Classification	ISaGRAF FAQ-146						
Author	Raven Liu	Version	1.01	Date	Oct. 2011	Page	1 / 70

Soft-GRAF Studio : Create a Colorful HMI in the XP-8xx7-CE6 & WP-8xx7 & VP-2xW7 PAC

Soft-GRAF, an HMI software developed by ICP DAS, allows user to create his colorful HMI application running with the control logic in the same 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:

"Label/Value", "Button/Input", "Drawing"

User can create the HMI object directly by using the mouse to drag and drop the Object into the editing screen and set the properties by mouse/keyboard to achieve different display.



Classification	ISaGRAF FAQ-146						
Author	Raven Liu	Version	1.01	Date	Oct. 2011	Page	2 / 70

1.1 : Soft-GRAF Studio Version and Installation

```
Soft-GRAF Studio Installation:
```

The Soft-GRAF Studio is version 1.01 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 > FAQ > Software > ISaGRAF > 146
http://www.icpdas.com/faq/isagraf.htm > 146

Other related information: ISaGRAF User's Manual <u>http://www.icpdas.com/products/PAC/i-8000/getting_started_manual.htm</u>

Soft-GRAF Studio, the software to edit the Soft-GRAF HMI, can run in the PC with the WinXP, Win Vista, Win7 or compatible Operating System and the .Net Framework V.3.5 or later version. The current version is 1.01. The execution program is included in the downloaded **FAQ-146 zip** file. After unzip the file, please copy the **"Soft-GRAF Studio"** folder into **"D:\"**. The "Soft-GRAF Studio" folder must include the following files (as below picture).



Classification	ISaGRAF FAQ-146						
Author	Raven Liu	Version	1.01	Date	Oct. 2011	Page	3 / 70

PAC Driver:

The following ISaGRAF driver versions support Soft-GRAF Studio:

PAC Model	ISaGRAF Driver Version
WP-8xx7	Ver.1.39 or later
VP-25W7/23W7	Ver.1.31 or later
XP-8xx7-CE6	Ver.1.19 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/products/PAC/i-8000/isagraf-link.htm

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 end the ISaGRAF driver first, then unzip the downloaded file and copy all files and the sub-directory in the related version-number directory to the "\System_Disk\ISaGRAF\" path in your PAC via FTP or USB disk.

For instance, to update the ISaGRAF driver of XP-8xx7-CE6 to Version 1.19, please click on the "End Driver" button in the "ISaGRAF driver" window of PAC, then unzip the downloaded file "xp-8xx7-ce6-1.19.zip" and copy all files and the sub-directory "sofgrafy" in the "1.19" directory to the "\System_Disk\ISaGRAF\" path in the XP-8xx7-CE6. And then, reboot the XP-8xx7-CE6. Now, the driver of the PAC is updated.

WinPAC-8x47/8x46/8x37/8x36 ISaGRAF Driver	OK
Setting Web About	
Configuration Slave Number : 1 Modbus RTU Slave Port None	
Baud Rate 19200 , N, 8, 1 [Modify]	
Project	
Current Application demo04, ISA11=1384, ISA12=916 Delete	
Elapsed Time 0:0:12:35	

Classification ISaGRAF FAQ-146								
Author Raven Liu Version 1			1.01	Date	Oct. 2011	Page	4 / 70	
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And also	, rest	ore "soft-gr	f.xia" into	o the "	IO complex	x equipment	ts"of the	PC ISaGRAF.
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Classification	ISaGRAF FAQ	ISaGRAF FAQ-146					
Author	Raven Liu	Version	1.01	Date	Oct. 2011	Page	5 / 70

The HMI objects below are supported by Soft-GRAF driver (since Ver.1.09):

Label/Value Type :

1	g_Label	Display a Label
2	g_B_Val	Display a Text to show a Boolean value
3	g_WD_Val	Display a 16-bit integer (occupy 1 Network addr. number)
4	g_N_Val	Display a 32-bit integer (occupy 2 Network addr. numbers)
5	g_F_Val	Display a 32-bit Float value (occupy 2 Network addr. numbers)
6	g_N_Text	Display a text to show an Integer value

Button/Input Type :

1	g_B_inp	Create a button to input a Boolean value
2	g_WD_inp	Create a button to input a 16-bit integer value
		(Occupy 1 Network addr.)
3	g_F_inp	Create a button to input a 32-bit Float value
		(occupy 2 Network addr. numbers)
4	g_N_inp	Create a button to input a 32-bit integer value
		(occupy 2 Network addr. numbers)
5	g_Login	Create a Login button with password
6	g_Logout	Create a Logout button
7	g_ToPage	Create a switch-page button

Drawing Type :

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

Classification	ISaGRAF FAQ	SaGRAF FAQ-146						
Author	Raven Liu	Version	1.01	Date	Oct. 2011	Page	6 / 70	
1.2 : Edit the	e HMI by th	e Soft-G	GRAF Studi	o softv	vare			
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GRAF Studio.ex	xe". If "Soft-G	RAF Stud	lio.exe" doesi	n't found	l, please refe	r to Ch.1.1	to install it.	
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The software	operating en	vironme	nt :					
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g_F_val g_N_val								
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One Soft-GRAF project can contain maximum 200 HMI pages (No. 1 to 200). The PAC will display the Page No. 1 if it has enabled the Soft-GRAF in the program when powering it up. Every Page is displayed as full screen and only one Page is shown on the VGA monitor, so user must set up the VGA resolution when create a new project.

