Soft-GRAF Studio V.1.10 Software & manual:
Create a Colorful HMI in the ISaGRAF WinCE PAC

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. Using the PAC with the Soft-GRAF support, user can easily edit its HMI screen by Soft-GRAF Studio and design the control logic by ISaGRAF software.

There are three types of HMI Objects in the Soft-GRAF Studio:

"Value", "Button", "Graph"

User can create the HMI object directly by mouse dragging and dropping the Object into the editing screen and set the properties by mouse/keyboard to display the different effect.

Running HMI and Control Logic in the Same PAC

1.1 : Soft-GRAF Studio Version and Installation

Install the Soft-GRAF Studio:

The Soft-GRAF Studio is version **1.10** now. Please get the document (faq146) and demo programs from the following folder of CD-ROM in your PAC package.

CD-ROM: \napdos\soft-graf\

Or download it from the following website.

www.icpdas.com > Support > FAQ > ISaGRAF Soft-Logic PAC > 146

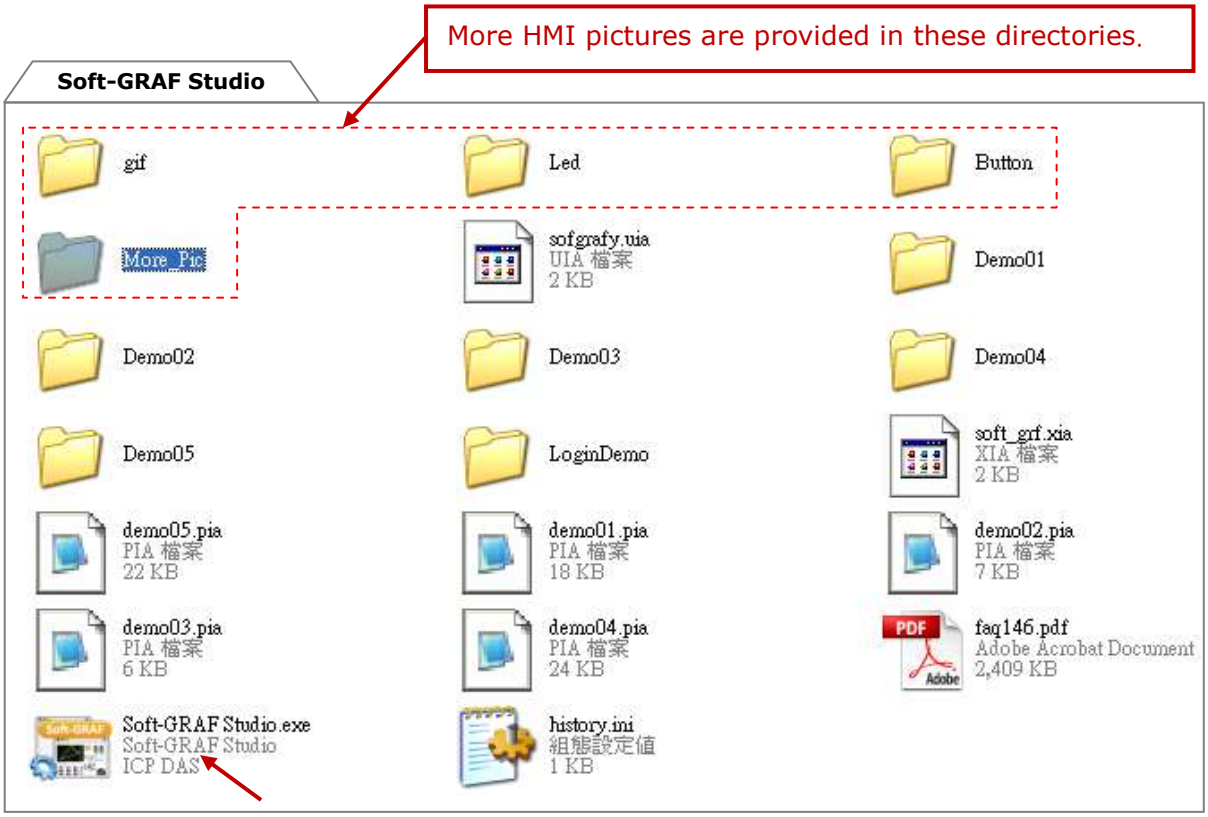
http://www.icpdas.com/root/support/faq/isagraf.php > 146

Other related information:

ISaGRAF User's Manual

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

Soft-GRAF Studio, the software to edit the Soft-GRAF HMI, can run in the PC with the WinXP, WinVista, Win7 or compatible Operating System, and the .Net Framework V.3.5 or later version (if your PC doesn't install it or installs the old version, please download it at the Microsoft website (http://www.microsoft.com/zh-tw/download/details.aspx?id=22). The execution program is included in the downloaded **FAQ-146** zip file. After unzip the file, please copy the folder **"Soft-GRAF Studio"** into **"D:\"**. The "Soft-GRAF Studio" folder must include the main program file, 6 demo programs and 4 picture folders (as below picture).



PAC Driver:
The following ISaGRAF driver versions support Soft-GRAF Studio ver.1.10:

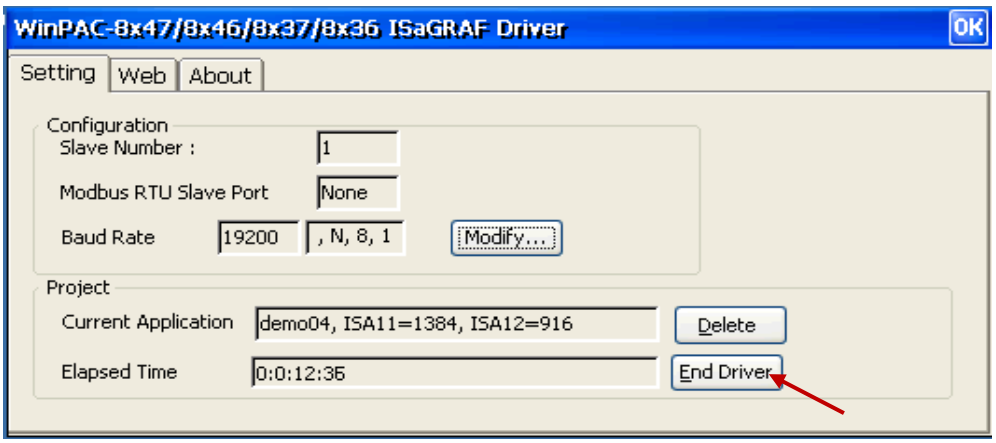
PAC Model	ISaGRAF Driver Version
XP-8xx7-CE6	Ver.1.44 or later
XP-8xx7-Atom-CE6	Ver.1.02 or later
WP-8xx7	Ver.1.65 or later
WP-5147	Ver.1.11 or later
VP-2xW7/4xx7	Ver.1.57 or later

If your PAC's ISaGRAF driver version is later than the version listed above, it supports the Soft-GRAF Studio.
However, if its version is older, please visit the following web site to download the latest ISaGRAF driver into your PAC.
http://www.icpdas.com/root/product/solutions/softplc_based_on_pac/isagraf/download/isagraf-link.html

After downloading, update the driver into the correct model of PAC. Please click on "End Driver" button in the ISaGRAF driver window of the PAC's VGA screen to stop the ISaGRAF driver first, and then unzip the downloaded file and copy all files and the sub-directory in the related version-number directory into the following path in your PAC via FTP or USB disk.

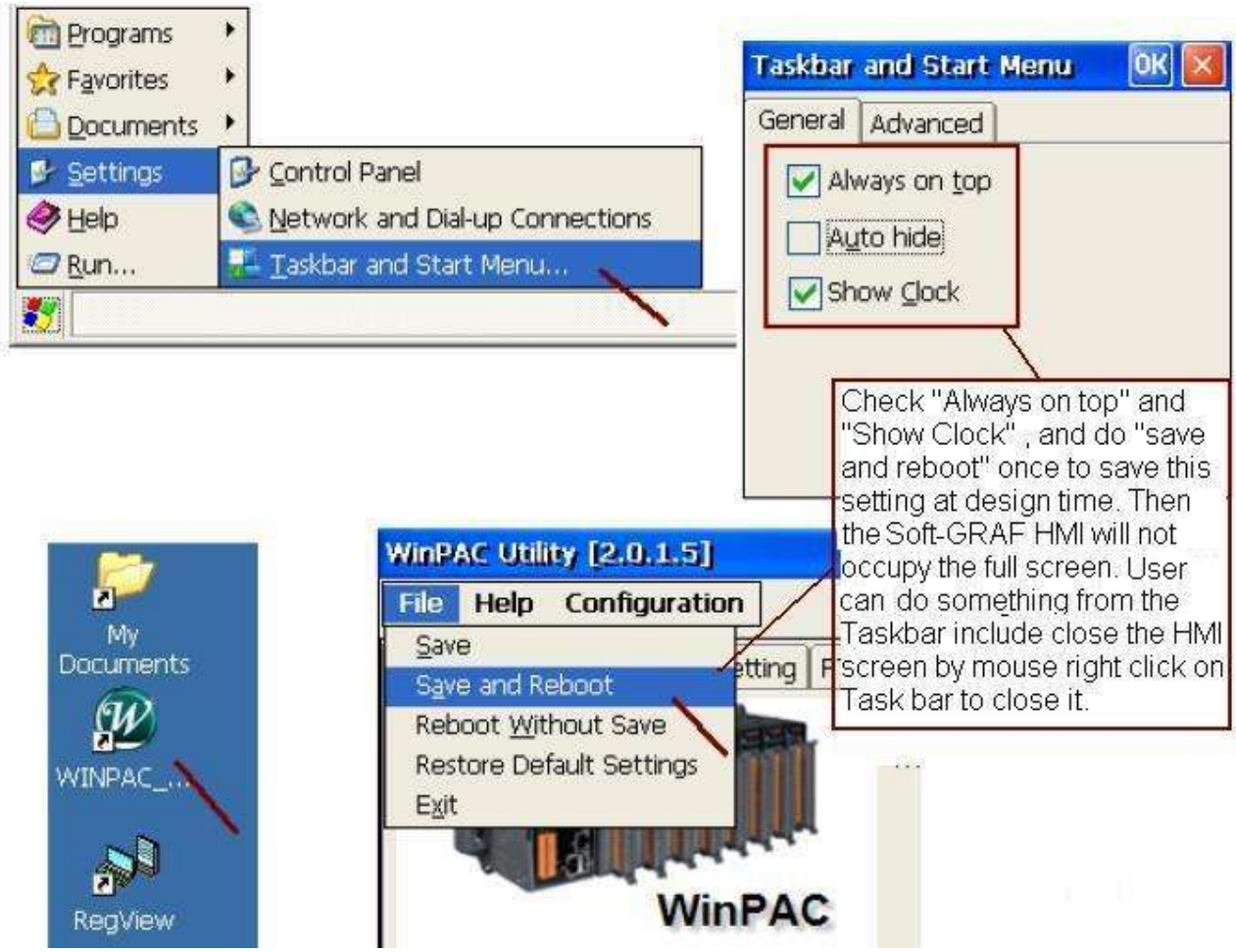
ISaGRAF PACs	Driver Directory
XP-8xx7-CE6/8xx7-Atom-CE6 WP-8xx7, VP-2xW7/4xx7	\System_Disk\ISaGRAF\
WP-5147	\Micro_SD\ISaGRAF\

For instance, to update the ISaGRAF driver of XP-8xx7-CE6 to Version 1.27, please click on the "End Driver" button in PAC's ISaGRAF driver window, then unzip the downloaded file "xp-8xx7-ce6-1.27.zip" and copy all files and the sub-directory "sofgrafy" in the "1.27" directory into the "\System_Disk\ISaGRAF\" path of the XP-8xx7-CE6. Then reboot the XP-8xx7-CE6. Now, the PAC driver has updated.

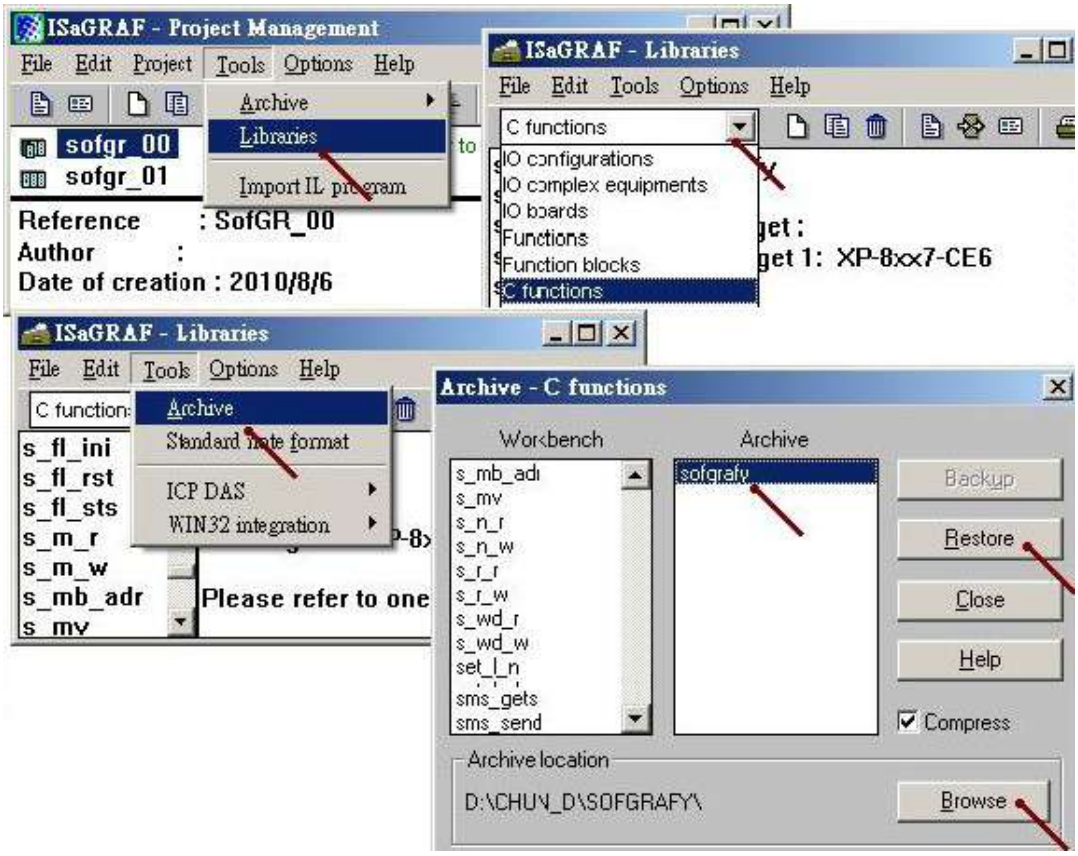


Set PAC's Taskbar as "Always on top" at design time :

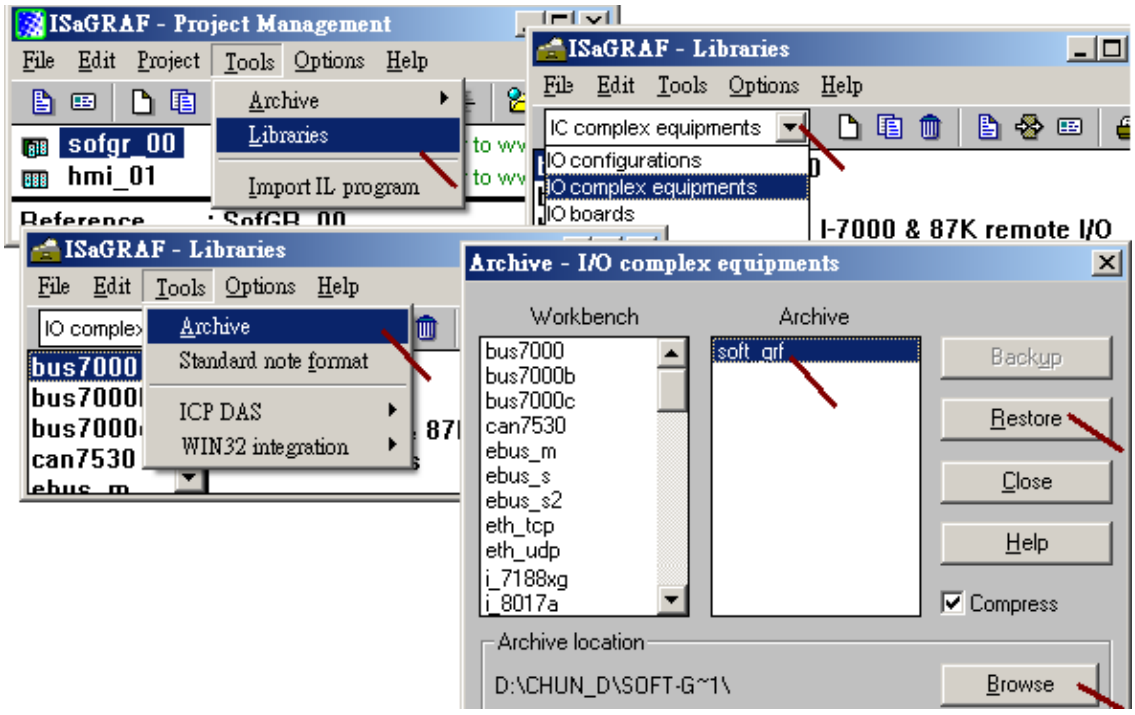
When user has download an ISaGRAF program with Soft-GRAF HMI enabled, the HMI screen will occupy the full screen. Then it is not easy to do other Window CE operations (for example, modify IP address, copy files, view files, ...). Recommend to set the Taskbar as "Always on top" at design time , then the designer can operate some other Window CE operation normally. When the development is finished, remember to refer to Section 1.6.6 to set it back to full screen (hide the Taskbar) to prevent other operators to shutdown the PAC (or doing something wrong in the PAC).



Next, restore the file "sofgrafy.uia" that downloaded/unziped from the FAQ-146 of "faq146_chinese_demo.zip" into the "c functions" of the PC ISaGRAF, as below :



And also, restore "soft-grf.xia" into the "IO complex equipments" of the PC ISaGRAF.



1.1.1: HMI Objets List

The HMI objects below are supported by Soft-GRAF driver (since **Ver.1.20**):

Value:

1	g_Label	Display a Label
2	g_B_Val	Display a Text to show a Boolean value
3	g_WD_Val g_N_Val	Display a 16-bit (occupy 1 Network addr. number) or 32-bit (occupy 2 Network addr. numbers) integer value
4	g_F_Val	Display a 32-bit Float value (occupy 2 Network addr. numbers)
5	g_M_Val	Display a Message value
6	g_N_Text	Display a text to show an Integer value
7	g_Alarm	Display an alarm list to show the triggered alarm messages and provide FTP upload function.

Button:

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 (Occupy 1 Network addr.) or 32-bit (occupy 2 Network addr. numbers) integer value
3	g_F_inp	Create a button to input a 32-bit Float value (occupy 2 Network addr. numbers)
4	g_Login	Create a Login button with password
5	g_Logout	Create a Logout button
6	g_ToPage	Create a switch-page button
7	g_M_Inp	Create a button to input a Message value
8	g_Logger1	Create a Data Logger button with FTP upload function.

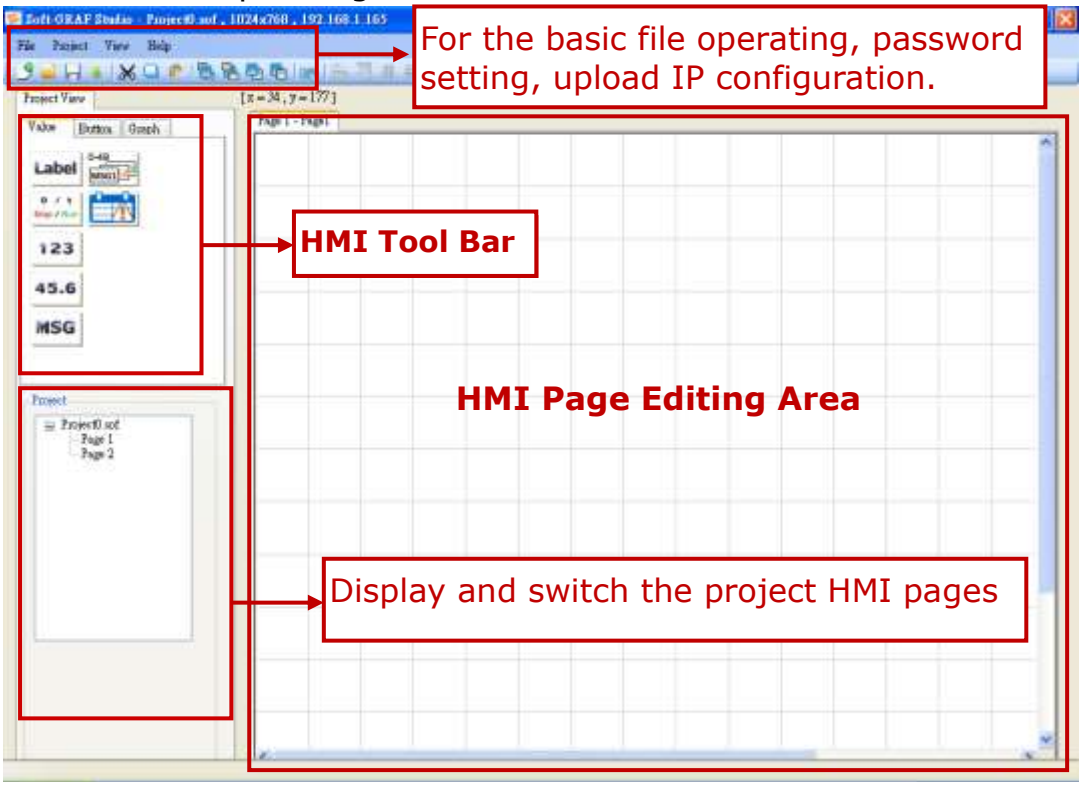
Graph:

1	g_B_Led	Display a LED to show a Boolean value
2	g_B_Pic	Display a picture (JPG, PNG, GIF, BMP) to show a Boolean value
3	g_N_Pic	Display a picture (JPG, PNG, GIF, BMP) to show an Integer value
4	g_Trace2	Display a 2-axes (x , y) or 1-axis (x : Horizontal) or 1-axis (y : Vertical) moving trace map
5	g_Rect	Draw a Rectangle
6	g_Bar	Display one value as a bar-meter
7	g_Trend	Create a real-time trend to display max. 3 curves and may also enable the historical trend function to record them.
8	g_Gauge	Display a Long, Short Integer or a Real value as an angular gauge.

1.2 : Edit the HMI by the Soft-GRAF Studio software

To test Soft-GRAF Studio demo projects, please refer to the demo04 description in Ch1.7.1 and the demo05 "My Sweet Home" in Ch1.7.2 and others.
To execute the Soft-GRAF Studio, please double click the "D:\ Soft-GRAF Studio\Soft-GRAF Studio.exe", or install it by referring to Ch1.1 when the "Soft-GRAF Studio.exe" is not found.

The software operating environment :

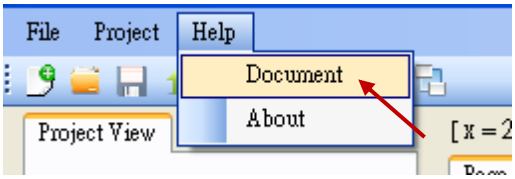


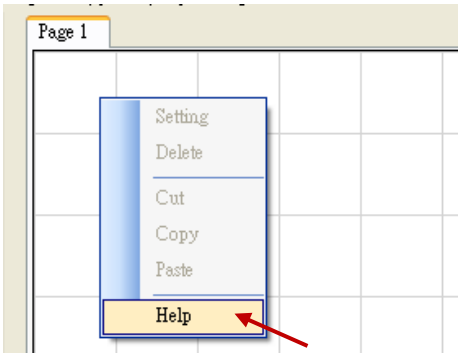
One Soft-GRAF project can contain maximum 200 HMI pages (No. 1~200). The Soft-GRAF displays page No.1 when PAC powering up. Every Page is displayed as full screen and only one Page is shown on the VGA monitor, so user can set up the VGA resolution when create a new project. (To change the resolution please refer to Ch1.6.8.)

The PAC Resolution that Soft-GRAF supported:

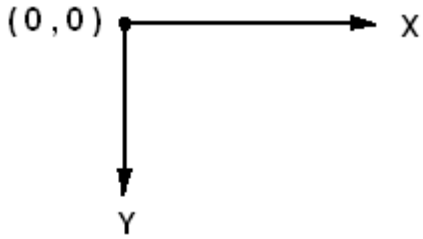
PAC	Supportted VGA Resolution
XP-8xx7-Atom-CE6	640*480, 800*600, 1024*768
XP-8xx7-CE6	640*480, 800*600, 1024*768
WP-8x37	640*480, 800*600, 1024*768
WP-8x47	640*480, 800*600
WP-5147	640*480, 800*600
VP-25W7	640*480
VP-23W7	320*240
VP-4137	640*480, 800*600

Soft-GRAF Studio offers two ways to use the manual to query the functions. Click the menu bar "Help" > "Dociment" or in a project right-click on the HMI editing area then select "Help".





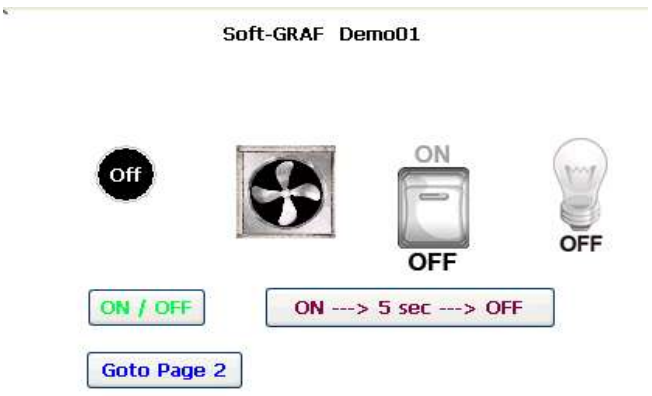
In the Soft-GRAF Studio editing screen, the axis origin is at the top left of the axis position as follows:



The horizontal axis of the monitor is called "X axis", while vertical axis is called "Y axis". The original position of (X , Y) is (0 , 0) which resides at the most top-left position on 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.

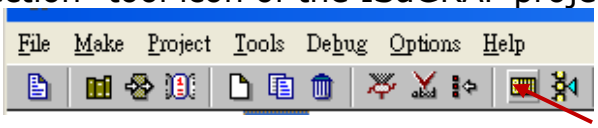
1.2.1: Edit a simple Soft-GRAF HMI

The following picture is the VGA Screen view when running demo "Demo01":

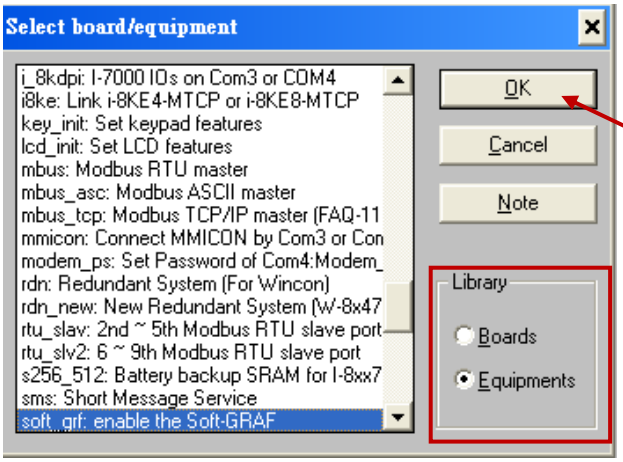


Before editing an HMI page, ISaGRAF must have the following setting. If you are not familiar with ISaGRAF programming, please refer to the Ch1.1, Ch1.2 and Ch2 of "ISaGRAF User's Manual". The manual website is as below:
http://www.icpdas.com/root/product/solutions/softplc_based_on_pac/isagraf/download.html#manu

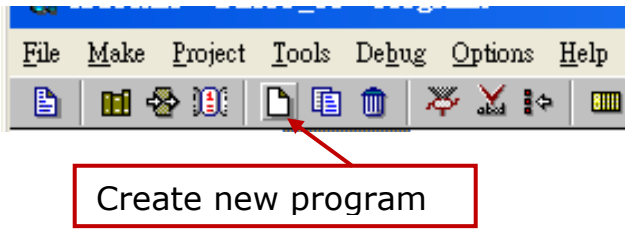
Open your project (or create a new one, ex: demo01), and click on the "I/O Connection" tool icon of the ISaGRAF project window.

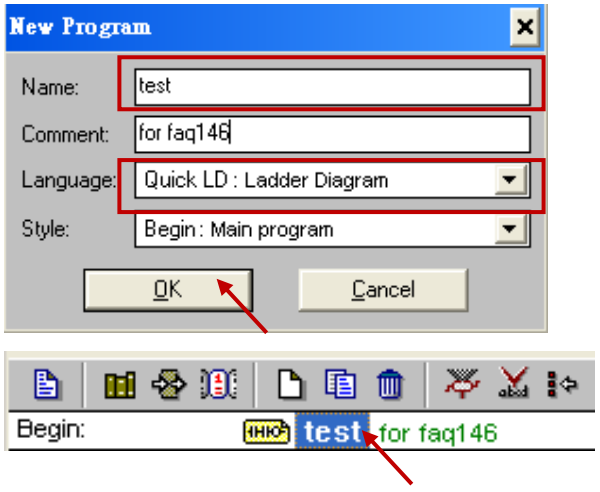


Set "soft_grf" to the "Slot" and the slot number must after "8" in order not to conflict with the real I/O modules using in the slot number 0 to 7 of the PAC.

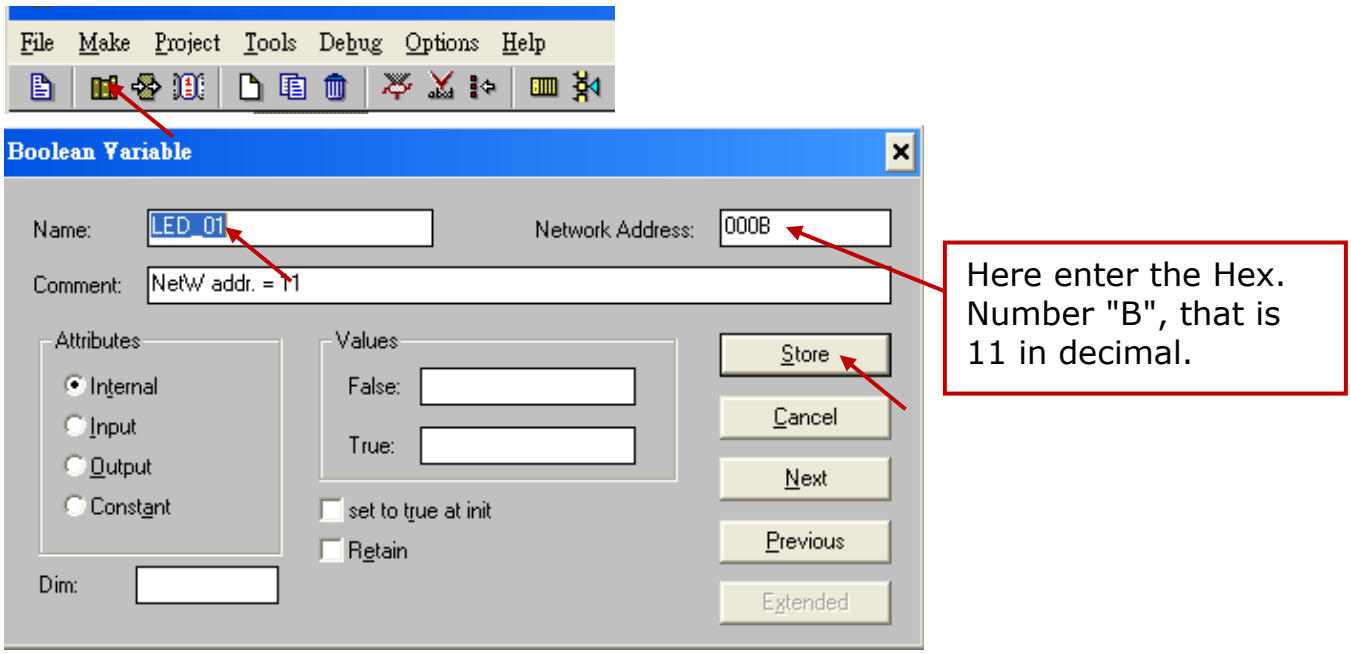


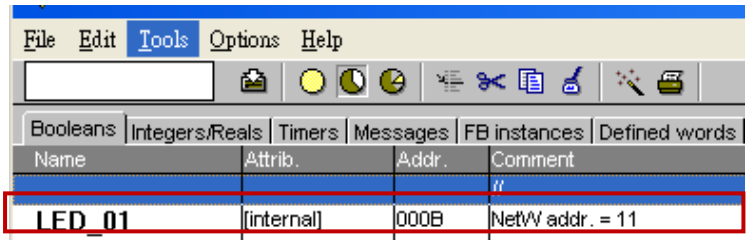
Then, create a new Ladder program in the project.





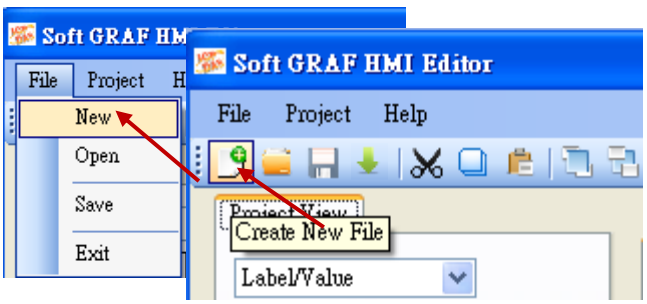
Add one Boolean variable "LED_01" into the Dictionary of the ISaGRAF project and set its address as 11 (key in the Hex. number: "B").



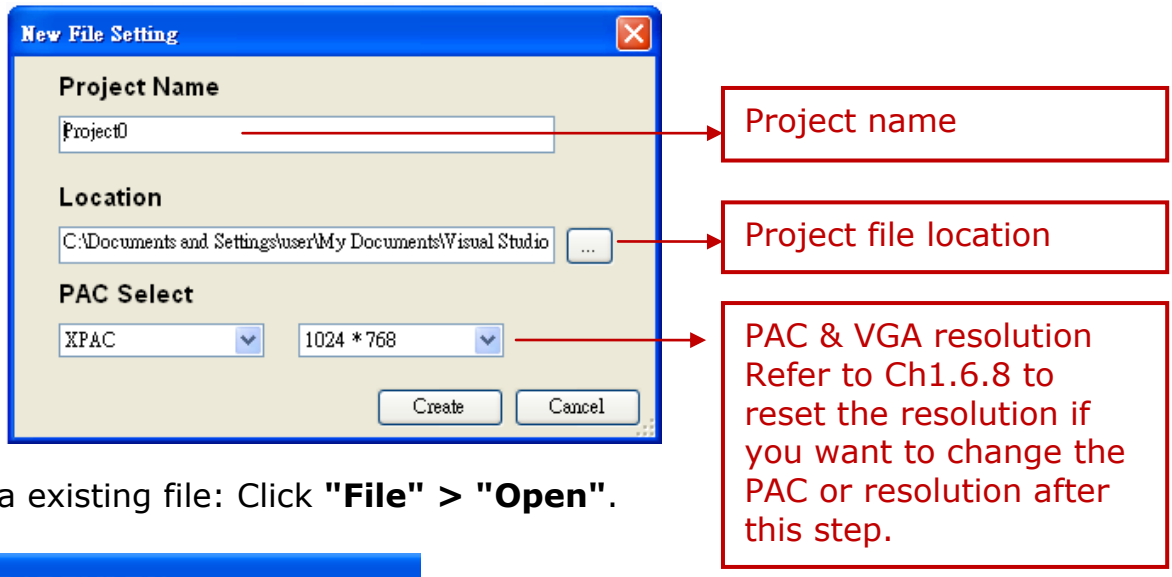


After programming the ISaGRAF SoftLogic, You must compile and download the ISaGRAF project into your PAC (Refer to Ch.2 of the ISaGRAF User's manual for the steps.), then after edit the HMI project.

Run Soft-GRAF Studio to edit the HMI. First, create a project (*.sof) as below. Click **"File" > "New"** of menu bar or click **"Create New File"** tool icon.

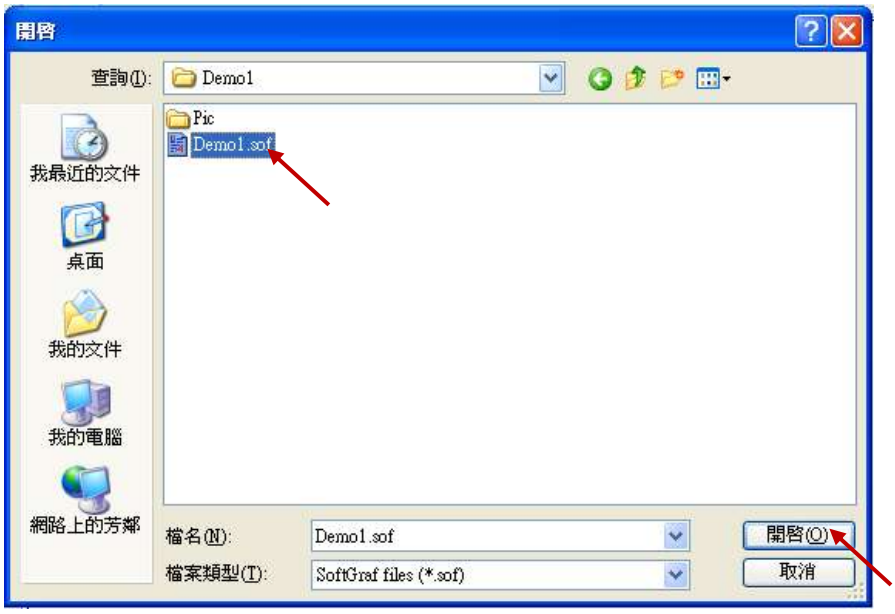


Give a project name and file location.



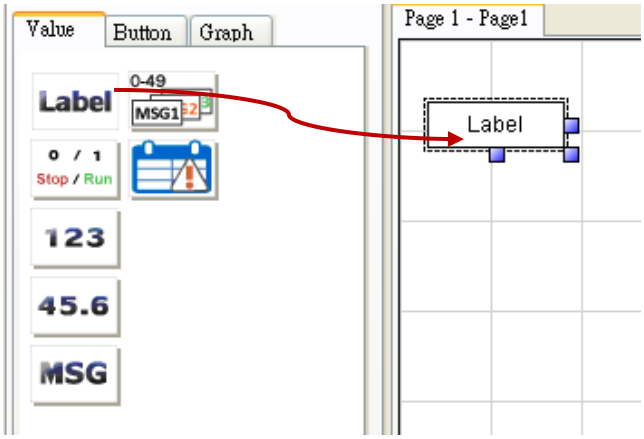
To open a existing file: Click **"File" > "Open"**.

Change the directory to find the project (*.sof) in the Open File Dialog.



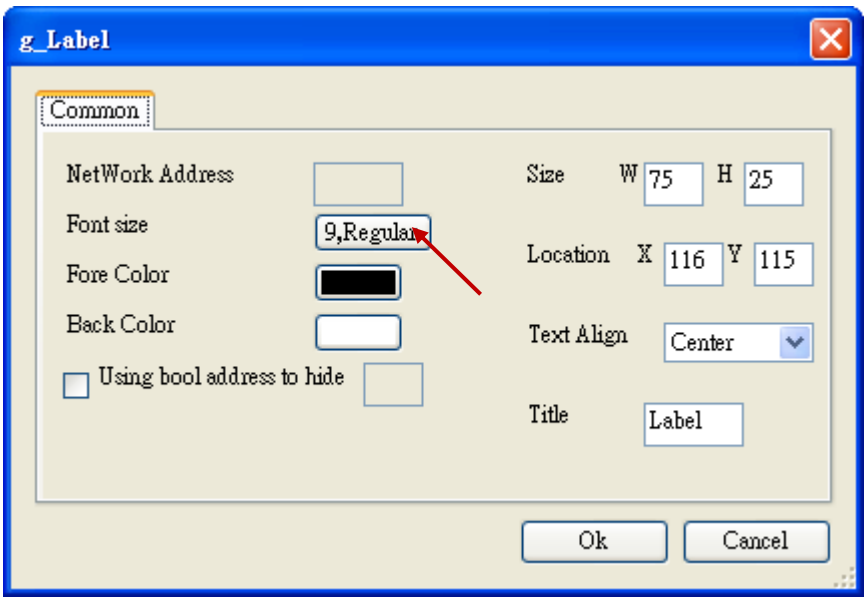
Now create a HMI page. The following HMI is the same as the Demo01, please set all the Network address in this project as "11" (the address is the same as the Boolean variable "LED_01" in the ISaGRAF program).

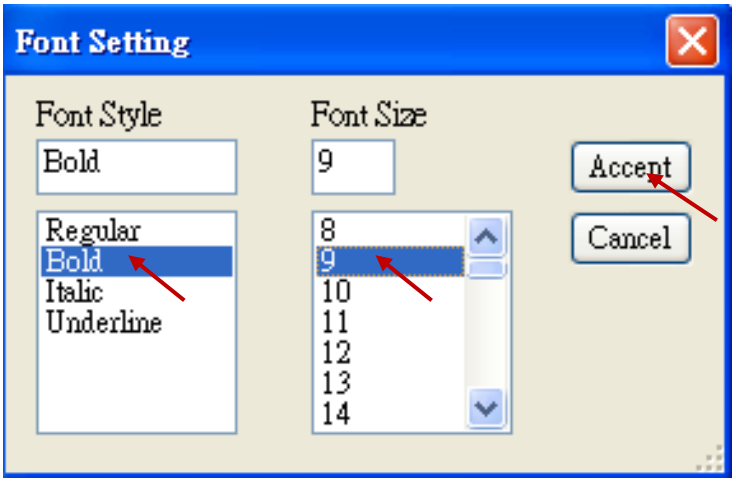
First, create a "g_Label" object. Drag & drop "g_Label" object into the editing area.



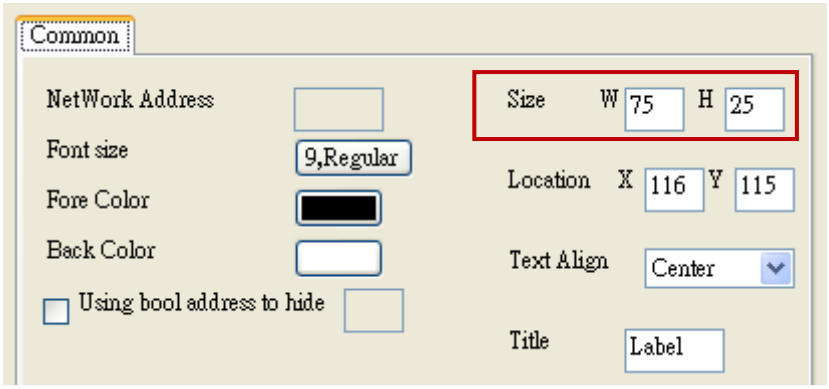
Mouse right key click on the object and select the "Setting" (or just mouse double click on the object).

Click "Font size" to set up as "9,Bold" (or the size you want).

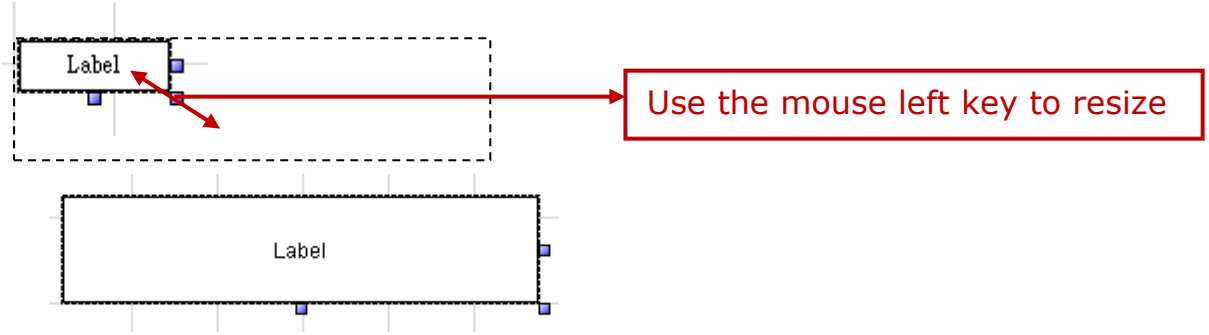




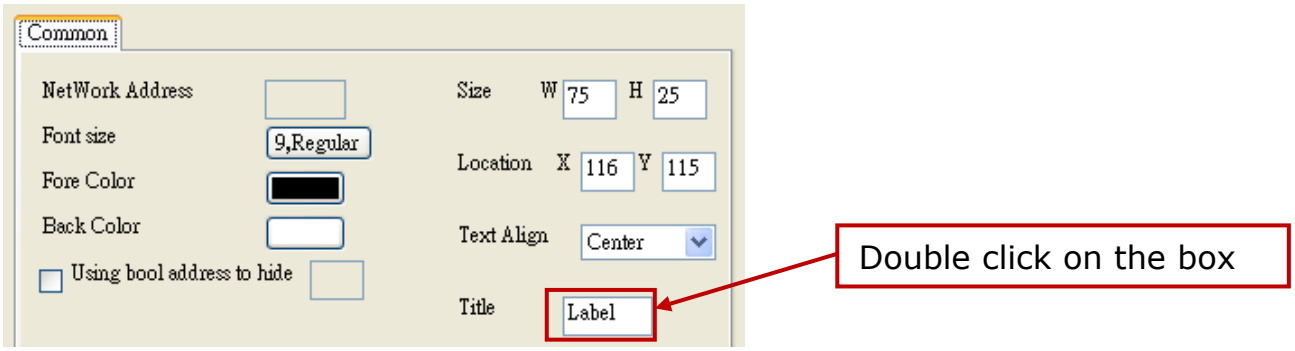
Set up the Object Size as W:300 and H:60.

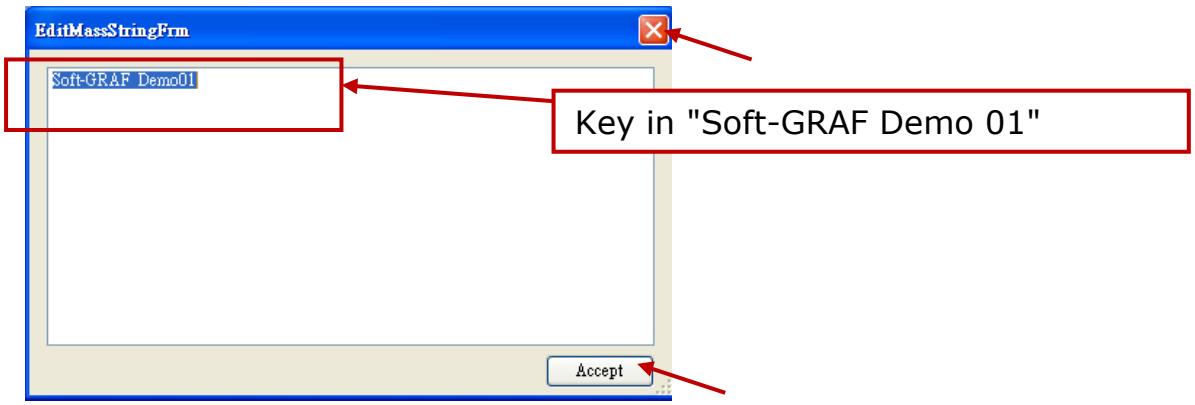


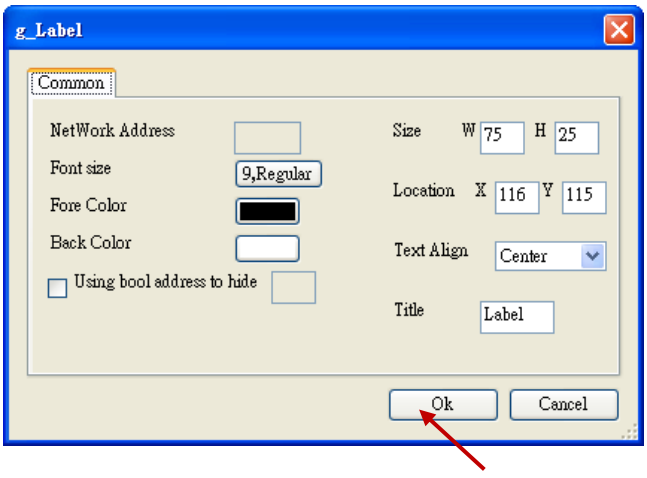
Or, using the mouse left key to change the Object size.



