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How to Make "ISaGRAF WinCE PAC" to Connect to the Internet and Send Data by 2G / 3G wireless Dial-up ? How to get the location by using GPS ?

Sending back the collected data to the control center is necessary in some application. However, there may be no cable can reach the field or the cost of the network wiring is too expensive. ICP DAS released the "ISaGRAF PAC + I-8212W (or I-8213W)" solution for such applications (Or WP-5147 + GTM-201-RS232 or GTM-201-3GWA).

Designers can collect I/O data or other application data by program a PLC application (Ladder, ST, Function block, ...) with ISaGRAF software. Using the device – "I-8212W" or "I-8213W" (insert the SIM card inside that has registered the GPRS service from the Telecom Company) to connect internet by dial-up GPRS, then the PLC can send e-mail or TCP/UDP data to the center.



The following ISaGRAF driver version supports the dial-up GPRS (2G) access with I-8212W . XP-8xx7-CE6: 1.17 or later ; WP-8xx7: 1.37 or later ; VP-25W7/23W7: 1.29 or later

The following ISaGRAF driver version supports the dial-up (3G) access with the I-8212-3GWA (or I-8213W-3GWA).

XP-8xx7-CE6: 1.24 or later ; **WP-8xx7**: 1.44 or later ; **VP-25W7/23W7**: 1.36 or later

If the PAC is **WP-5xx7** (ISaGRAF driver version 1.01 or later), its COM3 (RS-232) can link one GTM-201-RS232 (2G) or GTM-201-3GWA (3G) to dial up .

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If the ISaGRAF driver version of your PAC is older than the above listed version, please visit the http://www.icpdas.com/en/download/show.php?num=368&nation=US&kind1=&model=&kw=isagraf to download the newer driver.

This paper is the ISaGRAF FAQ-143. Users can download the document and demo programs from https://www.icpdas.com/en/faq/index.php?kind=280#751 > **143**.

I-8212W , I-8212W-3GW , I-8213W-3GWA : http://www.icpdas.com/en/product/guide+Wireless__Communication+3G_4G__Products+Modem#596

GTM-201-RS232 (2G) 與 GTM-201-3GWA (3G): http://www.icpdas.com/en/product/guide+Wireless__Communication+3G_4G__Products+Modem#596

Note: Please refer to the section 1.5 for the GPS function in the I-8213W and I-8213W-3GWA.

Note: Please refer to the https://www.icpdas.com/en/faq/index.php?kind=280#751 > **FAQ-151** for the application to deliver files to a remote ftp-server in a PC on the Internet.



2G/3G Wireless Application

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1.1 : Hardware Installation

The I-8212W supports 2G GPRS/GSM. Insert the GPRS SIM card (that registered the GPRS function from the Telecom Company) into the "SIM card" socket of the I-8212W card and make sure the antenna has installed well. (However plug-in a 3G SIM card for the I-8212W-3GW and I-8213W-3GWA)

If your PAC is XP-8xx7-CE6 or XP-8xx6-CE6, plug the I-821xW in its slot 1 (leftmost I/O slot).

If your PAC is WP-8xx7 or WP-8xx6 or VP-25W7/VP-25W6 or VP-23W7/VP-23W6, please plug the I-821xW in its slot 0.

If your PAC is WP-5147, link its COM3 : RS-232 to a GTM-201-RS232 (2G) or GTM-201-3GWA (3G) and set the GTM-201 's SW1 to the "None" position.

Then power on the PAC and run PAC Utility (for example, run WinPAC utility for WinPAC) to setup the "MSA1" port of the I-821xW. Remember to run "File > Save and Reboot" once to save the settings.

If the PAC is XP-8xx7-CE6 / XP-8xx6-CE6, this step is not necessary (MSA1 is already in the XP-8000-CE6).

If the PAC is WP-5147, this step is not necessary (because it is using COM3 not MSA1)

However it is necessary for WinPAC and ViewPAC. Make sure your PAC utility is the version **2.0.2.6** or later version before setup the "MSA1" port. If yours is older version, please visit the below web site to download the utility and update it to the "\System_Disk\Tools\WinPAC_Utility" directory for WinPAC (ViewPAC is "\System_Disk\Tools\ViewPAC_Utility").

WP-8xxx:

http://www.icpdas.com/en/download/show.php?num=2489&nation=US&kind1=&model=&kw=wince5

ViewPAC :

http://www.icpdas.com/en/download/show.php?num=2489&nation=US&kind1=&model=&kw=wince5

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1.2 : Software Installation

Please check the ISaGRAF driver version for your PAC is the correct version that listed in the first page of this document. If not, update it.

Note: Please refer to the https://www.icpdas.com/en/faq/index.php?kind=280#751 > **FAQ-151** for the application to deliver files to a remote ftp-server in a PC on the Internet.

1.2.1 : Install the I-8212W / I-8213W or GTM-201 Driver

Double-click the "icpdas_i-821xw_MSA1_v1.00.cab" file in the path of ISaGRAF PAC: \System_Disk\ISaGRAF\ to install the I-8212W / I-8213W driver if the PAC is WP-8xx7, VP-25W7 or XP-8xx7-CE6.

Double-click the "ICPDAS GTM-201-RS232_COM3_winpac_v1.01.cab" in the path of PAC : \Micro_SD\ISaGRAF\ to install the GTM-201-Rs232 (2G) or GTM-201-3GWA (3G) driver if the PAC is WP-5xx7.

After completing the installation, remember to open the WinPAC Utility (or ViewPAC Utility, XPAC Utility) and run "File > Save and Reboot" to save the settings, then the PAC will restart automatically once. In the below figure, we use XP-8000-CE6 as a sample (XP-8xx7-CE6/ XP-8xx6-CE6, please select "Manual Save To Flash" and then run "File > Save and Reboot").





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| Then click the "Configure …" button. In the "Port Settings" tab, select "Baud Rate" as "115200", "Data Bits" as "8", "Parity" as "None", "Stop Bits" as "1" and "Flow Control" as "None", and then click "Call Options" tab to set up the "Extra Settings" (the settings depends on each of the Telecom Company). For example, the settings provided by a Telecom Company in Taiwan is +CGDCONT=1."IP"."INTERNET" | | | | | | | | |
| +CGDCONT=1, IP, INTERNET | | | | | | | | |
| and a Telecom Company in China is | | | | | | | | |
| +CGDCO | NT=1,"IP","CMI | NET" | | | | | | |
| This configuration includes the "GPRS APN", please contact your SIM card provider (Telecom Company), to get the settings, or you can also visit the web to search the word "GPRS APN" to find the settings. | | | | | | | | |
| Modem | | × | | | | | | |
| 🚱 🛛 GPRS | | | Device Propert | ies | | | ? OK 🕻 | |
| | | | Port Settings | all Options | ; | | | |
| Select a modem: | | | manua Dial (| user supp | Conne lies dial | ction Prefere | | |
| ICPDAS I-821XW M | 1SA1: | <u> </u> | strings) | | Band | Rate [1] | | |
| | Con | figure | Terminals — | | <u>D</u> ata | Bits 8 | × | |
| TCP/IP Setting | Security Se | ttings | Use term | inal windo | w <u>P</u> arity | No No | one 🔽 🔽 | |
| Ter fir betting | <u>Security se</u> | congo | b <u>e</u> tore di | aling | <u>S</u> top | Bits 1 | ~ | |
| | | | | iinal windo | w <u>a</u> fter Elow | Control 🚺 | one 🛛 🗶 | |
| | < <u>B</u> ack | <u>N</u> ext > | | | | | | |
| Device | • Properties | | | | ? OK 🗙 | | | |
| Port S | ettings Call Option | s | | | | | | |
| Call | Cotup | | | | ` | _ | | |
| | Cancel the call if n | ot connecti | ed within 120 | seconds | Must fit the | setting pro | vided by | |
| | Wait for cial tone | before dialir | 1a | 20001100 | the Telecor | n Company | /. Or visit | |
| | Wait for credit | card tone 🖡 | D seconds | | web to seal | rch "GPRS tinge | APN to | |
| | | , | | | | ungs. | | |
| E <u>x</u> tra | Settings (special m | odem comn | hands may be inse sconict." | rted into t | some Tele | com Comp | aiwan s anv | |
| | +CGDCONT | =1, IP , IN | | | | | arry. | |
| | | This p | art is VPN | | | | | |
| | | | | | | ≥:2 | 7 PM 🎅 🔁 | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
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Then get into the "TCP/IP Settings ..." dialog box and follow the same settings as below.