The PAC Resolution:

PAC	Support VGA Resolution
XPAC	640*480, 800*600, 1024*768
WinPAC	640*480, 800*600
VP-25W7	640*480
VP-23W7	320*240

ICP DAS Co., Ltd. Technical document

Classification	ISaGRAF FAQ	·146					
Author	Raven Liu	Version	1.01	Date	Oct. 2011	Page	7 / 70

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





The origin of Soft-GRAF Studio axis, in the Soft-GRAF Studio editing screen, 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 479 for Y coordinate.

1.2.1: Edit a simple Soft-GRAF HMI

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



Classification	ISaGRAF FAQ	ISaGRAF FAQ-146					
Author	Raven Liu	Version	1.01	Date	Oct. 2011	Page	8 / 70

Before editing 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 Advanced User Manual". The manual website is as below: http://www.icpdas.com/products/PAC/i-8000/getting_started_manual.htm

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



Set "soft_grf" to the "Slot" and the slot number must after "8" inorder not to conflict with the real I/O using slots of PAC.



Then, create a new LD Ladder program in the project.



Classification	ISaGRAF FAQ	-146					
Author	Raven Liu	Version	1.01	Date	Oct. 2011	Page	9 / 70
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After finishing ISaGRAF SoftLogic, You must compile and download the ISaGRAF project into your PAC (Refer to Ch.2 of ISaGRAF Advanced manual for the steps.), then can design the HMI.

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.



Classificati	on ISa	GRAF FAC	2-146							
Author	Rav	en Liu	Version	1.01	Dat	te	Oct. 2011	Page	10 / 70	
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Classification	ISaGRAF FA	Q-146					
Author	Raven Liu	Version	1.01	Date	Oct. 2011	Page	12 / 70
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Classification	ISaGRAF FAQ-	-146					
Author	Raven Liu	Version	1.01	Date	Oct. 2011	Page	14 / 70

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" to configure the following setting, such as, Network address: 11, Size W: 40, Size H: 40, Font: 10,Bold, Shape: Circle.





Classification	ISaGRAF FAQ	-146					
Author	Raven Liu	Version	1.01	Date	Oct. 2011	Page	16 / 70
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Set "False File" as "Fan03-m-(040).gif". Then, set "Net Work Address" as 11, and click "ok" to exit.

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False File	No_Pic
	Ok Cancel

ICP DAS Co., Ltd. Technical document

Clas	sification	ISaGRAF FAG	Q-146					
Auth	or	Raven Liu	Version	1.01	Date	Oct. 2011	Page	17 / 70
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Classification	ISaGRAF FAQ-	·146					
Author	Raven Liu	Version	1.01	Date	Oct. 2011	Page	18 / 70
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Show as string ON / OFF	Switching Time sec.
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Boolean False Off Boolean True On	Ask before operation
	Ok Cancel
	•

Classification	ISaGRAF FAQ	-146					
Author	Raven Liu	Version	1.01	Date	Oct. 2011	Page	19 / 70

Then create 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.

	Setting
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	Ok Cancel

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

common Input Setting		
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Classification	ISaGRAF FAQ-	146							
Author	Raven Liu	Version	1.01		Date	Oct. 2011		Page	20 / 70
Next, create a	"g_ToPage"	object.	Drag	& drop	o a "g_	ToPage" i	ntc	the editi	ng area.
Button/Input rage 1 g_B_Inp Soft-GRAF Demo01 g_F_Inp Off g_Login ON / OFF g_ToPage ON / OFF ON / OFF ON> 5 sec> OFF work On / OFF Setting Setting									
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Classification	ISaGRAF FAQ-	ISaGRAF FAQ-146								
Author	Raven Liu	Version	1.01	Date	Oct. 2011	Page	22 / 70			

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

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	Ok Cancel

Next, set up the upload IP configuration. Click "Project" \rightarrow "IP Setting", enter the IP address of PAC, and then click "Setting".

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1 🥑 🕯	IP	Setting		ê T	٦, ٩			
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Click the upload tool icon \square , click "Yes" to answer the "save project?" question, then the upload process begins. After uploading, the result shows up automatically on the PAC's VGA as the picture below if the HMI creation succeeds.

