" button to logout and back to the page1. (It must work with a "Login" button.)
(3) It's a "g_F_Inp" button with the permission setting (refer Section 4.1.2, Access Permission). First, click the "Login" button on the "Page1" (the 1st page) and then enter your Level-2 password (e.g., "012345", or higher level) to log in to this "Page2" and allow to operate this "g_F_Inp" button.
(4) The same as the item (3). Before using this button, you must log in as a Level-1 user (or Level-2) by clicking "Login" button on the "Page1".
(5) Before using this button to switch to the Page3, you must log in with your Level-2 password.

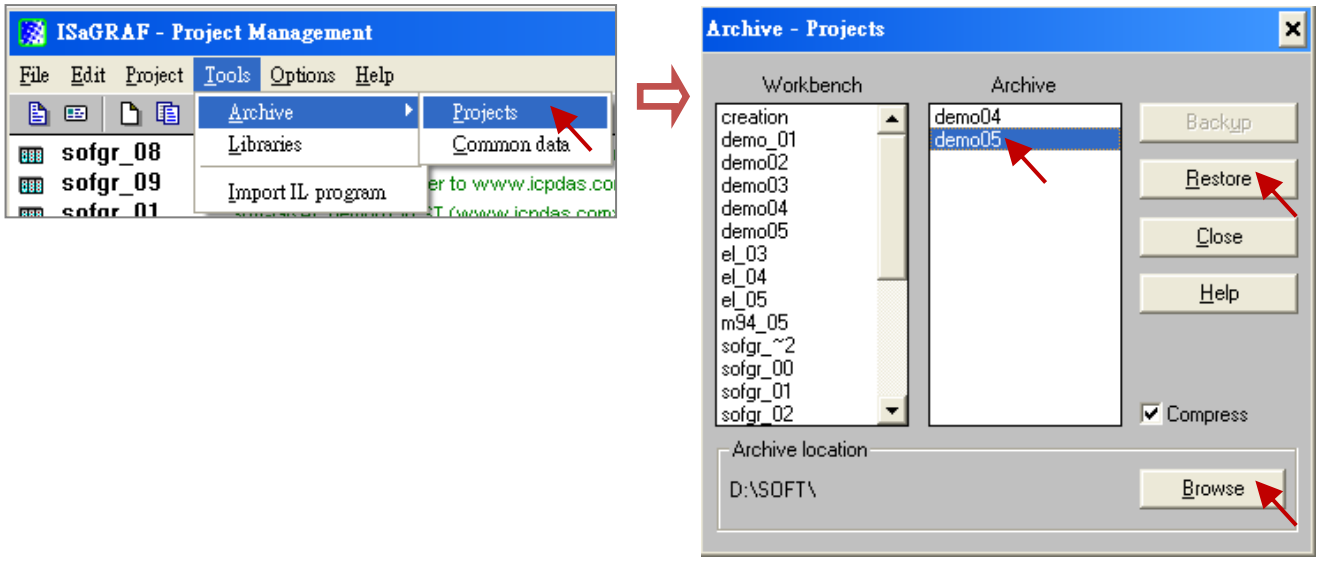
Page3:

(1) Click this button to switch to the Page2.

5.2 Demo05: "My Sweet Home" Demo Project

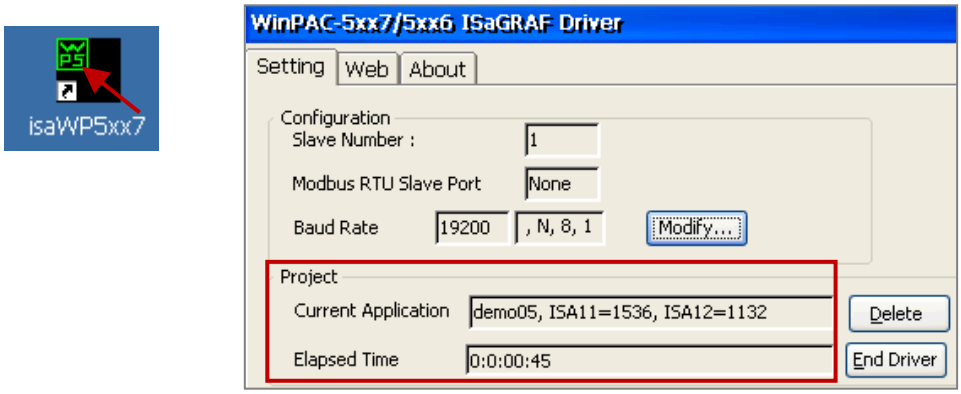
This Demo05 will describe how to design an interactive, dynamical HMI page. First, restore the "demo05.pia" file to the PC/ISaGRAF, and then download it to the ISaGRAF PAC.

Restore the ISaGRAF Project (Demo05):



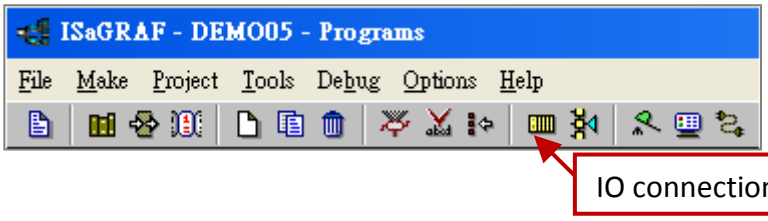
Download the Demo05 to PAC:

In the PAC:

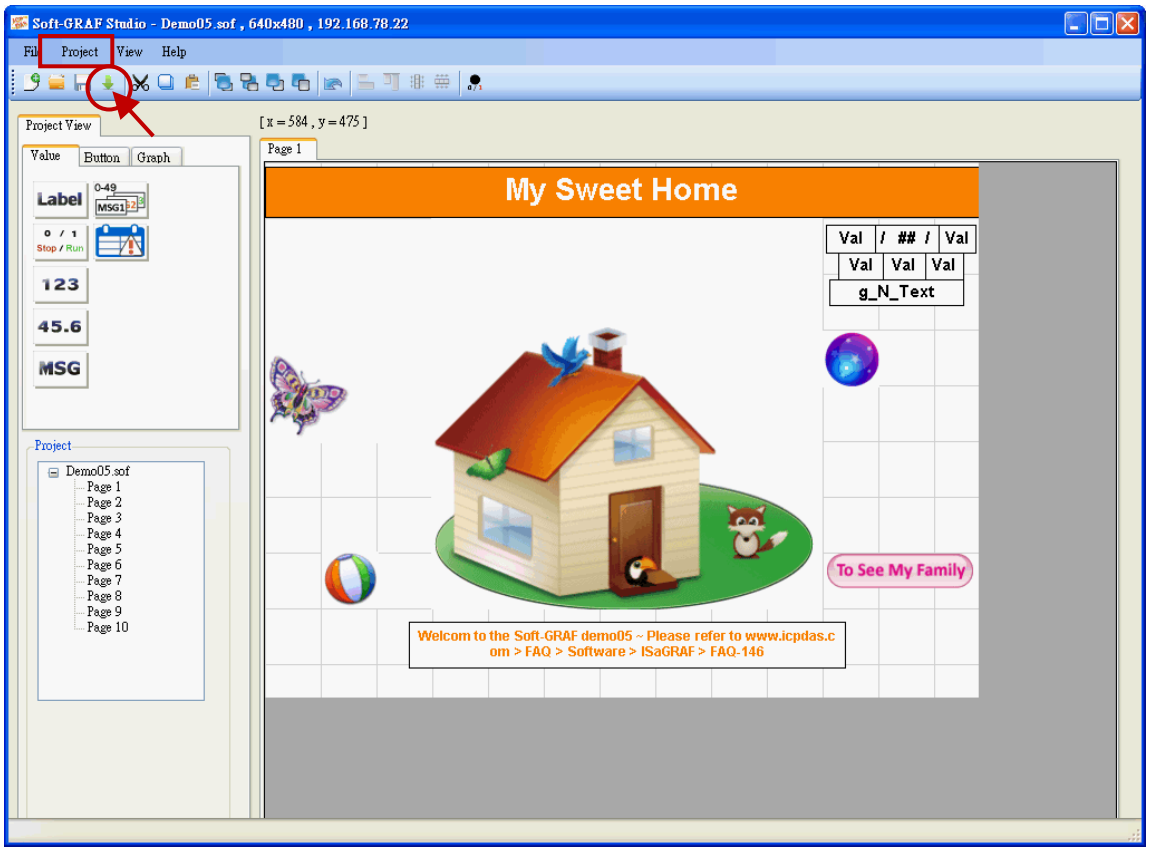


In this Demo05 project, we add an “i_8056” virtual I/O board in the ISaGRAF - “IO connection” window to test the status of DO tags (without using a real I/O module).

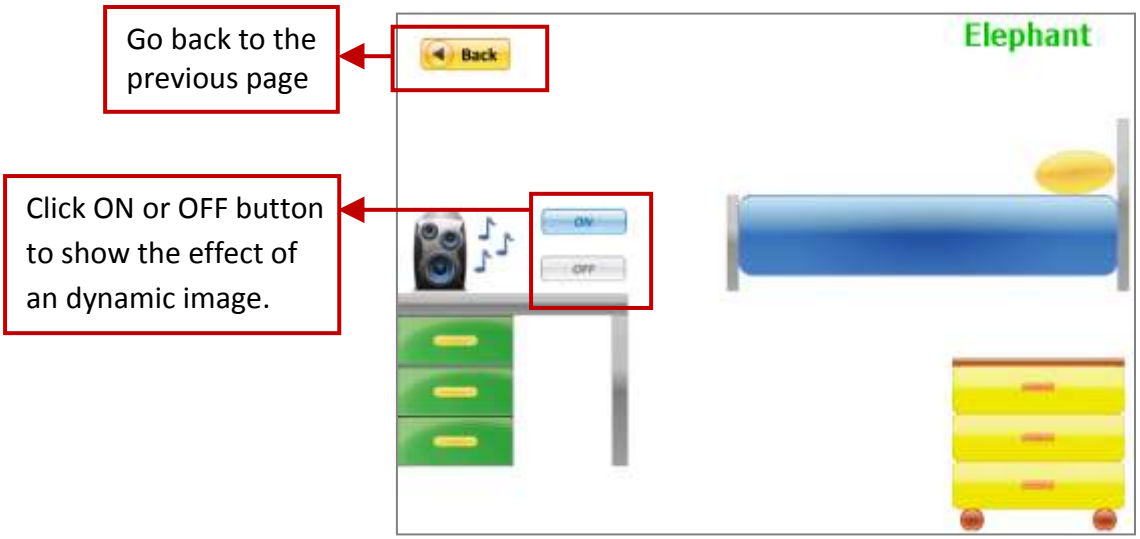
Note: If you need to use a physical I/O module, simply install it into the PAC’s Slot 1, change the setting to "Real” I/O board in the ISaGRAF - “IO connection” window, and then compile and download this project to the PAC.

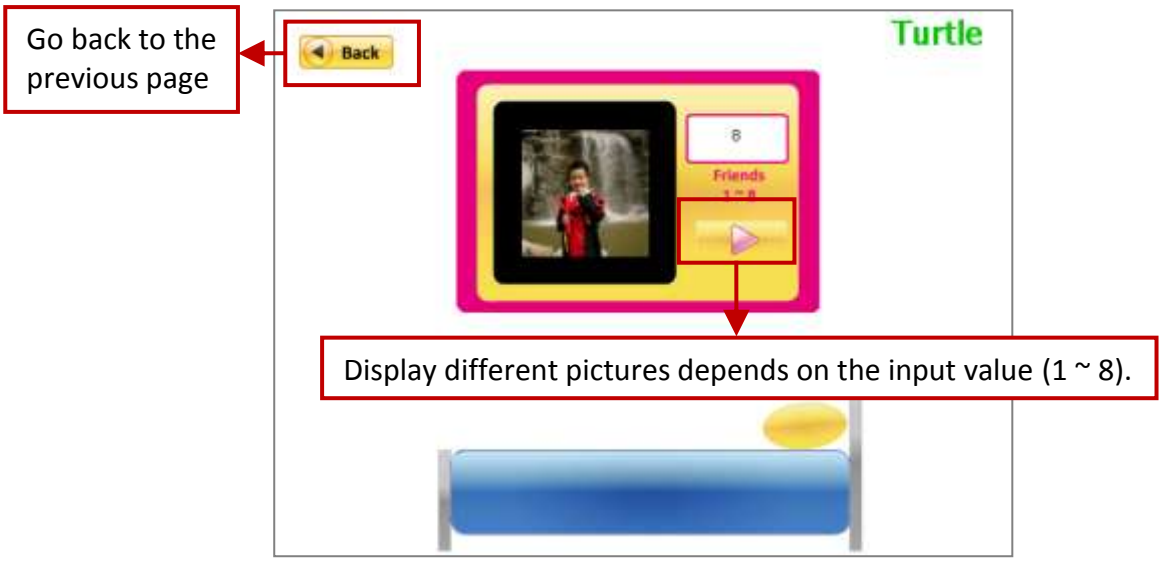


1. Use the Soft-GRAF Studio to open the "Demo05.sof" project. (Refer Section 2.2.2)
2. Click the “Project” menu to set the download IP, and click “Download” toolbar button to download this project to the PAC. (Refer Section 5.1)

