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A Web HMI Example for ISaGRAF Professional XPAC XP-8xx7-CE6-PRO – by FrontPage

This document "FAQ-124" can be found at https://www.icpdas.com/en/faq/index.php?kind=280#751 > 124 .

Features of the ISaGRAF PAC Web HMI

ICP DAS ISaGRAF PAC with WinCE OS based series provide Web HMI feature, such as WinPAC WP-8xx7 series, XPAC XP-8xx7-CE6 series and ViewPAC VP-2xW7 series, and the new WinCE OS based ISaGRAF PAC in the future will also provide the Web HMI.

- Control/monitor devices in graphic operating interface: via the user friendly HMI interface to monitor/control the I/O modules and devices of the whole system.
- No extra software installation: just need a normal web browser (ex: I.E...), normal VGA monitor.
- Remote HMI access: login the system HMI even in the remote PC Web HMI everywhere!
- The same operating interface in local and remote: no extra purchase, designing and training fee. Save time and money! (The local web HMI is for professional version XP-8xx7-CE6-PRO only.)

System Security and Data Protection

ISaGRAF PAC Web HMI provides three levels username and password protection, high/middle/low. Using different level protection for different web pages, user can figure out operator/ manager/ administrator or other access authority managements. Combine with other ISaGRAF PAC protective features, such as VIP communication security (Setting Very Important IP No.), dongle protection..., the system and data will be safe and secured.

Features of Professional OS version ISaGRAF XPAC

The Professional OS version XPAC, XP-8xx7-CE6-PRO, provides built-in Internet Explorer Software. Using the user friendly graphic control HMI, user needs a normal VGA monitor only, not an extra PC or NB. The Professional OS version XPAC providing Internet Explorer, FTP server and Web server functions is more professional and cost-effective.

Easy-to-Design

The webpage designer can easily design the Web HMI. Just simply adding the I/O module control tags provided by ICP DAS into the HTML webpage, everyone can design the graphic control Web HMI pages!

For the user not a webpage designer, he can edit own webpage in a normal webpage editor (Ex: FrontPage, DreamWave ...) with own company logo or graphic, then simply add the I/O module control tags, and then it's easily done.

Web HMI Example – by FrontPage

This example webpage is edited by Microsoft Office Frontpage 2003. User can choose your familiar editor. If using the professional version XP-8xx7-CE6-PRO, please plug a monitor in the VGA port to operate the Web HMI via built-in IE browser to control the I/O devices directly. Or, in the local/ remote PC, with the same operating HMI screen, user can also control all deices via internet web browser. The Web HMI pages are as below:

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I/O Modu	les				I-	87054	N					
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2010 / 6 / 18			()	0	0	0	0	0	0	0		
Fri 16 · 33 · 26		D/I	W 0	1	2	100 3	0 4	100 5	6 6	10 7		
10.35.20				-]	
Modify Ti	me			+	Slot 2 : I-	87017R\	N AI Moo	lule				
					1-E	37017R	w					
		A/I		0		1		2		3		
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		A/I		4		5		6		7		
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	Enter						
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1.1 Dowilloa	u the FAQ-124		zampie				
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124.							
The files after do	wnload and de	compressio	on:				
 ISaGRAF pro HMI webpa 	oject file (hmi_ uge files (all file	ts_1.pia) s in the fol	der of "xphm	ni +1")			
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The referent doc http://www.icpd can be found at a Website:	ument for this las.com/en/dov :	example wnload/sho	w.php?num	=343&nati	on=US&kind1	=&model=	&kw=isagraf
nttp://www.icpd	as.com/en/dov	whiteau/sho	w.pnp?num	-22201141	OU=O20KUUUT	=&model=	@KW=ISagrai

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1.2 Hardware Requirement and Installation

