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# How do I use ISaGRAF SoftLogic and the eLogger HMI with an ISaGRAF WinCE-based PAC?

#### Download FAQ-115 Demo

The "eLogger" is an HMI development tool developed by ICP DAS that features an easy-to-use graphical user interface (GUI). The tool can be used to design both Local HMI and Web HMI pages, and allows easy integration with ISaGRAF SoftLogic software installed on an ISaGRAF WinCE-based PAC (e.g., WP-8x37/8x47, WP-5147/5147-DO, VP-2xW7/4137, and XP-8x37-CE6).

Users can log in to the created Web HMI pages to remotely monitor and control the ISaGRAF system using a standard web browser on a smart phone.



This document and all demo programs (faq115\_demo.zip) can be obtained from: http://www.icpdas.com/web/product/download/software/development\_tool/isagraf/document/faq/faq 115\_demo.zip

Visit the ISaGRAF FAQ web Page for more information about how to use the ISaGRAF. http://www.icpdas.com/en/faq/index.php?kind=280#751

#### ISaGRAF web page: (Software/Manual)

http://www.icpdas.com/en/product/guide+Software+Development\_\_Tools+ISaGRAF

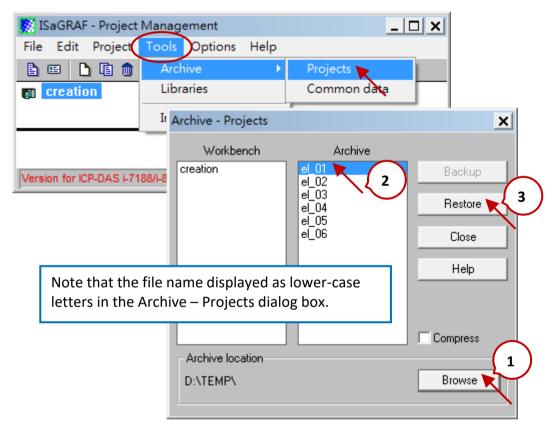
eLogger web page: (Software/Manual) http://www.icpdas.com/en/product/guide+Software+eLogger+eLogger

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# Chapter 1. Building an ISaGRAF SoftLogic Project

The ISaGRAF project file "eL01.zip" for the examples used in this chapter found in the "faq115\_demo.zip" file can download from

http://www.icpdas.com/web/product/download/software/development\_tool/isagraf/document/faq/faq 115\_demo.zip. For users who are familiar with the ISaGRAF software, simply locate the folder where you stored the example files and archive these files to the PC/ ISaGRAF, and then upload the "eL01" project to the ISaGRAF PAC. Then, refer to <u>Chapter 2</u> of this document for details of how to create HMI pages using eLogger.



For those users who are not familiar with ISaGRAF, read Chapters 1 and 2 of the ISaGRAF User Manual for more details relating to the use of the software. The manual can download from below linkage: http://www.icpdas.com/en/download/show.php?num=333&nation=US&kind1=&model=&kw=isagraf At least one of each the ISaGRAF-256 or the ISaGRAF-32 software must be installed. Check the "Ordering Information" section of the ISaGRAF web page for details of how to order the software. http://www.icpdas.com/en/product/guide+Software+Development\_\_Tools+ISaGRAF#443 If the ISaGRAF software is not installed on your PC, first read Section 1.1 of the ISaGRAF User Manual for details of how to install it, and then read Section 1.2 of the ISaGRAF User Manual for details of how to install the "ICP DAS utilities for ISaGRAF" application.

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1.1. Creating a New Proje	ct								
Launch ISaGRAF and create a new project by clicking the "New" item from the "File" menu, or pressing									
Ctrl + N. In the "Create new proj									
the " <b>Name</b> " field, then click the " <b>OK</b> " button to create the project.									
S ISaGRAF - Project Management									
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Open Select project grou		♥ \=   ₽	rad_Demo	ନ୍ତ					
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Version for ICP-DAS FI				-					
Double-click the name of the pro	ject to op	en the Progr	ams windo	ow for the pro	oject.				
🚺 ISaGRAF - Project Manageme	ent			_ 🗆	$\mathbf{X}$ (2)				
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	û 🖟 🖶	🎦 Faq_Demo		ject Tools nment text	Project Too Project de				
📷 creation 📷 el_01 eLogger + IS	aGRAF Demo	(FAQ-115)		separator	History				
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	<u>Tips</u> :								
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Date of creation : 2017/5/25 Version number : 1 - ISaGR	a —			on, select the					
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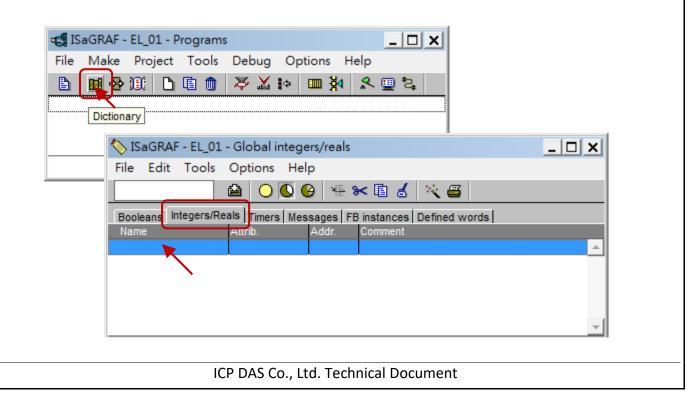
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#### **1.2.** Declaring the ISaGRAF Project Variables

Before we can begin creating our project, we must first declare the required project variables. In this example, we will use the following ISaGRAF variables.

Name	Format	Attributes	Network Address	Description
Long_1	Integer	Internal	1	Enables access to the 32-bit eLogger Long tag
Word_3	Integer	Internal	3	Enables access to the 16-bit eLogger Integer tag
Word_4	Integer	Internal	4	Enables access to the 16-bit eLogger Integer tag
Float_5	Real	Internal	5	Enables access to the 32-bit eLogger Float tag
OUT_101	Boolean	Output	101	Linking to the DO0 of X304 board on the slot0 See Section 1.5 for more details
OUT_102	Boolean	Output	102	Linking to the DO1 of X304 board on the slot0 See Section 1.5 for more details
M1	Boolean	Internal	-	For use with ST1 programs See Section 1.4 for more details
DIR	Boolean	Internal	-	For use with ST1 programs that were declared with an initial value of "True", see Section 1.4

Click the "Dictionary" button to display the Global Integers/Reals dialog box. Once the dialog opens, click the "Integers/Reals" tab and double-click the "Name" field in the blank row to open the "Integer/Real Variable" dialog box.



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In the Integer/Re of "1" in the "Net the "Format" opt	twork Address" t	field. Ensu	ire that the "At	tributes"	option is set	to "Internal"	, and that
Name: Commer Unit: O Ir O Ir		Format Integra Real Initial value Retain	Conversion: er (standard)	(none)	1 Store Cancel Next Previous Extended	X Using the Hex	k. format

Once the variable has been stored, it will show up in the "Integers/Reals" tab in the Global Integers/Reals dialog box. Using the same method, create the variables for "Word\_3" and "Word\_4" by double-clicking on a blank row, and then entering the relevant names and setting the Network Addresses to "3" and "4", respectively.

After creating these variables, the table under the "Integers/Reals" tab in the Global Integers/Reals dialog box should be the same as that shown in the figure below.

📎 ISaGRAF - EL_01 -	- Global integer	s/reals		_ 🗆 🗙
File Edit Tools	Options Help			
	🖴 🔘 🕓 🥝	*# 😽	🗈 💰 📉 🚝	
Booleans Integers/Rea	als Timers Mess	ages FB in	stances Defined words	
	Attrib.		Comment	
Long 1	[internal,integer]	0001		
Word 3	[internal,integer]	0003		
Word 4	[internal,integer]	0004		
				-
Word_4 @0004 [internal,intege	r]			

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Repeat the proc "5". However, in		Format" op	-	_		he Network	Address to
		- 1					
	Name: Float_	D		Network A	ddress: 5		
	Comment:			_			
	Unit:		Conv	rersion: (n	ione)	•	
	Attributes Internal Input	[	Format Cinteger (stand Real	dard) 🔄		itore	
	C Output C Constant	In	itial value:			Vext	
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The table under as that shown in	<b>-</b> .		n the Global Int	egers/Re	eals dialog bo	x should nov	v be the same
٩	📎 ISaGRAF - EL_01	Global int	egers/reals			_ 🗆 X	Ī
	File Edit Tools						
_			S 🖌 🗄 🖌		. 🗳 🔤		
	Booleans Integers/R Name Long_1 Word_3 Word_4 Float 5	Attrib. [internal,inte [internal,inte [internal,inte [internal,inte	Addr. Co ger] 0001 ger] 0003 ger] 0004	inces   Defir mment	ned words		
Float_5 @0005 [internal,real]							
Next, click the "I variables is the s Booleans variabl OUT_101 and O should be set to	ame as previous les OUT_101, Ol UT_102 variable	sly describe JT_102, an s should be	ed for Integers/ Id M1. Note, ho e set to "Outpu	/Real var owever, t it", and t	iables. Using hat the "Attr he "Network	this method ibutes" optio Addresses"	, declare the on for the for these

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	olean Variable Name: DUT_101 Comment: Attributes Internal Input Output Constant	Valu Fal Tru set Re	se: ue: to true at init	Network Address		ing the Hex.	format
For the M1 varia	ble, the "Attribu	ites" optic	on should be	e set to "Inte	rnal".		
	olean Variable Name: M1 Comment: Attributes Internal Input Output Constant Dim:	Valu Fal Tru set	se: ne: to true at init	Network Address	: Store Cancel Next Previous Extended		
Once the Boolean variables created, the table found in the "Booleans" tab of the Global Booleans dialog box should now be the same as that shown in the figure below.							oleans dialog
Fil B C C M M	ooleans)ntegers/Rea lame DUT_101 DUT_102 41	Options H Coutput] (output] (internal) (internal)	elp 🕑 📲 😽	Image: stances   Defined mment $65_{(16)} = 1$ $66_{(16)} = 1$	words   01 <sub>(10)</sub>		
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otion to "Interr	ne process descinal", and check	-	-		" variable, ai		Attributes"
B	oolean Variable	7				×	
	Name: DIR			Network Add	dress:		
	Comment:		alues				
	Internal     Input     Output	F	aues False:		Car		
	C Constant		et to true at init			rious	
			Retain		Exter		
	l the variables, o			save the	settings and	exit the dia	og.
Fil	e Edit Tools			1 100	~		N
B	ooleans Integers/Rea	ak Carrs Me	essages   FB instan				
0	ame )UT_101	[output]	0065	ent		<u>^</u>	
N	)UT_102 /1	[output] [internal]	0066 0000				
D	)IR	[internal]	0000			<b>.</b>	
DIF	R 2000 [internal] (fals	e,true) [:=TRl	JE]				
		ICP DAS	Co., Ltd. Techr	nical Docu	iment		

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# 1.3. Creating an LD Program (LD1)

In this section, we create an LD program to read the system time of the PAC, and generate a pulse "True" signal once every second for the M1 variable.

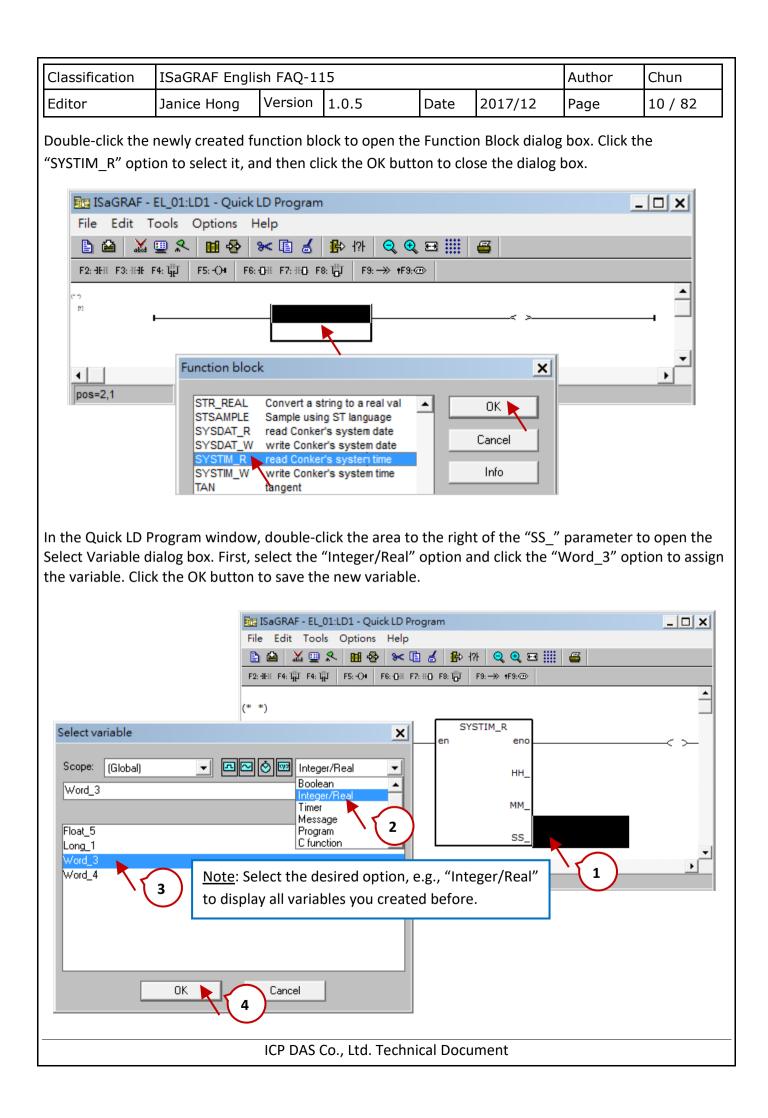
Click the "Create new program" button to open the "New Program" dialog box and create an LD program named "LD1". From the Language drop-down menu, select the "Quick LD: Ladder Diagram" option, and select the "Begin: Main program" option from the Style drop-down menu, as illustrated in the diagram below, and then click the OK button to save the new program.

🚓 ISaGRAF - EL_01 - Programs	_ 🗆 ×
File Make Project Tools Debug	
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Create new program	New Program
	Name: LD1
	Comment:
	Language: Quick LD : Ladder Diagram
	Style: Begin : Main program
	OK Cancel

After creating the new program, a new icon for the program displays in the main "Programs" window, as illustrated in the figure below. Double-click the "LD1" icon to begin creating the LD program.

The first thing that we need to do is add a "SYSTIM\_R" function block so that we can retrieve the current PAC time. In the Quick LD Program window, click the "Block on the left" button to create the function block, or press the F6 key.

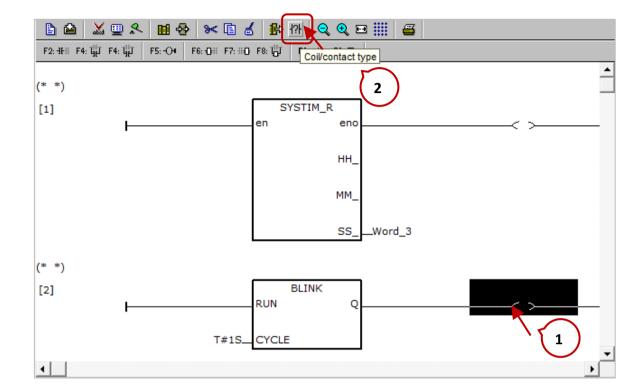
File Make	Project	Tools	Debug	Options	Help	<u>- 🗆 ×</u>				
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Begin:	(HIC)	D1					1			
			📴 ISaGI	RAF - EL_01	:LD1 - Qui	ck LD Progr	am		_ [	'×
			File Ec	lit Tools	Options	Help				
			🖹 🖄	👗 🛄 🙎	- 🖬 🖗	S< 🖪 (	<b>5</b>	1?} 🔍 🗨	<b>⊞</b> ⊞	<b>=</b>
			F2: HEE F3	3: ⊞HE F4: THE	F5:-O4	F6: -0 F7: 14	} F8: 100	F9: →>> +F9:≪	Ð	
						Block on	the left			<b></b>
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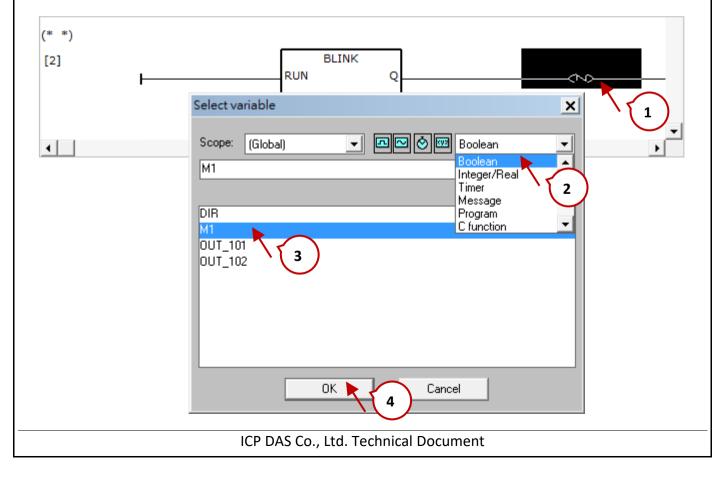
		ish FAQ-1	15			Author	Chun
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(* *) [1] Under the "SYSTI so that we can ge As illustrated beloved	F4: T F5: O1 F6: M_R" function enerate a pulse ow, double-clic	block, repetthat will set	SYSTIM_R eno HH_ SS_ eat the proces et a Boolean v to the left of t		ek the zoom l luce the size ed before to A1" to True o E" paramete	once every se r to open the	function block econd.
(* *) [2] •	Select Scope T#15 Float Long Word	5 _1 By _3 Flo _4 pe	RUN CYCLE	۹ first option ould set it ds. Can	as a blinking		

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In the Quick LD Program window, click the coil icon to the right of the BLINK function block, as illustrated below, and then click the "Coil/Contact type" button several times until the "N" coil type selected.

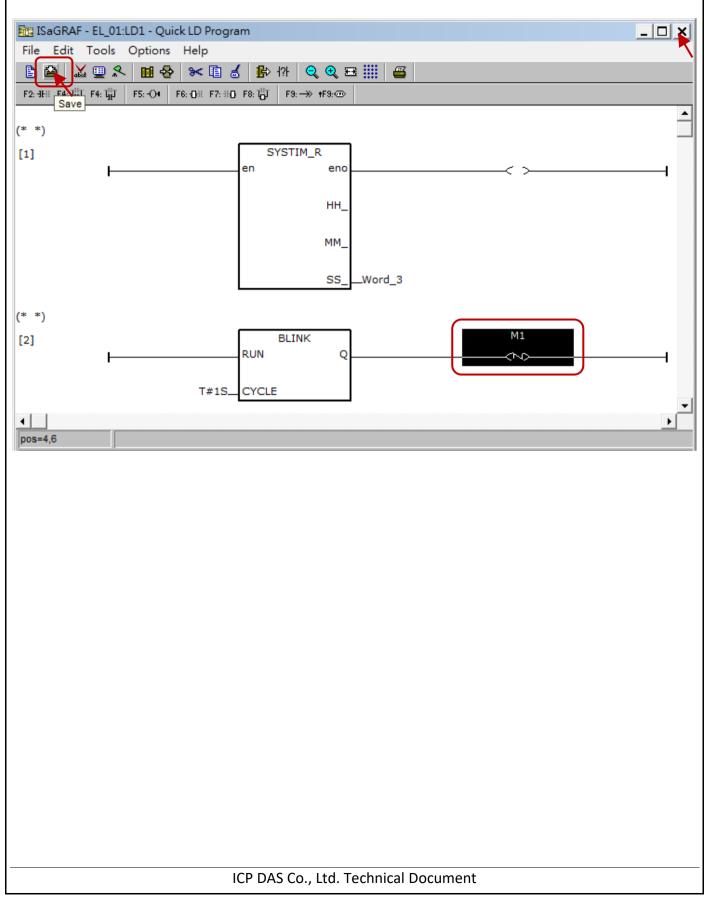


Double-click the "N" coil icon to open the Select Variable dialog box. First, select the "Boolean" option and click the "M1" option to assign the variable. Click the OK button to save the new variable.