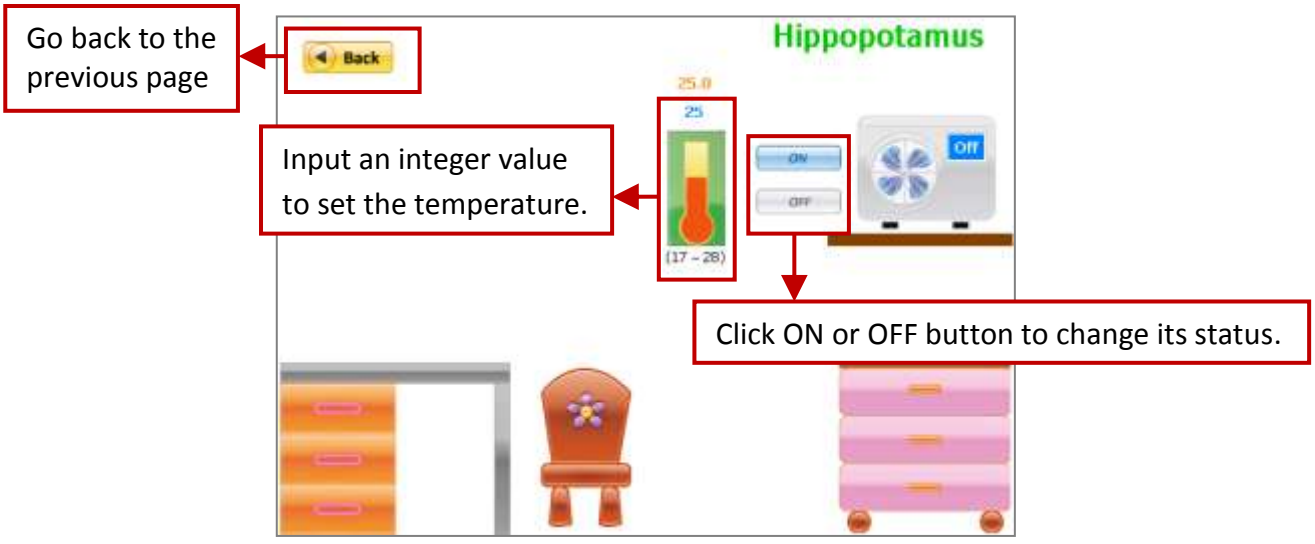


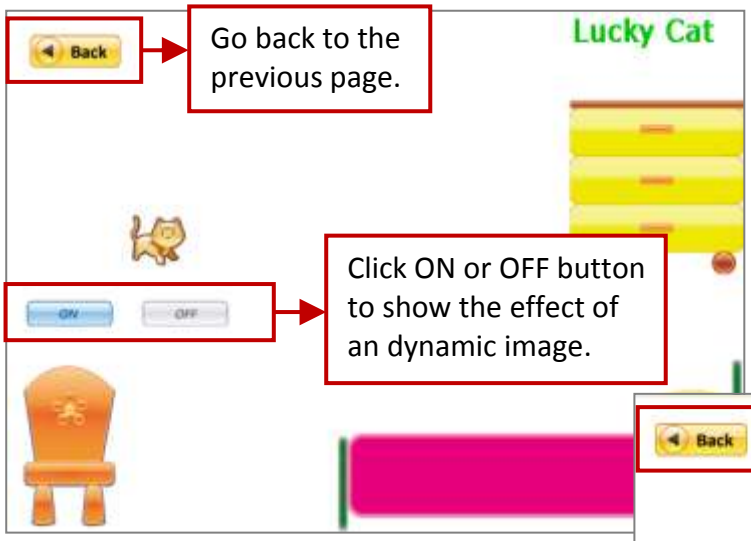
3. This Demo05 contains 10 HMI pages, and the following will describe how to operate these HMI pages on the PAC screen.




Go back to the previous page
Back
Turtle
8
Friends
Display different pictures depends on the input value (1 ~ 8).

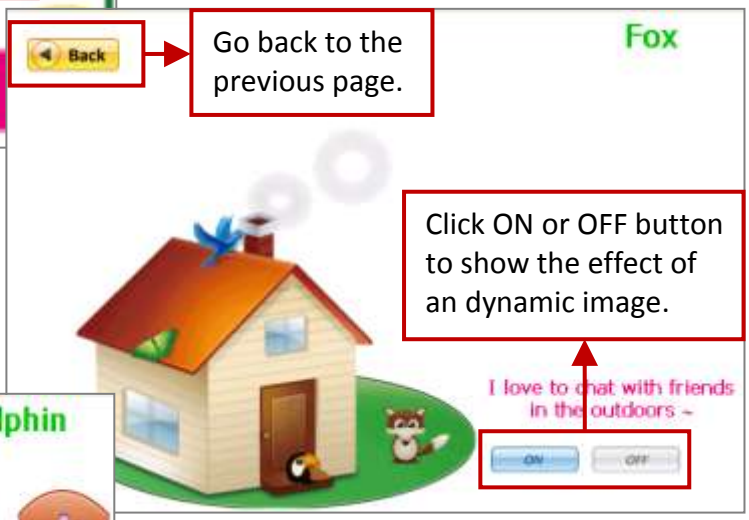
Go back to the previous page
Back
Ladybug
I like to take a bubble bath in Ladybug's home ~
25.0 (C)
Ladybug wants to say something :
(1) ~ (3): 8
Display different text depends on the input value (1 ~ 3).


Go back to the previous page
Back
Hippopotamus
25.0
25
(17 ~ 28)
ON
OFF
Off
Input an integer value to set the temperature.
Click ON or OFF button to change its status.



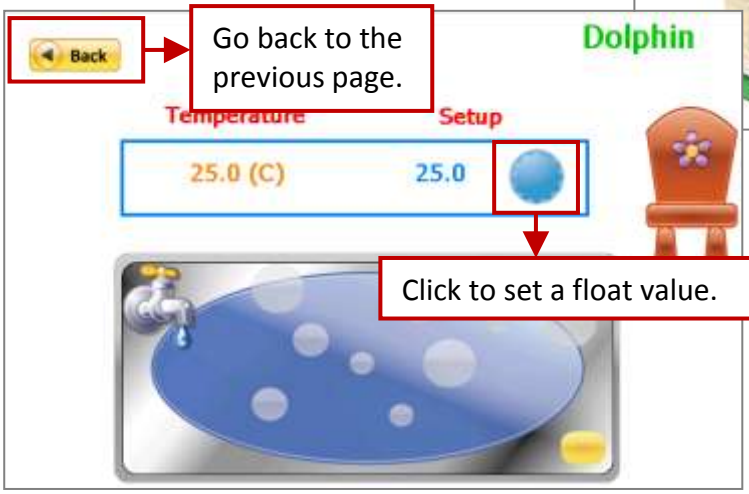
Go back to the previous page.

Click ON or OFF button to show the effect of an dynamic image.



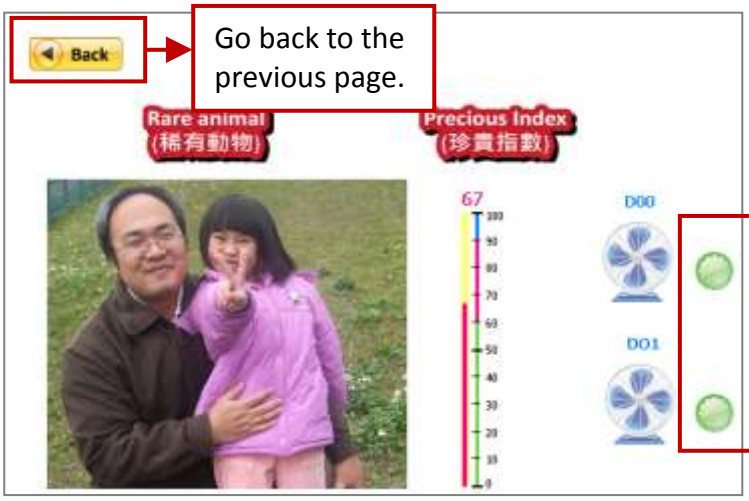
Go back to the previous page.

Click ON or OFF button to show the effect of an dynamic image.



Go back to the previous page.

Click to set a float value.



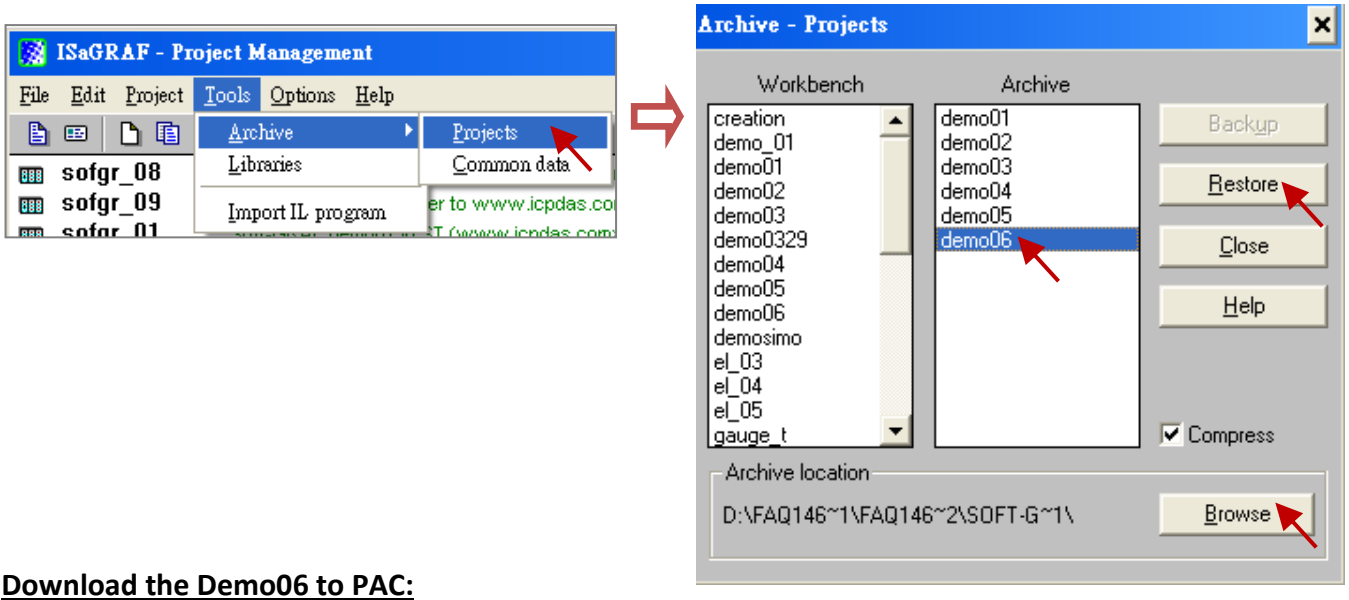
Go back to the previous page.

Using these "g_B_Inp" buttons to show dynamic images when their status is set to “True”. For testing the DO switch, it needs a DO module plugged on the PAC (e.g., plug I-8056W on the PAC’s slot1) or set a virtual I/O board.

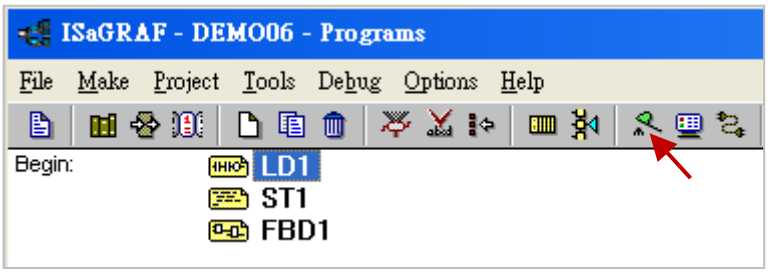
5.3 Demo06: Trend Chart (g_Trend) and Angular Meter (g_Guage)

This Demo06 provides a brief overview of a trend chart and an angular meter. First, restore this file (i.e., "demo06.pia") to the PC/ISaGRAF, and then download it to the ISaGRAF PAC.

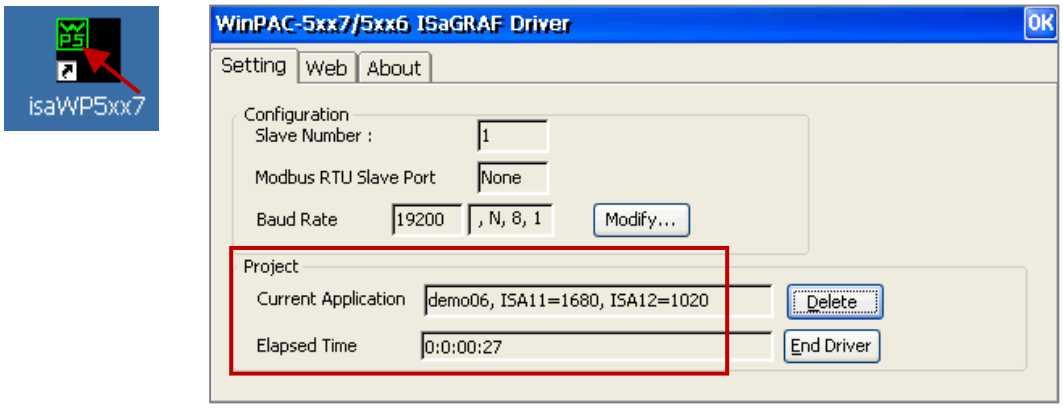
Restore the ISaGRAF Project (Demo06):



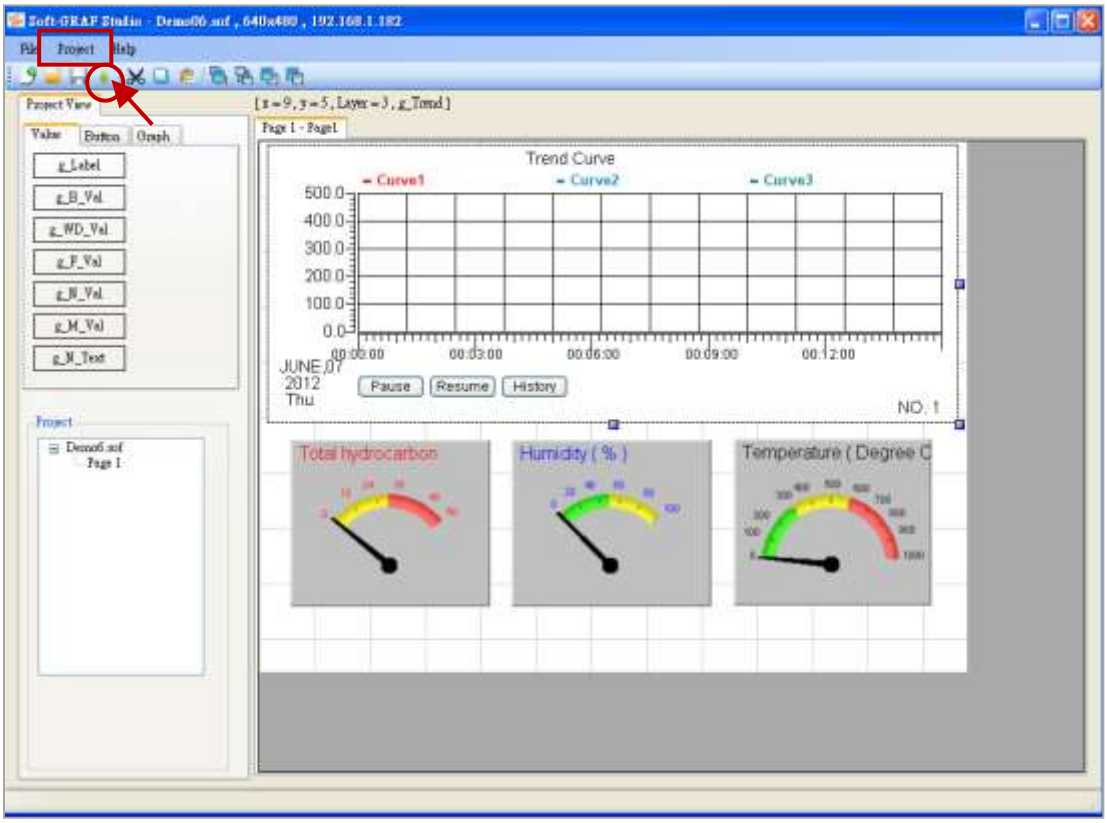
Download the Demo06 to PAC:



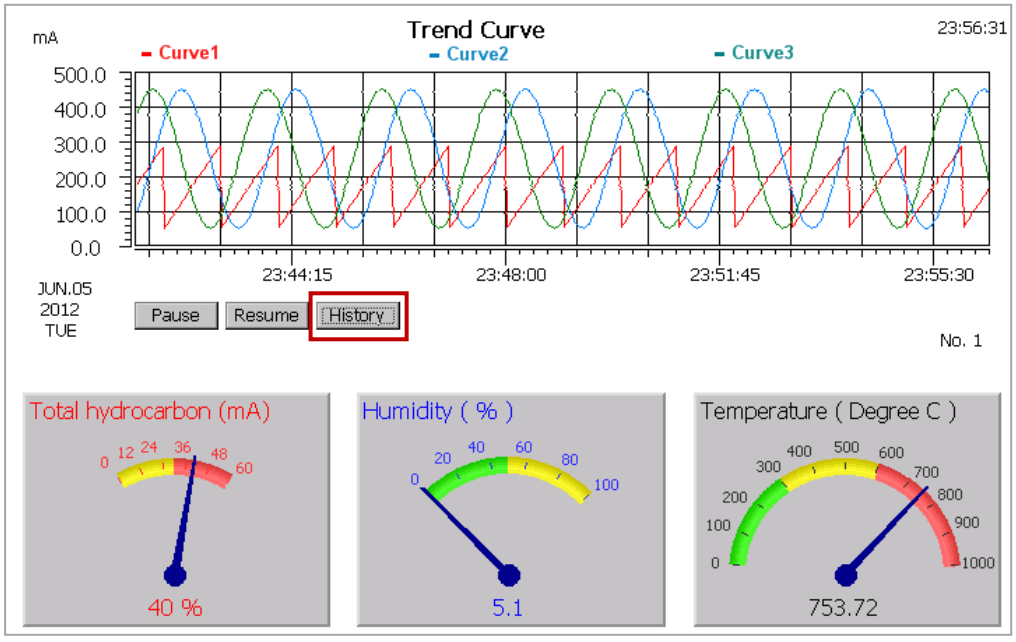
In the PAC:



1. Use the Soft-GRAF Studio to open the "Demo06.sof" project. (Refer Section 2.2.2)
2. Click the “Project” menu to set the download IP, and click “Download” toolbar button to download this project to the PAC. (Refer Section 5.1)



3. This Demo06 includes one HMI page, and it looks like the figure below on the PAC’s monitor. The user can click the "History" button on the trend chart to query historical records, and the following are three angular meters.



5.4 Demo07: Using Alarm Message and Alarm Records

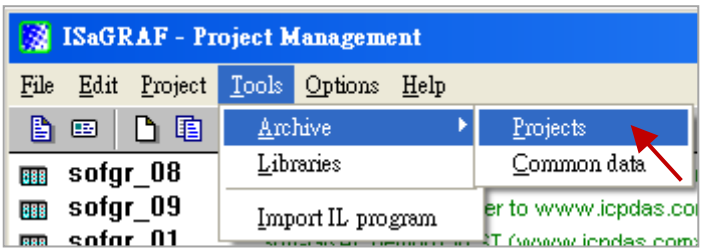
This Demo07 provides an overview of how to use the "g_Alarm" function. And, the Demo07b is the traditional Chinese version. First, restore the “demo07b.pia” file to the PC/ISaGRAF, and then download it to the ISaGRAF PAC.

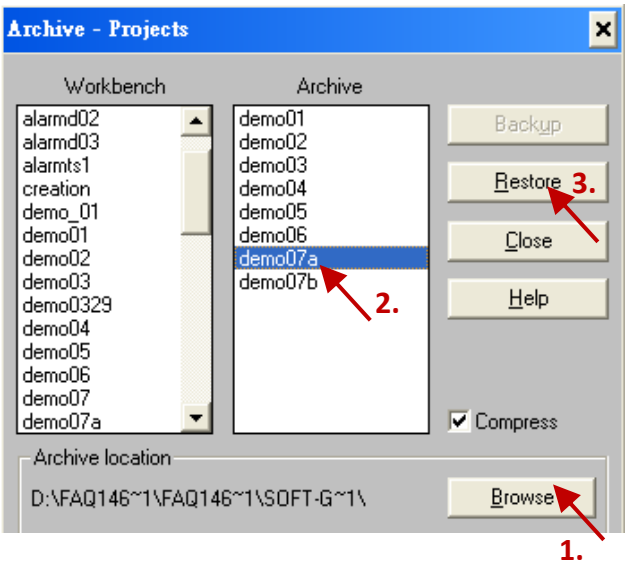
Note: The “Demo07” is used to show alarm messages (“07a” is the English version and “07b” is the Traditional Chinese version). If the PAC’s OS language is another, the user need to change the "Encoding" setting of the "g_Alarm" object in the Soft-GRAF Studio, refer Section 3.1.6 – (19), and then change the text of the "Messages" variable in the ISaGRAF project. (E.g., if the PAC’s OS language is Simplified Chinese, you must change the "Encoding" setting as "gb2312" and modify the content of ISaGRAF "Messages" variables ("msg1" to "msg8") as Simplified Chinese characters.

Further Reading:

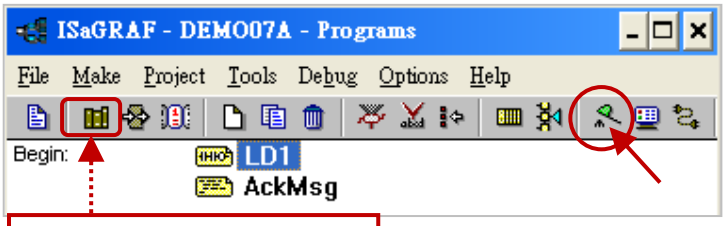
FAQ-160 (http://www.icpdas.com/root/support/faq/isagraf.php > 160 Alarm Lists).
Except for displaying alarm messages, it can also send a text message to multi-user.

Restore the ISaGRAF Project (Demo07a):



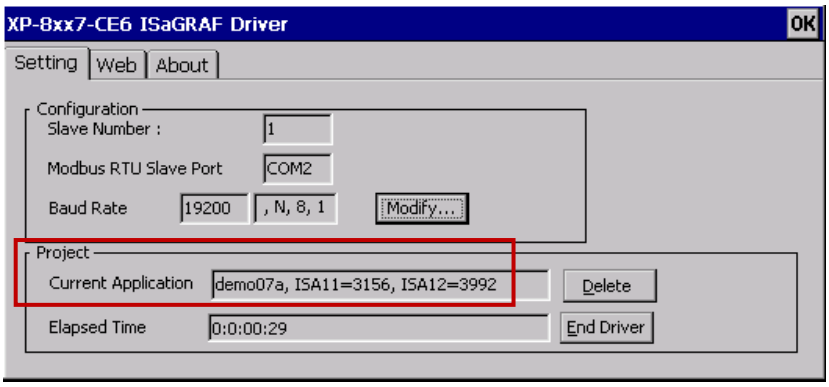


Download Demo07a to PAC:



Click to see all variables.

In the PAC:



Advanced Help - How to trigger the alarm message:

In the ISaGRAF program, the user can use the "MSGARY_W" function to trigger and record the alarm message from the "g_alarm" object. If you are not familiar with ISaGRAF operations, visit the ISaGRAF website to look up the "ISaGRAF User's Manual.

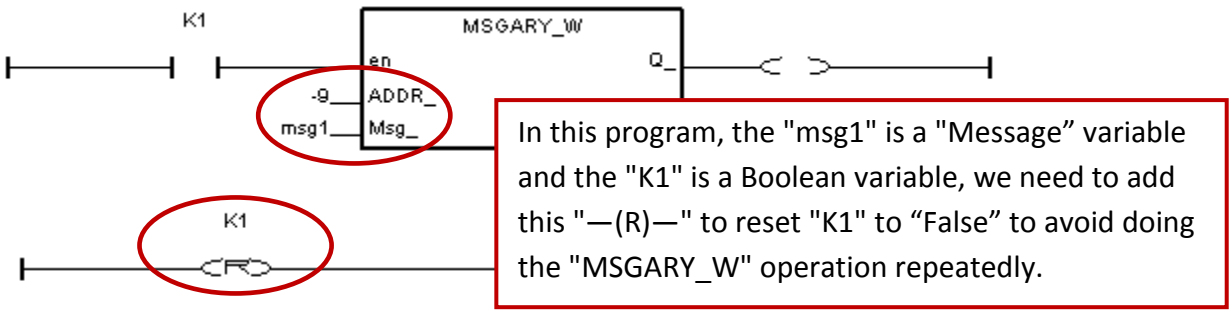
Note: This ISaGRAF program uses the MSGARY_W(-9, msg), MSGARY_W(-8, msg), MSGARY_W(-7, msg) or MSGARY_W(-6, msg) function to send an alarm message to the Soft-GRAF "g_Alarm" object. And, the alarm message cannot contain a **CR** (Carriage Return, ASCII code 13) or a **LF** character (Line Feed, ASCII code 10), these two characters will automatically convert to a whitespace (Space, ASCII code 32).

The way to trigger the alarm message ("LD1" program):

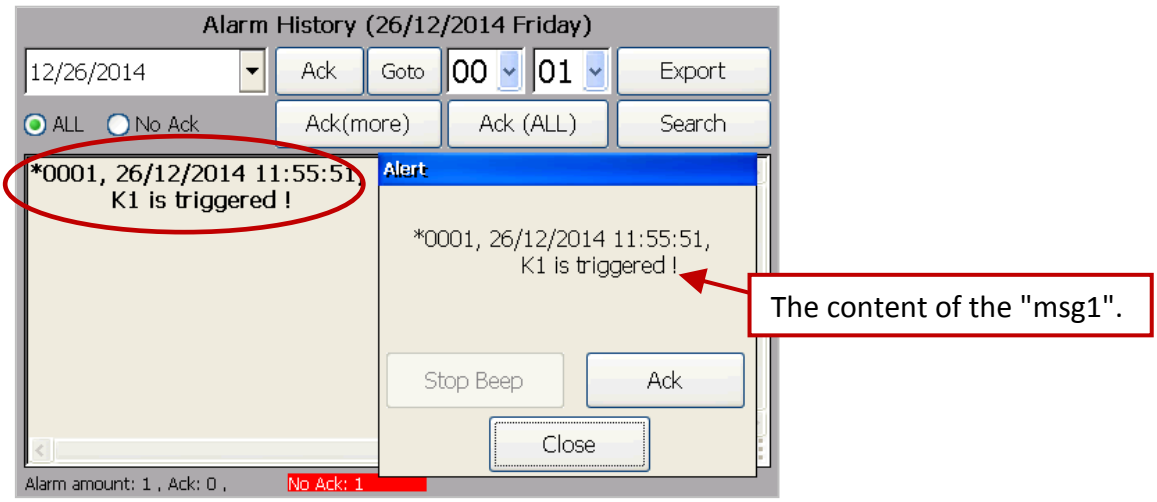
(1) If the user set the "ADDR_" as "-9" and assign a Message variable (E.g., "msg1") to the "Msg_" in the "MSGARY_W" function. That is, to show an alarm message and its pop-up confirmation dialog on the "g_Alarm" main window when the alarm occurs.

In this example:

When "K1" is triggered (K1 = True), the "g_Alarm" object will show the content of the "msg1" variable and pop up an "Alarm" dialog. After that, reset "K1" to "False" to avoid doing this operation repeatedly.



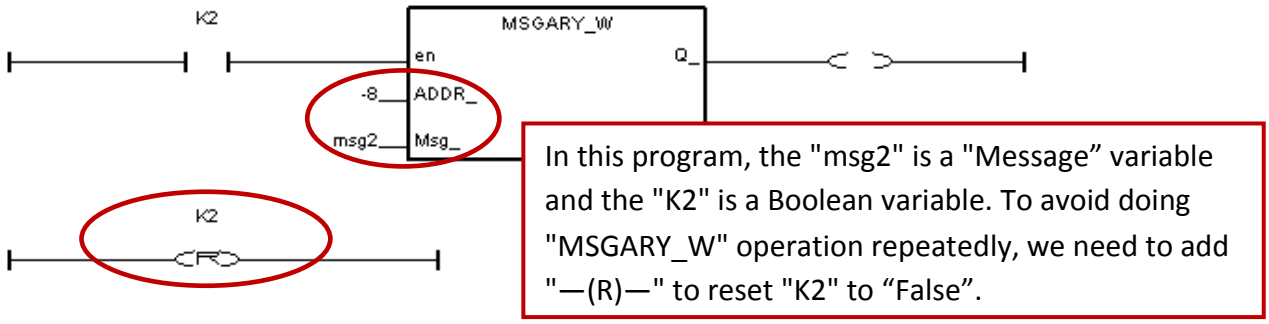
HMI screen: When "K1" is set to "TRUE", the "g_Alarm" object will display as the figure below.



(2) If the user set the "ADDR_" as "-8" and assign a Message variable (E.g., "msg2") to the "Msg_" in the "MSGARY_W" function. That is, only show an alarm message on the “g_Alarm” main window when the alarm occurs. (No confirmation dialog)

"LD1" sample program:

When “K2” is triggered (K2 = True), the "g_Alarm" object will show the content of the "msg2" variable. After that, reset “K2” to “False” to avoid doing this operation repeatedly.