1.2.1 Hardware Requirement for the example program

Model	Description	Remark
XP-8xx7-CE6-PRO	ISaGRAF professional version XPAC	If using a standard version XP-8xx7-CE6 that without built-in browser IE, user has to operate the Web HMI via the web browser in a PC.
I-87054W	DI/DO module, in slot 1	The leftmost I/O slot number of XP-8xx7-CE6 is 1.
I-87017RW	Al module, in slot 2	When testing, user can add a small battery test tool, the range in this example: -10V ~ +10V
Monitor	VGA port	If using a standard version XP-8xx7-CE6, user cannot show the Web HMI on the monitor of the PAC.
USB mouse	USB port	
NS-208 or NS-205	Industrial Ethernet switch	To login Web HMI from remote PC via internet. In this example, ISaGRAF project and HMI files are downloaded via the Ethernet network. To download project via RS-232, please refer to section 4.3 of http://www.icpdas.com/en/download/show.php?n um=343&nation=US&kind1=&model=&kw=isagraf
DP-665	Industrial power supply	

1.2.2 Hardware Connection



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1.2.3 Configuring the XP-8xx7-CE6

After connecting the hardware devices, please power on the XP-8xx7-CE6-PRO to set up the XPAC:

A. Run "isaXPce6" on the desktop



Enable Web HMI, and setup the three levels username and password according to your need. If this account security is not enabled, everyone can control your XP-8xx7-CE6 without password via a web browser from the network !

XP-8xx7-CE6 ISaGRAF Driver	ок
Setting Web, About	Security Settings OK 🗙
Options ✓ Enable Web HMI Disable FTP Serveice ✓ Disable Telnet Serveice To set up advanced security , click on Setting Settings.	Account Modbus List IP Setting ✓ Enable Account Security Priority Low User Name Password Edit Priority Middle Edit Priority Middle Edit Password Edit Password Edit Password Edit Priority High User Name Password Edit
3. Run "XPAC_Utility" on the des	sktop XPAC_Utility

Enable FTP function, and set up the default directory for downloading Web HMI files to the XP-8xx7-CE6.

FTP Enable Disable Allow Anonymous Enable Set FTP default download directory to: Apply.	
Set HTTP document root directory to: Web Apply	

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C. Assign the IP address for XP-8xx7-CE6							
1. In XP-8xx7-CE6, click [Start] > [Settings] > [Network and Dual-up Connections]							
 Double click [PIC-FETCE5B1] can open the LAN1 setting window. Double click [PIC-FETCE5B2] can open the LAN2 setting window. 							
3. Assign IP addre (ISaGRAF appl also.) °	3. Assign IP address, please key in your controller IP address, ex: 192.168.1.192. (ISaGRAF applications need to use fixed IP, do not accept DHCP. If enable LAN2, please use fixed IP also.) °						
[File Edit Vie Make New P Connection FET	Advan	ced Reference Performance Perf	1 <u>0</u> b-			
'PCIVFETCE5B1' Settings OK × IP Address Name Servers							
	An IP address can be automatically assigned to this computer. If your network does not automatically assign IP addresses, ask your network administrator for an address, and then type it in the space provided.						
The LAN1 of XP-8 please mouse rig	Bxx7-CE6 is defai ht click the LAN	ult enable 2 icon, sel	d, if you need t ect "Enable" to	o use LA enable	N2 (or the LAI that LAN befo	N is been disa re setting.	abled),
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	3]	<u>ן</u> אין				
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Arter setting up,	picase click Oll	ΟΝ, α					
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1.3 ISaGRAF	Project in the ex	kample					
124 Destaus		•					
1.3.1 Restore t	ne ISaGRAF Pro	ject					
Please follow the	e steps to restor	e the ISaG	RAF project '	'hmi_ts_	1.pia" into t	he ISaGRAF ii	n the PC.
1. Run ISaGRAF software, and then click the menu bar: Tool \rightarrow Archive \rightarrow Projects							
ISaGRAF - Project Management							
	<u>File E</u> dit	<u>Project</u> <u>T</u> oo	ols <u>O</u> ptions <u>H</u> elp				
			<u>A</u> rchive Zibraries	Projec Comm	its	8	
			mport IL program				
2. In "Archive" window, click on "Browse", switch to the folder that with this demo program file "hmi_ts_1.pia". Select the file name, click on "Restore" then the project will show in your project folder. Please double click the file name to open the project.							
Archive - Projects							
	V creatic examp examp hmi_ts test01 wp_vb wp_vb wp_vb xpdmo xpdmo xpdmo xpdmo xpdmo	/orkbench n le1 le2 _1 .01 .02 .03 _02 .03 _02 .03 _02 _03 _04 _05 _06 ve location	Archive	124\Pf	Backup <u>R</u> estore <u>C</u> lose <u>H</u> elp Compress <u>B</u> rowse		
	ISaGRAF - Proje	ct Manager	nent				
Fi	le <u>E</u> dit <u>P</u> roject <u>T</u> o E 📼 🕒 🗈 🏛	ools <u>O</u> ption:	з <u>H</u> elp 介д 🚐 🔛	XP test	9		
Image: Creation Image: Creation Image: Creation Image: Creation Image: Creation Image: Image: Creation FAQ-124: XP-8xx7-CE6 FAQ HMI_TS_1 (slot 1: I-87054W, slot 2: I-87017RW) Image: Creation FAQ-124: XP-8xx7-CE6 FAQ HMI_TS_1 (slot 1: I-87054W, slot 2: I-87017RW) Image: Creation FAQ-124: XP-8xx7-CE6 FAQ HMI_TS_1 (slot 1: I-87054W, slot 2: I-87017RW) Image: Creation FAQ-124: XP-8xx7-CE6 FAQ HMI_TS_1 (slot 1: I-87054W, slot 2: I-87017RW) Image: Creation FAQ-124: XP-8xx7-CE6 FAQ HMI_TS_1 (slot 1: I-87054W, slot 2: I-87017RW) Image: Creation FAQ-124: XP-8xx7-CE6 FAQ HMI_TS_1 (slot 1: I-87054W, slot 2: I-87017RW) Image: Creation FAQ-124: XP-8xx7-CE6 FAQ HMI_TS_1 (slot 1: I-87054W, slot 2: I-87017RW) Image: Creation FAQ-124: XP-8xx7-CE6 FAQ HMI_TS_1 (slot 1: I-87054W, slot 2: I-87017RW)							
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1.3.2 ISaGRAF Program Description