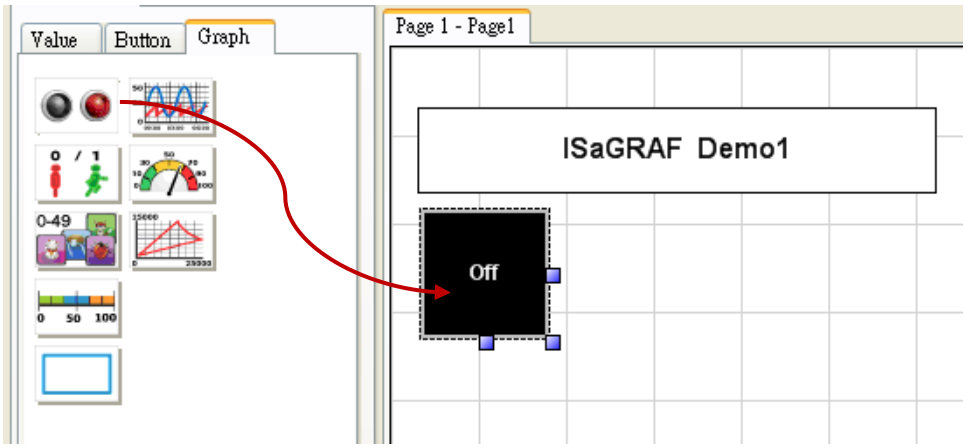
Next, set up the title of "g_Label" object for the text displayed on the object. Double click on the "Title" text box and key in "Soft-GRAF Demo 01", then click "Accept" button to close the window, and click "ok" to end the setup.

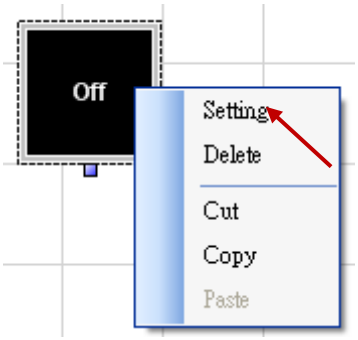


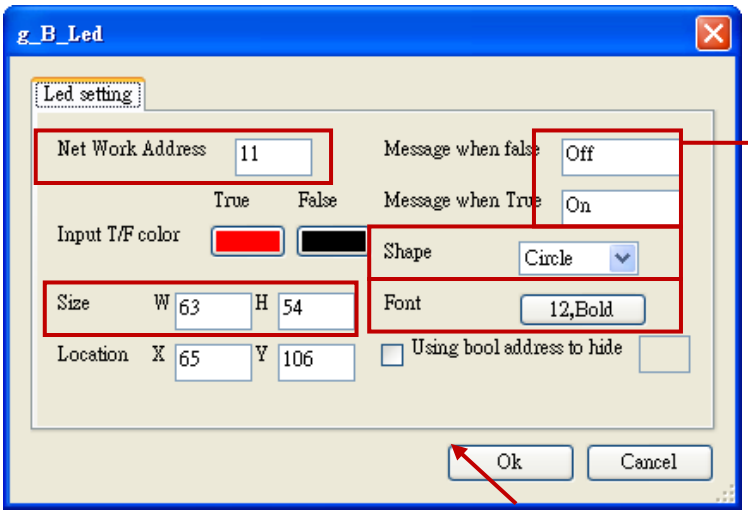




Next, create a "g_B_Led" object. Drag & drop a "g_B_Led" object to the editing area, mouse right key click on the object and select "setting" (or just mouse double click on the object) to configure the following setting, such as, Network address: 11, Size W: 40, Size H: 40, Font: 10,Bold, Shape: Circle.

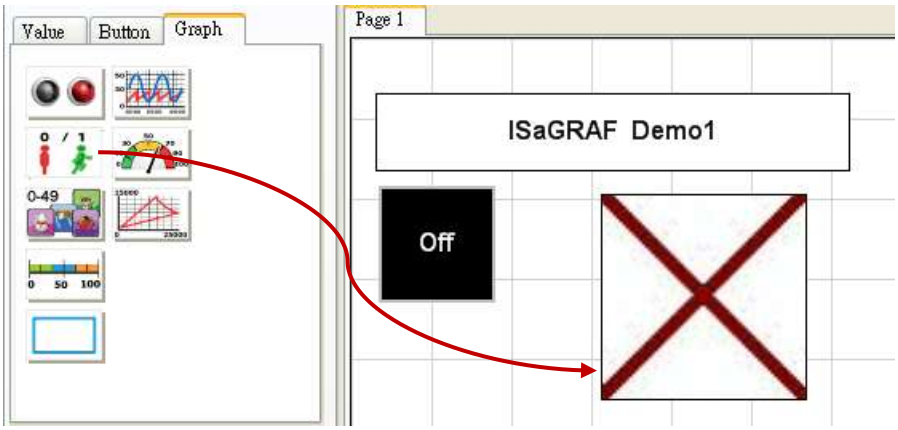




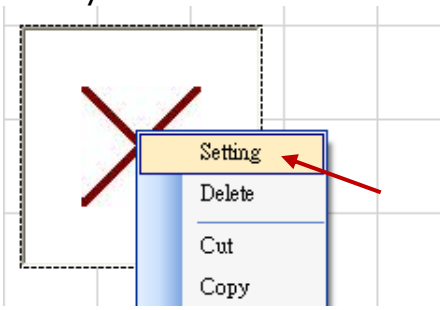


Set to show different message when "False" and "True".

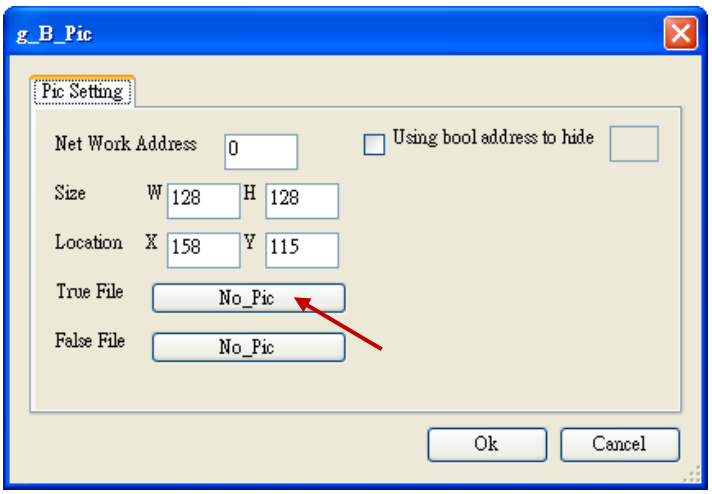
Drag & drop a "g_B_Pic" object to the editing area.



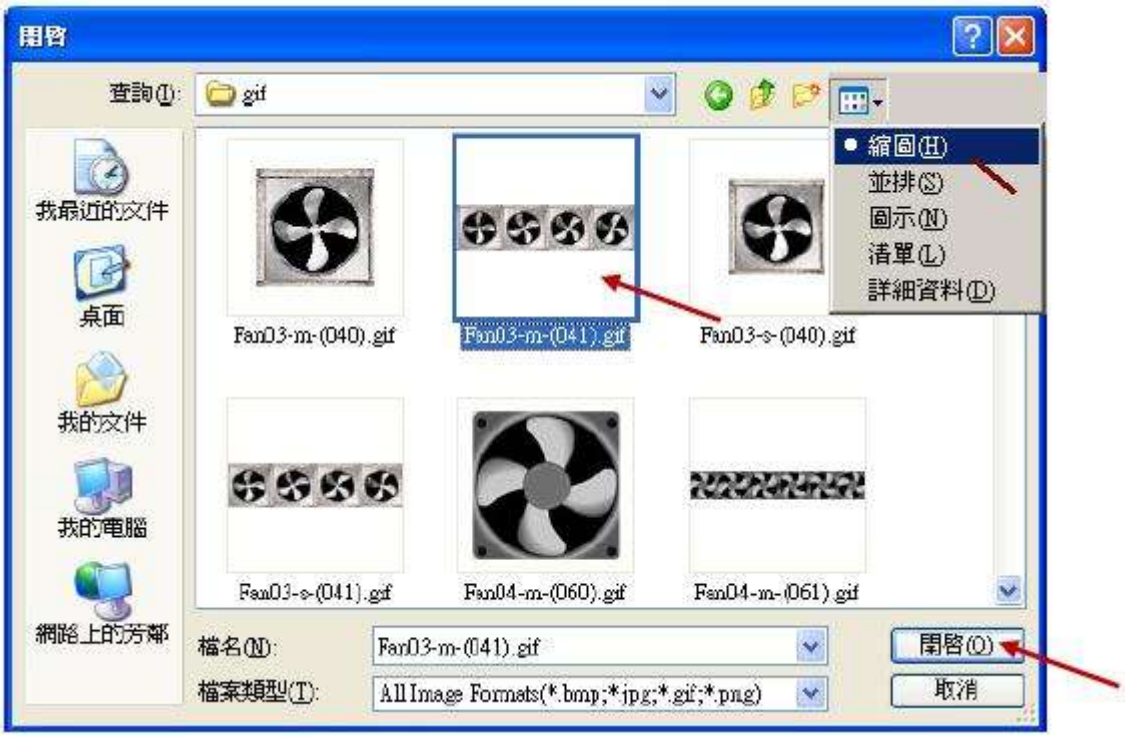
Right key click and select the "setting" (or just mouse double click on the object).



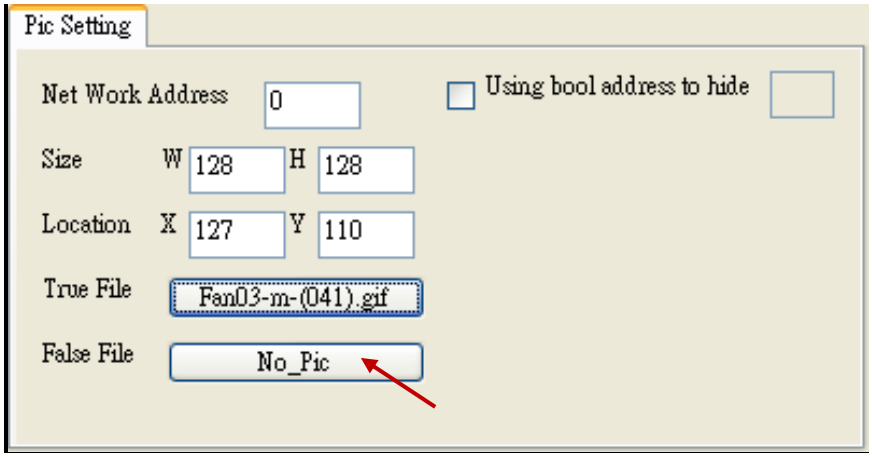
Set up the picture of "True File" for situation "True". The picture can be ".gif" which fits the Soft-GRAF dynamic image format. Please get the demo pictures from the "\Soft-GRAF Studio\gif\" directory of the demo file "faq146_chinese_demo.zip". More HMI pictures are provided in "\Soft-GRAF Studio\button\" , "\Soft-GRAF Studio\Led\" and "\Soft-GRAF Studio\more_pic\" directories. (Refer to Ch1.5 for more information about the Soft-GRAF dynamic image format)

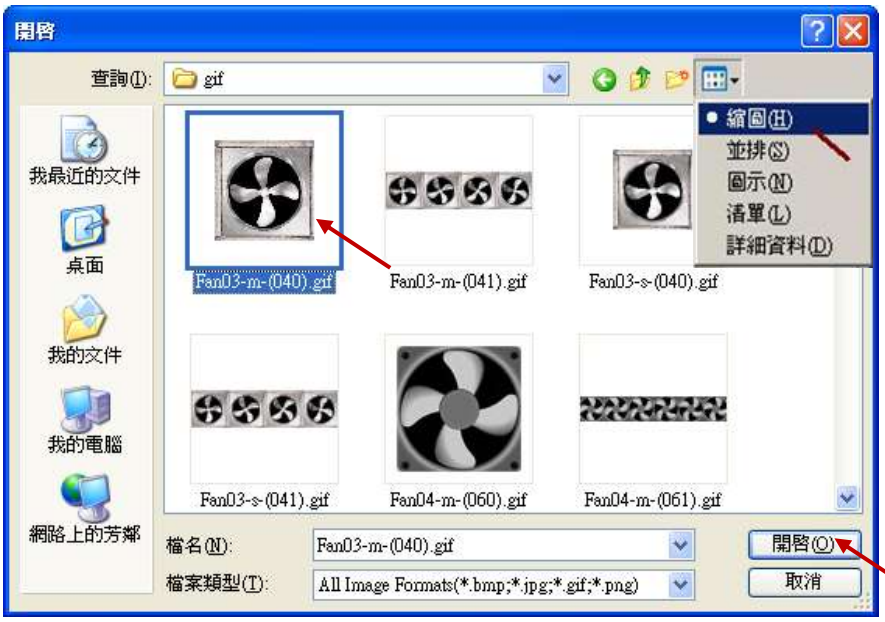


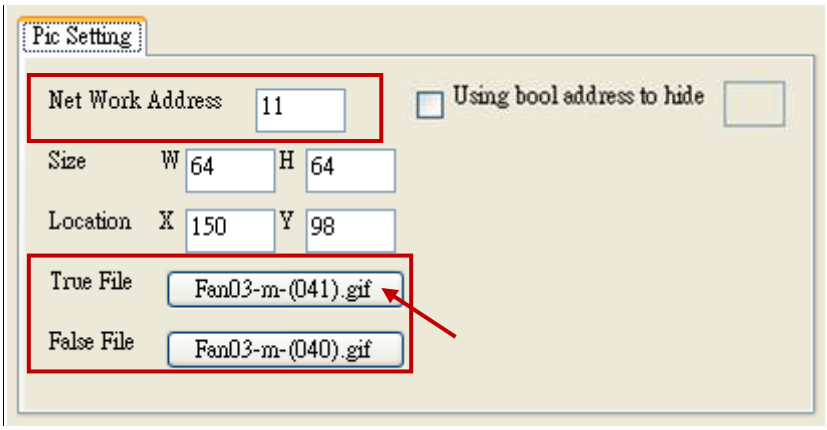
Select "Fan03-m-(041).gif" file and click Open(O).



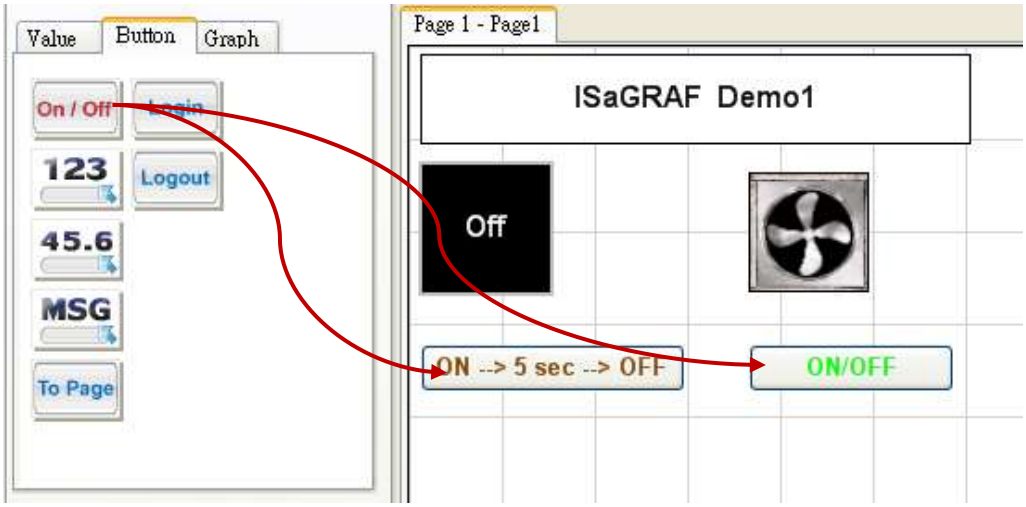
Set "False File" as "Fan03-m-(040).gif". Then, set "Net Work Address" as 11, and click "ok" to exit.



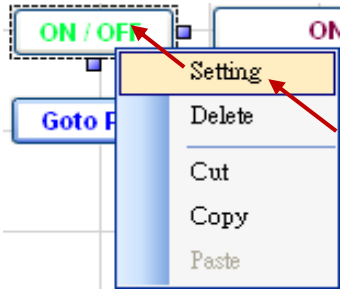


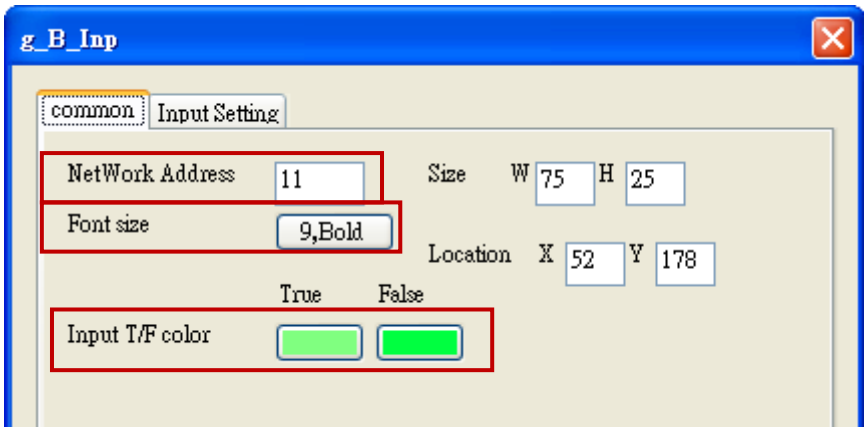


Next, create two "g_B_Inp" objects. Drag & drop a "g_B_Inp" object into the editing area.

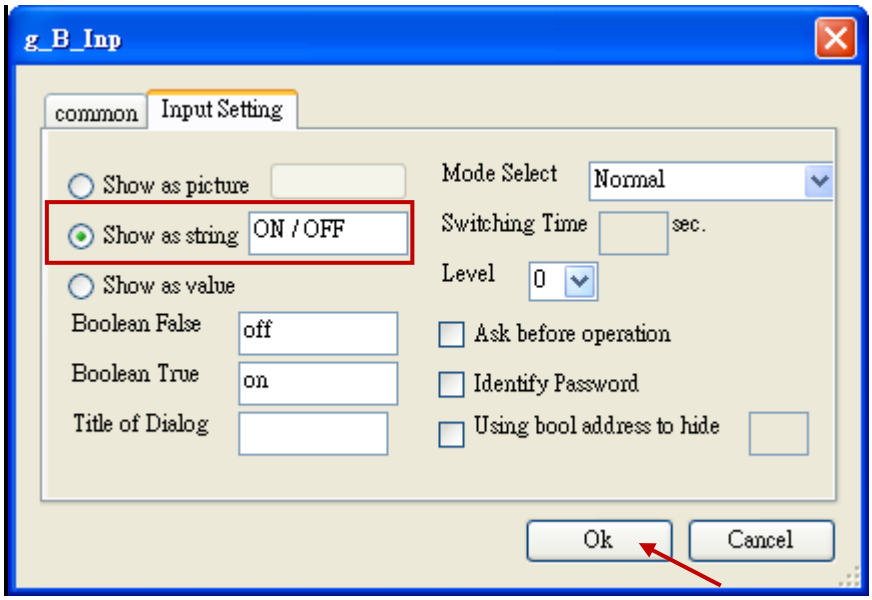


Mouse right key click and select "Setting", then set "Net Work Address" as 11, "Font Size" as "9,Bold" and set the same "Input color" for True and False.

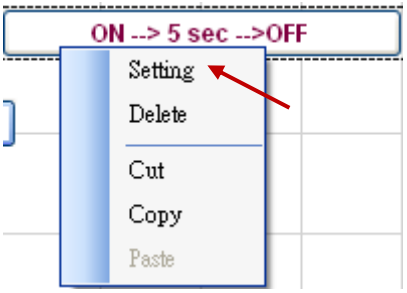


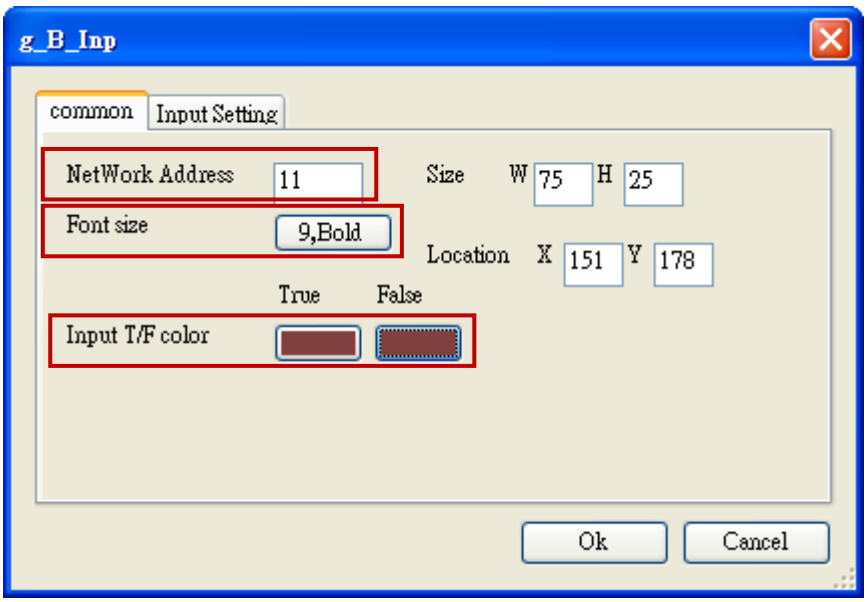


Switch to the "Input Setting" page, key in "ON/OFF" in the Textbox of "Show as string", and click "Ok".

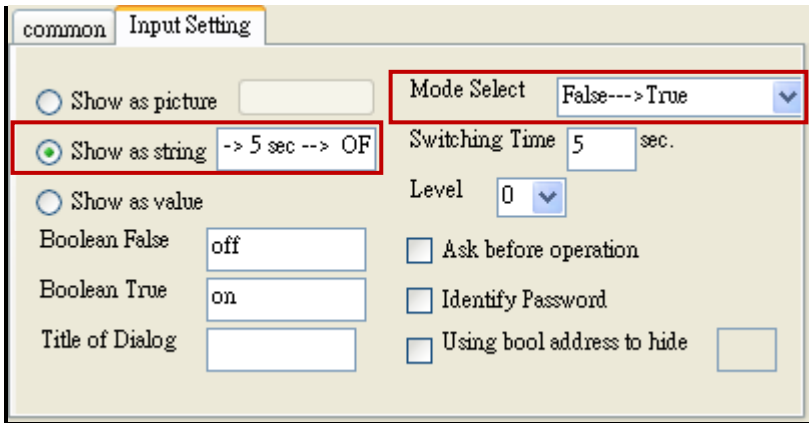


Then create one another "g_Inp" object. Right click and select "Setting" to set the "Net work address" as 11, "Font Size" as "9,Bold" and set the same "Input color" for True and False.

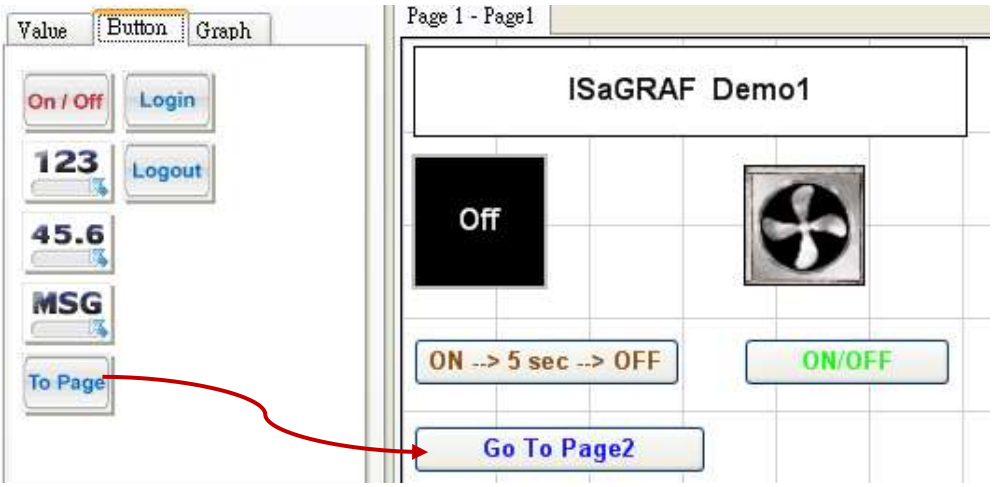




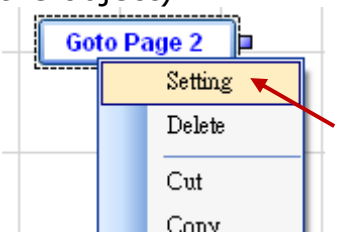
Switch to the "Input Setting" page, key in "ON → 5 sec → OFF" in the Textbox of "Show as string", select "False → True" for "Mode Select", set "Switching Time" as "5 Sec. ", and then click "Ok".



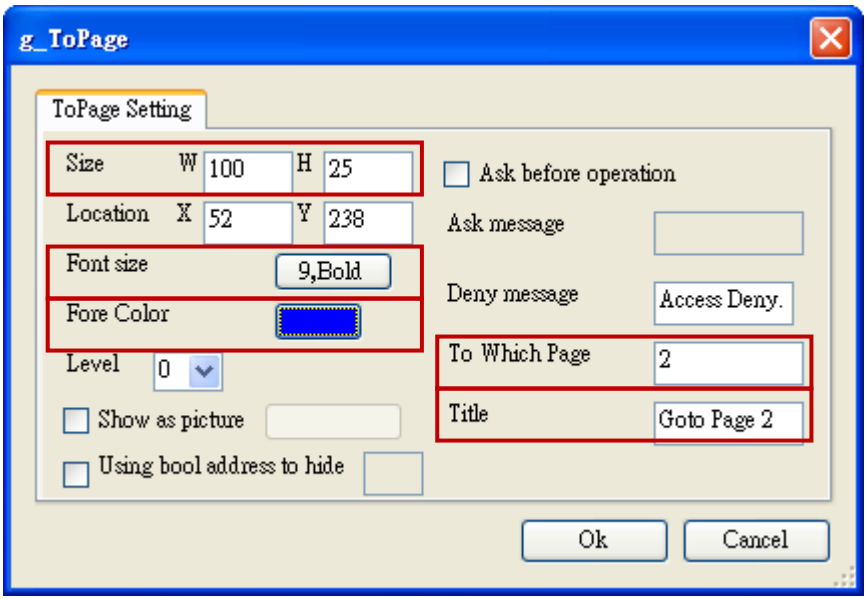
Next, create a "g_ToPage" object. Drag & drop a "g_ToPage" into the editing area.



Mouse right clicks on the object and select "Setting" (or just mouse double click on the object).



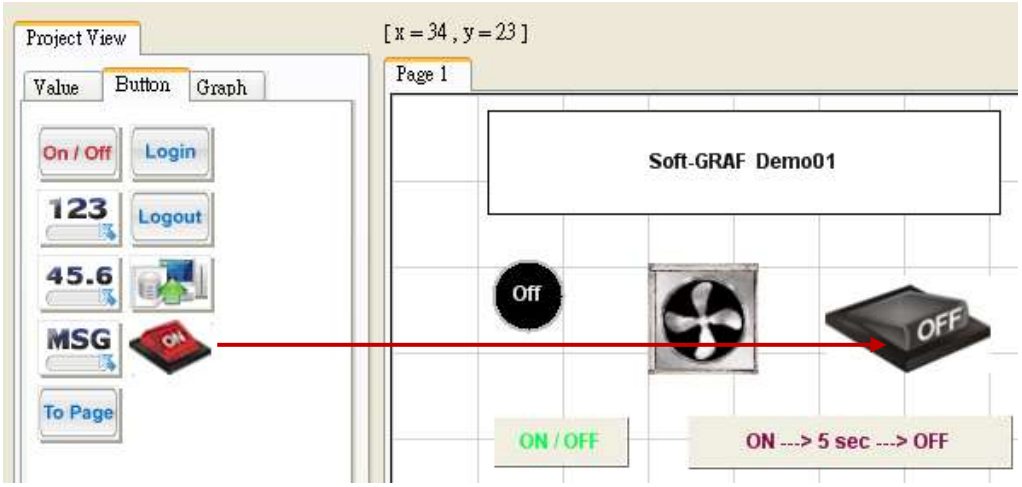
Set "Size W" as 100, "Size H" as 25, "Font size" as "9,Bold", "Fore Color" as the below picture, "To Which Page" as 2 and "Title" as "Goto Page 2".



1.2.2 Features of the Image gallery

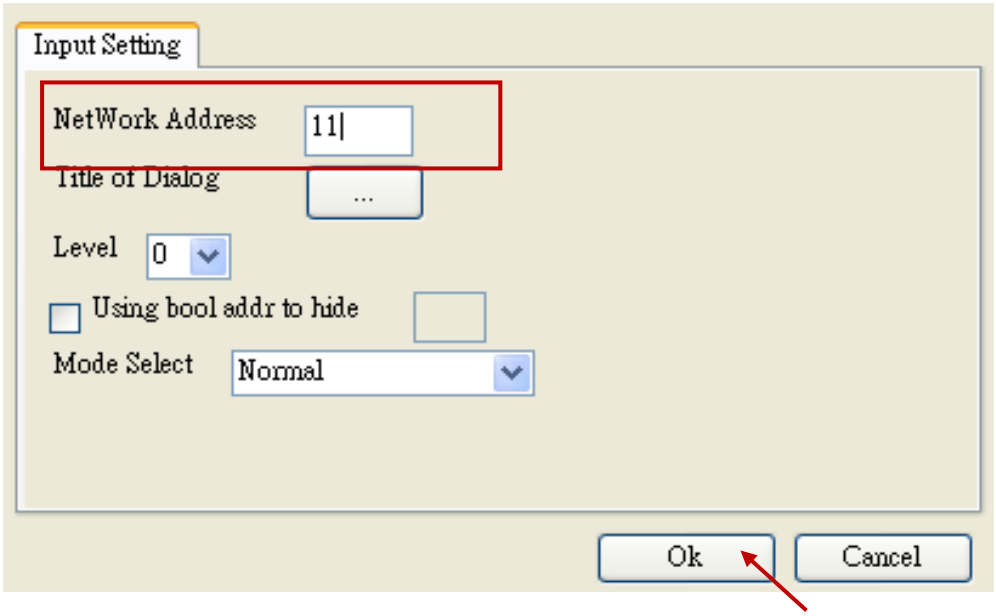
For easy to use, the Soft-GRAF Studio V.1.10 provides an image gallery function by adding two objects in the tool bar (refer to Section 1.6.13 for details). Now, we will create one "g_B_Inp Lib" and one "g_B_Pic Lib" objects in the demo project.

First, Drag & drop a "g_B_Inp Lib" into the editing area.

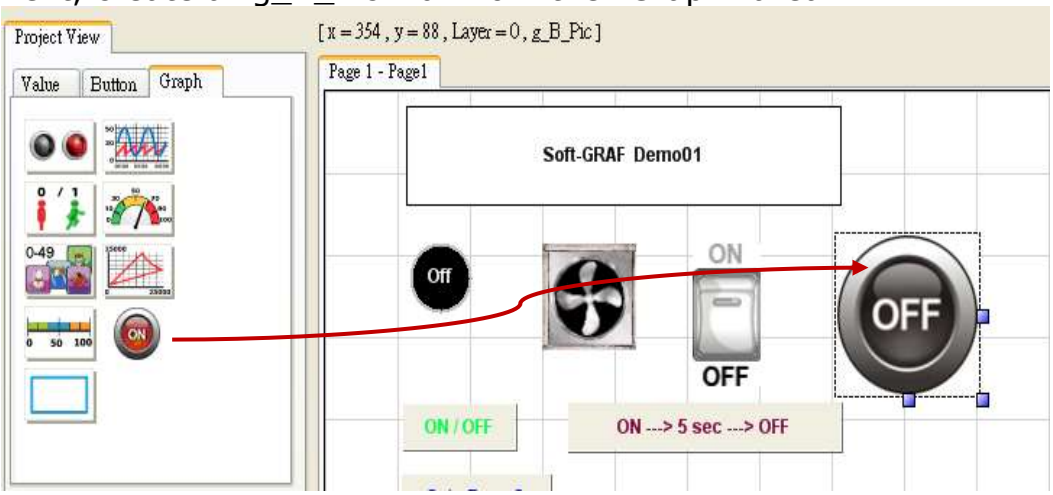


Mouse double click on this object to open the image gallery, and then select a image. Users can click on the "0" or "1" button to view the changing of the image status (On/Off). If you want to change the image size, choose the "Small size/ Medium size / Normal size / Large size" options. Then, click "Setting" button.

Fill in the Network Address field as "11" and then click "Ok" to go back to the image selection window, then click "Accept" to complete the setting.

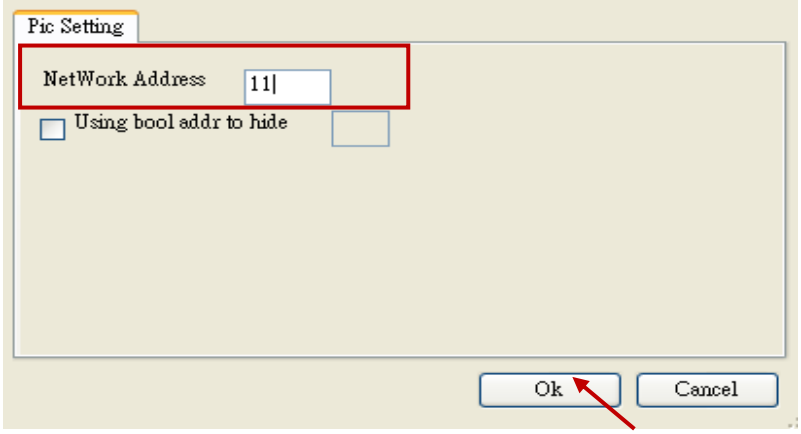


Next, create a "g_B_Pic Lib" from the "Graph" area.

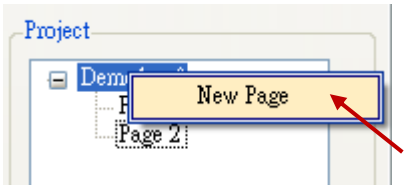


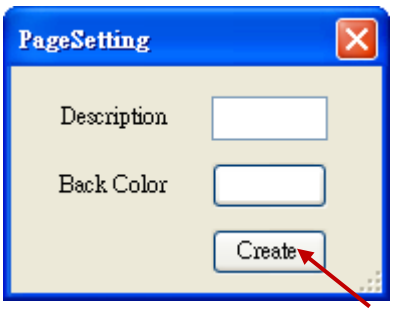
By the same way, mouse double click on this object to open the image gallery, and then select an image and click "Setting" button.

Fill in the Network Address field as "11" and then click "OK". Finally, click "Accept" in the image selection window.

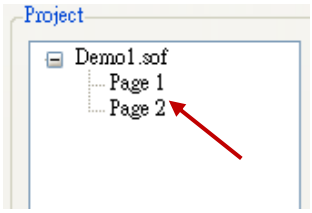


Mouse right clicks "Demo1.sof" in the Project structure tree. Then select "New Page" to create the page 2. The "Page Setting" can be left blank, just click "Create".

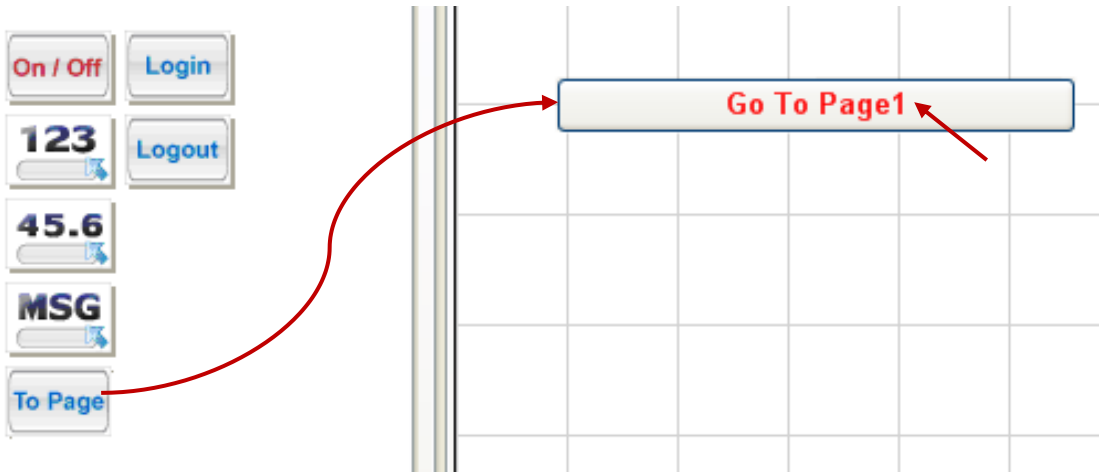




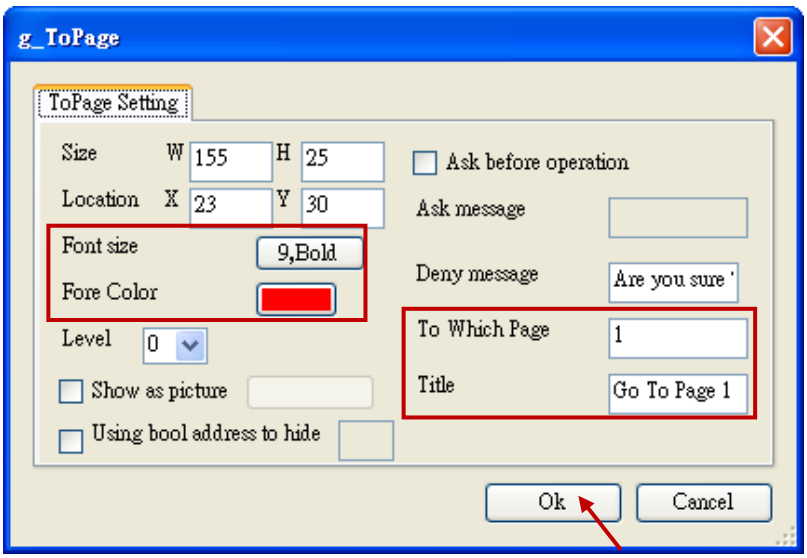
Click "Page 2" to switch to the page 2.



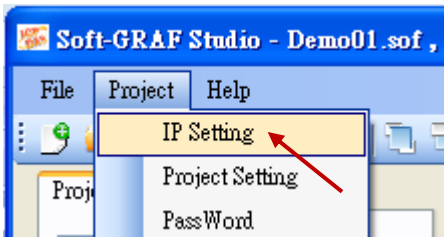
Drag & drop a "g_ToPage" into the page 2 for return the page 1.

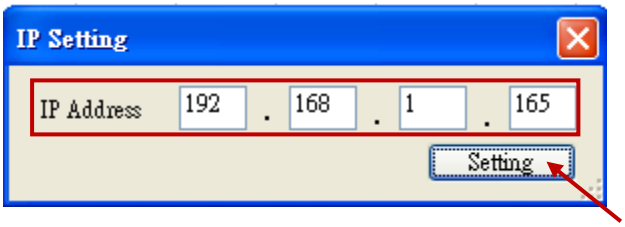


Set "Size" as W:155 & H:25, "Fore Color" as the below picture, "To Which Page" as 1, "Title" as "Go To Page 1", and then click "Ok".

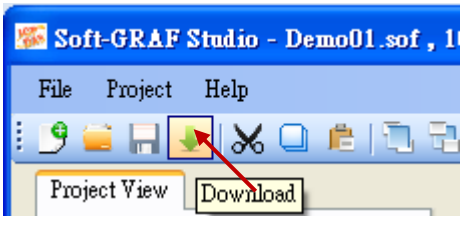


Next, set up the download IP configuration. Click "Project"→"IP Setting", enter the IP address of PAC, and then click "Setting".

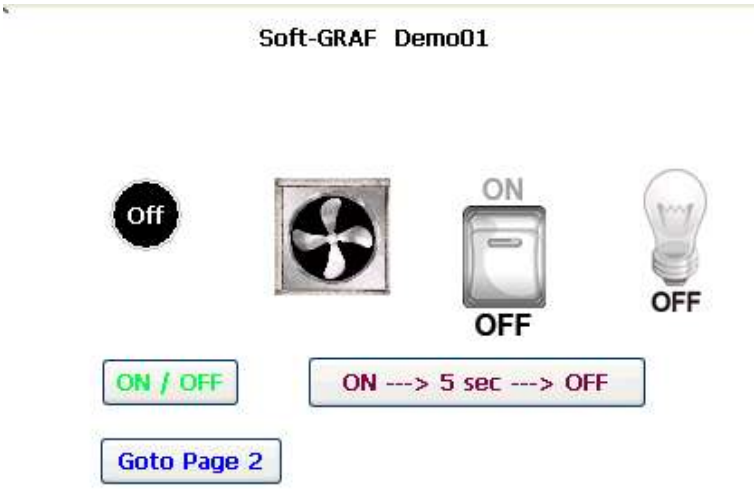




Click the download tool icon, click "Yes" to answer the "save project? " question, then the download process begins.

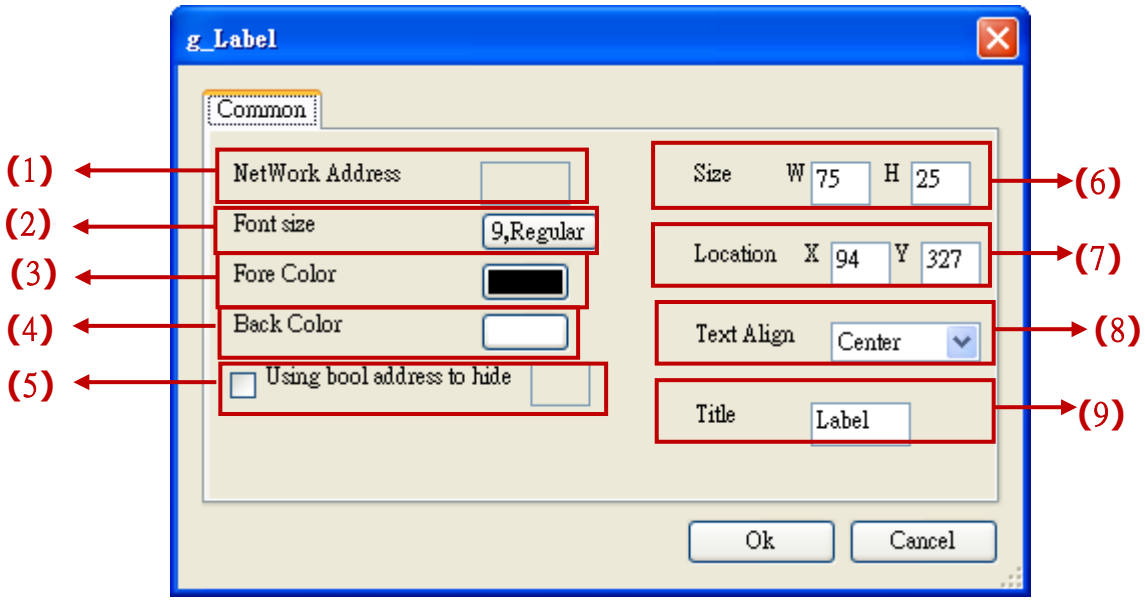


After downloading, the result shows up automatically on the PAC's VGA as the picture below if the HMI creation succeeds.



1.3 : HMI Objects Description

1.3.1 : g_Label: Display a Label



Options :

(1)Net work Address: set the ISaGRAF Modbus NetWork Address for the variable; useless for the g_Label object here.

(2)Font size: set the font style and size of the text, useless in other font setting

(3)Fore color: the fore color of the label

(4)Back color: the back ground color of the label

(5)Using bool address to hide: Use a Boolean Address to switch hiding object or not. Boolean value: True, hide object; False, display object.

Ex: There is one ISaGRAF variable "Hide" with Network address as 10. Set the option "Using bool address to hide" to 10. It will hide the object if "Hide" is True, and show the object if "Hide" is False.

(6)Size: set the size of the label. "W" for Width, "H" for height.

(7)Location: the X,Y starting position of the HMI object (refer to the Ch1.2 for its definition of the X-axis and Y-axis)

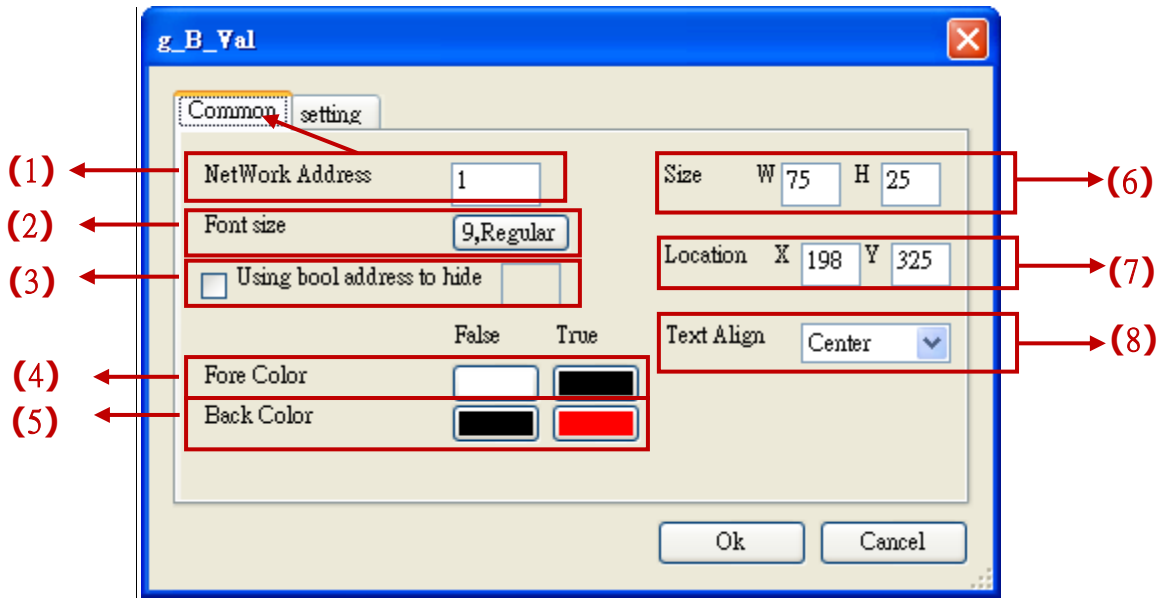
(8)Text Align: left, center and right align for the text

(9)Title: set the text on the label. (Double click the Textbox to enter the long text.)

1.3.2 : g_B_Val: display a text to show a Boolean value.

Description: **Value= True** **Value= False**

Displayed figure: Working Stop



Options:

(1)Net Work Address: set the ISaGRAF Modbus Network Address for the variable

(2)Font size: set the font style and size of the text, useless in other font setting

(3)Using bool address to hide: Use a Boolean Address to switch hiding object or not.
Boolean value: True, hide object; False, display object.
Ex: There is one ISaGRAF variable "Hide" with Network address as 10. Set the option "Using bool address to hide" to 10. It will hide the object if "Hide" is True, and show the object if "Hide" is False.

