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How to test an Ethernet/Internet connection by using the ISaGRAF PAC?

ICP DAS ISaGRAF WinCE-based PAC provides a useful "Ping_IP" function that can be used to check if the connection between the ISaGRAF PAC and the remote Ethernet/Internet devices is working properly? (E.g., ICP DAS's <u>Ethernet I/O</u>, <u>I/O Expansion Unit</u>, <u>PAC</u> or PC) It is convenient for on-site personnel to grasp the running state of equipment quickly and easily to manage the remote Ethernet/Internet devices.





tPET Series or PET-7000

1.1. Download/Update the ISaGRAF Driver

The "Ping_IP" function is supported by the following ISaGRAF driver versions:

ISaGRAF WinCE-based PAC	ISaGRAF Driver Version
XP-8xx7-CE6	Ver. 1.49 or later
XP-8xx7-Atom-CE6	Ver. 1.04 or later
WP-8x47/8x37	Ver. 1.69 or later
WP-5147	Ver. 1.14 or later
VP-25W7/23W7/4137	Ver. 1.61 or later

Download the ISaGRAF Driver:

If the version number of your driver is earlier than the one indicated,

go to <u>ISaGRAF Web Page</u> > Download – <u>Driver</u> or

http://www.icpdas.com/root/product/solutions/softplc_based_on_pac/isagraf/isagraf.html to download the latest ISaGRAF Driver (e.g., wp-8x47-1.69.zip) and then update the ISaGRAF PAC by following the instructions contained in the zip file.

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1.2. Download/Restore the ISaGRAF file

1.2.1. Download the ISaGRAF file

Go to <u>ISaGRAF Web Page</u> > Download – <u>FAQ</u> > FAQ-175 to download the "faq175_demo.zip" file. This file includes this document and the ISaGRAF file ("ping_ip.xia").

1.2.2. Restore the ISaGRAF file

Unzip the file and then restore the ISaGRAF file ("ping_ip.xia") to the PC/ISaGRAF.

- 1. Click the menu bar "Tools > Libraries" to open the "ISaGRAF Libraries" window.
- 2. Select the "I/O complex equipments" option in the drop-down lists.





- Click the menu bar "Tools" > "Archive" to open the "Archive – I/O complex equipments" window.
- Click "Browse", find out the location of the "ping_ip.xia" file (e.g., "D:\DEMO")
- Click "ping_ip" and then click the "Restore" button to restore the file to the ISaGRAF Workbench.

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1.2.3. Description of the "ping_ip" function										
After restoring the "ping_ip.xia" file, users can see more details by selecting the "ping_ip" in the "I/O										
complex equ	ipme	ents" drop-dow	n option o	of the "ISaG	iRAF – Librai	ries" window.	(Refer to <u>Sec</u>	<u>ction 1.2.2</u>).		
📸 ISaGRAF -	Libr	aries						- 🗆 ×		
<u>File E</u> dit <u>T</u> ool	ls <u>O</u> p	tions <u>H</u> elp								
IO complex equip	pment:		ernet Alater	i 🖴 🛛	lan					
i8717z20		IY_IP . TESTEUT	emer (mie		1011 .					
i8ke kev init	***	Target :								
Icd_init		Target 1: WP-8>	∝7 (driver	version 1.6	9 or later)	47				
mbus_asc	asc Target 2: VP-25W7 / 4137 (driver version 1.61 or later) Target 3: XP-8xx7-CE6 / 8xx6-CE6 (driver version 1.49 or later)									
mbus_tc2 mbus_tcn		Target 4: WP-5>	∝7 (driver	version 1.1	4 or later)					
mmicon										
ping ip	1. I	te: f wish to test the	connection	n between P	AC and Intern	et, please set	proper "Gatew	/ay''		
rdn rdn new	set	tings. f test only local	Ethernet co	nnection th	en "Gateway'	" may not be no	Pressary			
rdn_new2	3. 0	One PAC can use	only one '	'Ping_IP'' . [)on't use two	or more.				
rtu_sia∨ rtu_si∨2	4. \ 5. \	When Ping succi When Ping fail, i	ess, return t will try on	Boolean ch: e more time	annel as TRU . If still fail, th	en return Bool	ean channel a	is FALSE.		
s256_512 schedule	E									
sms	par	ameter :								
soft_grf tcp_clie	I IP	1 ~ IP 30 : T	he IP addre	ss of target	s.Set as "N/	A'' if wish to dis	sable it.			
tcp_para	_	For exa	mple, 192.	168.1.100 c	r 52.19.125.	242 or N/A				
vip	In	terval_1 ~ Inter	val_30 : U	Init is secon	d. The interv	al to send one	"ping" comma	nd . Value		
×107 ×116	car (24	hours) will use	seconds . S as 86400 .	setting smal	ler than 6 wil	l use as 6. Sett	ing greater th	an 86400		
x119		-						•		
			ICP DAS	Co., Ltd. Te	echnical Doc	ument				

