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Soft-GRAF Application - Data Logger

This paper lists the way to build a data logger application in an ISaGRAF WinCE PAC by using the Soft-GRAF HMI software. User may download this document "fag158.pdf" and the example program "faq158.pia" from http://www.icpdas.com/faq/isagraf.htm > FAQ-158.

The following ISaGRAF driver version support the Soft-GRAF 's "g Logger1" HMI object.

WP-8xx7: driver Ver. 1.53 or later VP-25W7/23W7: driver Ver. 1.45 or later XP-8xx7-CE6: driver Ver. 1.33 or later WP-5147 : driver Ver. 1.02 or later XP-8xx7-ATOM-CE6: driver Ver. 1.01 or later

User may download the new ISaGRAF driver from the following Web site. http://www.icpdas.com/products/PAC/i-8000/isagraf-link.htm

The Soft-GRAF Studio supports the "g Logger1" HMI object starting from its version 1.07 and later version. User may download it from the following web site. http://www.icpdas.com/fag/isagraf.htm > FAQ-146.

The "g Logger1" HMI object can record up to 20 data automatically in the ISaGRAF WinCE PAC by the sampling rate set by the designer. It creates one file in each day to record the specified data. The data type can be Boolean, 16-bit signed integer, 32-bit signed integer and 32-bit Float. The "g Logger1" also supports to upload the data file automatically to a PC by ftp at a preconfigured hour (here PC is a ftp server). Or PC may run ftp to connect the ISaGRAF WinCE PAC to download the data file (here PC is a ftp client).



Soft-GRAF demo for g Logger1

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1.1 Description of the ISaGRAF example program

The "faq158_demo.zip" from <u>http://www.icpdas.com/faq/isagraf.htm</u> > FAQ-158 includes one ISaGRAF example program "faq158.pia" . Please restore it to the PC / ISaGRAF as the following figure.



Then download this program to the ISaGRAF WinCE PAC . User may refer to the section 1.1 , 1.2 and section 2.1 of the "ISaGRAF User's manual" if not familiar with the ISaGRAF software. The manual resides at http://www.icpdas.com/products/PAC/i-8000/getting_started_manual.htm (about 11MB) .

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There is one	ISaGRA <u>F</u> ile <u>M</u> ake	F - FAQ158 - Project Tools	Dehug Options Help					
Global varia	1 -	(Structured Te	xt)	Descriptic	<u>n</u>			
INIT	Boolean	Internal			,,,,			
	Integer		PAC 's year, i.e. 2012					
Year1								
Year1 Month1	v	Internal						
Month1	Integer	Internal Internal				31)		
	Integer Integer		PAC 's month-da PAC 's week-day	ay, i.e. 15 (ca	an bé 1 to 3	31)		
Month1 Day1	Integer	Internal	PAC 's month-da	ay, i.e. 15 (ca /, i.e. 2 (Tue:	an bé 1 to 3	31)		
Month1 Day1 Week1	Integer Integer Integer	Internal Internal	PAC 's month-da PAC 's week-day	ay, i.e. 15 (ca /, i.e. 2 (Tue: 15	an bé 1 to 3	31)		
Month1 Day1 Week1 Hour1	Integer Integer Integer Integer	Internal Internal Internal	PAC 's month-da PAC 's week-day PAC 's hour, i.e.	iy, i.e. 15 (ca /, i.e. 2 (Tue: 15 e. 46	an bé 1 to 3	31)		
Month1 Day1 Week1 Hour1 Minute1	Integer Integer Integer Integer Integer	Internal Internal Internal Internal	PAC 's month-da PAC 's week-day PAC 's hour, i.e. PAC 's minute, i.	ay, i.e. 15 (ca /, i.e. 2 (Tues 15 e. 46 .e. 18	an bé 1 to 3 sday)	31)		
Month1 Day1 Week1 Hour1 Minute1 Second1	Integer Integer Integer Integer Integer Integer	Internal Internal Internal Internal Internal	PAC 's month-da PAC 's week-day PAC 's hour, i.e. PAC 's minute, i. PAC 's second, i	iy, i.e. 15 (ca /, i.e. 2 (Tue: 15 e. 46 .e. 18 it NetWork ad	an bé 1 to 3 sday) dr as 1			
Month1 Day1 Week1 Hour1 Minute1 Second1 V1	Integer Integer Integer Integer Integer Integer Real	Internal Internal Internal Internal Internal Internal	PAC 's month-da PAC 's week-day PAC 's hour, i.e. PAC 's minute, i. PAC 's second, i The first data, se	iy, i.e. 15 (ca /, i.e. 2 (Tue: 15 e. 46 .e. 18 it NetWork ad , set NetWork	an bé 1 to 3 sday) dr as 1 addr as 3			
Month1 Day1 Week1 Hour1 Minute1 Second1 V1 V2	Integer Integer Integer Integer Integer Integer Real Real	Internal Internal Internal Internal Internal Internal Internal	PAC 's month-da PAC 's week-day PAC 's hour, i.e. PAC 's minute, i. PAC 's second, i The first data, se The second data	ay, i.e. 15 (ca 7, i.e. 2 (Tues 15 e. 46 .e. 18 at NetWork ad a, set NetWork ad	an bé 1 to 3 sday) dr as 1 addr as 3 ddr as 5			
Month1 Day1 Week1 Hour1 Minute1 Second1 V1 V2 V2 V3	Integer Integer Integer Integer Integer Integer Real Real Real	Internal Internal Internal Internal Internal Internal Internal	PAC 's month-da PAC 's week-day PAC 's hour, i.e. PAC 's minute, i. PAC 's second, i The first data, se The second data The third data, se	y, i.e. 15 (ca /, i.e. 2 (Tue: 15 e. 46 .e. 18 it NetWork ad , set NetWork ad et NetWork a d and Cos curve	an bé 1 to 3 sday) dr as 1 addr as 3 ddr as 5 avalue			