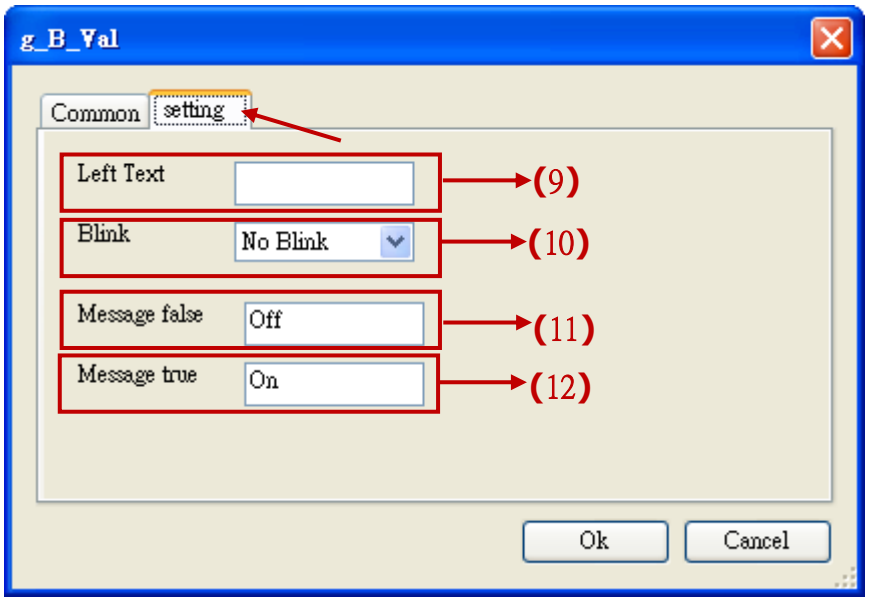
(4)Fore color: the fore color of the object.
True: display this fore color when the ISaGRAF value is "True".
False: display this fore color when the ISaGRAF value is "False".

(5)Back color: the back ground color of the object
True: display this back color when the ISaGRAF value is "True".
False: display this back color when the ISaGRAF value is "False".

(6)Size: set the size of the object. "W" for Width, "H" for height.

(7)Location: the X,Y starting position of the HMI object (refer to the Ch1.2 for its definition of the X-axis and Y-axis)

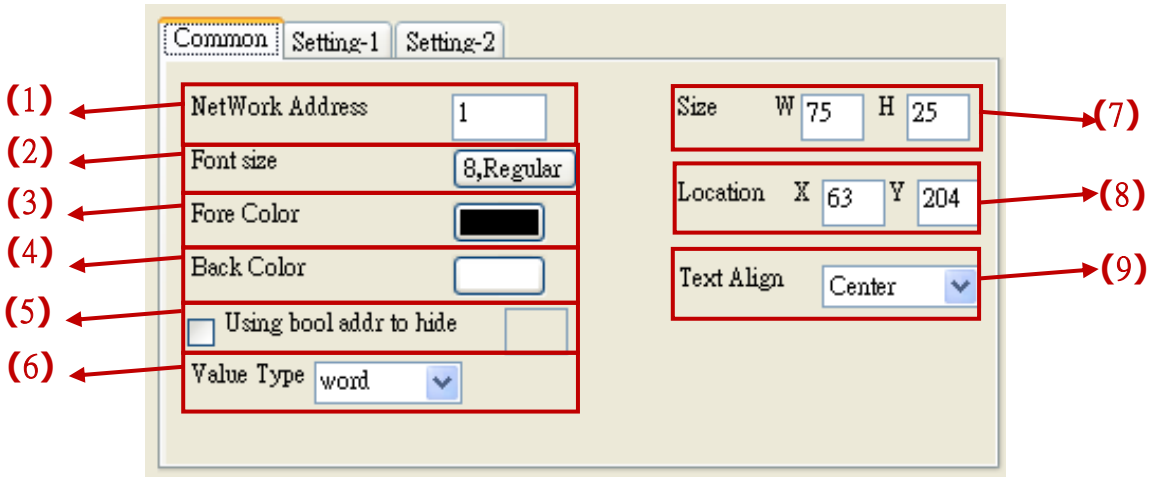
(8)Text Align: left, center and right align for the text



(9)Left Text: set up the text displayed on the left side of the object value.
Ex: If set the "Left Text" as "Status: ", the object will show "Status: True" when the ISaGRAF Boolean value is "True".
(10)Blink: Set the object text to blink.
No Blink: text not to blink,
Blink when true: blink when the value is true,
Blink when false: blink when the value is False,
All Blink: blink when the value is True or False.
(11), (12): set the message to display when the value is True/False.

1.3.3 : g_WD_val ,g_N_val, g_F_val : Display a 16-bit Integer, 32-bit Integer or 32-bit Float value

	Studio:		PAC:	
Description:	**Set text**	**Show text only**	**Show text & value**	**Show value only**
Displayed figure:	Preesure :	g_N_Val	Preesure : 5 Pa	5



Options :

(1)Net Work Address: set the ISaGRAF Modbus Network Address for the variable (32-bit Long integer and 32-bit REAL variables defined in the ISaGRAF must occupy two network addresses. Refer to chapter 4.2 of the "User Manual of ISaGRAF PAC".)

(2)Font size: set the font style and size of the text, useless in other font setting

(3)Fore color: set the fore color of the object.

(4)Back color: set the back color of the object

(5)Using bool address to hide: Use a Boolean Address to switch hiding object or not. Boolean value: True, hide object; False, display object.

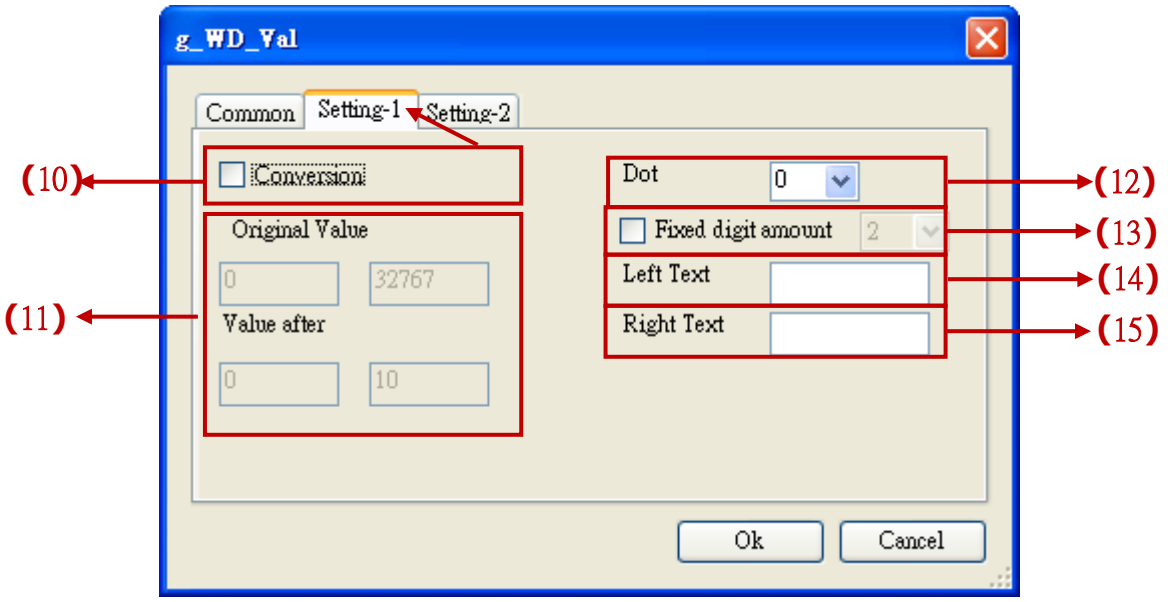
Ex: There is one ISaGRAF variable "Hide" with Network address as 10. Set the option "Using bool address to hide" to 10. It will hide the object if "Hide" is True, and show the object if "Hide" is False.

(6)Value Type: set the value type to 16-bit Word or 32-bit Long (※32-bit Long will occupy 2 Network Addresses.). **g_F_Val doesn't have this option.**

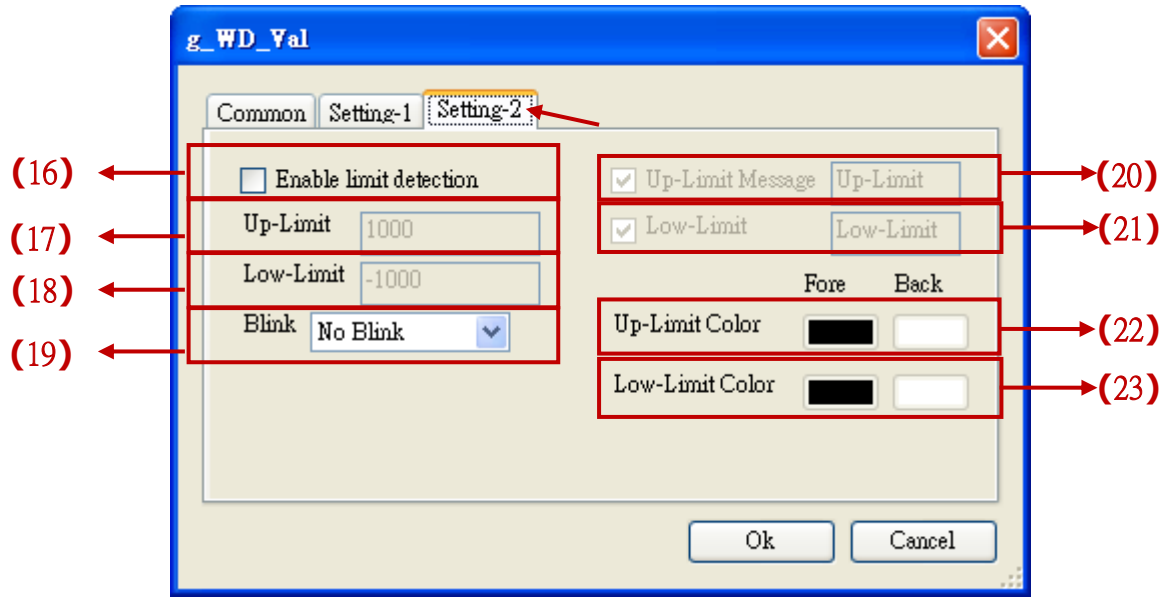
(7)Size: set the size of the object. "W" for Width, "H" for height.

(8)Location: the X,Y starting position of the HMI object (refer to the Ch1.2 for its definition of the X-axis and Y-axis)

(9)Text Align: left, center and right align for the text



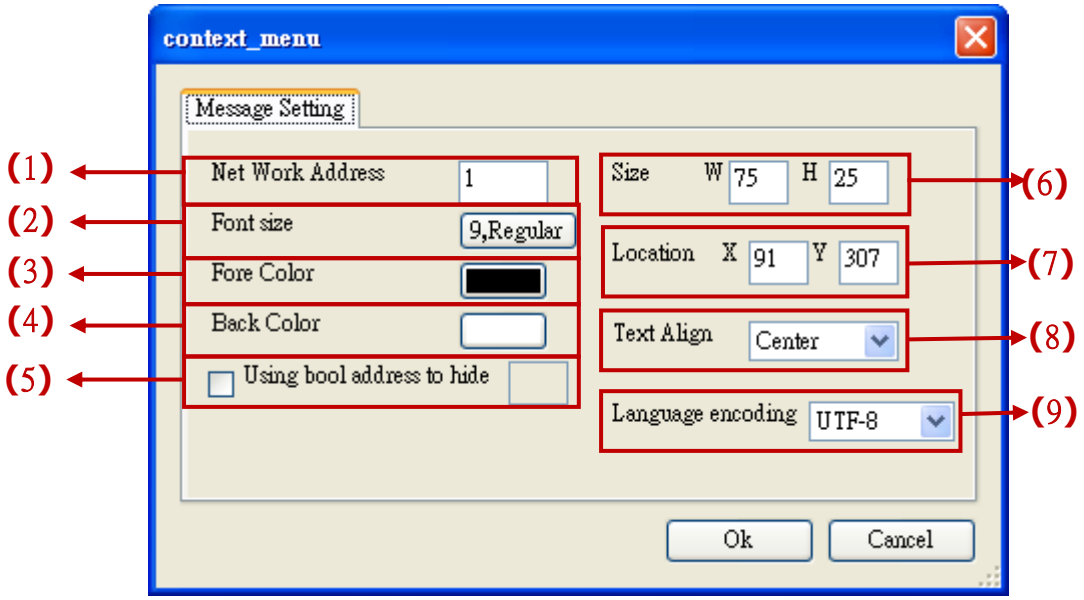
(10)Conversion: check if convert the value (the "original value" and "value after" of the "g_F_val" can input the floating value. The "original value" of the "g_WD_Val" and "g_N_Val" should be an integer value)
(11)Original value: the value range read originally (Ex:0~32767,0~65535...)
Value after: the value range after conversion(Ex: if the "Original value" is 0~32767 and the "Value after" is 0~1000, that means to convert the value from range of 0~32767 to range of 0~1000, such as, 16384 is converted to be 500.)
(12)Dot: define the number of digits displayed after the "." , for the number after conversion or not to use the conversion (Ex: Set "Dot" as 3, the original value "32767" will be displayed as "32.767".)
(13)Fixed digit amount: display the setting digit number (only for g_WD_Val and g_N_Val). EX, Set it as 3: if the value is 6, displayed as 006; if the value is 62, displayed as 062…
(14)Left Text: the text displayed on the value's left side
(15)Right Text: the text displayed on the value's right side



(16)Enable limit detection: check to enable the up/low-limit detection
(17)Up-limit: the upper limit value
(18)Low-limit: the lowest limit value
(19)Blink: select to or not to blink when the value is inside/outside the limit range.
(20)Up-Limit Message: when the "Enable limit detection" is checked, the message will show up if the value is larger than the Up-Limit.
(21)Low-Limit Message: when the "Enable limit detection" is checked, the message will show up if the value is lower than the Low-Limit.
(22)Up-limit-Color: when the "Enable limit detection" is checked, the text color and background color will show up if the value is larger than the Up-Limit.
(23)Low-limit-Color: when the "Enable limit detection" is checked, the text color and background color will show up if the value is lower than the Low-Limit.

1.3.4 : g_M_val : Display a Message value

	studio:	PAC :
Description:	**Show Message**	**Show Message**
Displayed figure:	g_M_Val	Message



Options :

(1)Net Work Address: set the ISaGRAF Modbus Network Address for the variable
Value range: 1~1024

(2)Font size: set the font style and size of the text, useless in other font setting

(3)Fore color : set the fore color of the object text

(4)Back color : set the back color of the object

(5)Using bool address to hide: Use a Boolean Address to switch hiding object or not.
Boolean value: True, hide object; False, display object.
Ex: There is one ISaGRAF variable "Hide" with Network address as 10. Set the option "Using bool address to hide" to 10. It will hide the object if "Hide" is True, and show the object if "Hide" is False.

(6)Size: set the size of the object. "W" for Width, "H" for height.

(7)Location: the X,Y starting position of the HMI object (refer to the Ch1.2 for its definition of the X-axis and Y-axis)

(8)Text Align: left, center and right align for the text

(9)Language encoding: UTF-8: English; big5: Traditional Chinese; gb2312: Simplified Chinese; Other: user inputs other language encoding.

1.3.5 : g_N_Text: display a different text by the value of an 16-bit integer variable.

Studio: PAC:

Description:

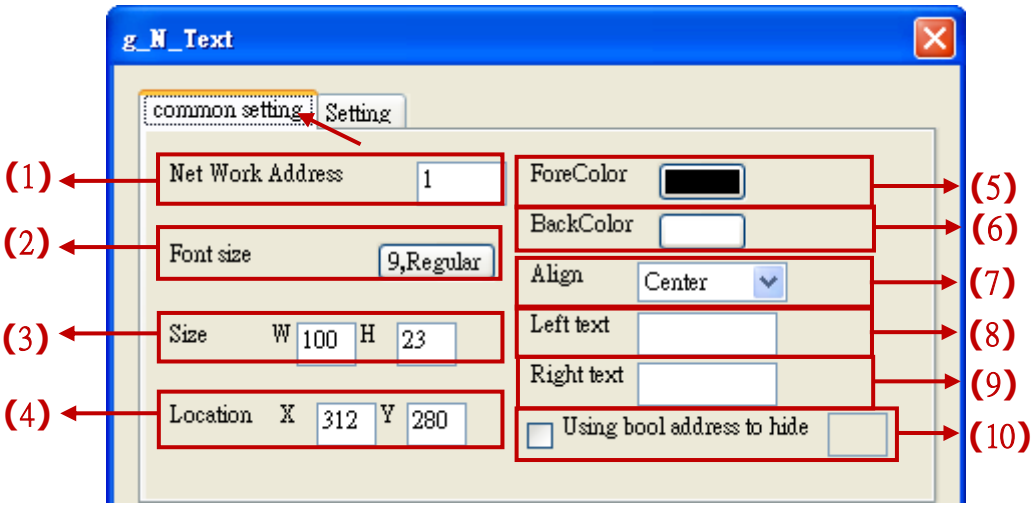
Displayed figure:

g_N_Text

Value = 0 OK! Enjoy it ~

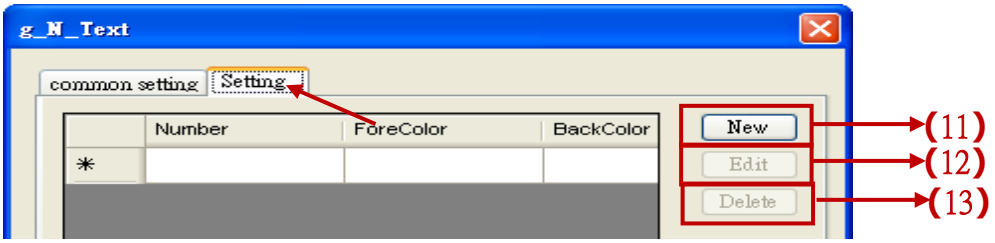
Value = 1 OKay! Have fun ~

Value = 2 I like it, too !!



Options :

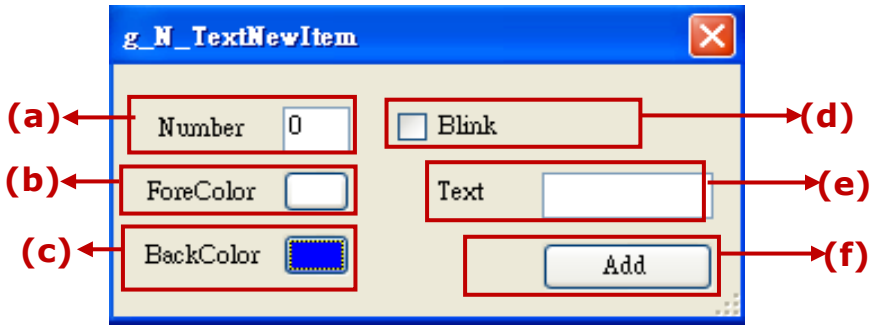
(1)Net Work Address: set the ISaGRAF Modbus Network Address for the variable
(2)Font size: set the font style and size of the text, useless in other font setting
(3)Size: set the size of the object. "W" for Width, "H" for height.
(4)Location: the X,Y starting position of the HMI object (refer to the Ch1.2 for its definition of the X-axis and Y-axis)
(5)Forecolor : set the fore color of the object text
(6)Backcolor : set the back color of the object
(7)Align : left, center and right align for the text
(8)Left Text : the text displayed on the left side of the object value.
(9)Right Text : the text displayed on the right side of the object value.
(10)Using bool address to hide: Use a Boolean Address to switch hiding object or not. Boolean value: True, hide object; False, display object.
Ex: There is one ISaGRAF variable "Hide" with Network address as 10. Set the option "Using bool address to hide" to 10. It will hide the object if "Hide" is True, and show the object if "Hide" is False.



(10)New : create a new text
(11)Edit : edit the text
(12)Delete : delete the selected text

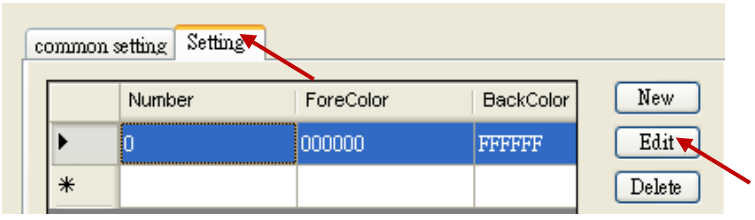
*Setting description:

New
Click the "New" button to see the following setting window

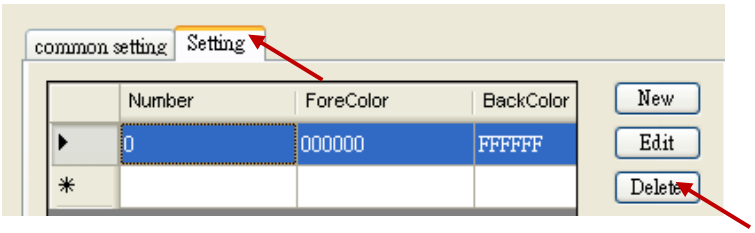


(a)Number: if read this integer value, the object will display the setting text. Max. 50 numbers from 0~49.
(b)ForeColor: the fore color of the text
(c)BackColor: the background color of the text
(d)Blink: check to blink
(e)Text: the text to display
(f)Add: click to add this setting

Edit
Select the item want to edit, then click "Edit" to open the setting window. After edit, click "Add" to save it. If forget to select any item, it will open the first item's window.



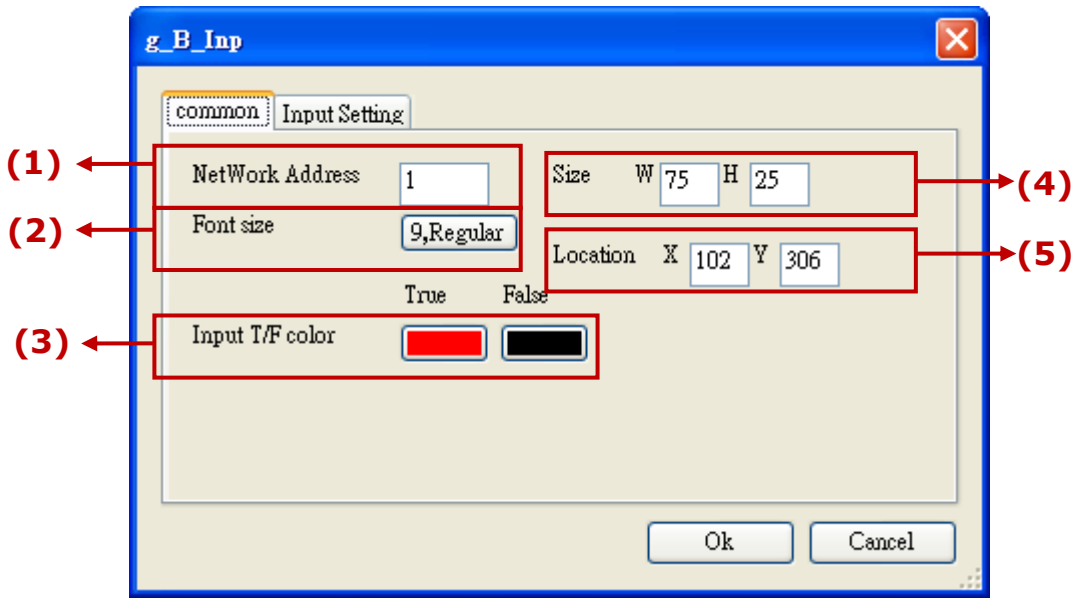
Delete
Select the item want to delete, then click "Delete" to delete it. If forget to select any item, it will delete the first item



1.3.6 : g_B_Inp : create a button, when user press it, it display a keyboard to input a Boolean value to the ISaGRAF Boolean varible.

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

Displayed figure:



Options :

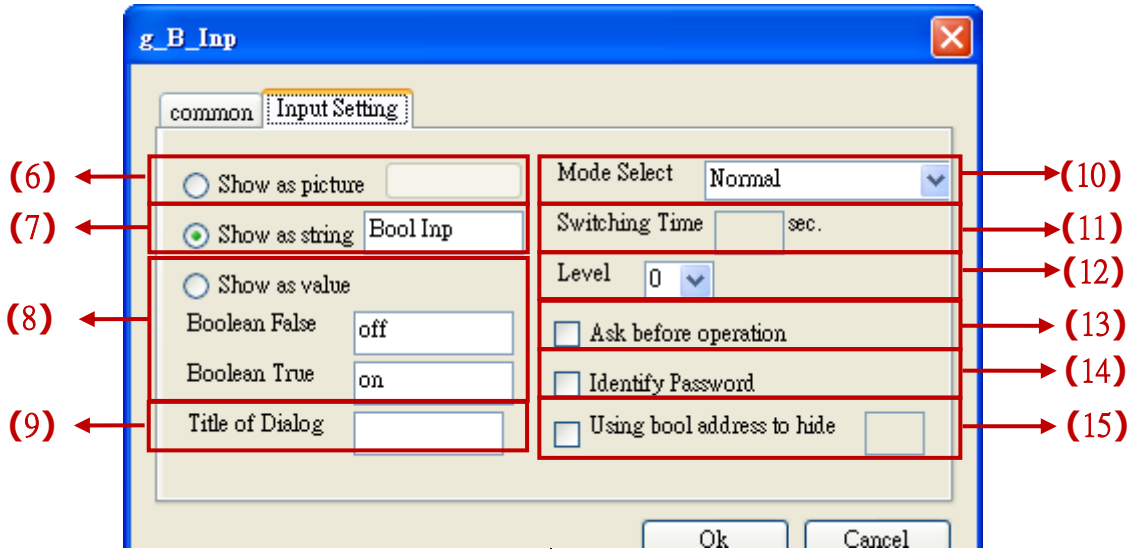
(1)Net Work Address: set the ISaGRAF Modbus Network Address for the variable

(2)Font size: set the font style and size of the text, useless in other font setting

(3)Input T/F Color: the color of True displays the fore color of the value when ISaGRAF read it "True". The color of False displays the fore color of the value when ISaGRAF read it "False".

(4)Size: set the size of the object. "W" for Width, "H" for height.

(5)Location: the X,Y starting position of the HMI object (refer to the Ch1.2 for its definition of the X-axis and Y-axis)

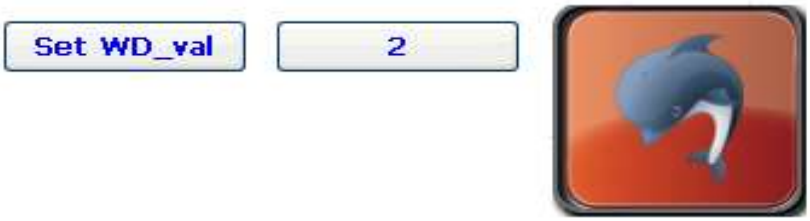


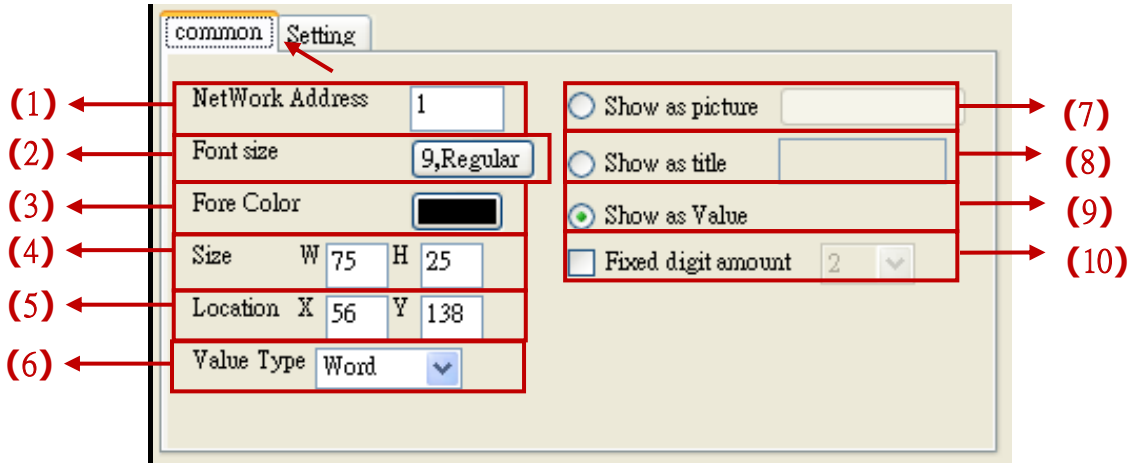
(6)Show as picture : the button is showed as a picture. The picture format can be JPG, GIF, PNG, BMP(Recommemd not to use the BMP format because it consumes larger memory size.).
(7)Show as string: show the button as the setting text
(8)Show as value: show the replaced text depend on the value of the ISaGRAF variable.
Boolean False: Show this text when the value of the variable is False
Boolean True: Show this text when the value of the variable is True
(9)Title of Dialog: the text showed on the title bar of the pop-up dialog window.
(10)Mode: select the input mode of the Boolean. There are 5 modes :
(a)Normal: can input True or False
(b)Only False: False only
(c)Only True: True only
(d)True → False : True first, and switch to False after a setting time
(e)False → True: False first, and switch to True after a setting time
The following 2 modes are supported only when the "Show as picture" is checked:
(f)ON(presssed),OFF(released): presss to ON, releas to OFF.
(g)OFF(presssed),ON(released): presss to OFF, releas to ON.
(11)Switching Time: if select the Mode of "False→True" or "True→False", set the switching time here. The time unit is seconds, and range is 1~10 seconds.
(12)Level: set the permission level, used when the HMI has the permission setting (refer to the section 1.4).
(13)Ask before operation: to ask again before operation
(14)Identify Password: to re-input the password of that level (Refer to Ch1.4 for the permission setting.)
(15)Using bool address to hide: Use a Boolean Address to switch hiding object or not. Boolean value: True, hide object; False, display object.
Ex: There is one ISaGRAF variable "Hide" with Network address as 10. Set the option "Using bool address to hide" to 10. It will hide the object if "Hide" is True, and show the object if "Hide" is False.

1.3.7 : g_WD_Inp, g_N_Inp, g_F_Inp : create a button , when user press it, it display a keyboard to input a 16-bit signed integer, 32-bit signed integer or 32-bit float to the variable.

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

Displayed figure:





Options:

(1)Net Work Address: set the ISaGRAF Modbus Network Address for the variable (32-bit Long integer and 32-bit REAL variables defined in the ISaGRAF must occupy two network addresses. Refer to chapter 4.2 of the "User Manual of ISaGRAF PAC".)

(2)Font size: set the font style and size of the text, useless in other font setting

(3)Fore color : set the fore color of the object text

(4)Size: set the size of the object. "W" for Width, "H" for height.

(5)Location: the X,Y starting position of the HMI object (refer to the Ch1.2 for its definition of the X-axis and Y-axis)

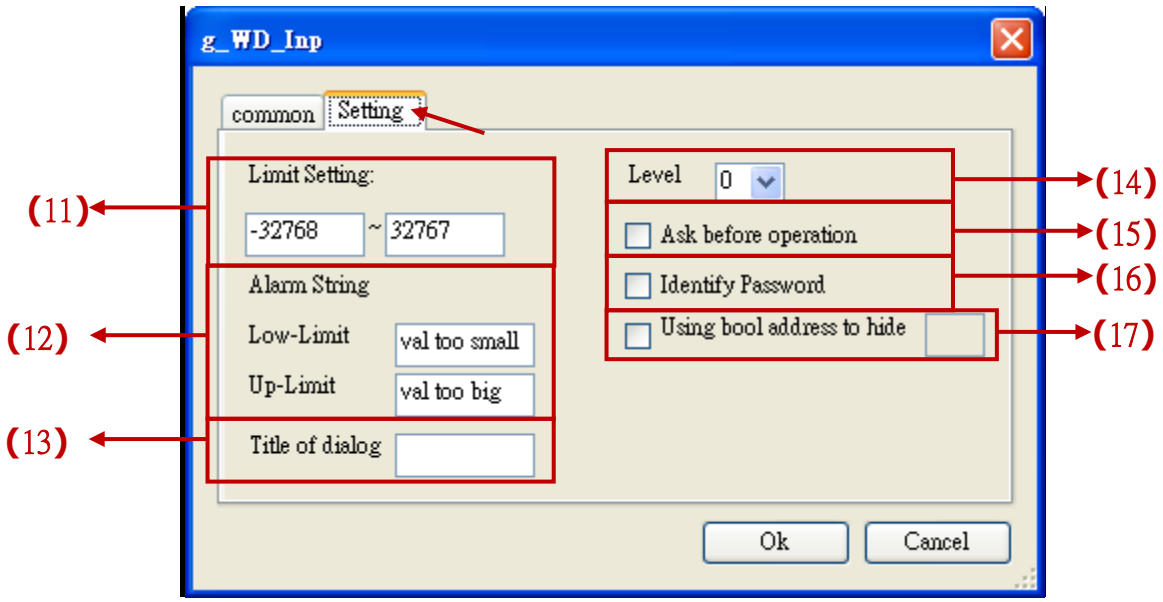
(6)Value Type: set the value type to 16-bit Word or 32-bit Long (※32-bit Long will occupy 2 Network Addresses.). **g_F_Val doesn't have this option.**

(7)Show as picture : the button is showed as a picture. The picture format can be JPG, GIF, PNG, BMP(Recommemd not to use the BMP format because it consumes larger memory size.).

(8)Show as Title: show the button as the setting text

(9)Show as value: show the value that ISaGRAF read

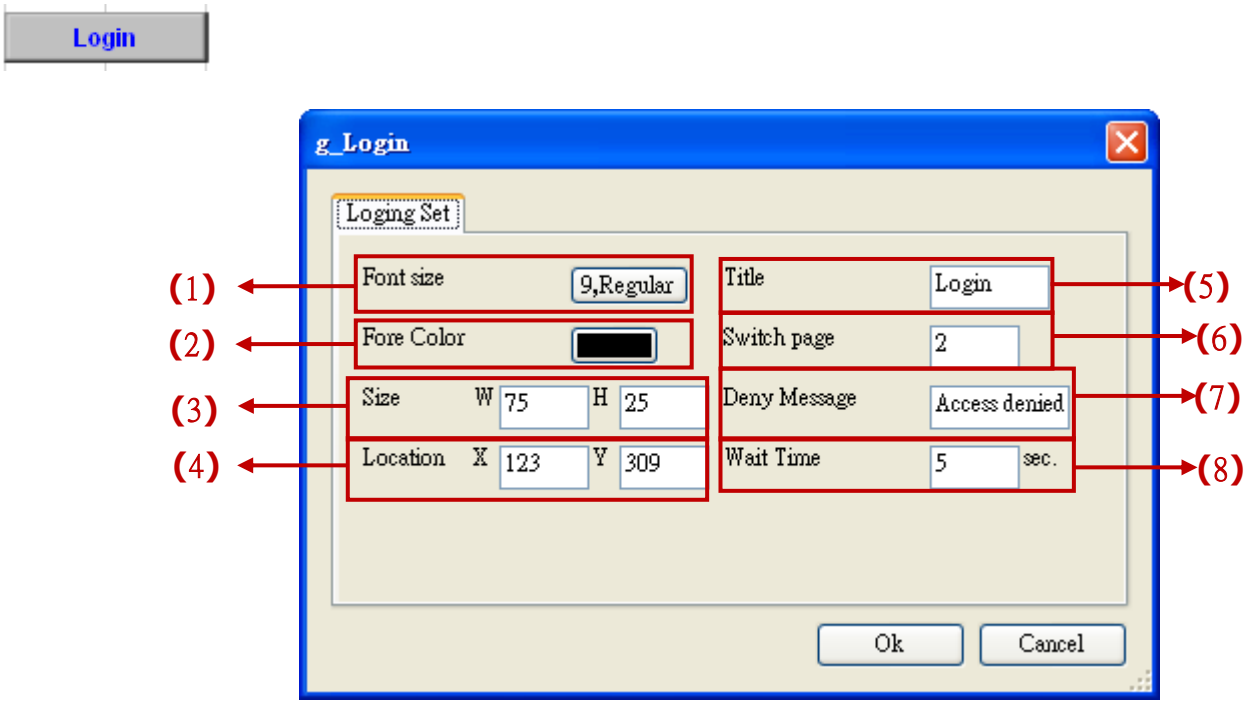
(10)Fixed digit amount: display the setting digit number (only for g_WD_Inp and g_N_Inp). EX, Set it as 3: if the value is 6, displayed as 006; if the value is 62, displayed as 062…



(11)Limit setting: set the up/low limit of the input value
(12)Alarm string: a pop-up window text when user input a value beyound the limit
Low-limit: the text showed when the input value is lower than the Low-limit
Up-limit: the text showed when the input value is higher than the Up-limit
(13)Title of Dialog: the text showed on the title bar of the pop-up dialog window.
(14)Level: set the permission level, used when the HMI has the permission setting (refer to the section 1.4).
(15)Ask before operation: to ask again before operation
(16)Identify Password: ask to re-input the password of that level
(17)Using bool address to hide: Use a Boolean Address to switch hiding object or not. Boolean value: True, hide object; False, display object.
Ex: There is one ISaGRAF variable "Hide" with Network address as 10. Set the option "Using bool address to hide" to 10. It will hide the object if "Hide" is True, and show the object if "Hide" is False.

1.3.8 : g_Login : Create a Login button

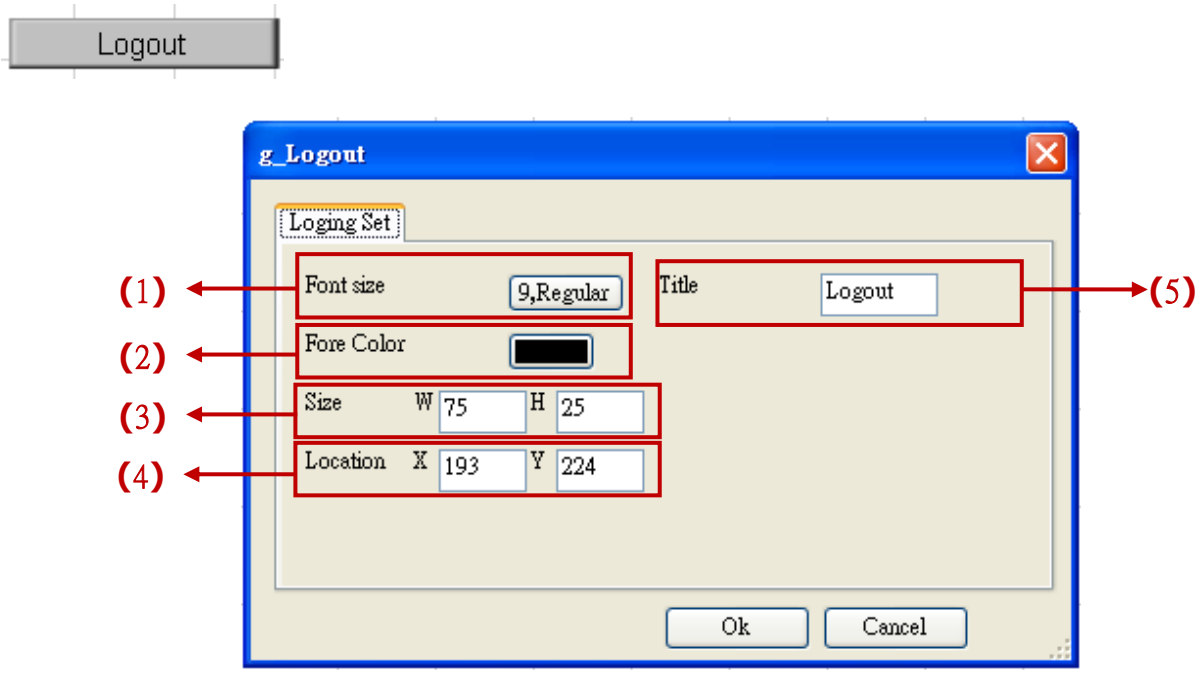
This object creates a Login button. When users press it, a keyboard will display and request the user to key-in a password. There are maximum 12 characters in a password (only number 0 to 9). This g_Login object can only put on the Page No. 1 and only one g_Login allowed. When user presses the g_Login button, the Soft-GRAF driver in the PAC will read a password file to check if this is a valid user who has a permission level (1 ~ 10), and the larger number has the higher authority. (Refer to Ch1.4 for the permission setting.)



Options:
(1)Font size: set the font style and size of the text, useless in other font setting
(2)Fore Color: set the fore color of the object text
(3)Size: set the size of the object. "W" for width, "H" for height.
(4)Location: the X,Y starting position of the HMI object (refer to the Ch1.2 for its definition of the X-axis and Y-axis)
(5)Title: the text displayed on the button
(6)Switch page: the number of page want to switch to when login successfully
(7)Deny message: the message want to display when the login fail.
(8)Wait time: the period of time to auto-Logout. The unit is second. The value can be 0 and 10 ~ 3600; 0 means do not enable the auto-logout (Need to press the g_Logout button to logout.). Ex: set the "wait time" as "60", Soft-GRAF will auto-logout and switch to the first page if user has not any operation over 60 seconds after login the HMI.

1.3.9 : g_Logout : Create a Logout button

This object can create a Logout button. When user presses the button, it pops up a confirmation dialog. If user answers "Yes", the Soft-GRAF will logout and switch to the first Page (Page 1). (Refer to Ch1.4 for the permission setting.)

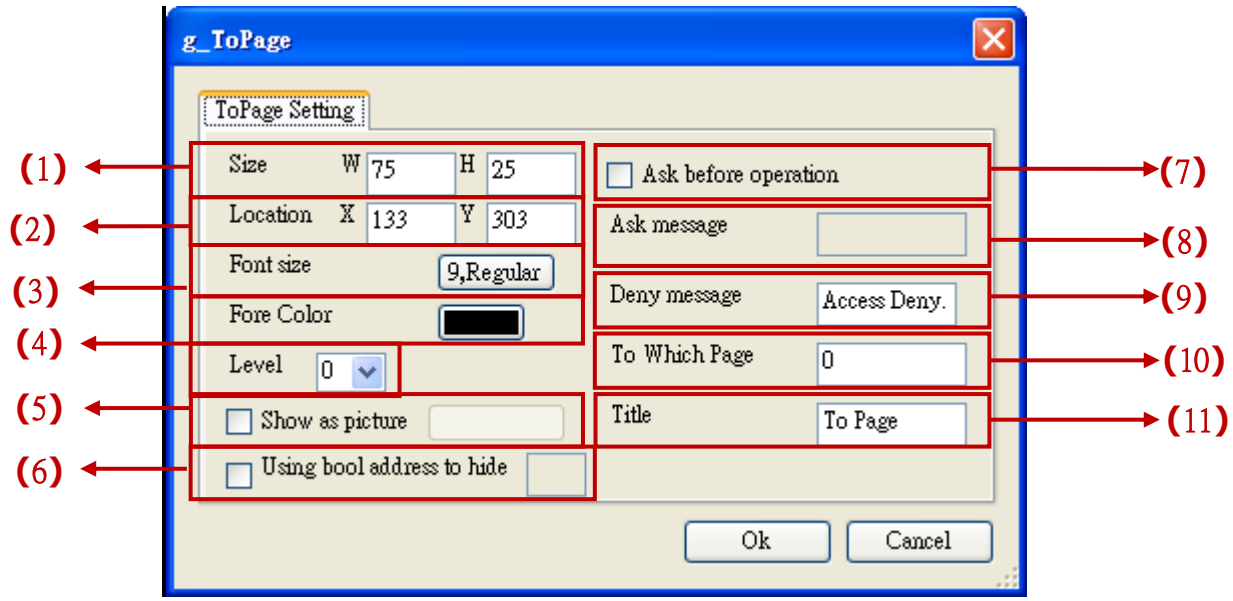


Options:
(1)Font size: set the font style and size of the text, useless in other font setting
(2)Fore Color: set the fore color of the object text
(3)Size: set the size of the object. "W" for width, "H" for height.
(4)Location: the X,Y starting position of the HMI object (refer to the Ch1.2 for its definition of the X-axis and Y-axis)
(5)Title: the text displayed on the button

1.3.10 : g_ToPage : Create a switch-page button

Description: **Show as text** **Show as picture**

Displayed figure:



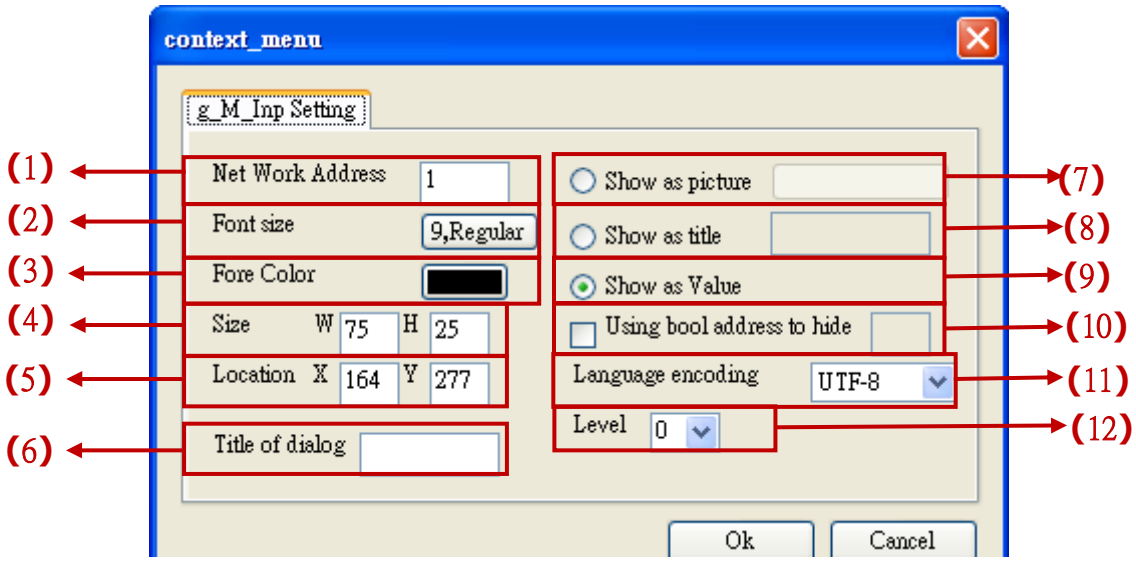
Options :

(1)Size: set the size of the object. "W" for width, "H" for height.
(2)Location: the X,Y starting position of the HMI object (refer to the Ch1.2 for its definition of the X-axis and Y-axis)
(3)Font size: set the font style and size of the text, useless in other font setting
(4)Fore Color: set the fore color of the object text
(5)Level: set the permission level, used when the HMI has the permission setting (refer to the section 1.4). When user's login permission level is higher than this level, the user can access the function.
(6)Appearance: show the object by a picture. The picture format can be JPG, GIF, PNG, BMP(Recommemd not to use the BMP format because it consumes larger memory size.).
(7)Ask before operation: to ask again by a pop-up window before operation
(8)Ask message: the text in the pop-up window of "Ask before operation"
(9)Deny message: the message will show when the user Level is too low to access the switch page. Its default message is "Access denied !" if left it blank.
(10)To Which Page: the page want to switch to. Can be 1 to 200, or -1, or 201.
※**Note**: When write "-1" to "To Which Page", it goes back to the previous page. If input value "201" to it, it calls the ISaGRAF Schedule-Control screen. (refer to 1.6.12).
(11)Title: the text displayed on the object

1.3.11 : g_M_Inp : Create a button, when user press it, it display a keyboard to input a Message to the variable.

Description: **Show a read message** **Show a fixed message** **Show as picture**

Displayed figure:



Options:

(1)Net Work Address: set the ISaGRAF Modbus Network Address for the variable
Value range: 1~1024

(2)Font size: set the font style and size of the text, useless in other font setting

(3)Fore color : set the fore color of the object text

(4)Size: set the size of the object. "W" for Width, "H" for height.

(5)Location: the X,Y starting position of the HMI object (refer to the Ch1.2 for its definition of the X-axis and Y-axis)

(6)Title of Dialog: the text showed on the title bar of the pop-up dialog window.

(7)Show as picture : the button is showed as a picture. The picture format can be JPG, GIF, PNG, BMP(Recommemd not to use the BMP format because it consumes larger memory size.).