| Modem | |
|--|--------------------------------|
| 🕵 GPRS | TCP/IP Settings OK 🔀 |
| | General Name Servers |
| Select a modem: | GPRS GPRS |
| | Use server-assigned IP address |
| | |
| <u>TCP/IP Settings</u> Security Settings | Use Slip |
| \sim | Use software compression |
| | Use IP header compression |
| < <u>B</u> ack <u>N</u> ext > | |
| TCP/IP Settings | ok 🔀 |
| General Name Se | rvers |

GPRS

DNS: Alt D<u>N</u>S: <u>W</u>INS: Alt W<u>I</u>NS:

Vse server-assigned addresses

| ICP DAS Co., Ltd. | Technical | Document |
|-------------------|-----------|----------|
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Then get into the "Security Settings" dialog box and follow the same settings as below. Afterward, type the phone number for GPRS dial-up, and it must fit for the number provided by Telecom Company, and then click "Finish".

| PDAS I-8 | 321xW MSA1: |
|---------------|---|
| :P/IP S | Settings Security Settings |
| | Security Settings OK 🔀 |
| | Advanced Security Settings |
| | Use Data encryption |
| | Use Extensible Authentication Protocol (EAP) |
| | MD5-Challenge |
| Phone | ✓ Unencrypted password (PAP) ✓ Challenge Handshake Authenticatic ✓ Microsoft CHAP (MS-CHAP) ✓ Microsoft CHAP Version 2 (MS-CHA) |
| 3, | GPRS This Phone number should fit the Telecom |
| Count | Company 's setting. |
| <u>C</u> ount | This example is for some Telcom company |
| Phone | e number: *99***1# |
| E Equ | rce long distance |
| F <u>o</u> r | rcevlocal |
| Don' | 't Check |
| DOI | |

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Next, double-click on the new connection (ex. GPRS) that you have created and get into the "Dial Properties" dialog box, and then get into the "Dialing Patterns" to change the content of those three fields as "G" and click "OK".

| Make Ne Connecti Diale | w GPRS LAN2 LAN1 |
|------------------------------|---|
| | GPRS User Name: Phone: *99***1# Dial from: Work Dial Properties |
| | Domain: Save password Connect Cancel |
| | When dialing from: Work Local settings are: The local area code is: 425 Dialing Patterns The local country/region code is: 1 Dial using: O Tone Pulse O Isable call waiting by dialing: |
| | Dialing Patterns ? OK × Edit the dialing pattern for each type of call to change have the phone is dialed. For Local calls dial: G For Long Distance calls dial: G For International calls dial: G (E,e = Country/Region Code; F,f = Area Code; G,g = Number) |
| | |

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| Now, you need to Name" and "Pass As figure below, and then click "C | Now, you need to make a dial-up connection to check if the GPRS network is OK. Please type the "User Name" and "Password" that provided by the Telecom Company or online search the word "GPRS APN". As figure below, we use a Taiwan SIM card for Telecom Company as an example (keep two fields blank) and then click "Connect" to make the I-8212W or I-8213W (plus SIM card) to start dial-up. | | | | | | | | | |
| Dial- | Up Connection | | Must fit th | ne settir | ng of the | | | | | |
| 5 | GDRS | | Telecom | Compa | iny. | | | | | |
| | | | | | | | | | | |
| E | Jser Name: | | Dial from Work | *99*: 1: | **1# | | | | | |
| |) <u>o</u> main: | | | Dial | Properties | | | | | |
| | <u> </u> | <u>à</u> ave passwo | ord | nnect (| Canc | el | | | | |
| If the connection | is successful, it | will show | up "Connected | ". | • | | | | | |
| | GPRS St | atus | | | | | | | | |
| | 3 7 | Connecte | d | | | | | | | |
| | | | ~ | | | | | | | |
| | Hide this message: Hide Disconnect | | | | | | | | | |
| After successfully connection is find | y connecting, op e (If ping interne | en "Comn t fail, refe | nand Prompt" a r to the next se | nd give a ection 1.2 | a ping comma 2.3). After pir | and to check ng is ok, mus | if the t run | | | |
| "Disconnect", the | "Disconnect", then continue the next important steps . | | | | | | | | | |
| | | | | | | | | | | |
| | | ation • | 2 | | | | | | | |
| 📾 Programs | Command P | colorer | | | | | | | | |
| 👷 F <u>a</u> vorites | isqlw35 | | GPRS Status | 1 | | | | | | |
| 🕒 Documen | its 🛛 🗱 Microsoft V | VordPad | Cor | nnected | | | | | | |
| Settings | ها RegView | | Hid | le this mes | ssane: | Hide | | | | |
| | 🔯 TaskMgr | | | | | Disconnect | | | | |
| | | xplorer | - | | | | 4 🔽 🚍 | | | |
| | | Cincy | | | | / ` | | | | |
| \>ping ww | w.google.com | 3 om 174 12 | 5 153 1041 | | Musta | / liek "Diese | nnoot" | | | |
| Reply from | 74.125.153.104 | : Echo si | ze=32 time=626 | ms TTL=5 | after p | ing is ok. T | Then | | | |
| Reply from Reply from | 74.125.153.104 | : Echo si | ze=32 time=796 ze=32 time=608 | ms IIL=5 ms TTL=5 | follow | the next | | | | |
| Reply from | . 74.125.153.104 | : Kcho si | ze=32 time=797 | ms TTL=5 | ⊻import | ant steps. | | | | |
| | | ICP DAS | Co., Ltd. Techni | cal Docu | ment | | | | | |

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1.2.3 : Important Configuration (DO NOT ignore it)!!

Please must do the following two important settings.

1. If the PAC is going to use the GPRS to go to the internet to send mail, TCP, UDP, data ..., then must clear the gateway settings of LAN1 and LAN2. Or the GPRS will not work. Remember to run the PAC 's utility "File > Save and reboot" once to save the settings.

| ile <u>E</u> dit <u>V</u> iew Adva <u>n</u> ced > | < 🖸 🖬 🖬 🗐 🔛 | |
|---|--|---------------------|
| ake New CONN3 LAN2 Innection | | |
| LANI Fast Ethernet Adapter | ' Settings | OK X |
| 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, | Obtain an IP address via DHCP Specify an IP address IP Address: 192.168.1 Subnet Mask: 255.255.25 | Leave gateway blank |
| provided. | Default Gateway: | |

If your PAC can connect to the Internet by using LAN1 or LAN2, then recommend not to use the GPRS (in such a case, then please set the gateway of LAN1 or LAN2). The reason is LAN1 / LAN2 speed is much faster than the GPRS.

2. In the previous page, the connection has been established. For now, the following configuration is very important and can't be ignored or else it will cause some problem when you connect to the GPRS network using the ISaGRAF program.