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The creation of the LD1 program is now been complete. Click the Save button to save the new program and then exit the window.



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# 1.4. Creating an ST Program (ST1)

In the ST

To begin creating an ST program, click the "New Program" button in the main "Programs" window to open the "New Program" dialog box and create a ST program named "ST1". From the Language drop-down menu, select the "ST: Structured Text" option, and select the "Begin: Main program" option from the Style drop-down menu, as illustrated in the diagram below, and then click the OK button to save the new program.

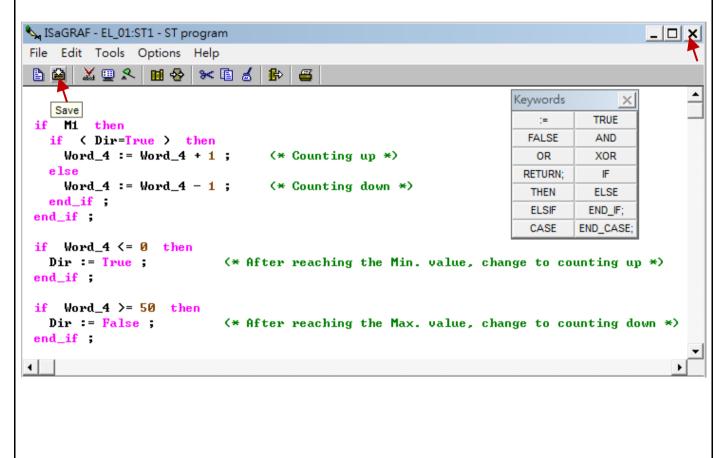
🚓 ISaGRAF - EL_01 - Programs	
File Make Project Tools Debug	Options Help
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Begin: IND 1	
Create new program	New Program
	Name: ST1
	Comment:
	Language: ST : Structured Text
	Style: Begin : Main program
	OK Cancel

After creating the new program, a new icon for the program displays in the main Programs window, as illustrated in the figure below. Double-click the "ST1" icon to begin writing the code for the ST program.

	😓 🏨 🗅 🗈 💼 🖊 🐥 👗 🕨 💼 🌺 🔍 🛄 😓		
Begin:	₩ LD1 ST1		
	🗞 ISaGRAF - EL_01:ST1 - ST program		_ [
	File Edit Tools Options Help		
	▶ 🖄 🖳 🛠 🔳 😵 🛰 🖬 💰 👫 🖨		
	Ke	ywords	)
		:=	TRUE
		FALSE	AND
		OR	XOR
	F	RETURN;	IF
		THEN	ELSE
		ELSIF	END_IF;
		CASE	END_CAS

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else	nen ir=True)then ord_4 := Word_4 ord_4 := Word_4						
	_4 <= 0 then • True ;	(* Aft	er reaching the	e Min. va	lue, change to	o counting (	up *)
	_4 >= 50 then = False ;	(* Af	ter reaching the	e Max. v	alue, change	to counting	down *)

Once the code is completed, the ST Program window should look like the figure shown below. Click the Save button to save the new program and then exit the window.

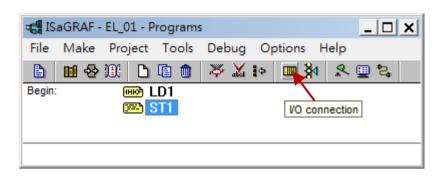


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# 1.5. Connecting the I/O

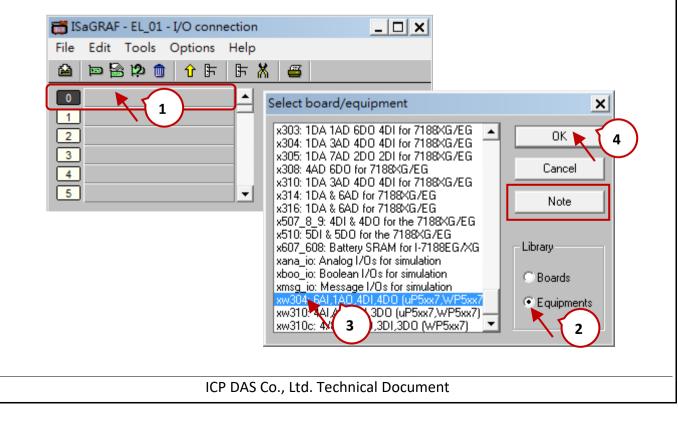
In this example, we need to install an internal XW304 expansion board (6 AI, 1 AO, 4 DI and 4 DO channels) in the WP-5147-OD PAC in order to control the DO0 and DO1 channels. Therefore, we need to add an I/O connection to the ISaGRAF program to connect to the physical I/O board in the PAC.

To do this, click the "I/O connection" button in the main "Programs" window to open the I/O Connection dialog box, as illustrated in the diagram below, and begin creating an I/O connection.



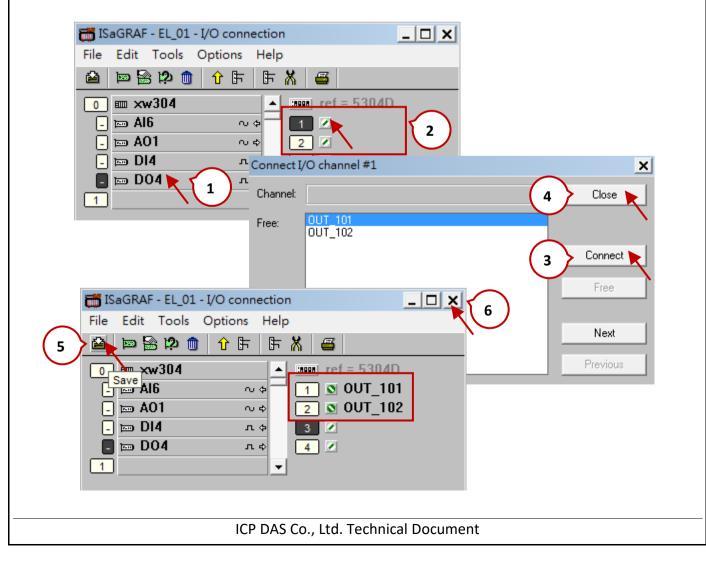
In the I/O Connection dialog box, double-click the field for "Slot 0" to open the "Select board/ Equipment" dialog box. Click the "Equipment" option in the "Library" section and then choose the "xw304" item from the list of equipment. Click the OK button to confirm your selection. The XW304 expansion board and its respective I/O channels list in the I/O Connection dialog box.

Note that you can also click the Note button for more details about the use of the XW304 expansion board.



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File Edi	A01 (	Help	If no refe "Equipme <u>Utilities f</u> See Secti	ent" opti or ISaGR on 1.2 of	"xw304" is lis ons, it means <u>AF</u> " application the " <u>ISaGRA</u> to install it.	that the " <u>IC</u> on is not inst	alled.

In this example, we will assign two Boolean variables named "OUT\_101" and "OUT\_102", which be declared as the Digital Output attributes. To assign the "OUT\_101" variable, click the icon for the "DO4" item to select it, and then double-click the icon for the channel 1 item in the right-hand side of the panel to open the "Connect I/O channel" dialog box. Click the "Connect" button to automatically assign the "OUT\_101" variable to channel 1 and the "OUT\_102" variable to channel 1, and then click the "Close" button to close the dialog box. After that, click the Save button in the I/O Connection dialog box and close the dialog box.



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#### Note:

To set the measurement range, click the icon for "AI6" in the I/O Connection dialog and then double-click the "Range" item on the right hand side of the panel to open the I/O Board parameters dialog box, which allows you to modify the value (0 or 1). In addition, remember to adjust the jumper on the XW-board.

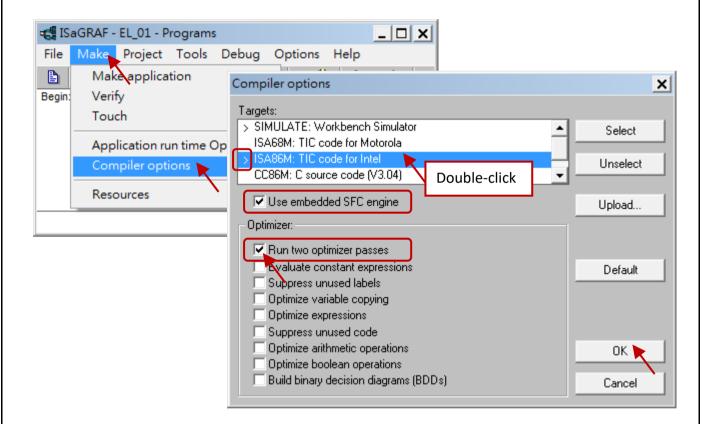
	= 5304A nge = 0
	I/O Board parameter
<b>0</b> : -5 V to +5 V (-32768 to +32767) <b>1</b> : 0 V to +5 V (0 to +32767)	Parameter: Range OK Cancel

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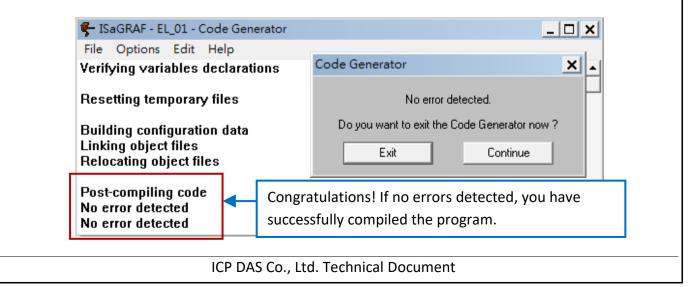
### 1.6. Compiling the ISaGRAF Project

Before compiling the project, the following compiler options **MUST** select.

To change the compiler options, first select the "Compiler options" item from the "Make" menu to open the "Compiler options" dialog box. In the "Compiler options" dialog box, ensure that the "ISA86M: TIC code for Intel" item from the "Targets" section is selected, if not, double-click the item to select it and then check the checkbox for the "Use embedded SFC engine" item. In the "Optimizer" section, simply check the first item and click the OK button to save your changes.



Once you have completed the previous process, click the "Make application" item from the "Make" menu to compile the program.



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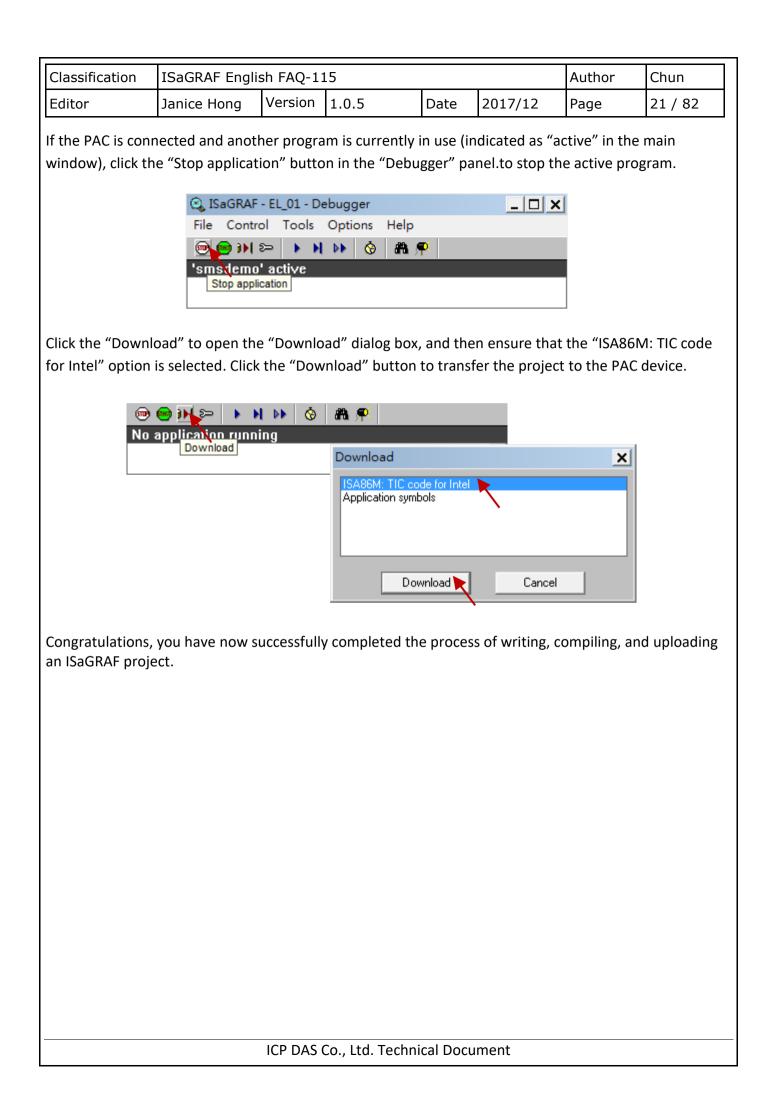
#### 1.7. Uploading the ISaGRAF Project to the WP-5147-OD PAC

Before uploading the project to the device, the communication parameters MUST configure. First, click the "Link setup" button in the main "Programs" window to open the "PC-PLC link parameters" dialog box.

📢 IS	aGRAF -	EL_01 - P	rograms	;			_ 🗆 X
File	Make	Project	Tools	Debug	Options	Help	
	🖬 🕹	11	Ē 🗊	苓 🏅	i* 🛄 🕺	4	🖳 🔁
Begin:			.D1 .T1				Link setup

To upload the project via an Ethernet connection, select the "ETHERNET" option from the "Communication port" drop-down menu, and then click the "Setup" button to open the "ETHERNET link parameters" dialog box. In the "ETHERNET link parameters" dialog box, enter the IP address of the PAC in the "Internet address" field. Note that the Port number **MUST** be "502". Click the "OK" button to save your changes and close the dialog box, and then click the "OK" button again to save the settings for the link and close the "PC-PLC link parameters" dialog box.

PC-PLC link parameters	×
Target Slave Number:	ОК
Communication port: ETHERNET	Cancel
Time out (seconds): 2	Setup
Retries: 1	ETHERNET link parameters
	Internet address: 192.168.79.23 OK
	Port number: 502 Cancel
	The Workbench uses the WINSOCK.DLL library for TCP-IP communications. Ensure that this file is correctly installed on the hard disk.
xt, click the "Debug" button in the main "	'Programs" window to open the "Debugger" panel.
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	Debug
ICP DAS C	o., Ltd. Technical Document



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# Chapter 2. Designing an eLogger HMI Page

The free and easy-to-use eLogger software from ICP DAS can be used to implement HMI and data logger programs that allow simple I/O monitoring and system control on ISaGRAF PACs based on Windows CE 5.0 (e.g., the WinPAC and ViewPAC series from ICP DAS), and Windows CE 6.0 (e.g., the XPAC-8000 series from ICP DAS). In this case, we use the WP-5147-OD PAC.

The eLogger application can develop projects quickly and easily. This requires flexible I/O configuration, a flexible interface, or shared memory, and can integrate with ISaGRAF programs.

There are two versions of the eLogger software: eLogger Developer and eLogger Runtime.

- 1. **eLogger Developer** is installed on a host PC, and is used to design HMI pages and configure graphics components.
- 2. **eLogger Runtime** is installed on a PAC device, MUST be launched in order to process an eLogger project.
- **Note:** When using an XPAC or a WinPAC device, a VGA monitor must be connected the device in order to view the PAC/HMI screen. If an error occurs while the eLogger Runtime component is in operation, see Section 2.8 "Troubleshooting for eLogger Runtime operations" for details of how to resolve any problems.

# 2.1. Installing the eLogger software

#### 2.1.1. Installing the eLogger Developer on the Host PC

If the **eLogger Developer** software (version 1.6.2.0 or later) has never been installed on the Host PC, you can download the latest version at

http://www.icpdas.com/en/product/guide+Software+eLogger+eLogger#1086

After downloading the program, install it on the Host PC. For more details regarding how to install the eLogger Developer software, see the eLogger User Manual, which is at http://www.icpdas.com/en/download/index.php?nation=US&kind1=&model=&kw=elogger+

] eLogger_Developer	\mu eLogger_Runtime	🖟 eLogger_Runtime_Background
鷆 Manual	unins000.dat	🕞 unins000.exe

#### Note:

It is recommended that the Taskbar is displayed on PAC desktop because makes it more convenient when operating the PAC while designing the application. To do this, first connect a VGA monitor to the

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VGA port on the WP-5147-OD device, and then connect a mouse to the USB port.

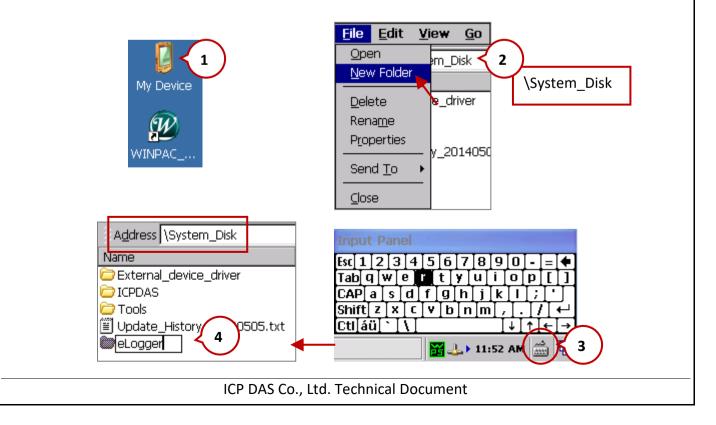
Right-click the Taskbar for the device and select "Properties" from the menu to open the "Taskbar and Start Menu Properties" Property Sheet. In the "General" tab, make sure that the "Always on top" option for the Taskbar is checked, and that the **"Auto hide"** option is **unchecked**. **Click te "OK" button to save the settings**.

	Taskbar and Start Menu Properties	OK ×
Tas <u>k</u> Manager	General Advanced	
Properties Right-click	<ul> <li>✓ Always on top</li> <li>Auto hide</li> <li>✓ Show ⊆lock</li> </ul>	

# 2.1.2. Installing the eLogger Runtime on the PAC

If the **eLogger Runtime** environment (version 1.6.2.0 or later) has never been installed on the PAC, the relevant installation files can be found in the installation folder for the eLogger Developer, which can be found at C:\ICPDAS\eLogger eLogger\_Runtime\For\_WinPAC if the eLogger Developer was installed in the default location.

To begin installing the **eLogger Runtime**, first, double-click the "My Device" icon on the PAC desktop and then open the \System\_Disk directory. Select the "New Folder" item from the "File" menu and create a new folder called "eLogger".



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Note that before attempting to install the **eLogger Runtime** via FTP, you should open the WinPAC Utility and ensure that the FTP function enabled and the download directory is set to "\" in the Network Settings tab. If this is not the case, change the settings where necessary and then click the "Set" button to save the changes. Click the "Save and Reboot" item in the "File" menu to save the settings and restart the PAC.