(8)Show as Title: show the button as the setting text

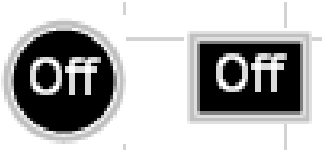
(9)Show as value: show the value that ISaGRAF read

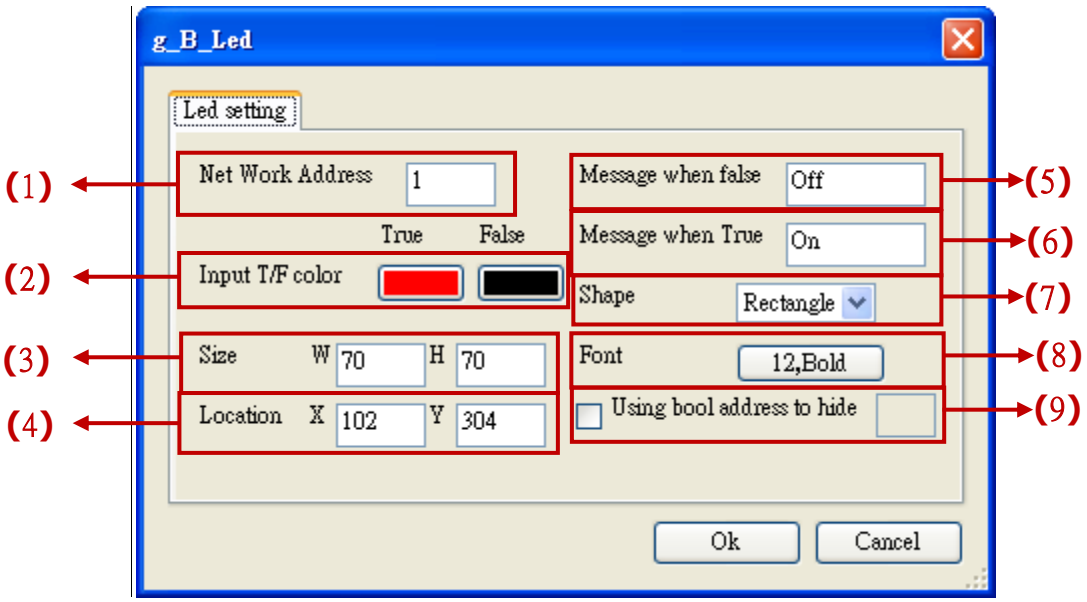
(10)Using bool address to hide: Use a Boolean Address to switch hiding object or not. Boolean value: True, hide object; False, display object.
Ex: There is one ISaGRAF variable "Hide" with Network address as 10. Set the option "Using bool address to hide" to 10. It will hide the object if "Hide" is True, and show the object if "Hide" is False.

(11)Language encoding: UTF-8: English; big5: Traditional Chinese; gb2312: Simplified Chinese; Other: user inputs other language encoding.

(12)Level: set the permission level, used when the HMI has the permission setting (refer to the section 1.4).

1.3.12 : g_B_Led : can display a LED picture to show a Boolean value.





Options:

(1)Net Work Address: set the ISaGRAF Modbus Network Address for the variable

(2)Input T/F Color : the color of True displays the fore color of the value when ISaGRAF read it "True". The color of False displays the fore color of the value when ISaGRAF read it "False".

(3)Size: set the size of the object. "W" for Width, "H" for height.

(4)Location: the X,Y starting position of the HMI object (refer to the Ch1.2 for its definition of the X-axis and Y-axis)

(5)Message when False: set the text showed on the object when read a False value

(6)Message when True: set the text showed on the object when read a True value

(7)shape: set the Led shape, can be rectangle or ellipse

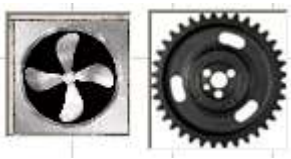
(8)Font size: set the font style and size of the text, useless in other font setting

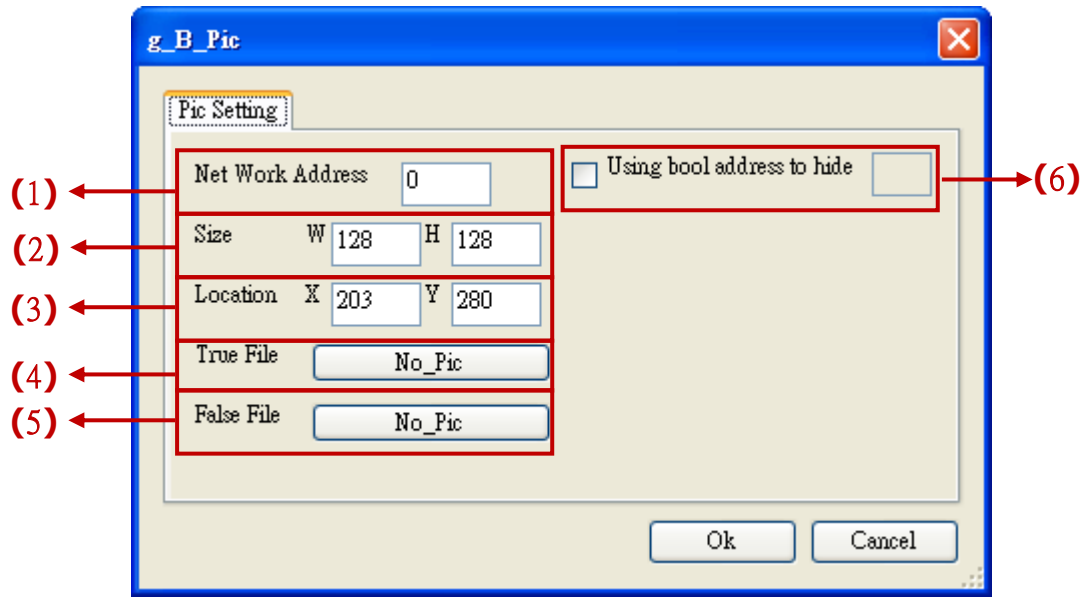
(9)Using bool address to hide: Use a Boolean Address to switch hiding object or not. Boolean value: True, hide object; False, display object.

Ex: There is one ISaGRAF variable "Hide" with Network address as 10. Set the option "Using bool address to hide" to 10. It will hide the object if "Hide" is True, and show the object if "Hide" is False.

1.3.13 : g_B_Pic : Display a picture to show a Boolean value.

The picture format can be JPG, PNG, GIF or BMP (Recommemd not to use the BMP format because it consumes larger memory size.).





Options:
(1)Net Work Address: set the ISaGRAF Modbus Network Address for the variable
(2)Size: set the size of the object. "W" for Width, "H" for height.
(3)Location: the X,Y starting position of the HMI object (refer to the Ch1.2 for its definition of the X-axis and Y-axis)
(4)True File: the picture showed when read a True value (Refer to Ch.1.5 for more about the dynamic image format).
(5)False File: the text showed when read a False value (Refer to Ch.1.5 for more about the dynamic image format).
(6)Using bool address to hide: Use a Boolean Address to switch hiding object or not. Boolean value: True, hide object; False, display object.
Ex: There is one ISaGRAF variable "Hide" with Network address as 10. Set the option "Using bool address to hide" to 10. It will hide the object if "Hide" is True, and show the object if "Hide" is False.

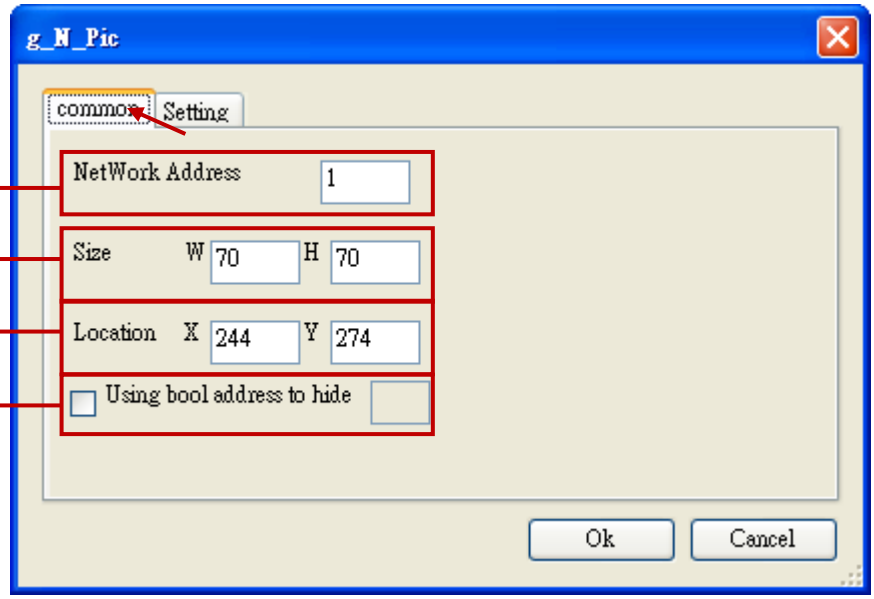
1.3.14 : g_N_pic : Display a picture to show a 16-bit Integer value.

The picture format can be JPG, PNG, GIF or BMP (Recommemd not to use the BMP format because it consumes larger memory size.).

Studio: **PAC:**

Description: **Value= 0** **Value=** **Value = 2**

Displayed figure:



Options :

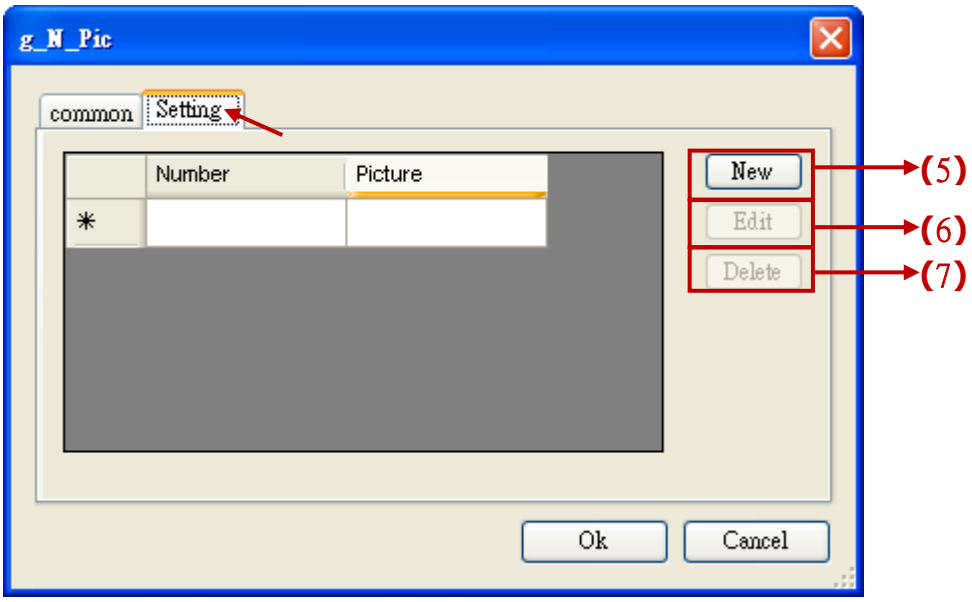
(1)Net Work Address: set the ISaGRAF Modbus Network Address for the variable

(2)Size: set the size of the object. "W" for Width, "H" for height.

(3)Location: the X,Y starting position of the HMI object (refer to the Ch1.2 for its definition of the X-axis and Y-axis)

(4)Using bool address to hide: Use a Boolean Address to switch hiding object or not. Boolean value: True, hide object; False, display object.

Ex: There is one ISaGRAF variable "Hide" with Network address as 10. Set the option "Using bool address to hide" to 10. It will hide the object if "Hide" is True, and show the object if "Hide" is False.

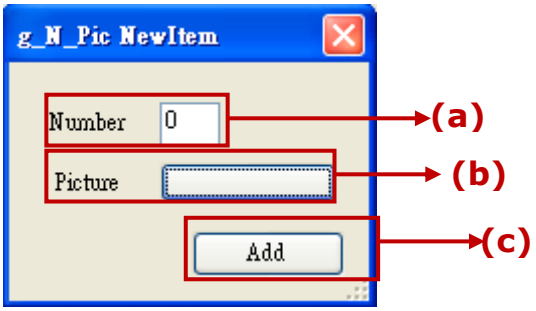


(5)New: open a setting window to add a new picture
(6)Edit: edit a picture setting
(7)Delete: delete a picture

* Setting description:

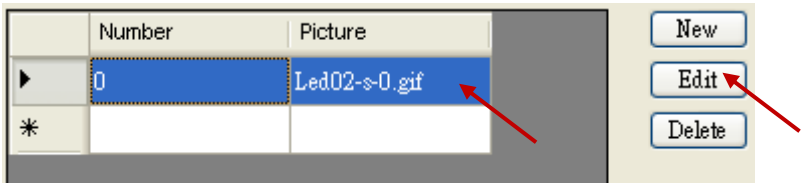
New

Click the "New" button to see the setting window
(a)Number: if read this integer value, the object will display this setting picture. Max. 50 numbers from 0~49.
(b)Picture: the picture file to display
(c)Add: click to add this setting



Edit

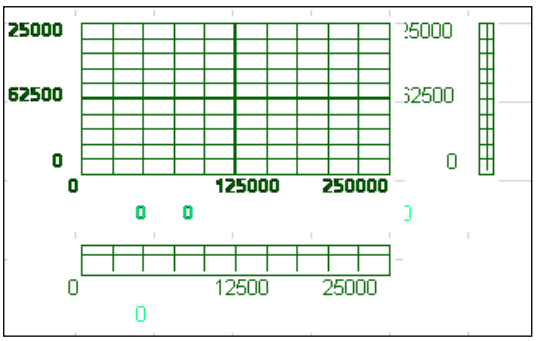
Select the item want to edit, then click "Edit" to open the setting window. After edit, click "Add" to save it. If forget to select any item, it will open the first item's window.

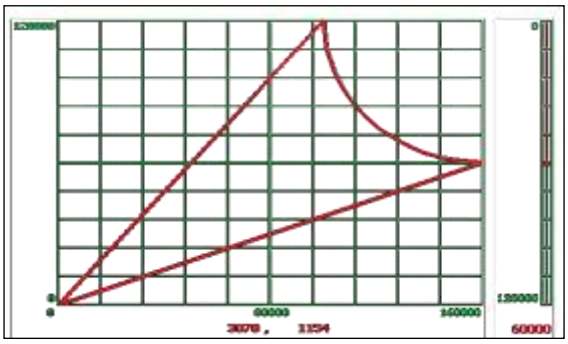


Delete

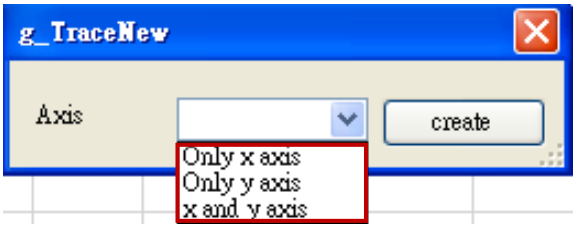
Select the item want to delete, then click "Delete" to delete it. If forget to select any item, it will delete the first item

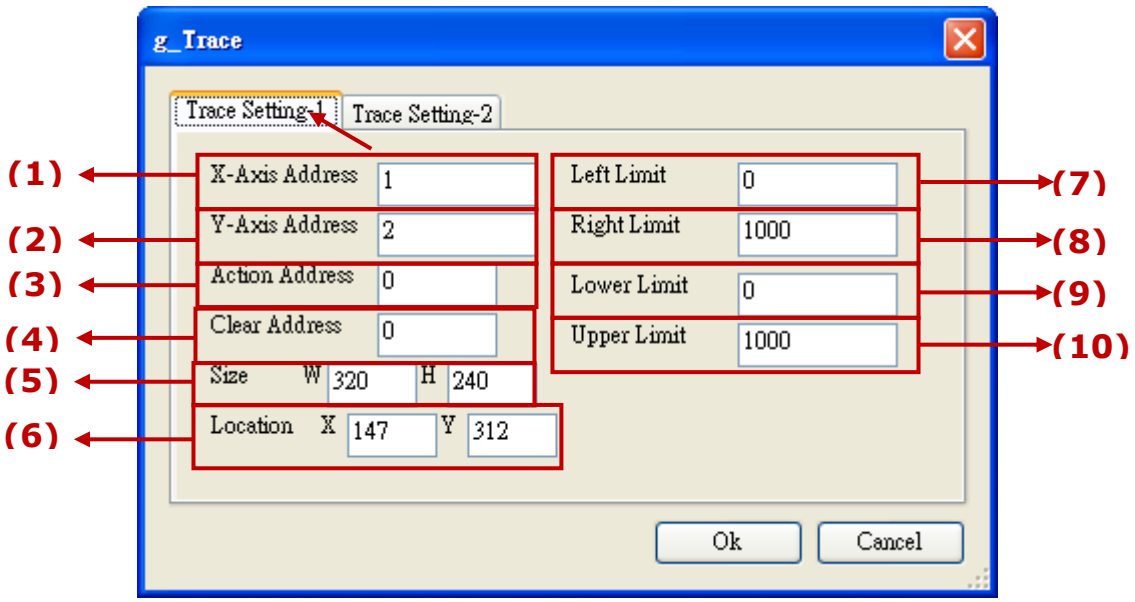
1.3.15 : g_Trace2 : display a 2-axes (x , y) or 1-axis (x : Horizontal) or 1-axis (y : Vertical) moving trace map





Please drag the object into the editing area and select one of the axis options: Only x-axis, Only y-axis, x and y axis.





Options:

(1)X-Axis Address: the Network addr. of ISaGRAF 32-bit Integer variable for the X-axis

(2)Y-Axis Address: the Network addr. of ISaGRAF 32-bit Integer variable for the Y-axis

(32-bit Long integer and 32-bit REAL variables defined in the ISaGRAF must occupy

two network addresses. Refer to chapter 4.2 of the "User Manual of ISaGRAF PAC".)

(3)Action Address: the Network addr. of ISaGRAF 16-bit Integer variable.
0: no drawing (type 0: stop) ; 1: drawing both of trace curve and the current point (type 1: drawing both) ; 2: drawing only the current point. ; Not within 1 ~ 8191: the same as type 2, drawing only the current point.

(4)Clear Address: a ISaGRAF Boolean variable. Its network address can be 1 ~ 8191. If the Boolean is True, the trace curve is cleared once, and then Soft-GRAF will change the Boolean to False automatically. In ISaGRAF software, user can manually set the Boolean to True to clear the trace curve. If its network address is not within 1 ~ 8191, the clearing function will not enable.

(5)Size: set the size of the object. "W" for Width, "H" for height.

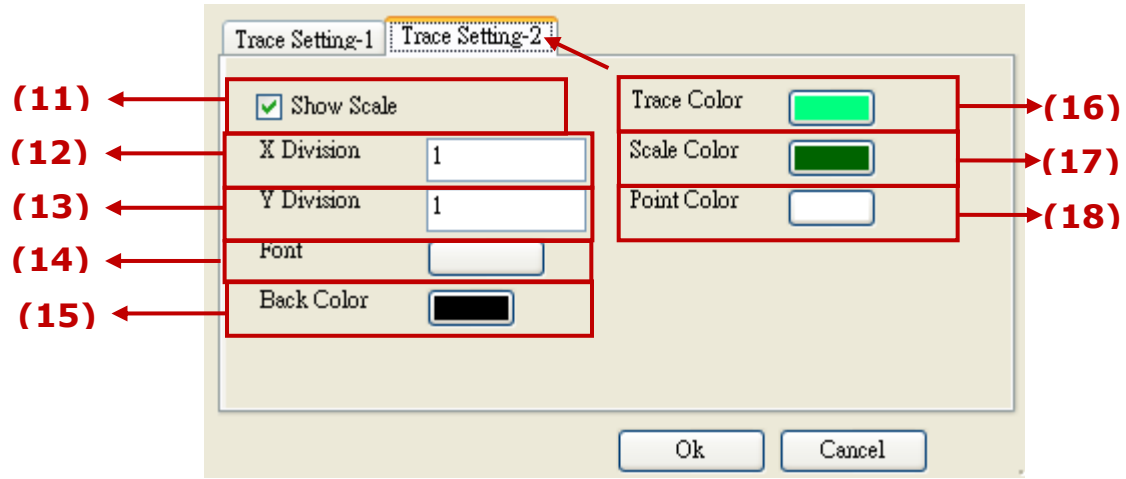
(6)Location: the X,Y starting position of the HMI object (refer to the Ch1.2 for its definition of the X-axis and Y-axis)

(7)Left Limit: set the left limit of the X-axis in the trace map

(8)Right Limit: set the right limit of the X-axis in the trace map

(9)Lower Limit: set the bottom limit of the Y-axis in the trace map

(10)Upper Limit: set the upper limit of the Y-axis in the trace map



(11)show scale: check box to show the border of the axis and its scale

(12)X Division: if "show scale" is checked, it means displaying the current position value at the bottom and divide the X-axis by this integer value.

(13)Y Division: if "show scale" is checked, it means displaying the current position value at the bottom and divide the *-axis by this integer value.

(14)Font: set the font style and size of the text, useless in other font setting. The maximum size (for the scale and value of the X/Y axis coordinates) is 10 and the minimum is 6 for this object.

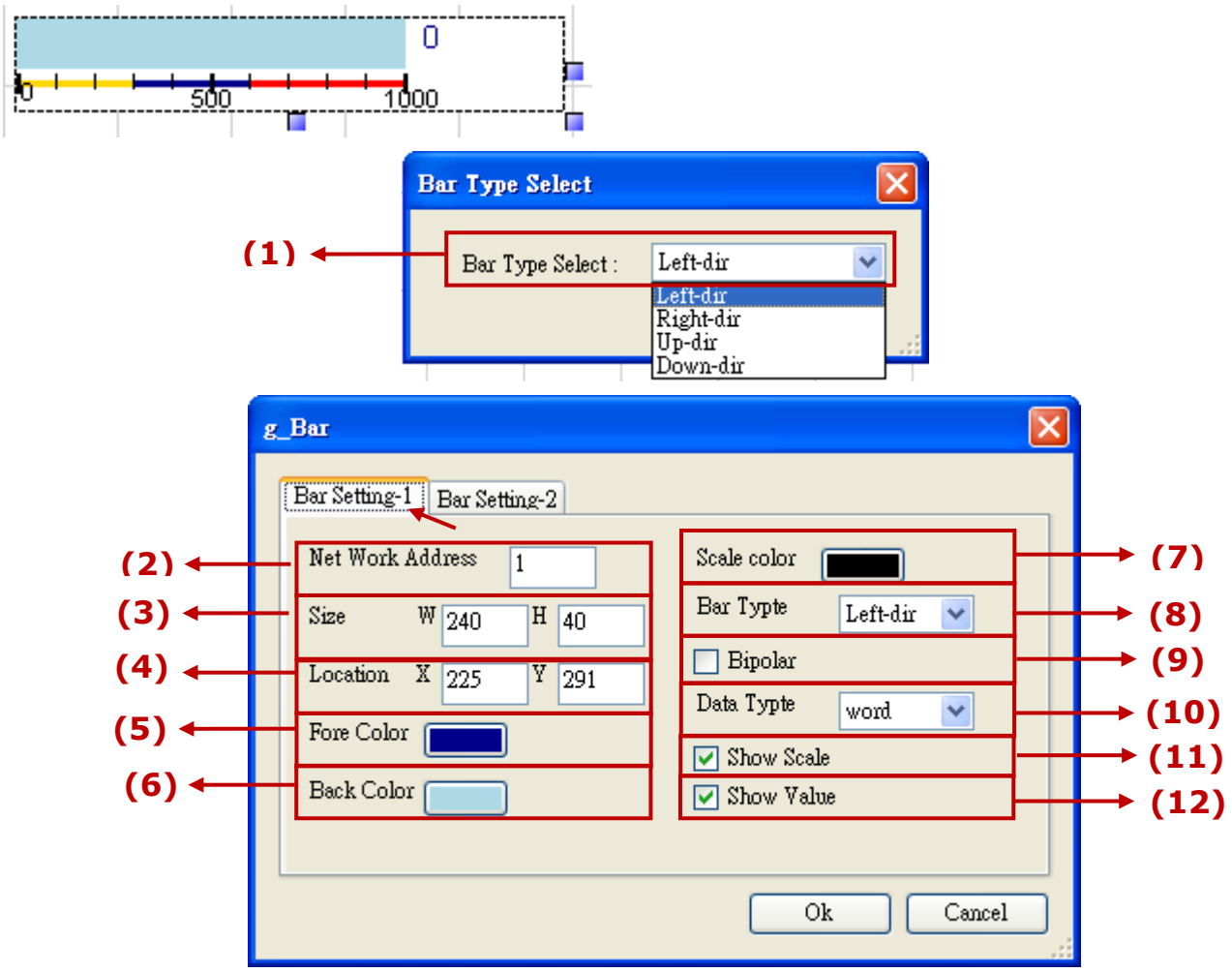
(15)Back Color: the backcolor of the trace map

(16)Trace Color: the color of the trace curve

(17)Board Color: the color of mesh and border

(18)Point Color: the color of the current point

1.3.16 : g_Bar : display a Bar-meter picture to show a 32-bit signed integer, 16-bit signed integer or 32-bit float value



Options:

(1)Bar Type Select: select the direction of the bar, such as left, right, up and down.

(2)Net Work Address: set the ISaGRAF Modbus Network Address for the variable (32-bit Long integer and 32-bit REAL variables defined in the ISaGRAF must occupy two network addresses. Refer to chapter 4.2 of the "User Manual of ISaGRAF PAC".)

(3)Size: set the size of the object. "W" for Width, "H" for height.

(4)Location: the X,Y starting position of the HMI object (refer to the Ch1.2 for its definition of the X-axis and Y-axis)

(5)Fore Color: set the fore color of the Bar-meter

(6)Back Color: set the back color of the Bar-meter

(7)Scale Color: set the color of the scale

(8)Data Type: select the value type. "long" (32-bit sign intger) , "word" (16-bit signed integer) or "real" (32-bit float).

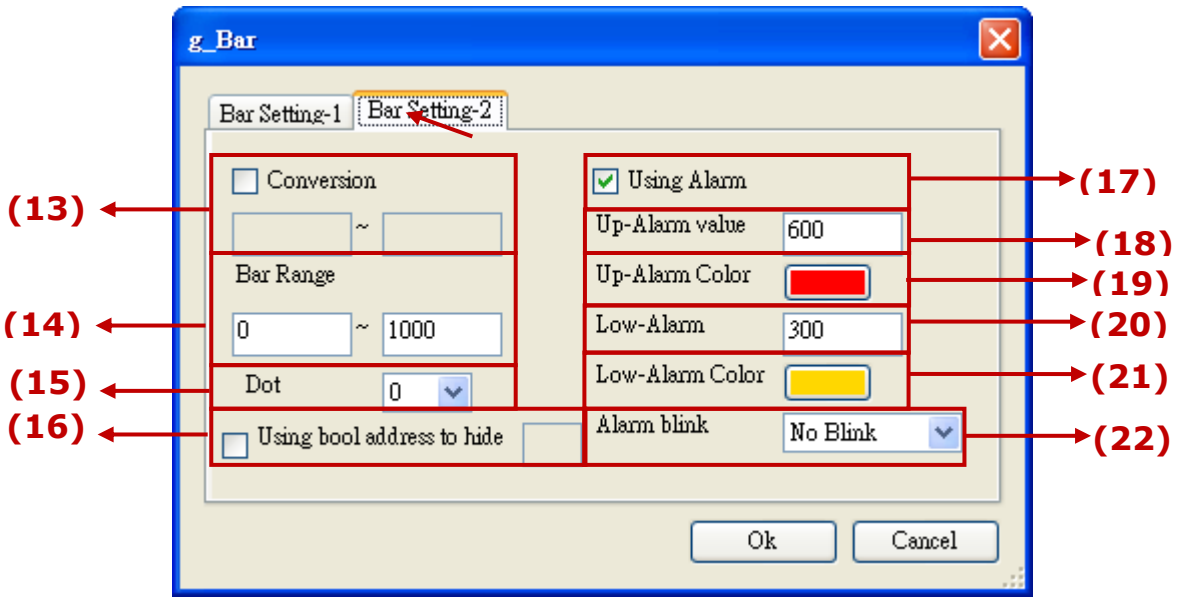
(9)Bipolar: check to display the bar as two-direction. The Bar's base-position is at the middle value of the "Bar Range". for example, if the Bar Range is -1000 ~

1000, the Bar's base-position is at value 0.

(10)Data Type: select the data value type. Can be "long" (32-bit sign intger), "word" (16-bit signed integer) or "real" (32-bit float).

(11)Show Value: check to show the current value.

(12)Show Scale: check to show the scale



(13)Conversion: the unit convert function. Check to convert the value according to the range of Bar Range. Ex: Bar Range = 0.0 ~ 1000.0, means the minimun value is 0.0, the maximum is 1000.0; set Unit Transfer = 0~32767, it will tranfer (0 ~ 32767) to (0.0 ~ 1000.0)

(14)Bar Range: the maximum and minimum limit of the Bar range

(15)Dot: define the digital number after the dot, can be 0 ~ 6.

(16)Using bool address to hide: Use a Boolean Address to switch hiding object or not. Boolean value: True, hide object; False, display object.

Ex: There is one ISaGRAF variable "Hide" with Network address as 10. Set the option "Using bool address to hide" to 10. It will hide the object if "Hide" is True, and show the object if "Hide" is False.

(17)Using Alarm: Check to enable Alarm function

(18)Up-Alarm value: set the Up-limit of the Alarm

(19)Up-Alarm Color: set the color if the value ;arger than the Up-Alarm value

(20)Low-Alarm: set the Low-limit of the Alarm

(21)Low-Alarm Color: set the color if the value smaller than the Low-Alarm value

(22)Alarm Blink: set the alarm blinking options when the value is larger/smaller than the Up-Alarm or Low-Alarm value. There are 4 options:

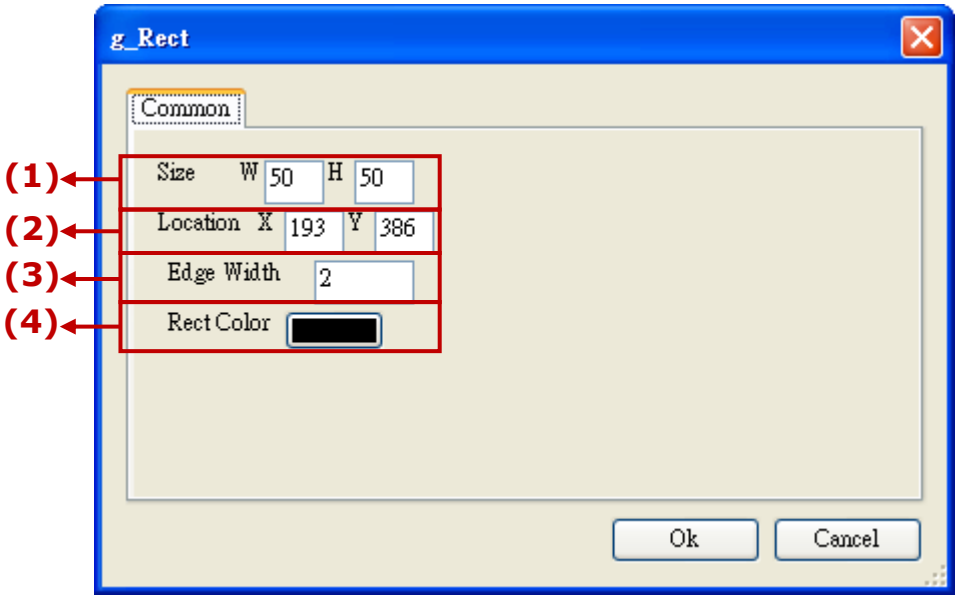
(a)No Blink: no blink

(b)Up-Alarm: blink if larger than the Up-Alarm value

(c)Low-Alarm: blink if smaller than the Low-Alarm value

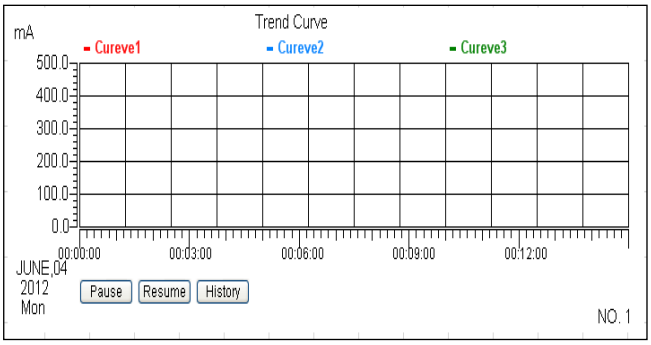
(d)All Blink: blink both when larger and smaller

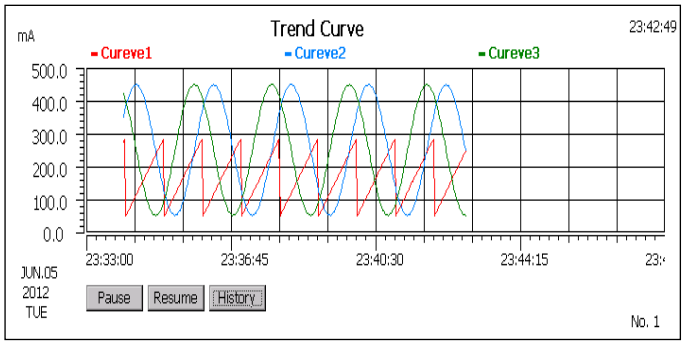
1.3.17 : g_Rect : Draw a rectangle



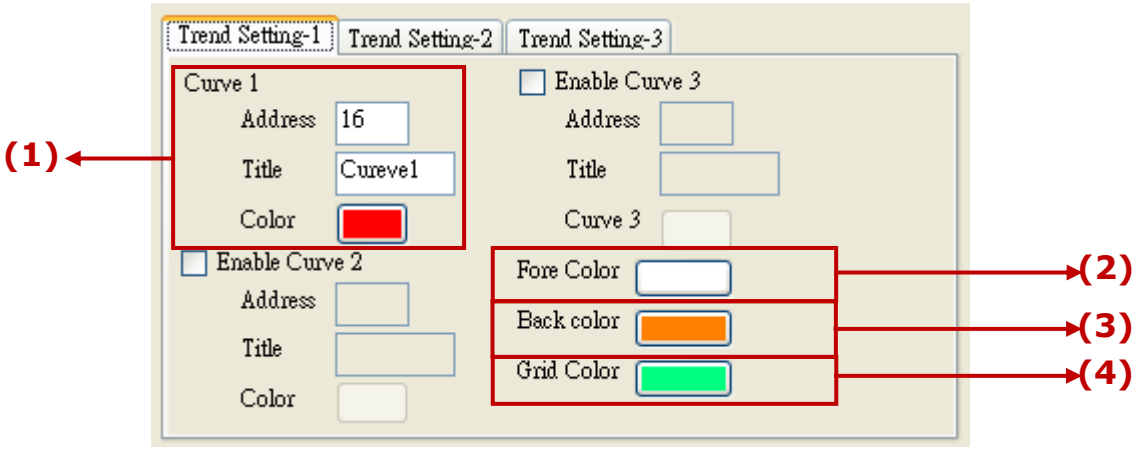
(1)Size: set the size of the object. "W" for Width, "H" for height.
(2)Location: the X,Y starting position of the HMI object (refer to the Ch1.2 for its definition of the X-axis and Y-axis)
(3)Edge Width : set the border line's width, 1~10.
(4)Rect Color : set the border color of the rectangle

1.3.18 : g_Trend : Create a real-time trend to display max. 3 curves and may also enable the historical trend function to record them.

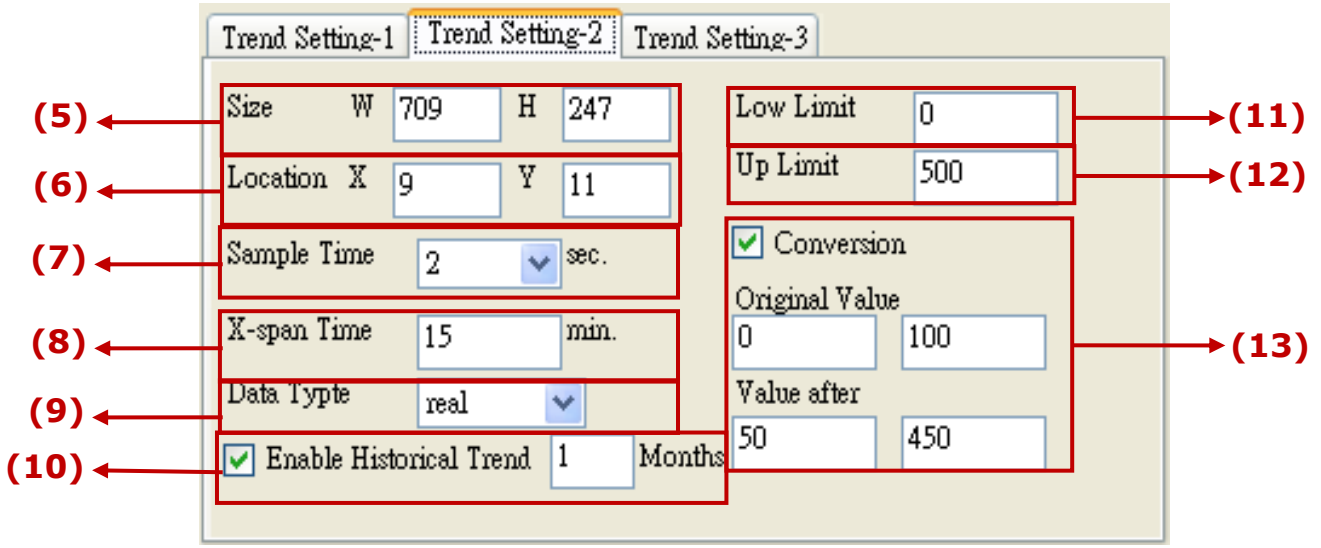




XP-8xx7-CE6/8xx7-Atom-CE6 : Max. 100 g_Trend objects are available.
WP-8xx7, WP-5147, VP-2xW7/4xx7 : Max. 30 g_Trend objects are available.



(1)Curve : set the address, curve title and color; max. 3 curves in a trend map.
Address : the ISaGRAF Modbus NetWork Address of the variable for the curve
Title : the title 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 color of the background
(4)Grid Color: set the color of the grid



(5)Size: set the size of the object. "W" for Width, "H" for height
(6)Location: the X,Y starting position of the HMI object (refer to the Ch1.2 for its definition of the X-axis and Y-axis)
(7)Sample Time: sampling time of the trend. Set the time interval to read and display the curve once. It must be the following values only (Unit: second): 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30, 60, 180, 300, 900。
(8)X-span time：the length of time displayed on x-axis of the trend. (Unit: minute)
The limitation:
"Sample Time" * 60 <= "X-span time" <= "Sample Time" * 1000
Ex: If "sample Time"= 1 second,
the min. "X-span time" can be 60 seconds (1 minute),
the max. "X-span time" can be 1000 seconds (about 16 minutes),
If the "Sample time" is 1 second, then the "x-Span time" can be set between 60 and 1000 seconds .
(9)Data Type：set the value type of the ISaGRAF variable for the curve. "long" (32-bit sign intger) , "word" (16-bit signed integer) or "real" (32-bit float).
(10)Enable historical trend：enable to record the trend history and the retain time.
The limitation of the retain time:
Ex: sample time = 1 sec., it can retain max. 3 months.
Ex: sample time = 2 secs., it can retain max. 6 months.
Ex: sample time = 3 secs., it can retain max. 9 months.
Ex: sample time >= 4 secs., it can retain max. 12 months.

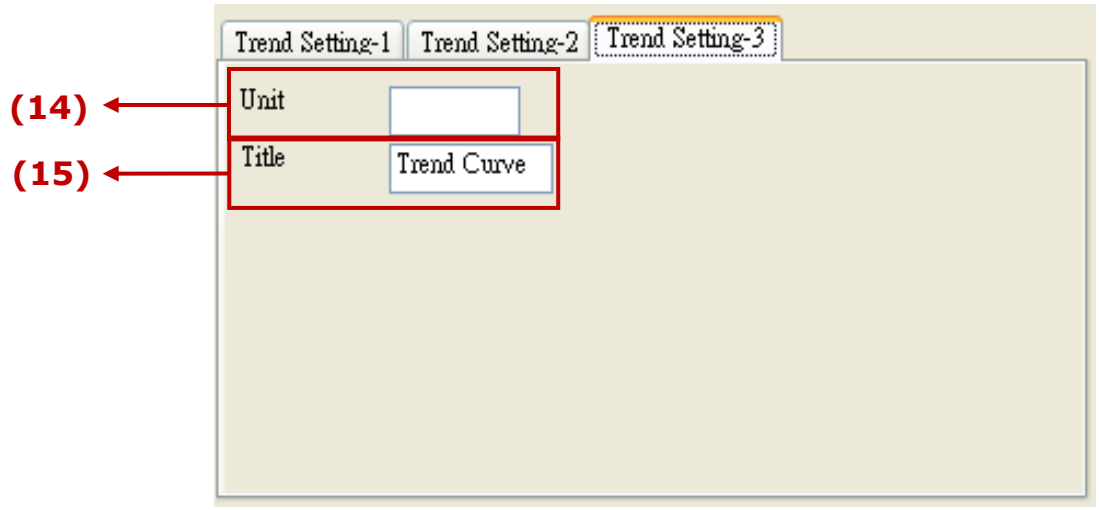
Enabling the historical function of g_Trend will consume a lot of Micro_SD memory capacity (or the Compact Flash memory capacity of XP-8xx7-CE6). Please set the retain time smaller to reduce the memory consumption, if it is not really necessary.

The memory consumption is approximately estimated as belows:
Set "Sample Time"= **1 second**: if enable **1 curve**, it consume about **0.48MB** for

retaining 1 day, about 15MB for 1 month, and about max. 45MB for 3 months.
Set "Sample Time"= **1 second**: if enable **3 curves**, it consume about **1.44MB** for retaining 1 day, about 45MB for 1 month, and about max. 135MB for 3 months.
Set "Sample Time"= **2 seconds**: if enable **1 curve**, it consume about **0.24MB** for retaining 1 day, about 7.5MB for 1 month, and about max. 45MB for 6 months.
Set "Sample Time"= **2 secs.**: if enable **3 curves**, it consume about **0.72MB** for retaining 1 day, about 22.5MB for 1 month, and about max. 135MB for 6 months.
Set "Sample Time"= **3 secs.**: if enable **1 curve**, it consume about **0.16MB** for retaining 1 day, about 5MB for 1 month, and about max. 45MB for 9 months.
Set "Sample Time"= **3 secs.**: if enable **3 curves**, it consume about **0.48MB** for retaining 1 day, about 15MB for 1 month, and about max. 135MB for 9 months.
The rest are the same...

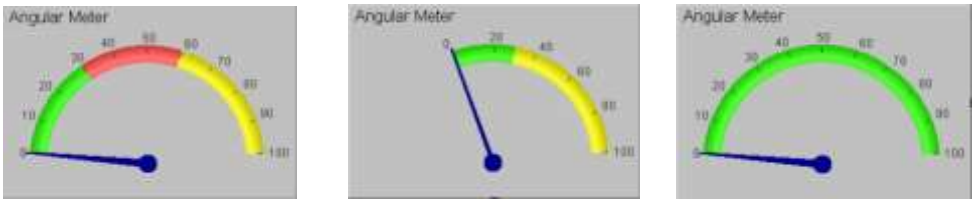
For example, if enable 10 g_Trend historical functions, 3 curves for each, and set "Sample Time"= 1 second, retain time= 3 months, the max. memory consumption is about 135M x 10 = 1.35G byte.

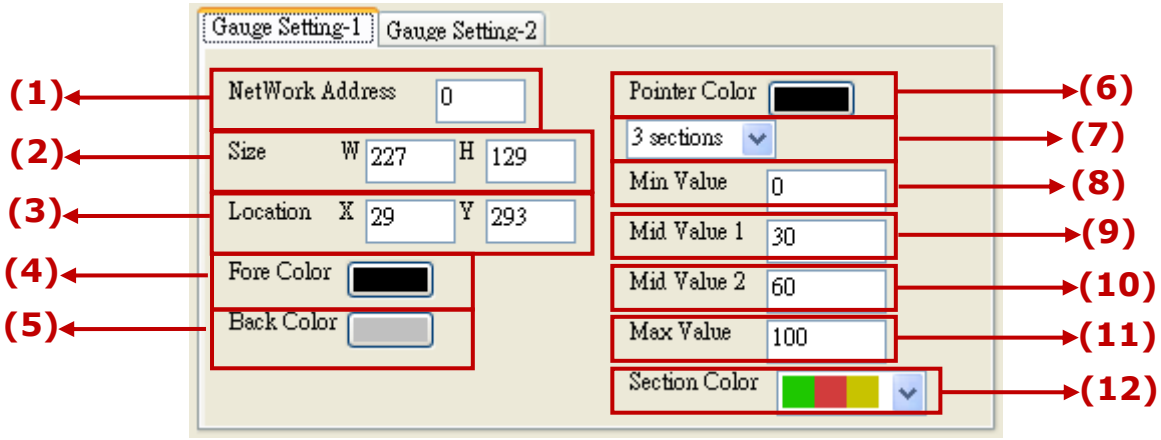
(11)Low Limit : set the minimum value of the Y-axis in the trend map.
(12)Up Limit : set the maximum value of the Y-axis in the trend map.
(13)Conversion : check if convert the value.
Original value: the value range read originally (Ex:0~32767,0~65535...)
Value after: the value range after conversion(Ex: if the "Original value" is 0~32767 and the "Value after" is 0~1000, that means to convert the value from range of 0~32767 to range of 0~1000, such as, 16384 is converted to be 500.)



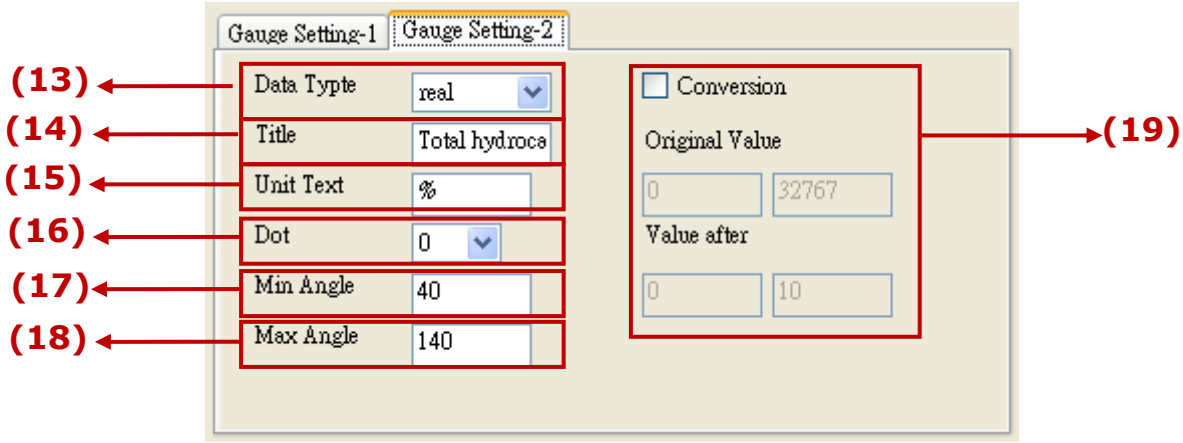
(14)Unit : input the unit for y-axis value in the trend, such as "mA", "degrees C".
(15)Title : the title of the trend map

1.3.19 : g_Gauge: Display a Long, Short Integer or a Real value as an angular gauge.





(1)Network Address : set the ISaGRAF Modbus Network Address for the variable
(2)Size: set the size of the object. "W" for Width, "H" for height
(3)Location: the X,Y starting position of the HMI object (refer to the Ch1.2 for its definition of the X-axis and Y-axis)
(4)Fore Color : set the color of the scale and the text
(5)Back Color : set the color of the background
(6)Pointer Color : set the pointer color of the gauge
(7)Sections : select the sections and colors to show the gauge. Max. 3 sections to show 3 colors.
(8)Min Value : set the min. value of the gauge range.
Note: (Max Value - Min Value) must be divisible by 10.
Ex: If "Max Value" = 100, "Min Value" = 0 , it is ok. If "Max Value" = 95, "Min_Value"=0, it is not ok because (95-0) is not divisible by 10.
(9)Mid Value 1 : set the middle value of the gauge range (when "sections" is 2 or 3)
(10)Mid Value 2 : set the middle value of the gauge range (when "sections" is 3)
(11)Max Value : set the max. value of the gauge range.
Note: (Max Value - Min Value) must be divisible by 10.
Ex: If "Max Value" = 100, "Min Value" = 0 , it is ok. If "Max Value" = 95, "Min_Value"=0, it is not ok because (95-0) is not divisible by 10.
(12)Section Color: set the color for the gauge



(13)Data Type : select the value type of the ISaGRAF variable. "long" (32-bit signed intger) , "word" (16-bit signed integer) or "real" (32-bit float).