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Classification	Classification ISaGRAF FAQ-146												
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Classification	ISaGRAF FAQ	-146					
Author	Raven Liu	Version	1.01	Date	Oct. 2011	Page	24 / 70
1.3 : HMI Ob 1.3.1 : g_Lal Hello Wo	ojects Descr bel: Display	iption a Labe	I				
$(1) \leftarrow (2) \leftarrow (3) \leftarrow (4) \leftarrow (4)$	g_Label Common Net Work Font size Fore Colo Back Col	: Address or or	9,Regular	Size Locatio: Text Ali Title	W 75 H 25 n X 184 Y 114 ign Center Label	(5) (6) (7) (8)	
Options : (1)Net work A useles (2)Font size : settin (3)Fore color: (4)Back color: (5)Size: the s (6)Location: t (7)Text Align: (8)Title: the t	address: the ss for in the set the font s g the fore cold the back co ize of the lab he X,Y-axis o left, center ext on the la	ISaGRAI g_Label style and or of the olor of th oel; "W" of the la and righ bel. (Do	F Modbus N object. d size of the e label for Width, bel. Refer t t align for buble click	IetWork e label t "H" for to Ch.1. the text the Text	Address for ext, useless height. 2 for how to tbox to ente	r the varia s in other f o display the er the long	ble, ^c ont ne axis. text.)
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Classification	ISaGRAF FA	Q-146				
Author	Raven Liu	Version 1.01	Date	Oct. 2011	Page	25 / 70
1.3.2 : <u>g_</u> B_	_Val: displa	y a text to show	w a Boole	an value.		
Description:	_	Value= True	Value= Fa	alse		
Displayed fig	gure:	Working	Stop			
	Common	ting				
(1)←	Net Work A	ldress 1	Size	. ₩ 75 H	I 25	→(5)
(2)←	Font size	9,Regular	Loc	ation X 279	Y 210	→(6)
		False	Irue Tex	t Align Cente	r 🗸	→(7)
(3) ←	Fore Color					
(4)←	Back Color					
			Ok	Cancel	;	
Options:						
(1)Net Work (2)Font size:	Address: th set the font	e ISaGRAF Modb style and size of	us Networl ⁻ the text <i>,</i>	k Address fo useless in o	or the van ther font	riable setting
(3)Fore color	the fore co	olor of the object	he read IC		o io "Truu	_"
False	: the fore c	olor to display if t	the read IS	agraf valu SagRAF valu	ie is "Fal	se".
(4)Back coloi True	r: the back (; the back c	color of the objec olor to display if t	t the read IS	SaGRAF valı	ıe is "Tru	e".
False	: the back of	color to display if	the read I	SaGRAF val	ue is "Fa	lse".
(5)Size: the : (6)Location:	size of the c the X,Y-axis	s of the object. Re	efer to Ch.	or neight. 1.2 for how	to displa	y the axis.
(7)Align: left	, center and	right align for th	e text		-	-
	I	CP DAS Co., Ltd.	Technical	document		

Classification	ISaGRAF FAQ	-146					
Author	Raven Liu	Version	1.01	Date	Oct. 2011	Page	26 / 70
(8)Left Text: 9 (9)Blink: Set 1	No Blink Off On Set up the te eft Text" as RAF Boolean the object te	$\begin{array}{c} & \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ & $	8) 9) 10) 11) Cancel ayed on the ", the objet "True". nk. "No Blin	left sid	le of the obj show "Statu	ject value ıs: True" nk. "Blink	e. Ex: If set when the
blink False, (10) \ (11): th	when the val "All Blink": ne message t	ue is tru blink wh o displa	ue, "Blink wh en the value y when the	nen fal e is Tru value i	se": blink w ue or False. s True/False	e.	alue is
	ICF	P DAS C	o., Ltd. Tech	nical c	locument		



Classification	Classification ISaGRAF FAQ-146									
Author	Raven Liu	Version	1.01	Date	Oct. 2011	Page	28 / 70			

- (8)Conversion: check to convert the value (the g_F_val can input the decimal value)
 (9)Original value: the range of the original value read(Ex: 0~32767,0~65535...etc.)
 Value after: the range of the value 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.)
- (10)Dot: define the number of digits displayed after the ".", for the number after conversion or the conversion not to use (Ex: Set "Dot" as 3, the original value "32767" will be displayed as "32.767".)
- (11)Left Text: the text displayed on the value's left side
- (12) Right Text: the text displayed on the value's right side