Ŵ	VinPAC Utility [2.1.0.6] File Help Configuration
WINPAC	System Settings   System Settings2   Ethernet Settings   Network Settings   System Info
	FTP Settings Users and Passwords File Server Settings 2
	FTP O Enable O Disable
	Allow Anonymous   Enable  Disable
File Help Configuration	Allow Anonymous Enable Disable Upload Change FTP default download directory \Temp to:
Reboot <u>W</u> ithout Save	
E <u>x</u> it	Set 3
	Change the HTTP document root directory \windows\www\wwwpub to:
	\System_Disk\eLogger\webpages\ Settings

In this example, the **eLogger Runtime** installed on a **WP**-5147-OD PAC. To install the **eLogger Runtime**, copy all the files contains in the C:\ICPDAS\eLogger\eLogger\_Runtime\**For\_WinPAC** folder on the Host PC to the newly created \System\_Disk\eLogger folder on the PAC via FTP (e.g., ftp://192.168.79.23/System\_Disk/eLogger/).

copy_to_system_disk	copy_to_www_root	🔒 Install	ColorButton.dll
S ControlCenter.dll	DriverControl.dll	NMI.dll	S Iocomp.Instrumentation.CF2005.U.
🔊 LocalDataLog.dll	M2Mqtt.NetCf20.dll	MathCurve.dll	ModbusSerial.dll
ModbusTcp.dll	ModuleOnSlot.dll	MQTTDriver.dll	MySql.Data.CF.dll
🚳 MySQLDataLog.dll	🚳 nModbusCE.dll	🚳 pac_i8017HW.dll	🚳 pac_i8017hwnet.dll
🚳 pac_i8024W.dll	💿 pac_i8024wnet.dll	💿 pac_i8084W.dll	🚳 pac_i8084wnet.dll
🚳 PlugInDriver.dll	NugInProcedure.dll	Noject.dll	🚳 RemoteDataLog.dll
🚳 RuntimeAPI.dll	RuntimeCE.exe	RuntimeWinPacCE5.exe	🚳 scankernelnet.dll
🚳 SharedMemoryNet.dll	System.Data.SqlClient.dll	🚳 UserLevel.dll	winpacnet.dll

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Next, copy the "S	haredMemory.	l dll" file tha	ı at is found in th	e <b>\Syste</b>	m_Disk\eLog	ger\	
copy_to_system_		<b>stem</b> folde	er on the PAC t	o the <b>\S</b> y	ystem_Disk\IC	CPDAS\Syste	<b>m</b> folder.
	m_Disk\eLogger						
	× 🖸 🖃 -	~					
copy_to_system Install	n_disk		copy_to_www_ra   <del>ColorButton.dli</del>	oot		_	
	ile <u>E</u> dit <u>V</u> iew	<u>G</u> o					
	A <u>d</u> dress \System_	Disk\eLogge	r\copy_to_systen	n_disk\icpo	das\system		
<ul> <li>ModbusSe</li> <li>ModuleOr</li> </ul>	🗘 🔶 🤌 🔀	. 🗾 📰 🔻					
🔊 nModbus(	SharedMemory.dll)						
<ul> <li>pac_i8011</li> <li>pac_i8024wnet</li> <li>pac_i8084wnet</li> </ul>	dll dll	\$ \$	) pac_i8084W.dll ) PlugInDriver.dll		ile <u>E</u> dit <u>V</u> ie		
<ul> <li>PlugInProcedur</li> <li>RemoteDataLog</li> </ul>	g.dll	*	Project.dll   RuntimeAPI.dll	Na	떊[dress \System ame	n_DISK\ICPDAS	System
RuntimeCE.exe scankernelnet.c		-	RuntimeWinPacCE SharedMemoryNe	+ all 🔛	SharedMemory. License.bin	dll	
ঙ) System.Data.So ছী winpacnet.dll	qlClient.dll	<u></u>	) UserLevel.dll	1	WinpacSDK.dll PACSDK.DLL		
Select the "New I	Folder" item fro	m the "File	e" menu and cr	eate a n	ew folder calle	ed "webpage	es" in the
\System_Disk\eL	ogger\. Then, co	opy the "ba	ase" and the "V	VebBase	" folders that		
"copy_to_www_	root" folder to t	he webpa	ges "webpages	" folder.			
<u>File</u> E	dit <u>V</u> iew <u>G</u> o			-			
<u>O</u> pen <u>N</u> ew Fo	em_Disk\eLo	ogger			<b>¥ <u>G</u>o  </b> _Disk\eLogger\w	/obpages	
Delete			Name	n (System	_Disk (eboggei (*	repages	
Rena <u>m</u> P <u>r</u> oper			🗁 base 🗁 WebBa	ise			
Send <u>T</u>	<u>[o</u>						
Close							
Note:	When uploadii	ng the proj	ect that contai	ns web p	bages, the "we	bpages" fold	der
	•		the same folde				· ·
			ger\. But you st e "webpages" f			ase" and the	
<b>_</b>			Co., Ltd. Techni		-		
			,		-		

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# 2.2. Creating an eLogger Project

ICP DAS provides an example project named "eL\_01.wez" that can be used for reference. The files for this project can obtain from

http://www.icpdas.com/web/product/download/software/development\_tool/isagraf/document/faq/faq 115 demo.zip .

Unzip the demo file and copy the files eL\_01.wez to eL\_06.wez to the C:\ICPDAS\eLogger\

eLogger\_Developer\Project\ folder on the Host PC. Launch the eLogger Developer software, and then click the "Open" item in the "Project" menu to open an existing project.

<ul> <li>eLogger Developer V1.6.2.</li> <li>Project Edit Backg</li> <li>Simulation Remote Machine</li> <li>New</li> <li>Open</li> <li>Save as</li> <li>Language</li> <li>Exit</li> </ul>	
	File name:

Alternatively, to create a new project, click the "New" item in the "Project" menu and give the new project the name "eL\_01". Note that you should avoid giving this project the existing name "Demo".

eLogger Developer V1.6.2.0 Project Edit Backg Simulation	
Remote Machine          New         Open         Save as	Organize  New folder
Exit	By default, there is a file called Demo.wez in this folder, so <b>DO NOT</b> name it "Demo".
	File name: eL.01
	ICP DAS Co., Ltd. Technical Document

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It is recommend that you set the eLogger Sampling Time to 1 second. To do this, enter 1 in the Samping Time (sec) field.

🛛 eLogger Developer V1.6	.2.0 2016/2/22 C:\ICPDAS\eLogger\eLo	ogger_Developer\Project\ 💼 🔳 💌
Project Edit Bac	kground Picture Layout Size	About
23.45 Kg		
System	Sampling Time (sec)	
		Enable Modbus TCP Server
ie		Help

Note that you **CAN NOT** enable the Driver, or add the Device and Register, when operating the eLogger HMI and ISaGRAF SoftLogic on the same PAC.

# 2.3. Declaring the eLogger Tag

Tags used in eLogger in order to share data with ISaGRAF variables. However, only **AO** and **DO tags** can choose. <u>Note that</u> eLogger AI and DI tags cannot use to share data with ISaGRAF variables.

AO tags can be used to share eLogger data with Integer, REAL, Timer, AI, and AO variables in ISaGRAF, while DO tags can share eLogger data with Boolean, DI, and DO variables in ISaGRAF.

Project Edit	Background Picture	Layout Size	About	
23.45 Kg			ON 012	A Page1 MW
System	Memory Address	Name	Location	Description
a 📲 Tag Mapping	•			
1 AO Tag	New Tag	Delete Tag	Scaling	Help
	2 Tag Name	Description	Memory Address -1	Data Type 16-bit Signed Integer
iei≣ Page iei∎ Web Page	Tag Name	Description	Memory Address [	Data Type Gain

In the navigation pane, expand the "Tag Mapping" section and click the "AO Tag" item to display the specific configuration screen, and then click the "New Tag" button, as illustrated in the figure above.

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In this example, we need to use four AO tags. In the "Add Tag" dialog box, enter "4" in the "How many tags to add?" field and then click the "OK" button to add four data rows. The following table list the address and the data type for all tags that we will create later.

🖳 Add Tag 🛛 💽
How many tags to add?
4
OK Cancel

Tag Name	Address	Data Type
Long_1	1	32-bit Signed Long
Word_3	3	16-bit Signed Integer
Word_4	4	16-bit Signed Integer
Float_5	5	32-bit Float

In the configuration screen of the AO Tag, select the first row of data and enter the name "Long\_1" in the Tag Name field, set the Memory Address to "1", select the "32-bit Signed Long" option from the Data Type drop-down menu. By default, the Gain is "1", and the Offset is "0", as illustrated in the figure below.

	New Tag	Delete Tag	Sc	caling		Help				
$\square$	Tag Name	Description		Memory	y Address	Data Type			Gain	Offset
Lor	ng_1	32-bit Long			1	32-bit Signe	d Long	•	1	0
	Tag Name	Description	Memory Addr	ress	Data Type	16-bit Signe 16-bit Unsig	_	er	Range	
Þ	Long_1	32-bit Long	1		32-bit Signe	32-bit Signe	d Long		-2147483648.000~2	2147483647.000
	A01	AO1	(null)		16-bit Signe	32-bit Unsig 32-bit Float	ned Long		-32768.000~3	32767.000
	AO2	AO2	(null)		16-bit Signe	ed Integer	1	0	-32768.000~3	32767.000
	AO3	AO3	(null)		16-bit Signe	ed Integer	1	0	-32768.000~3	32767.000

However, according to the definition for ISaGRAF data types, a 32-bit Integer or a REAL must occupy two Modbus addresses. In this example, the address for the "Long\_1" tag is set to 1, so the address number 2 cannot be assigned to other tags.

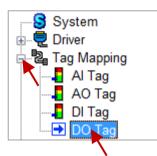
After entering all the relevant information for the first tag, repeat the process to create AO tags 2 to 4 using the information illustrated in the figure below.

	New Tag	Delete Ta	g Sc	aling	Help				
	Tag Name	Descripti	on I	Memory Address	Data Ty	pe		Gain	Offset
Flo	Float_5 Real		5	32-bit Fl	pat		• 1	0	
	Tag Name	Description	Memory Address	s Data Type		Gain	Offset	Range	
	Long_1	32-bit Long	1	32-bit Signed	Long	1	0	-2147483648.000~	2147483647.000
	Word_3	Seconds	3	16-bit Signed	Integer	1	0	-32768.000~	32767.000
	Word_4		4	16-bit Signed	Integer	1	0	-32768.000~	32767.000
Þ	Float_5	Real	5	32-bit Float		1	0		
			ICP DA	S Co., Ltd. Te	chnical	Docum	ent		

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**Note:** The name of the eLogger tag can be different to that of the ISaGRAF variable because they share data with each other by using the memory address (called the Network Address in ISaGRAF) rather than the individual names.

In this example, we also need to add two DO tags. This achieve in a similar manner as the process for adding the AO tags. In the navigation pane, expand the "Tag Mapping" section and click the "DO Tag" item. The following table list the address of DO tags that we will create later.



Tag Name	Address
DO_101	0
DO_102	1

Add two new DO tags by following the process described for the AO tags above. Once complete, the screen should be the same as that illustrated below.



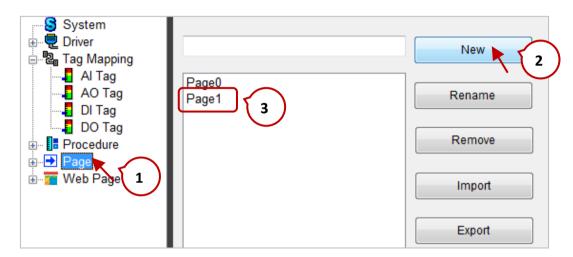
N	lew Tag		Delete Tag		Scaling
Ta	Tag Name		Description		Memory Address
D0_1	DO_102 DO1				102
	Tag Name		Description	Mem	nory Address
	D0_101		DO0		101
١.	DO_102		DO1		102

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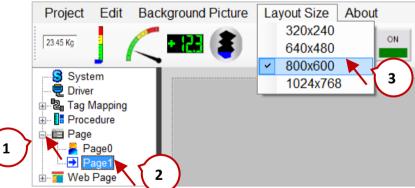
#### 2.4. Creating and editing an eLogger Page

When the eLogger Runtime (RuntimeCE.exe) activate on the PAC, the name "PageO" initially displayed. Note that this can rename to a preferred name if necessary at any time.

In this example, we will use two pages called PageO and Page1 to create our HMI interface. To add a new page, Page1 in this case, click the "Page" item in the navigation pane to select it, and then click the "New" button to create the new page. The name "Page1" will display in the navigation pane. Note that this new page can rename at any time, or you can choose not to change it if desired.



Expand the "Page" label in the navigation pane and click the "Page 1" item to display the new page. Select the desired VGA resolution for the ISaGRAF PAC from the Layout Size drop-down menu to set all pages as the same resolution.



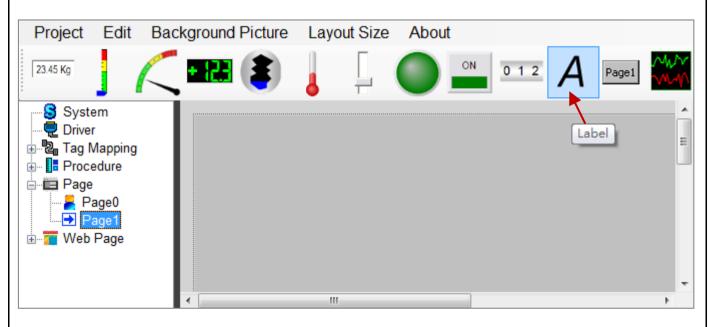
The following is an overview of the maximum VGA resolution that can select for the various ISaGRAF PAC models:

Model	Resolution
XP-8x37-CE6 and WP-8x37	1024 x 768
WP-8x47, WP-5147/5147-OD and <b>VP</b> -4137 (with TouchPad)	800 x 600
VP-25W7 (with TouchPad)	640 x 480
VP-23W7	320 x 240

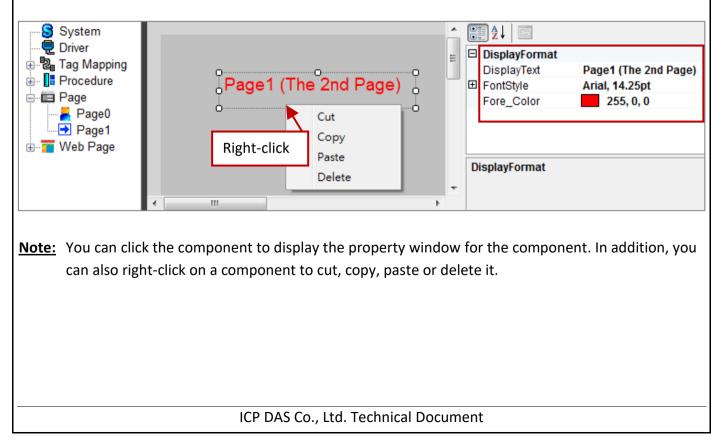
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#### 2.4.1. Add a Label Component

The first thing we need to do is give the page a title. We do this by adding a Label component. From the toolbar in the Project window, click the "Label" item and click on the screen to add a Label component to Page1.



Place the Label component in the desired position on the screen and drag the handles to resize it to a suitable size. The attributes for the component, such as the display text, the font size, and the color, can configure in the property window, as illustrated in the diagram below.



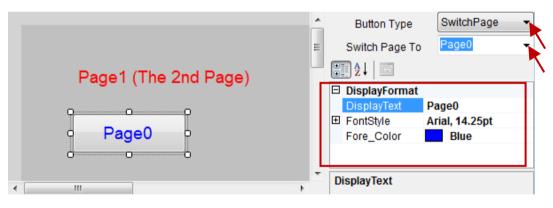
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#### 2.4.2. Add a SwitchPage Component

To allow us to navigate between different pages, we need to add a "SwitchPage" button. We do this by adding a Button component. From the toolbar in the project window, click the "Button" item and click on the screen to add a Button component to Page1.



Place the Button component in the desired position on the screen and drag the handles to resize it to a suitable size. Select the "SwitchPage" option from the "Button Type" drop-down menu, and select "PageO" from the "Switch Page to" drop-down menu. Configure the desired attributes for the component in the property window, such as the display text, the font size, and the color, as illustrated in the diagram below.



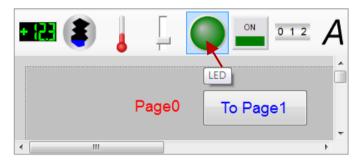
We now need to add Label and SwitchPage Button components to PageO. To do this, first expand the "Page" label in the navigation pane and click the "PageO" item to display the page. Next, follow the same process described above to add a Label component and a SwitchPage Button component to Page1, and then adjust the attribute settings so that they are the same as those illustrated in the figure below.

System Driver Tag Mapping Procedure Page Page0 Page1 Web Page	Page0	To Page1	Button Type SwitchPage ▼ Switch Page To Page1 ▼ Switch Page To Page1 ▼ DisplayFormat DisplayText To Page1 ↓ FontStyle Arial, 14.25px Fore_Color 0, 0, 255 DisplayText
	•		Display lext
	ICP D	AS Co., Ltd. Technical Doc	ument

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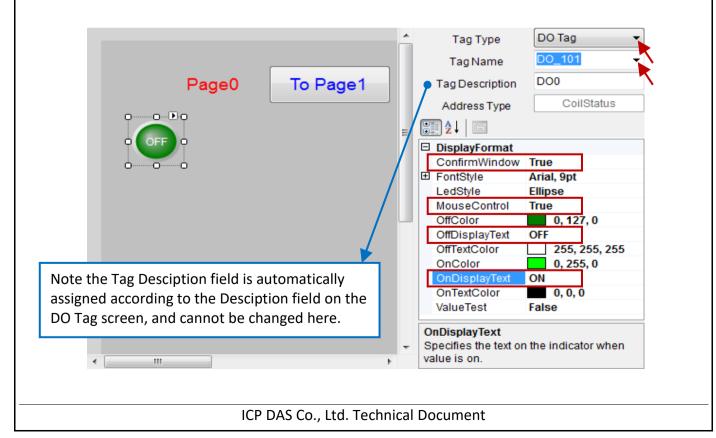
#### 2.4.3. Add an LED Component

We need to add a component that will allow us to turn the lamp on and off via a DO variable OUT\_101, and its corresponding eLogger DO tag, DO\_101. This can achieve by adding an LED component. From the toolbar in the project window, click the "LED" item and click on the screen to add an LED component to Page0.



Place the LED component in the desired position on the screen and drag the handles to resize it to a suitable size. Select the "DO Tag" option from the "Tag Type" drop-down menu, and select "DO\_101" from the "Tag Name" options. In the "Display Format" section of the property window. Ensure that the "ConfirmWindow" option is set to "True", which specifies that tag data can be output after user confirmation.

Next, set the "MouseControl" option to "True". This means that data can be allow to write. If this attribute is set to "False", it means that data can be only to read. Then, configure the desired attributes for the component, such as the text style and color, etc., as illustrated in the diagram below.



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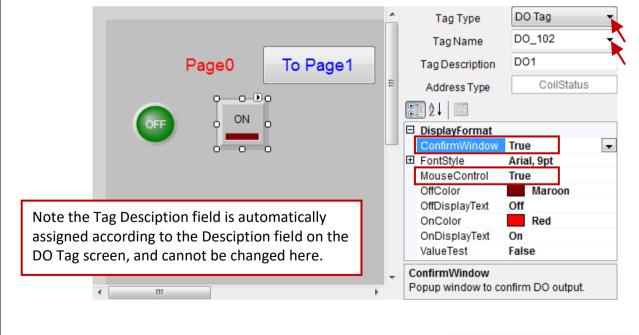
#### 2.4.4. Add a Switch Component

We also need to add a component that will allow us to turn the switch on and off via a DO variable. This can achieve by adding a Switch component. From the toolbar in the project window, click the "Switch" item and click on the screen to add a Switch component to Page0.



Place the Switch component in the desired position on the screen and drag the handles to resize it to a suitable size. Select the "DO Tag" option from the "Tag Type" drop-down menu, and select "DO\_102" from the "Tag Name" options. Ensure that the "ConfirmWindow" option is set to "True" which specifies that tag data can be output after user confirmation.

Next, set the "MouseControl" option to "True". This means that data can be allow to write. If this attribute is set to "False", it means that data can only be to read. Then, configure the desired attributes for the component, such as the text style and color for the ON and OFF states, etc., as illustrated in the diagram below.



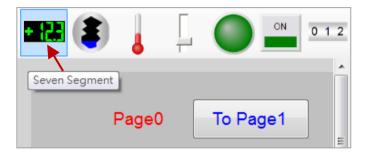
Optionally, you can add two additional Label components to describe the purpose of the LED and Switch components.



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#### 2.4.5. Add a Seven Segment Component

So that we can monitor the AO values, we need to add a 7-segment numerical component. From the toolbar in the project window, click the "Seven Segment" item and click on the screen to add a 7-segment numerical component to Page0.



Place the 7-segment numerical component in the desired position on the screen and drag the handles to resize it to a suitable size. Select the "AO Tag" option from the "Tag Type" drop-down menu, and select "Long\_1" from the "Tag Name" options.