(14)Title : the title of the object

(15)Unit Text : the text to show the value unit, such as "mA", "degrees C"

(16)Dot : enable to display decimal number; to take the decimal point for the Integer or Real value after conversion.

"Data Type"= Integer(long or word): if disable "conversion", the Dot is 0 always and can not be changed. The value will not show decimal point.

"Data Type"= Integer(long or word): if enable "conversion" and Dot= 2, the converted value will display 2 decimal numbers, ex. "1.23", "345.67".

"Data Type"= Real: if enable or disable "conversion" and Dot= 1, the converted value will display 1 decimal number, ex. "48.5", "223.6".

(17)Min Angle : Set the angle for the min value (5 ~ 135 degrees)

(18)Max Angle : Set the angle for the max value (45 ~ 175 degrees)

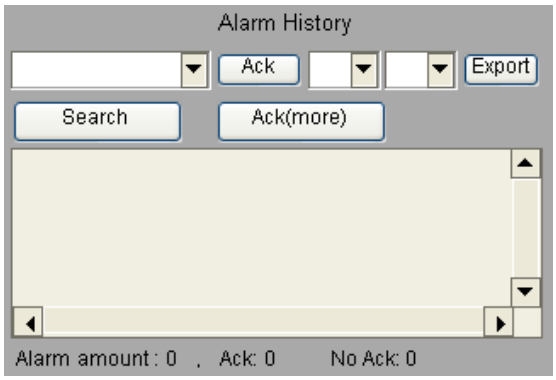
(The angle for the direction of 9 o'clock is 0 degree, the angle for the direction of 3 o'clock is 180 degree)

(19)Conversion : check if convert the value.

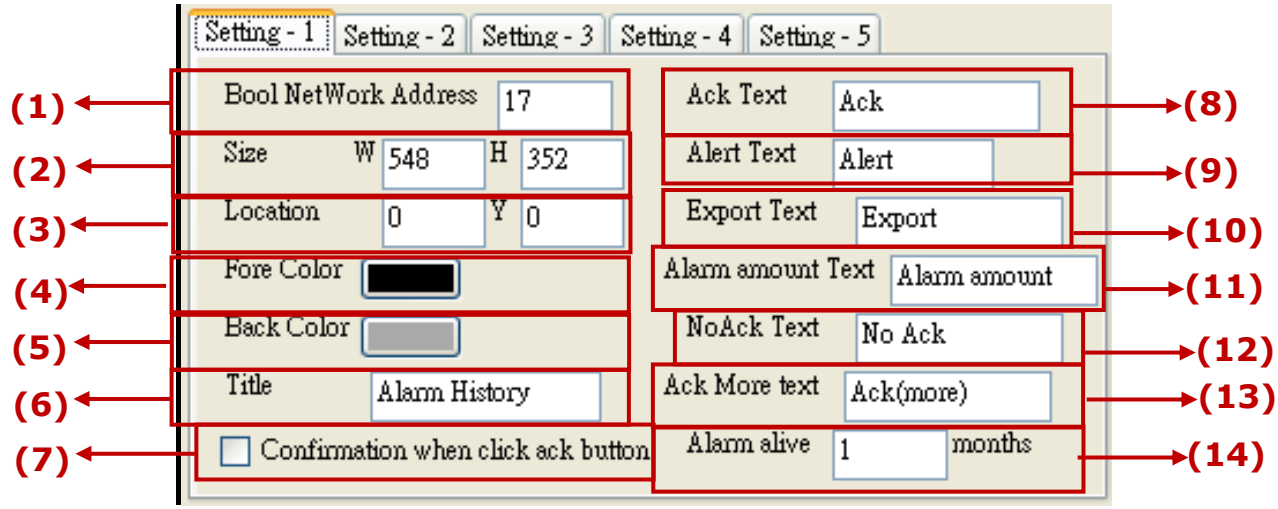
Original value: the value range read originally (Ex:0~32767,0~65535...)

Value after: the value range after conversion(Ex: if the "Original value" is 0~32767 and the "Value after" is 0~1000, that means to convert the value from range of 0~32767 to range of 0~1000, such as, 16384 is converted to be 500.)

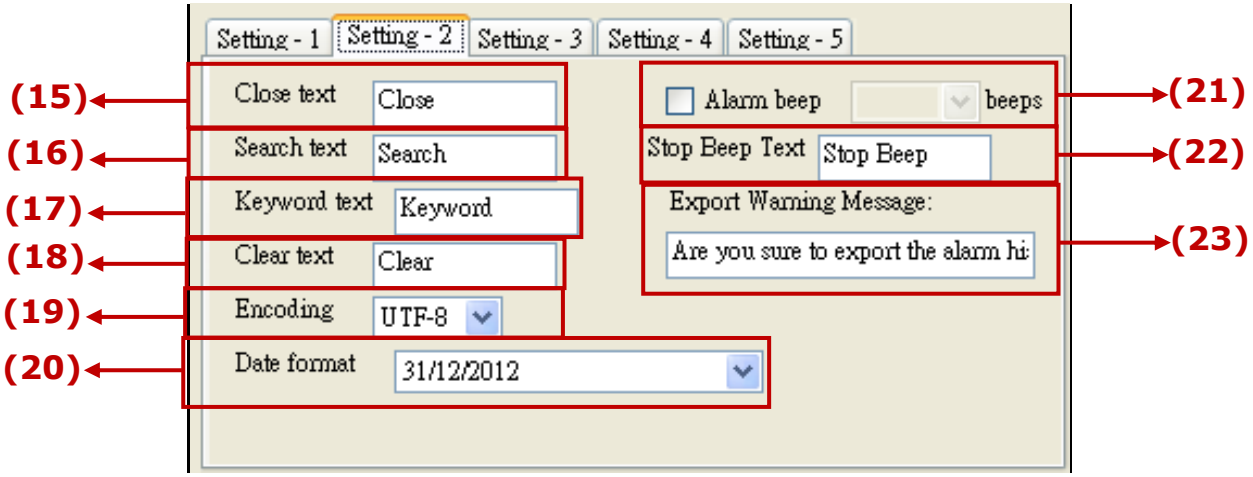
1.3.20 : g_Alarm : Display an alarm list to show the triggered alarm messages and provide FTP upload function.



For demo example and steps about how the ISaGRAF program to trigger an Alarm message, please refer to Ch.1.7.4. One PAC can enable one g_Alarm object only.



(1)Bool NetWork Address: set the NetWork Address for ISaGRAF Boolean variable. When use "MSGARY_W(-9,msg1)" to trigger the Alarm, the Boolean variable will be set to True until user clicks the "Ack" or "Close" of the Alert window that will reset it to False. If set Address= 0, means to disable the Boolean variable.
(2)Size: set the size of the object. "W" for Width, "H" for height
(3)Location: the X,Y starting position of the HMI object (refer to the Ch1.2 for its definition of the X-axis and Y-axis)
(4)Fore Color : set the color of the text and the scale
(5)Back Color : set the color of the background
(6)Title: the text displayed on the title of the Alarm window
(7)Confirmation when click ack button: click to pop up a confiremation box or not.
(8)Ack Text: the text "ACK" in your local language; Ex: for English "ACK".
(9)Alert: the text "Alert" in your local language; Ex: for English "Alert".
(10)Export Text: the text "Export" in your local language; Ex: for English "Export".
(11)Alarm amount Text: the text "Alarm amount" in your local language; Ex: for English "Alarm amount".
(12)NoAck Text: the text "No Ack" in your local language; Ex: for English "No Ack".
(13)Ack More Text: the text "Ack more" in your local language; Ex: for English "Ack more".
(14)Alarm live: set the Alarm record retention period; period: 1 ~ 12 months.



(15)Close Text: the text "Close" in your local language; Ex: for English "Close".
(16)Search Text: the text "Search" in your local language; Ex: for English "Search".
(17)Keyword Text: the text "Keyword" in your local language; Ex: for English "Keyword".
(18)Clear Text: the text "Clear" in your local language; Ex: for English "Clear".
(19)Encoding: Set the text encoding for the Alarm message in the ISaGRAF program; UTF-8: English; big5: Traditional Chinese; gb2312: Simplified Chinese; other: enter your own encoding of other languages.
(20)Date format: set the date format of the alarm record
(21)Alarm Beep: set the PAC beep times when alarm event is triggered. (Only the VP-25W7/23W7 support this function.)
(22)Stop Beep Text: the text prompted to stop the beep; Ex:"Stop Beep".
(23)Export Warning Message: the warning message on the window when export the record. Ex: "Are you sure to export the alarm history to the USB pen driver (Overwrite the existing files)?"

※For how the ISaGRAF program triggers an Alarm and its demo, refer to Ch.1.7.4.

※Allow max. 3000 alarm messages each day, and does not record the overflowed messages.

※If want to delete g_Alarm records for testing purpose, users must stop the ISaGRAF driver first, delete below g_Alarm record file, and then reboot the PAC.

WP-5147, WP-8xx7, VP-2xW7 :

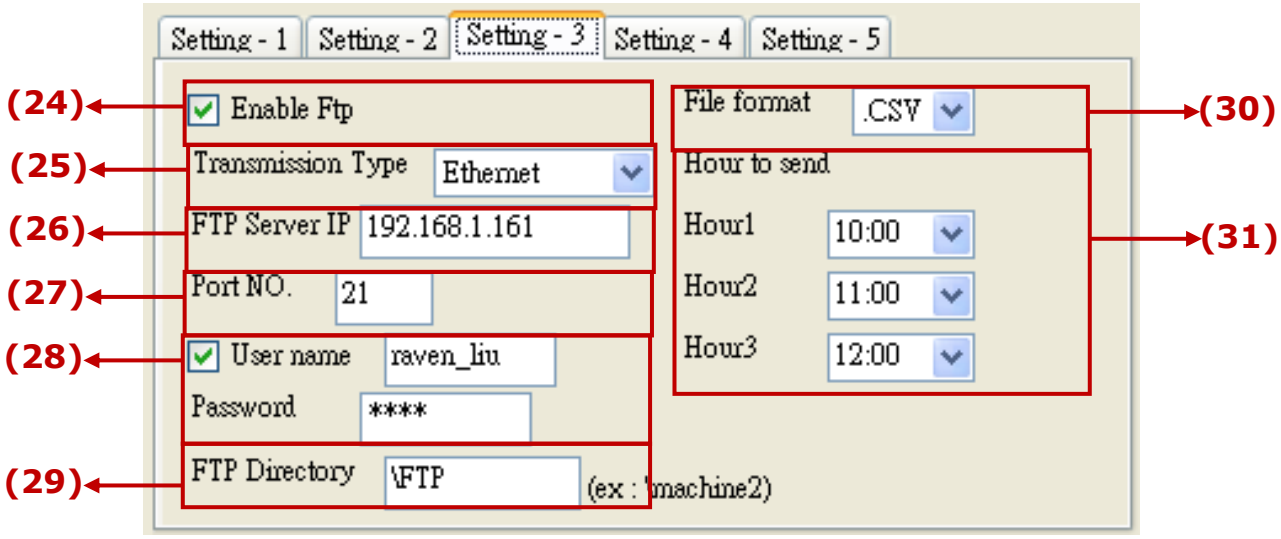
The g_Alarm record file is in the directory "\Micro_SD\Soft-GRAF\g_Alarm\", Ex: "\2012\07\g_alarm_2012_07_17.txt" .

The g_Alarm record file is in the directory "\Email_ETH\g_Alarm\", Ex: "g_alarm_2012_07_17.txt" .

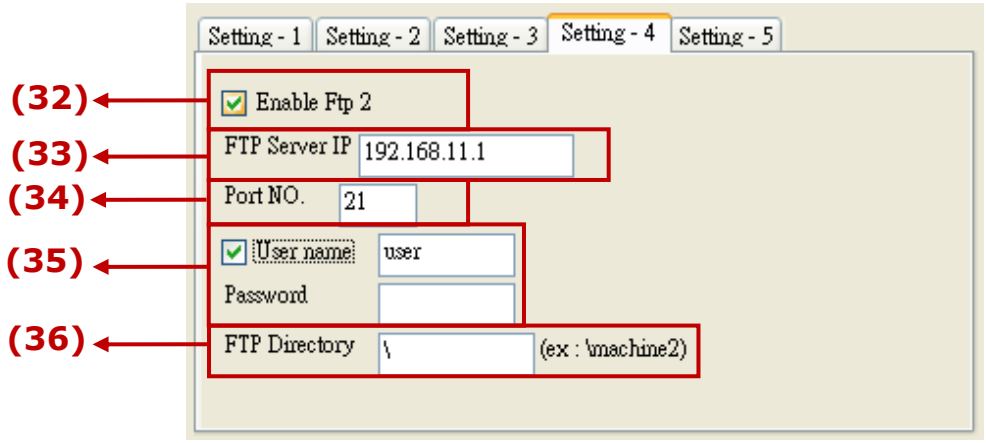
XP-8xx7-CE6 :

The g_Alarm record file is in the directory "\System_Disk2\Soft-GRAF\g_Alarm\", Ex: "\2012\07\g_alarm_2012_07_17.txt" .

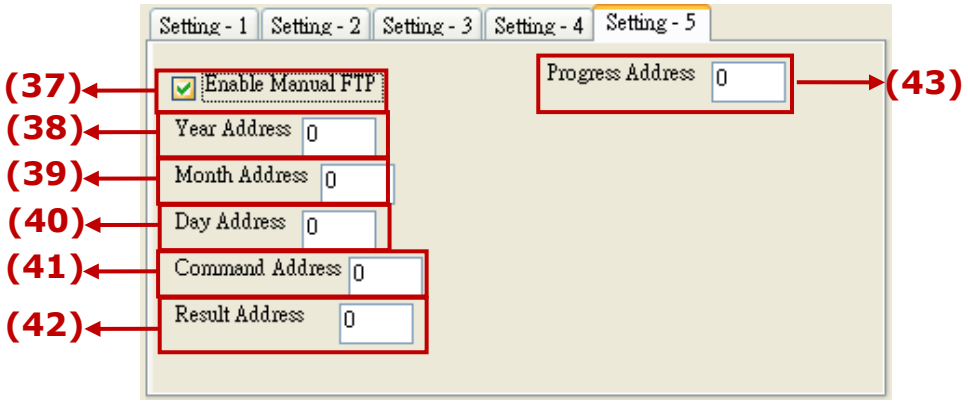
The g_Alarm record file is in the directory "\Email_ETH\g_Alarm\", Ex: "g_alarm_2012_07_17.txt" .



(24)Enable FTP: If check "Enable FTP", the PAC will upload the Alarm data file to a FTP Server via FTP at a specified time.
(25)Transmission Type: select Ethernet, 2G, 3G or wireless transmission type. If enable the 2G/3G type to upload data to a ftp server, please refer to http://www.icpdas.com/root/support/faq/isagraf.php > FAQ-143 to set up the hardware & software for the 2G/3G wireless transmission.
(26)FTP Server IP: the IP of the FTP Server (Ex: 192.168.11.1)
(27)Port NO: the communication port of the FTP Server, normally is 21.
(28)User Name & Password: the user name & password to login the FTP Server. If not check the "User name", user can login by "anonymous" and do not need the "User Name" & "Password".
(29)FTP Directory: to upload the file to the directory of the FTP Server. Default is the root directory "\". (ex: to specify the folder "dir2", key in "\dir2".)
(30)File format: the transmission file format; It can be ".CSV" or ".txt" file.
(31)Hour to Send: the specified upload time every day. There are 3 time zones to set up. The file will be sent at the 3rd minute of that time zone, for instant, if the specified time is 00:00, the file will be upload to the ftp server at 00:03. (※ "Hour1": upload the data of the previous day and 00:00~Hour1 of today. "Hour2" or "Hour3": upload today's data since 00:00 to "Hour2" or "Hour3".)



(32)Enable Ftp 2 : check to enable the 2nd FTP. (Alarm data will be send to the 2nd PC/FTP Server)
(33)FTP Server IP : the IP address of the FTP server (Ex: 192.168.11.1)
(34)Port NO. : the port number to connect the FTP server, normally is 21.
(35)User name & Password: the user name & password to log in the FTP Server.
(36)FTP Directory : the directory of the server that the file to be upload to. Default is the root directory "\".



(37)Enable Manual FTP setting : check to enable the manual FTP function and to set up the related Network Addresses in this page. Refer to the ch.1.7.5 or FAQ-158 (http://www.icpdas.com/root/support/faq/isagraf.php > 158) for detail information.

(38)Year Address : assign the Network Address of the variable for year. It can set the file's year in the manual FTP function.

(39)Month Address : assign the Network Address of the variable for month. It can set the file's month in the manual FTP function.

(40)Day Address : assign the Network Address of the variable for day. It can set the file's month-day in the manual FTP function.

(41)Command Address : assign the Network Address of the variable to send the FTP upload command. It can enable the manual FTP function.

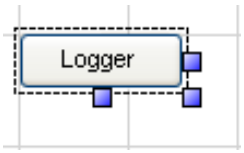
(42)Result Address : assign the Network Address of the variable to read the result of the FTP function. (0: no upload action; 1: FTP is uploading file; 21: upload succeed; 101: upload fail, that date file doesn't exist; 102: fail to upload to the FTP Server; 103: the Soft-GRAF doesn't enable FTP)

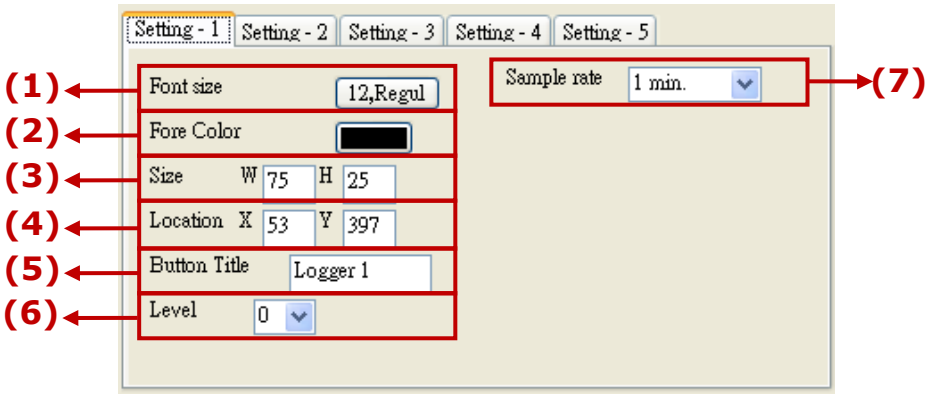
(43)Progress Address : assign the Network Address of the variable to read the FTP upload status. It can get the progress status in the manual FTP function.

1.3.21 : g_Logger1 : Create a Data Logger button with FTP upload function.

※ Please refer to the 1.7.5 for the description of a g_Logger1 demo program.

※ The "g_Logger1" supports to record maximum 50 data (Tags) since the Soft-GRAF Studio V.1.07.





Options :

(1)Font size : set the font size and style of the text (the scale and the X, Y values of the coordinate axis), useless in other font setting

(2)Fore Color: set the color of the text and the scale

(3)Size : set the size of the object. "W" for Width, "H" for height

(4)Location : the X,Y starting position of the HMI object (refer to the Ch1.2 for its definition of the X-axis and Y-axis)

(5)Button Title : set the title text for the button

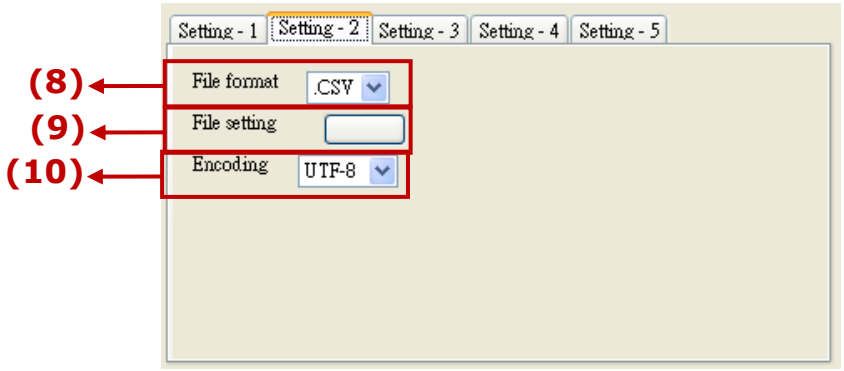
(6)Level : set the security levels when enable the HMI screen security management.

(7)Sample rate : set the object sample time; the interval to read data once

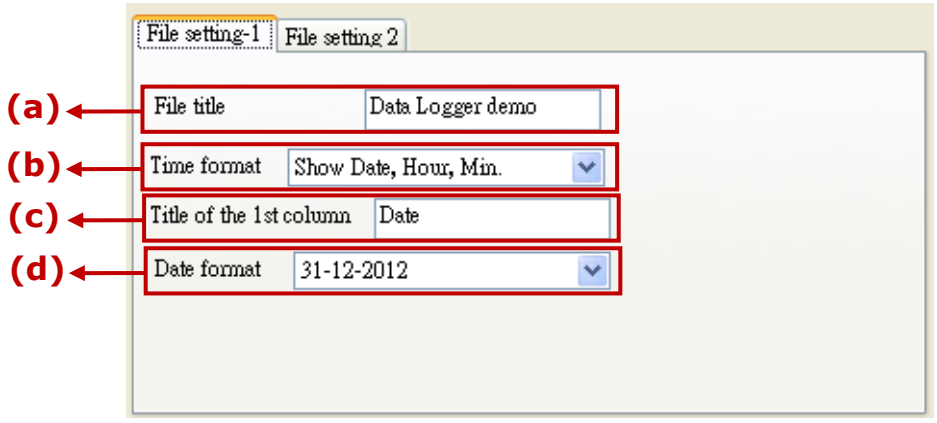
The "sample rate" setting affects the retaining days of data files. As below:

The retaining time is 10 days if "sampling rate" setting is 1 or 2 or 3 seconds.
The retaining time is 30 days if "sampling rate" setting is 5 to 30 seconds.
The retaining time is 3 months if "sampling rate" is 1 or 2 minutes.
The retaining time is 6 months if "sampling rate" is 3 or 5 minutes.
The retaining time is 12 months if "sampling rate" is 10 minutes or more than 10 minutes.

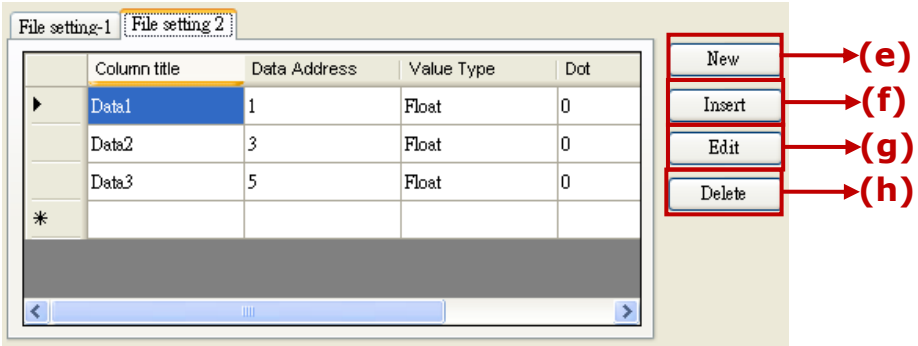
The other note is one PAC can enable only one g_Logger1.



(8)File format：the file format to save; It can be ".CSV" or ".txt" file.
(9)File setting：the Network Address of the variables and the date format. As below:
(10)Encoding：the text encoding of the Logger message in the ISaGRAF program,
UTF-8: English; big5: Traditional Chinese; gb2312: Simplified Chinese; other: enter other language codes.



(a)File title : the first row displayed in the Logger file
(b)Time format : the time format to display in the Logger file
(c)Title of 1st column : the title text of the 1st column in the Logger file
(d)Date format : the date format of the Logger file

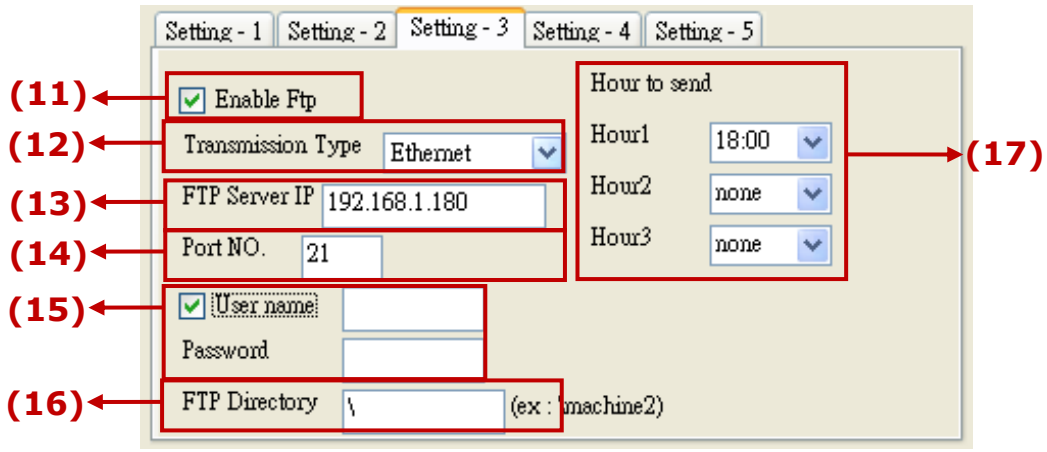


(e)New : to create a new data to record in order. The Options:
Column title: the title name of the data

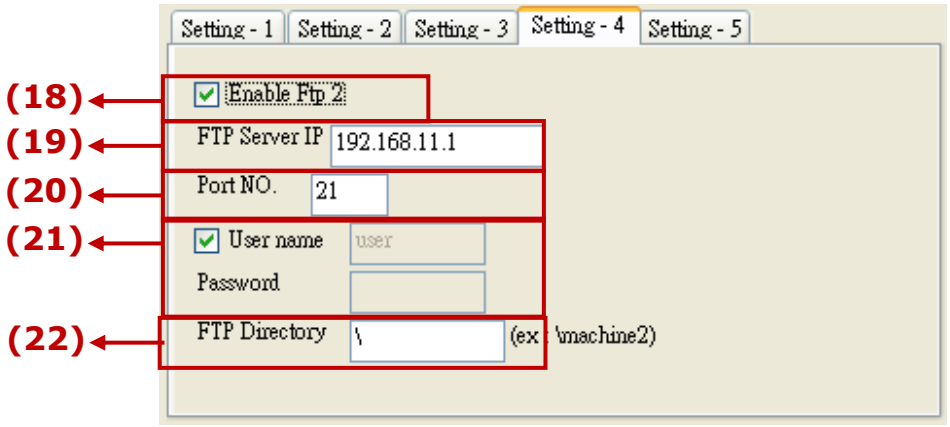
Data Address: the Network Address record by the data
Value Type: the data type to read. There are word, long and float 3 types.

Dot: display the decimal point. Give a dot to the read value (eg: if set Dot as "3", the read value "32767" will be displayed as "32.767".)

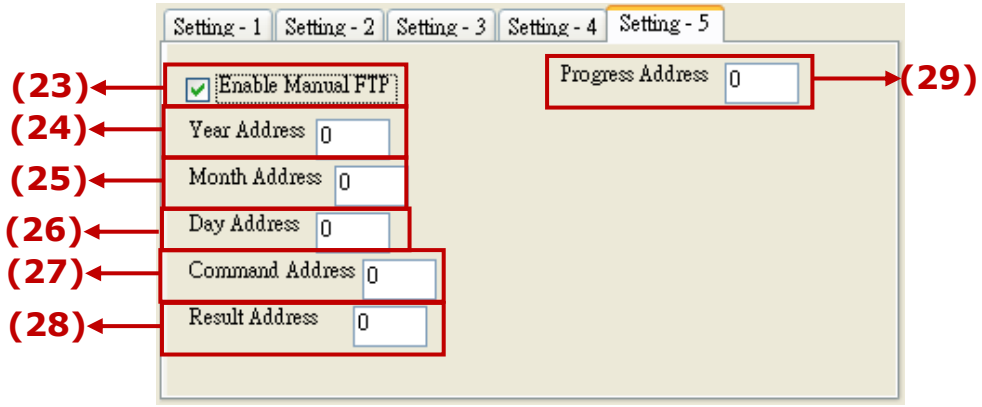
(f)Insert : to insert a new data to record between two data
(g)Edit : edit one current data
(h)Delete : delete one current data



(11)Enable Ftp : check box to enable the FTP function. The PAC will send the logger file record by g_Logger1 to a FTP Server via FTP in the specified time.
(12)Transmission Type： select Ethernet, 2G, 3G or wireless transmission type. If enable the 2G/3G type to upload data to a ftp server, please refer to http://www.icpdas.com/root/support/faq/isagraf.php > FAQ-143 to set up the hardware & software for the 2G/3G wireless transmission.
(13)FTP Server IP : the IP of the FTP Server (Ex:192.168.11.1)
(14)Port NO.: the communication port of the FTP Server, normally is 21.
(15)User name & Password: the user name & password to login the FTP Server. If not check the "User name", user can login by "anonymous" and do not need the "User Name" & "Password".
(16)Ftp Directory: to upload the file to the directory of the FTP Server. Default is the root directory "\". (ex: to specify the folder "dir2", key in "\dir2".)
(17)Hour to Send: the specified upload time every day. There are 3 time zones to set up. The file will be sent at the 05th minute of that time zone, for instant, if the specified time is 00:00, the file will be upload to the ftp server at 00:05. (※ "Hour1": upload the data of the previous day and 00:00~Hour1 of today. "Hour2" or "Hour3": upload today's data since 00:00 to "Hour2" or "Hour3".)



(18)Enable Ftp 2 : check to enable the 2nd FTP. (Logger file will be send to the 2nd PC/FTP Server)
(19)FTP Server IP : the IP address of the FTP server (Ex: 192.168.11.1)
(20)Port NO. : the port number to connect the FTP server, normally is 21.
(21)User name & Password: the user name & password to log in the FTP Server.
(22)FTP Directory : the directory of the server that the file to be upload to. Default is the root directory "\".



(23)Enable Manual FTP setting : check to enable the manual FTP function and to set up the related Network Addresses in this page. Refer to the ch.1.7.5 or FAQ-158 (http://www.icpdas.com/root/support/faq/isagraf.php > 158) for detail information.

(24)Year Address： assign the Network Address of the variable for year. It can set the file's year in the manual FTP function.

(25)Month Address：assign the Network Address of the variable for month. It can set the file's month in the manual FTP function.

(26)Day Address：assign the Network Address of the variable for day. It can set the file's month-day in the manual FTP function.

(27)Command Address：assign the Network Address of the variable to send the FTP upload command. It can enable the manual FTP function.

(28)Result Address：assign the Network Address of the variable to read the result of the FTP function. (0: no upload action; 1: FTP is uploading file; 21: upload succeed; 101: upload fail, that date file doesn't exist; 102: fail to upload to the FTP Server; 103: the Soft-GRAF doesn't enable FTP)

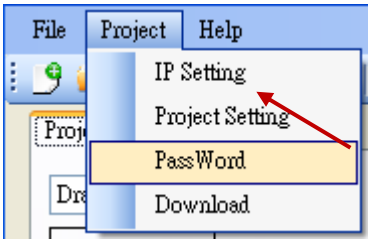
(29)Progress Address：assign the Network Address of the variable to read the FTP upload status. It can get the progress status in the manual FTP function.

1.4 : How to set up the access permission of HMI

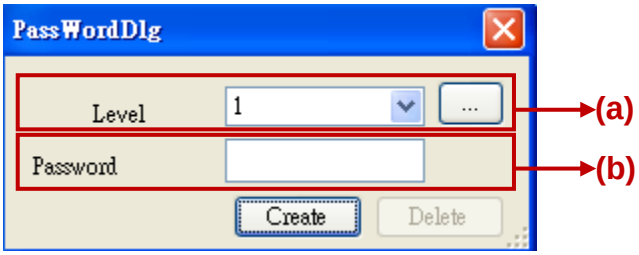
The Soft-GRAF provides an HMI password security. The HMI password security is accomplished by the menu of "Project" > "password" and two HMI objects "g_Login" and "g_logout". (refer to the demo "LogicDemo")

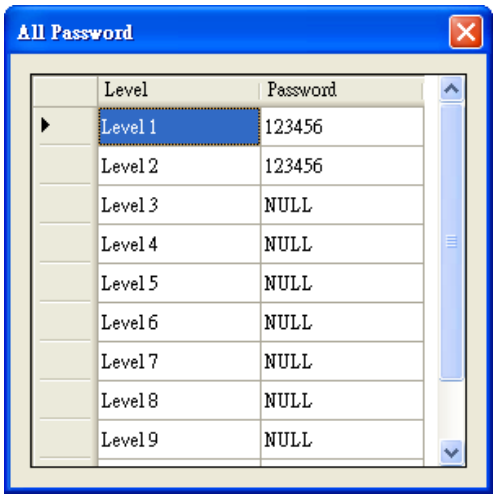
The Setting Steps:

(1) Open a project of the Sort-GRAF Studio and lick the "Project"→"Password"



(2) Set the password and level

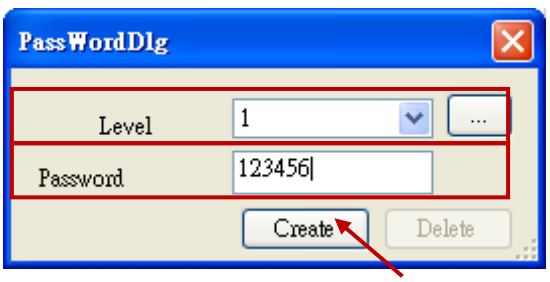




(a)Level: the security levels can be 1~10. The larger number has the higher authority. Click the button ... to see the password settings for all levels. "NULL" means that level does not set password.

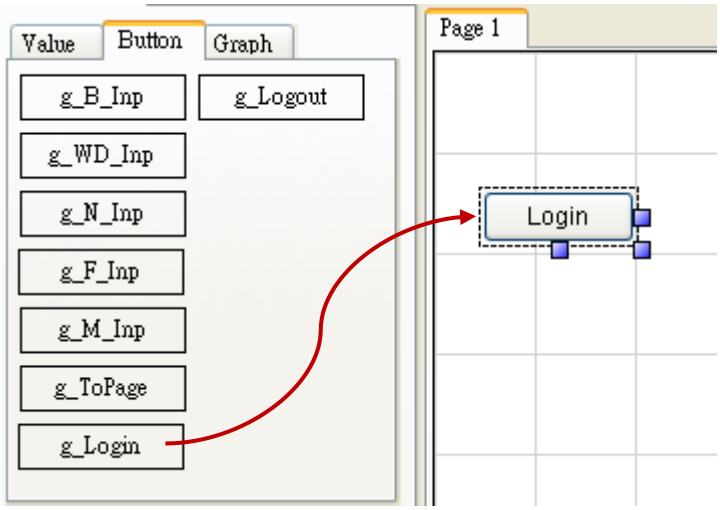
(b)Password: the password of the selected level.

(3) Create a new password: first, select a Level. If this level has no password yet, it is blank. Then, key in a password and click "Create".

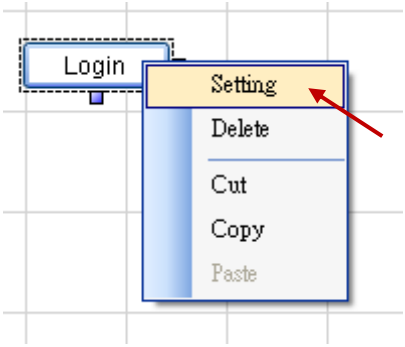


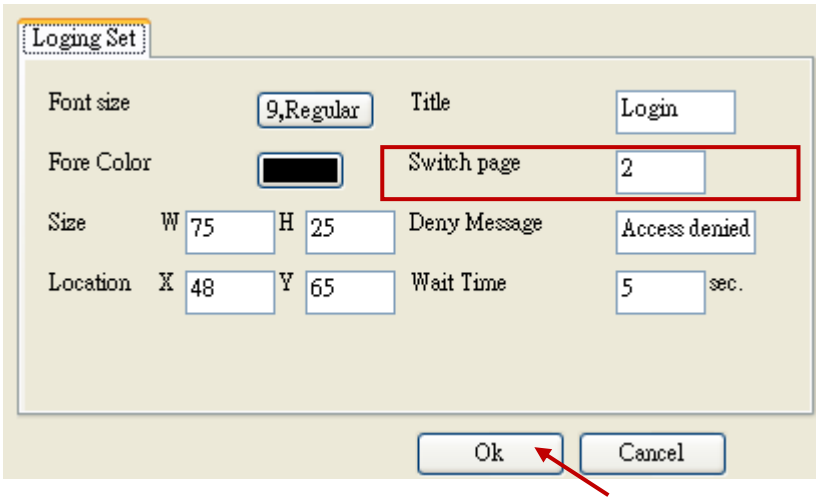
(4) Change/Delete password: select the Level that wants to change. The "password" column will show the current password. Key in the new password and click "Create" to replace the password. If user wants to delete the password, please click "Delete".

(5) In the HMI editing area, drag the g_Login object into the "Page 1"

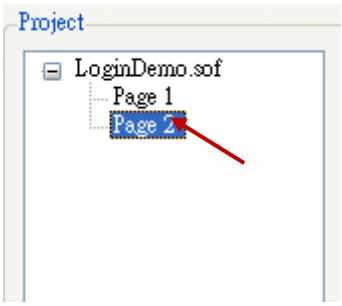


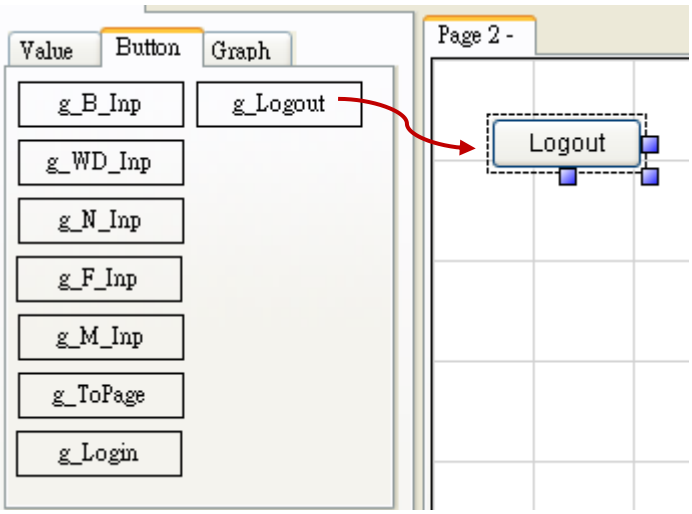
(6) Right key click on "Login" button, select "Setting", and then enter the page number that want to switch to for the Login button. Enter page number "2" for this demo.



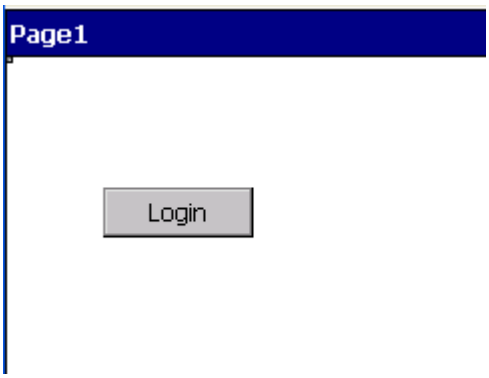


(7) Switch to Page 2, and drag the "g_Logout" object into the editing area. Now this page is protected by the password security.





(8) Download the project to the PAC. Click the "Login" button and enter password can login the HMI project. Click Logout button can exit the HMI project.



1.5 : How does the Soft-GRAF driver distinguish the picture animate or not?

NOTE: Only the objects **g_B_Pic** and **g_N_Pic** can use the animate picture that support by **Soft-GRAF.**

The animate picture file should be named as *(ABC).gif (or .jpg or .png). The ABC is three number of 0 ~ 9. If the picture format is correct and the file name is correct, the Soft-GRAF driver will display it as animate picture. The AB defines the amount of pictures to be animate. The C defines the time-period to switch pictures, can be 0 to 9. If C is 0, it means the picture is not animate. The unit of C is about 0.125 seconds for XP-8xx7-CE6 PAC, while is about 0.25 seconds for WP-8xx7 and VP-2xW7 PAC.

For ex., '\gif\Fan04-s-(061).gif' means the file is an animate picture. It contains 6 pictures. The switching time is about 0.125 seconds for the XP-8xx7-CE6 PAC (about 0.25 seconds if running in the WP-8xx7 and VP-2xW7PAC).

For ex., '\gif\Fan04-s-(062).gif' means the file is an animate picture. It contains 6 pictures. The switching time is about 2 x 0.125 = 0.25 seconds for the XP-8xx7-CE6 PAC (about 0.5 seconds if running in the WP-8xx7 and VP-2xW7PAC).

For ex., '\gif\Fan04-s-(060).gif' is not an animate picture because the switching time is 0. The following picture is the content in the \gif\Fan03-s-(041).gif . It consists of 4 small pictures to become a big picture (from left to right). The Soft-GRAF driver will display it as animated picture.

User can find the default burned-in pictures in the following CD-ROM or web site.

WP-8xx7 CD:\napdos\isagraf\wp-8xx7\driver\wp-8x47\1.39\sofgrafy
XP-8xx7 CD :\napdos\isagraf\xp-8xx7-ce6\driver\1.21\sofgrafy
VP-2xW7 CD:\napdos\isagraf\vp-25w7-23w7\driver\1.31\sofgrafy
or www.icpdas.com > Support > FAQ > ISaGRAF Soft-Logic PAC > FAQ-146 in the downloaded ZIP file.

1.6 : Other Features introduction

The Soft-GRAF Studio provides the Clipboard and the function of arranging the object layer order.

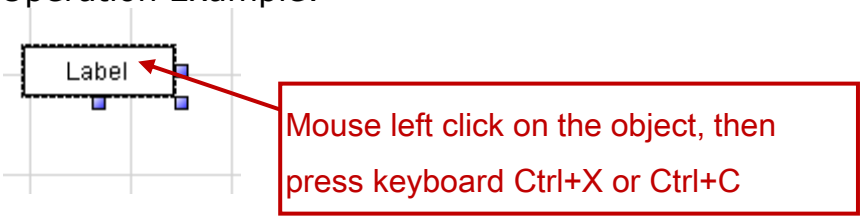
1.6.1 : Copy the HMI Object via the Clipboard

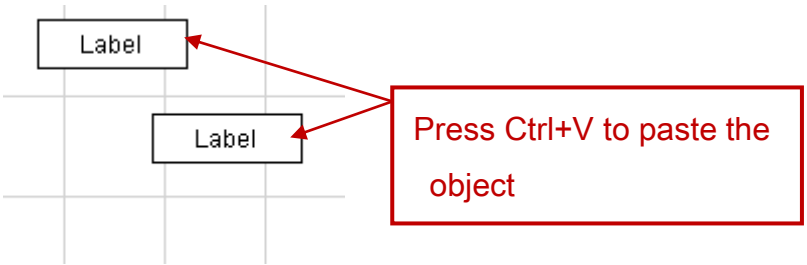
The clipboard provides three stardard commands: Cut, Copy & Paste

(1) Using the hot key :

Ctrl+X : Cut the object
Ctrl+C : Copy the object
Ctrl+V : Paste and replace the object after the Cut or Copy

Operation Example:

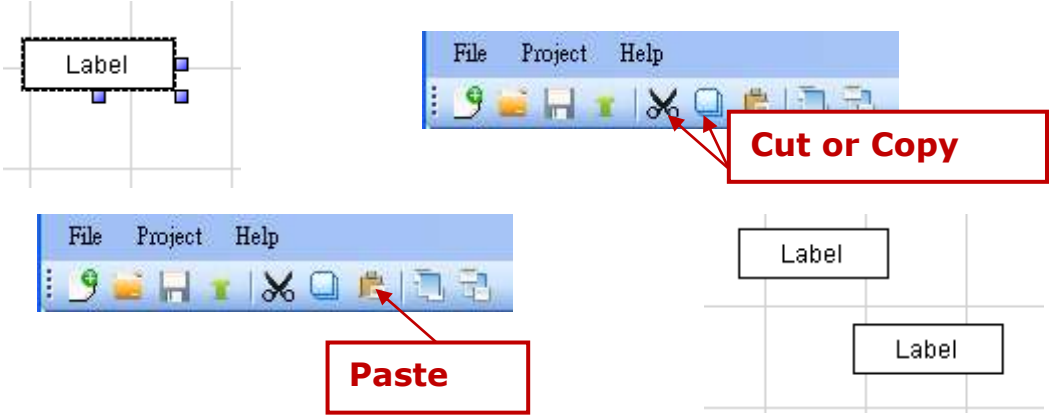




(2) Using the tool icon :

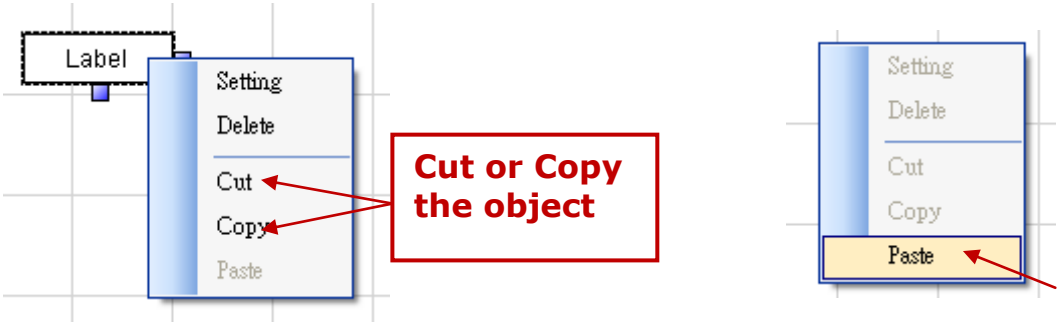
Use the clipboard icons in the toolbox.

Operation Example:
Mouse click on the object, then on the icon "Cut" or "Copy", and then on the icon "Paste".



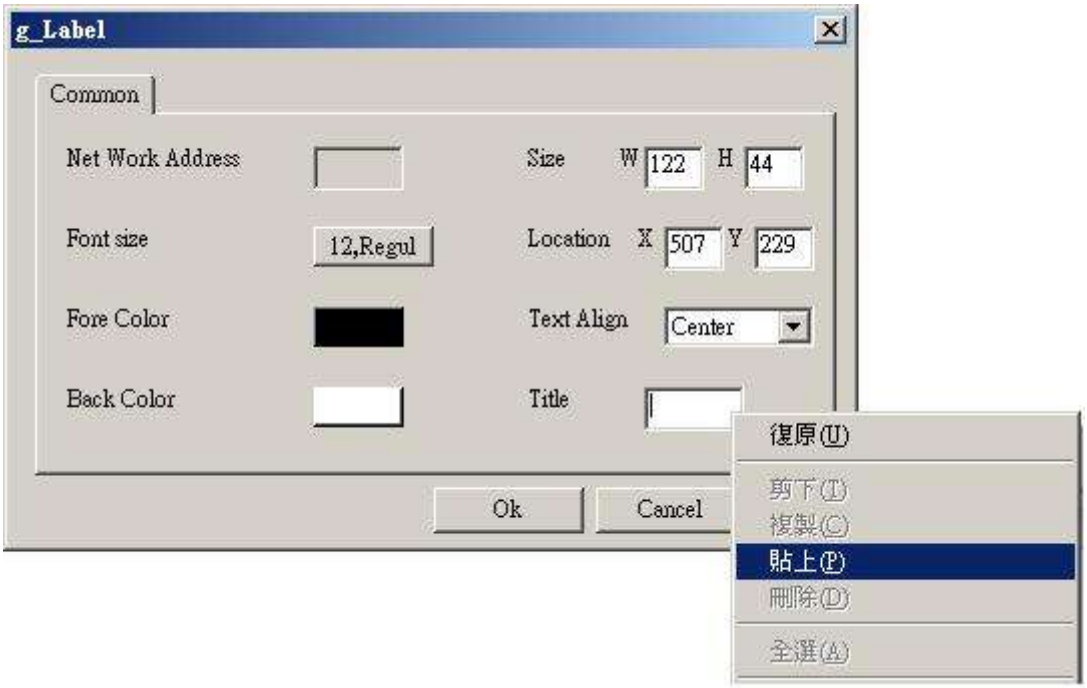
(3) Using the mouse right key :

Mouse right key click on the object, then select the "Cut" or "Copy" from the popup menu. Then, mouse right key click on the blank editing area and select the "Paste".