This ISaGRAF demo example is to receive/control the DI/DO module I-87054W and AI module I-87017RW, read/write the system date and time of the XPAC, and use the getting data to apply with three HMI web pages – I/O modules, Application, and Modify Time three Web HMI pages.

Project Structure :

There are two programs in this example project:

- LD1: Read/write system date/time, and receive date/time setting from HMI.
- ST1 : Convert the Integer value received from AI module to Real value (Range: -10 ~ +10V) for showing the normal voltage value on the HMI.

- ISaGI	RAF - HMI_TS_1 - Programs	- 🗆 🗙
<u>F</u> ile <u>M</u> ak	e <u>P</u> roject <u>T</u> ools De <u>b</u> ug <u>O</u> ptions <u>H</u> elp	
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Begin:	HIC LD1 system date and system time	
	🕮 ST1 convert AI_17_N to AI_17_Nc ((integer to real)

Variable Definition :

Name	Туре	Attribute	Network Address	Description
DO54_1~8	Boolean	Output	20 ~ 27	I-87054W module digital output: DO
DI54_1~8	Boolean	Input	30 ~ 37	I-87054W module digital input: DI
To_Set_date	Boolean	Internal	68	Triggered to set the new date (from HMI)
To_Set_time	Boolean	Internal	69	Triggered to set the new time (from HMI)
Year1 Month1 date1 Weekday1 Hour1 Minute1 sec1	Integer	Internal	1~7	Read the date/time values from system to show on the HMI
Year2 Month2 date2 Hour2 Minute2 sec2	Integer	Internal	61 ~ 63 64 ~ 67	Receive the date/time setting values from HMI to write the new date/time values to the system. (Weekday value is provided by system, so there is no Weekday2, just Weekday1 only.)
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AI_14_0 ~ 7	Integer	Input	No)	I-870 Befor	17RW A e conve	nalog input: A rting.	Al.	
AI_14_0c~7c	Real	Internal	40)~55	I-870 After	17RW A convert	I Analog input ing to Real.	t: Al.	
				<u> </u>	-	15			