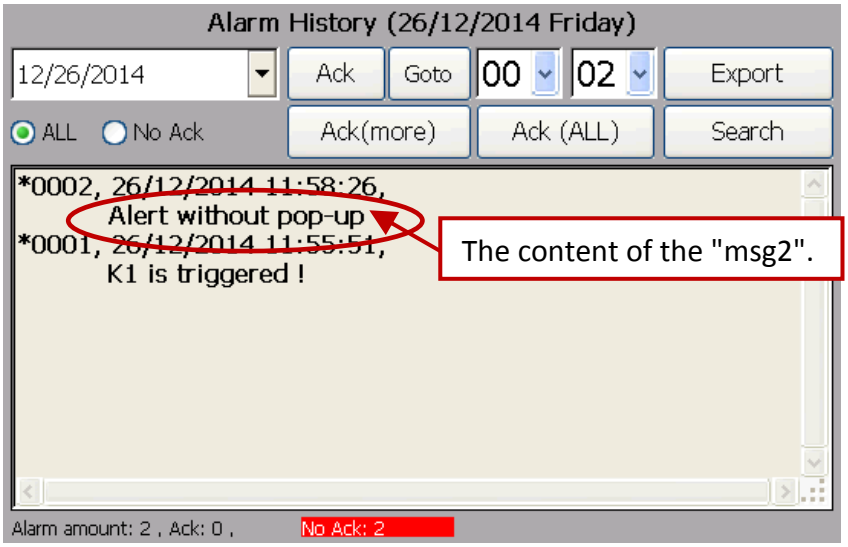


Test:

After downloading this ISaGRAF project, simply set the "K2" as “True” in the “Spy lists” (click “Tools” and “Spy lists” in the “Debugger” window) or in the “Dictionary” window (click this tool button in this “demo07a” project) or in the “LD1” program, to view the alarm results on the PAC’s HMI screen.

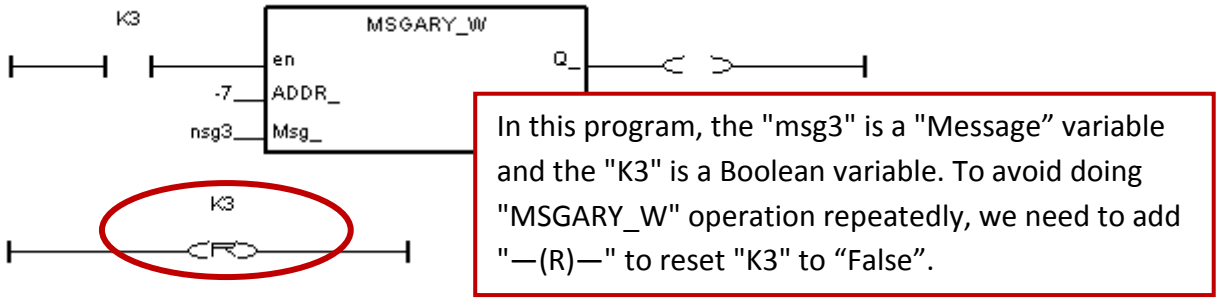
HMI screen:

When “K2” is set to “TRUE”, the “g_Alarm” object will display as the figure below.



(3) If the user set the "ADDR_" as "-7" and assign a Message variable (E.g., "msg3") to the "Msg_" in the "MSGARY_W" function. That is, to show an alarm message and a confirmation dialog, which listed with all unconfirmed messages, on the “g_Alarm” main window when the alarm occurs.

"LD1" sample program:

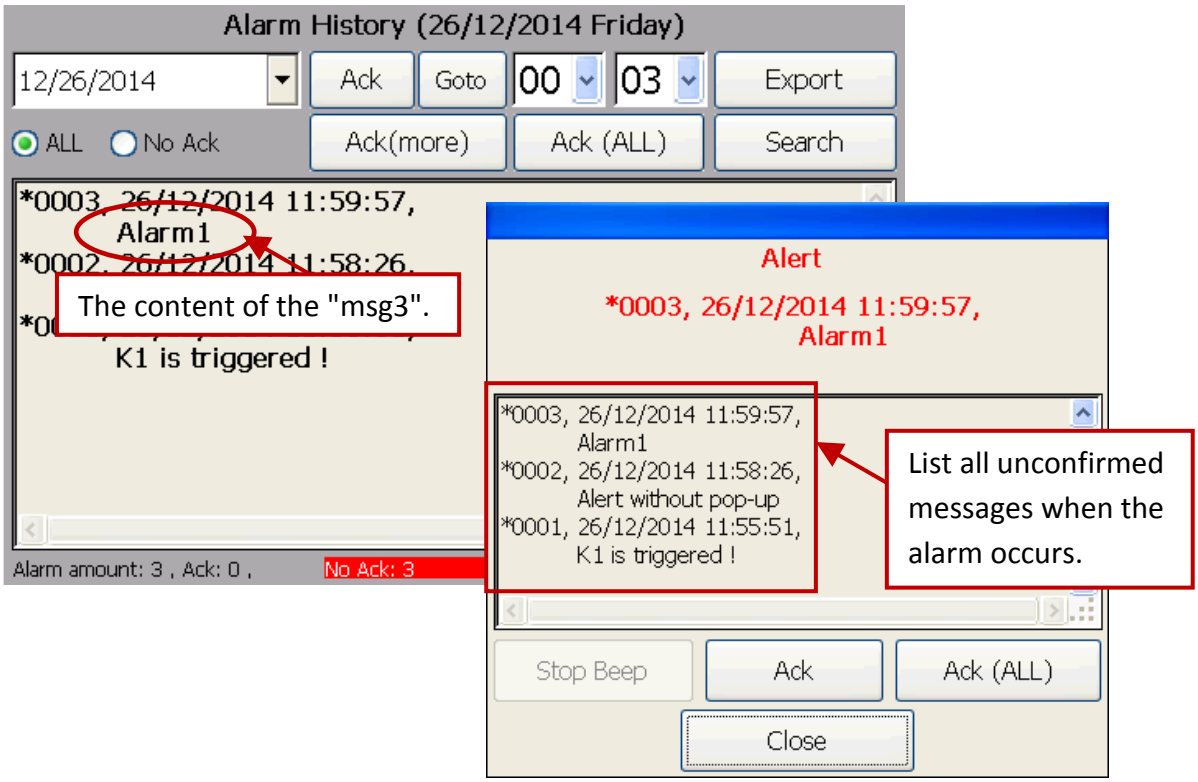


Test:

After downloading this ISaGRAF project, the user can set the "K3" as “True” in the “Spy lists” (open this by clicking “Tools” and “Spy lists” in the “Debugger” window) to view the alarm results on the PAC’s HMI screen.

HMI screen:

When “K3” is set to “TRUE”, the “g_Alarm” object will display as the figure below.



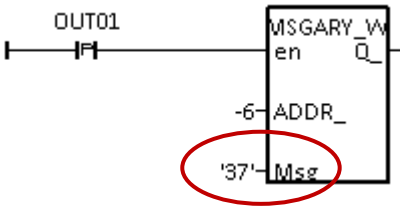
(4) If the "ADDR_" is set to "-6", the "Msg_" must be set as a specific text (e.g., 'LAST' or 'All' or '37') in the "MSGARY_W" function. The following will describe how to use this function in the program.

ST program - "AckMsg"

Enter **'LAST'** means confirm the last alarm message.

```
if   ACK1   then
  ACK1:= FALSE ;
  TMP:= MSGARY_W( -6 , 'LAST' ) ;
end_if ;
```

LD program:



Enter **'ALL'** means confirm all alarm messages.

```
if   ACK2   then
  ACK2:= FALSE ;
  TMP:= MSGARY_W( -6 , 'ALL' ) ;
end_if ;
```

Enter an integer value (or **MSG (NO1)**, converts an integer to string) means confirm the Nth data.

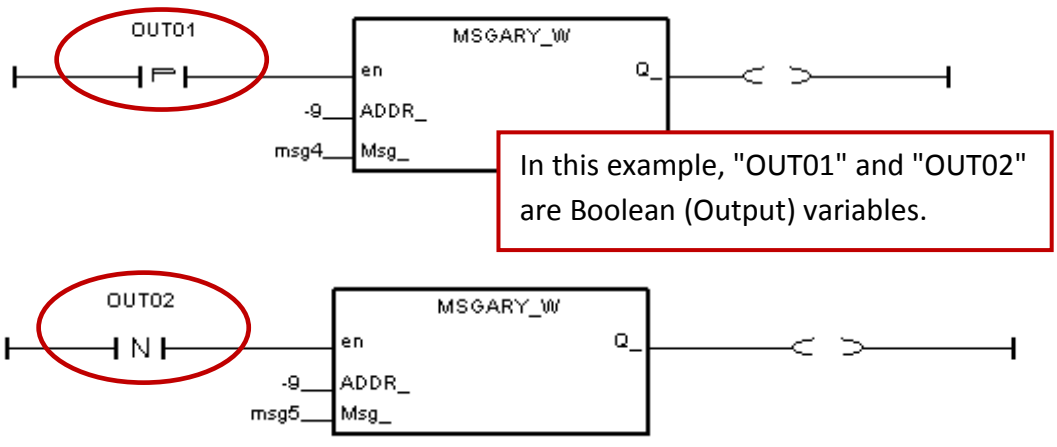
```
if   ACK3   then
  ACK3:= False ;
  TMP:= MSGARY_W( -6 , MSG(NO1) ) ;
end_if ;
```

In this example, **"ACK3"** is a "Boolean" variable, **"NO1"** is an "Integer" variable and its initial value is "1".

Test: After downloading this ISaGRAF project, the user can set the "NO1" as "5" and the "ACK3" as "True" in the Spy lists, and then the status of the 5th data will change to "Confirmed".

(5) If the alarm is triggered by a DO or DI signal, the user can use type "P" (Low-to-High, edge-triggered) or type "N" (High-to-Low, edge-triggered) to avoid being triggered repeatedly.

"LD1" sample program (DO):

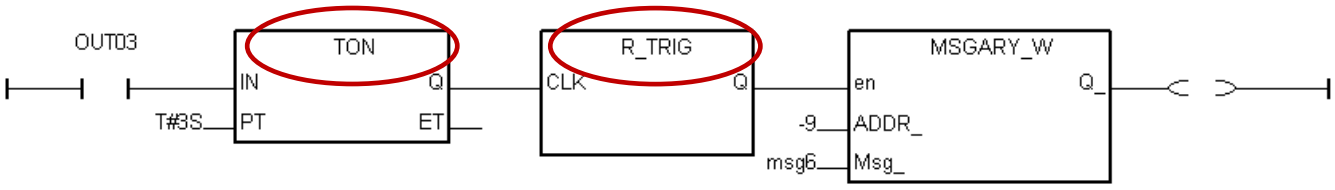


In this example, "OUT01" and "OUT02" are Boolean (Output) variables.

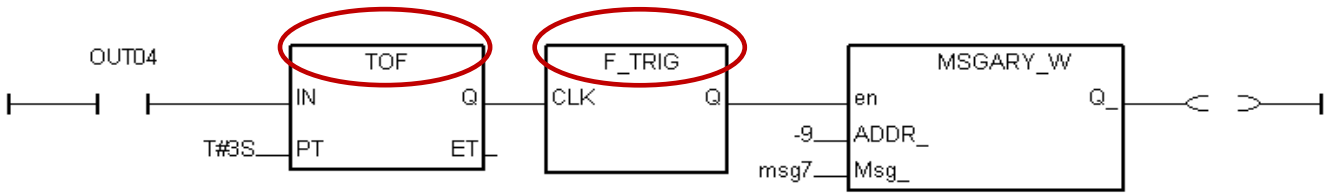
(6) If the user wants to set a delay time of the alarm trigger, the "TON" plus "R_TRIG" or the "TOF" plus "F_TRIG" functions can be used. Following are examples of the positive-edge-triggered delay and the negative-edge-triggered delay for 3 seconds.

"LD1" sample program:

a. Display the alarm message when a DO (or DI) signal becomes "True" for 3 seconds.



b. Display the alarm message when a DO (or DI) signal becomes "False" for 3 seconds.

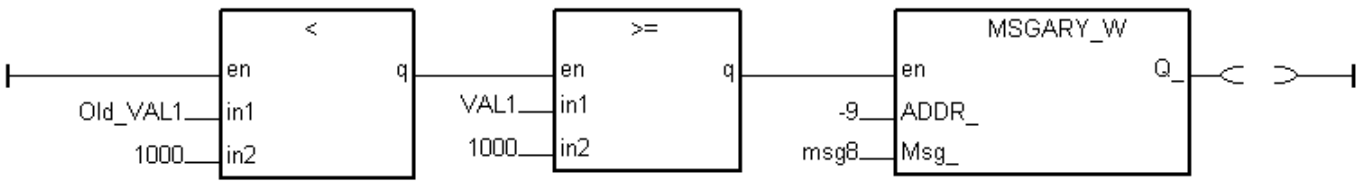


In this example, "OUT03" and "OUT04" are Boolean (Output) variables.

(7) If the alarm is triggered by an AI value, it needs to use the following functions in this program to avoid being triggered repeatedly.

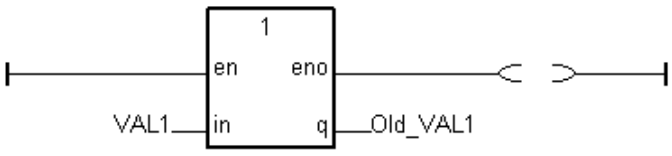
"LD1" sample program:

In this example, the alarm will be triggered only if the "VAL1" value is greater or equal “1000”. And then, using the "1" function to set the "Old_VAL1" value equals to the "VAL1" value to avoid being triggered repeatedly (i.e., to set a restriction. For example, assume "VAL1 = 1001”).