Author D1 program : To get the cu	- · · ·	Q-158				
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	en SYSDA	eno en YYyear1 MMmonth1 DDday1	/STIM_R eno HH_ + MM_ + SS =		1	
ST1 program: (* To simulate v1 := REAL(s		WW H-week1 V1 and simulate S	in and Cos	value for V2	and V3 va	ariables *)
cycle1 := e1 := REA tStart(T1)	alse ;) ; s; := T#250ms 480 ; AL(2.0 * 3.14	15926 / REAL(cycle	1));			
T1 := T; end_if ; T1_Next : CNT1 := (T#6h then #0s ; := T1 +Interv; CNT1 + 1 ; >= cycle1 t = 0 ;	al1 ;				

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1.2 Descrij	otion of the	Soft-GRAF H	MI project	t					
HMI view of thi	HMI view of this project:								
(w	Soft-GRAF demo for g_Logger1 (www.icpdas.com > FAQ > software > ISaGRAF > 158)								
mA	- Cureve1 - Cureve2 - Cureve3								
100.0 80.0 60.0 40.0 20.0 0.0 NOV.13 2012 TUE	18:10 Pause Res	:00 18:11: ume History	30	18:13:00	18:1	4:30 No. 1			
		Data Logo	jer 1						
directory in the GRAF Studio\"	"faq158_dem normally). Th open this pro	t-GRAF HMI is "FA to.zip" to the directo en run the Soft-GR ject (execute File > ")	ory of your P AF Studio ("	C / Soft-GRA	∖F Studio (F Studio∖So	It is "d:\Soft-			
		Soft-GRAF Studio File Project View He New Open	p n 🔁 🔓 🕻						
g_Label g_Label g_Trend	· : To show th : To show th : To show	our HMI objects as he "Soft-GRAF den he " <u>www.icpdas.co</u> the trend curve e "Data Logger1" bu	no for g_Log m > FAQ > s	ger1" software > IS		158"			
		ge of the "g_Logge er to the document i							
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File format of the "g_Logger1" data :

The "g_Logger1" records data in a file every day. If choosing CSV format, for example, the file name is "g_Logger1_2012_11_13.csv" on the date of Nov.13th,2012. Data files are saved in the following directory if it is November 2012.