	-	Tag Type	AO Tag 🔹
		Tag Name	Long_1
Page0 To Page1		Tag Description	32-bit Long
		Output Limit(Min)	-32768
		Output Limit(Max)	32767
OFF Off		Address Type	HoldingRegister
		Address	0
DO_101 DO_102		Data Type	32-bit Signed Long
D		Gain	1
• • •	Ξ	Offset	0
0		Range	-2147483648.000~2147483
		<mark>₽≣</mark> <u>2</u> ↓ 🖻	
		DisplayFormat	
		Decimal	0
		DigitalNumber	10
		Font_Color Font_OffColor	255, 0, 0
		MouseControl	True
		Show_Sign	Irue
		TestValue	0

Set the "MouseControl" option to "True", which means that write data is allowed. If this attribute is set to "False", it means that data can only be to read.

In this example, the data type for the "Long\_1" tag is a 32-bit Long, so no decimal places are required. Set the "Decimal" to "0" and the "DigitalNumber" to "10". Note that the "DigitalNumber" attribute can be set in the range of 1 to 24.

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In certain situations, the on-site staff may be required to enter a value within a specified range. To implement this functionality, set the required "OutputLimit (Min.)" and "OutputLimit (Max.)" values in the respective fields. Optionally, you can add a Label component to describe the purpose of this component.

Configure the desired attributes for the component, such as the text style and color, etc., as illustrated in the diagram above. After creating the first 7-segment component, repeat the process to add two further "Seven Segment" components, and configure them using the information illustrated in the figure below. Again, add two more Label components that describe their usage.

OFF DO_101 • Long1	Off DO_102	to th al	<b>ote:</b> You can click the compone o display the property window fo ne component. In addition, you c so right-click on a component to ut, copy, paste or delete it.
Тад Туре	AO Tag 🔹	Tag Type	AO Tag 🔹
Tag Name	Word_3 👻	TagName	Float_5 👻
Tag Description	Seconds	Tag Description	Real
Output Limit(Min)	-32768	Output Limit(Min)	-10.0
Output Limit(Max)	32767	Output Limit(Max)	10.0
Address Type	HoldingRegister	Address Type	HoldingRegister
Address	1	Address	3
Data Type	16-bit Signed Integer	Data Type	32-bit Float
Gain	1	Gain	1
Offset	0	Offset	0
Range	-32768.000~32767.000		
		Range	
DisplayFormat	0	DisplayFormat Decimal	1
DigitalNumber	3	DigitalNumber	3
Font_Color	0, 255, 0	Font_Color	255, 255, 0
Font_OffColor	0, 0, 0	Font OffColor	0, 0, 0
MouseControl	False	MouseControl	True
Show_Sign	True	Show_Sign	True
TestValue	0	TestValue	0

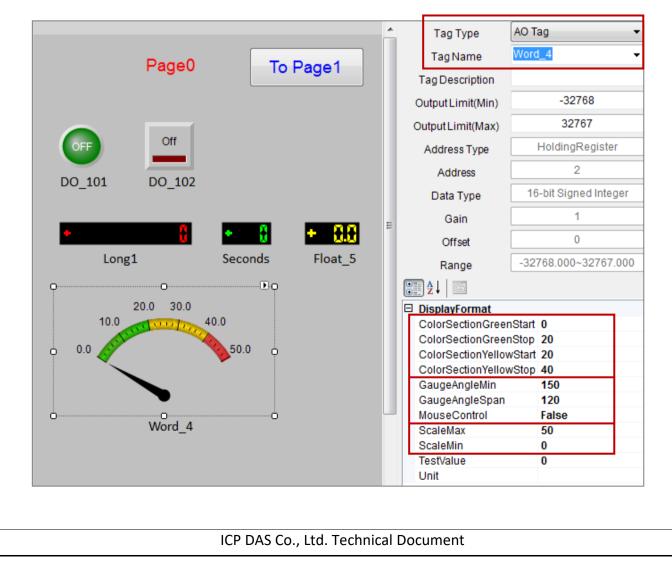
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### 2.4.6. Add an Angular Gauge Component

It would be helpful to add a component that will allow us to monitor the AO values of a gauge. This can achieve by adding an Angular Gauge component. From the toolbar in the project window, click the "Angular Gauge" item and click on the screen to add an angular gauge component to Page0.



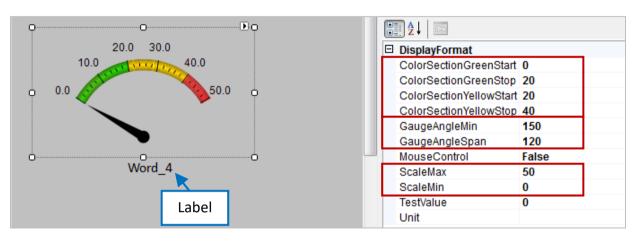
Place the Angular Gauge component in the desired position on the screen and drag the handles to resize it to a suitable size. Select the "AO Tag" option from the "Tag Type" drop-down menu, select "Word\_4" from the "Tag Name" options, and set the "MouseControl" option to "False", meaning that data can only be read.



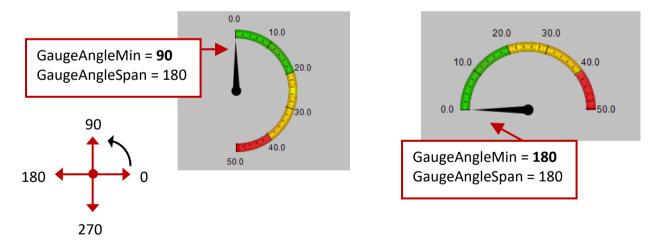
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In the "Display Options" section of the property window, set the "ScaleMin" option to "0", and the "ScaleMax" to "50". In this example, this output value will be defined in the ISaGRAF program as being in a range from 0 to 50.

**Note:** You can click the component to display the property window for the component. In addition, you can also right-click on a component to cut, copy, paste or delete it.



Next, set the "GaugeAngleMin" value to 150, which signifies that the minimum value is located at 150 degrees in the anti-clockwise direction, where zero is the baseline of the Angular Gauge component. Set the "GaugeAngleSpan" value to 120, which signifies that the range that the pointer can travel is 120 degrees. For example,



You can specify the color that different sections of the range will be displayed in, e.g., green, yellow and red, which allows you to quickly check the status. In this example, we will set the

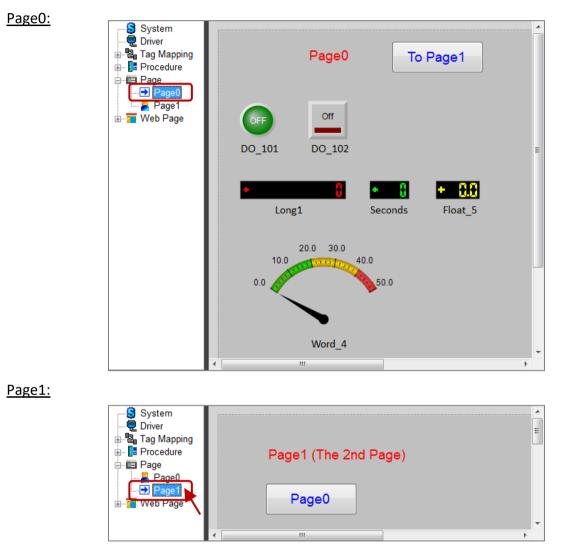
"ColorSectionGreenStart" value to "0", the "ColorSectionGreenStop" value to "20", the "ColorYellowSectionStart" value to "20", and the "ColorYellowSectionStop" value to "40", as illustrated in the diagram below.

Finally, we will add a Label component to identify this component.

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# 2.5. Save or Backup the eLogger Project

Congratulations! If you have closely followed the instructions above, you should have successfully created your first eLogger project, which should look similar to that illustrated in the diagrams below.



The next step is to create a backup of the Project file, which will have a .wez file extension. By default, eLogger will automatically save the project file in the C:\ ICPDAS\eLogger \eLogger\_Developer \Project folder.

Simulation Remote Machine New Open	<b>Note:</b> After completing an eLogger project, we recommended that you create a backup of the project file (.wez). By default, the file
Save as	will be stored in the C:\ ICPDAS\eLogger \eLogger_Developer
Language	<b>\Project</b> folder. You can also save the backup file in your
Exit	preferred folder, for example C:\\Project\ <b>backup</b> .
L	

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# 2.6. Uploading the eLogger Project

In this example, we will use a WP-5147-OD PAC that has an XW304 expansion board connected, in combination with the ISaGRAF and eLogger HMI software. You need to upload the ISaGRAF project to the WP-5147-OD PAC (see <u>Section 1.7</u> "Uploading the ISaGRAF Project to the WP-5147-OD device" for details of how to do this).

Next, verify that the eLogger Runtime have been installed on the PAC (see <u>Section 2.1.2</u> "Installing the eLogger Runtime component on the PAC" for more details). Before uploading the eLogger project to the PAC, first double-click the "My Device" icon on the PAC desktop, and then launch the "RuntimeCE.exe" application from the \System\_Disk\eLogger folder.

	eLogger V1.6.2.0 2016/02/22
My Device	Execute Project
<u>File Edit View Go</u>	e Open Project
Address \System_Disk\eLogger	🗳 Log In
Name	🝰 Log Out
	Admin login Project: \System_Disk\eLogger\Project\Demo.wez
RuntimeCE.exe	

Next, select the "Remote Machine" option from the "Project" menu in the eLogger Developer on the Host PC and enter the IP address of the PAC in the RemoteMachine dialog box. Click the "Upload Project & Web Pages" button to upload the project to the WP-5147-OD PAC.

	an error messa	ige will	display.		
Pro	oject Edit Back	ground	Pictu		
	Simulation	🖳 Rem	oteMachine		? 💌
	Remote Machine New		IP Address	192.168.79.23	]
2	Open Save as		Remote Control	Run Stop	Upload Project & Web Pages
	Language		Admin Password		Set Password
	Exit	Pow	er User Password		Set Password
		Status			Close

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If the project file was successful uploaded, the name of the project (eL01.wez in this case) will be displayed in the eLogger Runtime application.

Once the project is uploading, check the checkbox for the "Auto Run" option automatically to execute the project whenever the "eLogger Runtime" application is activating.

eLogger V1.6.2.0 2016/02/22		×
Execute Project		
en Project		
🚢 Log In		
👙 Log Out		
Project was saved to \System_Disk\eLogger\Project\eL_01.w Project: \System_Disk\eLogger\Project\eL_01.wez	'ez	4
		$\mathbf{v}$

To launch the "eLogger Runtime" application each time the PAC powers on, you need to set the "Auto Execution" options, as illustrated in the diagram below. To do this, launch the WinPAC Utility on the PAC and click the "Auto Execution" tab. Click the "Browse" button for the "Program 2" entry and select the "\System\_Disk \eLogger\RuntimeCE.exe" file.

By default, the first program listed in the "Auto Execution" tab (i.e., Program 1) must be the ISaGRAF driver for each PAC, which is isaWP5xx7.exe in this case. Click the "Set" button to save the changes, and then click "Save and Reboot" in the "File" menu.

WinPAC Utility [2.1	
File Help Confi	guration
WINPAC	Ethernet Settings Network Settings System Information Auto Execution ti-set >
	Program 1: Micro_SD\ISAGRAF\isaWP5xx7.exe
	Program 2: \System_Disk\eLogger\RuntimeCE.exe Browse
	Program 3: Browse 3
	Program 4: Browse
	Program 5: Browse
At most 10	Program 6: Browse
File Help Configuration <sup>s can be</sup> to	Program 7: Browse
Save and Reboot	Program 8: Browse
Reboot Without Save	Program 9: Browse
Restore Default Settings	Program 10: Browse
E <u>x</u> it	Set 📐
ICF	P DAS Co., Ltd. Technical Document

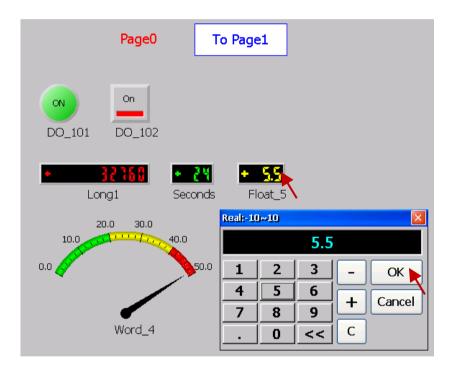
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# 2.7. Testing the eLogger HMI

Once the PAC is activating, the eLogger HMI screen that we created in our example above will display, as illustrated the figure below. Click any of components to test that they function correctly, and set the ISaGRAF software to connect to the PAC (see Section 1.7 for more details), to verify that the data is correct.

For example:

1. Click the "Float\_5" component, enter the value "5.5" and then click the OK button.



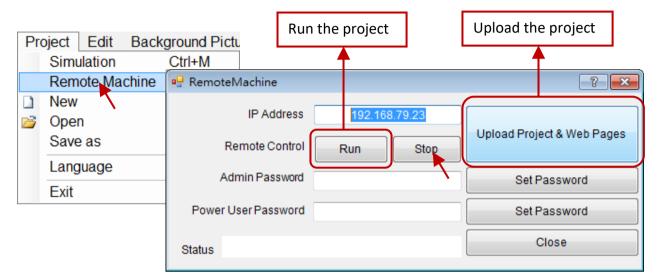
2. Verify that the value of the "Float\_5" variable in the ISaGRAF application has changed to "5.5".

🏷 ISaGRAF - El	_01 - Global intege	rs/reals		_ <b>_</b> ×
File Edit To	ols Options Help	o		
	0 🕓 🥝			
Booleans Intege	rs/Reals Timers Mes	sages FB inst	ances Defined words	
Name	Attrib.	Addr. Valu		Comment
Long_1	[internal,integer]	0001 323	760	▲
Word 3	[internal,integer]	0003 24		
Word 4	[internal,integer]	0004 50		
Float 5	[internal,real]	0005 5.5		-

**Note:** These values will only display when the ISaGRAF project executes.

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The eLogger HMI perform in a full screen on the PAC by default, so you cannot do any operations. When you want to upload a modified project, click the "Remote Machine" option in the "Project" menu in the eLogger Developer application on the Host PC to open the "RemoteMachine" dialog box, and then click the "Stop" button to terminate the project that is currently operating. Click the "Run" button to restart the project.



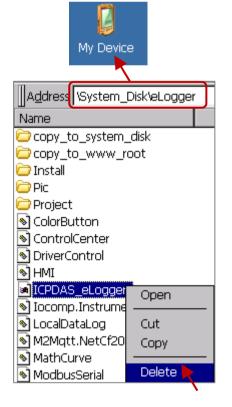
# 2.8. Troubleshooting eLogger Runtime operations

If you are still unable to close the eLogger HMI page when it displays as full-screen using the method described above, you can remove the "**ICPDAS\_eLogger.xml**" file in Safe mode.

To do this, set the Rotary Switch on the PAC panel to position "**1**" and then reboot the PAC. Once the PAC restarts, the ISaGRAF and eLogger applications will not automatically activate, thereby allowing other operations to be performing on the PAC.

First, double-click the "My Device" icon on the PAC desktop. Next, either delete or rename the "ICPDAS\_eLogger.xml" file that is located in the **\System\_Disk\eLogger\** folder, and then set the Rotary Switch to "**0**", and then reboot the PAC.

When the eLogger Runtime activated automatically, you can upload the modified project again.



<u>Note</u>: Remember to check the checkbox for the "Auto-Run" option in the eLogger Runtime application.

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# 2.9. Other Advanced eLogger Functions

There are a number of other more advanced functions available in the eLogger application, which will be described in more detail below.

# 2.9.1. Setting the Gain and Offset for Scaling Data

For many applications, the data values displayed in engineering format rather than in integer format.

For instance, when the "Range" value for the <u>XW304</u> expansion board (6 AI, 1 AO, 4 DI, 4 DO) is set to "0", it means the module is used to measure voltages in a range from -5 to +5 V. See <u>Section 1.5</u> Connecting the I/O for more details about the use of the XW304 expansion board.

In the ISaGRAF application, the measured value for the "Range" variable is a signed 16-bit integer that has a range from -32768 to +32767. In order to display the range -5 to +5 on the eLogger HMI page, the Gain and the Offset values have to be set.

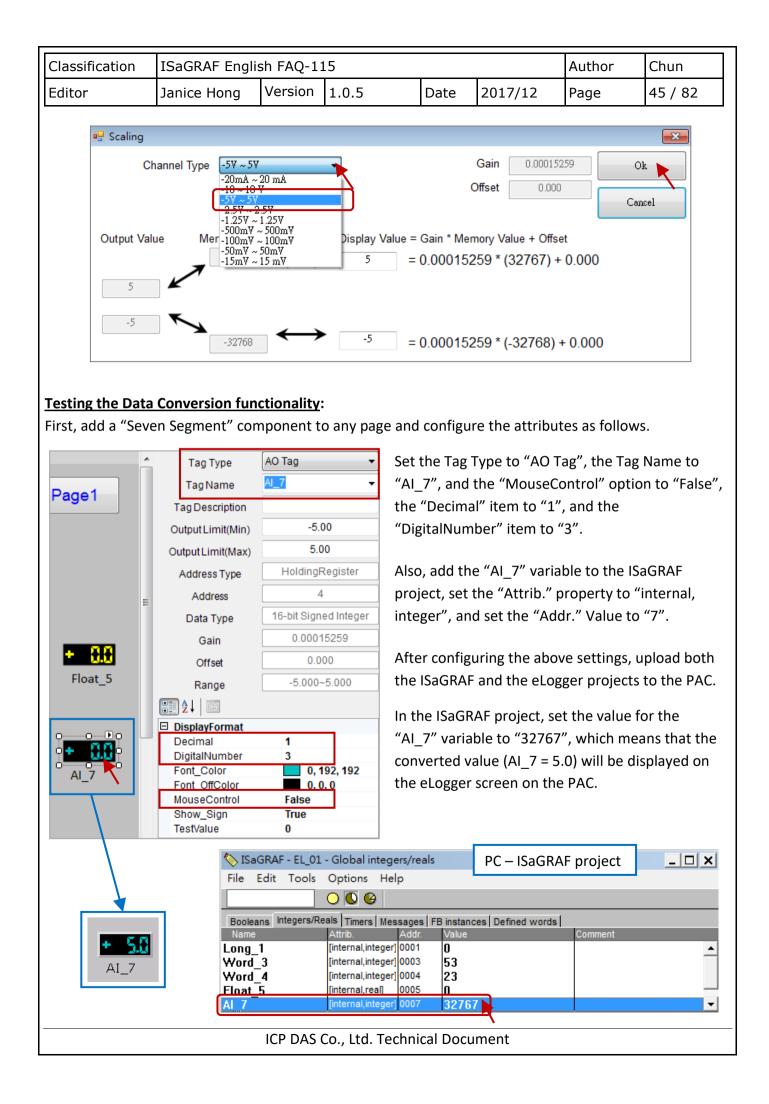
#### <u>Note</u>: If the Gain set to "1" and the Offset set to "0", it means that no data conversion will perform.

In this case, the "AI\_7" variable use to read a value from any channel of the XW304 module. Note that the data type for this variable is set as a "16-bit Signed Integer".

Al Tag Al Tag Al Tag → AO Tag DI Tag DO Tag		New Tag Tag Name	Delete Tag Description	Scaling Memory	Address 7	Help Data Type 16-bit Signed	d Integer	Gain 0.00015259	Offset 0
Procedure		Tag Name	Description	Memory Address	Data Typ	be	Gain	Offset	Range
iai⊟ Page iai≣ Web Page		Long_1	32-bit Long	1	32-bit Sig	gned Long	1	0	-2147483648.00
		Word_3	Seconds	3	16-bit Sig	gned Integer	1	0	-32768.000~327
		Word_4		4	16-bit Sig	gned Integer	1	0	-32768.000~327
		Float 5	Real	5	32-bit Flo	pat	1	0	
4 III +	Þ	AI_7		7	16-bit Sig	gned Integer	0.00015259	0.000	-5.000~5.000

**Note:** Only eLogger **AO** and **DO tags** can be to share data with ISaGRAF variables. AO tags can be to share eLogger data with Integer, REAL, Timer, AI and AO variables in ISaGRAF.

In the navigation pane, expand the "Tag Mapping" section, and click the "AO Tag" item and click the "AI\_7" tag to select it, as illustrated in the figure above. In the "AO Tag" screen, click the "Scaling" button to open the "Scaling" dialog box. Select a channel type from the "Channel Type" drop-down menu (e.g., -5 to +5 V), and then click the "OK" button to save the selection. When you return to the "AO Tag" screen, the Gain and Offset values have entered in the respective fields.