If the status of GPRS connection is still "Connected", please click the "Disconnect" button first.

| GPRS St | atus | |
|-----------|--------------------|------------|
| <u> 7</u> | Connected | |
| | Hide this message: | Hide |
| | | Disconnect |

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After that, run the new connection (here is GPRS) and then click "Cancel" (At this time, Do Not click "Connect", you must click "Cancel" first). Finally, run "File > Save and Reboot" in each PAC Utility (ex. "XPAC Utility) to save all the settings (including this and those in the previous section) and then the PAC will restart automatically once.

| | Dial-Up Connection | | |
|---------------------------------|----------------------------|---|--|
| | User Name: | Phone: Dial from: Work | *99***1# |
| | D <u>o</u> main: | password <u>C</u> on | Dial Properties |
| XPAC Ut | ility [1.0.2.5] | | |
| Save Save a <u>R</u> eboo | nd Reboot | This "Cancel" once. Then ru save this "Ca | " operation must set un PAC 's Utility to ncel" setting. |
| Restor E <u>x</u> it | e Utility Default Settings | | |

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1.2.4 : Enable "Dial_up_utility"

"Dial_up_Utility" is a software tool developed by ICP DAS for the GPRS dial-up automatically. It allows an

ISaGRAF program (or VB.net ` C#.net and C program) to connect or disconnect GPRS by sending commands and it can also read the connection status or command status. Please follow the steps below to enable the "Dial_up_Utility". Then, click "Connect" to check if the connection is good and click "Disconnect" to check if the connection is broken. Finally, you need to run "...PAC Utility" and add the "dial_utility.exe" to the list of "Auto-Execution" and then run "File > Save and Reboot" to save the settings.