WP-8xx7, VP-2xW7, WP-5xx7: \Micro_SD\Soft-GRAF\g_Logger1\2012\11\ XP-8xx7-CE6 and XP-8xx7-ATOM-CE6 : \System_Disk2\Soft-GRAF\g_Logger1\2012\11\

The first row lists the "File Title". The second row lists some "Column Title". The max. amount of the "Column title" is 21. The first "Column title" is Date-Time. The second to 21th are the title of all the 1 ~ 20th data. The other rows starting from the 3th row are the data of each sampling. All title can be displayed as your local language.

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

g_Loger1 Demo (NOV-13-2012 Tuesday)

Date Time,Curve1,Curve2,Curve3

NOV-13-2012 17:15:06,6.0,5.4,27.3

NOV-13-2012 17:15:10,10.0,1.8,36.4

NOV-13-2012 17:15:15,15.0,0.0,49.3

NOV-13-2012 17:15:20,20.0,1.5,62.3

•••

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

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

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g_Logger1 setti If don't want the Data Log g_Logger 1	"File Title", se		nk (then the fi click g_Logger 1	irst row	will become '	ʻColumn Tit	le") .
Setting - 1 Setting - 1 Setting - 1 Setting	etting - 2, Setting - 3	Setting - 4	Setting - 1, Se Font size Fore Color		Setting - 3 Setting 12,Regul	-4] ample rate 59	ecs
File title Time for	g-1 File setting 2 [g_Log mat Show Date, Ho ne 1st column Date	Time	addi varia	ress of	dress are the the ISaGRAI V1", "V2"		
	File setting 2 olumn title De uve1 1 uve2 3 uve3 5 Two emo	click	Value Type Float Float Float Curve3,	Dot 1 1 1 1	New Insert Edit Delete		
The retai The retai	nple rate" settir ning time is 10 ning time is 30 ning time is 3 r ote is one PAC	days if "s days if "s nonths if	sampling rate" sampling rate" "sampling rate	' setting ' setting e" is 1 n	is 1 or 2 or 3 is 5 to 30 se ninute or mor	seconds.	
	(CP DAS (Co., Ltd. Tech	nical do	ocument		

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

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

<u>Logger 1</u> Setting - 1 Setting - 2 Setting - 3 Setting	ing - 4]
🔽 Enable Ftp	FTP Directory Machine2
Transmission Type Ethernet FTP Server IP 192.168.1.170	How1 01:00
Port NO. 21 User name chun	Hour3 none
Password *****	

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

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

3. The "FTP Server IP" means the IP address of the PC which will receive the data file. If the PC is not in the same IP domain as the PAC, set a proper "Default Gateway" setting for the LAN port of the PAC. (You may find the Gateway-IP-address by key-in the "ipconfig" command on the PC which is connected in the same IP domain of the PAC).

<u>U</u> ocumer	nts 🕨	<u> </u>	dit <u>V</u> iew Adva <u>n</u> ced
<mark>⊮</mark> <u>S</u> ettings	Control Panel Image: Control Panel Network and Dial-up Connection Make Taskbar and Start Menu Make Fast Ethernet Adapter' Settings Image: Control Panel Address can be Image: Control Panel Iterse Name Servers Iterse Image: Control Panel Iterse<		
	Sale twork and Dial-up Co		LAN1
@ <u>R</u> un	Control Panel Network and Dial-up Connection Taskbar and Start Menu It Fast Ethernet Adapter' Settings OK It Fast Ethernet Adapter' Settings Iddress Name Servers IP address can be omatically assigned to this nputer. If your network as not automatically assigned to this nistrator for an address, then type it in the space wided. Obtain an IP address IP Address: 192.168.1.181 Subnet Mask: 255.255.255.0 Default Gateway: 192.168.1.1		
 Help Network and Dial-up Connective Run Taskbar and Start Menu Taskbar and Start Menu LAN11 Fast Ethernet Adapter' Settings 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 			ок 🔀
IP A	elp Network and Dial-up Connection Make AN1 In Taskbar and Start Menu LAN1 Fast Ethernet Adapter' Settings or Pathology (Constant) 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		
		-up Connection Make Make New Co apter' Settings or Of Obtain an IP address via DHCP this rk sign twork IP Address: Subnet Mask: 255.255.255.0	
cor	nputer. If your network	⊙ <u>S</u> pecify an IP add	dress
	· -	IP <u>A</u> ddress:	192.168. 1 .181
adr	ninistrator for an address,		255.255.255.0
		Default <u>G</u> ateway:	192.168.1.1
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"Transmission" SIM card. (for e Then follow ste	To send data file to a remote PC / ftp server by 2G / 3G dial-up wireless connection, set the 'Transmission Type" as "2G/3G Wireless". And this PAC requires a 2G/3G I/O module and a SIM card. (for example, the I-8212W-3GWA : <u>http://m2m.icpdas.com/i-8212w-3GWA.html</u>). Then follow steps listed in the section 1.1 and section 1.2 of the following web site to setup the 2G/3G I/O module . (<u>http://www.icpdas.com/faq/isagraf.htm</u> > FAQ-143).										
	g_Logger 1					×					
	Setting - 1	Setting - 2 S	Setting - 3 Setting	- 4]							
	🔽 Enable	Ftti	F	TP Directory	/ \Machine2	1					
	Transmiss		/3G Wirele	our to uploa	ď						
	FTP Serve	er IP 192.168.1	1.170)1:00 🔻						
	Port NO.	21			ione 💌 🔪						
	🔽 Usern	ame chun	— н	our3 r	ione 💌						