(1) 0 (< 1000, OK) → (2) IF **VAL1=1001**, OK → (3) Run

(5) 1001 (< 1000? X, NOT always “True”) (VAL1=0 ~ 999, X)

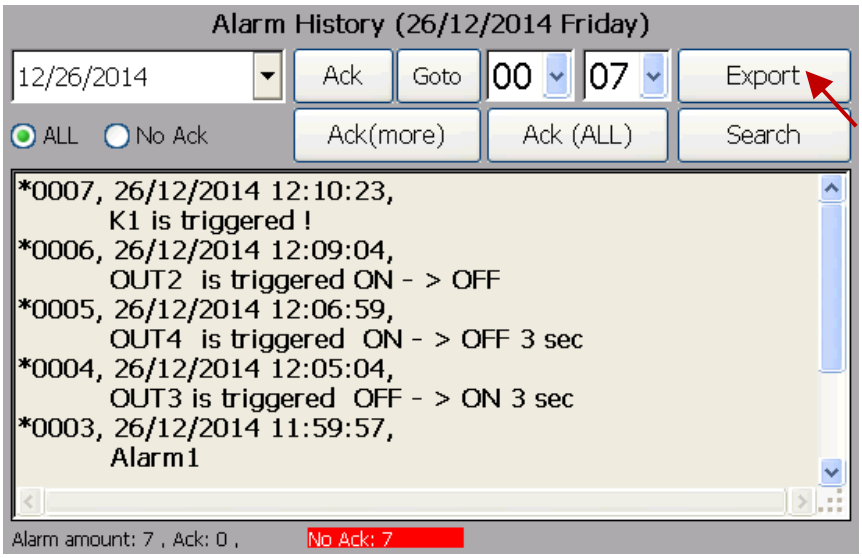


(4) 1001 0 → 1001

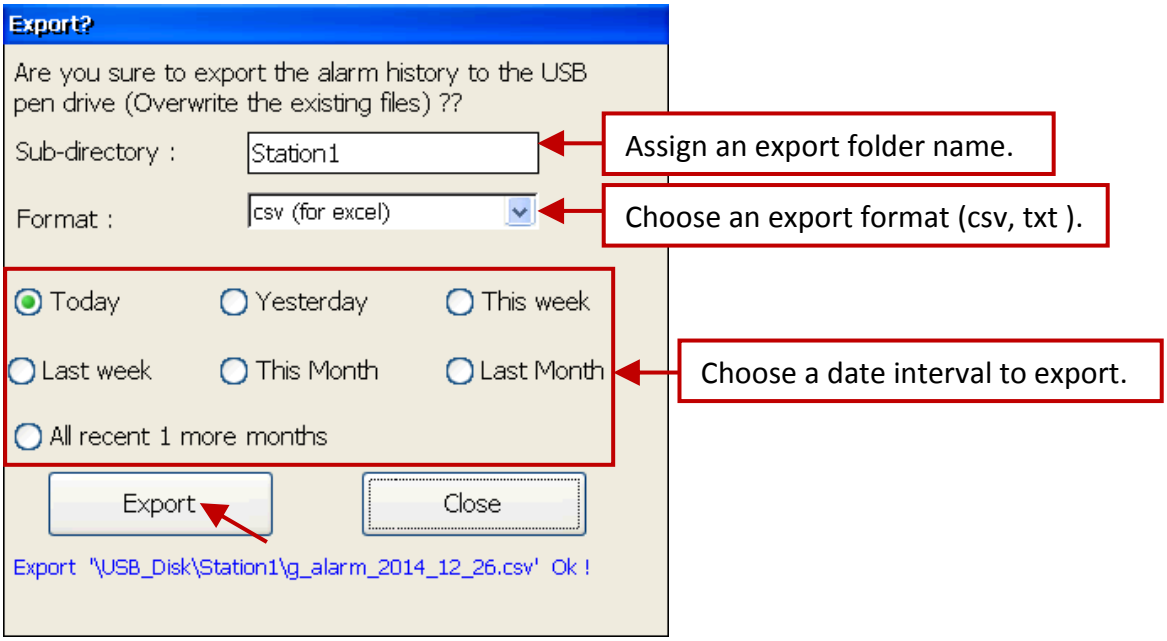
"VAL1" and "Old_VAL1" are Integer (Internal) variable and the **initial value is “0”**.

How to export alarm records?

(1) Click the "Export" button in the Alarm main window.

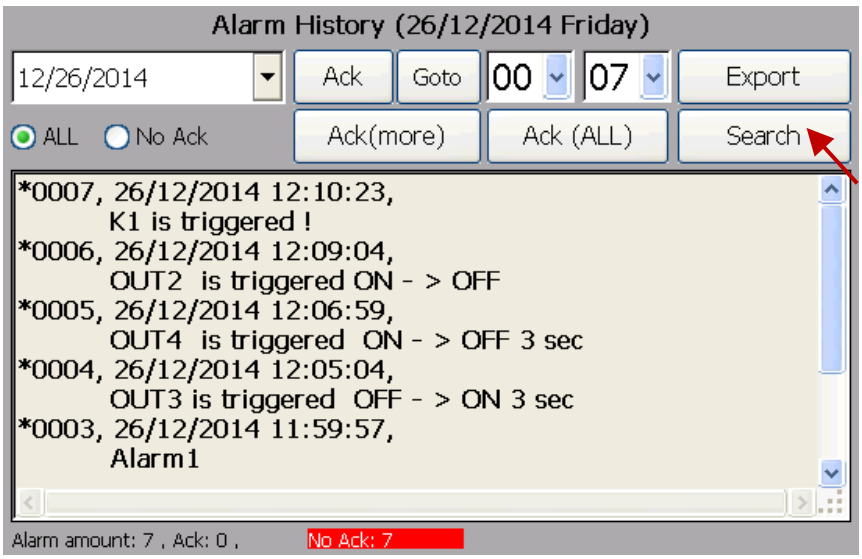


(2) In the Export window, set the folder name, file format, and date interval, and then click the "Export" button to send data to the USB Disk.
(Make sure the USB Disk has been plugged into your PAC before doing this operation.)

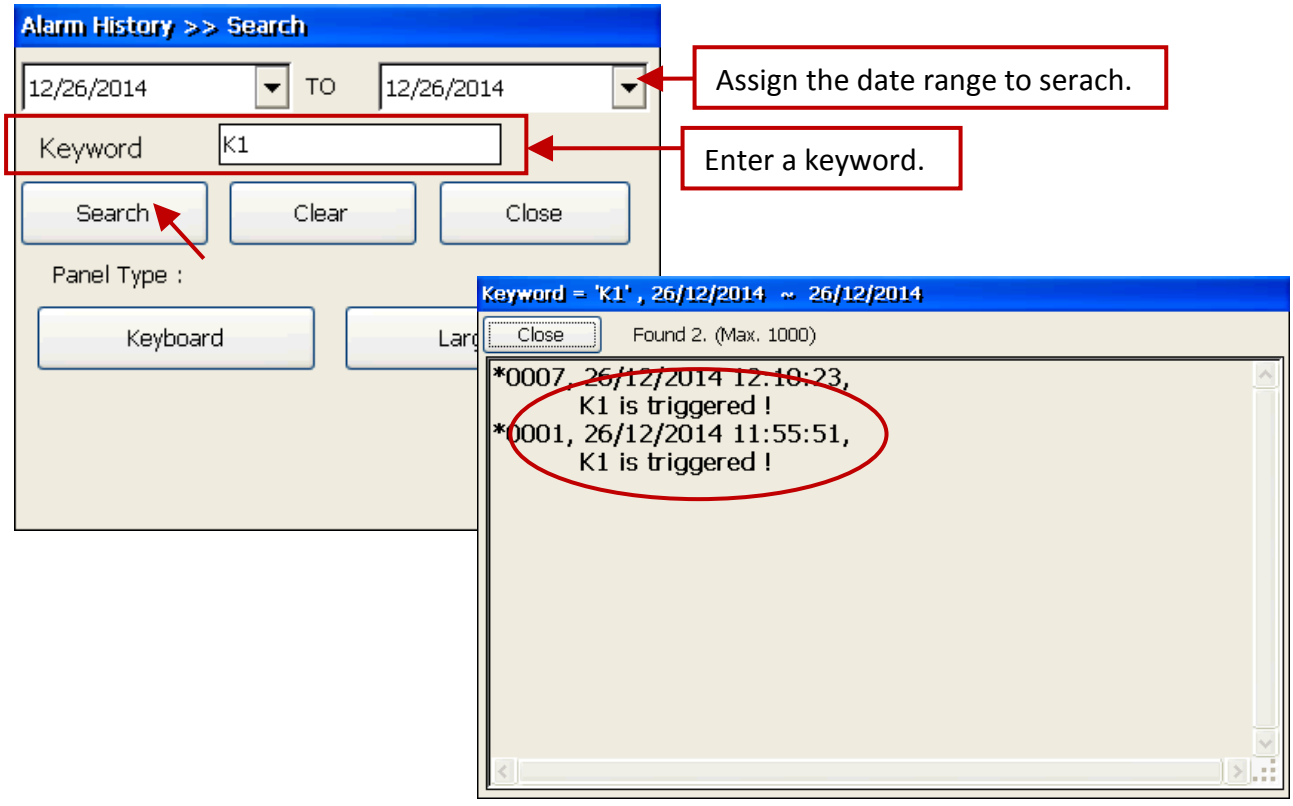


How to search alarm records?

(1) Click the "Search" button in the Alarm main window.

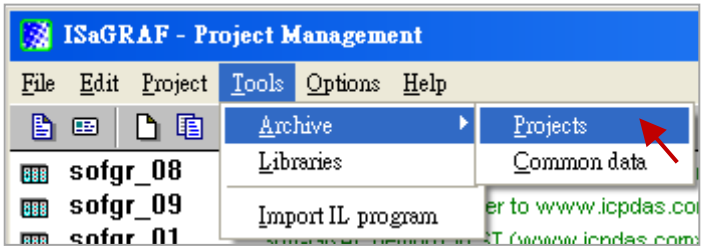


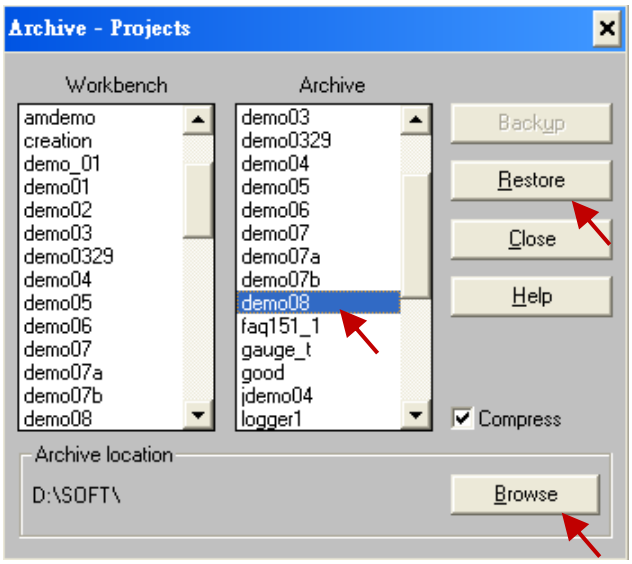
(2) In the Search window, set the date range and the keyword, and then click the "Search" button to find historical alarm messages with the specified keyword (e.g., using “K1”).



5.5 Demo08: Data Logger (g_Logger1) and FTP Uploader

The Demo08 will describe how to use the “g_Logger1” function. First, restore the “demo08.pia” file to the PC/ISaGRAF, and then download it to the ISaGRAF PAC. (Refer Section 5.4)

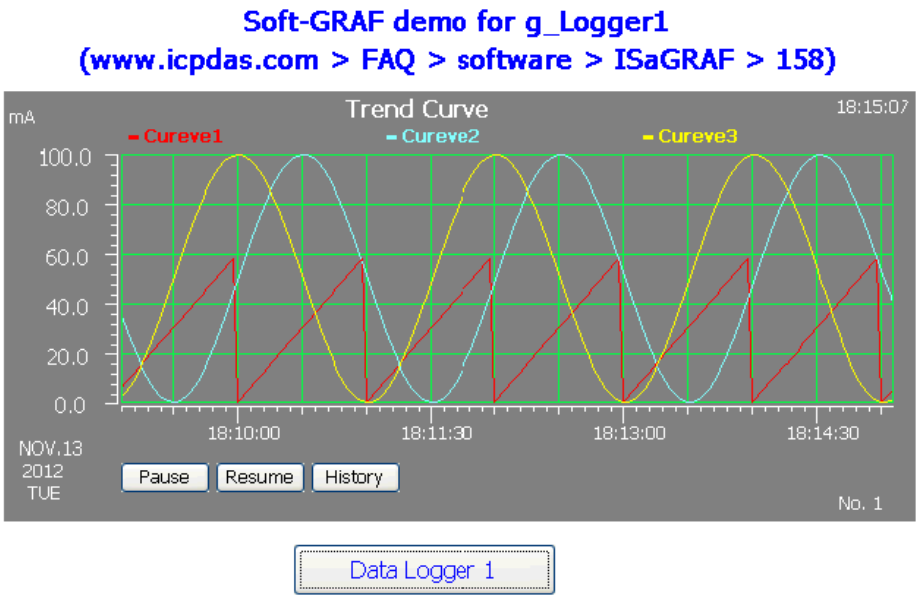




The user can download “ISaGRAF User’s Manual" (about 11 MB) to view further instructions on how to install the ISaGRAF software and use the ISaGRAF project (see Section 1.1, 1.2, and 2.1).
http://www.icpdas.com/root/product/solutions/softplc_based_on_pac/isagraf/download.html

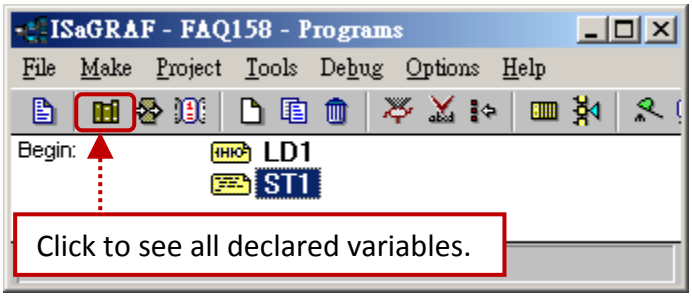
HMI screen:

Note: One PAC can use only One “ g_Logger1” object.



Project Structures:

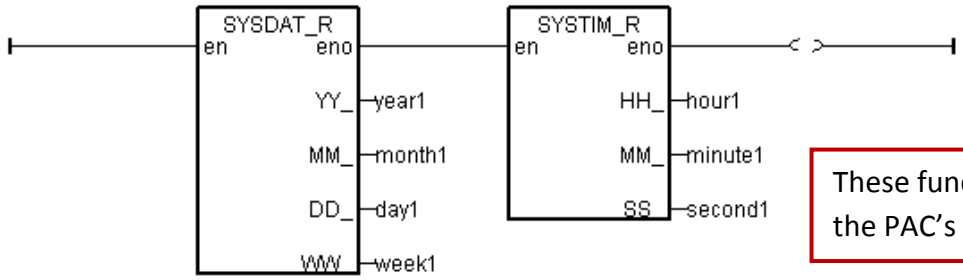
This ISaGRAF project contains one Ladder and one ST programs as the figure below.



ISaGRAF Global Variables:

Name	Type	Attribute	Description
INIT	Boolean	Internal	Set initial value as **TRUE.**
Year1	Integer	Internal	Get the Year from the PAC's date, e.g., 2012.
Month1	Integer	Internal	Get the Month from the PAC's date, e.g., 11 (November).
Day1	Integer	Internal	Get the Day from the PAC's date, e.g., 13.
Week1	Integer	Internal	Get the Weekday from the PAC's date, e.g., 2 (Tuesday).
Hour1	Integer	Internal	Get the Hour from the PAC's time, e.g., 15.
Minute1	Integer	Internal	Get the Minute from the PAC's time, e.g., 46.
Second1	Integer	Internal	Get the Second from the PAC's time, e.g., 18.
V1	Real	Internal	The first data to record, **set the NetWork Addr. as 1.**
V2	Real	Internal	The 2nd data to record, **set the NetWork Addr. as 3.**
V3	Real	Internal	The 3rd data to record, **set the NetWork Addr. as 5.**
CNT1	Integer	Internal	To simulate Sin and Cos curve value.
Cycle1	Integer	Internal	To simulate Sin and Cos curve value.
e1	Real	Internal	To simulate Sin and Cos curve value.