| Author Chun Tsai Version 1.8 Date Oct.2014 Page 15 / 31 L3 : Function Descriptions for Controlling 2G/3G Connection The ISaGRAF demo program below shows how to use COM_MRTU(999, TRUE) to connect 2G/3G. Set up "connect_GPRS" as TRUE, it will instruct "Dial_up_utility" to connect 2G/3G. (* connect_GPRS and TMP are declared as Boolean / Internal *) if connect_GPRS then connect_GPRS := False ; TMP := COM_MRTU(999, TRUE); (* Connect GPRS *) end_if; The program below shows the way to use COM_MRTU(999, FALSE) to stop the 2G/3G. Set up (disconnect_GPRS" as TRUE, it will command "Dial_up_utility" to disconnect. (* disconnect_GPRS and TMP are declared as Boolean / Internal *) if disconnect_GPRS then disconnect_GPRS then disconnect_GPRS then disconnect_GPRS then disconnect_GPRS then disconnect_GPRS then disconnect GPRS := False ; TMP := COM_MRTU(999, FALSE); (* Disconnect GPRS *) end_if; "he program below shows the way to use COMREAD(999) to read the current status of the 2G/3G command. (* GPRS_state and GPRS_cmd_type are declared as Integer / Internal *) (* GPRS_state:: COMREAD(998) ; (* GPRS_state := COMREAD(999); (* GPRS_cond_type :: Connecting, 8: Connected, 9: Disconnect *) | | ISaGRAF Englis | sh FAQ-143 | • | | | | |
|---|---|--|--|---|--|---|-----------------------|--------------|
| <pre>.3 : Function Descriptions for Controlling 2G/3G Connection he ISaGRAF demo program below shows how to use COM_MRTU(999, TRUE) to connect 2G/3G. Set p "connect_GPRS" as TRUE, it will instruct "Dial_up_utility" to connect 2G/3G.</pre> (* connect_GPRS and TMP are declared as Boolean / Internal *) if connect_GPRS then connect_GPRS := False; TMP := COM_MRTU(999, TRUE); (* Connect GPRS *) end_if; * he program below shows the way to use COM_MRTU(999, FALSE) to stop the 2G/3G. Set up disconnect_GPRS" as TRUE, it will command "Dial_up_utility" to disconnect. (* disconnect_GPRS and TMP are declared as Boolean / Internal *) if disconnect_GPRS then disconnect_GPRS then disconnect_GPRS then disconnect_GPRS = False; TMP := COM_MRTU(999, FALSE); (* Disconnect GPRS *) end_if; * he program below shows the way to use COMREAD(999) to read the current status of the 2G/3G connection and use COMREAD(998) to read the current status of the 2G/3G command. * GPRS_state and GPRS_cmd_type are declared as Integer / Internal *) (* GPRS status: 0: No-action, 1 - 7: Connecting, 8: Connected, 9: Disconnect 4: GPRS_state := COMREAD(999); (* GPRS_comd_type := COMREAD(998); | Author | Chun Tsai | Version | 1.8 | Date | Oct.2014 | Page | 15 / 31 |
| <pre>(* connect_GPRS and TMP are declared as Boolean / Internal *) if connect_GPRS then connect_GPRS := False; TMP := COM_MRTU(999 , TRUE); (* Connect GPRS *) end_if; the program below shows the way to use COM_MRTU(999 , FALSE) to stop the 2G/3G. Set up disconnect_GPRS" as TRUE, it will command "Dial_up_utility" to disconnect. (* disconnect_GPRS and TMP are declared as Boolean / Internal *) if disconnect_GPRS and TMP are declared as Boolean / Internal *) if disconnect_GPRS then disconnect_GPRS := False; TMP := COM_MRTU(999 , FALSE); (* Disconnect GPRS *) end_if; the program below shows the way to use COMREAD(999) to read the current status of the 2G/3G onnection and use COMREAD(998) to read the current status of the 2G/3G command. (* GPRS_state and GPRS_cmd_type are declared as Integer / Internal *) (* GPRS status: 0: No-action, 1 - 7: Connecting, 8: Connected, 9: Disconnected, 10: Others *) GPRS_cmd_type := COMREAD(998); </pre> | 3 : Function E The ISaGRAF de | Descriptions for C mo program bel PRS" as TRUE, it v | Controlling ow shows h will instruct | 2G/3G Connec now to use COI : "Dial_up_utili | c tion M_MRTL ty" to co | J(999 , TRUE) onnect 2G/3G. |) to connec | t 2G/3G. Set |
| <pre>if connect_GPRS then connect_GPRS := False ; TMP := COM_MRTU(999, TRUE); (* Connect GPRS *) end_if; the program below shows the way to use COM_MRTU(999, FALSE) to stop the 2G/3G. Set up disconnect_GPRS" as TRUE, it will command "Dial_up_utility" to disconnect. (* disconnect_GPRS and TMP are declared as Boolean / Internal *) if disconnect_GPRS then disconnect_GPRS then disconnect_GPRS := False ; TMP := COM_MRTU(999, FALSE); (* Disconnect GPRS *) end_if; the program below shows the way to use COMREAD(999) to read the current status of the 2G/3G connection and use COMREAD(998) to read the current status of the 2G/3G command. (* GPRS_state and GPRS_cmd_type are declared as Integer / Internal *) (* GPRS status: 0: No-action, 1 - 7: Connecting, 8: Connected, 9: Disconnected, 10: Others *) GPRS_state := COMREAD(999); (* GPRS command type: 0: No-action, 1: Connect, 2: Disconnect *) GPRS_cmd_type := COMREAD(998);</pre> | (* connec | t_GPRS and TMP a | re declared | as Boolean / Int | ernal *) | | | |
| <pre>connect_GPRS := False ; TMP := COM_MRTU(999 , TRUE); (* Connect GPRS *) end_if; the program below shows the way to use COM_MRTU(999 , FALSE) to stop the 2G/3G. Set up disconnect_GPRS" as TRUE, it will command "Dial_up_utility" to disconnect. (* disconnect_GPRS and TMP are declared as Boolean / Internal *) if disconnect_GPRS then disconnect_GPRS := False ; TMP := COM_MRTU(999 , FALSE); (* Disconnect GPRS *) end_if ; the program below shows the way to use COMREAD(999) to read the current status of the 2G/3G connection and use COMREAD(998) to read the current status of the 2G/3G command. (* GPRS_state and GPRS_cmd_type are declared as Integer / Internal *) (* GPRS_state := COMREAD(999); (* GPRS_command type: 0: No-action, 1: Connect, 2: Disconnect *) GPRS_cmd_type := COMREAD(998);</pre> | if conn | ect_GPRS then | | | | | | |
| <pre>TMP := COM_MRTU(999 , TRUE); (* Connect GPRS *) end_if; he program below shows the way to use COM_MRTU(999 , FALSE) to stop the 2G/3G. Set up disconnect_GPRS" as TRUE, it will command "Dial_up_utility" to disconnect. (* disconnect_GPRS and TMP are declared as Boolean / Internal *) if disconnect_GPRS then disconnect_GPRS := False ; TMP := COM_MRTU(999 , FALSE); (* Disconnect GPRS *) end_if; he program below shows the way to use COMREAD(999) to read the current status of the 2G/3G command. (* GPRS_state and GPRS_cmd_type are declared as Integer / Internal *) (* GPRS status: 0: No-action, 1 - 7: Connecting, 8: Connected, 9: Disconnect, 10: Others *) GPRS_state := COMREAD(999); (* GPRS command type: 0: No-action, 1: Connect, 2: Disconnect *) GPRS_cmd_type := COMREAD(998); </pre> | con | nect_GPRS := Fal | se ; | | | | | |
| end_if; the program below shows the way to use COM_MRTU(999 , FALSE) to stop the 2G/3G. Set up disconnect_GPRS" as TRUE, it will command "Dial_up_utility" to disconnect. (* disconnect_GPRS and TMP are declared as Boolean / Internal *) if disconnect_GPRS then disconnect_GPRS := False ; TMP := COM_MRTU(999 , FALSE); (* Disconnect GPRS *) end_if; the program below shows the way to use COMREAD(999) to read the current status of the 2G/3C command. (* GPRS_state and GPRS_cmd_type are declared as Integer / Internal *) (* GPRS_state and GPRS_cmd_type are declared as Integer / Internal *) (* GPRS_state := COMREAD(999); (* GPRS_comd_type :: Connecting, 8: Connected, 9: Disconnected, 10: Others *) GPRS_ctate := COMREAD(999); (* GPRS_comd_type :: COMREAD(999); (* GPRS_cemd_type :: COMREAD(998); | TMP | := COM_MRTU | (999 <i>,</i> TRU | E); (* Conned | ct GPRS * | ·) | | |
| The program below shows the way to use COM_MRTU(999 , FALSE) to stop the 2G/3G. Set up (disconnect_GPRS" as TRUE, it will command "Dial_up_utility" to disconnect. (* disconnect_GPRS and TMP are declared as Boolean / Internal *) if disconnect_GPRS then disconnect_GPRS := False ; TMP := COM_MRTU(999 , FALSE); (* Disconnect GPRS *) end_if ; The program below shows the way to use COMREAD(999) to read the current status of the 2G/3G connection and use COMREAD(998) to read the current status of the 2G/3G command. (* GPRS_state and GPRS_cmd_type are declared as Integer / Internal *) (* GPRS status: 0: No-action, 1 - 7: Connecting, 8: Connected, 9: Disconnected, 10: Others *) GPRS_state := COMREAD(999) ; (* GPRS command type: 0: No-action, 1: Connect, 2: Disconnect *) GPRS_cmd_type := COMREAD(998) ; | end_if; | | | | | | | |
| The program below shows the way to use COM_MRTU(999 , FALSE) to stop the 2G/3G. Set up disconnect_GPRS" as TRUE, it will command "Dial_up_utility" to disconnect. (* disconnect_GPRS and TMP are declared as Boolean / Internal *) if disconnect_GPRS then disconnect_GPRS := False ; TMP := COM_MRTU(999 , FALSE) ; (* Disconnect GPRS *) end_if ; The program below shows the way to use COMREAD(999) to read the current status of the 2G/3G onnection and use COMREAD(998) to read the current status of the 2G/3G command. (* GPRS_state and GPRS_cmd_type are declared as Integer / Internal *) (* GPRS status: 0: No-action, 1 - 7: Connecting, 8: Connected, 9: Disconnected, 10: Others *) GPRS_state := COMREAD(999) ; (* GPRS command type: 0: No-action, 1: Connect, 2: Disconnect *) GPRS_cmd_type := COMREAD(998) ; | | | | | | | | |
| The program below shows the way to use COMREAD(999) to read the current status of the 2G/3C connection and use COMREAD(998) to read the current status of the 2G/3G command. (* GPRS_state and GPRS_cmd_type are declared as Integer / Internal *) (* GPRS status: 0: No-action, 1 - 7: Connecting, 8: Connected, 9: Disconnected, 10: Others *) GPRS_state := COMREAD(999) ; (* GPRS command type: 0: No-action, 1: Connect, 2: Disconnect *) GPRS_cmd_type := COMREAD(998) ; | if disco | nnect_GPRS th | ien Falso : | | | | | |
| <pre>(* GPRS_state and GPRS_cmd_type are declared as Integer / Internal *) (* GPRS status: 0: No-action, 1 - 7: Connecting, 8: Connected, 9: Disconnected, 10: Others *) GPRS_state := COMREAD(999) ; (* GPRS command type: 0: No-action, 1: Connect, 2: Disconnect *) GPRS_cmd_type := COMREAD(998) ;</pre> | aisc TMF end_if ; | onnect_GPRS := P := COM_MRTU(| (999 , FALS | SE); (* Discor | nect GPF | RS *) | | |
| <pre>(* GPRS status: 0: No-action, 1 - 7: Connecting, 8: Connected, 9: Disconnected, 10: Others *) GPRS_state := COMREAD(999) ; (* GPRS command type: 0: No-action, 1: Connect, 2: Disconnect *) GPRS_cmd_type := COMREAD(998) ;</pre> | disc TMF end_if; he program b onnection and | elow shows the use COMREAD(S | (999 , FALS way to us 998) to read | SE); (* Discor e COMREAD(S d the current st | anect GPF 999) to tatus of t | RS *) read the curr the 2G/3G cor | rent status nmand. | of the 2G/30 |
| 0: No-action, 1 - 7: Connecting, 8: Connected, 9: Disconnected, 10: Others *) GPRS_state := COMREAD(999) ; (* GPRS command type: 0: No-action, 1: Connect, 2: Disconnect *) GPRS_cmd_type := COMREAD(998) ; | TMF end_if ; The program b connection and (* GPRS_state | elow shows the use COMREAD(and GPRS_cmd_typ | way to us 998) to read | SE); (* Discor e COMREAD(S d the current st ed as Integer / In | 999) to tatus of t | RS *) read the curr the 2G/3G cor | rent status nmand. | of the 2G/30 |
| GPRS_state := COMREAD(999) ; (* GPRS command type: 0: No-action, 1: Connect, 2: Disconnect *) GPRS_cmd_type := COMREAD(998) ; | TMF end_if ; The program b connection and (* GPRS_state (* GPRS status | elow shows the use COMREAD(and GPRS_cmd_typ | way to us 998) to read | SE); (* Discor e COMREAD(S d the current st ed as Integer / In | 999) to tatus of ternal *) | RS *) read the curi the 2G/3G cor | rent status nmand. | of the 2G/30 |
| (* GPRS command type: 0: No-action, 1: Connect, 2: Disconnect *) GPRS_cmd_type := COMREAD(998) ; | TMF end_if ; The program b connection and (* GPRS_state (* GPRS status 0: No-action | elow shows the use COMREAD(and GPRS_cmd_typ :: on, 1 - 7: Connectir | way to us 998) to read be are declar | SE); (* Discor e COMREAD(S d the current st ed as Integer / In cted, 9: Disconn | 999) to tatus of ternal *) ected, 10 | RS *) read the curr the 2G/3G cor): Others *) | rent status nmand. | of the 2G/30 |
| GPRS_cmd_type := COMREAD(998) ; | TMF end_if ; The program b connection and (* GPRS_state (* GPRS status 0: No-action GPRS_state | elow shows the use COMREAD(9 and GPRS_cmd_typ :: on, 1 - 7: Connectir := COMREAD(9 | (999 , FALS way to us 998) to read be are declar ng, 8: Conne 99) ; | SE); (* Discor e COMREAD(9 d the current st ed as Integer / In cted, 9: Disconn | 999) to tatus of ternal *) ected, 10 | RS *) read the curr the 2G/3G cor D: Others *) | rent status nmand. | of the 2G/30 |
| | TMF end_if ; The program b connection and (* GPRS_state (* GPRS status 0: No-action GPRS_state (* GPRS_com | elow shows the use COMREAD(and GPRS_cmd_typ :: on, 1 - 7: Connectir := COMREAD(9 mand type: 0: No-4 | way to us 998) to read of are declar ng, 8: Conne 99) ; action, 1: Co | SE); (* Discor e COMREAD(9 d the current st ed as Integer / In cted, 9: Disconn onnect, 2: Discor | 999) to tatus of ternal *) ected, 10 | RS *) read the curr the 2G/3G cor): Others *) | rent status nmand. | of the 2G/30 |
| | TMF end_if ; The program b connection and (* GPRS_state (* GPRS status 0: No-action GPRS_state (* GPRS_com GPRS_cmd_ | elow shows the use COMREAD(and GPRS_cmd_typ :: on, 1 - 7: Connectir := COMREAD(9 mand type: 0: No- _type := COMREA | (999 , FALS way to us 998) to read be are declar ng, 8: Conne 99) ; action, 1: Co AD(998) ; | SE); (* Discor e COMREAD(S d the current st ed as Integer / In cted, 9: Disconn onnect, 2: Discor | 999) to tatus of t ternal *) ected, 10 | RS *) read the curr the 2G/3G cor D: Others *) | rent status nmand. | of the 2G/30 |
| | TMF end_if ; The program b connection and (* GPRS_state (* GPRS status 0: No-action GPRS_state (* GPRS_com GPRS_cmd_ | elow shows the use COMREAD(9 and GPRS_cmd_typ :: on, 1 - 7: Connectir := COMREAD(9 mand type: 0: No-2 _type := COMREA | (999 , FALS way to us 998) to read be are declar ng, 8: Conne 99) ; action, 1: Co AD(998) ; | SE); (* Discor e COMREAD(S d the current st ed as Integer / In cted, 9: Disconn onnect, 2: Discor | 999) to tatus of t ternal *) ected, 10 | RS *) read the curr the 2G/3G cor D: Others *) | rent status nmand. | of the 2G/30 |