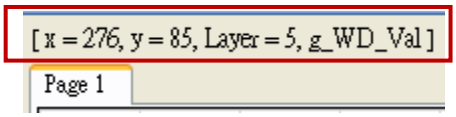
1.6.2 : Paste the Text into HMI Object via the Clipboard

After copying the text, mouse left clicks on the box of "Title" in the HMI, then mouse right click and select the "Paste".



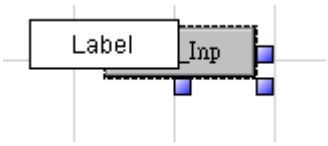
1.6.3 : Adjust the Objects order

Soft-GRAF Studio offers the function to adjust the layer order of the objects. The first created object in the Soft-GRAF Studio default has the highest level Layer. The higher Layer object is above the lower Layer object when the objects overlap with others. User can change the Layer level to use the overlapped object. When you click an object, its layer level and position will show on the left-up corner of the HMI editing area, the larger number Layer with the higher level.

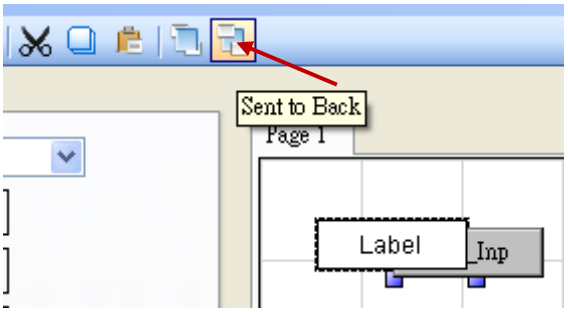


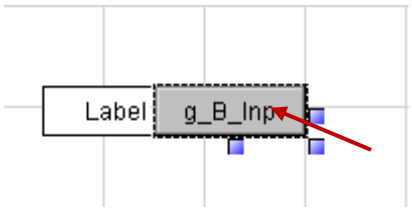
Operation Example:

There are two overlapped objects, g_Label (Label button) and g_B_Inp. The object g_Label has the higher Layer than the g_B_Inp, and covers on it.

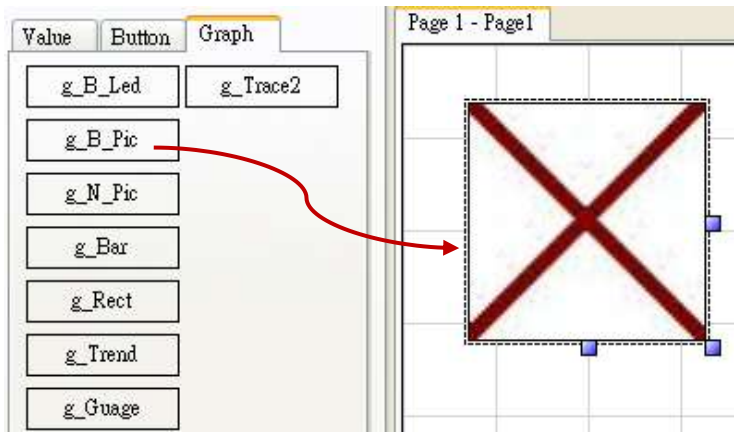


Select the Label and click on the tool icon "Sent to Back", then can see g_B_Inp .

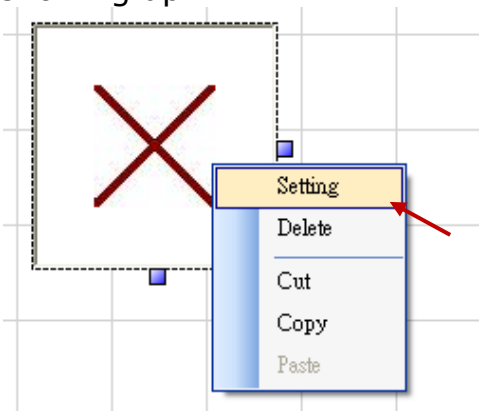


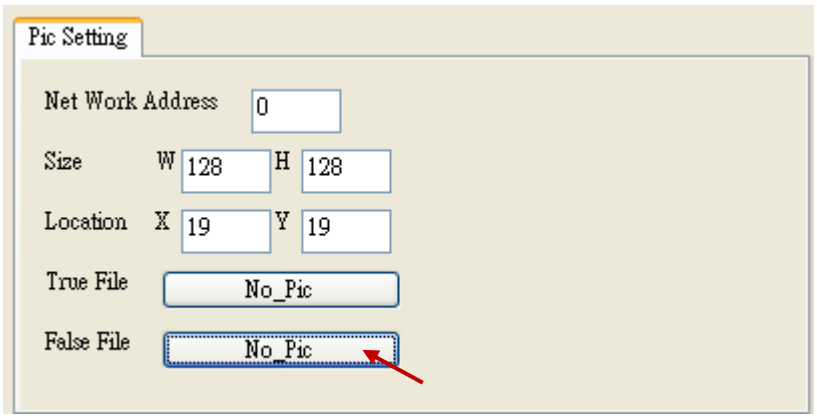


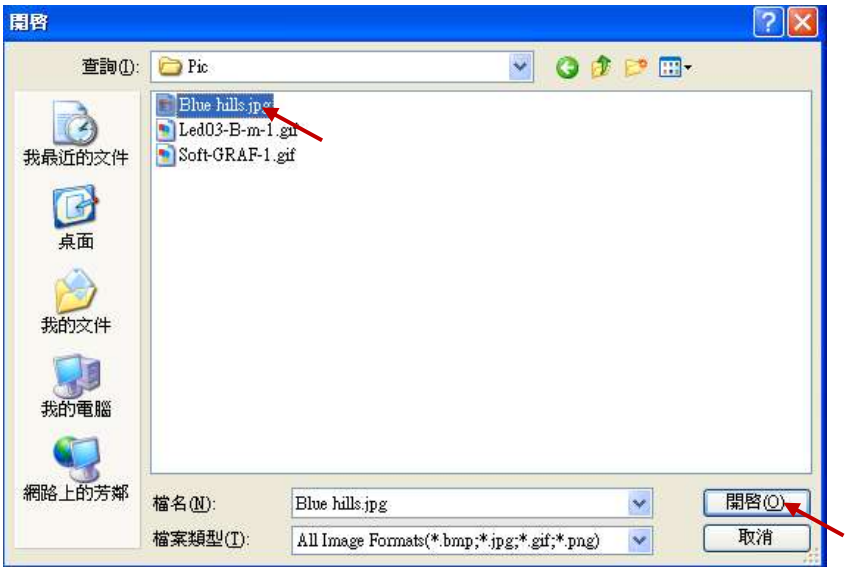
When the HMI page needs a background picture, please add it via g_B_Pic object. (Recommand user to add it at the last step for the convenience.)
First, drag a g_B_Pic object.

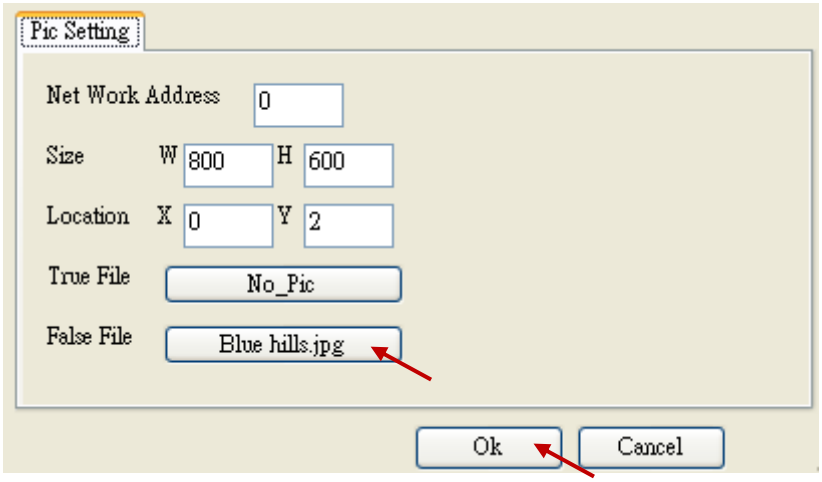


Mouse right-click on the object, select "Setting" and set the "False File". Select a background picture for the "False File" and then click "Ok". If the picture is covering other objects, please select it and click the "Sent to Back" until all other objects showing up.








Pic Setting
Net Work Address
0
Size
W
800
H
600
Location
X
0
Y
2
True File
No_Pic
False File
Blue hills.jpg
Ok
Cancel

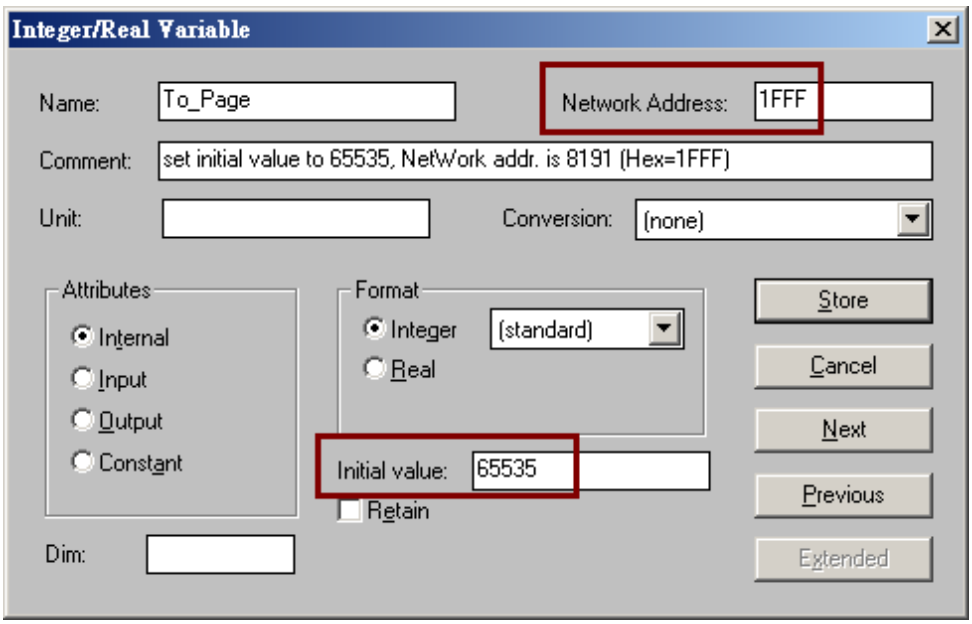
1.6.4 : Switch the Soft-GRAF HMI page by ISaGRAF program

User can declare the below two ISaGRAF integer variables to switch the page of the Soft-GRAF HMI and to read the current page number. (**Note: Only the Soft-GRAF driver version 1.06 and later version supports this function.**)

The integer variable which with the network address number 8191 (Hex is 1FFF) is for switching the Soft-GRAF page. Please must declare it as "internal" and assign an initial value 65535. For example, see the "To_Page" in the below table. If setting it as 1, the Soft-GRAF HMI will switch to the Page 1 and then this "To_page" will be reset as 65535 by HMI automatically. If setting it as 2, the Soft-GRAF HMI will switch to the Page 2 and then the Soft-GRAF HMI will reset "To_Page" as 65535 automatically. If setting it as a non-existing page number, the Soft-GRAF HMI will not switch the page.

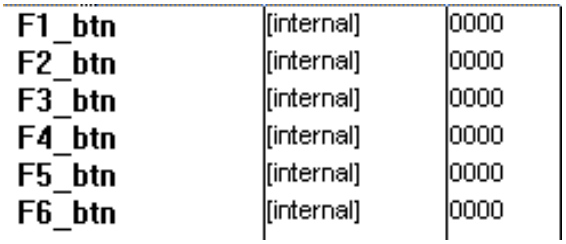
The integer variable which with the network address number 8190 (hex is 1FFE) is for reading the current Soft-GRAF HMI page number. The value can be 1, 2, 3...

Name	Type	Attribution	Network Addr.	Description
To_Page	Integer	Internal	8191 (Hex = 1FFF)	**Must set an initial value 65535.** for switching HMI page
Current_Page	Integer	Internal	8190 (Hex = 1FFE)	For reading the current page number.



The VP-25W7/23W7 supports to switch the Soft-GRAF HMI screen from the background back to show on the fore-ground by pressing some Function keys "F1" to "F6" on the VP-2xW7. (Note: This function is supported since the VP-2xW7 ISaGRAF driver version 1.21.)

In the ISaGRAF project, declare the "F1_btn"~"F6_btn" to be the Boolean/Internal variables, used to read the F1~F6 states of the VP-2xW7.

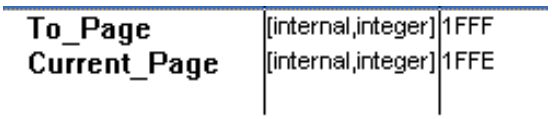


F1_btn	[internal]	0000
F2_btn	[internal]	0000
F3_btn	[internal]	0000
F4_btn	[internal]	0000
F5_btn	[internal]	0000
F6_btn	[internal]	0000

Declare two Integer/Internal variables and assign them the following NetWork Addresses:

To_Page: set NetWork address as "8191" (Hexadecimal: 1FFF).

Current_Page: set NetWork address as "8190" (Hexadecimal: 1FFE).



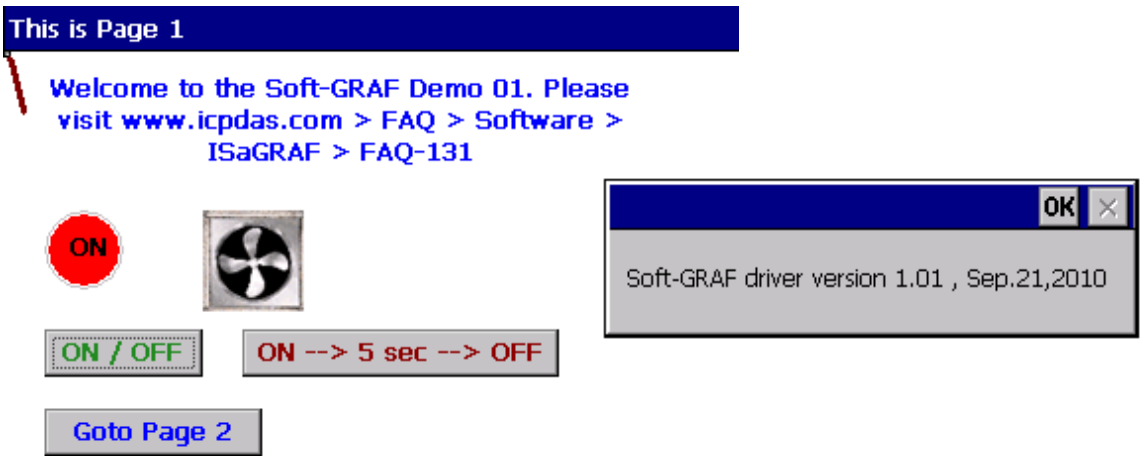
To_Page	[internal,integer]	1FFF
Current_Page	[internal,integer]	1FFE