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I/O Connection :

📷 ISaGRAF - HMI_TS	_1 - I/O conn	nection – 🗆 🗙
<u>File Edit T</u> ools <u>Options</u>	<u>H</u> elp	
🖆 🖻 🏠 🖄 🎁 🕇	ለ ብ 🖓 🕻	X 🖴
0		▶ ::::) ref = 87054A
m i_87054		1 DI54_1 (* input 1 in the I-87054W board *)
🗖 📼 D18	л 🔶	2 DI54_2 (* input 2 in the I-87054W board *)
- 📼 DO8	л 🔶	3 DI54_3 (* input 3 in the I-87054W board *)
2 💷 i_87017a		4 DI54_4 (* input 4 in the I-87054W board *)
- 📼 AI8	~ ◆	5 DI54_5 (* input 5 in the I-87054W board *)
🕘 📼 Alarm_H	лф	6 DI54_6 (* input 6 in the I-87054W board *)
🕘 📼 Alarm_L	лф	7 DI54_7 (* input 7 in the I-87054W board *)
3		8 DI54_8 (* input 8 in the I-87054W board *)

1.3.3 Download the ISaGRAF Project to the XP-8xx7-CE6

1. Link Setup – Setting the Ethernet communication between PC and PAC

Click "Link setup". Then select "ETHERNET" option. Click "Setup" to set the XPAC's IP address and Port number 502.

If you use RS-232 to download the ISaGRAF program, please refer to section 4.3 of http://www.icpdas.com/en/download/show.php?num=343&nation=US&kind1=&model=&kw=isagraf.

File <u>Make Project Iools Debug Options H</u> elp
Begin: How LD1 system date and system time Link setup ST1 convert AI_17_N to AI_17_Nc (integer to real)
PC-PLC link parameters Target Slave Number:
Communication port: ETHERNET Cancel
ETHERNET link parameters
Port number: 502 The Workbench uses the WINSDCK.DLL library for TCP-IP communications. Ensure that this file is correctly installed on the hard disk.
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1.4 HMI webpage in the example

The HMI webpage in this example and

http://www.icpdas.com/en/download/show.php?num=343&nation=US&kind1=&model=&kw=isagraf are edited by "Microsoft Office FrontPage 2003" software (or later version), you can choose your familiar webpage software to design your Web HMI.

Please make sure you have downloaded and decompressed all the FAQ-124 files following the steps in section 1.1. Now you have the **Web HMI example files:** "xphmi_t1" folder.

1.4.1 Download the Web HMI files to the controller

1. Copy all files in the "xphmi_t1" folder to the controller via ftp

Run "My Documents" on PC, enter your controller IP to the Address column "ftp://Your PAC IP", ex: ftp://192.168.1.192, it's the same IP you set up in section 1.2.3 for XP-8xx7-CE6. Then switch to the "System_Disk/Temp/HTTP/WebHMI/" directory, copy all files in the "xphmi_t1" folder to it.

😂 ftp://192.168.1.192/System_Di	sk/Temp/HTTP/WebHMI/	
檔案(E) 編輯(E) 檢視(V) 我	的最愛(A) 工具(T) 說明(H)	an 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 19
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:網址① 👰 ftp://192.168.1.192/Syste	m_Disk/Temp/HTTP/WebHMI/	💙 🄁 移至
資料夾 3	× _ 名稱 ▲	大小 類型
 資源回收筒 資源回收筒 資 Internet Explorer ③ 192.168.1.192 ④ Application Data ④ Email_ETH ④ My Documents ④ My Documents ④ Program Files ⑤ System_Disk ● ② Documents and Settive ● ③ Logger ● ③ ICPDAS 	 img msg user_ing application.htm index.htm login.dll login.htm main.dll main.htm menu.htm u3-time.htm whmi_filter.dll 	檔案資料夾 檔案資料夾 檔案資料夾 10.3 KB HTML 文件 384 個 HTML 文件 14.5 KB 應用程式擴充 3.02 KB HTML 文件 12.5 KB 應用程式擴充 14.3 KB HTML 文件 3.43 KB HTML 文件 5.80 KB HTML 文件 22.5 KB 應用程式擴充
	× .	>
	使用者: 匿名	網際網路

You can check the files under the directory **"\SystemDisk\Temp\HTTP\WebHMI\"** in the XP-8xx7-CE6.