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| The following tw | The following two usage is supported from the below ISaGRAF driver version. | | | | | | | | | |
| XP-8xx7-CE6: 1.53 or newerWP-8xx7: 1.74 or newer | | | | | | | | | | |
| VP-25W7/23V | VP-25W7/23W7: 1.65 or newer WP-5147: 1.18 or newer | | | | | | | | | |
| The program below shows the way to use COM_MRTU(998, TRUE) to keep the current 2G/3G connection state when user press "stop application" by PC / ISaGRAF workbench. | | | | | | | | | | |
| (* Keep 2G/3G connection state when user press "Stop application" by PC / ISaGRAF | | | | | | | | | | |
| INIT is Boolean / Internal variable and inited as TRUE | | | | | | | | | | |
| TMP_BOC |) is Boolean / Int | ernal *) | | | | | | | | |
| if INIT the | if INIT then | | | | | | | | | |
| INIT := Fa | INIT := False ; | | | | | | | | | |
| TMP := 0 | OM_MRTU(998 | B, TRUE) | ; | | | | | | | |
| end_if ; | | | | | | | | | | |

When the 2G/3G dial-up state is "connected". The driver will try to ping DNS server and "8.8.8.8" every 15 minutes to test if the 2G/3G communication is ok. If both ping timeout at 15 seconds later, the ISaGRAF PAC will automatically reset the 2G/3G module and then re-dial-up to recover the 2G/3G communication.

If user don't want to ping this "8.8.8.8", can modify it to ping one another ip address (for example, 192.168.71.9). Like as below code.

(* set to ping one another IP address .

INIT is Boolean / Internal variable and inited as TRUE

TMP_BOO is Boolean / Internal *)

if INIT then

```
INIT := False ;
```

TMP_BOO := COM_MRTU(net_addr('192.168.71.9') , TRUE) ;

end_if;

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1.4 : GPRS Demo Programs

User can download related files from https://www.icpdas.com/en/faq/index.php?kind=280#751 > 143, faq143_demo_english.zip, including three ISaGRAF demo files - faq143_1.pia $faq143_2.pia$ and faq143_3.pia, please follow the steps to restore the files into your PC (ISaGRAF) as below figure.

Note: Please refer to the https://www.icpdas.com/en/faq/index.php?kind=280#751 > **FAQ-151** for the application to deliver files to a remote ftp-server in a PC on the Internet.

Note: Please refer to the section 1.5 of this paper for the GPS function built in the I-8213W and I-8213W-3GWA.



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1.4.1 : Demo FAQ143_1 : Send an email with one attached file by GPRS

In the demo FAQ143_1, you can send or receive a short message from cell phone by using the I-8212W or I-8213W (plus SIM card) and you can also send an email with one attached file by connecting GPRS.

If you want to know "how to send/receive a short message from your cell phone to ISaGRAF PAC?", please refer to https://www.icpdas.com/en/faq/index.php?kind=280#751 > FAQ-111.

If you want to know "how to send an email by ISaGRAF PAC?", please refer to https://www.icpdas.com/en/faq/index.php?kind=280#751 > FAQ-067.

First, please modify the program - faq143_1 to fit for your application environment.

1. Please get into the "IO connection" dialog box, modify the "com_port" number used for the SMS.



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| 2. Click the "Dic Message var | tionary" button a iable (to_who). GRAF - FAQ143_1 Make Project Tools | - Programs Debug Op) | y the initial valu tions <u>H</u> elp SaGRAF - F . File Edit <u>I</u> ools | e (the p AQ143_1 Options | hone number | of the SMS r | eceiver) of |
| | | msg rece I_msg ser I_mail_for | Booleans Integer | 🛍 rs/Reals Tii | 💛 🕓 🥝 🌾 mers Messages | 😽 🕼 💰 3 | fine |
| Begin: | rcv_msg (Structured | d Text) | Name data phone date_time to_who Msg_to_sen | Attrib (interr (interr (interr (interr d (interr | Addr. nal] 0000 nal] 0000 nal] 0000 nal] 0000 nal] 0000 | Comment The coming Me *** phone No. Message comi *** phone No co Message to se | essa ofise ngid ifiret endic |
| Ме | essage Yariable | | | | | nail subject. | Max |
| | Name: to_who | | Ne | etwork Addr | ess: | r own *) | 4 |
| | Comment: *** phone l | No of receiver | r, please use your ow | n aximum lenc | ıth: 24 |] | |
| | Attributes Internal Internal Input Output Constant | | <u>S</u> to <u>C</u> an | re cel | ☐ R <u>e</u> tain <u>N</u> ext <u>P</u> revious Egtended | 123456 | |
| 3. Modify the fo | ollowing contents | in the pro | ogram (snd_ma | il). | | _ | |
| TMP := MAIL_ | SET(1 , 'father@ | icpdas.cor | m'); (*Ⅳ | lodify en | nail receiver 8 | k address *) | |
| TMP := MAIL_ | SET(100 , 'go_m a | ao@hotm | ail.com') ; (* N | 1odify er | nail addressei | r & address * |) |
| TMP := MAIL_SET(101 , '168.95.4.211') ; (* Modify the usable mail server IP in the area *) | | | | | | | |
| File Make Project Tools Debug Options Help File Make Project Tools Debug Options Help E Image: Second Control GPRS and SMS Image: Second Control GPRS Image: Secon | | | | | | | |
| | pegin: sna_mail (s | | Co. 1td Toobs | ical Daci | umont | | |