- (13)Enable limit detection: check to enable the up/low-limit detection
- (14)Up-limit: the upper limit value to detect
- (15)Low-limit: the lowest limit value to detect
- (16)Blink: select to blink or not when the value is inside/outside the limit range.
- (17)Up-Limit Message: when the "Enable limit detection" is checked, the message will show up if the value is larger than the Up-Limit.
- (18)Low-Limit Message: when the "Enable limit detection" is checked, the message will show up if the value is lower than the Low-Limit.
- (19)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.
- (20)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										
Classification	ISaGF	RAF FAQ	-146								
Author	Raver	n Liu	Version	1.01		Date	Oct.	2011	Page		29 / 70
1.3.4 : g_N_		displa	y a difi	ferent	text	by the	val	ue of	an in	tege	r variable.
Decerimtica	tuaro.			TA		-					(-)
Description:					Valu	ie = 0	V	alue =	: 1		value = 2
Displayed figur	e:	g_N_Te	ext		OK! E	njoy it ~		UKay! Hav	e tun ~		I like it, too !!
(1) (2) (3) (4)	g)↓ ↓ ↓	_N_Text [common set Net Work Font size Size Location	ting Setting Address	1 9,Regular 23	ForeCo BackCo Align Left tex Right	lor plor Center tt				(5) (6) (7) (8) (9)	
(- <u>/</u>											
						Ok	Canc	el	_		
Options : (1)Net Work A (32-bit Lor two network) (2)Font size: 5 (3)Size: the s (4)Location: t (5)Forecolor : (6)Backcolor : (7)Align : left (8)Left Text : (9)Right Text	Addres ng inte rk add set th ize of the X, the f the f the te the te the te	ss: the eger and lresses. e font s the obj Y axis o ore cold ore cold back col er and i ext disp text disp	ISaGRA I 32-bit Refer to tyle and ect; "W f the ob or of the lor of the lor of the layed or played o	F Modb REAL va chapte d size o " for W oject. Re cobject e object gn for t n the le on the le	us Ne ariable r 4.2 f the idth, efer t text text t text ft sid right	etwork es defin of the text, us "H" for o Ch.1. xt e of the side of	Addr ed ir "Use seles heig 2 fo 2 fo the	ress fo n the I r Manu ss in o ght. r how r how	or the SaGRA Jal of I ther fo to dis to dis	varia AF mu ISaGF ont se play f	ble ust occupy RAF PAC".) etting the axis.
g_N_Text						×					
(10)New : cre (11)Edit : edit (12)Delete : c	r eate a t the t delete	ForeCold new test text the sel	xt ected te	BackColor ext	Ne Ed Del	it ete	→ →	-(10) -(11) -(12)			
		ICP	DAS C	5., Ltd.	Tech	nical de	ocum	nent			

Classification	ISaGRAF FAQ	SaGRAF FAQ-146									
Author	Raven Liu	Version	1.01	Date	Oct. 2011	Page	30 / 70				
*Setting description: New Click the "New" button to see the following setting window g_N_IextNewItem											
$(a) \leftarrow Number 0 \qquad Blink \qquad (d)$ $(b) \leftarrow ForeColor \qquad Text \qquad (e)$ $(c) \leftarrow BackColor \qquad Add \qquad (f)$											
(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.

	Number	ForeColor	BackColor	New
•	0	000000	FFFFF	Edit
*				Delete

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



Classification	ISaGRAF FA	Q-146					
Author	Raven Liu	Version 1	1.01	Date	Oct. 2011	Page	31 / 70
1.3.5 : g_B_I to input a Bo	np : creat olean to tl	e a butto ne mappin as string	n, when u ng ISaGR	ISER pro	ess it, it d blean vaial	isplay a k ble.	eyboard
Displayed figu	ıre:	Set ON) Tn		St	art	
(1) ← (2) ← (3) ←	Common In Net Work A Font size	out Setting ddress 1 9,Reg True lor	gular Falæ	W 75 on X 46	H 25 i2 Y 450]+(4)]→(5)	
Options : (1)Net Work A (2)Font size: s (3)Input T/F C ISaGR value (4)Size: the siz (5)Location: th	ddress: the set the font color: the co AF read it ` when ISaG ze of the ol ne X,Y axis	e ISaGRAF style and olor of True True". The RAF read it oject; "W" of the obje	Modbus N size of the e displays f e color of F t "False". for Width, ect. Refer f	etwork text, u the fore alse dis "H" for to Ch.1	Address fo seless in of color of th plays the fo height. .2 for how f	r the varia ther font s ne value w ore color o to display	ble etting hen of the the axis.
	IC	P DAS Co.	, Ltd. Tech	nnical d	ocument		

Classification	ISaGRAF FAG	Q-146						
Author	Raven Liu	Version 1.01	Date	Oct. 2011	Page	32 / 70		
(6) ← (7) ← (8) ←	common Input i Show as pict Show as striv Show as valu Boolean False Boolean True	Setting ure ng Click On ne Off On	Mode Selec Switching Level 0 Ask bef	t Normal	C.	→(9) →(10) →(11) →(12) →(13)		
(6)Show as JPG, (7)Show as (8)Show as text Boo Boo (9)Mode: se	picture : the l , GIF, PNG, E string: show f value: depand lean False: the lean True: the lect the input	button is showe 3MP(BMP is not the button as t d on the value e text is showe text is showe mode of the B	ed as a pictu suggested he setting to that Soft-GF d when the d when the oolean. The	ure. The pick due to the l ext RAF read to read numbe read numbe re are 5 mo	ture forma arge size i show ther er is a Fals er is a True des :	at can be memory). replaced se boolean e boolean		
Boolean True: the text is showed when the read number is a True boolean (9)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 (10)Switching Time: if select the Mode of "False→True" or "True→False", set the switching time here. The time unit is secent, and range is 1~10 secents. (11)Level: set the permission level, used when the HMI has the permission setting (12)Ask before operation: to ask again before operation (13)Identify Password: to re-input the password of that level (Refer to Ch1.4 for the permission setting.)								
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Classification	ISaGRAF FAQ						
Author	Raven Liu	Version	1.01	Date	Oct. 2011	Page	33 / 70
			_				

