

|                |                 |         |     |      |          |      |        |
|----------------|-----------------|---------|-----|------|----------|------|--------|
| Classification | ISaGRAF FAQ-158 |         |     |      |          |      |        |
| Author         | Chun Tsai       | Version | 1.1 | Date | Nov.2012 | Page | 1 / 12 |

## 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 “faq158.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>

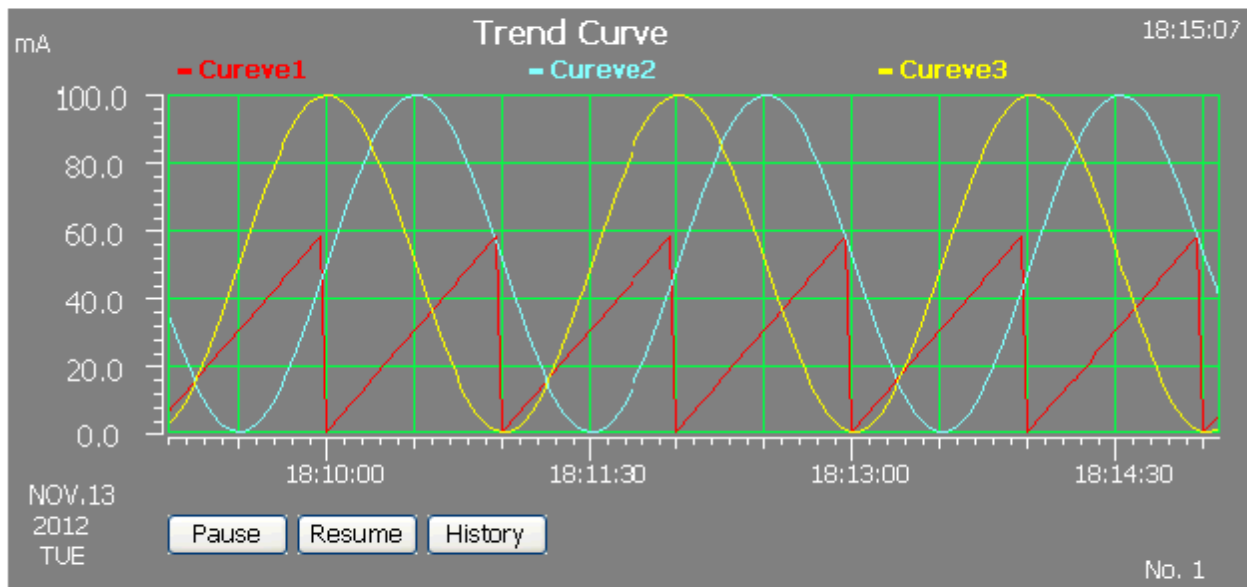
The Soft-GRAF Studio supports the “g\_Logger1” HMI object starting from its version 1.07 and later version. User may download it from the following web site.

<http://www.icpdas.com/faq/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 pre-configured 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

([www.icpdas.com](http://www.icpdas.com) > FAQ > software > ISaGRAF > 158)