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How to test the demo program - faq143_1?

After finished the modifications of step (1) to (3), please re-compile the program (faq143_1) once to confirm it is correct and then download it to your ISaGRAF WinCE PAC to run. When the connection between the PC (ISaGRAF) and your PAC is normal, the window (as figure below) will show up on the PC screen. If "SMS_available" is "TRUE" that means the connection between PAC and I-8212W (plus SIM card) has been established and now you can send or receive the short message. Please set "K1" as "TRUE", it will start sending a text message to the phone number of "to_who" and then auto set "K1" as "False" immediately. Then, you will see the "Msg_status" value is slowly changing from 1 to 21, that means the sending is successful.

If you want to send an email via the GPRS connection, please set the "Connect_GPRS" as "TRUE" (the settings will auto return to "False" immediately). Now, you will see the "GPRS_cmd_type" changed to 1 (Connect) and the "SMS_available" changed to "FALSE", then the "GPRS_state" will change too. If the "GPRS_state" value finally changes to "9" that means "disconnected" (bad GPRS connection) and if the value is "8" that means "connected" (successful GPRS connection). After connecting the GPRS successfully, you can send an email by setting up the "to_send" as "TRUE" (the settings will auto return to "False" immediately). Before sending the email, the PAC will start to search LAN1, LAN2 and GPRS connection. If the PAC's LAN1 & LAN2 unable to connect to internet (such as the gateway of LAN1 or LAN2 is not set), it will try to send mail by GPRS connection finally. Now, you will see the "EMAIL_progress" value increased slowly from 1 to 100, "100" means the email has been sent out completely (100%). For the next sending, the email will be sent out via GPRS directly.

If you want to break the GPRS connection, please set the "Disconnect_GPRS" as "TRUE" (the settings will auto return to "False" immediately) and you will see the "GPRS_cmd_type" changed to "2 (disconnect)" and the "GPRS_state" value changed to "9 (disconnected)". After some time, the SMS will resume available and you will see the "SMS_available" changed to "TRUE". If it is unable to work correctly, please refer to the section 1.1 & 1.2 to confirm all the settings are correctly and refer to the section 1.4.1 to check if you had modified the demo program to fit for your regional settings.

| 🚊 ISaGRAF - FAC |)143_1:LIST1 - List of | variables _ 🗌 🗙 |
|---------------------------|------------------------|--|
| <u>File Edit</u> Options | <u>H</u> elp | |
| 🗅 🖹 🖴 😤 j | 🗄 🦗 🔍 | |
| Name | Value | Comment |
| GPRS_cmd_type | 2 | Current Cmd. type. 0: No action, 1: Connect, 2: Disconnect |
| GPRS_state | 9 | 0: No-action, 1~7: connecting, 8: connected, 9: disconnected |
| SMS_available | TRUE | is SMS available, connect to SMS - status |
| Connect_GPRS | FALSE | set TRUE to connect GPRS |
| Disconnect_GPRS | FALSE | set TRUE to disconnect GPRS |
| Current_Year | 2011 | |
| Current_Month | 7 | |
| Current_Day | 27 | |
| Current_Hour | 17 | |
| Current_Minute | 53 | |
| Current_second | 10 | |
| EMAIL_state | 0 | 0:Sleep, 1:Busy ,21:server1 , 22:server2 succeed, <0 :Error |
| EMAIL_progress | 0 | progress: 0:No action, 1 - 10:connecting , 11 100 : percent |
| to_send | FALSE | Set as TRUE to trigger to send an email |
| Q1_cnt | 0 | Message coming count |
| Msg_status | 0 | Message sending status |
| to_who | +886958111222 | *** phone No of receiver, please use your own |
| Msg_to_send | | Message to send out |
| K1 | FALSE | Set as True to send a Short Message |
| <end list="" of=""></end> | | |
| | | |
| | | |
| | ICP DAS CO | p., Ltd. Technical Document |

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1.4.2 : Demo FAQ143_2: Send and Receive TCP String (Message) or binary Data by GPRS

The demo program (FAQ143_2) allows connecting the GPRS via I-8212W or I-8213W (plus the SIM card), and then the ISaGRAF PAC can connect to the remote TCP Server via enabling the TCP Client function. When the TCP Client and the TCP Server are online working, the ISaGRAF PAC can send string data (Message, String, one string packet contains up to 255 bytes) or binary data (one binary packet contains up to 512 bytes), and it can also receive the string and binary data from the remote Server (but the receiving function only works while a TCP connection is established). For more information about "How to enable the TCP Client function of ISaGRAF PAC", please refer to the "ISaGRAF User's Manual" - Section 19.3.

For testing the program (faq143_2), you need to prepare a PC as TCP server and apply for a fixed Internet IP (provided by a Telecom Company) and then you can run a TCP Server test program (Tcp3.exe). The file is in the "faq143_demo_english.zip" (you can download it from our website: https://www.icpdas.com/en/faq/index.php?kind=280#751 > 143). Please refer to the following operation to enable the TCP Server.

At first, set up the Internet IP > Subnet mask and Default gateway for the PC (TCP Server).



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| Please copy the f Prompt" and get are correctly. Aft connection is goo program for TCP connect to the TC | ile (Tcp3.exe) int into D:\TCP_ser erward, using "p od. If all of the al Server at Port_N CP Server at Port | to a path ver\ (as th ing 8.8.8. pove oper lo 1505. (:_No. 150 | (such as D:\TC ne figure below 8" command o ration is correo Due to the ISa 5). | P_server\ v), then to or ping ot ct, please GRAF der | .). Next, open ype "ipconfig' her website II type "Tcp3 no program († | the "Windo ' to check if P to check if 1505" to rur faq143_2) in | ws Command the settings the network a the test struct to |
| 🔤 命令提示于 | 芊元 - tcp3 1505 | | | | | | |
| C:∖Documer D:∖> cd to D:∖TCP_sei Windows II | nts and Settin p_server rver> ipconfig ? Configuratio | ıgs \Admiı r | nistrator> d | : | ack these | ettings | |
| Ethernet a | adapter 區域連 | [編: | | Cr | / | settings | |
| Co II Su De D:\TCP_sea | onnection-spec P Address ubnet Mask efault Gateway | ific DN | 3 Suffix . | : : 61.210 : 255.29 : 61.210 | 3.42.10 55.255.0 3.42.1 | | |
| Pinging 8. Reply from Reply from Reply from Reply from | .8.8.8 with 32 n 8.8.8.8: byt n 8.8.8.8: byt n 8.8.8.8: byt n 8.8.8.8: byt | bytes es=32 t: es=32 t: es=32 t: es=32 t: | of data: ime=45ms TTL ime=46ms TTL ime=54ms TTL ime=42ms TTL | =54 =54 =54 =54 | Check Ping | ok ? | |
| Ping stati Packet Approximat Minimu | istics for 8.8 s: Sent = 4, e round trip um = 42ms, Max | .8.8: Received times in cimum = ! | l = 4, Lost milli-seco 54ms, Averag | = 0 (0% nds: e = 46m; | loss), s | | |
| D:\TCP_sei | ver> tcp3 15 | .05 | If : | all are fir | ne, start the | tcp3.exe | |
| TCP∕IP sen Create TCP Waiting fo | rver testing . P/IP server at or client to c | port_Nect. | o=1505 | | | | |
| • | | | | | | | • • |
| | | | | | | | |