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1.3. How do I use the "Ping_IP" function?

1.3.1. Create an ISaGRAF project

Click the "Create new project" tool button to add a project (e.g., "IP_TEST1").

🔯 ISaGRAF - Pi	oject Manageme	at		
<u>File E</u> dit <u>P</u> roject	<u>T</u> ools <u>O</u> ptions	<u>H</u> elp		
	💼 🔟 🚝 🔒 1) 🕂 🖶 🎦 test 🛛 🤺	요 .	
creatio Creat test_msy	e new project Read Mesage	Create new project		×
demoUl m demoO2 demoO3	Soft-GRAF Stu Soft-GRAF Stu Soft-GRAF Stu	Name: IP_TEST1		
		ID configuration: (none)	.	Cancel

1.3.2. The ISaGRAF variables table

We would like to use two Boolean variables (i.e., "OK1", "OK2") to show the connection status between the ISaGRAF PAC and Ethernet/Internet devices.

Name	Туре	Attribute	Description
OK1	Boolean	Input	To test the IP1. "True" means the connection is OK; "False" refers to cable problem or connection failed.
ОК2	Boolean	Input	To test the IP2. "True" means the connection is OK; "False" refers to cable problem or connection failed.

1. Mouse double-click the "IP_TEST1" project and then click the "Dictionary" tool button.

🔯 ISaGRAF - Proj	ect Management
<u>File Edit Project I</u>	lools Options Help
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ip test1	
m test_msg	- ISaGRAF - IP_TEST1 - Programs
demo01	<u>File Make Project Tools Debug Options H</u> elp
uemouz	🖹 🔟 🚭 🖽 🗋 🛅 🗮 🎽 🐛 💷 🙀 🔍 🖳 😫
	Dictionary
	Version for ICB DAS i 71884 80000//invel/Mincon pavies controllers only
	Version for rep-basi-2 rook-book/view/wincon series controllers only
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2. Click the "Quick declaration" tool button to quickly declare boolean variables (i.e., "OK1", "OK2"), enter a number (i.e., "from 1 to 2") in the "Numbering" field, enter a name (i.e., "OK") in the "Symbol" field and select the "Input" attribute, then click the "OK" button to finish the setting.

🏷 ISaGRAF - IP_TEST1 - Global booleans	- 🗆 X
<u>File Edit Tools Options H</u> elp	
Booleans ntegers/Reals Timers Messages FB instances Det Quick declaration	
Quick declaration	<u> </u>
Numbering: DK From: 1 To: 2 Digits: auto Cancel	-
Version for ICP-DAS i-718 Name: OK ##	
Attributes: Internal Constant Constant	

3. Click the "Save" button to save the settings and click the "X" (on the top-right corner) to close the window.

als Save Me: Attrip. [input] [input]	ssages FE Addr. 0000	instances Defined words	
als Save Me: Attrip. [input] [input]	ssages FE Addr. 0000	instances Defined words Comment	
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rue)			
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1.3.3. I/O Connection – add the "ping_ip" function

1. Click the "I/O Connection" tool button and then double-click the "Slot 9" in the setting window.

<u>File Make Project Tools Debug Options H</u> elp
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I/O connection
■ ISaGRAF - IP_TEST1 - I/O connection
File Edit Tools Options Help

Click the "Equipments" option and select the "ping_ip" function, then click "OK" to end the setting.
 <u>Note:</u> One PAC can use only one "ping_ip" function. It provides six IP groups and each group can set five IP addresses.