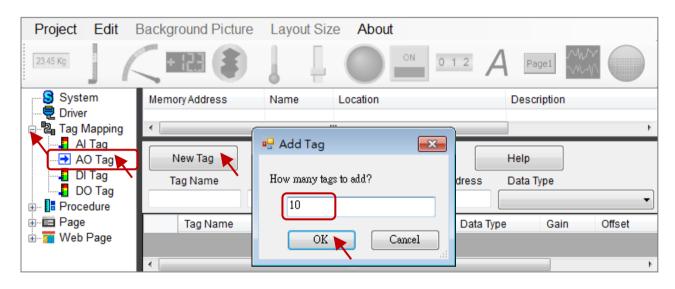


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# 2.9.2. Declaring multiple eLogger Tags that have a similar Name or are of the same Type

The eLogger application allows you to add multiple tags and declare them with a similar name or the same data type.

As an example, expand the "Tag Mapping" section in the navigation pane and click the "AO Tag" item. In the "AO Tag" screen, click the "New Tag" button to open the "Add Tag" dialog box and add ten new AO tags, as illustrated in the figure below.



You can simultaneously edit the details of multiple tags by first selecting the first data row then holding the Shift key and clicking the last row to select all of the rows. You are then able to assign any of the data types (e.g., 32-bit Float) to all of the tags at the same time.

Та	g Name	Description		Memo	ory Address	Data Type		
10				-1	32-bit Float		<b>_</b>	
	Tag Name	Description	Memory A	ddress	Data Type	16-bit Signe 16-bit Unsig	d Integer Ined Integer	
1. AOO		AO0	(null)		32-bit Float	32-bit Signe	d Long	
		1.1 1.		)	32-bit Float	32-bit Unsig 32-bit Float		
		v, and then clic		)	32-bit Float	3.		0
last	row while ho	olding the "Shift	t" key.	)	32-bit Float		1	0
	AO4	AO4	(null)	)	32-bit Float		1	0
	AO5	AO5	(null)	)	32-bit Float		1	0
	AO6	AO6	(null	)	32-bit Float		1	0
	AO7	AO7	(null)	)	32-bit Float		1	0
	AO8	AO8	(null)	)	32-bit Float		1	0
	<b>2.</b> AO9	AO9	(null	)	32-bit Float		1	0
-								

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You can also use the same approach to give a similar name or description to a range of tags by selecting them and entering the desired name in the "Tag Name" field, or by entering the desired description in the "Description" field.

Note that the numeric value in the "Tag Name" or the "Description" field generated based on the position of the tag in the list.

	New Tag	Delete Tag	Scaling	Help		
Т	ag Name	Description	Memory	Address Data Type	_	
VAL			-	1 32-bit Float		•
	Tag Name	Description	Memory Address	Data Type	Gain	Offset
	VAL_0	AO0	(null)	32-bit Float	1	0
	VAL_1	AO1	(null)	32-bit Float	1	0
	VAL_2	AO2	(null)	32-bit Float	1	0
	VAL_3	AO3	(null)	32-bit Float	1	0
	VAL_4	AO4	(null)	32-bit Float	1	0
	VAL_5	AO5	(null)	32-bit Float	1	0
	VAL_6	AO6	(null)	32-bit Float	1	0
	VAL_7	AO7	(null)	32-bit Float	1	0
	VAL_8	AO8	(null)	32-bit Float	1	0
Þ	VAL_9	AO9	(null)	32-bit Float	1	0
•			III			Þ

N	lew Tag	Delete Tag	Scaling	Help		
Ta	ag Name	Description	Memory	Address Data Type		
VAL	RE	EAL Value	-	1 32-bit Float		•
	Tag Name	Description	Memory Address	Data Type	Gain	Offset
	VAL_0	REAL Value_0	(null)	32-bit Float	1	0
	VAL_1	REAL Value_1	(null)	32-bit Float	1	0
	VAL_2	REAL Value_2	(null)	32-bit Float	1	0
	VAL_3	REAL Value_3	(null)	32-bit Float	1	0
	VAL_4	REAL Value_4	(null)	32-bit Float	1	0
	VAL_5	REAL Value_5	(null)	32-bit Float	1	0
	VAL_6	REAL Value_6	(null)	32-bit Float	1	0
	VAL_7	REAL Value_7	(null)	32-bit Float	1	0
	VAL_8	REAL Value_8	(null)	32-bit Float	1	0
<u>۲</u>	VAL_9	REAL Value_9	(null)	32-bit Float	1	0
•				, 		
		ICP DAS C	o., Ltd. Technica	al Document		

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#### 2.9.3. Switching eLogger HMI Pages via the ISaGRAF Program

Creating the functionality that allows the user to navigate between HMI pages via the ISaGRAF program is easy to implement and will be described in detail below.

#### The ISaGRAF Settings:

Declare two ISaGRAF variables, as described in the table below:

Name	Format Attributes		Network Address	Description
To_Page	Integer	Internal	8191 (Hex = 1FFF)	This variable is used to switch between the eLogger HMI pages <b>Set the initial value to 65535</b>
Current_Page	Integer	Internal	8190 (Hex = 1FFE)	This variable is used to read the current page number

**<u>Note</u>**: This function is only supported in eLogger Runtime version 1.2.1.0 or later.

If the Network address of an integer variable, e.g., the "To\_Page" variable, is set to **"8191"** (Hex = **1FFF**), it means that the variable value is used to switch to the specified page number. For example, if the "To\_Page" variable is set to 5, the eLogger HMI will switch to Page 5, and then the value will be reset to 65535. However, if the "To\_Page" variable set to a non-existent page number, the eLogger HMI will not switch to that page.

If the Network address of an integer variable, e.g., the "Current\_Page" variable, is set to **"8190"** (Hex = **1FFE**), it means that the eLogger HMI will automatically update the variable value to that of the current page number. This value can be 0, 1, or 2, and so on.

Integer/Real	Variable					×
Name:	To_Page		Netwo	rk Address:	1FFF	
Comment:	Initial value = 65	535. Network ac	ldress = 8191 (H)	ex=1FFF).		
Unit			Conversion:	(none)		•
Attributes Intern O Input O Outpu C Const	al	Format Integer Real Initial value: Retain	(standard) 65535		Car N Prev	ore
					Exte	nded
	ICP DAS	5 Co., Ltd. Te	echnical Doo	cument		

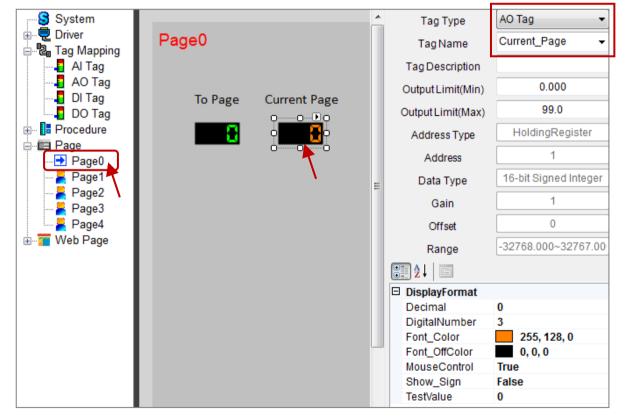
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#### The eLogger Settings:

We need to declare two AO tags called "To\_Page" and "Current\_Page". To do this, expand the "Tag Mapping" section in the navigation pane and click the "AO Tag" item. In the "AO Tag" screen, click the "New Tag" button to open the "Add Tag" dialog box and add two new AO tags, as illustrated in the figure below. For more information related to eLogger tags, refer to Section 2.3 "Declaring the eLogger Tag".



Now add several additional pages and then configure them so they are similar to that shown in the figure below. Refer to Section 2.4 "Creating and editing an eLogger Page".



Finally, upload the ISaGRAF and eLogger projects to the PAC. See Section 1.7 and 2.6. To test that the project is functioning correctly, double-click the component ("To\_Page") to set a value on the HMI screen to verify that the HMI page switched to the specified page, and to verify that the current page number is in the "Current\_Page" variable.

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# Chapter 3. Example Programs for eLogger and ISaGRAF

# **3.1.** Downloading the eLogger and ISaGRAF Projects described in the this document

ICP DAS provides a zip file named "faq115\_demo.zip" that contains all the projects described within this FAQ document. This file can be download from

http://www.icpdas.com/web/product/download/software/development\_tool/isagraf/document/faq/faq 115\_demo.zip

# 3.1.1. Open an eLogger Project

To open an existing eLogger project, unzip the download file and copy all the .wez files, i.e., eL\_01.wez to eL\_06.wez, to the C:\ICPDAS\eLogger\eLogger\_Developer\Project\ folder on the Host PC, or any location you installed the eLogger HMI. Launch the eLogger Developer application, and then click the "Open" item in the "Project" menu to open the file.

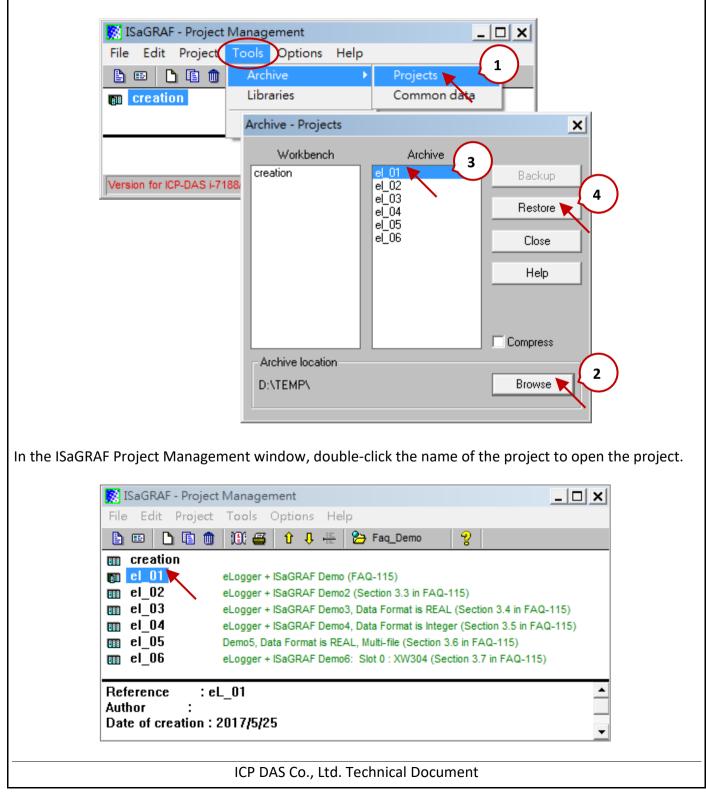
	eL	ogger Develo	per V1.6.2.	0 2016/2/22						
	Pro	oject Edit	t Back	ground Pictu						
:		Simulation	า	Ctrl+M						
		Remote N	lachine	Ctrl+R						
÷		New		Ctrl+N						
	2	Open	🗾 Open							×
		Save as		C:\ICPDAS\	eLogger∖eLog	ger_Develop	er\Project 👻	Search .	Project	2
		Language	Organize	<u> </u>						
		Exit	Organize	• New Tolde	21					
			Demo.v	vez eL_01.wez	eL_02.wez	eL_03.wez	eL_04.wez	eL_05.wez	eL_06.wez	
			Demo.v	vez el_01.wez	eL_02.wez	eL_05.wez	eL_04.wez	eL_05.wez	eL_00.wez	
				File	name:		-	Project File (	(*.wez)	-
					-					
								<u>O</u> pen	Cancel	
		l							•	
				ICP DAS	Co., Ltd. T	echnical D	ocument			

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# 3.1.2. Open an ISaGRAF Project

To open an existing ISaGRAF project, unzip the download file and copy all .pia files, i.e., eL\_01.pia to eL\_06.pia, to any location on the Host PC, e.g., D:\TEMP\. Launch the ISaGRAF software and click the "Projects" item in the "Archive" option of the "Tools" menu to open the "Projects" dialog box.

Click the "Browse" button to locate files and click the desired project name(s) in the Archive panel of the Projects dialog to select them, and then click the "Restore" button to restore the project(s).



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### 3.2. How to use the eLogger Web HMI

The eLogger Developer software allows you to design web-based HMI pages, set the username and password for the login web page, or import or export an existing web page. After downloading the eLogger project to the PAC, you can log into the web-based HMI page via a regular web browser, such as Google Chrome, Internet Explorer, Firefox, Safari, or Opera, etc., allowing you to control the device remotely.

In this example, we will use the following project files:

ISaGRAF Project File:	eL_01.pia
eLogger Project File:	eL_01.wez, eL_01.wp

We will create two web pages called **login** (the default page) and **index1.** To add a new page, click the **Web Page** item in the navigation panel and then click the "New" button to create a new page. Alternatively, you can create a new page with a specific name by entering the name in the text field and clicking the "New" button.

If desired, enter a name for the page by clicking the "Rename" button and entering the preferred name. This dialog also allows you to create a login username and password if required, as well as import or export specific web pages, refer to the eLogger user manual for more details by clicking the "Help" button.

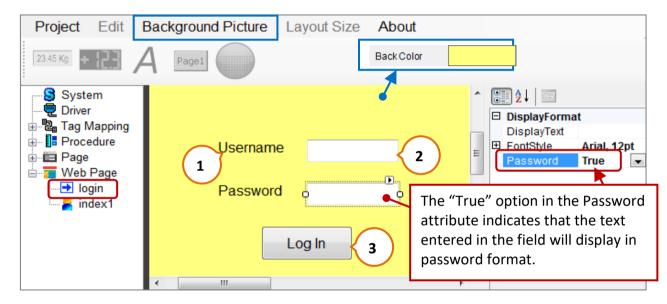
Project Edit Ba	Page1	Size About
System Driver Tag Mapping Procedure Page	Web Page Username Web Page Password	admin 0000
		login index1 You can enter a name for the page here and then click the <b>New</b> button.
	Help	

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# 3.2.1. Editing the Login Web Page

The eLogger Developer software provides a login web page by default, however, you CAN NOT add or remove any components to or from this page, although you are able to modify them where necessary. In addition, you can set the background color by clicking on the page and choosing a desired color from the color options, or add a background image to the web page by clicking the "Background Picture" option from the menu.

Note that the background image will be upload to the "WebBackPic" folder that is located in the root HTTP directory on the PAC. See <u>Section 2.1.2</u> to verify the HTTP path in the Network Settings tab of the PAC Utility.



The Login web page contains two label components, two textbox components, and a button component. To configure an individual component, click the component to display the related attribute window and then modify the properties where necessary.

(	1	(	2		Switch Page To	
DisplayFormat		DisplayFormat	V		<b>2</b> ↓ □	
DisplayText	Username	DisplayText				
FontStyle	Arial, 12pt	FontStyle	Arial, 12pt		DisplayText	Log In
Name	ab Arial	Name	ab Arial	E		Arial, 12p
Size	12	Size	12		Name	ab Arial
Unit	Point	Unit	Point		Size	12
Bold	False	Bold	False		Unit	Point
GdiCharSet	1	GdiCharSet	1		Bold	False
GdiVerticalFont	False	GdiVerticalFont	False		GdiCharSet	1
Italic	False	Italic	False		GdiVerticalFont	False
Strikeout	False	Strikeout	False			
Underline	False	Underline	False		Italic Strikeout	False
Fore_Color	0, 0, 0	Password	False		Underline	False False
					Fore_Color	0, 0, 0

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# 3.2.2. Designing an eLogger Web Page

In <u>Section 2.4</u>, we described how to design a local HMI page. The following is a description of how to create a Web–based HMI page, together with details of how to remote control the components on the page via a standard web browser.

First, add a background image to the web page by clicking the "Background Picture" option from the menu. Note that the background image will be stored in the "WebBackPic" folder that is located in the root HTTP directory.



The following is a description of all the components that used on the eLogger web page - index1.

#### 1) Label:

There are three Label components on this web page (i.e., DO\_101, DO\_102, and Long1), which are used to describe the purpose of the components.

Ξ	DisplayFormat	
ſ	DisplayText	DO_101
Ξ	FontStyle	Calibri, 21.75pt
	Name	ab Calibri
	Size	21.75
	Unit	Point
	Bold	False
	GdiCharSet	1
	GdiVerticalFont	False
	Italic	False
	Strikeout	False
	Underline	False
	Fore_Color	255, 128, 0

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#### 2) Picture Toggle:

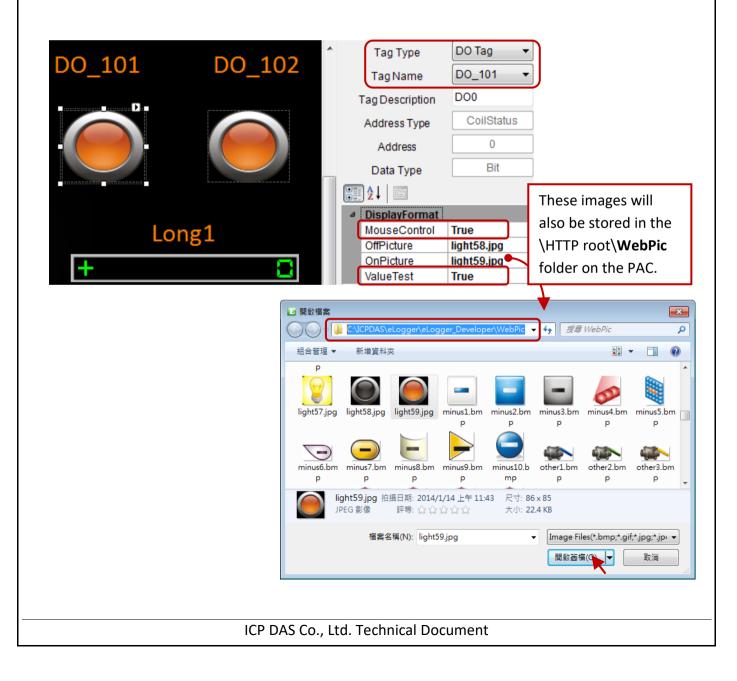
Two Picture Toggle components are used to display or control the state of the DO tags (i.e., DO\_101 and DO\_102). Configure these components as illustrated in the figure below.

<u>MouseControl</u>: When this attribute is set to "True", it means that the component can read/write data to/from the DO tag.

When set to "False", it means that data can only read.

<u>Off/OnPicture</u>: This attribute used to select the image to display when the state of the DO tag is set to OFF or ON. Note that the default images are stored in the C:\ICPDAS\eLogger\eLogger\_Developer\**WebPic** folder.

<u>ValueTest</u>: Set this attribute to "True" to view the ON image; set it to "False" to view the OFF image.



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#### 3) Seven Segment:

The page contains a single Seven Segment component that is used to display or write the value of the AO tag (i.e., Long\_1).



Configure this component as illustrated in the figure:

Output Limit (Min/Max):

These attributes used to specify the maximum and minimum values for the output range. Set these values to -32768 and 32767, respectively.

#### Decimal:

This attribute used to determine the number of decimal places to use. Set this value to "0".

DigitalNumber:

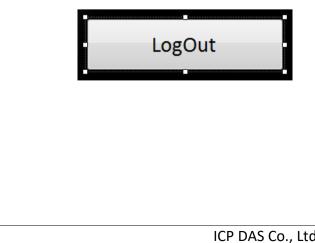
This attribute used to specify the number of digits to display. Set this value to "10".

#### MouseControl:

When this attribute is set to "True", indicates that the component can read/write the value to/from the AO tag.

#### 4) Button:

The page contains a single Button component to allow users to log out from the page.