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Then, modify the ISaGRAF demo program (faq143_2) to fit for your test environment. The configurations are similar as below and then compile the program.

| ISaGRAF - FAQ143_2 - Programs |
|---|
| <u>File Make Project Tools Debug Options H</u> elp |
| 🕒 🖬 🐵 🕮 🗅 🖻 💼 🚿 🛣 💀 💻 🗖 🖉 🛸 🔛 🚬 |
| Begin: IDI Control GPRS |
| ST1 send a TCP message VO connection |
| ISaGRAF - FAQ143_2 - I/O connection this_ip = GPRS means this |
| File Edit Tools Options Help "tcp_client" use GPRS to connect |
| - 🖆 📼 🗟 🗭 🌐 🗘 🦊 🕞 🕷 🚝 🛛 👘 to the remote ICP server. |
| 0 ► ► III ref = 128A |
| 1 |
| 2 this_ip = GPRS |
| 3 Security_passwd = 0 |
| 4 port1 = 1505 |
| 5 to_ip1 = 61.218.42.10 |
| 6 Send_Time_Gap1 = 250 TCP server 's Port No |
| 7 and IP address. |
| 8 mm to_pcne mm to_p2 - N/A |
| • • • • • • • • • • • • • • • • • • • |
| 10 imm to in3 = N/A |
| 11 Send Time Gap3 = 250 |
| 12 3000 port4 = 14001 |
| 13 to_ip4 = N/A |
| 14 Send_Time_Gap4 = 250 |
| 15 TCP_connection1 (* 1st TCP connection is connected (TRL |
| |
| 17 IRUE means the TCP server is connected. |
| |
| |

| Classification | ISaGRAF English | | | | | | |
|----------------|-----------------|---------|-----|------|----------|------|---------|
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For now, download the ISaGRAF demo program (faq143_2) to the ISaGRAF WinCE PAC by using another PC, if the operation is correctly the window will show up as below. Please set the "Connect_GPRS" as "TRUE" (the settings will auto return to "False" immediately), it will start to connect the GPRS. If the "GPRS_state" is "8" that means it can access GPRS connection ("9", stands for disconnected). Then, set "Send1" as "TRUE" (the settings will auto return to "False" immediately) and it will start to connect to the TCP Server and send an ISaGRAF Message (in this example, it sends "Hello !" to the remote TCP Server). If the connection is normal, the "TCP_connection1" value will change to "TRUE" and the "Tcp3" test program will show up the received data on the PC screen (TCP Server). It will reply the same message to the ISaGRAF PAC and you will see the "Msg_cnt" value plus one, then the "Msg_cnt" value will equal the message you just sent out.

| 🚊 ISaGRAF - FAQ | 143_2:LIST1 - List of vari | ables | |
|---|----------------------------|--|-------|
| <u>File E</u> dit <u>Options</u> | <u>H</u> elp | | |
| 🗅 🕒 🖄 😤 | b ≫ Q | | |
| Name | Value | Comment | |
| GPRS_cmd_type | 1 | Current Cmd. type: 0: No action, 1: Connect, 2: Disconne | ect |
| GPRS_state | 8 | 0: No-action, 1~7: connecting, 8: connected, 9: disconnected | ected |
| Connect_GPRS | FALSE | set TRUE to connect GPRS | |
| Disconnect_GPRS | FALSE | set TRUE to disconnect GPRS | |
| send1 | FALSE | Set as True to send a Message to the TCP server | |
| str1 | Hello ! | Message to send, init as 'Hello !' , len is 255 | |
| TCP_connection1 | TRUE | 1st TCP connection is connected (TRUE) or not (FALSE |) |
| Msg_ont | 2 | Message count has been received. | |
| Received_Msg <end list="" of=""></end> | Hello ! | The recent received Message, len is 255 | |

|):\TCP_server> tcp3 1505 | Here display as Hex. value. |
|---|-----------------------------|
| CP/IP server testing Create TCP/IP server at port_No=1505 | 65h means e |
| laiting for client to connect | 7 |
| 48 65 6C 6C 6F 20 21 Send the same data back to the TCP/IP C Connection Closed. | lient Send 7 bytes - Ok |
| | |
| | |
| | |
| | |

| Classification | ISaGRAF English | | | | | | |
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If you want to send the binary data via TCP_cliet, you need to enable the "eth_tcp" function (one TCP packet can transmit up to 512 bytes and you can send data by using "eth_send" function).

| ISaGRAF - FAQ143_2 - I/O connection | |
|--|----------|
| File Edit Tools Options Help | |
| ····································· | |
| 0 ▲ ::::::::::::::::::::::::::::: | |
| 2 | |
| 3 port1 = 1505 | |
| 4 ▶ Im to_ip1 = 61.218.42.10 | |
| <u>5</u> | |
| 7 3000 to ip2 = N/A | |
| 8 m eth_tcp Send_Time_Gap2 = 250 | |
| ∎ № Socket л. ф зни рогt3 = 19001 | |
| 9 | |
| 10 File Make Project Tools Debug Ontions Help | 2 |
| 12 In Mark Project Form Degreg Spheric Incip | , |
| 13 Begin: IDI Control GPRS Language p | eference |
| 14 ST1 send a TCP mess Library | |
| 5 About | |
| | |
| | |
| C functions | |
| parameter : | |
| Via_: Message send via which protocol ? Valid val | ue i |
| ID : Integer send to which connection 2 Valid value | ie · |
| . integer sena to which connection . value value | |
| AryNo_: Integer the byte-array number to send. Valid va | lue |
| Start_: Integer the starting address inside the byte-array | / to |
| NUM ' Integer number of bytes in the byte-array to su | end |
| item integer number of bytes in the byte-anay to st | |
| | |
| | |

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1.4.3 : Demo FAQ143_3 : Send UDP String (Message) by GPRS

In the demo program - FAQ143_3, after connecting the GPRS by using I-8212W or I-8213W (plus the SIM card), the ISaGRAF PAC can send a string data (Message, String, one string packet contains up to 255 bytes) to the remote UDP Server via enabling the UDP function. UDP is a connectionless protocol that is different from TCP (In the section 1.4.2). For more information about "How to enable the UDP function of ISaGRAF PAC", please refer to the "ISaGRAF User's Manual" - Section 19.2.

For testing the program - faq143_3, you need to prepare a PC as a UDP server and apply for a fixed Internet IP (provided by a Telecom company). Then, you can run a test program (UDP.exe) for UDP Server and the program is in the "faq143_demo_english.zip" (you can download it from our website: https://www.icpdas.com/en/faq/index.php?kind=280#751 > 143). Please refer to the following operation to enable the UDP Server.