2 Run the "rs_wphmi" in the desktop of the controller

Each time updating the HMI files, you have to run the "**rs_wphmi"** program again. Please double click the "**rs_wphmi"** icon on the VGA monitor of the XP-8xx7-CE6.





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1.4.3 Web HMI files Descriptions

The basic Web HMI files and user-defined files in this example (The basic files include 4 htm files, 3 DLL files and 2 folders) :

Туре	Basic File/Folder	Description					
	index.htm	The first default page. DO NOT modify it. The "index.htm" re-directs to the "login.htm" file in 1 to 2 seconds when someone visits the XP-8xx7-CE6 via the Internet Explorer.					
1 htm filos	login.htm	The Web HMI welcome page					
4 mm mes	main.htm	The first page when successfully login. In this example, it's the I/O modules monitor/control page with I-87054W & I-87017RW lamps.					
	menu.htm	The page-menu page, normally on the left on the Internet Explorer, such as this example.					
	login.dll						
3 DLL files	main.dll						
	whmi_filter.dll						
2 folders	./img/	default provided image files - *.jpg , *.bmp , *.gif					
2 1010013	./msg/	default message files – wincon.js & xxerror.htm					
Туре	User-defined file/folder	r Description					
folder	./user_img/	Put user own image files into this folder. In this example, there are many images and animations for lamps, devices					
folder	./user_msg/	Put user-defined javascript file or css file into this folder.					
htm file	Level3 webpage In this example: u3-time.htm	With "u3-" appears in front of the htm file name, ex: "u3-time.htm" in this example is for setting new system date/time, only with High priority username/password can login the Level3 webpage. (Refer to section 1.2.3 for setting username/password)					
htm file	Level2 webpage	With "u2-" appears in front of the htm file name, ex: "u2-Page4.htm". Only with High and Middle priority username/password can login the Level2 webpage. (Refer to section 1.2.3 for setting					

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htm file	Level1 webpage In this example: application.htm	2	The page nar front and be a In this exa application. U monitor/contr buttons for yo Any user succ include low/m (Refer to section	me with valid htr mple, Jser can ol imag ur design essfully iddle/hig on 1.2.3	out "u2-" or ml file name, e "application.h change the ges to your n. login can acce gh priority use for setting use	"u3-" appe ex: "main.htr tm" is a background own imag ess to Level1 ername/pass ername/pass	ars in m"; case d and es or page, word. sword)

The steps to design the Web HMI:

1. Edit the Web HMI pages by your familiar webpage software.

Please **NOTE** some languages or HTML tags are not supported:

- 1. The Web HMI only supports the basic HTML tags. It doesn't support ASP, PHP or JSP or other Page Server language.
- 2. Please do not use <frameset> </frameset> , <frame> </frame> in the Web HMI.
- 3. The object name, object ID, code, variable name and function name is case sensitive. For example, refresh_data() and Refresh_data() is different.

Please refer to the Notes in the Ch-5 of

http://www.icpdas.com/en/download/show.php?num=343&nation=US&kind1=&model=&kw=isagraf for detail information.

2. Add the suitable tags of ISaGRAF Network Address No. to the monitor/control image or text in the webpage

The different tags are used for different properties and control/monitor functions. Through the I/O Network Address No. set in the ISaGRAF project to connect the Web HMI and the program, and more to control/monitor the I/O modules and devices.

3. Download the Web HMI files from PC to XP-8xx7-CE6 via FTP

Follow the steps in section 1.4.1 and 1.4.2.

For more Web HMI demo examples and detail designing descriptions, please refer to the CHAP. 3~5 of http://www.icpdas.com/en/download/show.php?num=343&nation=US&kind1=&model=&kw=isagraf. This getting started can be also found in the XP-8xx7-CE6