Tag Type	AO Tag 👻
TagName	Long_1 👻
Tag Description	32-bit Long
Output Limit(Min)	-32768
Output Limit(Max)	32767
Address Type	HoldingRegister
Address	0
Data Type	32-bit Signed Long
Gain	1
Offset	0
Range	-2147483648.000~214
<b>2</b> ↓ □	
DisplayFormat	
Decimal	0
DigitalNumber	10
Font_Color	0, 255, 0
Font_OffColor	0, 0, 0
MouseControl	True
Show_Sign	True
TestValue	0

Button Type	LogOut 🔹
Switch Page To	-
<mark>}</mark> ≹↓   ⊡	
DisplayFormat	
DisplayText	LogOut
FontStyle	Calibri, 20.25pt
Name	ab Calibri
Size	20.25
Unit	Point
Bold	False
GdiCharSet	1
GdiVerticalFont	False
Italic	False
Strikeout	False
Underline	False
Fore_Color	0, 0, 0

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### 3.2.3. Testing the eLogger Web HMI

Before testing the web page, make sure that you have uploaded both the ISaGRAF project (eL\_01.pia, see <u>Section 1.7</u> "Uploading the ISaGRAF Project") and the eLogger project (eL\_01.wez, see <u>Section 2.6</u> "Uploading the eLogger Project") to the PAC. In addition, the web folders install, see <u>Section 2.1.2</u>.

1. Open a web browser on the Host PC and enter the IP address of the PAC (e.g., 192.168.79.23) in the address bar. When requested, enter the username and password (default is admin/0000) and click the Log in button to log into the web page.

	_ <b>_ </b>
← → @ http://192.168.79.23/login.html	£i ☆ £i
Username	^
Password	
Log In	¥

- 2. Click the Picture Toggle component to set the state of the DO tag to ON or OFF. Also, click the Seven Segment component to enter a value in the "Value Entry" dialog box, and click the "Set" button to change the value of the AO tag.
- 3. Click the LogOut button to log out the web page.

C () ( http://192.168.79.23/index1.asp	・ C 🦉 eLogger:index1		×	ଳ 🖈 😳
		DO	_101	DO_102 ^
	Picture Toggle			$\bigcirc$
	T	11		Seven Segment
	3276		Long	-
	7	8 9	-	
	4	5 6	Clear	
		2 3	Set	
	0		Hide LogO	ut
	and the second s			

<u>Note</u>: Before testing the HMI using a negative value, you must first assign a negative value to the Long\_1 variable on the **local** HMI page to avoid an error occurring on the digit display.

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# 3.3. Configuring a Control Button that can be instantly turned ON and then OFF

In this example, we will use the following project files:

The ISaGRAF Project File: eL\_02. pia

The eLogger Project File: eL\_02.wez

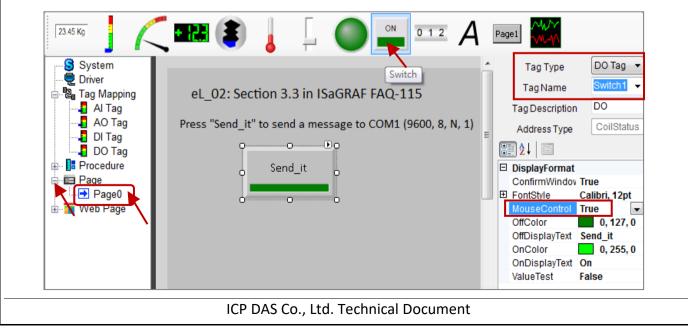
In this example, when you click the Switch component and set it to ON, the ISaGRAF program will send a message that contains the current date and time on the PAC via the COM1 (RS-232) port on the WP-5147-OD. The HyperTerminal utility may launch on the Host PC or be downloaded from the web. In the utility, open an RS-232 port (9600, 8, N, 1) to receive this message. In addition, the state of the "Switch" on the eLogger screen will automatically reset to OFF by the ISaGRAF program.

# 3.3.1. The Developer Settings in eLogger

Add a new DO tag by expanding the "Tag Mapping" section in the navigation pane and then clicking the "DO Tag" item. In the "DO Tag" screen, click the "New Tag" button to add the new tag. Enter the name "Switch1" and set the memory address to 1. For more information related to eLogger tags, refer to Section 2.3 "Declaring the eLogger Tag".



Expand the "Page" item in the navigation pane, and click the entry for "Page0". Add a "Switch" component to Page0 and configure it using the values illustrated in the figure below.



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# 3.3.2. The ISaGRAF Settings

Before we can begin creating our project, we must first declare the required project variables. See <u>Section 1.2</u> Declaring the ISaGRAF Project Variables if you are not familiar with this example, we will use the following ISaGRAF variables.

Name	Format	Attributes	Network Address	Description
Switch1	Boolean	Internal	1	This variable is used to access the eLogger Switch
ТМР	Boolean	Internal	0	This variable is used to check the COM port is sucessfully be opened TRUE: OK ; FALSE: Failured
INIT	Boolean	Internal	0	Set the Init. value to TRUE and then set it to FALSE to do the COMOPEN() function once at the first scan cycle
STR1	Message	Internal	0	This variable is used to save the date and time in a string format. Set the maximum length of the STR1 to 64
Year1	Integer	Internal	0	
Month1	Integer	Internal	0	
Day1	Integer	Internal	0	
WeekDay1	Integer	Internal	0	These variables are used to read the current date and time on the PAC
Hour1	Integer	Internal	0	
Minute1	Integer	Internal	0	
Second1	Integer	Internal	0	

You can declare or view variables in the variable declaration window by clicking the "Dictionary" button.

🚓 ISaGRAF - EL_02 - Program	ms	_									
File Make Project Tool	s Debug Opti										
🕒 🛄 😔 🕮 🗅 🖬 🚺	🗈 🔟 😵 🌐 🗈 🖻 🐔 🏷 ISaGRAF - EL_02 - Global booleans										
Begin: Est	Begin:										
Dictionary HIM LD1		🖴 🔾	0 🕗	🖷 🛰 🗈 🤞 📉 📇							
	Booleans Integer	s/Reals Timers	Message	s FB instances Defined words							
	Name	Attrib.	Addr.	Comment							
	Switch1	[internal]	0001	network addr = 1	<b>A</b>						
	TMP	[internal]	0000								
	INIT	[internal]	0000	init as TRUE							
					-						
	ICP DAS	Co., Ltd. Tec	hnical D	Document							
		•									

Editor       Janice Hong       Version       1.0.5       Date       2017/12       Page       60 / 82         Program - ST1:         When the Switch component is set to TRUE on the eLogger HML, the program will send a message that contains the current date and time on the PAC via the COM1 port.         (* Open COM1 using the default values 9600,8,N,1. In the first scan cycle, "INIT" must declar with a initial value of True *)         if       INIT then         INIT := False;       (* This only needs to be done once during the first scan cycle *)         TMP := COMOPEN(1, 9600, 8, 0, 1);       end_if;         (* If "Switch1" is set to be True in eLogger, send a message to COM1 *)       if switch1 then         (* Convert the date and time to a string, such as 'Jun/08/2017,13:25:45' *)       str1 := time_str(year1, month1, day1, weekday1, hour1, minute1, second1);         str1 := time_str(year1, month1, day1, weekday1, hour1, minute1, second1);       str1 := time_str(year1, month1, day1, weekday1, hour1, minute1, second1);         str1 := time_str(year1, month1, day1, weekday1, hour1, minute1, second1);       switch1 := False; (* Reset Switch1 when finished *)         end_if;	Classification	ISaGRAF Engli	sh FAQ-1	15		1	Author	Chun
Vhen the Switch component is set to TRUE on the eLogger HMI, the program will send a message that ontains the current date and time on the PAC via the COM1 port. (* Open COM1 using the default values 9600,8,N,1. In the first scan cycle, "INIT" must declar with a initial value of True *) if INIT then INIT := False ; (* This only needs to be done once during the first scan cycle *) TMP := COMOPEN(1, 9600, 8, 0, 1); end_if; (* If "Switch1" is set to be True in eLogger, send a message to COM1 *) if switch1 then (* Convert the date and time to a string, such as 'Jun/08/2017,13:25:45' *) str1 := time_str(year1, month1, day1, weekday1, hour1, minute1, second1); str1 := time_str(year1, month1, day1, weekday1, hour1, minute1, second1); str1 := str1 + MSG('\$0D\$OA'); (* Add <cr><lf> to the end of the string *) (* Send the message to COM1 *) TMP := COMSTR_W(1, str1); switch1 := False ; (* Reset Switch1 when finished *) end_if; trogram -LD1: Jsing the SYSDAT_R and SYSTIM_R functions to read the system date and time of the PAC. (* get PAC 's date and time *) (* ") (* ")</lf></cr>	Editor	Janice Hong	Version	1.0.5	Date	2017/12	Page	60 / 82
<pre>initial value of True *) if INIT then INIT := False; (* This only needs to be done once during the first scan cycle *) TMP := COMOPEN(1,9600, 8, 0, 1); end_if; (* If "Switch1" is set to be True in eLogger, send a message to COM1 *) if switch1 then (* Convert the date and time to a string, such as 'Jun/08/2017,13:25:45' *) str1 := time_str(year1, month1, day1, weekday1, hour1, minute1, second1); str1 := str1 + MSG('\$OD\$AA'); (* Add <cr><lf> to the end of the string *) (* Send the message to COM1 *) TMP := COMSTR_W(1, str1); switch1 := False; (* Reset Switch1 when finished *) end_if;  rogram - LD1: lising the SYSDAT_R and SYSTIM_R functions to read the system date and time of the PAC. (* getPAC 's date and time *)</lf></cr></pre>	Vhen the Switch	•					will send a n	nessage that
<pre>INIT := False; (* This only needs to be done once during the first scan cycle *) TMP := COMOPEN(1,9600,8,0,1); end_if; (* If "Switch1" is set to be True in eLogger, send a message to COM1 *) if switch1 then (* Convert the date and time to a string, such as 'Jun/08/2017,13:25:45' *) str1 := time_str(year1, month1, day1, weekday1, hour1, minute1, second1); str1 := time_str(year1, month1, day1, weekday1, hour1, minute1, second1); str1 := time_str(year1, month1, day1, weekday1, hour1, minute1, second1); str1 := time_str(year1, month1, day1, weekday1, hour1, minute1, second1); str1 := time_str(year1, month1, day1, weekday1, hour1, minute1, second1); str1 := time_str(year1, month1, day1, weekday1, hour1, minute1, second1); str1 := talse; (* Reset Switch1 when finished *) end_if;  rogram - LD1: sing the SYSDAT_R and SYSTIM_R functions to read the system date and time of the PAC.  (* getPAC's date and time *)</pre>	• •	-	ult values S	9600,8,N,1. I	n the first s	can cycle, "IN	NIT" must de	eclar with an
<pre>(* Convert the date and time to a string, such as 'Jun/08/2017,13:25:45' *) str1 := time_str(year1, month1, day1, weekday1, hour1, minute1, second1); str1 := str1 + MSG('\$OD\$OA'); (* Add <cr><lf> to the end of the string *) (* Send the message to COM1 *) TMP := COMSTR_W(1, str1); switch1 := False ; (* Reset Switch1 when finished *) end_if;  rogram - LD1: Ising the SYSDAT_R and SYSTIM_R functions to read the system date and time of the PAC. (* get PAC 's date and time *)</lf></cr></pre>	INIT := Fals TMP := COI end_if ; (* If "Switch1"	s <b>e ;</b> (* This or <b>MOPEN( 1 , 960</b> is set to be True	0,8,0,1	);			cycle *)	
TMP := COMSTR_W(1, str1); switch1 := False ; (* Reset Switch1 when finished *) end_if; rogram - LD1: sing the SYSDAT_R and SYSTIM_R functions to read the system date and time of the PAC. (* get PAC 's date and time *) en	(* Convert tl str1 := time_	he date and tim _ <b>str( year1 , mo</b>	nth1 , day	1, weekday	1, hour1,	minute1 , se	cond1);	
sing the SYSDAT_R and SYSTIM_R functions to read the system date and time of the PAC. (* get PAC 's date and time *) (* get PAC 's date and time *) (* *) (* *) (* *) (* *) (* *) (* *)	TMP := CON switch1 := Fa	1STR_W( 1 , str1	L);	vhen finished	1*)			
(* *)		T_R and SYSTIM	_R functio	ns to read th	e system c	ate and time	of the PAC	
(* *) en en en < >	(*	get PAC 's date and '		_eno ΥΥ+γε ΜΜ+m	ar1 onth1			
SS Second1	(*	* *) I		WW -w SYSTIM_R eno HHh MMm	eekday1 c our1 inute1			

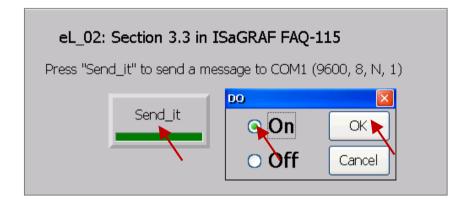
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# 3.3.3. Testing the "eL\_02" Project

Connect an RS-232 cable from the COM1 port on the WP-5147-OD to an RS-232 port on the Host PC. Power on the PAC and launch the HyperTerminal utility to open the RS-232 port using the default values of "9600, 8, N, 1". Note that the HyperTerminal does not exist on Windows after Windows 7 so you can also download it or other software such as PuTTY or PieTTY or Tera Term on the web.

#### PAC - eLogger HMI screen:

To send a message via the COM1 port, first click the "Send\_it" button on the eLogger HMI screen. In the "DO" dialog box, click the "ON" radio button and then click the OK button.



#### <u>PC – HyperTerminal (9600, 8, N, 1)</u>:

Then, you can see the system time of the PAC is display on the HyperTerminal screen.

🥙 COM1 - HyperTe	erminal								
Eile Edit View Call	service starts and the rest								
Jun/08/201	7,16:20:4	3,Thu	]						
Connected 0:00:09	Auto detect	9600 8-N-1	SCROLL	CAPS	NUM	Capture	Print echo	1	

**Note:** After uploading a modified ISaGRAF project to the PAC, you should execute the Remote Machine function in the eLogger Developer application to terminate the eLogger project and then launch the project again. See <u>Section 2.6</u> "Uploading the eLogger Project" for more details.

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# 3.4. Reading/Saving the Process Parameters from/to a File (Data Format: REAL)

In this example, we will use the following project files:

The ISaGRAF Project File: eL\_03. pia The eLogger Project File: eL\_03.wez

This example provides 20 process parameters that enter into the eLogger HMI screen for the WP-5147-OD. These values will be stored in the **Working\_Real.txt** file that saved in the **\System\_Disk\ folder.** Note that you should ensure this file is using ANSI encoding. The **Working\_Real.txt** file contains two rows, and each row contains ten REAL values, as illustrated below:

23, 65.9, 0.12, 5.87, 88.2, 0.34, 8.5, -2.08, 4.08, 5.32 2, -7, 666.8, 456.07, 1.01, 5, 6, 7, 8, 9

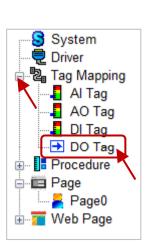
We will create 20 Seven Segment components on the eLogger HMI screen to display the operating parameters, and another 20 Seven Segment components to display the parameters or to allow the user to input new values for the parameters. In addition, we will add three Switch components that can be used to re-load the parameters or to restore them from a file, as well as a Switch that can be used to display whether the data was successfully read or not.

Components	Quantity	Settings
Seven Segment (01-20)	20	Address: 101, 103, 105,, 139 MouseContrl: FALSE (Read-only)
Seven Segment (21-40)	20	Address: 201, 203, 205,, 239 MouseContrl: TRUE (Read/write)
Switch	3	Address: 1, 2, 3

# 3.4.1. The eLogger Developer Settings

#### DO Tag:

Add a new DO tag by expanding the "Tag Mapping" section in the navigation pane and then clicking the "DO Tag" item. In the "DO Tag" screen, click the "New Tag" button to add the new tag. Enter the name "Re\_Load" and set the memory address to 1. For more information related to eLogger tags, refer to Section 2.3 "Declaring the eLogger Tag".



Repeat this process to add the "Re\_Store" tag and the "Read\_Data\_OK.

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System Driver Tag Mapping Al Tag AO Tag DI Tag		<	/ Address w Tag g Name		ete Tag escriptio		n Scaling Memory A	ddress	Description  Help Data Type
	<u> </u>	Re_Lo:	ad	Load dat	a from t	he file	1		16-bit Signed I
🖃 🛄 Page			Tag Name		Descri	ption		Memory	Address
Pag		► I	Re_Lo	ad	Load data from the file		rom the file	1	
i≟⊷ <u>च</u> Web Page			Re_Store		Store new data to the file		2		
			Read_Data_OK		TRUE: Data is ready		3		

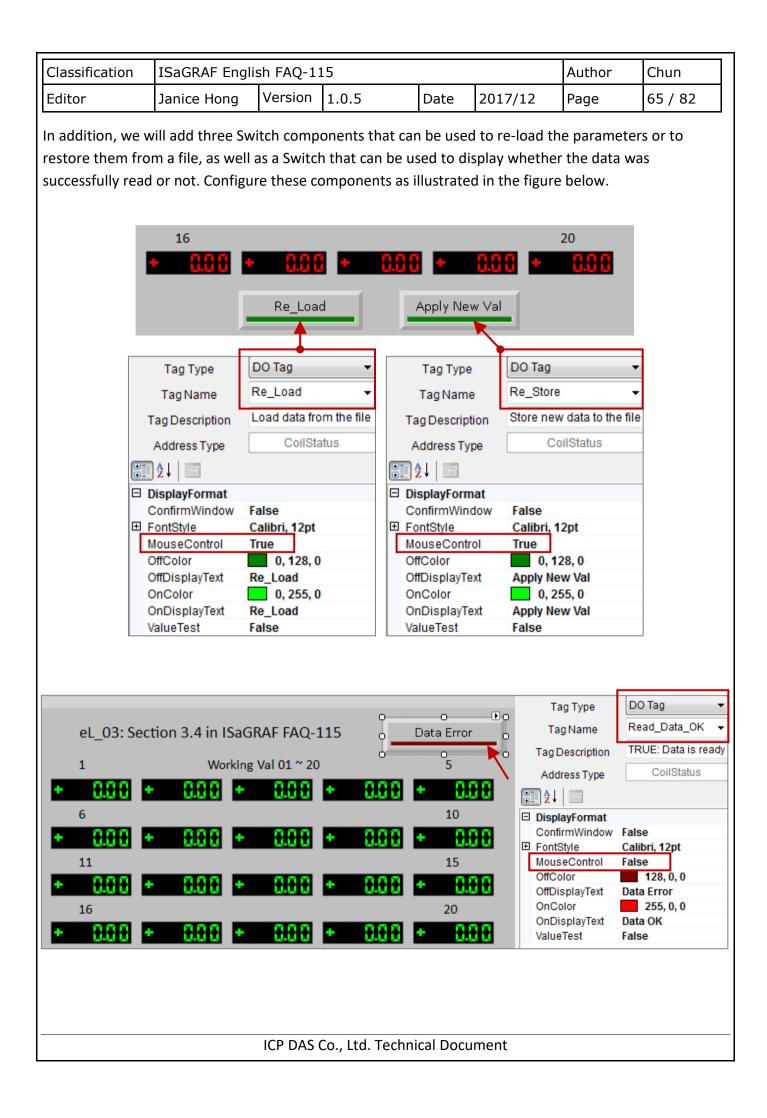
<u>AO Tag:</u>

Expand the "Tag Mapping" section in the navigation pane and click the "AO Tag" item. In the "AO Tag" screen, click the "New Tag" button to open the "Add Tag" dialog box and add 20 new AO tags, as illustrated in the figure below. Refer to Section 2.3 "Declaring the eLogger Tag".

Once the tags have been created, select the rows from Working\_Val\_0 to Working\_Val\_19, and set the 1<sup>st</sup> Memory Address to "101". The intermediate addresses will automatically add to the respective tags. Next, select the rows from Temp\_Val\_0 to Temp\_Val\_19, and set the 1<sup>st</sup> address to "201". Again, the intermediate addresses will automatically add.