1.3.6 : 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: Displayed figure:	Show as title Set WD_val	Show as value	Show as picture
(1) Net Work (2) Font size (3) Fore Colo (4) Size (5) Location	Setting Address 1 9,Regular or W 75 H 25 X 585 Y 488	 Show as pictur Show as title Show as Value 	e (6) (7) (8)

Options:

(1)Net Work Address: 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 : the fore color of the object text

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

(5)Location: the X,Y axis of the object. Refer to Ch.1.2 for how to display the axis.(6)Show as picture : the button is showed as a picture. The picture format can be

- JPG, GIF, PNG, BMP(BMP is not suggested due to the large size memory). (7)Show as Title: show the button as the setting text
- (8)Show as value: show the value that ISaGRAF read



Classification	ISaGRAF FAQ						
Author	Raven Liu	Version	1.01	Date	Oct. 2011	Page	35 / 70

1.3.7 : 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 ($1 \sim 10$), 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: the fore color of the object text

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

(4)Location : the X,Y axis of the object. Refer to Ch.1.2 for how to display the 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 secents after login the HMI.

Classification	ISaGRAF FAQ-	ISaGRAF FAQ-146					
Author	Raven Liu	Version	1.01	Date	Oct. 2011	Page	36 / 70

1.3.8 : 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: the fore color of the object text

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

(4)Location : the X,Y axis of the object. Refer to Ch.1.2 for how to display the axis. (5)Title: the text displayed on the button





ISaGRAF read it "True". The color of False displays the fore color of the value when ISaGRAF read it "False".

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

(4)Location: the X,Y axis of the object. Refer to Ch.1.2 for how to display the axis. (5)Message when False: the text showed on the object when read a False value (6)Message when True: 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

Classification	ISaGRAF FAQ	SaGRAF FAQ-146						
Author	Raven Liu	Version	1.01	Date	Oct. 2011	Page	39 / 70	

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

The picture format can be JPG, PNG, GIF or BMP (BMP is not suggested due to the large size memory).



Options:

(1)Net Work Address: the ISaGRAF Modbus Network Address for the variable (2)Size: the size of the object; "W" for Width, "H" for height.

- (3)Location: the X,Y axis of the object. Refer to Ch.1.2 for how to display the 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).

Classification	ISaGRAF FAG	Q-146					
Author	Raven Liu	Version	1.01	Date	Oct. 2011	Page	40 / 70
1.3.12 : g_N	l_pic : Disp	lay a pio	cture to sh	ow a I	nteger val	ue.	
The picture	format can	be JPG,	, PNG, GIF	or BM	P (BMP is r	not sugge	ested due
to the large	size memo	ry).					
	Studio:		PAC:	:			
Description:	·····		`	/alue= (0 Value=	Value = 2	2
Displayed figu	ıre: 🚽	g_N_Pic	=	0			
_	Į	T.					
g.	_N_Pic				×		
	common Setting						
(1)←	NetWork Address	1					
	Sine IX no	U ==	1 h				
(2)◀	5126 W 70	н 70					
(3) ←	Location X 173	Y 149					
, i i i i i i i i i i i i i i i i i i i			Ok	Cancel			
Ontions [·]	i i		,		.::		
(1)Net Work	Address: the	e ISaGRA	F Modbus N	letwork	Address for	r the varia	ble
(32-bit Lo	ng integer ar	nd 32-bit	REAL variab	les defi	ned in the IS	SaGRAF m	ust occupy
two netwo	ork addresses size of the of	5. Refer to Diect: "W	o chapter 4 /" for Width	2 of the "H" fo	"User Manu r height	al of ISaG	RAF PAC".)
(3)Location:	the X,Y axis	of the ob	oject. Refer	to Ch.1	2 for how t	to display	the axis.
g_N_Pic							
common Setti	ng						
Num	ber Pictur	e	N	Iew	→(4)		
*			E	Edit	→(5)		
			D	elete	→(6)		
		_					
		01	Carcal				
		40					
	IC	P DAS C	o., Ltd. Tec	hnical c	locument		

Classification	ISaGRAF FAQ	-146					
Author	Raven Liu	Version	1.01	Date	Oct. 2011	Page	41 / 70
(4)New: open (5)Edit: edit a (6)Delete: del	a setting win picture setti lete a picture	ndow to ing	add a new	picture			
* Setting desc	cription:						
New Click the "Nev	v" button to s	see the f	following set	tting wi	indow		
g_N_Pic NewItem Number 0 Picture	Add	(a) ► (b) →(c)					
(a)Number: if Max. 50 n (b)Picture: th (c)Add: click t	read this int umbers from e picture's file to add this se	eger val 0~49. e name etting	lue, the obje to display	ect will	display this	setting p	icture.
Number	Picture Led02-s-0.gif	•	New Edit K Delete				
Edit Select the iter click "Add" to	n want to ed save it. If fo	it, then rget to s	click "Edit" t select any it	to open em, it v	the setting will open th	g window. e first iter	After edit, n's window
Delete Select the iter item, it will de	n want to de elete the first	lete, the item	en click "Del	ete" to	delete it. If	f forget to	select any

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Classification	ISaGRAF FAQ	SaGRAF FAQ-146					
Author	Raven Liu	Version	1.01	Date	Oct. 2011	Page	42 / 70

1.3.13 : 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.