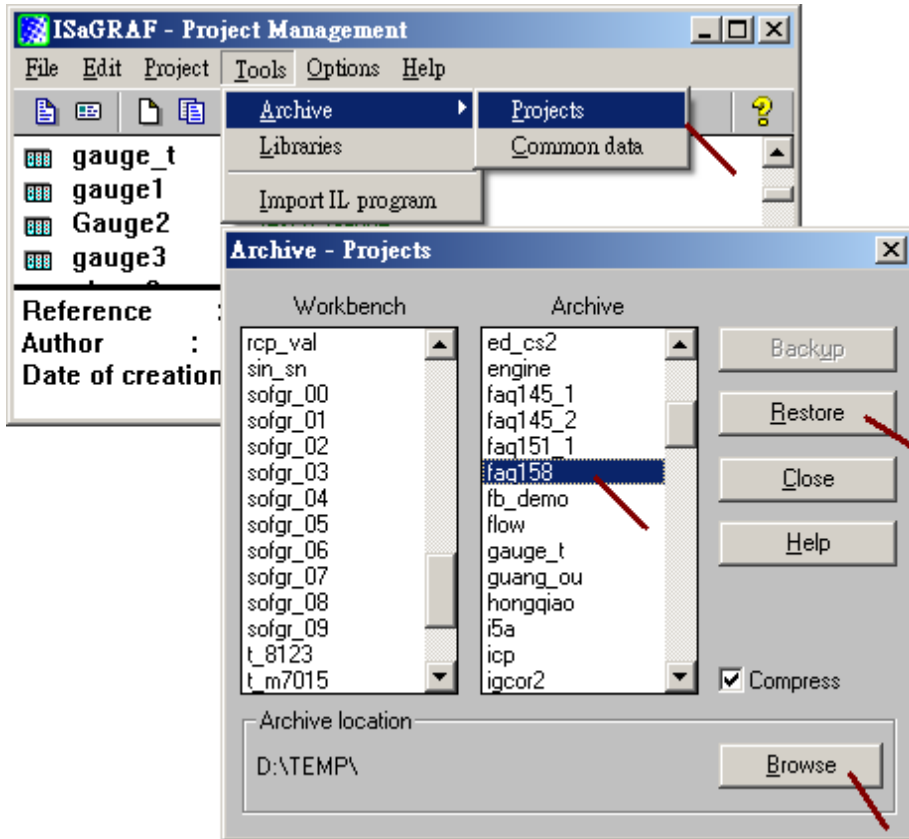


Data Logger 1

|                |                 |         |     |      |          |      |        |
|----------------|-----------------|---------|-----|------|----------|------|--------|
| Classification | ISaGRAF FAQ-158 |         |     |      |          |      |        |
| Author         | Chun Tsai       | Version | 1.1 | Date | Nov.2012 | Page | 2 / 12 |

## 1.1 Description of the ISaGRAF example program

The “faq158\_demo.zip” from <http://www.icpdas.com/faq/isagraf.htm> > 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](http://www.icpdas.com/products/PAC/i-8000/getting_started_manual.htm) (about 11MB) .

|                |                 |         |     |      |          |      |        |
|----------------|-----------------|---------|-----|------|----------|------|--------|
| Classification | ISaGRAF FAQ-158 |         |     |      |          |      |        |
| Author         | Chun Tsai       | Version | 1.1 | Date | Nov.2012 | Page | 3 / 12 |

There is one Ladder and one ST program in the "faq158.pia" project.



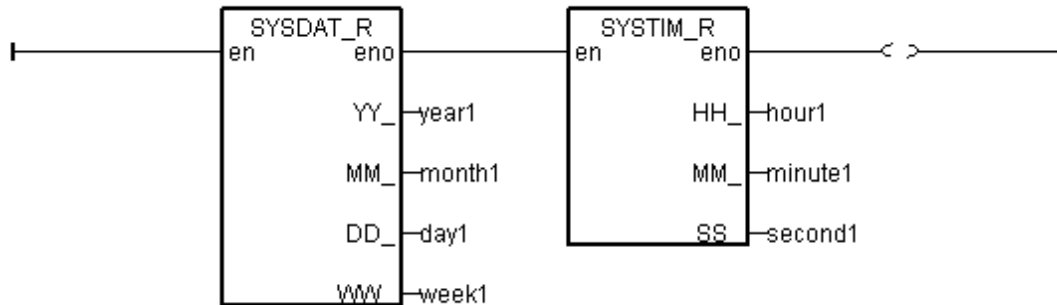
Global variables :

| <b>Name</b> | <b>Type</b> | <b>Attribute</b> | <b>Description</b>                            |
|-------------|-------------|------------------|---|
| INIT        | Boolean     | Internal         | set initial value as <b>TRUE</b> .            |
| Year1       | Integer     | Internal         | PAC 's year, i.e. 2012                        |
| Month1      | Integer     | Internal         | PAC 's month, i.e. 11 (November)              |
| Day1        | Integer     | Internal         | PAC 's month-day, i.e. 15 (can be 1 to 31)    |
| Week1       | Integer     | Internal         | PAC 's week-day, i.e. 2 (Tuesday)             |
| Hour1       | Integer     | Internal         | PAC 's hour, i.e. 15                          |
| Minute1     | Integer     | Internal         | PAC 's minute, i.e. 46                        |
| Second1     | Integer     | Internal         | PAC 's second, i.e. 18                        |
| V1          | Real        | Internal         | The first data, set <b>NetWork addr as 1</b>  |
| V2          | Real        | Internal         | The second data, set <b>NetWork addr as 3</b> |
| V3          | Real        | Internal         | The third data, set <b>NetWork addr as 5</b>  |
| CNT1        | Integer     | Internal         | To simulate Sin and Cos curve value           |
| Cycle1      | Integer     | Internal         | To simulate Sin and Cos curve value           |
| e1          | Real        | Internal         | To simulate Sin and Cos curve value           |

|                |                 |         |     |      |          |      |        |
|----------------|-----------------|---------|-----|------|----------|------|--------|
| Classification | ISaGRAF FAQ-158 |         |     |      |          |      |        |
| Author         | Chun Tsai       | Version | 1.1 | Date | Nov.2012 | Page | 4 / 12 |

LD1 program :

(\* To get the current date and time of the PAC \*)



ST1 program:

(\* To simulate the value of V1 and simulate Sin and Cos value for V2 and V3 variables \*)