System	Me	mory Address	Name	Location		Description		
a Tag Mapping	•							4
Al Tag		New Tag	Delete Tag	Scaling	H	Help		
DI Tag		Tag Name	Description	Memo	ory Address [	Data Type		
	Wo	orking_Val_0 AO	0		101 32	2-bit Float		•
		Tag Name	Description	Memory Address	Data Type	Gain	Offset	•
Page0	Þ	Working_Val_0	AO0	101	32-bit Float	1	0	
🗄 🚎 Web Page		Working_Val_1	AO1	103	32-bit Float	1	0	
		Working_Val_2	AO2	105	32-bit Float	1	0	
		Working_Val_17	A017	135	32-bit Float	1	0	Τ
		Working_Val_18	AO18	137	32-bit Float	1	0	
		Working_Val_19	AO19	139	32-bit Float	1	0	
		Temp_Val_0	AO20	201	32-bit Float	1	0	
		Temp_Val_1	AO21	203	32-bit Float	1	0	
		Temp_Val_2	A022	205	32-bit Float	1	0	
		Temp_Val_17	AO37	235	32-bit Float	1	0	
		Temp_Val_18	AO38	237	32-bit Float	1	0	
		Temp_Val_19	AO39	239	32-bit Float	1	0	-
		ICP DA	S Co., Ltd. T	echnical Docur	ment			

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Page0:	•							·
The upper 20 Sev	-	•			Tag Ty	pe	AO Ta	g ,
screen is to displa				, using	Tag Nar	ne	Workin	ng_Val_0 🖣
the variable from	n working_val_u	to worki	ng_val_19.		Tag Descri	ption	AO0	
					Output Limi	it(Min)		-10.0
el. 03: Sect	tion 3.4 in ISaGRAF	FAO-115	Data Erro	or	Output Limi	t(Max)		10.0
1	Working Val		5		Address 1	Гуре	Hold	lingRegister
				<b>HH</b>	Addres	S		0
6			10		Data Ty	pe	32	2-bit Float
+ 000 +	0.00 +	• 888	0.00 + 0	88	Gain			1
11			15		Offset			0
16			20		Range	•		
+ 000 +	000 +		000 + 0		<b>8</b> ∎ <b>2</b> ↓   ⊂			
1 + 0.00 + + 0.00 +	New Val 01	~ 20			DisplayFor Decimal DigitalNun Font_Colo Font_OffCo MouseCor Show_Sig TestValue	nber r olor ntrol		255, 0 ), 0
16 +	000 +	• 888	20		Tag Ty	pe	AO Ta	
	Re_Load	Apply N	ew Val		TagNa			_Val_0
_					Tag Descr		AO20	
					Output Lim			-10.0
Another 20 Sevei	•				Output Limi Address		Hol	dingRegister
parameters or to		•			Addre			20
parameters. In th	his case, using th	e variable	trom temp_v	al_0 to	Data Ty		3	2-bit Float
Temp_Val_19.					Gain			1
Configure these o	components as i	llustrated	in the figure.		Offse	t		0
	p				Rang	e		
					<mark>₿₽</mark> ₽↓   ₪			
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# 3.4.2. The ISaGRAF Settings

Before we can begin creating our project, we must first declare the required project variables. See <u>Section 1.2</u> Declaring the ISaGRAF Project Variables if you are not familiar. In this example, we will use the following ISaGRAF variables.

Name	Format	Attributes	Network Address	Description
тмр	Boolean	Internal	0	
RE_LOAD	Boolean	Internal	1	Set this variable to TRUE to re-load a File
RE_Store	Boolean	Internal	2	Set this variable to TRUE to store a File
INIT	Boolean	Internal	0	Declare the initial value as TRUE
Read_Data_OK	Boolean	Internal	3	True: data is ok, False: Data error
Msg1	Message	Internal	0	This variable is used to set the maximum length of the message to 128 characters
str1	Message	Internal	0	This variable is used to set the maximum length of the string to 255 characters
TMP_file_name	Message	Internal	0	This variable is used to set the maximum length of the temporary file name to 128 characters
File1	Integer	Internal	0	This variable is used to temporarily save the status of the .txt file that the user created
Working_ReaL_VAL[019]	Real	Internal	101 - 139	This variable is used to define the operating parameters, and is an ISaGRAF variable array, where Dim = 20. Declare the first Addr. value as 101 (Hex=65)
TMP_Real_VAL[019]	Real	Internal	201-239	This variable is used to define an ISaGRAF variable array that is used to store the temporary values entered by the user, where Dim = 20. Declare the first Addr. value as 201 (Hex=C9)
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Name	Format	Attributes	Network Address	Description
NUM1	Integer	Internal	0	This variable is used to temporarily save the REAL values
ii	Integer Internal 0		This variable is used to set the Index value for the for-loop	
jj	Integer	Internal	0	This variable is used to set the Index value for the for-loop
Data_Cnt	Integer	Internal	0	This variable is used to count the amount of data in the file
Row_Cnt	Integer	Internal	0	This variable is used to set the number of rows. Set the value to 2 in this case.
Data_Cnt_in_Row	Integer	Internal	0	This variable is used to set the amount of data that can be stored in each row. Set the value to 10 in this case.

#### Project:

The project contains three programs, the Load1 program is used to read data from a file, the Save1 program is used save data to a file, and the other1 program is used to do the user-defined commands when the Read\_Data\_ok variable is set to TRUE.

🚓 ISaGRAF - EL_03 - Programs	<u> </u>
File Make Project Tools Debug Options Help	
🚹 🖬 😔 🔟 🗋 💼 🕷 🗶 🐘 🗮 😫 🗮 🗮 🗮 🗮 🗮	
Begin: Eoad1 Read data from a file	
Save1 save data to a file	
other1 Do user logic when Read_Data_ok is TRU	JE

#### Program - Load1:

The Load1 program is to read data from a file.

(\* Operations in the first PLC Scan \*)

#### if INIT then

(\* Assign a Network address for the Array Variable \*)

(\* Assign the Working\_Real\_VAL[ ] as 101 , 103, 105, ..., 139 \*)

TMP := S\_MB\_ADR( 101 , 20 , 1 ) ;

```
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   (* Assign the TMP Real VAL[] as 201, 203, 205, ..., 239 *)
    TMP := S MB ADR(201,20,1);
    (* Assign the name of the file which stores the current working parameters *)
    TMP file name := '\System Disk\Working Real.txt' ;
    RE LOAD := True ; (* A trigger to read data from the file when the PLC is started *)
  end if;
  (* If RE LOAD is TRUE, open a file and read it *)
  if RE LOAD then
    RE LOAD := FALSE ; (* Reset the status of the RE LOAD variable to FALSE *)
    Read Data ok := False ; (* Initialize the data error flag as FALSE *)
                              (* Initialize the data count to indicate that no data has been read *)
    Data Cnt := 0;
    File1 := f wopen(TMP file name) ; (* Try opening the file in Read & Write mode *)
    if File1 = 0 then
      (* If there is an error opening the file, exit this ST program to run the next program *)
       Msg1 := 'Cannot Open file ' + TMP file name ;
       INIT := False ; (* Reset the initialization before exiting the ST program *)
       return ;
    end if ;
    (* To read data. In this case, there are two rows of data and each row contains 10 REAL values,
       totally 20 REAL values in the file. *)
    for ii := 0 to (Row_Cnt-1) do
        if f eof(File1) = TRUE then (* Test if the end of the file has been reached *)
        (* The end of the file has been reached *)
        Msg1 := 'There should be at least ' + MSG(Row Cnt)+ ' rows in the ' +TMP file name+ ' file.'
 ;
                    (* Exit the FOR loop *)
 exit ;
        end_if;
    str1 := fm_read(File1); (* Read one row as a String (Message) *)
```

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   (* Convert this string to some REAL values and store them in Float array No. 1 *)
    NUM1 := Msg F( str1, 1);
    if NUM1 <> Data Cnt in Row then (* There should be 10 REAL values in each row *)
    (* If there is an error, it means the data is not a REAL value or the amount of data is incorrect *)
        Msg1 := 'The data format of row No.' + Msg(ii + 1) + ' is not correct or the amount of
 data is not ' + MSG( Data Cnt in Row );
                              (* Exit the FOR loop *)
        exit :
    end if;
      Data Cnt := Data Cnt + Data Cnt in Row; (* OK ! Data Cnt plus Data Cnt in Row *)
      (* The conversion was successful, and these 10 REAL values have been stored in
 TMP_Real_VAL[] *)
      for jj := 0 to (Data Cnt in Row - 1) do
          (* Retrieve the converted REAL values from address 1 to 10 in Float array No. 1 *)
          TMP Real VAL[Data Cnt in Row *ii + ii] := ARY F R(1, ii + 1);
      end_for;
    end_for;
    TMP := f_close(File1); (* Any file that is open should be closed using f_close() *)
    (* All data has been read successfully *)
    if (Data Cnt = Row Cnt * Data Cnt in Row) then
      Msg1 := 'Read ' + TMP_file_name + ' Ok ';
      Read Data Ok := True ; (* Set the data read flag to TRUE *)
   (* If this is the first scan, store the TMP_Real_Val[] information in the respective
   Working ReaL Val[] array element *)
     if INIT then
        for ii := 0 to (Data_Cnt - 1) do
             Working_ReaL_VAL[ii] := TMP_ReaL_VAL[ii] ;
       end for;
      end if;
   end_if;
  end if;
  INIT := False ; (* Set the initialization to FALSE to indicate that this is not the first PLC scan *)
```

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Program - Save1:
The Save1 program is to save data into a file.
   (* Save the data in a file when the RE Store variable is TRUE *)
   (* This "RE Store" variable can be triggered via the eLogger HMI *)
  if RE_Store then
     RE Store := False ;
                               (* Reset the status of the RE Store variable to FALSE *)
     Read_Data_ok := False ; (* Initialize the data error flag as FALSE *)
     Data_Cnt := 0 ;
                               (* Initialize the data count to indicate that no data has been read *)
     (* Delete file first and then create a new file and write to it *)
     TMP := f delete(TMP file name) ;
     (* Create a new file *)
     File1 := f creat( TMP file name ) ;
     (* File creation failed, exit the ST program *)
     if File1 = 0 then
       MSG1 := 'Cannot create a new file - ' + TMP_file_name + ' !';
       return ;
                   (* Exit the ST program *)
     end if;
    (* To save data. In this case, there are two rows of data and each row contains 10 REAL values,
    totally 20 REAL values in the file. *)
    for ii := 0 to (Row Cnt-1) do
       str1 := "; (* Set as an empty string at the beginning *)
       (* There are 10 data records in a single row *)
       for jj := 0 to (Data_Cnt_in_Row - 2) do
          str1 := str1 + Real_Str( TMP_ReaL_VAL[Data_Cnt_in_Row * ii + jj] ) + ', ';
       end_for;
     (* Add the last data record from this row to the str1 variable *)
       str1 := str1 + Real Str( TMP ReaL VAL[Data Cnt in Row * ii + jj] ) + '$0D$0A';
```