Then add the following ST code, so that the F6 key can switch the Soft-GRAF HMI screen back to show on the fore-ground if it is hidden by some other windows (i.e. the windows explorer).
(Note: the variable "Current_Page" can be changed to other integer value to switch the HMI page to other 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 ;
```

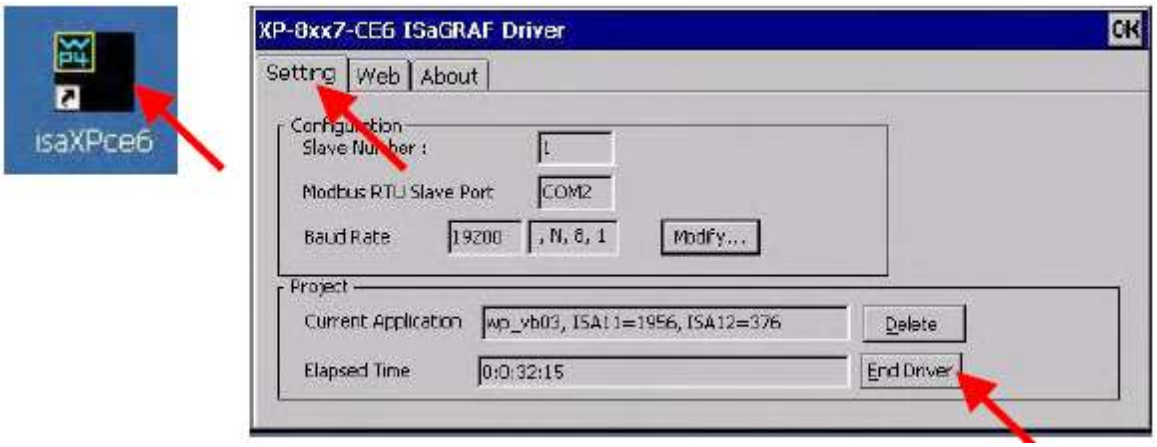
1.6.5 : Check/Upgrade the Soft-GRAF driver version

Check the current Soft-GRAF driver version: click the left-top corner of "Page 1".



Upgrade the Soft-GRAF driver:

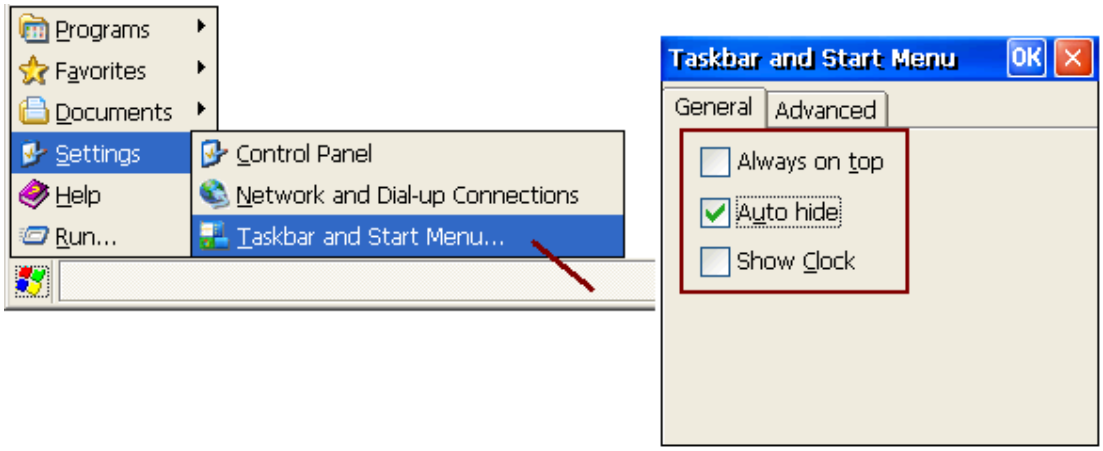
1. Stop the running ISaGRAF driver



2. Download FAQ-146 (http://www.icpdas.com/root/support/faq/isagraf.php > 146), and copy the file "Soft-GRAF.exe" in the "faq146_demo_chinese.zip" to the directory of \system_disk\isagraf\ in the PAC via ftp or USB disk method (replace the old file "Soft-GRAF.exe").

1.6.6 : To display the Soft-GRAF HMI with real FULL SCREEN

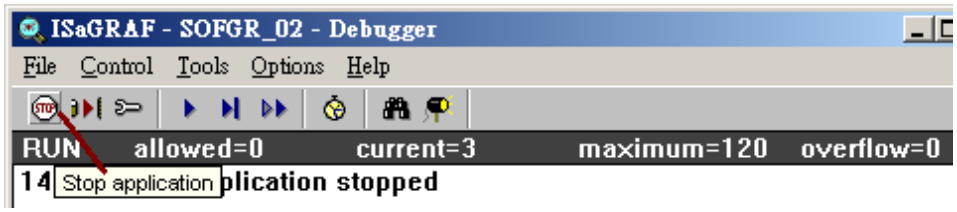
When complete all design and testing of the control logic and Soft-GRAF HMI, user may do the following setting to display the Soft-GRAF HMI with real full screen. This prevents anyone to mis-operate the PAC's OS.



How to stop the real full screen ?

When the PAC is setting as "Toolbar Auto hide", the Soft-GRAF HMI will occupy the full screen. Then it is not possible to do any operation for the PAC's OS. There is two possible ways to solve this problem.

1. (Recommend using this way) : PC running ISaGRAF to connect to the PAC and then click "Stop application" .



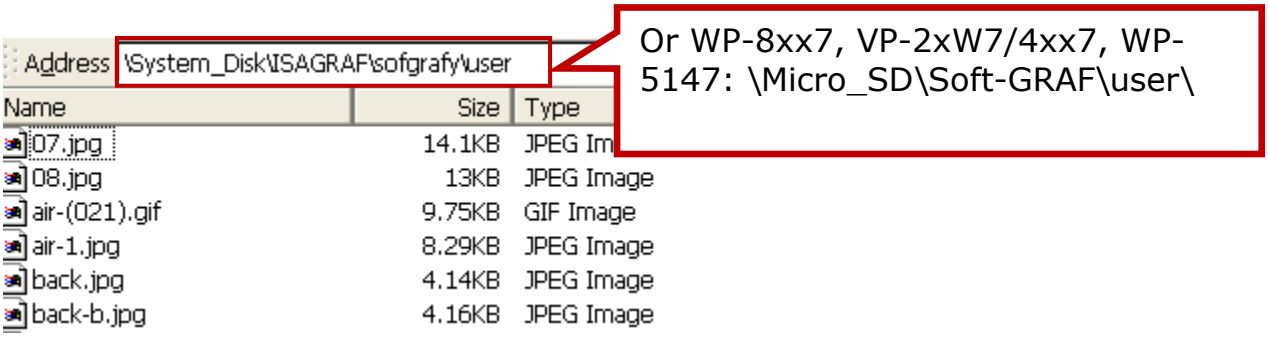
2. (Not recommend using this way) : Power OFF the PAC and turn the PAC's Rotary-switch to 1: Safe mode, Power it up with "Safe Mode".

1.6.7 : File management for user edited pictures

Picture files in the PAC:
All user used pictures in the project after download into the PAC will be stored in the following directory:

XP-8xx7-CE6: \System_Disk\ISaGRAF\sofgrafy\user\
WP-8xx7, VP-2xW7/4xx7, WP-5147: \Micro_SD\Soft-GRAF\user\

If there are too many pictures and you want to manage them, you can delete all the pictures files under that picture directory (But do not delete the folder "user".) and download pictures again via Soft-GRAF Studio.

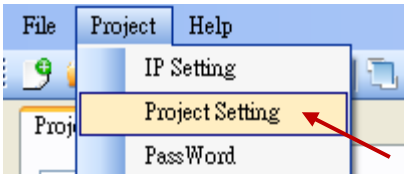


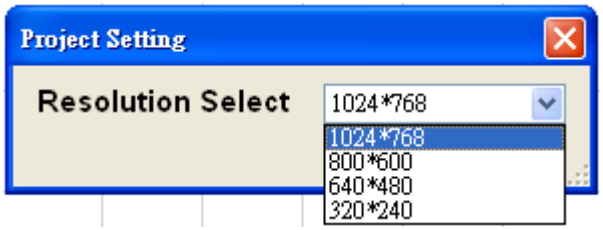
For saving the download time, Soft-GRAF checks the file name and size when download the project to the PAC to decide overwrite that file or not. If the file size is the same, it will not download that file. So, when the picture of HMI screen is not update, please delete the non-updated files in the picture directory of the PAC (as above), and then download the project again via Soft-GRAF Studio.

Picture files in the PC / Soft-GRAF Studio:
Normally, the Soft-GRAF Studio will copy all user edited picture files to the D:\Soft-GRAF Studio\ <project-name> \pic\ directory when using them. If user wants to modify the picture file, please close the Soft-GRAF Studio first, then edit the picture file in the D:\Soft-GRAF Studio\ <project-name> \pic\ directory.

1.6.8 : Change the Project Resolution

User can change the programmed project resolution according the using PAC by the menu function "Project" --→ "Project Setting".





There are four resolution selections now. Please choose the resolution that suitable for your PAC.

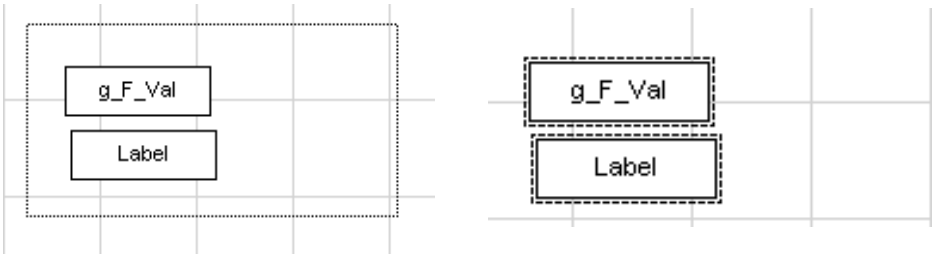
The PAC Resolution:

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

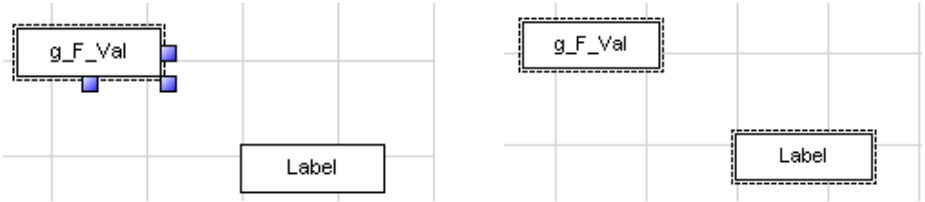
1.6.9 : Select multi-objects to move, copy and delete

The functions in this section have supported since Soft-GRAF Studio Version 1.03.

1. Select multiple HMI objects
   There are two ways to select:
   (a) Using mouse dragging: The mouse left key click on the blank space and drag out a selection box to include all objects you want to select, as below.



   (b) Using mouse and keyboard: After select one object, press the Ctrl key of the keyboard, and then mouse left key click on the second or more objects to select all HMIs you want to select, as below.



2. Multi-object clipboard functions: Provide cut, copy and paste multiple objects. The operation is the same. Please refer to the 1.6.1 .
3. When select one or more HMI objects, user can press the direction key (← → ↑ ↓) of the keyboard to adjust the position, and press once to move 1 pixel.

4. Add a new function about the object layer older: sent the object to the front/back or forward/backward one layer. User can use this function to hide or display the HMI objects. Please refer to 1.6.3 for the operation.

As the order of the tool icon:

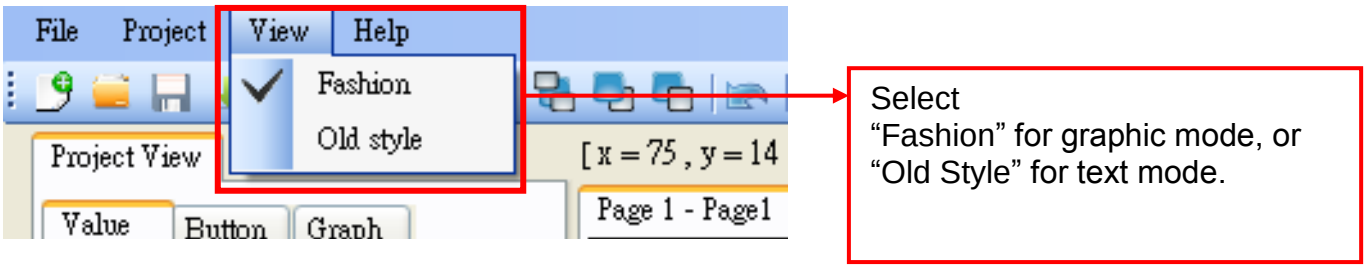
a. Sent to Front
b. Sent to back
c. Forward one
d. Backward One

1.6.10 : View the Fashion mode or Old Style mode

Soft-GRAF Studio provides two view modes of tool box for user to switch.

How to Switch the View Mode:

Click menu [View]



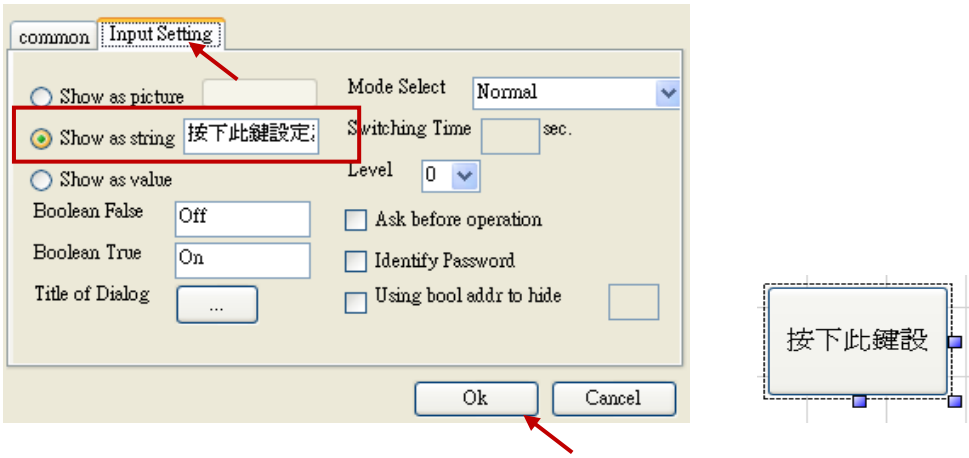
1.6.11 : Display Multi-line text on the Button

The Soft-GRAF usually displays the text on the button in single line. When the text is long, such as "Set-Motion-Mode", it will not display all of the text if the button length is not long enough. Please set the space character " " between the words to display the text in two or more lines, such as "Set Motion Mode".

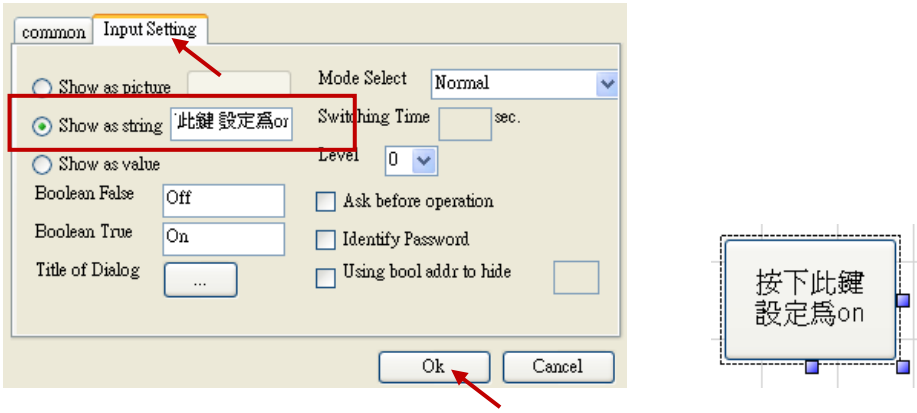
The Soft-GRAF supports the space characters " " in the "Title" or "Show as title" options of the Button Objects: g_B_Inp, g_N_Inp, g_F_Inp, g_M_Inp, g_ToPage, g_Login, g_Logout and g_Logger1 to display the multi-line text.

Example:

Using the following "g_B_Inp" as an example, double click the button or right-mouse click the button then select the "Setting" option to open the setting box. Enter a long text in the option "Show as string", e.g. "按下此鍵設定爲 on", then click "OK". The text is too long so that it cannot display the entire contents as below.



Recall the setting box to insert a space " " in the text of the "Show as string", e.g. "按下此鍵 設定爲 on". After clicking "OK", the button text is displayed in two lines as below.

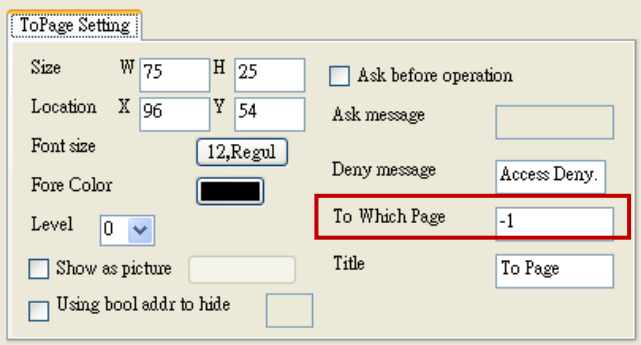


1.6.12 : How to use g_Topage to back to the previous page or call the Schedule-Control Utility

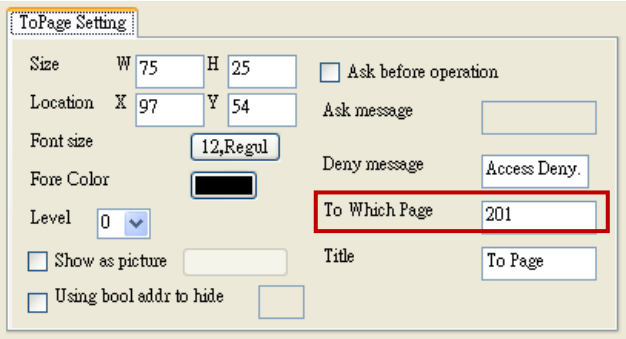
The Soft-GRAF supports to go back to the previous page and call the ISaGRAF Schedule-Control Utility since V.1.26. Refer to FAQ166 for the Schedule-Control:

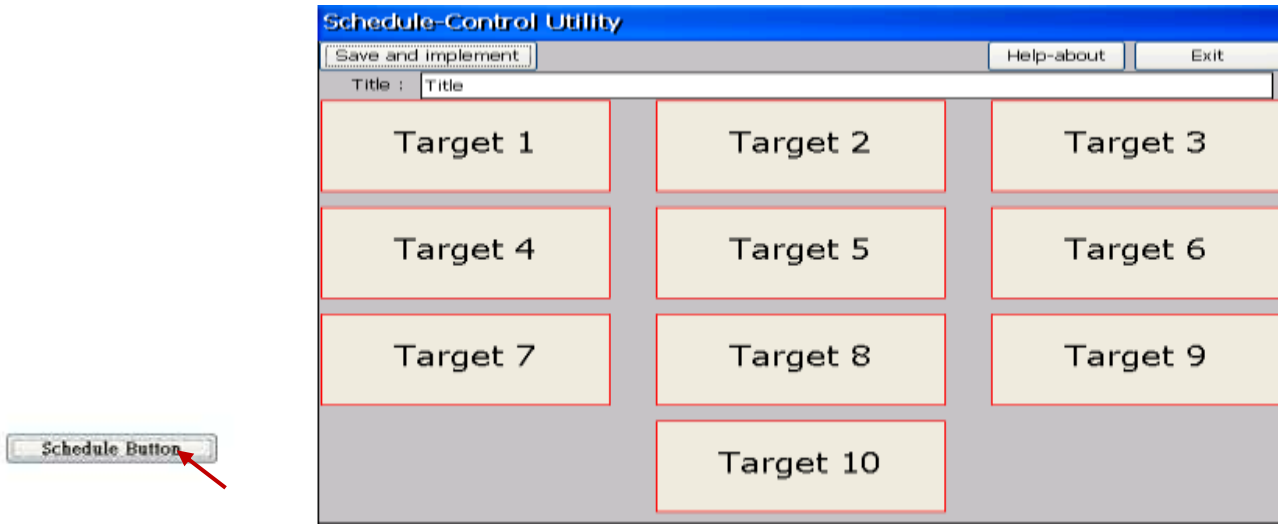
http://www.icpdas.com/root/support/faq/isagraf.php > FAQ166

If want to use the function of "Back To the Previous Page", please enter "**-1**" to the "To Which Page" option of the "g_ToPage" window in the Soft-GRAF Studio.



If the user want to call the function of the ISaGARF Schedule-Control, enter "**201**" to the "To Which Page" option of the "g_ToPage" window.



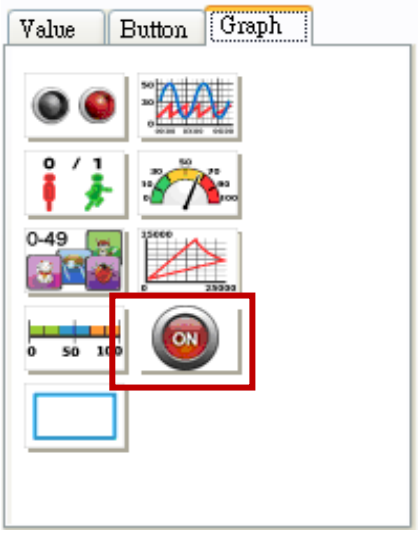


1.6.13 Using the Image gallery

The Soft-GRAF Studio v1.10 provides an image gallery. User can create this object by using the new icons in the toolbox. Then, select an image that has two states (On/Off) and four sizes selectable. User can see the changing of selected image in the preview window. The usages for this object and image gallery are described as follows.

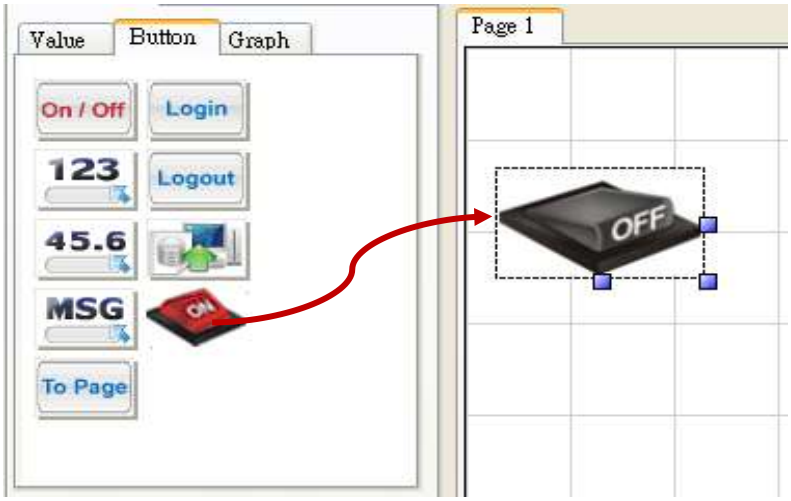
Create the image object :

For the purpose of easy-to-use, the Soft-GRAF Studio add two "g_B_Inp_Lib" and "g_B_Pic_Lib" objects in the toolbox for supporting the image gallery. Users can choose any of the images in the image gallery, and the setting page is more simpler.



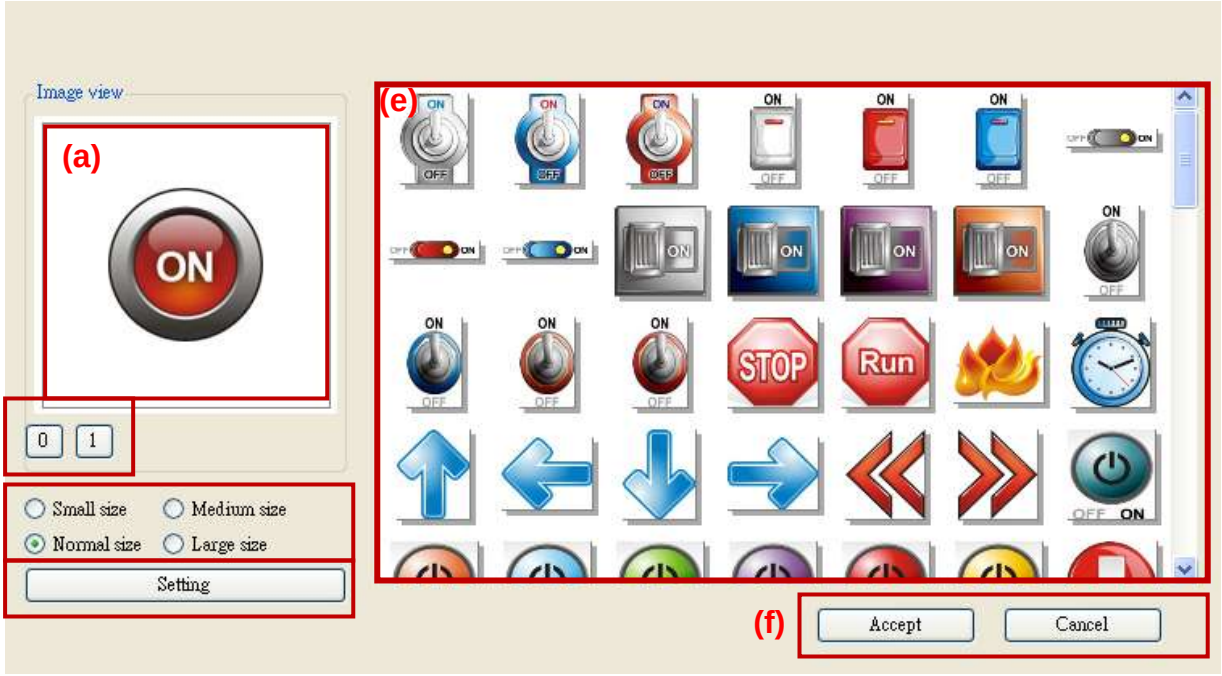
The settings for the object are described as follows:

1. When users drag & drop a "Button - g_B_Inp_Lib" object to the editing area, it will display the default image.



2. Double click on this object to open the image gallery, and then select required image, then click "Accept" to complete the setting.

3. The details of this configuration page are described as follows. In addition, if you want to configure the original setting (e.g., Network Address) for the "g_B_Inp" or "g_B_Pic", simply click "Setting" to call the setting menu. Refer to Section 1.3 for details of the setting menu.



(a).Image view : it will display the selected image.

(b).Switching status : press "0" or "1" button to view the changing between "on" and "off" images.

(c).Image Size : four image size selectable, e.g., "Small size", "Medium size", "Normal size" and "Large size".

(d).Setting : Set the "Address" and related functions of the object.

(e). Image Gallery : click on any of the images in the gallery, it will display in the "Image view" window.

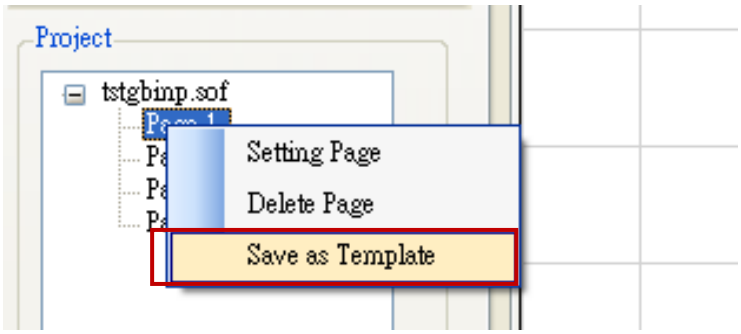
(f).Accept/Cancel : press "Accept" button to apply the settings or press "Cancel" without saving any settings.

1.6.14 Creating a Template

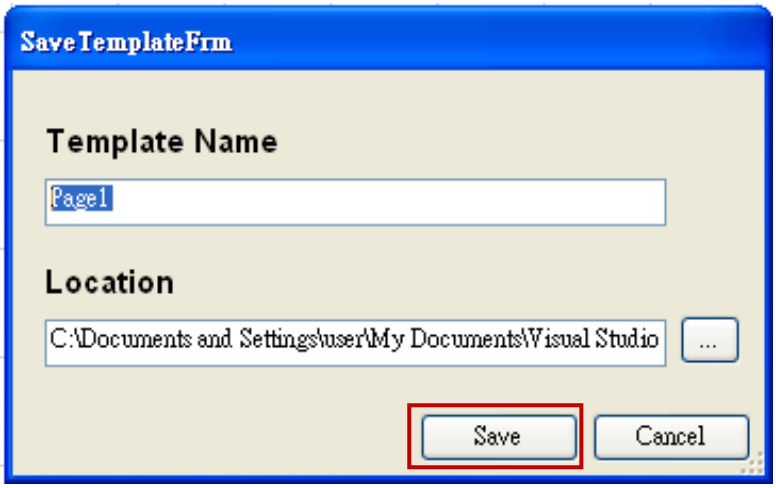
The Soft-GRAF Studio v1.10 provide a template feature for users to copy the HMI page and add it to other projects. Follow the procedure indicated in the figure below:

Save as Template :

1. Mouse right-click any of the HMI pages (e.g., Page1) in the Project area.

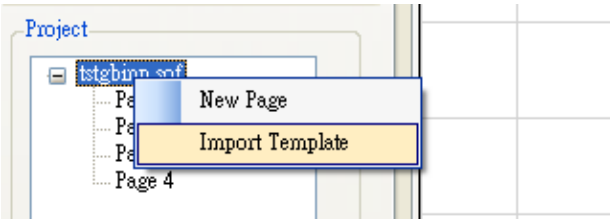


2. Select "Save as Template" and assign the location you want to archive. After doing this procedure, it will create a folder that includes one xml file and one image folder.

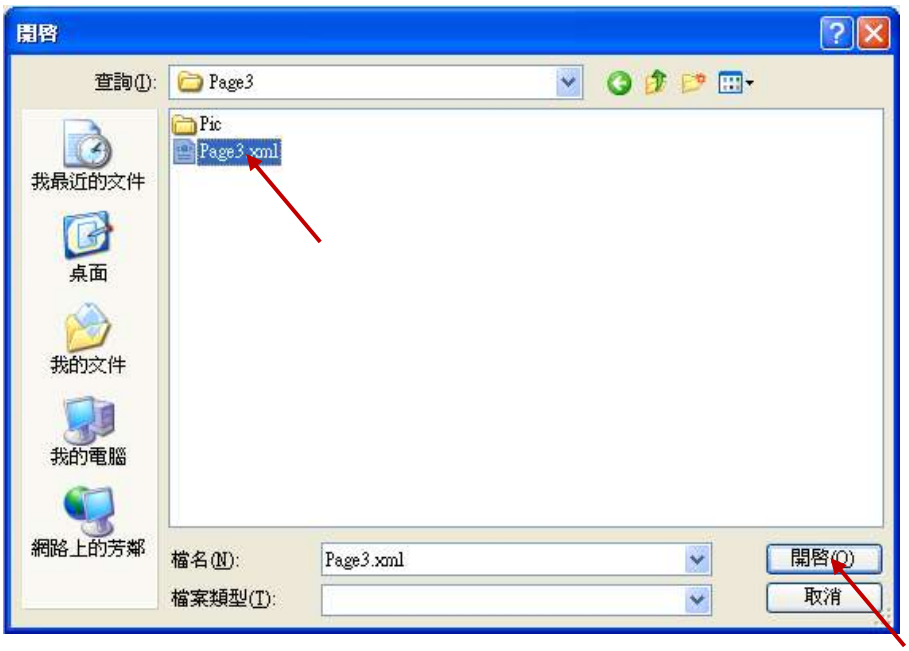


Import Template

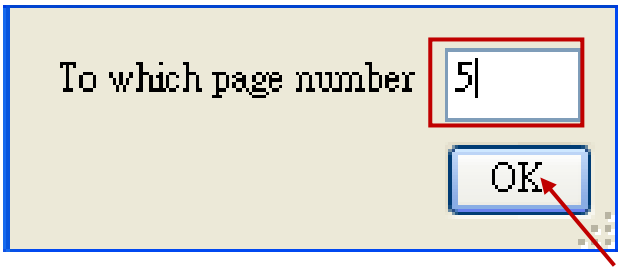
1. Click the project name (e.g., tstgbinp.sof) in the Project area.



2. Select "Import Template" and choose an xml file (e.g., Page3.xml, refer to the previous page), then fill in the page number you want to add.



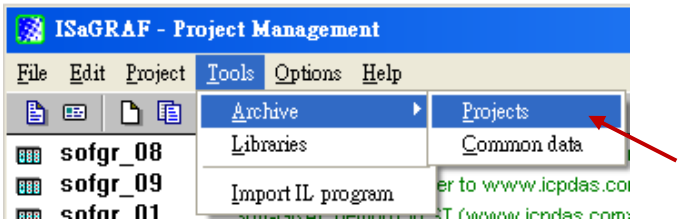
※ **The page number cannot be repeated (i.e., it cannot be an existing project page), otherwise it will not be imported.**

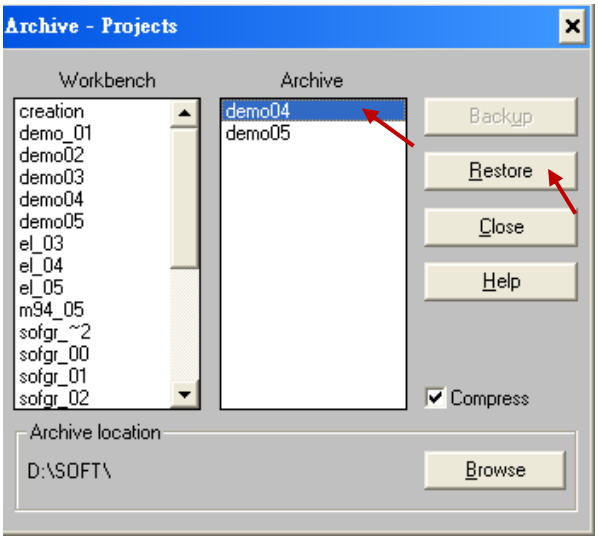


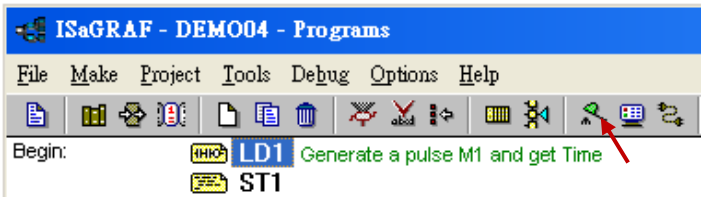
1.7 : The description of some Soft-GRAF Studio demo projects

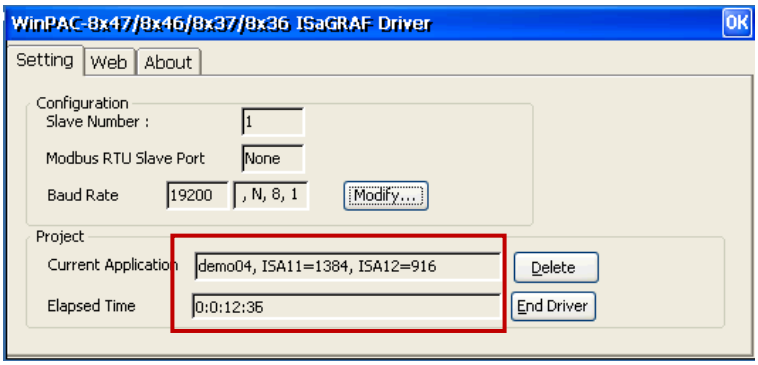
1.7.1 Demo04: display the Objects and the HMI access

This demo displays all HMI Objects and basic operation. First, restore "demo04.pia" and download it to the PAC.

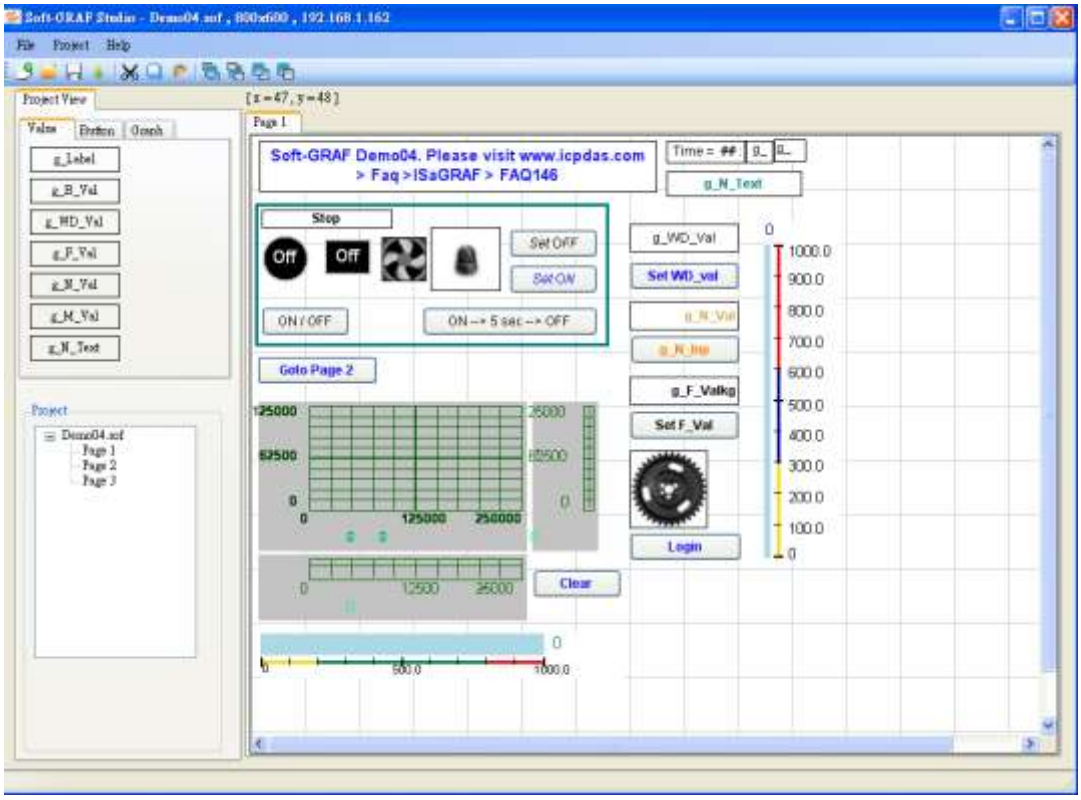


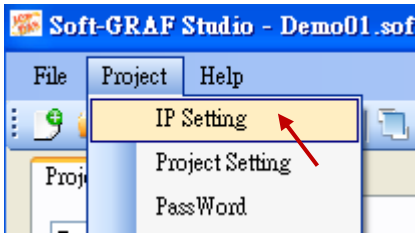


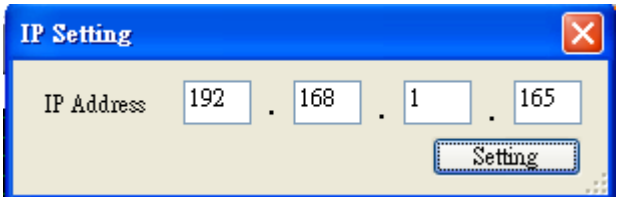


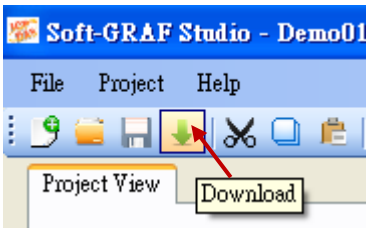


Use Soft-GRAF Studio software to open "demo04.sof". It shows as below. (Refer to Ch.1.2 for the steps.) Set up the download IP and then download the project.



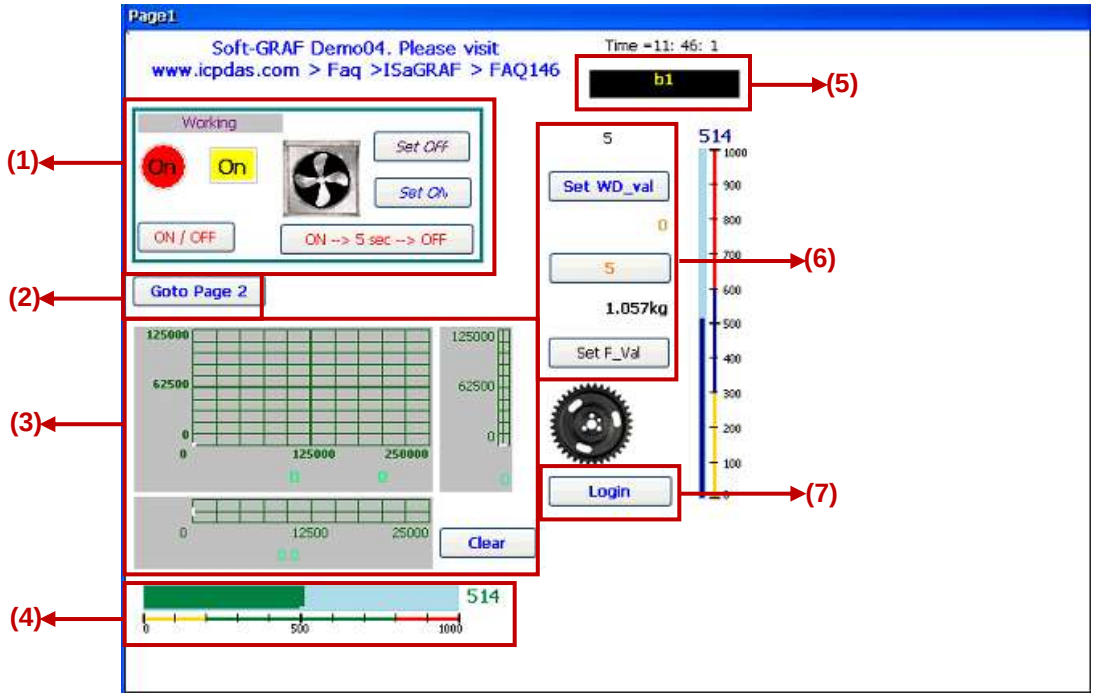






The HMI screen of PAC is as the following picture. "Demo04" contains three HMI pages: Page1 displays all objects, and Page2 & Page3 display the security function and the using ways.

Page1:



Description and testing:

(1) Use a Boolean variable to test g_B_val, g_B_Inp, g_B_Led, g_B_Pic. Set the g_B_Inp as different input type to switch the Boolean variable, such as, press the button "ON→ 5 sec → OFF" can set the Boolean to "True" for 5 seconds and then set it to "False".

(2) Switch to Page2.

(3) Display the Trace function – draw the curve according to the read value. Setting the "Action Address" can select the way to draw, and setting the "Clear Address" can clear the curve by manual. In the HMI Page2, user can press the button "Clear" to clear the trace curve.

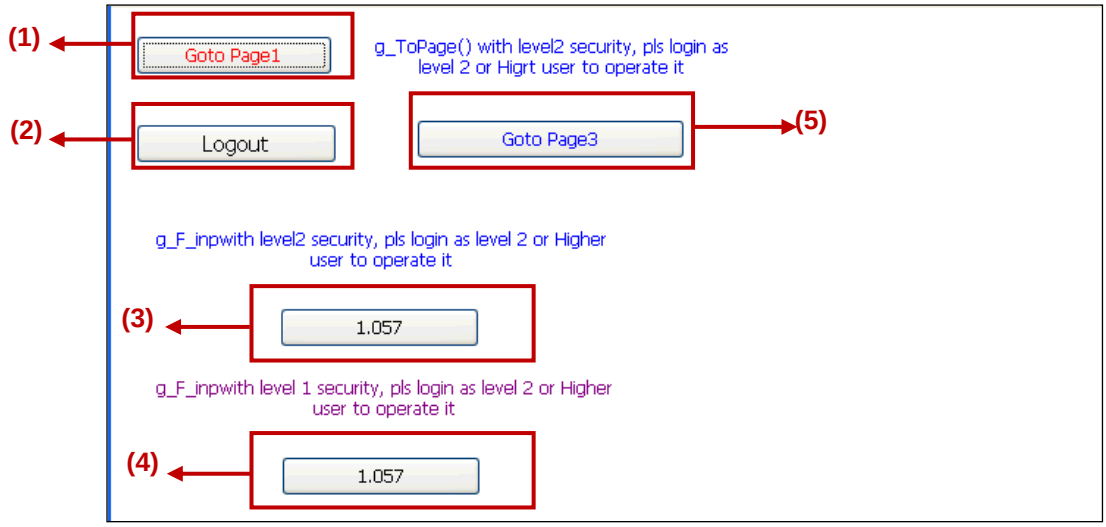
(4) Display a Bar-meter.

(5) A g_N_Text object: display the specific text according to the read value.

(6) The buttons set a Word, Integer or Float value from up to down.

(7) Press the login button can go to Page2.

Page2:



(1) Press the button to go to the Page1

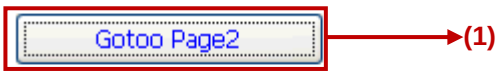
(2) Log out. If login from the "Login" button of Page1 and login successfully, press this button can return to Page1 and logout.

(3) This is a g_F_Inp object with the level 2 authority protection. If user does not login with the Level 2 (or upper Level) password that setup in the Soft-GRAF Studio designing step, user cannot input this Float value. For test this button, please go to Page1, press the button "Login" and enter the password "012345", then the system will go to Page2 automatically, and then user can press this button to change its value.

(4) The function is the same as (3). For testing, go to Page1 and enter the password of Level 1 or Level 2.

(5) Switch to Page3. This button, the same with the authority protection, switches to Page3 only when user logins in with the password of Level 2 or upper level.

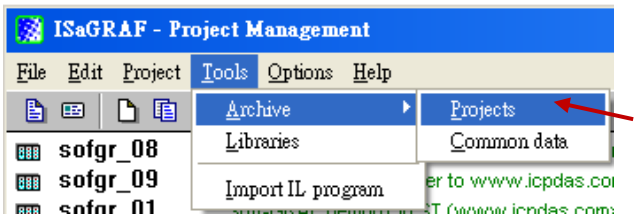
Page3:

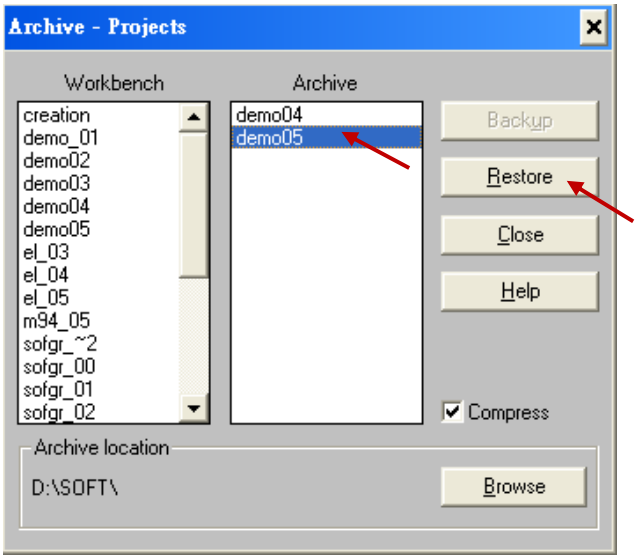


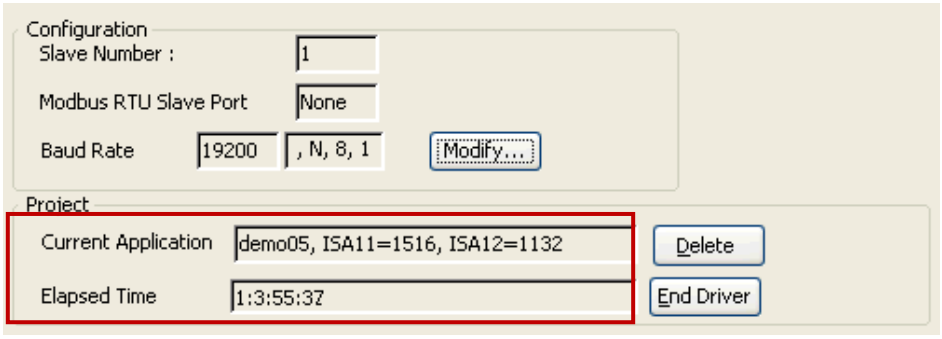
(1) Switch to the Page2.

1.7.2 Demo05: My Sweet Home Demo Description

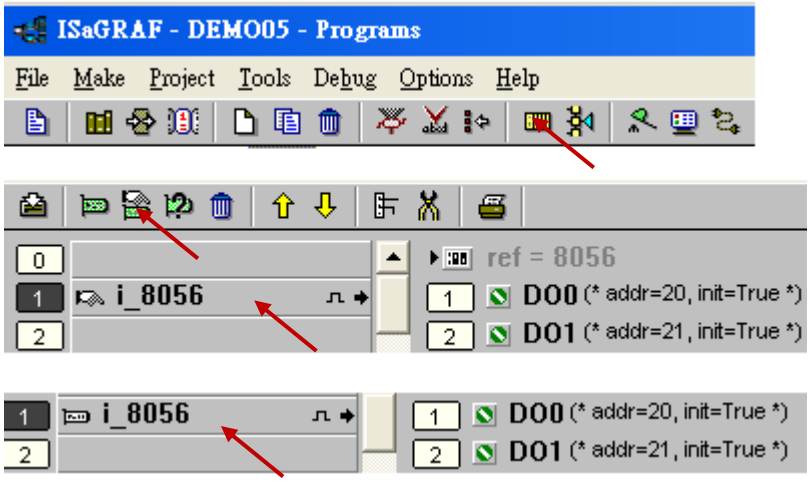
This demo shows how to design an interactive and dynamic HMI page. Restore "demo05.pia" and download to the PAC.







This demo default without use I/O card. If need the I/O card, user can install an I-8056W in the Slot 1 of the PAC, change the i_8056 of the IO Connection setting in ISaGRAF project to "Real board", re-compile project and download it into the PAC. The DO control points in this demo will output to the I-8056W card.



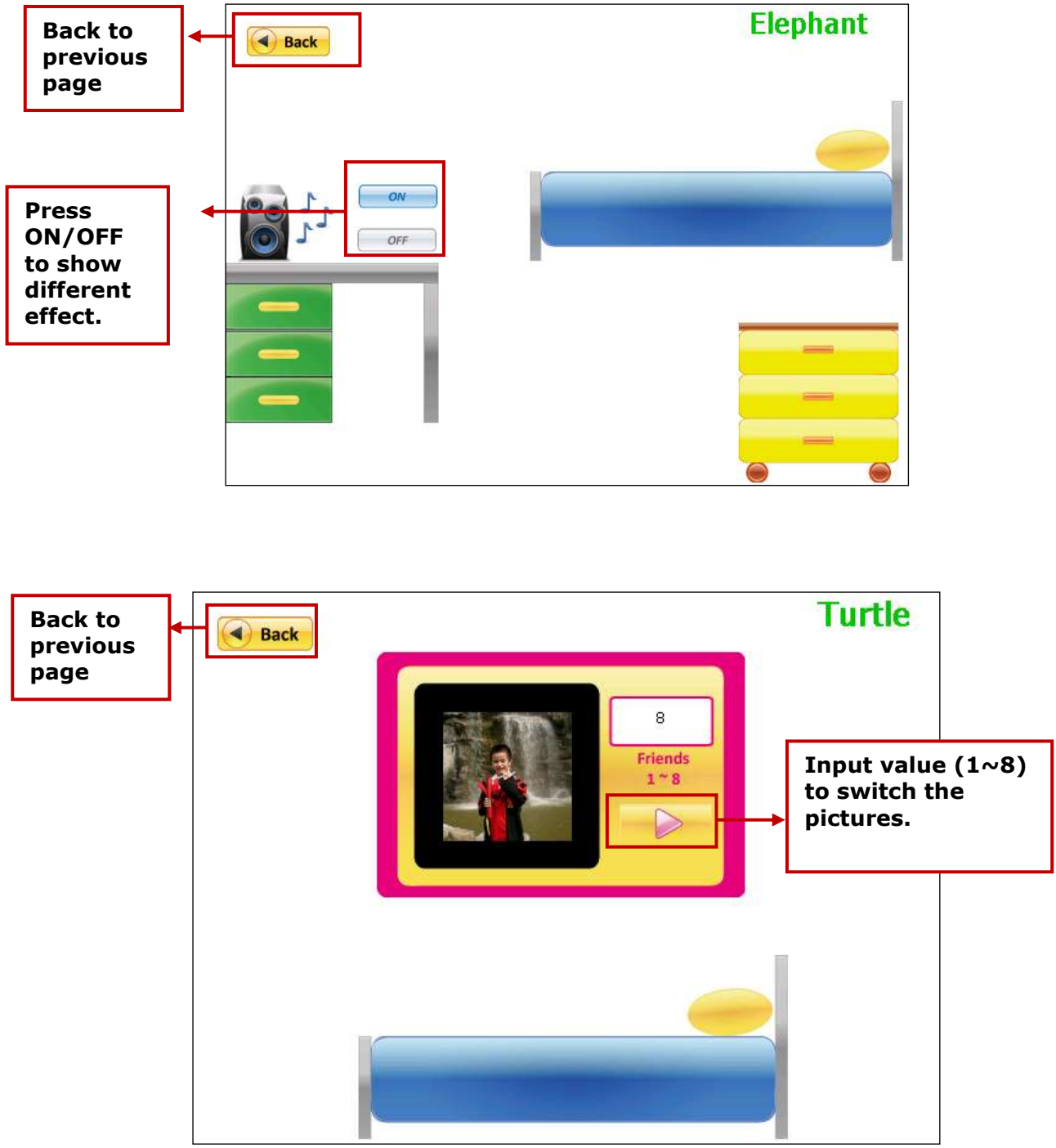
Use the Soft-GRAF Studio software to open the "Demo05.sof" as below. (Refer to Chap. 1.2 for the steps.) Set up the Soft-GRAF Studio download IP and download the project. (Refer to Chap.1.7.1 for the steps.)

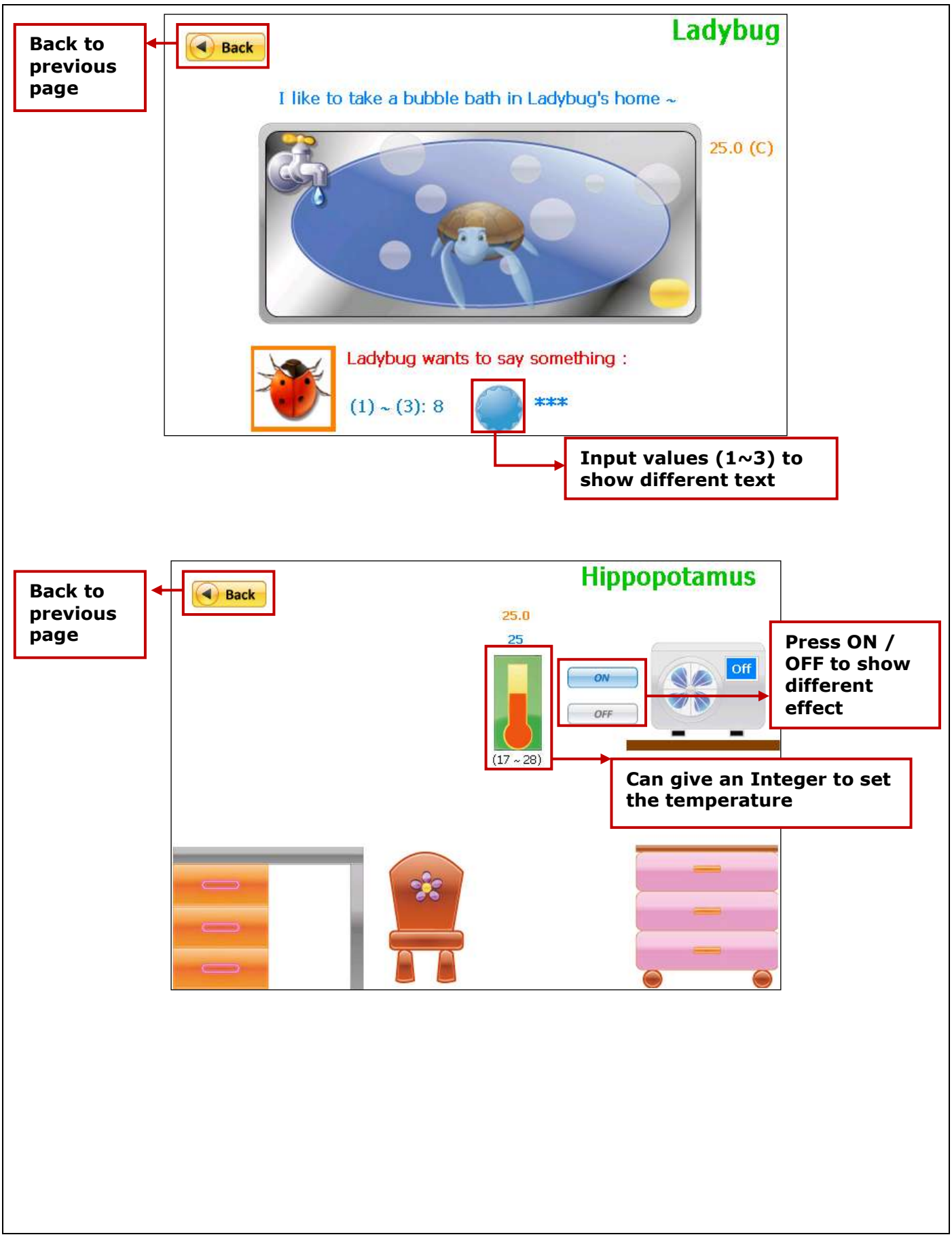
The HMI screen on the PAC is as below. Demo05 has 10 pages and illustrated as following.

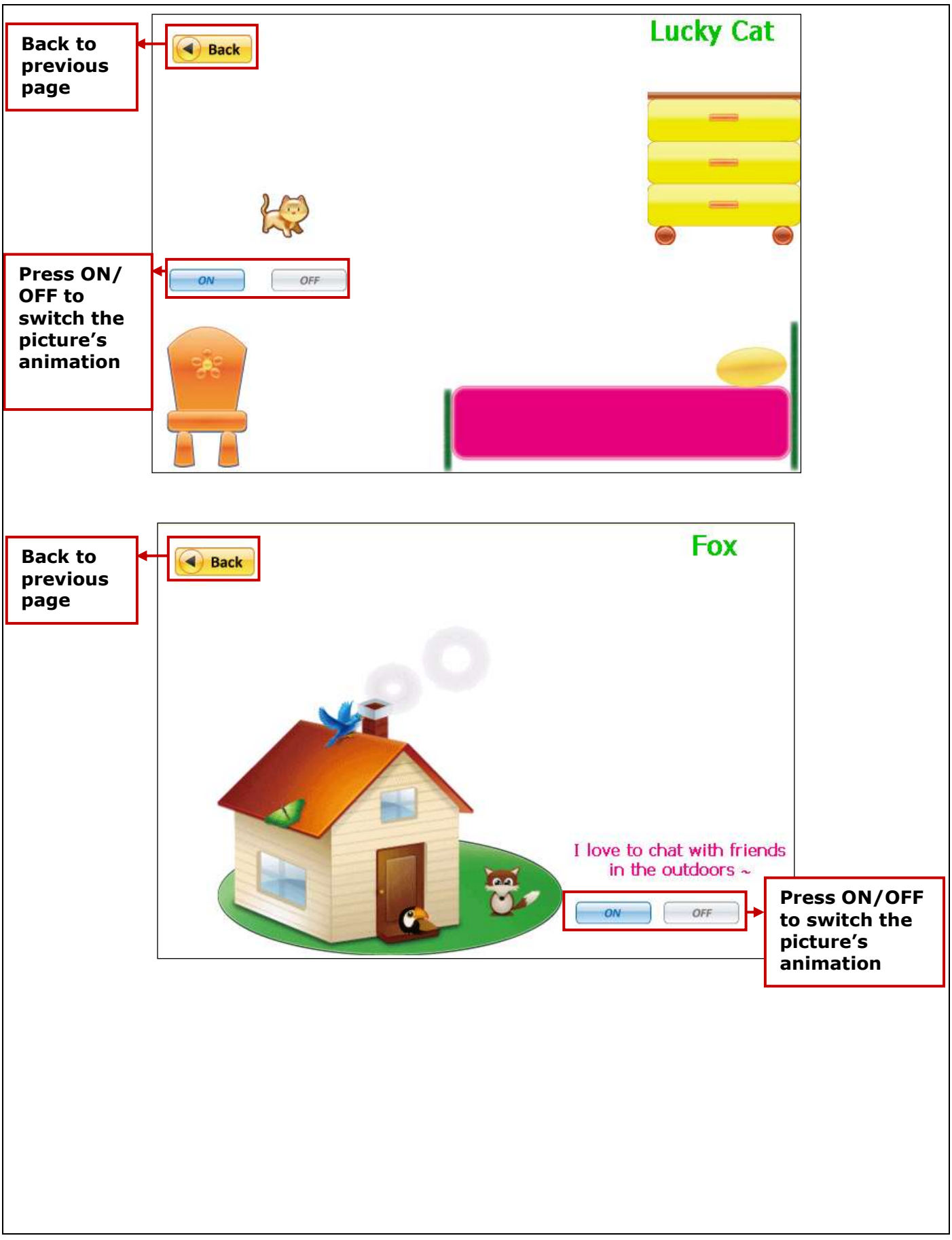
To Page 2

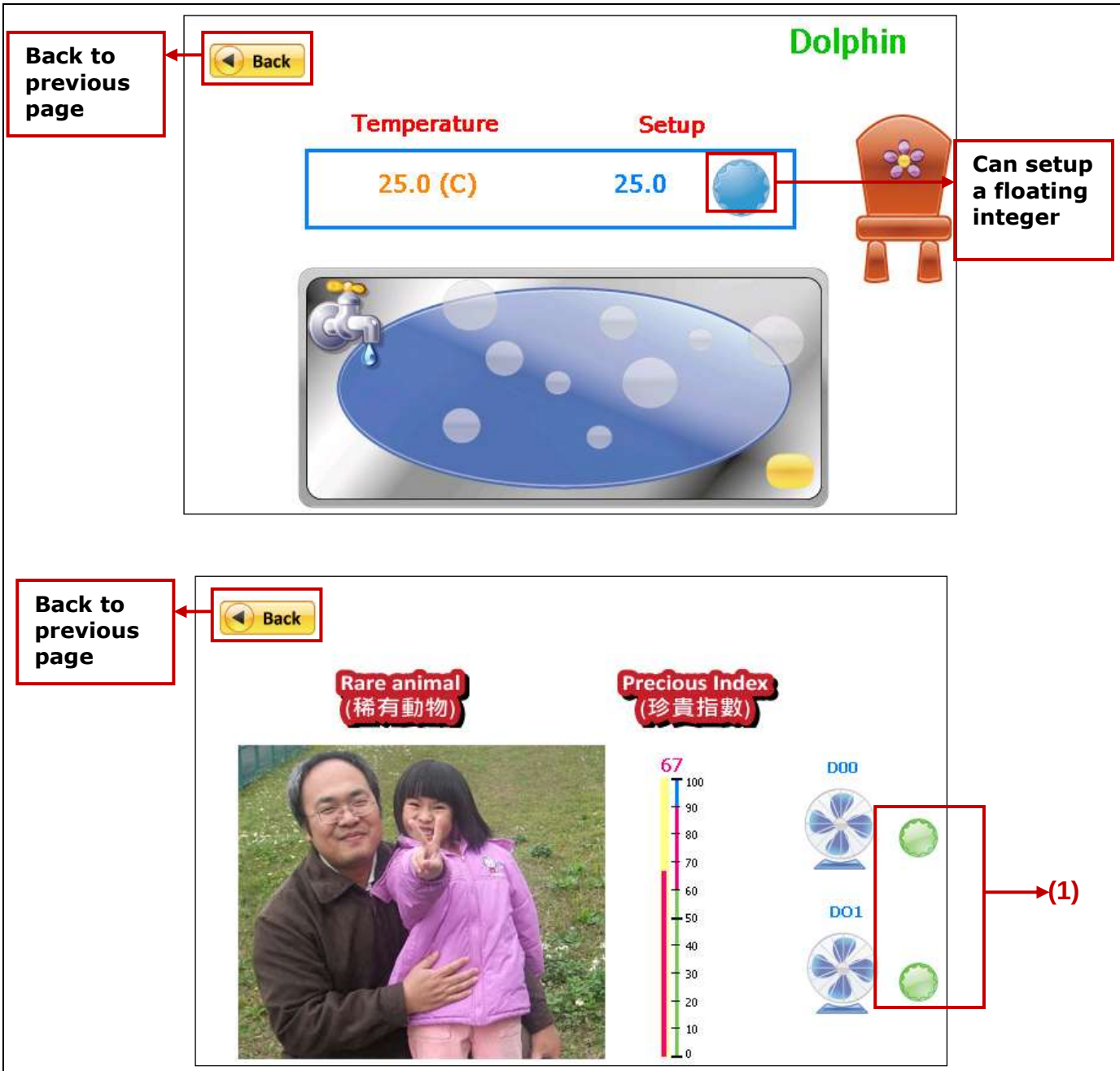
Back to previous page

Press to different pages


Back to previous page
Back
Elephant
Press ON/OFF to show different effect.
ON
OFF
Back to previous page
Back
Turtle
8
Friends
1 ~ 8
Input value (1~8) to switch the pictures.


Back to 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
***
Input values (1~3) to show different text
Back to previous page
Back
Hippopotamus
25.0
25
ON
OFF
Off
(17 ~ 28)
Press ON / OFF to show different effect
Can give an Integer to set the temperature

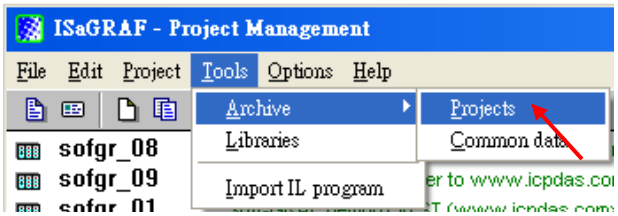

Back to previous page
Back
Lucky Cat
Press ON/ OFF to switch the picture's animation
ON
OFF
Back to previous page
Back
Fox
I love to chat with friends in the outdoors ~
ON
OFF
Press ON/OFF to switch the picture's animation

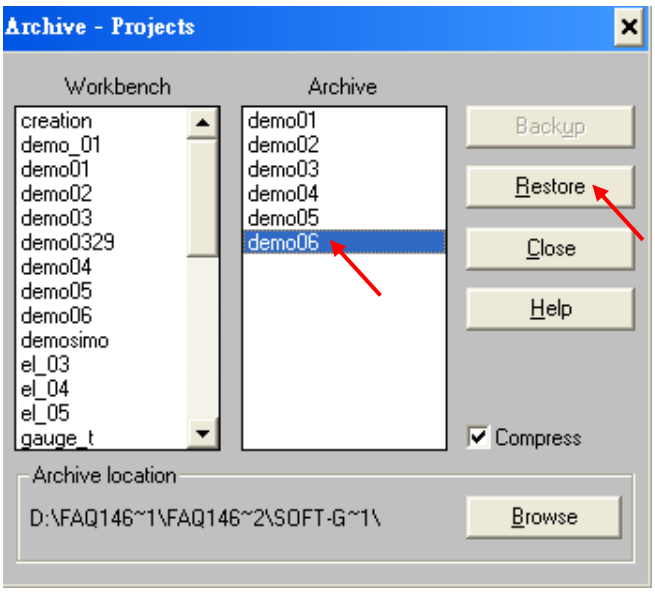


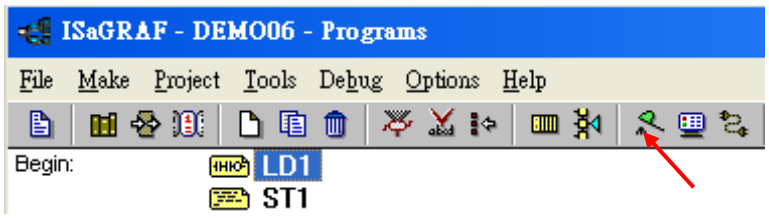
(1) They are two g_B_Inp objects. User can plug one I-8056 card on the PAC Slot 1 to test the DO switches. Setting object to TRUE can enable the picture's animation.

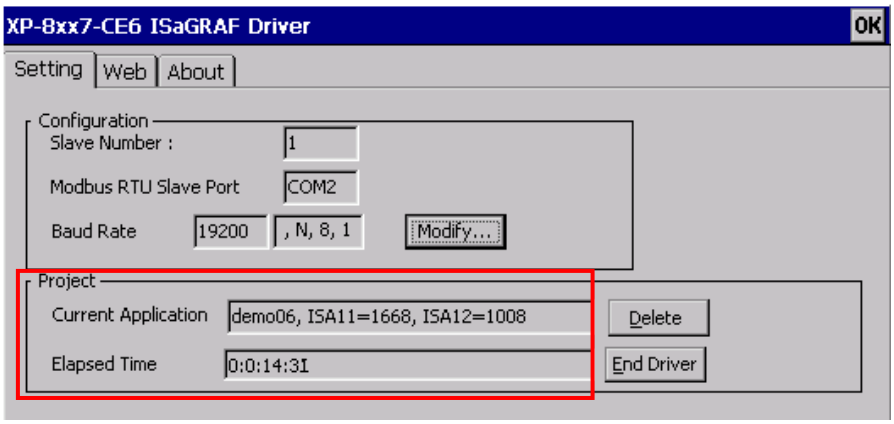
1.7.3 Demo06 : Display the trend curve and the angular gauge

This demo shows how to create the trend and gauge. Restore "demo06.pia" and download to the PAC.

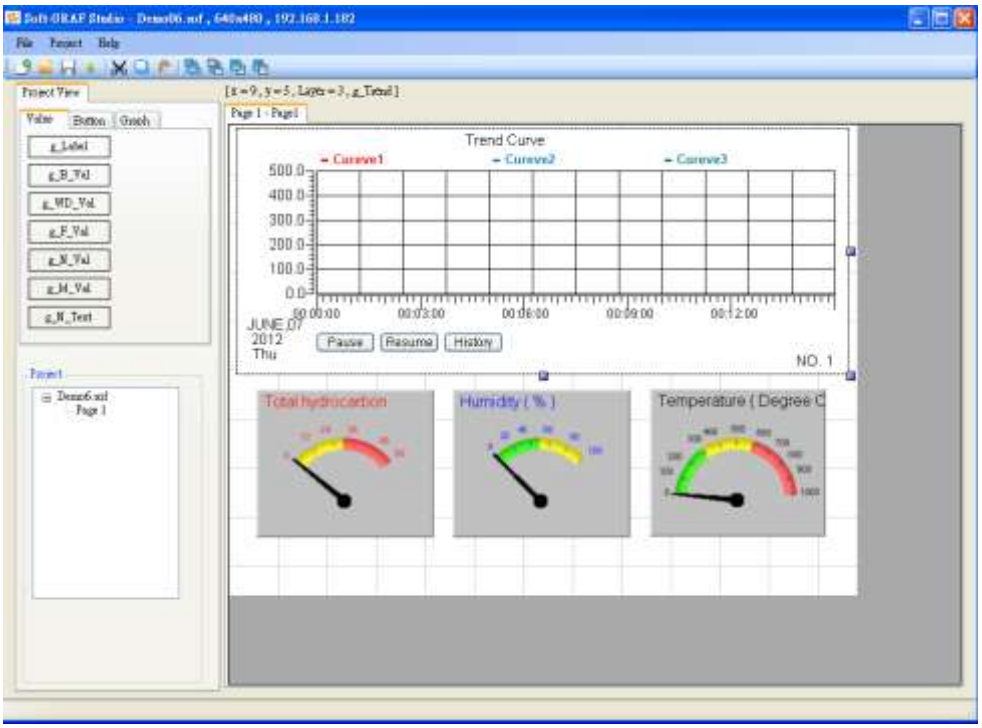




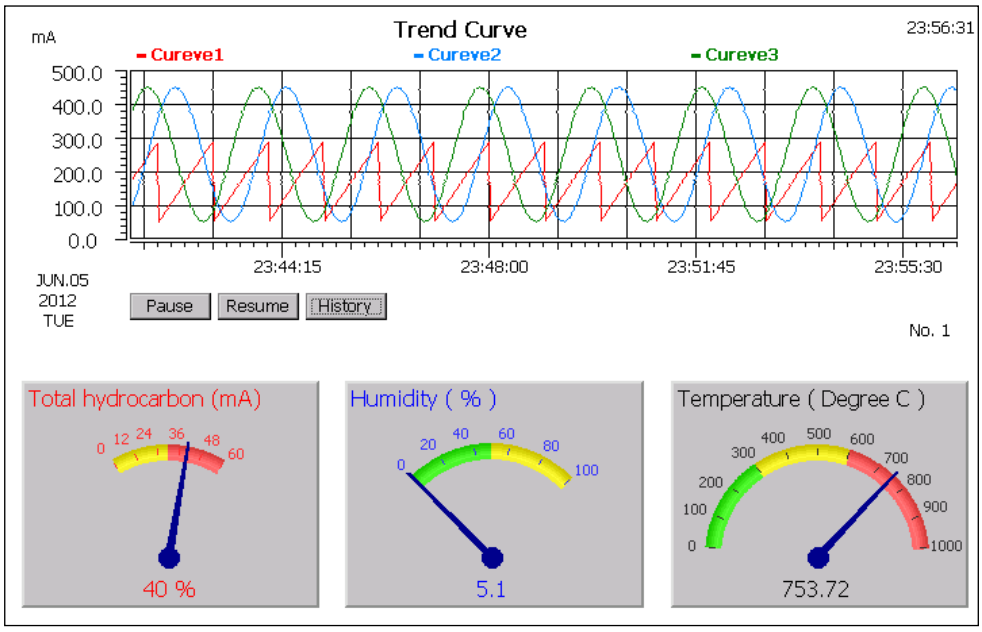




Use Soft-GRAF Studio software to open "demo06.sof". It shows as below. (Refer to Chap.1.2 for the steps.) Set up the download IP and then download the project. (Refer to Chap.1.7.2 for the download steps.)



The HMI screen on the PAC is as below. There is one page for the Demo06, the trend map on the upper side, the 3 gauges on the lower side. Click the "History" can show the history record of the trend curve.

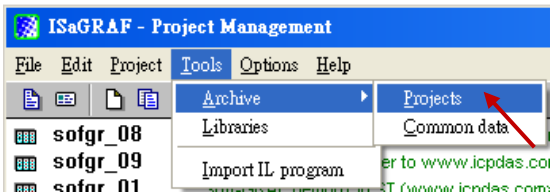


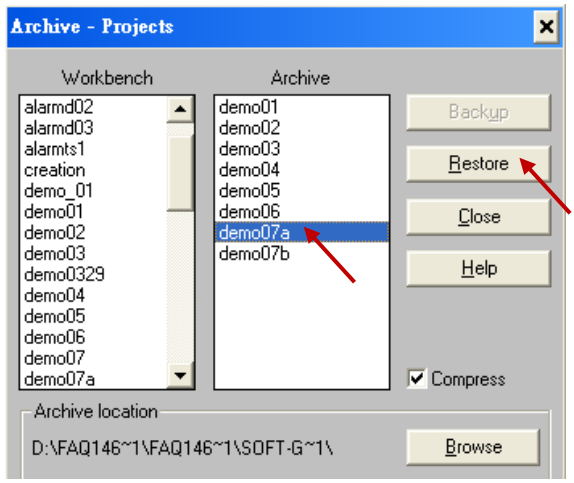
1.7.4 Demo07 : Using alarm message and alarm records

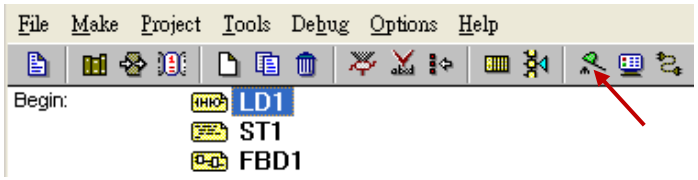
※ **Welcome to refer to another g_Alarm demo example in FAQ-160** (http://www.icpdas.com/root/support/faq/isagraf.php > 160)**.** Besides displaying the Alarm message, it can trigger the PAC to send message to user's mobil phone.

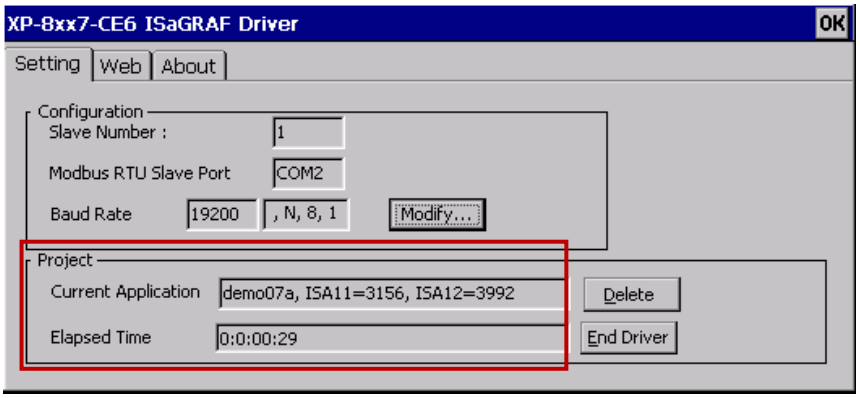
This Demo07a shows how to use g_Alarm object. First restore "demo07a.pia" to the PC/ISaGRAF, and then download it to an ISaGRAF WinCE PAC.

※ Demo07a triggers the English Alarm messages; Demo07b triggers the Traditional Chinese messages. If your PAC OS Language is different, change the "Encoding" option of g_Alarm object and the value of the Message variable in the ISaGRAF project. (Ex: for Simplified Chinese, set Encoding to "gb2312" and change the message of msg1 variable in the ISaGRAF project to Simplified Chinese text.)







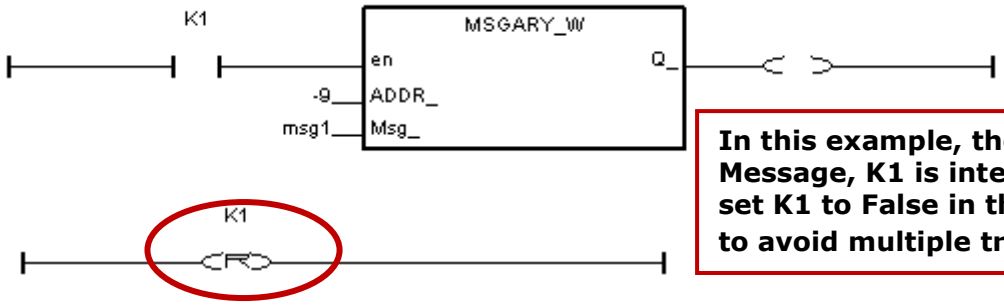


NOTE:
When using the ISaGRAF code MSGARY_W(-9, msg), MSGARY_W(-8, msg), MSGARY_W(-7, msg) and MSGARY_W(-6, msg) to send one Alarm message to the Soft-GRAF, the alarm message cannot include the CR character (Carriage Return: Enter, ASCII code 13) and LF character (Line Feed: change line, ASCII code 10). These two special characters will automatically be replaced by a Space character (ASCII code 32).

How to trigger the alarm message :
g_Alarm object must use the "MSGARY_W" function in the ISaGRAF project to trigger and record alarm message. The setup method is described by the following ISaGRAF project Demo07.

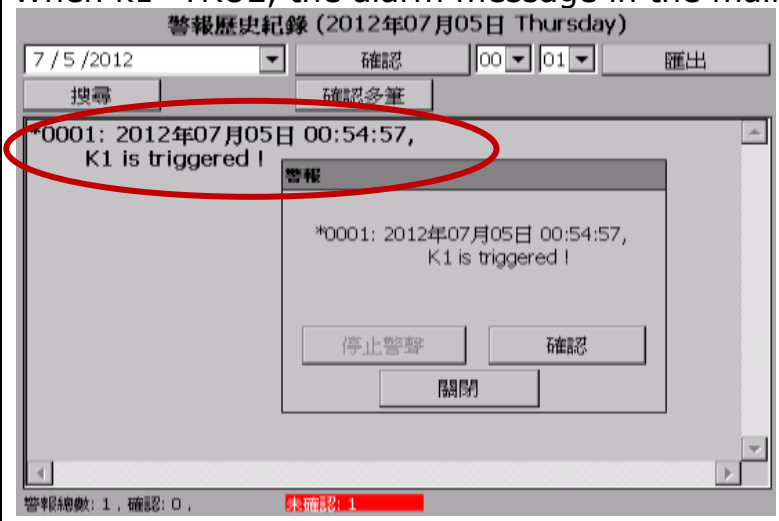
g_Alarm using the following methods to trigger the alarm message :
(1) In the function "MSGARY_W", set parameter "ADDR_" as "-9" and assign the alarm description to parameter "Msg". When the Alarm is triggered, it will pop up an ALERT message window and record this message in the g_Alarm list.

EX :
When "K1" is triggered, the g_Alarm will pop up a message window and display the content of the "msg1" variable. Then, remember to **reset the "K1"** to False to avoid multiple triggering.



In this example, the type of msg1 is Message, K1 is internal Boolean. Please set K1 to False in the 2nd line "—(R)—" to avoid multiple triggering.

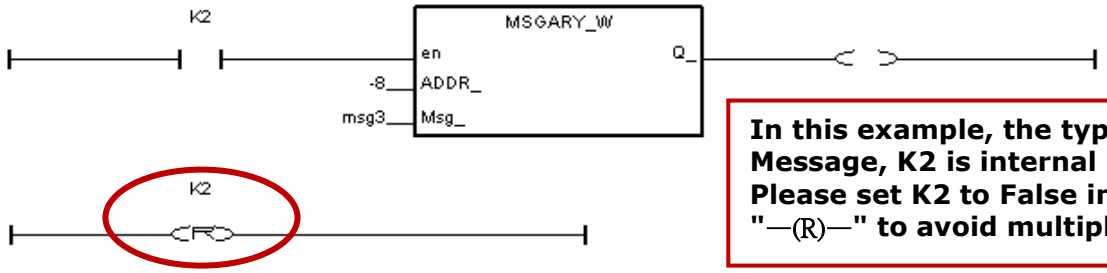
HMI Screen Side :
When k1=TRUE, the alarm message in the main Alarm window is as below.



(2) In the function "MSGARY_W", set parameter "ADDR_" as "-8" and assign the alarm description to parameter "Msg". When the Alarm is triggered, it only records message in the g_Alarm list, the ALERT window will not pop up.

EX :

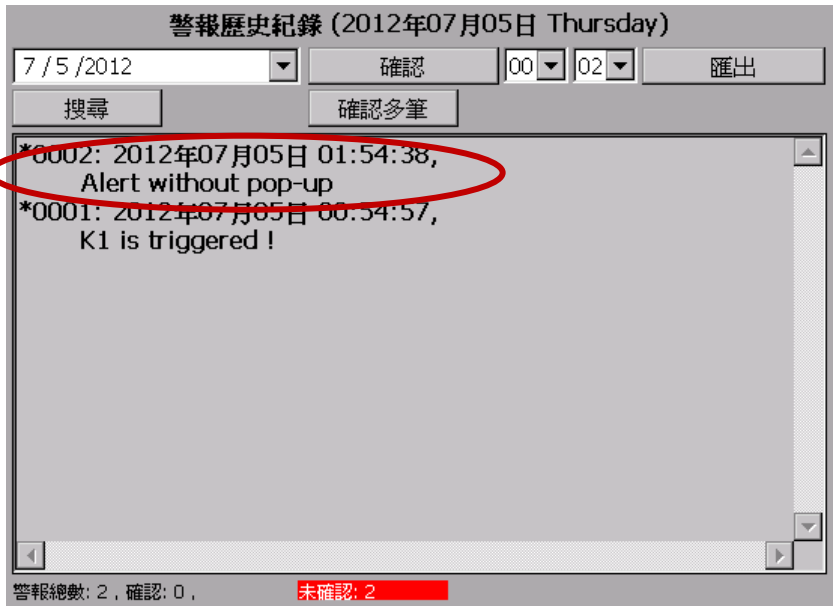
When "K2" is triggered, the g_Alarm will display the content of the "msg2" variable only. After the K2 is triggered, remember to **reset the "K2"** to False to avoid multiple triggering.



In this example, the type of msg2 is Message, K2 is internal Boolean. Please set K2 to False in the 2nd line "—(R)—" to avoid multiple triggering.

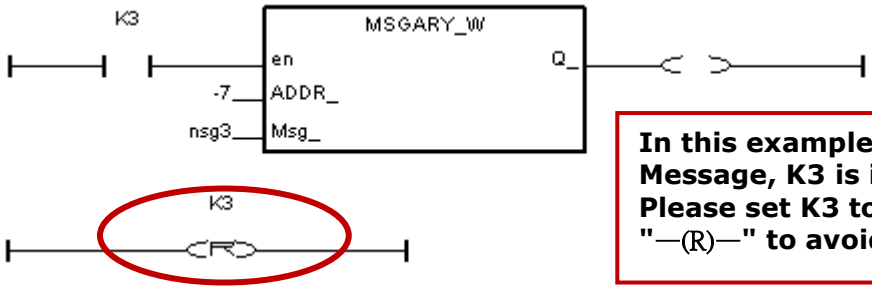
HMI Screen Side :

When k2=TRUE, the alarm message in the main Alarm window is as below.



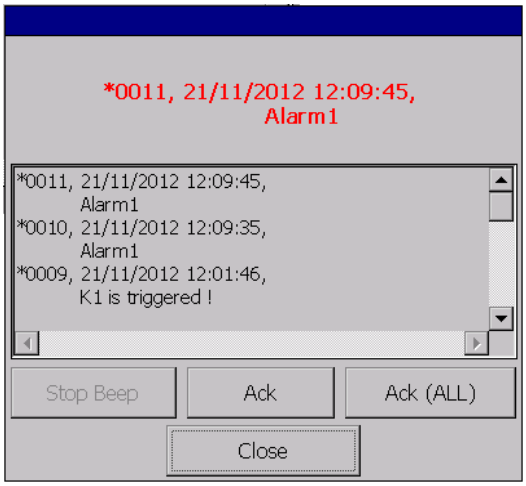
(3) In the function "MSGARY_W", set parameter "ADDR_" as "-7" and assign the alarm description to parameter "Msg". When the Alarm is triggered, it will pop up an ALERT message window (show all unacknowledged Alarm messages) and record this message in the g_Alarm list.

EX :



In this example, the type of msg3 is Message, K3 is internal Boolean. Please set K3 to False in the 2nd line "—Ⓡ—" to avoid multiple triggering.

HMI Screen Side :
When k3=TRUE, the alarm message in the main Alarm window is as below.



(4) In the function "MSGARY_W", set parameter "ADDR_" as "-6" and assign the specified text to parameter "Msg", then user can acknowledge the Alarm message in the ISaGRAF program.

EX :

When fill in ”LAST”, means to acknowledge the last one of the Alarm messages.

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

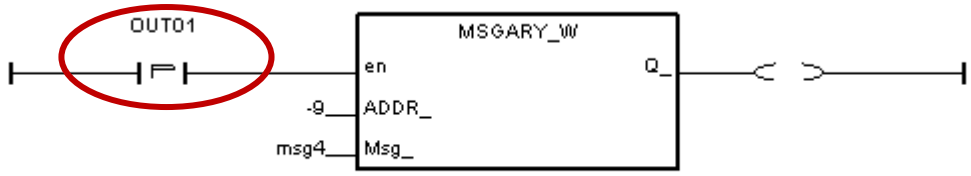
When fill in ”ALL”, means to acknowledge all the Alarm messages.

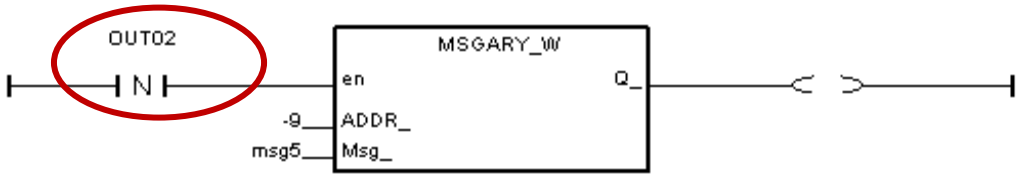
```
if   ACK2   then
 ACK2 := FALSE ;
 TMP := MSGARY_W( -6 , 'ALL' ) ;
end_if ;
```

When fill in an Integer value (ex: number, and then need to convert it to String via function “MSG”), means to acknowledge the Alarm message that issued by the integer number.

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

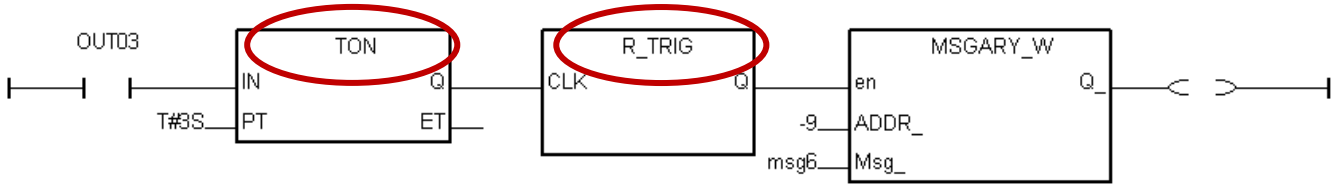
If the alarm is triggered via DO or DI signal, please refer to the following example to avoid multiple triggering.



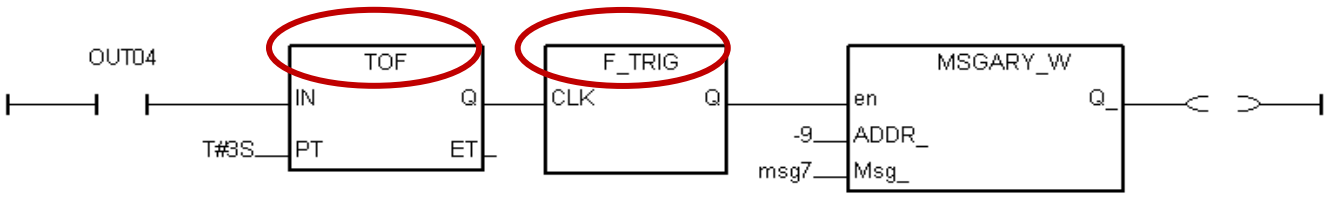


If need to delay the trigger, use functions "TON", "TOF" and "R_TRIG", "F_TRIG". The below ISaGRAF syntax shows how to delay 3 seconds then trigger the alarm.

(1) When DI/DO become TRUE and stay at TRUE over 3 seconds, then trigger the alarm message.

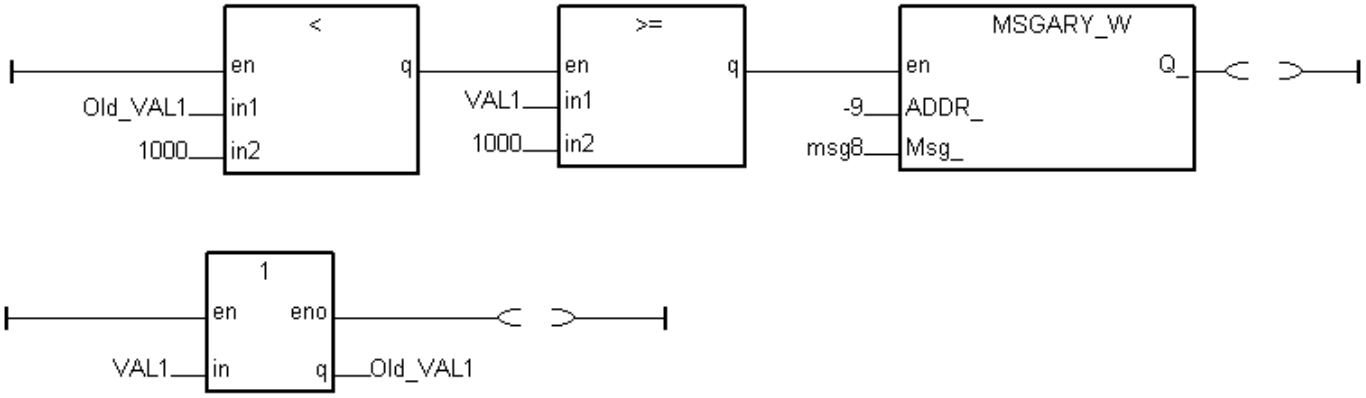


(2) When DI/DO become FALSE and stay at FALSE over 3 seconds, then trigger the Alarm message.



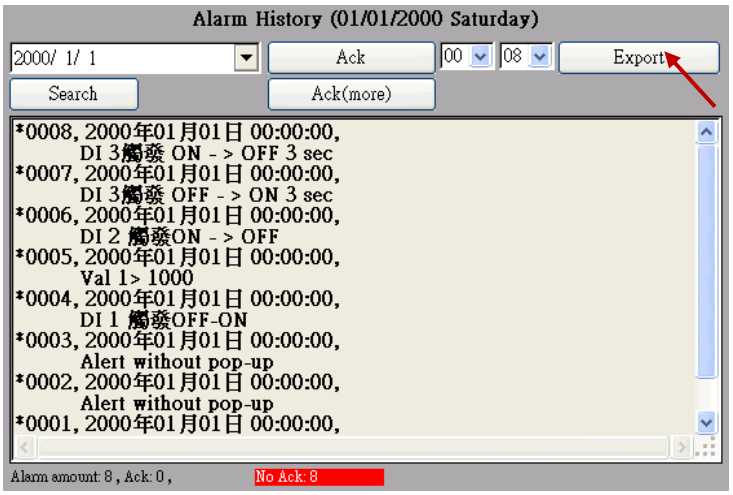
If the alarm is triggered via AI signal, user must declare 2 variables for comparing to avoid multiple triggering.

EX: First, declare VAL1 and Old_VAL1 in the ISaGRAF. In the example, the alarm will be triggered when VAL1 is larger than 1000. At last, please use function "1" to set Old_VAL1 (old value) become VAL1 to avoid multiple triggering.

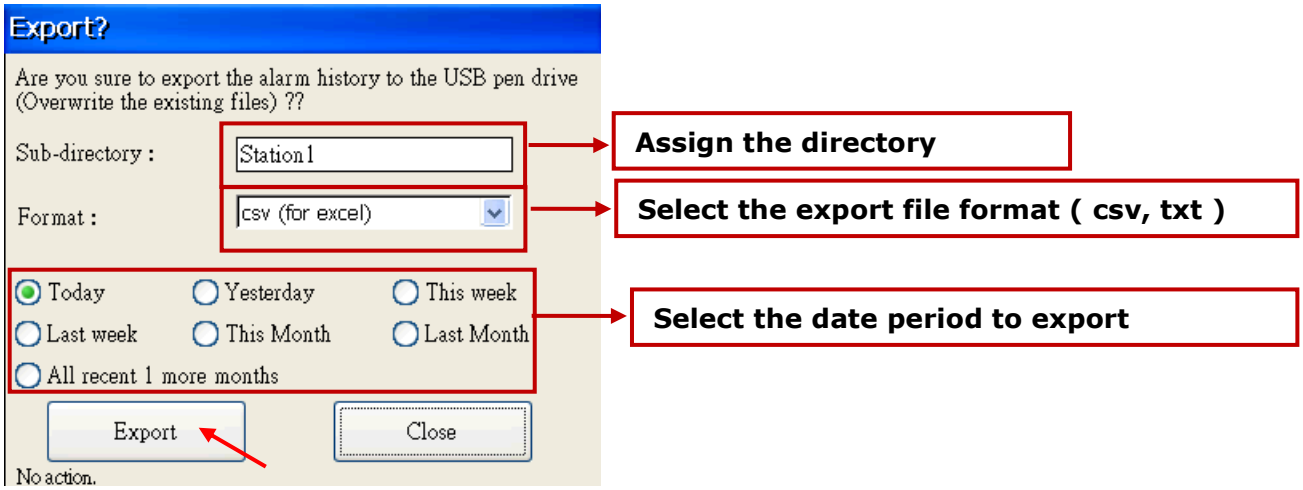


How to export the Alarm History :

Click the "Export" in the Alarm main window.

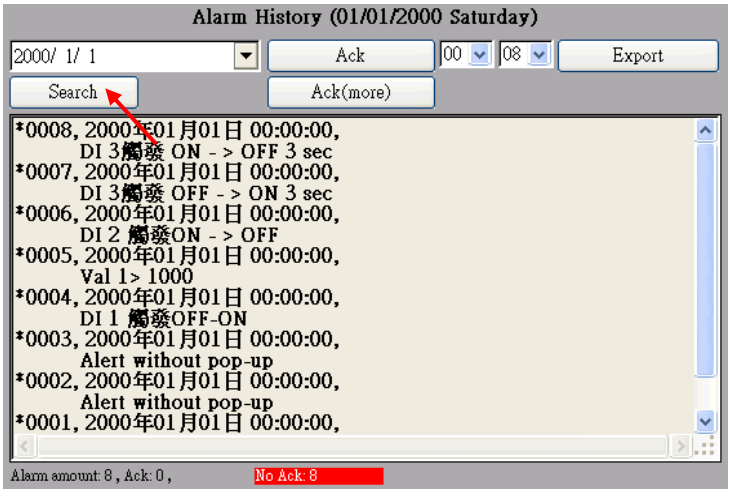


In the popup Export window, click "Export" to export data to the installed USB Disk.

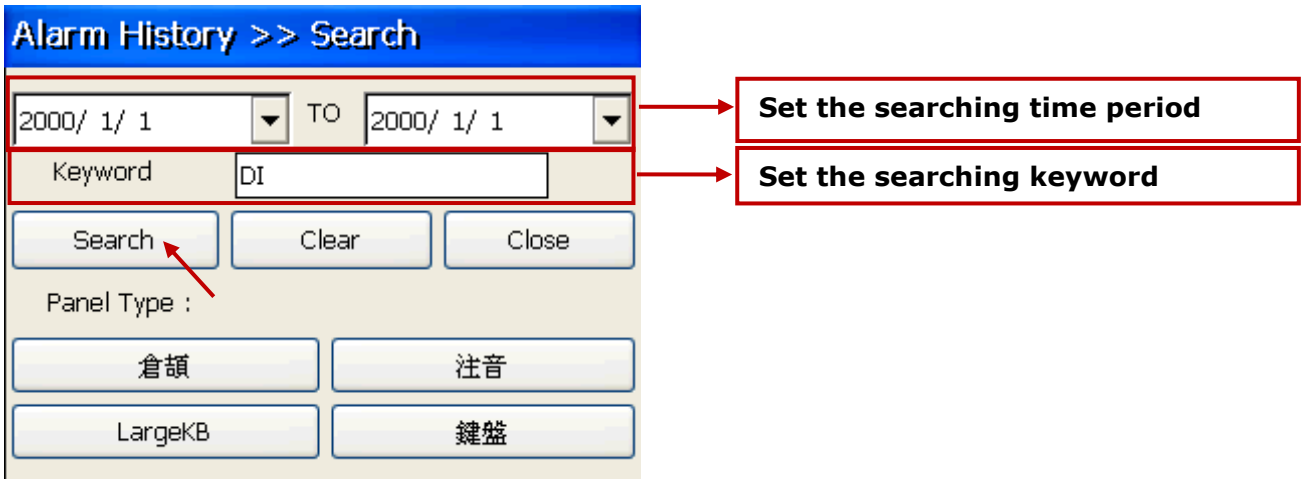


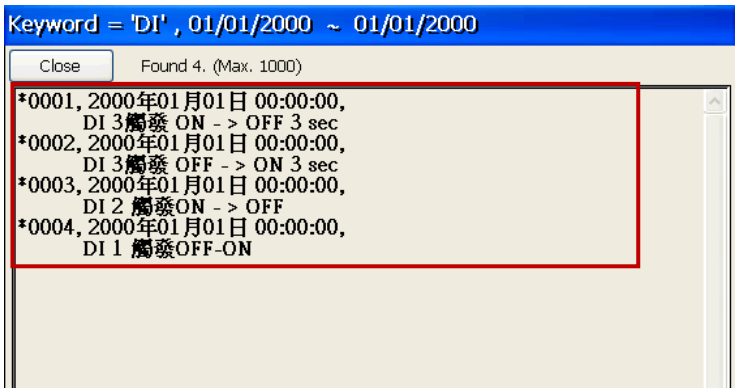
How to use the search function :

Click the "Search" in the Alarm main window.



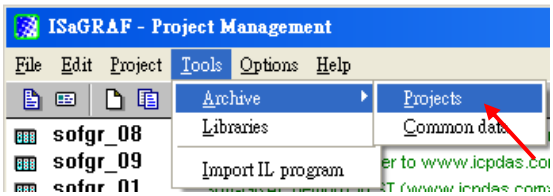
In the popup Search window, key in the keyword and click "Search" to search data. For this example, key in "DI".

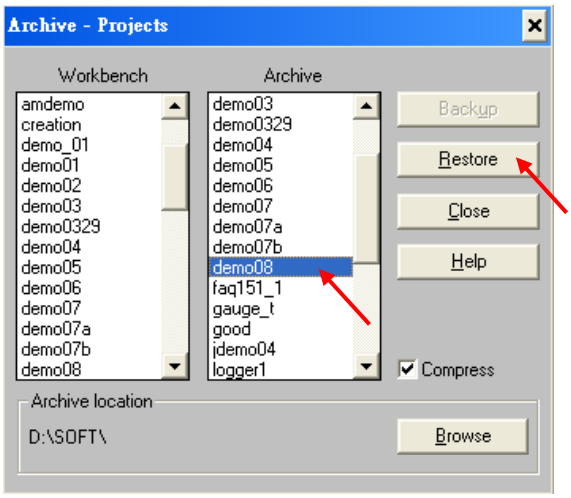




1.7.5 Demo08: How to use g_Logger1

This Demo08 shows how to use g_Logger1 object. First restore "demo08.pia" to the PC/ISaGRAF, and then download it to an ISaGRAF WinCE PAC.



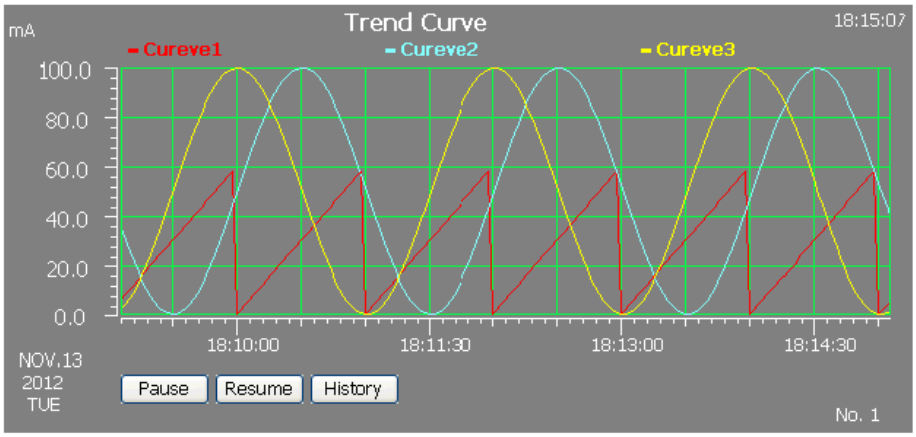


Then download this program to the ISaGRAF WinCE PAC . User may refer to the section 1.1 , 1.2 and section 2.1 of the “ISaGRAF User's manual” if not familiar with the ISaGRAF software. The manual resides at http://www.icpdas.com/root/product/solutions/softplc_based_on_pac/isagraf/download.html#manu (about 11MB) .

HMI view of this project:

Soft-GRAF demo for g_Logger1

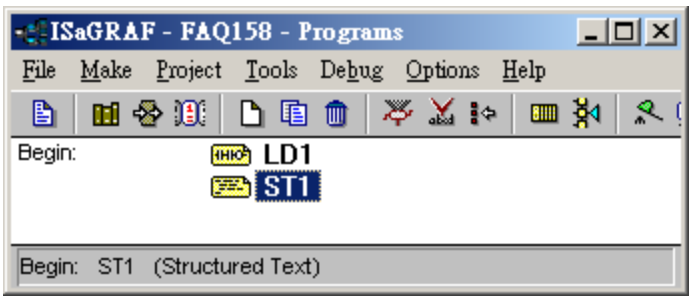
(www.icpdas.com > FAQ > software > ISaGRAF > 158)



Data Logger 1

1. Project Structure:

There is one Ladder and one ST program in the "Demo08" project.

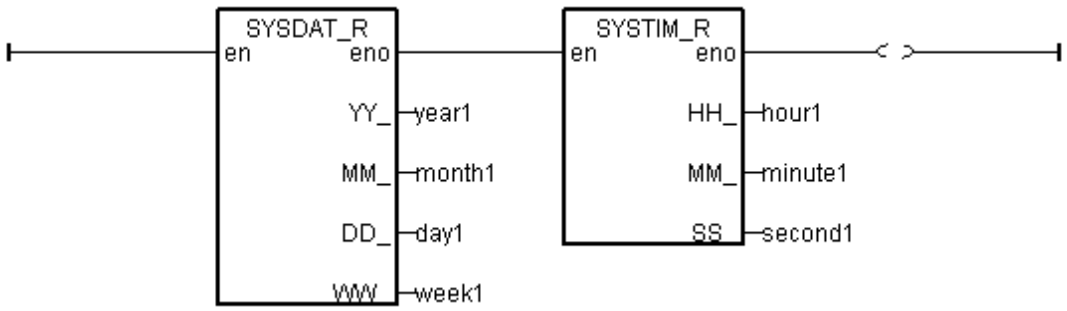


Global variables :

Name	*Type*	*Attribute*	*Description*
INIT	Boolean	Internal	set initial value as **TRUE.**
Year1	Integer	Internal	PAC 's year, i.e. 2012
Month1	Integer	Internal	PAC 's month, i.e. 11 (November)
Day1	Integer	Internal	PAC 's month-day, i.e. 15 (can be 1 to 31)
Week1	Integer	Internal	PAC 's week-day, i.e. 2 (Tuesday)
Hour1	Integer	Internal	PAC 's hour, i.e. 15
Minute1	Integer	Internal	PAC 's minute, i.e. 46
Second1	Integer	Internal	PAC 's second, i.e. 18
V1	Real	Internal	The first data, set **NetWork addr as 1**
V2	Real	Internal	The second data, set **NetWork addr as 3**
V3	Real	Internal	The third data, set **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 :

(* To get the current date and time of the PAC *)



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 ;
```