Password

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

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

► ISaGRAF - FAQ158 - Global integers/reals					
	🖴 🔾 🖸 🤇) 📲 (× 🗈 💰 📉 🗃		
Booleans Integers/R	eals Timers Mes	sages FE	Binstances Defined words		
Name	Attrib.	Addr.	Comment		
minute1	[internal,integer]	1			
second1	[internal,integer]	0000			
			//		
v1	[internal,real]	0001	Value of Curve 1 , set addr. = 1		
v 2	[internal,real]	0003	Value of Curve 2, set addr. = 3		
v3	[internal,real]	0005	Value of Curve 3, set addr. = 5		
			//		
CNT1	[internal,integer]		for simulating Sin and Cos curve		
cycle1	[internal,integer]		for simulating Sin and Cos curve		
e1	[internal,real]	0000	for simulating Sin and Cos curve		
			//		
ftp_year	[internal,integer]	0015	addr.=21		
ftp_month	[internal,integer]	0016	addr.=22		
ftp_day	[internal,integer]	0017	addr.=23		
ftp_command	[internal,integer]	0018	Set 1 to let Soft-GRAF to send a file (then auto reset as		
ftp_result	[internal,integer]	0019	1:busy,21:succeed,101:no file,102:ftp fail,103:ftp disak		
ftp_progress	[internal,integer]	001A	0 ~ 100 means progressis 0 ~ 100		
			//		

Then do the following settings in the g_Logger1.

|--|

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Then run	the "F	TP_Loader.ex	ke" in a PC	C to do the	Address	Setting".		
	, FTP I	_				Ū		
			a tha data fi					
	Soft-C	Jtility is for loadir GRAF g_Alarm of	rg_Loggerfi	rom the				
	15861	RAF PAC to the f	.p server.					
		e select the data .oad " button.	a file date to	load, then a	dick			
	Year		lonth :	Day:				
	2012	▼ 1	1 💌	14 Address Setti				
	Status			Address Sett				
				1				
	🖷 Fo	rm?		Load				×
_								
	Ftj	p-Year address	21		Ftp command a	address 24		
	Ftj	p-Month address	22		Ftp result addre	25		
	Ftj	p-day address	23		Ftp progress ad	ddress 26		
	P/	AC Net-ID	1				Setting	
	PAC	IP Address	192	168	1	180		\sim
							Back	

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Then after, key- file to the PC / f		d click the	e "Load" butto	n to con	nmand the P	AC to uploa	d the data

🐂 FTP Loader	🐃 FTP Loader 📃 🖂 🗙						
This Utility is for loading the data file of the Soft-GRAF g_Alarm or g_Logger from the ISaGRAF PAC to the ftp server.							
Please select th the "Load " butto		to load , then click					
Year:	Month :	Day:					
2012 💌	11 💌	14 💌					
-		Address Setting					
Status							
		Load					