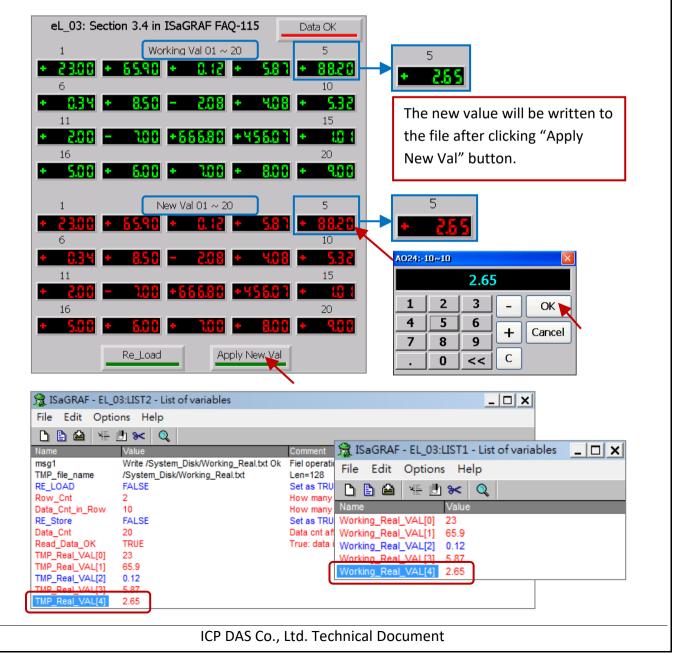
```
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       (* Write this row to the file *)
       TMP := F_writ_S(File1, str1);
       if TMP = False then
          MSG1 := 'Write data to file - ' + TMP file name + ' failed !';
                  (* Exit this FOR loop *)
          exit :
       end if;
       Data_Cnt := Data_Cnt + Data_Cnt_in_Row; (* Success! Data_Cnt plus Data_Cnt_in_Row *)
    end for;
    TMP := f close(File1); (* Any file that is open should be closed using f close() *)
    (* All data has been saved successfully *)
    if (Data Cnt = Row Cnt * Data Cnt in Row) then
       Msg1 := 'Write ' + TMP file name + ' Ok ';
       Read Data ok := True ; (* Set the data read flag to TRUE *)
       (* Store the TMP Real Val[] record in the respective Working ReaL Val[] array element *)
       for ii := 0 to (Data Cnt - 1) do
         Working_ReaL_VAL[ii] := TMP_ReaL_VAL[ii] ;
       end for;
    end if;
 end if;
Program - Other1:
The Other1 program is to do the user-defined commands when the Read Data ok variable is set to TRUE.
(* If the Read Data OK variable is set to False, which means the process parameters of the
Working ReaL VAL[] is not ready. Then return. *)
                                 Read_Data_OK
                          (* If the Read Data OK variable is set to True, then you can use the parameters of the
Working ReaL VAL[] in the user-definded logic below. *)
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```

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# 3.4.3. Testing the "eL\_03" Project

- Copy the Working\_Real.txt file to the \System\_Disk folder via FTP and reboot the PAC. Make sure this file save using ANSI encoding. The file name must be the same as that declared in the program.
   <u>Note</u>: If the file is not coping to the \System\_Disk folder, the button text "Data Error" will display on the right of the eLogger HMI without any data.
- ♦ Upload the ISaGRAF project to the PAC first, and then upload the eLogger project.
- ♦ The values for "New Val" can change in the eLogger HMI.

For example, in the diagram below, click the value you want to change in the "New Val" section to open the "Value Entry" dialog box. Enter the new value and click the "OK" button to save the new value. Repeat this process for each item that you want to change, and then click the "Apply New Val" button to update these values in the "Working Val" area. If the PC/ISaGRAF connect to the PAC, you can also check to see if the variable values have changed.



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#### 3.5. Reading/Saving Process Parameters from/to a File (Data Format: Integer)

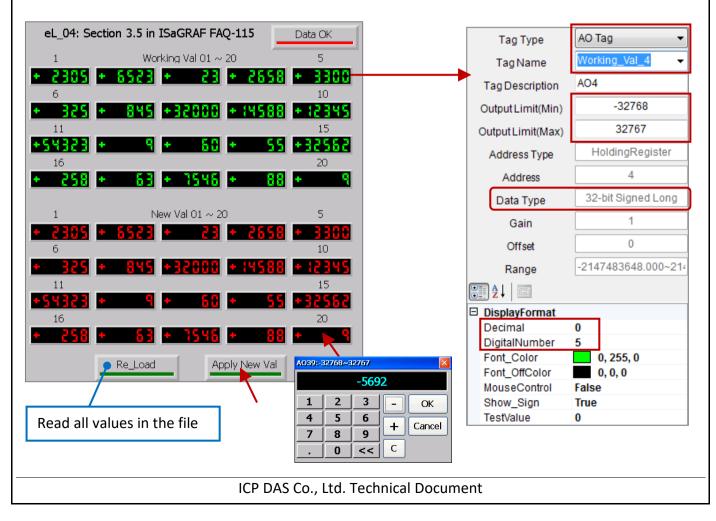
In this example, we will use the following project files:

The ISaGRAF Project File: eL\_04. pia The eLogger Project File: eL\_04.wez

This project is similar to the previous "eL\_03" project (See <u>Section 3.4</u> "Reading/Saving the Process Parameters from/to a File"), but this time the data format is Integer. First, create a txt file called **Working\_Int.txt** that includes two rows of data, with each row containing ten Integer values. Ensure this file is saved using ANSI encoding. Copy the **Working\_Int.txt** file to the \System\_Disk folder via FTP. Open the ISaGRAF and the eLogger project for more details and then upload projects to the PAC.

#### Testing the "eL\_04" Project:

The values "New Val" can change in the eLogger HMI. For example, in the diagram below, click the value you want to change in the "New Val" section to open the "Value Entry" dialog box. Enter the new value and click the "OK" button to save the new value. Repeat this process for each item that you want to change, and then click the "Apply New Val" button to update these values in the "Working Val" area. If the PC/ISaGRAF is connected to the PAC (See Section 1.7), you can also online check to see if the related variable values are changed.



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#### 3.6. Reading/Saving Process Parameters from/to Different Files (Data Format: REAL)

In this example, we will use the following project files:

The ISaGRAF Project File: eL\_05. pia The eLogger Project File: eL\_05.wez

This project is similar to the previous "eL\_03" project (See <u>Section 3.4</u> "Reading/Saving the Process Parameters from/to a File") and the data format is REAL. However, multiple values can save into different files. First, create a txt file called **Working\_Reals.txt** that includes two rows of data, with each row containing ten REAL values. Ensure the file save using ANSI encoding. Copy this file to the **\System\_Disk** folder via FTP. Open the ISaGRAF and the eLogger project for more details and then upload projects to the PAC.

<u>Note</u>: The file name and the storage path must be the same as that declared in the program. The data contained in the txt file can be the same as that used for the "eL\_03" demo.

#### Testing the "eL\_05" Project:

Create a connection between the PC/ISaGRAF and the PAC (See Section 1.7 if not familiar), and view the list of variables as illustrated in the figure below.

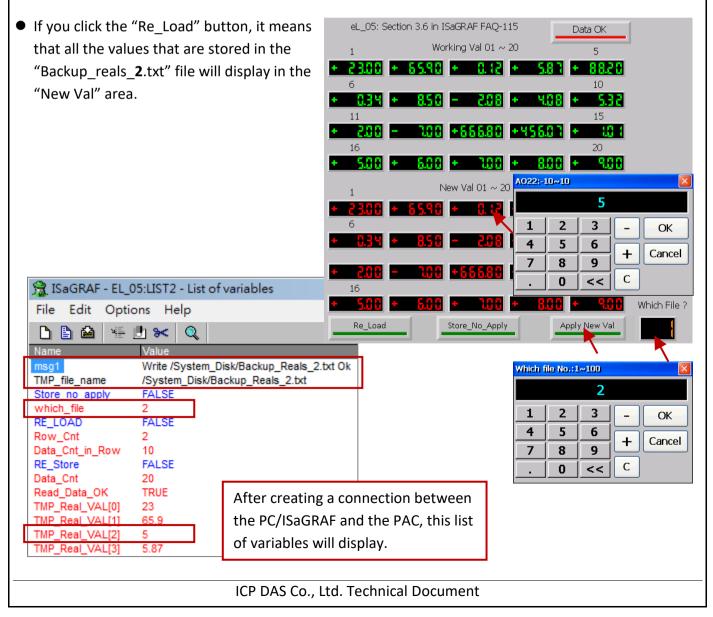
	din a c	<u>_</u>			e used to rea					
	> 🛃	۹.		1						
Name	Value			×	Comment					
msg1				Reals.txt Ok	File operation sta	te, Len=128				
TMP_file_name		_Disk/Wor	rking_Reals	.txt	Len=128					
Store no apply	FALSE		1		Store to the selec			pply, addr=	4	
which_file	1	2			which file, 1 to 1			LTOTA L		
RE_LOAD	FALSE				Set as TRUE to R		- EL_05:	LIS   1 - LI	st of variables	<u> </u>
Row_Cnt	2	1 ma	ximum	of 100	How many Rows	File Edit	Option	s Help		
Data_Cnt_in_Row	10	Ama	xiinuni	01 100	How many Real					
RE_Store	FALSE 20	files o	can be s	set.	Set as TRUE to S Data cnt after rea		🖷 🛃	😽 🍳	2	
Data_Cnt Read Data OK	TRUE				True: data is ok.	Name		Value		
TMP Real VAL[0]	23		1		True, data is ok,	Working Real	VAL[0]	23		
TMP Real VAL[1]	65.9					Working Real	VAL[1]	65.9		
TMP_Real_VAL[2]	0.12					Working Real	VAL[2]	0.12		
TMP_Real_VAL[3]	5.87					Working_Real	VAL[3]	5.87		
TMP_Real_VAL[4]	88.2					Working_Real	VAL[4]	88.2		
TMP_Real_VAL[5]	0.34					Working_Real	VAL[5]	0.34		
TMP_Real_VAL[6]	8.5					Working_Real	_VAL[6]	8.5		
TMP_Real_VAL[7]	-2.08					Working_Real	_VAL[7]	-2.08		
TMP_Real_VAL[8]	4.08					Working_Real	VAL[8]	4.08		
TMP_Real_VAL[9]	5.32					Working_Real	_VAL[9]	5.32		
TMP_Real_VAL[10]	2					Working_Real	_VAL[10]	2		
TMP_Real_VAL[11]	-7					Working_Real	_VAL[11]	-7		
TMP_Real_VAL[12]	666.8					Working_Real	_VAL[12]	666.8		
TMP_Real_VAL[13]	456.07					Working_Real	_VAL[13]	456.07		
TMP_Real_VAL[14]	1.01					Working_Real	_VAL[14]	1.01		
TMP_Real_VAL[15]	5					Working_Real	_VAL[15]	5		
TMP_Real_VAL[16]	6					Working_Real	_VAL[16]	6		
TMP_Real_VAL[17]	7					Working_Real				
TMP_Real_VAL[18]	8					Working_Real	_VAL[18]	8		
TMP_Real_VAL[19]	9					Working_Real	VAL[19]	9		
<end list="" of=""></end>						<end list="" of=""></end>			-	

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First, all the values that are stored in the **Working\_Reals.txt file in the** \System\_Disk folder will display on the eLogger HMI screen. Change the "Which\_File" value (where **n** can be in the range of 1 to 100) to write data to the specified "Backup\_Reals\_**n**.txt" file. Note the txt file will automatically create if it does not exist.

<u>Test</u>:

- In the diagram below, click the value that you want to change in the "New Val" section to open the "Value Entry" dialog box. Enter the new value and click the "OK" button to save the new value. Set the "Which\_File" value to "2", and then click the "Apply New Val" button to write the data to the "Backup\_reals\_2.txt" file and the "Working\_Reals.txt" file in the \System\_Disk folder. In addition, the values shown in the "Working Val" area will be updated using those entered in the "New Val" area
- In this case, if you click the "Store\_No\_Apply" button, it means that the values shown in the "New Val" area written to the "Backup\_reals\_2.txt" file, but the value displayed in the "Working Val" area will not update and will not save into the "Working\_Reals.txt" file.



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# 3.7. Reading or Modifying the Date and Time on the PAC for the Time Control

In this example, we will use the following project files:

The ISaGRAF Project File: eL\_06. pia

The eLogger Project File: eL\_06.wez

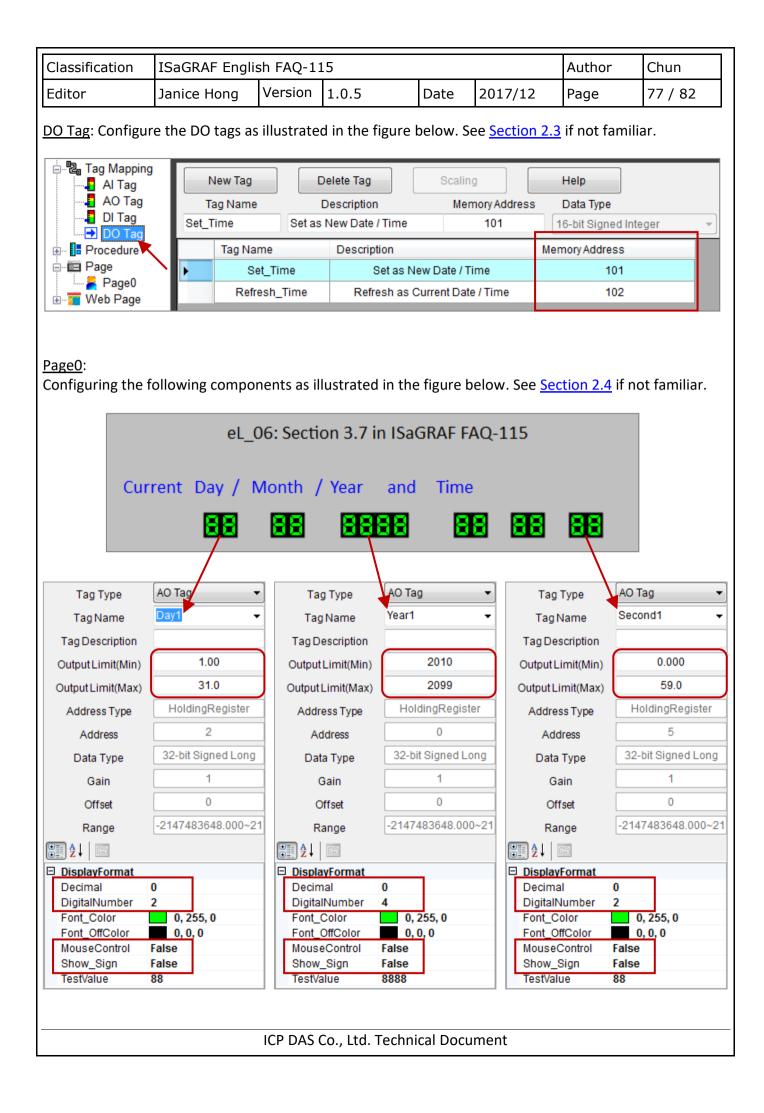
The project used in this example shows how to display or change the date and time on the PAC. In this example, we set the OUT1 variable to ON from 09:00 to 18:00 on Monday to Friday, and set the OUT2 variable to ON from 09:00 to 12:00 on Saturday and Sunday.

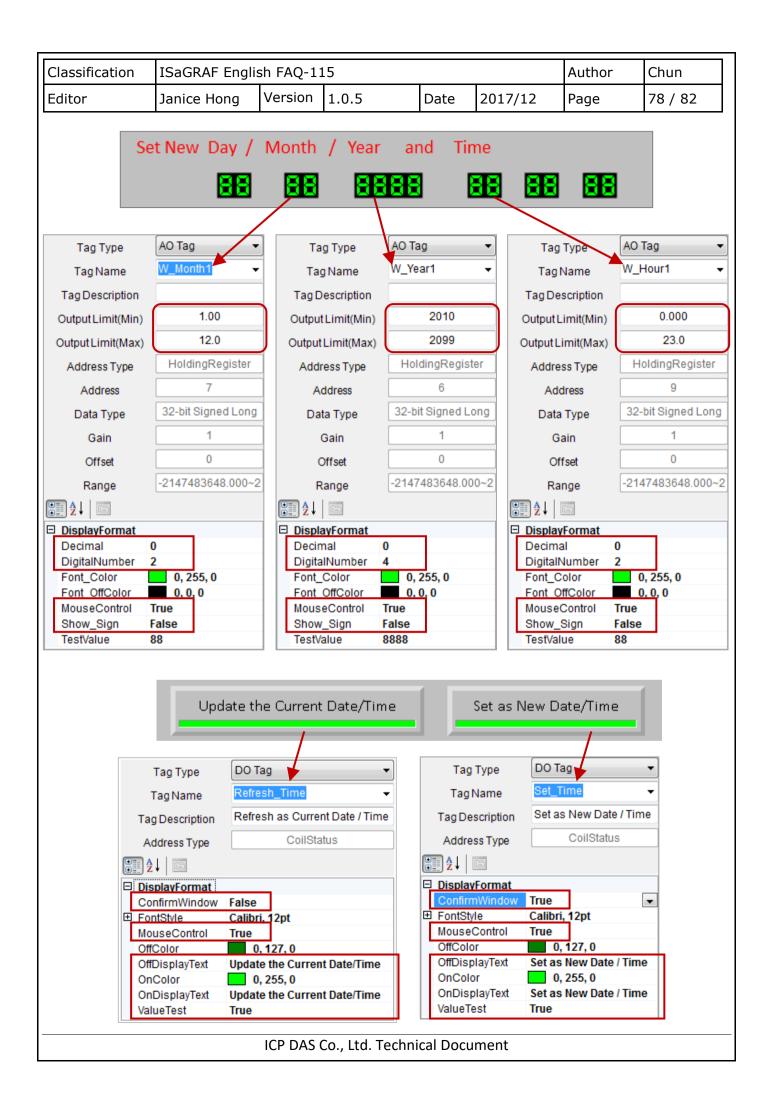
#### 3.7.1. The eLogger Developer Settings

In this example, we will use the following eLogger tags.

AO Tag: Configuring the AO tags as illustrated in the figure beolw. See Section 2.3 if not familiar.

Memo	ory Address	Name	Location		Desc	ription		1	Note
•									Þ
New Tag		Delete Tag				Help			
		Description	1	Memo				0.005	-
rearr							_	_	
		Description	-	dress					Ran
									-327
									-327
									-327
									-327
_	Minute1				16-bit Signed Integer 16-bit Signed Integer		1	0	-327
_	Second1						1	0	-327
	W_Year1	W_Year1		11		16-bit Signed Integer		0	-327
	W_Month1		12		16-bit Sig	gned Integer	1	0	-327
	W_Day1		13		16-bit Sig	gned Integer	1	0	-327
	W_Hour1		14		16-bit Sig	gned Integer	1	0	-327
	W_Minute1		15		16-bit Si	gned Integer	1	0	-327
	W_Second1		16		16-bit Si	gned Integer	1	0	-327
•	L								- F
				_					
	۲ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ	New Tag         Tag Name         Year1         Tag Name         Year1         Month1         Day1         Hour1         Minute1         Second1         W_Year1         W_Month1         W_Year1         W_Month1         W_Year1         W_Month1         W_Second1         W_Second1	New Tag     Delete Tag       Tag Name     Description       Year1     Image: Construction of the second of th	New Tag     Delete Tag       Tag Name     Description       Year1     1       Month1     2       Day1     3       Hour1     4       Minute1     5       Second1     6       W_Year1     11       W_Month1     12       W_Day1     13       W_Hour1     14       W_Month1     15       W_Second1     16	New Tag     Delete Tag     Scaling       Tag Name     Description     Memory Address       Year1     1       Month1     2       Day1     3       Hour1     4       Minute1     5       Second1     6       W_Year1     11       W_Month1     12       W_Day1     13       W_Hour1     14       W_Minute1     15       W_Second1     16	New Tag       Delete Tag       Scaling         Tag Name       Description       Memory Address         Year1       1         Tag Name       Description         Year1       1         Year1       1         Month1       2         Day1       3         Hour1       4         Minute1       5         Second1       6         W_Year1       11         Month1       12         Hour1       6         Minute1       5         Second1       6         W_Year1       11         10-bit Si         W_Month1       12         11       16-bit Si         W_Month1       12         13       16-bit Si         W_Hour1       14         16-bit Si         W_Minute1       15         W_Second1       16	Image: New Tag     Delete Tag     Scaling     Help       Tag Name     Description     Memory Address     Data Type       Year1     1     16-bit Signed Integer       Month1     2     16-bit Signed Integer       Day1     3     16-bit Signed Integer       Hour1     4     16-bit Signed Integer       Minute1     5     16-bit Signed Integer       W_Year1     11     16-bit Signed Integer       W_Wonth1     12     16-bit Signed Integer       W_Nonth1     12     16-bit Signed Integer       W_Wonth1     12     16-bit Signed Integer       W_Month1     12     16-bit Signed Integer       W_Month1     12     16-bit Signed Integer       W_Wonth1     12     16-bit Signed Integer       W_Month1     12     16-bit Signed Integer       W_Hour1     14     16-bit Signed Integer       W_Montl1     15     16-bit Signed Integer       W_Minute1     15     16-bit Signed Integer       W_Second1     16     16-bit Signed Integer	New Tag     Delete Tag     Scaling     Help       Tag Name     Description     Memory Address     Data Type       Year1     1     16-bit Signed Integer     1       Month1     2     16-bit Signed Integer     1       Month1     2     16-bit Signed Integer     1       Hour1     4     16-bit Signed Integer     1       Minute1     5     16-bit Signed Integer     1       W_Year1     11     16-bit Signed Integer     1       Month1     2     16-bit Signed Integer     1       Hour1     4     16-bit Signed Integer     1       Minute1     5     16-bit Signed Integer     1       W_Year1     11     16-bit Signed Integer     1       W_Year1     11     16-bit Signed Integer     1       W_Year1     11     16-bit Signed Integer     1       W_Year1     13     16-bit Signed Integer     1       W_Day1     13     16-bit Signed Integer     1       W_Hour1     14     16-bit Signed Integer     1       W_Second1     16     16-bit Signed Integer     1       W_Second1     16     16-bit Signed Integer     1	New Tag     Delete Tag     Scaling     Help       Tag Name     Description     Memory Address     Data Type       Year1     1     16-bit Signed Integer     1       Year1     1     16-bit Signed Integer     1       Month1     2     16-bit Signed Integer     1       Day1     3     16-bit Signed Integer     1     0       Hour1     4     16-bit Signed Integer     1     0       Minute1     5     16-bit Signed Integer     1     0       W_Year1     11     16-bit Signed Integer     1     0       W_Year1     4     16-bit Signed Integer     1     0       W_Year1     11     16-bit Signed Integer     1     0       W_Day1     13     16-bit Signed Integer     1     0       W_Hour1     14     16-bit Signed Integer     1     0       W_Minute1     15     16-bit Signed Integer     1     0       W_Second1     16     16-bit Signed Integer     1     0



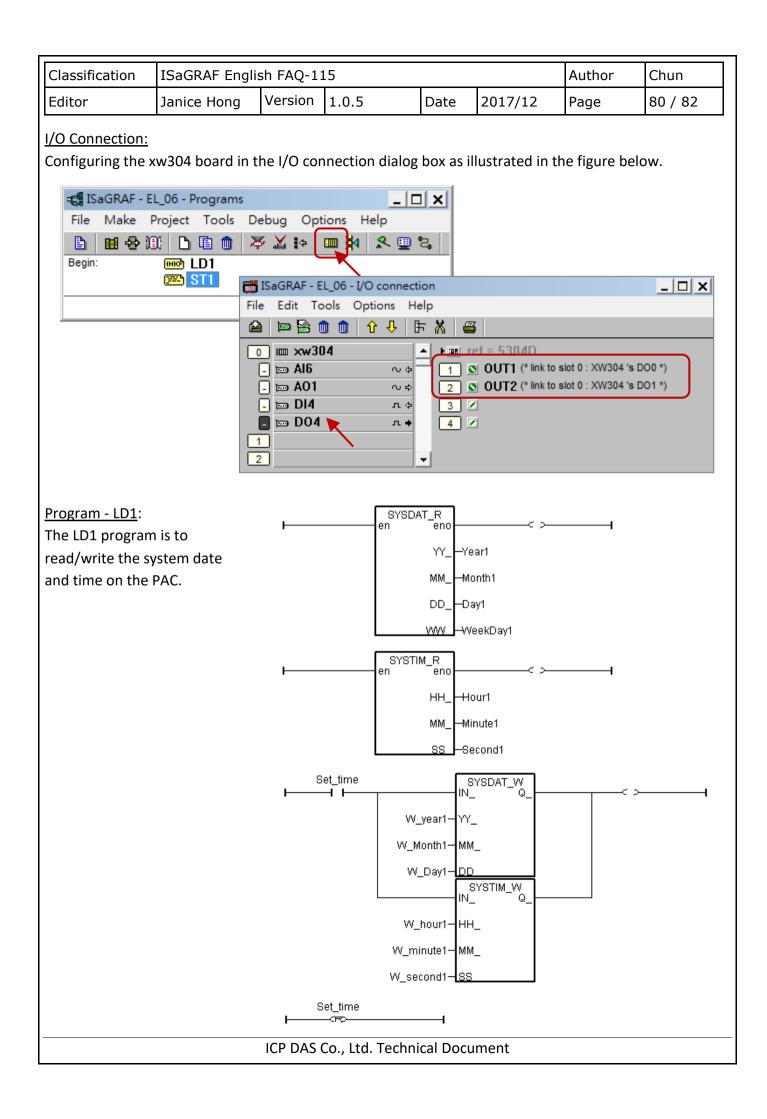


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# 3.7.2. The ISaGRAF Settings

Before we can begin creating our project, we must first declare the required project variables. See <u>Section 1.2</u> Declaring the ISaGRAF Project Variables if you are not familiar. In this example, we will use the following ISaGRAF variables.

Name	Format	Attributes	Network Address	Description			
Set_Time	Boolean	Internal	101	Set this variable to True to allow the date and time to be changed			
Refresh_Time	Boolean	Internal	102	This variable is used to refresh the current date and time			
OUT1	Boolean	Internal	0	This variable is a link to the DO0 channel on the XW304			
OUT2	Boolean	Internal	0	This variable is a link to the DO1 channel on the XW304			
Time_Val	Integer	Internal	0	This variable is used to set a time period (unit: minutes, the value 0 to 1439 means 00:00 to 23:59) Set the Initial value to 0			
Year1	Integer	Internal	1				
Month1	Integer	Internal	2	These veriables are to retrieve the surrent			
Day1	Integer	Internal	3	These variables are to retrieve the current date and time on the PAC.			
Hour1	Integer	Internal	4				
Minute1	Integer	Internal	5	E.g., Year, Month, Day, Hours, Minutes, Seconds, and Weekday.			
Second1	Integer	Internal	6	,			
WeekDay1	Integer	Internal	0				
W_Year1	Integer	Internal	11				
W_Month1	Integer	Internal	12	These variables are to set the new date			
W_Day1	Integer	Internal	13	and time on the PAC.			
W_Hour1	Integer	Internal	14	E.g., Year, Month, Day, Hours, Minutes,			
W_Minute1	Integer	Internal	15	and Seconds.			
W_Second1	Integer	Internal	16				
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Program - ST1:

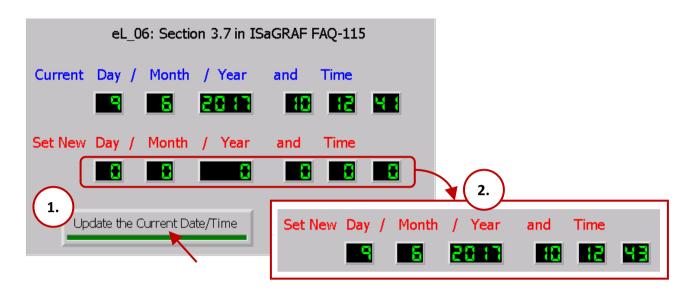
In this program, we set the OUT1 variable to ON from 09:00 to 18:00 on Monday to Friday, and set the OUT2 variable to ON from 09:00 to 12:00 on Saturday and Sunday.

```
(* Units are seconds, 0 ~ 86399
   Time val:= 3600 * Hour1 + 60* Minute1 + Second1; *)
 (* Units are minutes, 0 ~ 1439 *)
 Time Val:= 60 * Hour1 + Minute1;
 OUT1:= False; (* Initially set to False *)
 OUT2:= False:
 (* Set OUT1 to True for 9:00 to 18:00 on Monday to Friday *)
 if (WeekDay1 >= 1) and (WeekDay1 < 6) and
    (Time_Val >= 540) and (Time_Val < 1080) then
   OUT1:= True;
 end if;
 (* Set OUT2 to True for 9:00 to 12:00 on Saturday and Sunday *)
 if (WeekDay1=6) and (WeekDay1=7) and
    (Time Val >= 540) and (Time Val < 720) then
   OUT2:= True;
 end if;
 (* Refresh to the current date and time *)
 if Refresh_Time then
   Refresh Time:= False; (* Reset to False *)
   W_Year1:= Year1;
   W Month1:= Month1;
   W Day1:= Day1;
   W_Hour1:= Hour1;
   W Minute1:= Minute1;
   W_Second1:= Second1;
 end_if;
```

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# 3.7.3. Testing the "eL\_06" Project

Click the "Update the Current Date/Time" button to set the current date and time of the PAC in the "Set New" section.



To adjust the date and time, click each component and enter a new value for the item. For example, in the diagram below, click the second's component in the "Set New" section to open the "Value Entry" dialog box. Enter the new value and click the "OK" button to save the new value. Repeat this process each item that needs to adjust, and then click the "Set as New Date/Time" button and click the "OK" button to change the information displayed in the "Current" date and time section above.