At first, please set up the Internet IP Subnet mask and Default gateway for the PC (UDP Server).

| 🕹 區域連線 內容 | ? × |
|---|--|
| 一般 驗證 道階 | Internet Protocol (TCP/IP) 內容 ? |
| 連線使用: ■ D-Link DFE-530TX PCI Fast Etheme 設定 這個連線使用下列項目(Q): ② QoS Packet Scheduler ③ Network Monitor Driver ③ Thtemet Protocol (TCP/IP) ④ ************************************ | ─般 如果您的網路支援這項功能,您可以取得自動指派的 IP 設定。否則,您必須詢問網路系統管理員正確的 IP 設定。 ●自動取得 IP 位址(Q) ●使用下列的 IP 位址(S): IP 位址(I): 子網路遮罩(I): 子網路遮罩(I): 子網路遮罩(I): 子網路遮罩(I): 子網路遮罩(I): ● 自動取得 DMS 伺服器位址(B) ● 使用下列的 DNS 伺服器位址(B) ●使用下列的 DNS 伺服器位址(E): 「慣用 DNS 伺服器(A): 進階(Y) |
| 6 🍾 | 確定 5 取消 |
| | |
| ICP DAS Co., | Ltd. Technical Document |

| assification | ISaGRAF English | n FAQ-143 | 3 | | | | |
|---|---|--|---|--|--|--|---|
| uthor | Chun Tsai | Version | 1.8 | Date | Oct.2014 | Page | 27 / 31 |
| ease copy the fi immand Promp ttings are corre twork connect DP Server test p nd data to the | ile (UDP.exe) int ot" and get into I ectly. Afterward, ion is good. If all program at Port_ UDP Server at Po | o a path (D:\UDP_so using "pin of the ab No 1505. ort_No. 1! | such as D:\UDF erver\ (as figur ng 8.8.8.8" com ove operation (Due to the ISa 505) | P_server e below) nmand o is correc aGRAF de | r\). Next, ope , then type " r ping other v t, please type emo program | n the "Win ipconfig" to website IP t e "UDP 1! n (faq143_3 | dows o check if the to check if the 505" to run th 8) instruct to |
| 💿 命令提示 | 字元 - UDP 1505 | | | | | | |
| C:∖Docume D:∖>cd D:∖VDP_se Windows I | nts and Setti UDP_server rver> ipconfi P Configurati | ngs \Admi g on | nistrator> d | : | heck these | esettings | |
| Ethernet C I | adapter 區域說 onnection-spe P Address | 重線: cific DN | IS Suffix . | : 61.21 | 18.42.10 | | |
| D | efault Gatewa | y | | : 61.21 | 8.42.1 | | |
| D:\UDP_se | rver> ping 8. | 8.8.8 | | | | | |
| Pinging 8 | .8.8.8 with 3 | 2 bytes | of data: | | | ng OK ? | |
| Reply from Reply from Reply from Reply from | m 8.8.8.8: by m 8.8.8.8: by m 8.8.8.8: by m 8.8.8.8: by | tes=32 t tes=32 t tes=32 t tes=32 t | ime=27ms TTL ime=116ms TT ime=27ms TTL ime=25ms TTL | =54 L=54 =54 =54 | | | |
| Ping stat Packe Approxima Minim | istics for 8. ts: Sent = 4, te round trip um = 25ms, Ma | 8.8.8: Receive times i ximum = | d = 4, Lost n milli-seco 116ms, Avera | = 0 (0) nds: ge = 48 | : loss), Ams | Peve | |
| D:\UDP_se | rver> UDP 15 | 05 | II a | li are ili | ie, start OL | JF.exe | |
| Receive m try to cr | essage via UD eate socket | P∕IP, po So | rt No.=1505 ocket Ok. | | | | |
| • | | | | | | | ▼ } |
| | | | | | | | |
| | | | | | | | |

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|-----------------------------------|---|---|--|--|---|--------------------------|--------------|
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| Then, modify the figure below and | ISaGRAF demo then compile th AF - FAQ143_3 - P Project Iools D Project Iools D Project Iools D Project Iools D Project Iools D Project Iools D | program - e program rograms ebug Option D 🔆 🔏 | faq143_3 to finn. | t for you | r test environ | ment, it is siı | nilar to the |
| | ISaGR AF - FAQ14. Edit Tools Option Image: Socket Image: Socket | 3_3 - I/O со oms <u>H</u> elp ↑ ↓ [| Dennection this UD → :::::::::::::::::::::::::::::::::::: | s_ip=GPF P messa 27A ort = 120 = GPRS ty_passv Time_Ga ed = 0 ed | AS means deling ge by GPRS co 01 wd = 0 pp = 250 3.42.10 Port No. and the remote U | vering the onncetion. | of |

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Next, please download the ISaGRAF demo program - faq143_3 to your ISaGRAF WinCE PAC by using another PC. If it is normal, it will show up the window as below.

Set the "Connect_GPRS" as "TRUE" (the settings will auto return to "False" immediately) and it will start to connect the GPRS. If the "GPRS_state" is "8" that means it has connected to the GPRS ("9" stand for disconnected). If it is properly connected to the GPRS, the value of "UDP_IP_ok" will become to "TRUE".

Then, set "Send1" as "TRUE" (the settings will auto return to "False" immediately) and it will send out an ISaGRAF Message (in this example, it sends "Hello !" to the remote UDP server).

Now, the message you sent will show up on the PC screen (UDP Server).



0 Receive 7 bytes 48 65 6C 6C 6F 20 21

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1.5 : Using the GPS function built in the I-8213W and I-8213W-3GWA

The I-8213W and I-8213W-3GWA support both of the GPRS and GPS. To use the GPS function of these two cards, first refer to the setion 1.1 of this document to well configure the MSA1 and MSA2 serial ports in the WP-8xx7 (or VP-25W7, XP-8xx7-CE6). Then make sure your PC / ISaGRAF has the "gps_" installed. If it is not, follow the following steps to restore it to the PC / ISaGRAF. You can find the "gps_.xia" in the ZIP file downloaded at https://www.icpdas.com/en/faq/index.php?kind=280#751 > 143.



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Then connect the "gps_" in the IO connection of your ISaGRAF project. The definition of each integer input channel is as the following figure.

(Next page for the definition of the location)



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|-------------------------------------|----------------------|---|------------|--|---------------|------------|---------|--|--|
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| | | | | | | | | | |
| | | | | | | | | | |
| ISaGRAF - CREATION - I/O connection | | | | | | | | | |
| <u>File Edit T</u> ools | Options <u>H</u> elp | | | | | | | | |
| 🚔 🖻 🗟 🖄 | Ch.1 mea | Ch.1 means the Longitude and Latitude correct | | | | | | | |
| | | i anal ref = | or not. V | or not. Value 1 means correct (Cn.2 and 3 are correct) . However value 0 means incorrect (then Ch.2 and 3 data can not be used) (Ch1 val is auto-modified by the satellite state) | | | | | |
| | ime or t | and Res | correct) . | | | | | | |
| | inn ort | internal Res | (then Ch. | | | | | | |
| | | | (Ch1 val i | | | | | | |
| | | | | | | | | | |
| 2 | | INNO Res | | Ch.2 : Loi | ngitude, unit | is 0.00001 | degree. | | |

Positive val means East , negative means West.

Value can be -17999999 (-179.99999 degree)

to+18000000 (+180.00000 degree)

+9000000 (+90.00000 degree)

Ch.3 : Latitude, unit is 0.00001 degree.

Positive val means North, negative means

South. Value can be -9000000 (-90.00000) to

Reserved = 0

Reserved = 0

Reserved = 0

Reserved = 0

2 🔊 Longitude

3 💽 Latitude

-

🔟 🔊 Longi_Lati_ok

3

4

5

6

7

8

9

10