LD1 Program:



These functions used to get the PAC's date and time.

ST1 Program:

```
(* To simulate the value of V1 and simulate Sin and Cos value for V2 and V3 variables *)
    v1 := REAL(second1) ;

    if   INIT   then
        INIT := False ;
        CNT1 := 0 ;
        T1 := T#0s;
        Interval1 := T#250ms ;
        cycle1 := 480 ;
        e1 := REAL( 2.0 * 3.1415926 / REAL(cycle1)    ) ;
        tStart(T1);
        T1_Next := T1 +Interval1 ;
    end_if ;

    if   T1 >= T1_NEXT    then
        if   T1 >= T#6h then
           T1 := T#0s ;
        end_if ;
        T1_Next := T1 +Interval1 ;
        CNT1 := CNT1 + 1 ;
        if   CNT1 >= cycle1    then
           CNT1 := 0 ;
        end_if ;
        v2 := 50.0 * sin( REAL(CNT1)*e1 ) + 50.0 ;
        v3 := 50.0 * cos( REAL(CNT1)*e1 ) +50.0 ;
    end_if ;
```

File format of the "g_Logger1" data:

The g_Logger1 records data in a file every day. If choosing CSV format, for example, the file name is "g_Logger1_2012_11_13.csv" on the date of Nov. 13th, 2012.

Data files are saved in the following directory if it is November 2012.

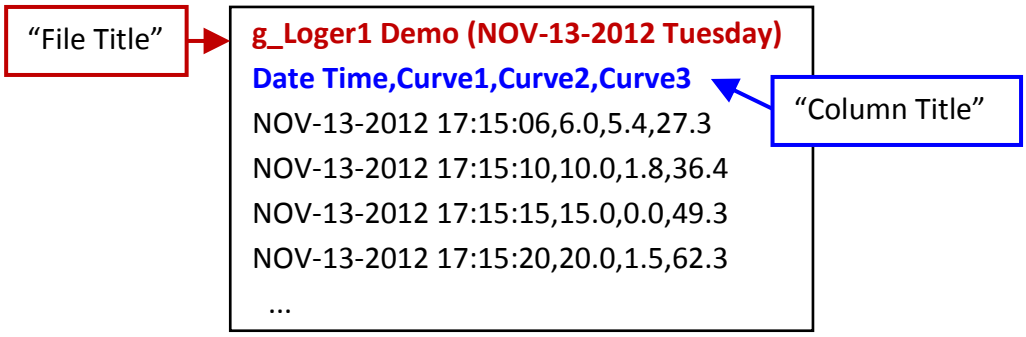
WP-8xx7, VP-2xW7/4xx7, WP-5xx7:

\Micro_SD\Soft-GRAF\g_Logger1\2012\11\

XP-8xx7-CE6, XP-8xx7-Atom-CE6:

\System_Disk2\Soft-GRAF\g_Logger1\2012\11\

The first row lists the "File Title" (e.g., "g_Logger1 Demo"). The second row lists some "Column Title". The max. amount of the "Column title" is 51. The first "Column title" is Date-Time. The 2nd to 51th are the title of all the 1st to 50th data (e.g., Curve1, Curve 2, and so on). The other rows starting from the 3rd row are the data of each sampling. All titles can be displayed as your local language.



If open the above data file by the Excel, it may show as the following figure.:

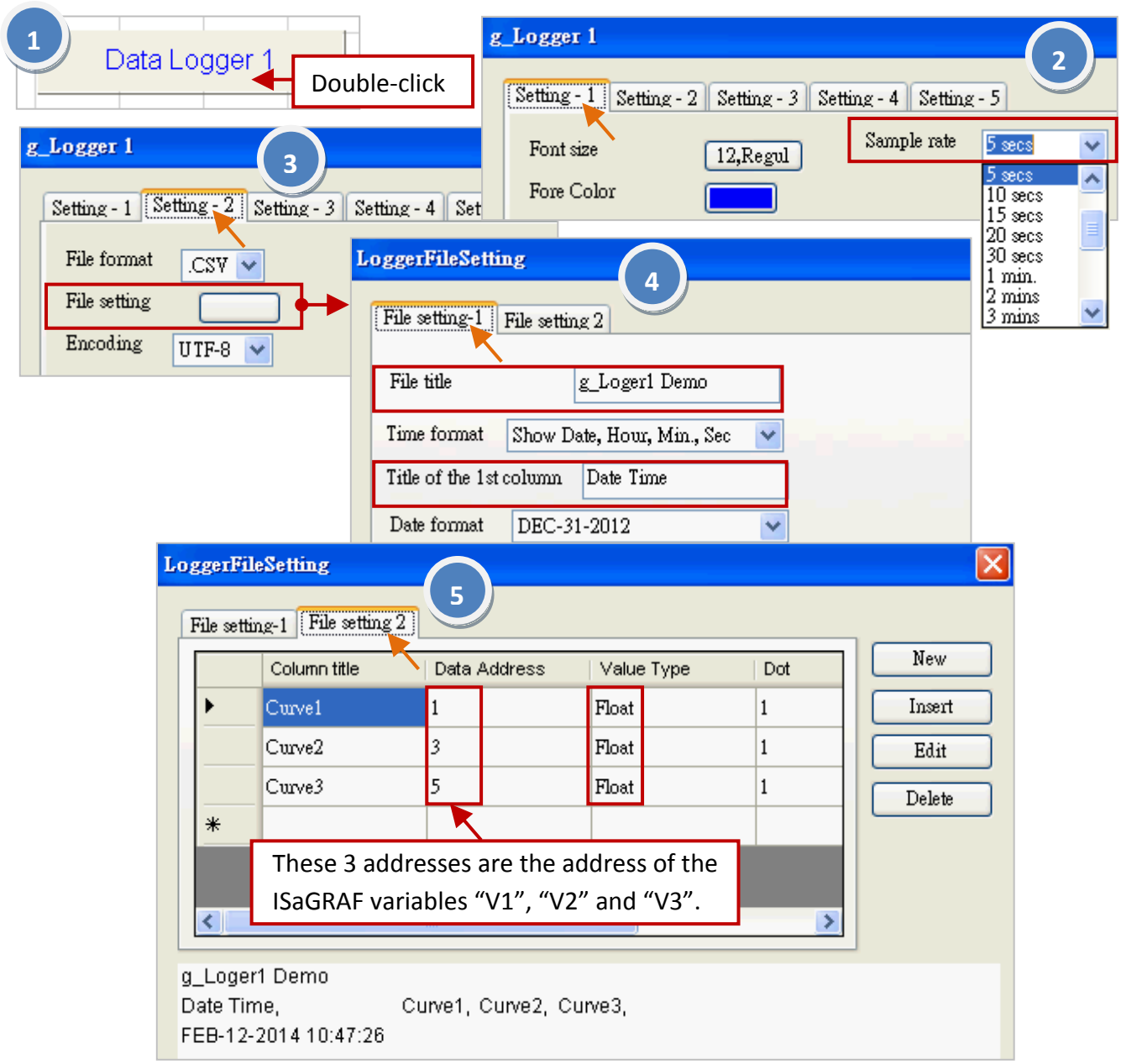
	A	B	C	D	E
1	g_Loger1 Demo (NOV-13-2012 Tuesday)				
2	Date Time	Curve1	Curve2	Curve3	
3	NOV-13-2012 17:15:06	6	5.4	27.3	
4	NOV-13-2012 17:15:10	10	1.8	36.4	
5	NOV-13-2012 17:15:15	15	0	49.3	
6	NOV-13-2012 17:15:20	20	1.5	62.3	

"g_Logger1" object settings:

If users don't want the "File Title", set it as blank (then the first row will become "Column Title").

Note: The "Sample rate" setting of the "g_Logger1" affects the retaining days of data files.

Sample rate	Retaining days
1, 2, 3 (sec.)	10
5, 10, 15, 20, 30 (sec.)	30
1, 2 (min.)	90
3, 5 (min.)	180
10, 15, 20, 30 (min.), 1, 2, 3, 6 (hr.)	365

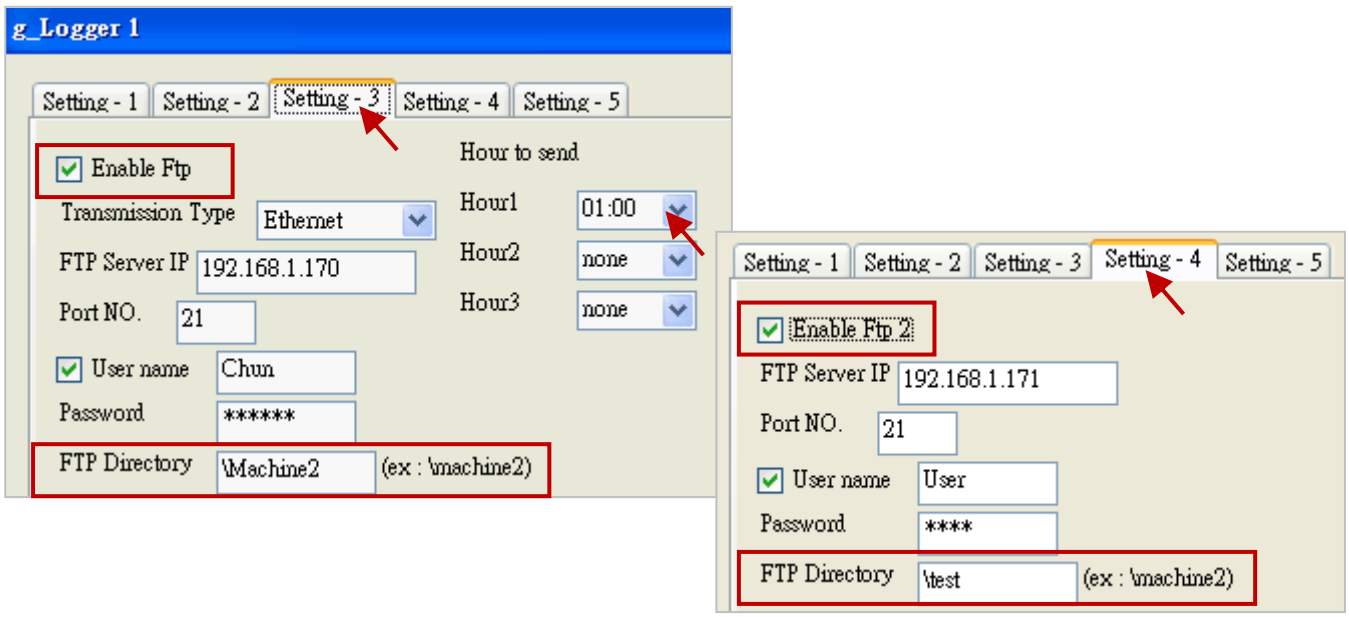


Enable the FTP Client to send data file of the "g_Logger1" to the FTP Server:

The user can check the "Enable Ftp" item and set related parameters to send daily data file of the "g_Logger1" to the PC/FTP Server automatically. And, check the "Enable Ftp2" to send the data file to the second FTP server.

Note: 1. The "Enable Ftp2" doesn't work if the first "Enable Ftp" is not checked.
2. Be aware of the setting of "FTP Directory", use the **"\"** symbol, DONOT use the "/" symbol. (E.g., **"\Machine2"** or **"\"** are correct. However "/Machine2" and "/" are incorrect.)

Make the following settings:

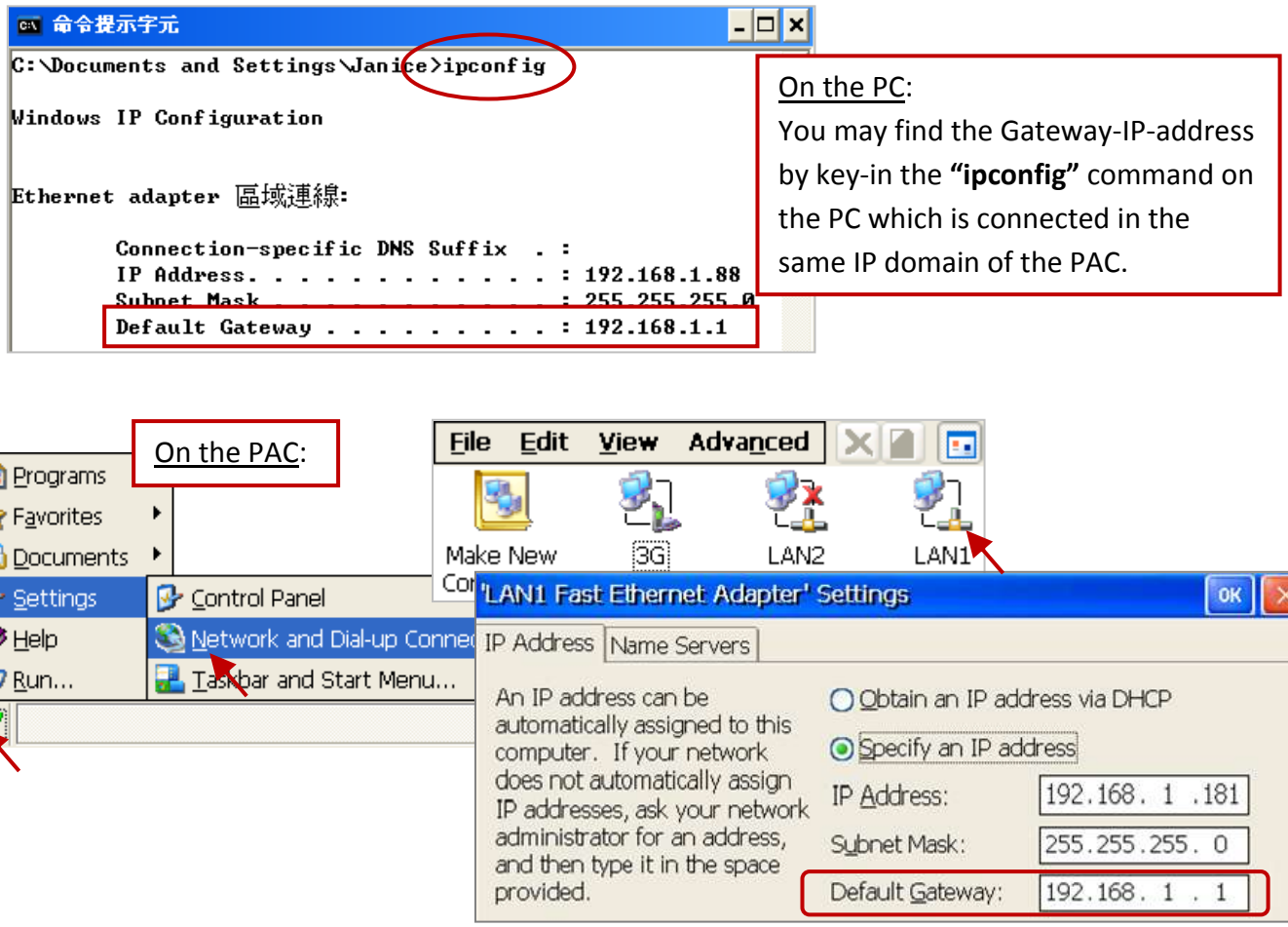


Note:

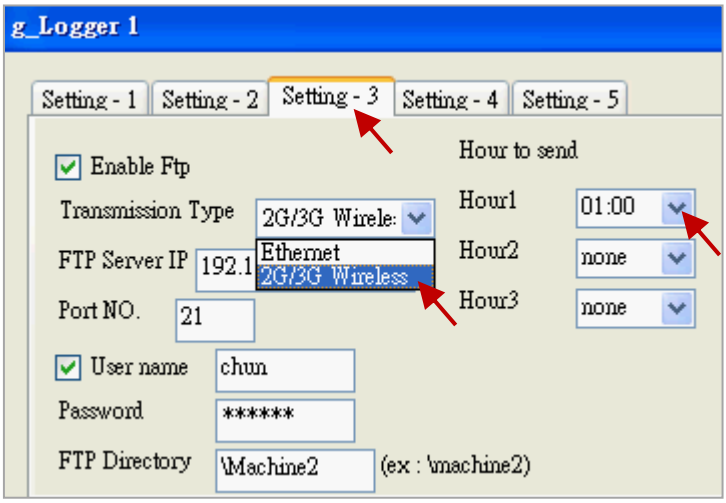
1. The data file of the "g_Logger1" will be sent to FTP Server at about 05 minutes after the selected hour. (E.g., if setting the Hour1 as "08:00", the data file will be sent at about "08:05".)

2. If sending the file to FTP Server fails, the "g_Logger1" will re-try once at about 4-hours later. It will continuously re-try once every 4-hours later until it succeeds or expire 7-days.

3. The "FTP Server IP" means the IP address of the PC which will receive the data file. If the PC is not in the same IP domain as the PAC, set a proper "Default Gateway" setting for the LAN port of the PAC. (As the figure below)

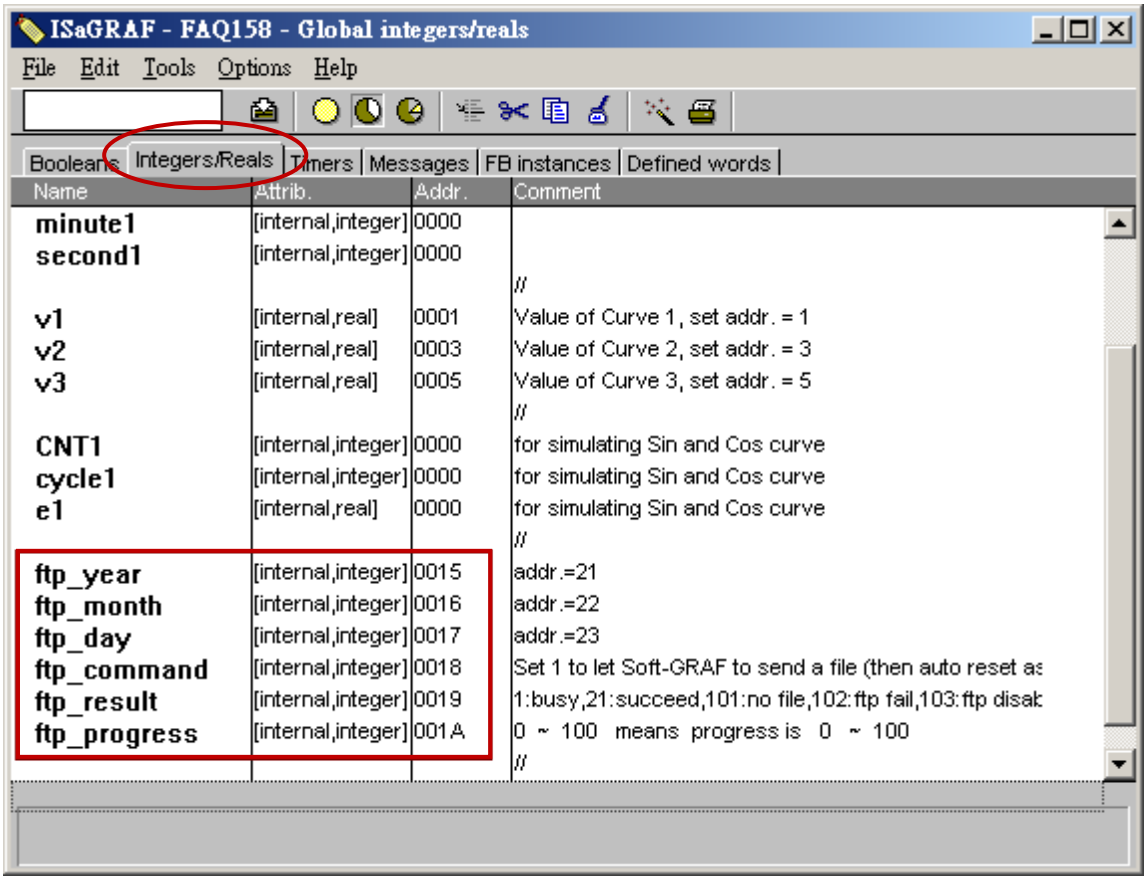


To send the data file to a remote PC/FTP Server by 2G/3G dial-up wireless connection, set the "Transmission Type" as "2G/3G Wireless". And this PAC requires a 2G/3G I/O module and a SIM card. (E.g., I-8212W-3GWA: http://m2m.icpdas.com/i-8212w-3GWA.html). Then follow steps listed in the section 1.1 and section 1.2 of the following web site to set up the 2G/3G I/O module. (http://www.icpdas.com/root/support/faq/isagraf.php > FAQ-143).

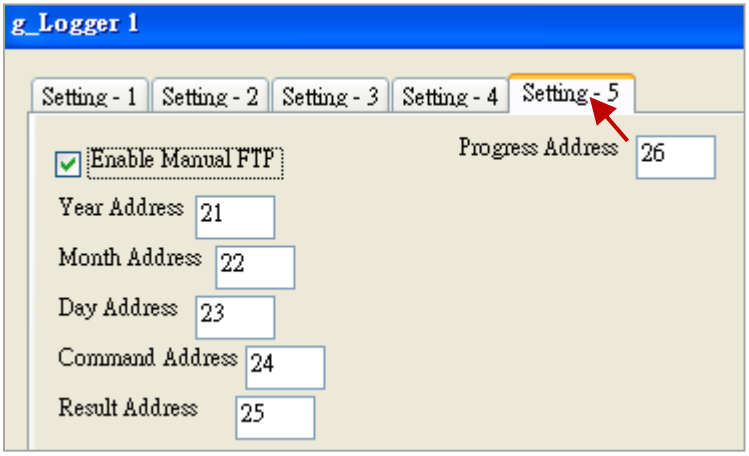


Using the "FTP_Loader" to upload the data file of a specified date:

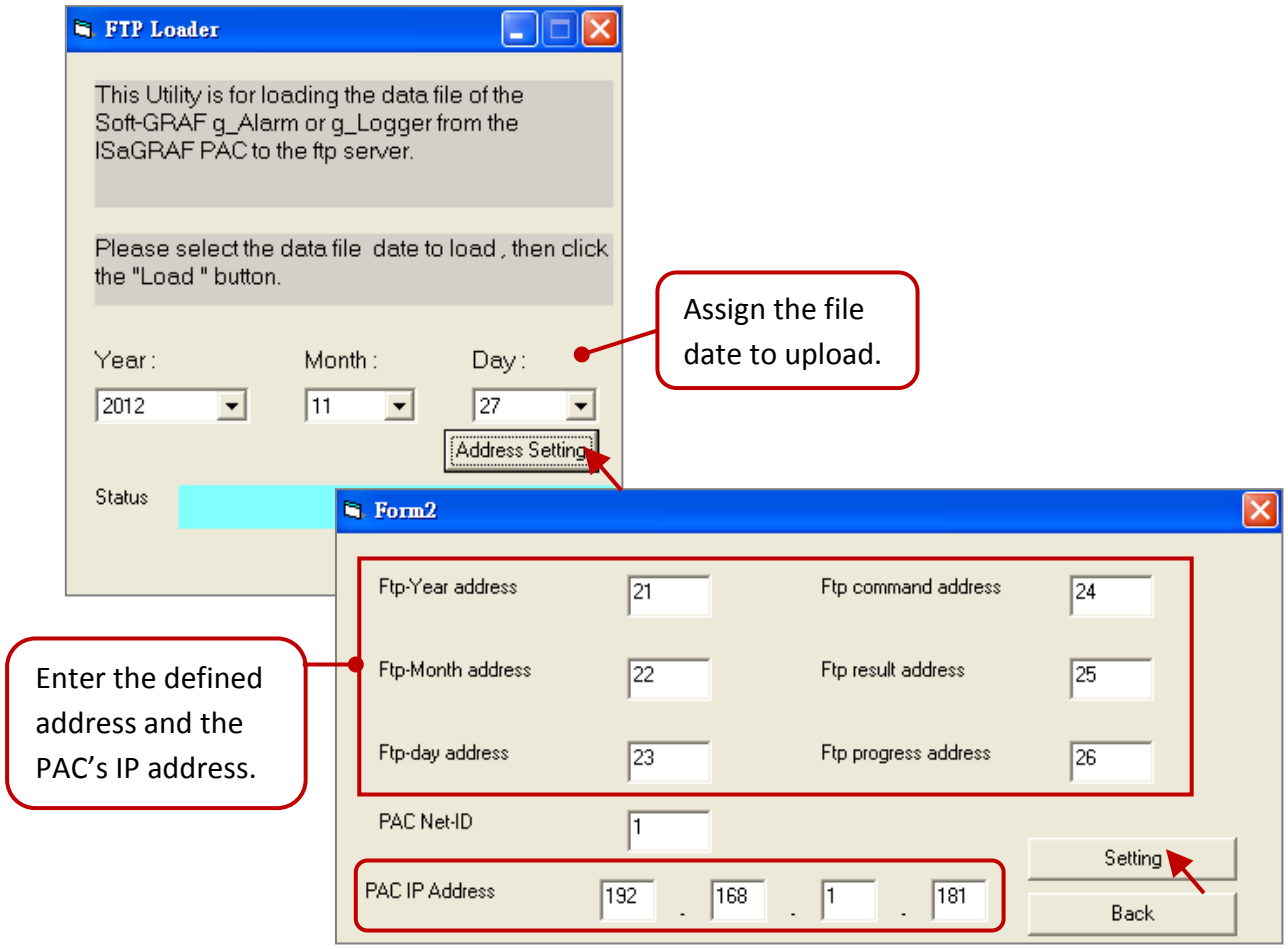
The "faq158_demo.zip" (refer ISaGRAF FAQ-158) includes a utility "FTP_Loader.exe" that can run in a Windows PC. Its purpose is to command the g_Logger1 to send the data file of a specified date to the PC/FTP Server. To use this function, first add six integer variables with six continuous network-address numbers, e.g., 21 ~ 26 $_{(10)}$ or 15 ~ 1A $_{(16)}$, in the ISaGRAF program similar as the following picture.



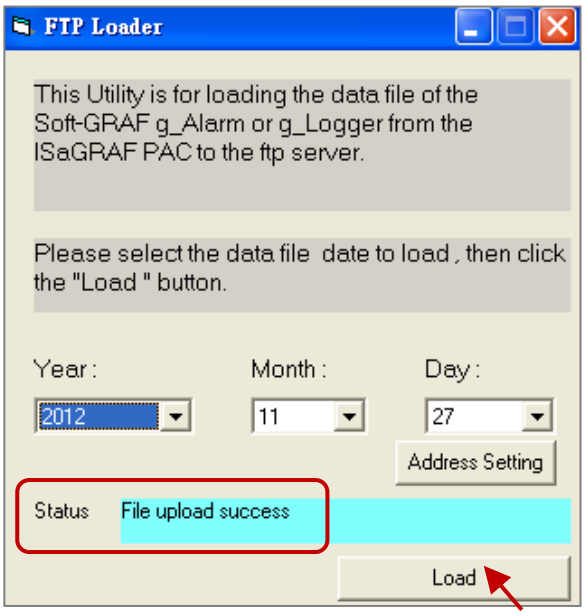
Then, set up the "g_Logger1" object in the Soft-GRAF Studio. (Address = 21 ~ 26)



Then run the “FTP_Loader.exe” in a PC to do the “Address Setting” that must match the PAC settings.



After completing above settings, click the “Load” button to command the PAC to upload the specified data file (E.g., on 2012/11/27) to the PC/FTP Server.



Appendix A Graphics File Management in Soft-GRAF

Graphic files in the PAC:

After downloading all images that used in the project, they will be stored in the below path:

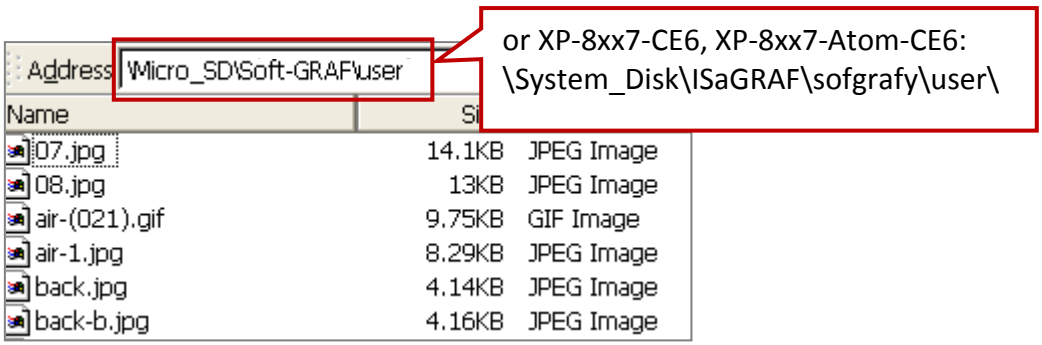
WP-8xx7, VP-2xW7/4xx7, WP-5xx7:

\Micro_SD\Soft-GRAF**user**

XP-8xx7-CE6, XP-8xx7-Atom-CE6:

\System_Disk\ISaGRAF\sofgrafy**user**

If there are too many images in this folder, the user can delete unwanted images, but DO NOT remove this "**user**" folder, and then re-download the project in the Soft-GRAF Studio.