Classification	ISaGRAF FAQ	ISaGRAF FAQ-146					
Author	Raven Liu	Version	1.01	Date	Oct. 2011	Page	43 / 70

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 $1 \sim 8191$, the clearing function will not enable.

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

(6)Location : the X,Y axis of the object. Refer to Ch.1.2 for how to display the axis. (7)Left Limit: set the left limit of the X-axis in the trace map

(8)RightLimit: 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 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

Classification	ISaGRAF FAC	Q-146						
Author	Raven Liu	Version	1.01		Date	Oct. 2011	Page	44 / 70
1.3.14 : g_B 16-bit signe	ar : display d integer o	r a Bar-m r 32-bit	eter pie float v	cture value	e to sh	iow a 32-b	it signed	l integer,
(1) (2) (3) (4) (5)	Setting L Net Wor Size Location Fore Col Back Co	Setting 2 k Address 1 W 240 X 148 or IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	H 40 Y 187		ale color ord 💌 Show Valu Show Scale Ok	Le e Cancel		(6) (7) (8) (9)
Options: (1)Net Work A (32-bit Lor two netwo (2)Size: the s (3)Location: t (4)ForeColor: (5)BackColor: (6)Scale Colo (7)Data Type: (16-b (8)Show Valu (9)Show Scale	Address: the ng integer an rk addresses ize of the ob- the X,Y axis the fore col the back co r: the color of select the co- it signed int e: check to s e: check to s	ISaGRA d 32-bit . Refer to oject; "W of the ob or of the olor of the olor of the show the show the	F Modb REAL v o chapte for W oject. R Bar-m e Bar-r ale e type. "real" currer scale	ous N ariabl er 4.2 /idth, efer f eter neter (32-b nt val	etwork les defi 2 of the "H" fo to Ch.1 be "lo oit float ue.	Address fo ned in the I "User Manu r height. 1.2 for how ng" (32-bit t).	or the vari SaGRAF m Jal of ISaC to display	able nust occupy GRAF PAC".) 7 the axis. er), "word"
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Classification	ISaGRAF FAG	Q-146				
Author	Raven Liu	Version 1.01	Date Oc	rt. 2011	Page	46 / 70
1.3.15 g_Re	ect : Draw a	rectangle				
	(1) ← Size (2) ← Location (3) ← Edge W (4) ← Rect Co	W 50 H 50 A X 265 Y 229 Vidth 2				
(1)Size: the s (2)Location: (3)Edge Widt (4)Rect Color	size of the ob the X,Y axis ch : set up th : set up the	oject; "W" for Wid of the object. Ref e border line's wi border color of t	Ith, "H" for he fer to Ch.1.2 f dth, 1~10. he rectangle	eight. For how to	o display	the axis.
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	IC IC			inclic		

Class	ification	ISaGRAF FAQ-	-146							
Autho	r	Raven Liu	Version	1.01	Date	Oct. 2011	Page	47 / 7	0	
1.4 :	How to	set up the a	access	permission	• of HM	II II security i	nlease ref	ers to	the	
follow "Proje	following steps. The HMI password security is accomplished by the menu of "Project" > "password" and two HMI objects "g_Login" and "g_logout".									
The S	Setting St	teps:								
(1)	Open a	project of the ect Help IP Setting PassWord Upload	Sort-G	RAF Studio	and lick	< the "Proje	ct"→"Pass	word	T	
(2)	Set the	password and	d level							
	PassWordI	lg								
	Leve	el 1	▼		All P	assword				
	Password			(b)		Level	Password	_		
		Create	Delet	e		Level 1	123456			
		<u> </u>		::	—	Level 2	123456			
	(a)Leve	: the security	y levels	can be	—	Level 3	NULL			
	1~10	J. The larger	number	r has the	-	Level 4	NULL NULL			
	high	er authority.	Click the	e button	-	Level 5	MIII I			
		to see the se	etting pa	asswords	-	Level 7	NIII.I.			
	for a	II levels. "NU	LL" mea	ans that	-	Level 8	NIII.L			
	level	doesnot set	passwo	rd.	-	Level 9	NIIL			
						Devers	NODE			
(3)	(b)Passv selec Create a it is blar	vord: the pas sted level. a new passwc nk. Then, key	ssword o ord: first in a pa	of the t, select a Le ssword and	evel. If click "(this level ha	as no pass	sword	yet,	
	PassWord La Passwor	1 D1g evel 1 d 123456 Creat	Le Dei	Lete						
(4)	Change/ "passwo and click passwor	'Delete passw rd" column w < "Create" to 'd, please clic	vord: se vill show replace k "Dele	lect the Lev the current the passwo te".	el that t passw rd. If u	wants to ch Iord. Key in Iser wats to	iange. The the new p delete the	e Sassw	ord	
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Classifica	ation	ISaGRAF FA	Q-146					
Author		Raven Liu	Version	1.01	Date	Oct. 2011	Page	49 / 70
(7) Sv th	witch t nis pag	o Page 2, a e is protect	nd drag t ed by the	he "g_Lc	ogout" ob rd securit	ject into the	editing ar	ea. Now
	Button/Inp g_B_In g_WD_I g_F_In g_N_In g_Logi g_Logo g_ToPaj	ut V p np p n ut	Pe	age 2	Logout			
(8) Ur ca	pload t an login age1	the project the HMI p	to the PA project. Cl	C. Click t ick Logo	he "Logiı ut button	n" button and can exit the	d enter pa e HMI projo	ssword ect.
		IC	CP DAS CO	o., Ltd. T	echnical	document		