2. 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, WP-5xx7:
\Micro_SD\Soft-GRAF\g_Logger1\2012\11\
XP-8xx7-CE6 and XP-8xx7-ATOM-CE6 :
\System_Disk2\Soft-GRAF\g_Logger1\2012\11\

The first row lists the "File Title". The second row lists some "Column Title". The max. amount of the "Column title" is 51. The 1st "Column title" is Date Time. The 2nd to 51th are the "Column title" of each data. The other rows starting from the 3th row are the data of each sampling. All title can be displayed as your local language.

The following example shows the "File Title" as "g_Logger1 Demo". The first column-title in the second row is "Date Time". The 2nd to 4th column-title are "Curve1" , "Curve2" and "Curve3" respectively.

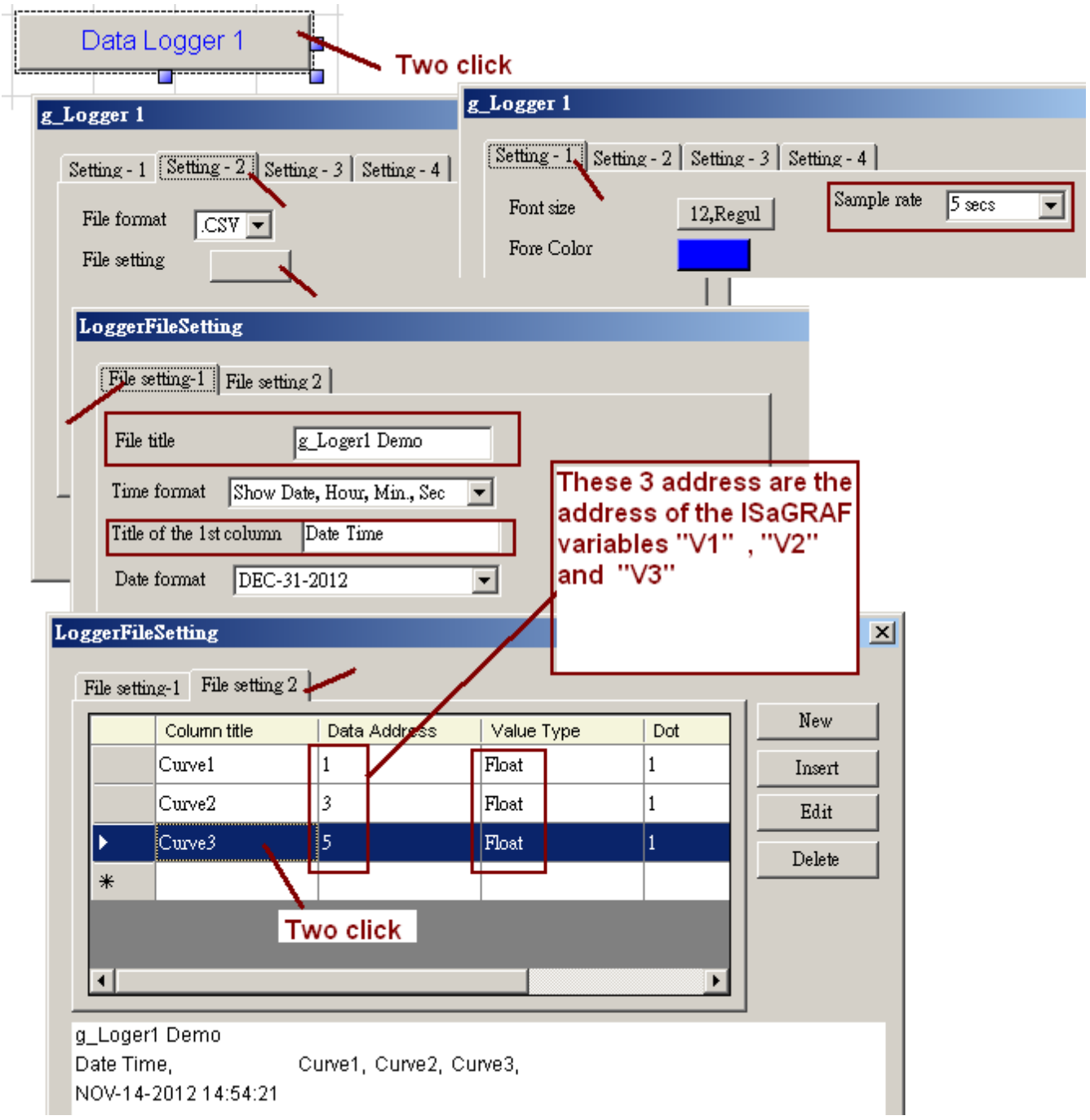
```
g_Loger1 Demo (NOV-13-2012 Tuesday)
Date Time,Curve1,Curve2,Curve3
NOV-13-2012 17:15:06,6.0,5.4,27.3
NOV-13-2012 17:15:10,10.0,1.8,36.4
NOV-13-2012 17:15:15,15.0,0.0,49.3
NOV-13-2012 17:15:20,20.0,1.5,62.3
 ...
```

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 settings:

If 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.

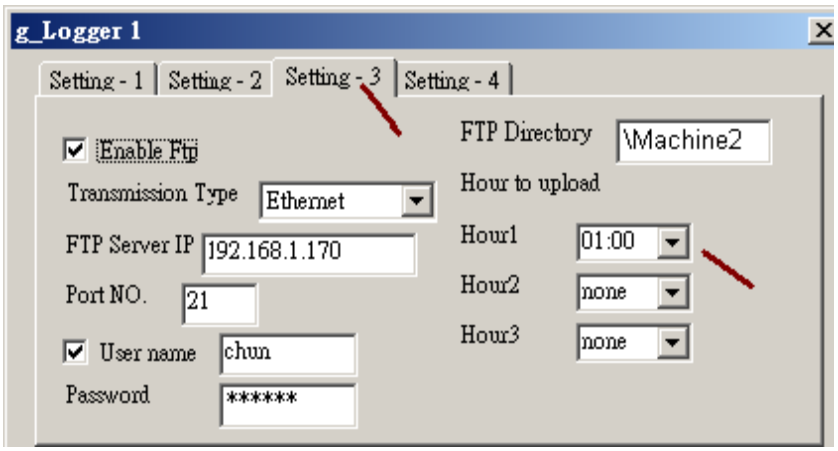
The retaining time is 10 days if "sampling rate" setting is 1 or 2 or 3 seconds.
The retaining time is 30 days if "sampling rate" setting is 5 to 30 seconds.
The retaining time is 3 months if "sampling rate" is 1 or 2 minutes.
The retaining time is 6 months if "sampling rate" is 3 or 5 minutes.
The retaining time is 12 months if "sampling rate" is 10 minutes or more than

10 minutes.

The other note is one PAC can enable only one g_Logger1.

3. Enable the ftp client to send data file of the g_Logger1 to the ftp server.

To send daily data file of the g_Logger1 to the PC / ftp server automatically, do the following settings. Be aware of the setting of "FTP Directory" , use the "\" symbol, DONOT use the "/" symbol. For ex., the "\Machine2" or "\" are correct. However "/Machine2" and "/" are incorrect. User may check the "Enable Ftp2" to send data file to the second ftp server. (Note: the "Enable Ftp2" doesn't work if the first "Enable Ftp" is not checked.)

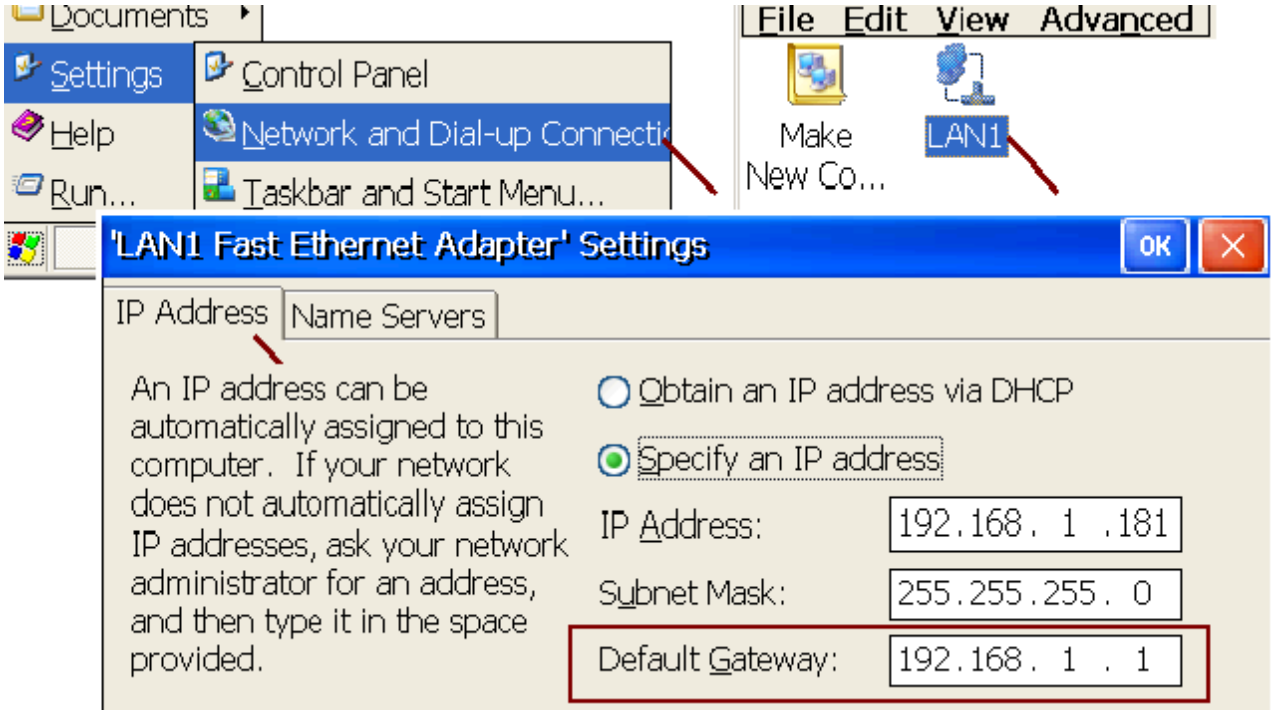


Note:

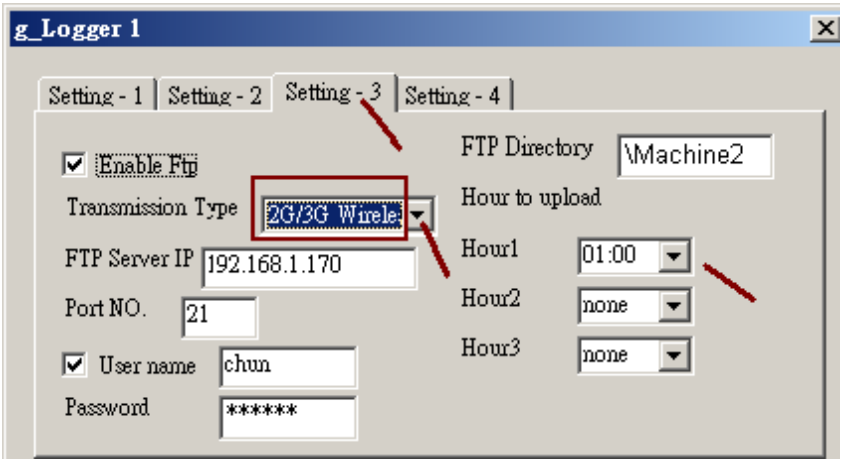
1. The data file of the g_Logger1 is sent at about 05 minute of the selected hour. i.e, if setting the Hour1 as 08:00, the data file is sent at about 08:05.

2. If sending 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. (You may find the Gateway-IP-address by key-in the "ipconfig" command on the PC which is connected in the same IP domain of the PAC) .

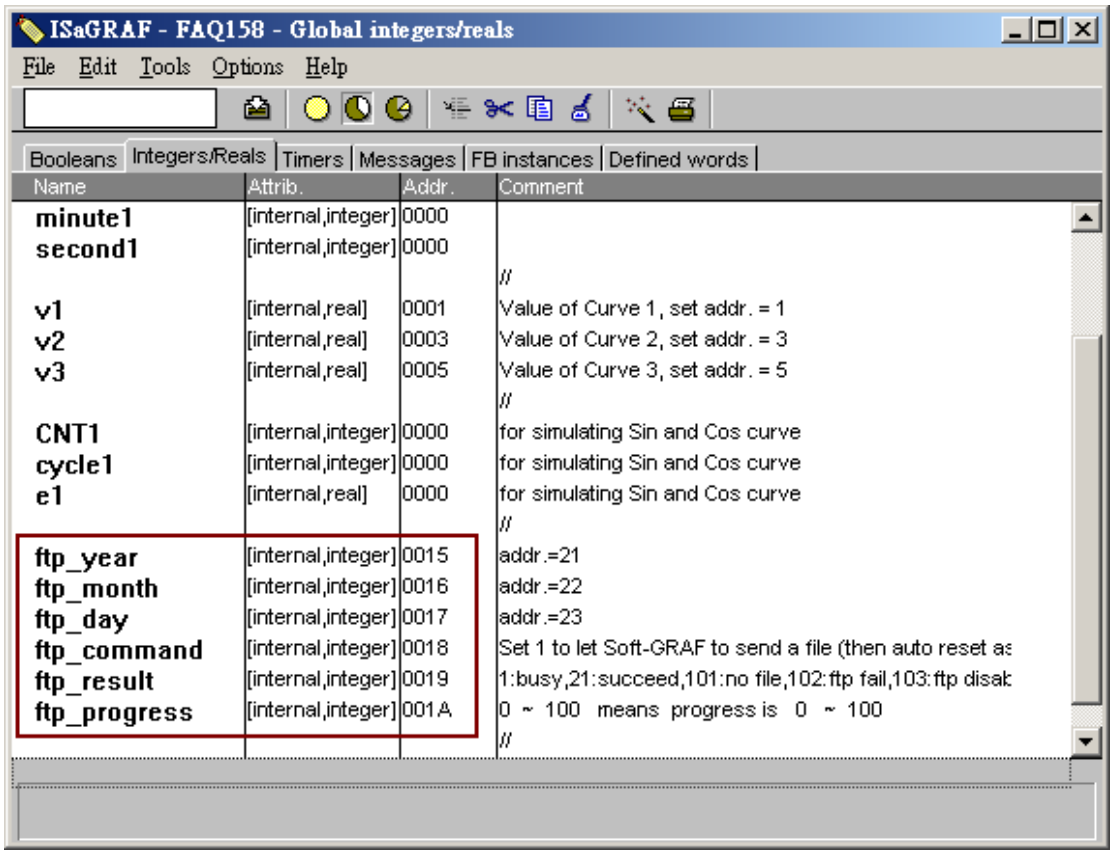


To send data file to a remote PC / ftp server by 2G / 3G dial-up wireless connection, set the "Transmission Type" as "2G/3G Wireless". And this PAC requires a 2G/3G I/O module and a SIM card. (for example, the I-8212W-3GWA : http://m2m.icpdas.com/i-8212w-3GWA.html) . Then follow steps listed in the section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

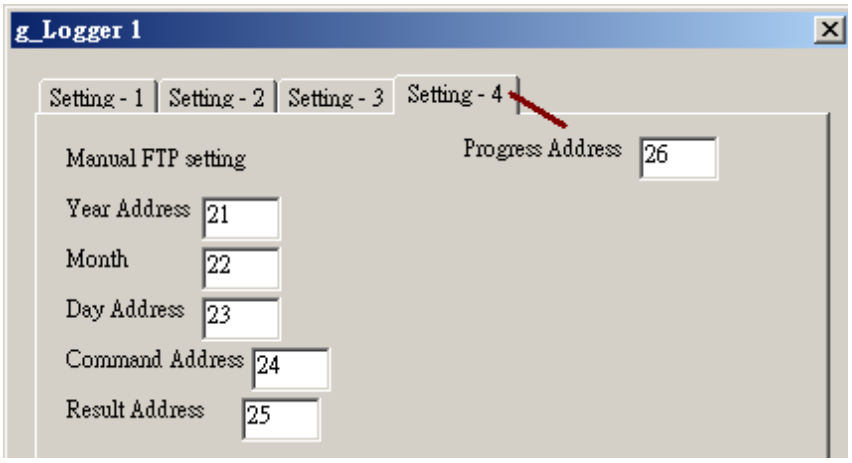


4. Using the "FTP_Loader" to upload the data file of a specified date

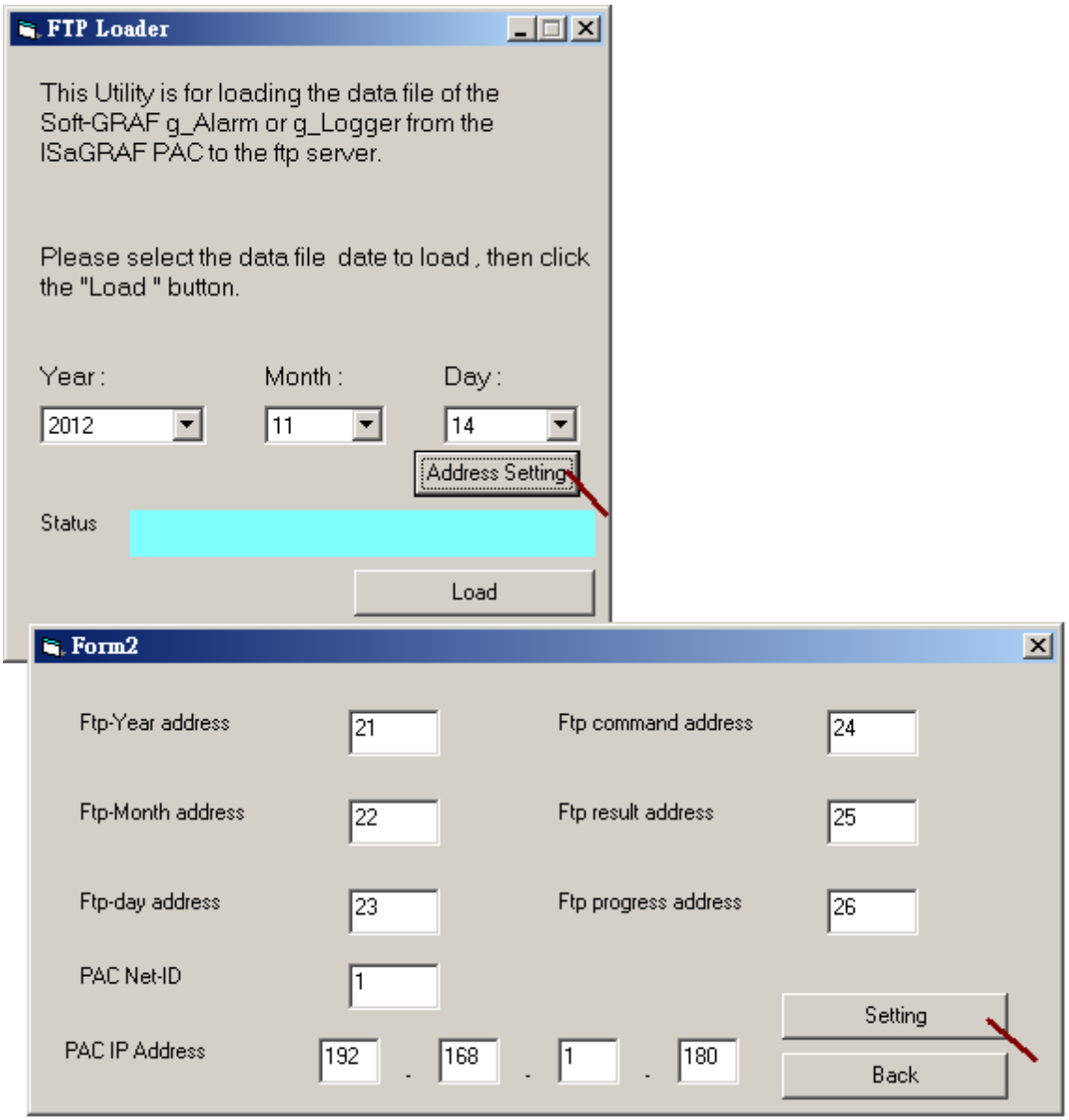
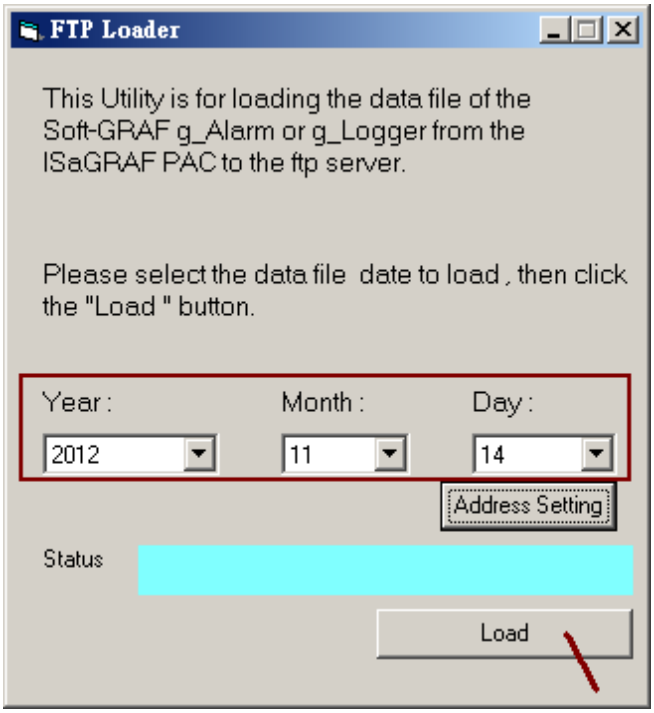
The "faq158_demo.zip" includes a utility "FTP_Loader.exe" . It can run in a PC / Windows. Its purpose is to command the g_Logger1 to send the data file of a specified date to the PC / ftp server. To use this function, first add six integer variables with six continuous network-address numbers in the ISaGRAF program similar as the following picture (The following picture shows their network number are from 21 to 26, Hex. is 15, 16, ... to 1A).



Then do the following settings in the g_Logger1.



Then run the "FTP_Loader.exe" in a PC to do the "Address Setting" .



Then after, key-in the date and click the “Load” button to command the PAC to upload the data file to the PC / ftp server.