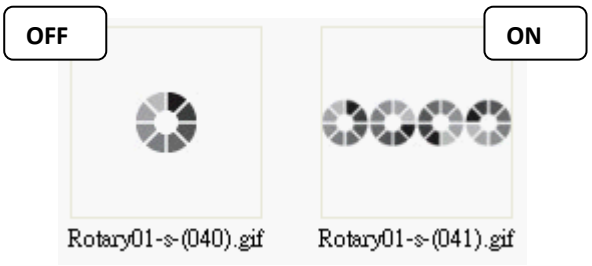
For improving the download efficiency. The Soft-GRAF will check all the used image file name and size while downloading the project, and then to judge whether to overwrite them into the PAC. If the image size is the same as the existing one, it will not be downloaded to the PAC. Therefore, when the user notice that the HMI screen does not refresh the image, simply delete the old image in the “user” folder described above and then re-download the project in the Soft-GRAF Studio.

Graphic files in the PC (Soft-GRAF Studio):

Normally, the Soft-GRAF Studio will backup all used images in the PC (D:\Soft-GRAF Studio**<Project Name>\Pic**) for users to edit them. And, it's necessary to close the Soft-GRAF Studio because these images are locked if the software is open.

Appendix B Soft-GRAF Animation File Formats

Note: The Soft-GRAF **"g_B_Pic"** and **"g_N_Pic"** objects support animation images. The user can use these offered images in the installation folder of the Soft-GRAF Studio (i.e., D:\Soft-GRAF Studio**gif**)**.**



In order to show the Soft-GRAF animation image, the file name must have the suffix "**(ABC)**" (5 letters, including brackets) plus the file extension (e.g., .gif, .jpg or .png). "A" "B" "C" can be a number from 0 to 9. "A" "B" means the number of images used in this animation; "C" means the time interval to switch each image (If "C" is equal to 0 means no animation). The switching time of the image is about 0.125 seconds in the XP-8xx7-CE6 PAC, and it's about 0.25 seconds in the WP-8xx7 or VP-2xW7 PAC.

Refer the following examples, and these image files can be found in the D:\Soft-GRAF Studio**gif**.

E.g., "Fan04-s-**(061)**.gif" means it's an animation file that is composed of six images.
If using the XP-8xx7-CE6 PAC, the switching time of the image is about 0.125 seconds.
(It's about 0.25 seconds in the WP-8xx7 or VP-2xW7 PAC.)

E.g., "Fan04-s-**(062)**.gif" means it's an animation file that is composed of six images.
If using the XP-8xx7-CE6 PAC, the switching time of the image is about 0.25 (i.e., **2** x 0.125) seconds.
(It's about 0.5 seconds in the WP-8xx7 or VP-2xW7 PAC.)

E.g., "Fan04-s-**(060)**.gif" means it's NOT an animation file because the switching time is "0".

This animation file "Fan03-s-**(041)**.gif" is composed of four images from left to right. And, the Soft-GRAF Driver will display it as an animated image in the ISaGRAF PAC.

Fan03-s-(041).gif

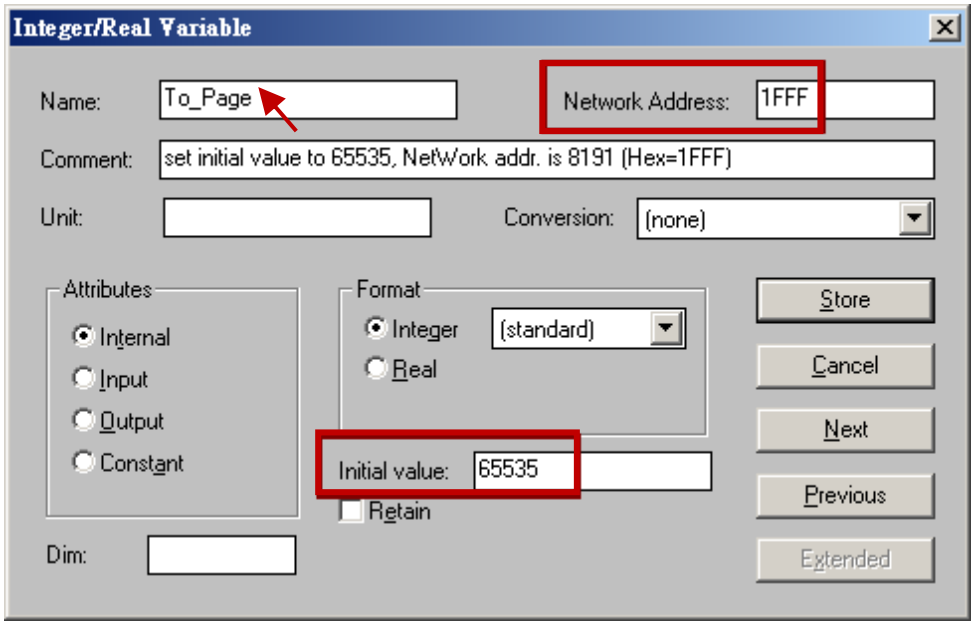
Appendix C How to Switch the HMI Page by the ISaGRAF Program?

The user can define the following two ISaGRAF integer variables for switching the Soft-GRAF HMI page and reading the current page number. (**Note: Only the Soft-GRAF driver version 1.06 and later version supports this function.**)

The ISaGRAF integer variable which specified a network address as “8191” (Hex is 1FFF) can be used to switch the Soft-GRAF HMI page, like the "To_Page" variable listed below (its initial value must be “65535). If this "To_Page" is set to “1”, the Soft-GRAF HMI will switch to the Page 1 and then reset to “65535” automatically. If it is set to “2”, the Soft-GRAF HMI will switch to the Page 2 and then reset to “65535” automatically. If this "To_Page" is set to a non-existing page number, the Soft-GRAF HMI will not switch to any page.

The ISaGRAF integer variable which specified the network address as 8190 (hex is 1FFE) can be used to read the current Soft-GRAF HMI page number. The value can be 1, 2, 3, and so on.

Name	Type	Attribute	Network Addr.	Description
To_Page	Integer	Internal	8191 (Hex = 1FFF)	The initial value must be “65535”. For switching the Soft-GRAF HMI page.
Current_Page	Integer	Internal	8190 (Hex = 1FFE)	For reading the current page number.



The Soft-GRAF supports to show the HMI page on top of all other windows by using the function key (i.e., "F1" to "F6") on the VP-25W7/23W7 PAC panel. (**Note:** Since the VP-2xW7 PAC driver version 1.21.)

Follow these steps:

1. Declare the following Boolean/Internal variables (i.e., “F1_btn” ~ ”F6_btn”) in the ISaGRAF project to read the status of function keys (i.e., "F1" to "F6") on the VP-2xW7.

F1_btn	[internal]	0000
F2_btn	[internal]	0000
F3_btn	[internal]	0000
F4_btn	[internal]	0000
F5_btn	[internal]	0000
F6_btn	[internal]	0000

2. Declare two ISaGRAF Integer/Internal variables and assign them to the following network addresses.
   To_Page: Set the NetWork address as “8191” (Hexadecimal: 1FFF).
   Current_Page: Set the NetWork address as “8190” (Hexadecimal: 1FFE).

To_Page	[internal,integer]	1FFF
Current_Page	[internal,integer]	1FFE

3. Then, add the following ST code to the ISaGRAF project. If the user cannot view the Soft-GRAF HMI page on the VP-2xW7 PAC screen (e.g., the Windows Explorer is displayed on top of this HMI page), then press the “F6” function key to show the HMI page on top of all other windows.

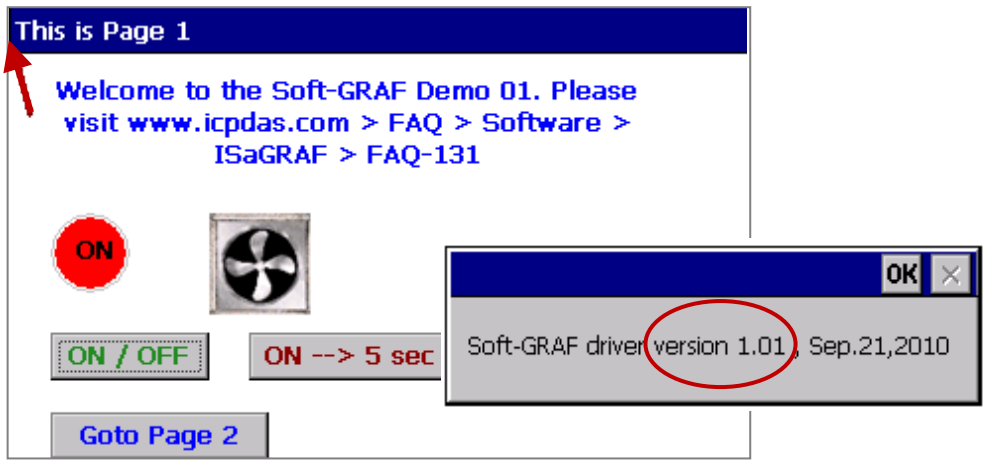
   Note: The variable “Current_Page” can be changed to the others integer value to switch the HMI page to another page number, such as "To_Page := 2 ;".

```
F1_btn := EEP_B_R( 16#A00F1 ) ;
F2_btn := EEP_B_R( 16#A00F2 ) ;
F3_btn := EEP_B_R( 16#A00F3 ) ;
F4_btn := EEP_B_R( 16#A00F4 ) ;
F5_btn := EEP_B_R( 16#A00F5 ) ;
F6_btn := EEP_B_R( 16#A00F6 ) ;
if   F6_btn = TRUE   then      (* F6 button is pressed *)
     To_Page   := Current_Page   ;
(* Switch Soft-GRAF Page to the "current page. This will make the Soft-GRAF to show on the Top *)
 end_if ;
```

Appendix D How to Check the Soft-GRAF Driver Version?

To See the Current Version:

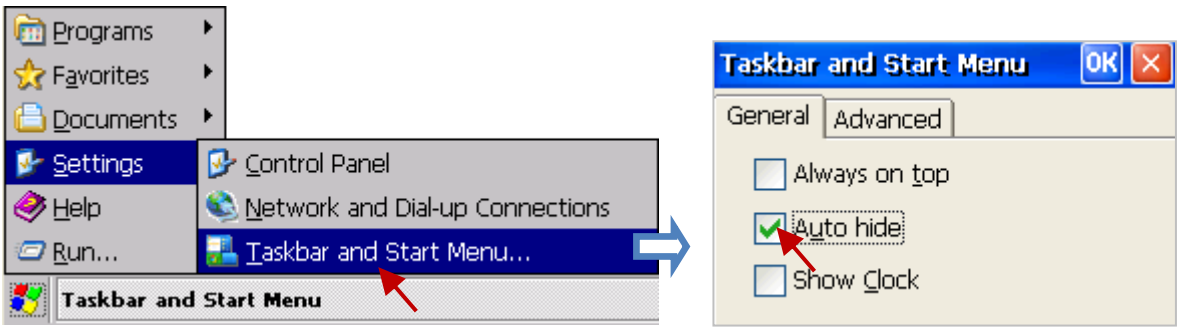
On the PAC screen (or an external monitor), click the top-left corner of the HMI page1 to see the Soft-GRAF driver version.

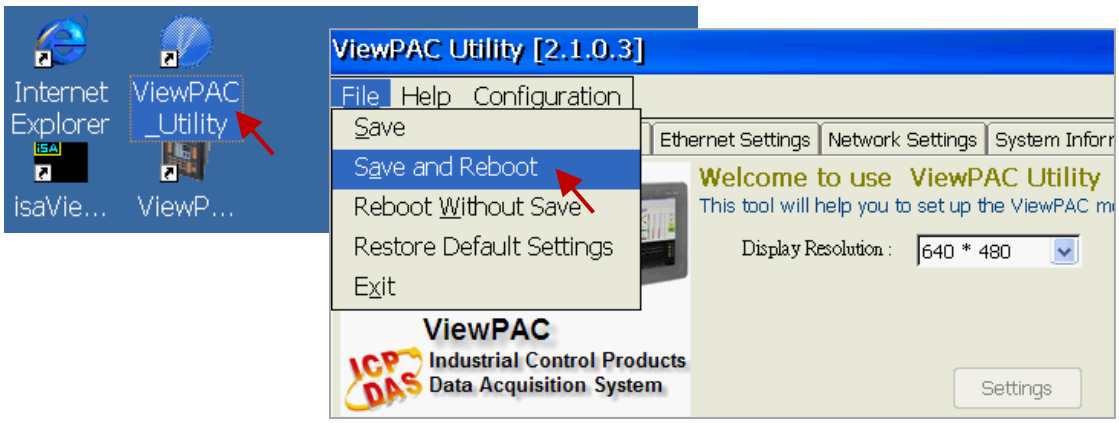


Appendix E How to Show the Soft-GRAF HMI Page in Full Screen?

After completing the software development and testing, we recommended to show the Soft-GRAF HMI page in full screen mode to avoid the on-site operator change the PAC system settings.

Doing these steps in the PAC:



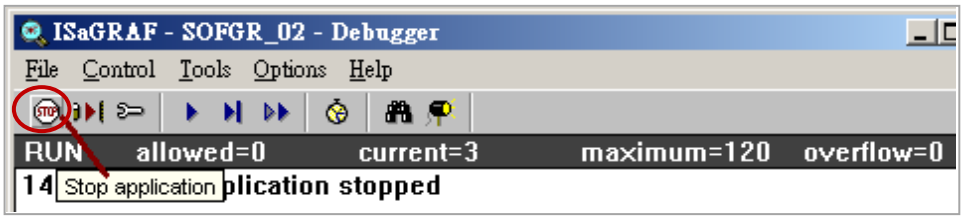


How to Turn Off Full Scree?

After enabling Taskbar Auto-Hide feature, the user cannot make changes to the PAC system settings in full screen mode.

There are two possible ways to solve this problem.

1. (The recommended way):
   Run the ISaGRAF on a PC and connect to the PAC, and then stop running the ISaGRAF project by clicking the "Stop application" button.



2. (Not recommended):
   Turn off the PAC and adjust the PAC's rotary-switch to “1” (i.e., Safe mode), and then turn on the PAC.