Classification	ISaGRAF FAQ	SaGRAF FAQ-146					
Author	Raven Liu	Version	1.01	Date	Oct. 2011	Page	50 / 70

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 $0 \sim 9$. 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\1.37\sofgrafy\ XP-8xx7 CD :\napdos\isagraf\xp-8xx7-ce6\driver\1.18\sofgrafy\ VP-2xW7 CD:\napdos\isagraf\vp-25w7-23w7\driver\1.29\sofgrafy\ or www.icpdas.com > FAQ > Software > ISaGRAF > FAQ-146 in the downloaded ZIP file.



Classification	ISaGRAF FAQ	SaGRAF FAQ-146					
Author	Raven Liu	Version	1.01	Date	Oct. 2011	Page	52 / 70

(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 : Use Clipboard Feature to Paste the Text into HMI Object

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

Net Work Address		Size W 122	H 44
Font size	12,Regul	Location X 507	¥ 229
Fore Color		Text Align Cent	er 💌
Back Color		Title	(復度(11))
		Ok Cancel	- 剪下①
			刪除①
			全選(点)

Classification	ISaGRAF FAQ-	ISaGRAF FAQ-146					
Author	Raven Liu	Version	1.01	Date	Oct. 2011	Page	53 / 70

1.6.3 : Adjust the Objects order

Soft-GRAF Studio offers the function to adjust the layer order of the object. 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.

[x = 276, y = 85, Layer = 5, g_WD_Val] Page 1

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.



Classification	ISaGRAF FAQ	SaGRAF FAQ-146					
Author	Raven Liu	Version	1.01	Date	Oct. 2011	Page	54 / 70

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.



Classification	ISaGRAF FAQ-146						
Author	Raven Liu	Version	1.01	Date	Oct. 2011	Page	56 / 70

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, as 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 swtich 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	Туре	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.

Attributes Format Store Internal Integer (standard) Cancel Input Real Next Output Initial value: 65535 Previous Dim: Egtended Egtended	Name: To_Page Network Address: 1FFF Comment: set initial value to 65535, NetWork addr. is 8191 (Hex=1FFF) Image: Conversion: Image: Conversion: <t< th=""></t<>
	Attributes Format Store Integer Integer (standard) Cancel Input Real Next Constant Initial value: 65535 Previous Dim: Extended Extended

Classification	Classification ISaGRAF FAQ-146							
Author	Raven Liu	Version	1.01	Date	Oct. 2011	Page	57 / 70	
1.6.5: Check/Upgrade the Soft-GRAF driver version								
1.6.5: Cnec	k/Upgrade 1	the Sof	t-GRAF driv	ver ve	rsion			

Check the current Solt Oldar unver version. Click the left top corner of Tage 1.
This is Page 1
Welcome to the Soft-GRAF Demo 01. Please visit www.icpdas.com > FAQ > Software > ISaGRAF > FAQ-131
ON ON ON ->> 5 sec> OFF ON / OFF ON> 5 sec> OFF
Goto Page 2
Upgrade the Soft-GRAF driver:
1. Stop the running ISaGRAF driver
KP-8xx7-CE6 ISaGRAF Driver CK Settrg Web About Configuration Slave Number : I Slave Number : I Modbus RTU Slave Port COM2 Baud Rate 19200 , N, 8, 1 Modify Project Current Application wp_vb03, ISA13=1956, ISA12=376 Delete Elapsed Time 0:0:32:15 End Driver
2. Download FAQ-146 (<u>http://www.icpdas.com/faq/isagraf_c.htm</u> > 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").
ICP DAS Co. 1td. Technical document



Classification	ISaGRAF FAQ						
Author	Raven Liu	Version	1.01	Date	Oct. 2011	Page	59 / 70

1.6.7 : File management for user edited pictures

Picture files in the PAC:

All user used pictures in the project will be stored in

"\System_Disk\ISaGRAF\sofgrafy\user\" directory after upload into the PAC. If there are too many pictures and you want to manage them, you can delete all the pictures files under "\System_Disk\ISaGRAF\sofgrafy\user\" (But do not delete the folder "user".) and upload pictures again via Soft-GRAF Studio.