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 Click the "IP_01_05" and double-click the "IP_2" to set the IP address (e.g., "192.168.71.19"), then try to set the "Interval_2" to "10" and set the "Timeout_2" to "2". 								
IP_1 ~ IP_30: The IP address of targets. Mouse double-click the "IP_x" can modify it (Default: the "IP_1" is "192.168.1.100") and set it to "N/A" means this IP address is NO used.								
Interval_x:	The interval to send one "ping" command. The unit is second and the default value is 15 seconds. It can be set to "6" to "86,400" seconds (i.e., 24 hours). This value will be "6" If the setting is less than "6"; this value will be "86,400" if the setting is greater than "86,400".							
Timeout_x:	The timeout settings of the "ping" command. The unit is second and the default value is 3 seconds. It can be set to "2" to "30" seconds. This value will be "2" If the setting is less than "2"; this value will be "30" if the setting is greater than "30".							
Note: The "Interval_x" value should be at least the triple of the "Timeout_x" value. Or the PAC will use the triple of the "Timeout_x" value. For example, if set the "Timeout_1" to "10" and set the "Interval_1" to "20", the PAC will use "30" (i.e., 10 x 3 = 30) as the "Interval_1" value.								
ISaGRAF - IP_TESTI - I/O connection File Edit Tools Options Help Image: Participation of the parti								
18 I/O I 19 Para 20 Valu	Board parameter ameter: Interval_2 le: 10		<u>Q</u> K <u>C</u> ancel	I/O Bo Param Value:	eter: Timeout_2		<u>O</u> K Cancel	
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- 4. Mouse double-click the I/O Tag1 to open the "Connect I/O channel #1" window, and it will show the "Input" variables that you declare before. Click the "Connect" twice to connect the "OK1" and "OK2" to the "channel #1" and "channel #2", then click "Close" to exit the window.
- 5. Finally, click the "Save" tool button to save the settings and click the "x" on the top-right corner to exit the window.



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1.4. How to t	est the "ping_i	p" function?							
Before testing, you must download the ISaGRAF project (e.g., "IP TEST1") to the PAC.									
1.4.1. Download	the ISaGRAF pro	ject							
1. Click the me	enu bar "Debug >	Link setup" or 🍡 t	ool butto	on to set the d	ownload IP (i.e., PAC IP).			
2. Click the me	enu bar "Make > N	Make application" or	🎘 too	ol button to re-	-compile this	project.			
		(1) (
1	ile Make Project Tu	nols Debug Ontions Hel	1		×				
				रे 🛛 🕹					
						-			
_		2. Compile	3. Downl	load 1. Se	et the PAC IP				
	PC-PLC lin	k parameters			×				
	Target Slav	/e Number:		<u></u> K					
	Communica	ation port: ETHER	NET	▼ Canc	el				
ETHERNET link parameters									
	Internet address:	192.168.79.112							
	Port number:	502	Cano						
	The Workbench	uses the WINSOCK.DLL							
	library for TCP-IP that this file is corre	communications. Ensure							
		disk.							
3. Click the me	enu bar "Debug >	Debug" or 🙎 tool	button t	o download th	ne "IP_TEST1	"project.			
After downl	oading this proje	ct, the "Debugger" wi	ndow wil	ll show as the	figure below	•			
	Sagraf - IP_I	Ontions Help			- U X				
±	 ३ ▶(≫ ▶	M M 🐼 🦓 🖗							
	RUN allowed=	0 current=3	maxi	imum=3 oʻ	verflow=0				
	n:21:23 [n]: abbu	cation stopped							
L									
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1.4.2. Test the ISaGRAF project

 After downloading the project to the PAC, open the "I/O connection" window (refer to <u>Section</u> <u>1.3.3</u>). As the figure below, if the return value for the variable ("OK1" or "OK2") is "TRUE" that means the connection is successful and "FALSE" refers to the connection failed.