Address \System_Disk\ISAGRA		
Name	Size	Туре
a) 07.jpg	14.1KB	JPEG Image
🛋 08.jpg	13KB	JPEG Image
🔊 air-(021).gif	9.75KB	GIF Image
🔊 air-1.jpg	8.29KB	JPEG Image
🔊 back.jpg	4.14KB	JPEG Image
🔊 back-b.jpg	4.16KB	JPEG Image

For saving the upload time, Soft-GRAF checks the file name and size when upload the project to the PAC to decide overwrite that file or not. If the file size is the same, it will not upload that file. So, when the picture of HMI screen is not update, please delete the non-updated files in the "\System_Disk\ISaGRAF\sofgrafy\user\" of the PAC, and then upload 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.

Classification	ISaGRAF FAQ-146						
Author	Raven Liu	Version	1.01	Date	Oct. 2011	Page	60 / 70

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 upload it to the PAC.

Sagraf - Project Management
<u>File Edit Project Tools Options H</u> elp
🖹 🖽 🗋 🚹 Archive 🕨 Projects 👞
sofgr_08 Libraries Common data
sofgr_09 Import IL program er to www.icpdas.com
ma sofar 01
Archive - Projects
Workbench Archive
demo 01
demo02 Restore
demo04
el_03
m94_05
sofgr_00
sofgr_01
Archive location
D:\SOFT\ Browse
ISaGRAF - DEMO04 - Programs
rie Make rioject loois Denge Options rien
ST1
WinPAC-8x47/8x46/8x37/8x36 ISaGRAF Driver OK
Setting Web About
Configuration
Current Application demo04, ISA11=1384, ISA12=916
Elansed Time 0:0:12:35 End Driver
ICP DAS Co., Ltd. Technical documen

Classification	ISaGRAF FAQ-146						
Author	Raven Liu	Version	1.01	Date	Oct. 2011	Page	61 / 70

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



Classification	ISaGRAF FAQ						
Author	Raven Liu	Version	1.01	Date	Oct. 2011	Page	62 / 70

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

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 \rightarrow 5 sec \rightarrow 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.

ICP DAS Co., Ltd. Technical document

Classification	ISaGRAF FA	Q-146					
Author	Raven Liu	Version	1.01	Date	Oct. 2011	Page	63 / 70
Page2:							
(1)	Goto Page1	g_ToPage() level 2) with level2 security, ? or Higrt user to oper	pls login as ate it			
(2)	Logout		Goto Page3		_ ▶(5)		
	g_F_inpwith level2 se us	curity, pls login as er to operate it	s level 2 or Higher				
	(3)	1.057					
	g_F_inpwith level 1 se us	ecurity, pls login a er to operate it	is level 2 or Higher				
	(4)	1.057					
(1) Press th	e button to a	o to the F	Page1				
(2) Log out	. If login from	the "Log	in" button	of Page	1 and login	successful	lly, press
this but	on can return	to Page:	1 and logou	it.			
(3) This is a login wit	i g_F_Inp obje th the Level 2	ect with t (or uppe	:he level 2 a er Level) pa	authorit ssword	y protection that setup i	i. If user c n the Soft	loes not :-GRAF
Studio d	lesigning step	, user ca	nnot input	this Floa	at value. Foi	r test this	button,
then the	e system will g	ress the 10 to Pag	e2 automat	jin and cically, a	and then use	assword er can pre	ss this
button t	o change its v	alue.					
(4) The fund or Level	ction is the sa 2 password.	me as (3). For testi	ng, go t	o Page1 and	d enter the	e Level 1
(5) Switch t	o Page3. This	button,	the same w	vith the	authority p	rotection,	switches
level.	s only when u	ie user ic	ins in wit	n the pa			upper
Page3:							
Gotoo Page2 →(1)							
(1) Switch t	the Page2.						
	IC	P DAS C	o., Ltd. Teo	hnical c	document		

Classification		7-146								
Author	Raven Liu	Version	1 01	Date	Oct 2011	Page	64 / 70			
		V CI SIUIT	1.01	Dale	001. 2011	i aye				
1.7.2 Demo05: This demo she "demo05.pia"	My Sweet He ows how to and upload ct Management ols Options Help <u>Archive</u> Libraries Import IL program	Common date Projects Common date Projects Common date Projects Common date Projects Common date Projects Common date Projects Projects Common date Projects Proje	Description interactiv AC.	on re and d	ynamic HM	I page. Re	estore			
Workbench creation demo_01 demo02 demo03 demo04 demo05 el_03 el_04 el_05 sofgr_22 sofgr_00 sofgr_01 sofgr_02 Archive location D:\SOFT\	Archive demo04 demo05	Backup <u>R</u> estore <u>C</u> lose <u>H</u> elp ✓ Compress <u>B</u> rowse								
ISaGRAF - DEMO05 - Programs File Make Project Tools Debug Options Help Image: Apple and the main state of the m										
Configuration Slave Number : Modbus RTU Slave P Baud Rate 19 Project	1 Vort None 1200 , N, 8, 1	[Modify]								
Current Application	demo05, ISA11=15	16, ISA12=1132	2 Deleta	e /er						
	TC			hnical	locument					
ICP DAS Co., Ltd. Technical document										

Classification	ISaGRAF FAQ-146							
Author	Raven Liu	Version	1.01	Date	Oct. 2011	Page	65 / 70	

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 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 upload IP and upload the project. (Refer to Chap.1.7.1 for the steps.)