**v1 := REAL(second1) ;**

**if INIT then**

**INIT := False ;**

**CNT1 := 0 ;**

**T1 := T#0s;**

**Interval1 := T#250ms ;**

**cycle1 := 480 ;**

**e1 := REAL( 2.0 \* 3.1415926 / REAL(cycle1) ) ;**

**tStart(T1);**

**T1\_Next := T1 +Interval1 ;**

**end\_if ;**

**if T1 >= T1\_NEXT then**

**if T1 >= T#6h then**

**T1 := T#0s ;**

**end\_if ;**

**T1\_Next := T1 +Interval1 ;**

**CNT1 := CNT1 + 1 ;**

**if CNT1 >= cycle1 then**

**CNT1 := 0 ;**

**end\_if ;**

**v2 := 50.0 \* sin( REAL(CNT1)\*e1 ) + 50.0 ;**

**v3 := 50.0 \* cos( REAL(CNT1)\*e1 ) +50.0 ;**

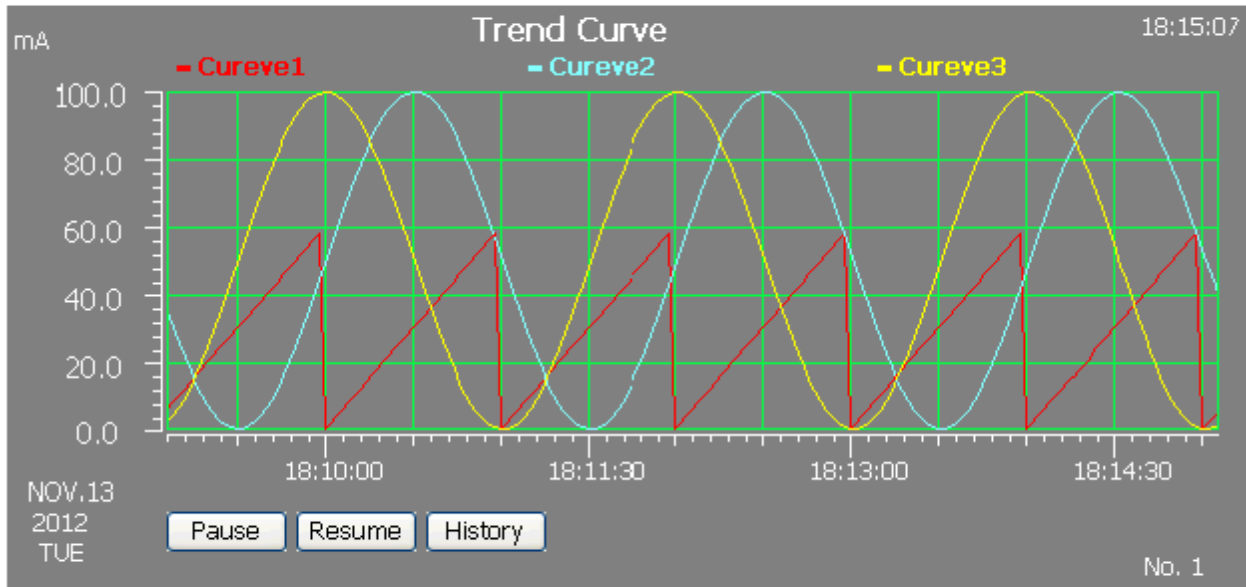
**end\_if ;**

|                |                 |         |     |      |          |      |        |
|----------------|-----------------|---------|-----|------|----------|------|--------|
| Classification | ISaGRAF FAQ-158 |         |     |      |          |      |        |
| Author         | Chun Tsai       | Version | 1.1 | Date | Nov.2012 | Page | 5 / 12 |

## 1.2 Description of the Soft-GRAF HMI project

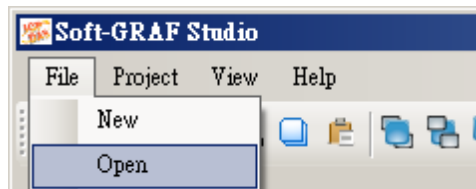
HMI view of this project:

**Soft-GRAF demo for g\_Logger1**  
**([www.icpdas.com](http://www.icpdas.com) > FAQ > software > ISaGRAF > 158)**



Data Logger 1

This demo project of the Soft-GRAF HMI is "FAQ158". Please copy the "FAQ158" sub-directory in the "faq158\_demo.zip" to the directory of your PC / Soft-GRAF Studio (It is "d:\Soft-GRAF Studio" normally). Then run the Soft-GRAF Studio ("d:\Soft-GRAF Studio\Soft-GRAF Studio.exe") to open this project (execute File > Open to open the "d:\Soft-GRAF Studio\FAQ158\FAQ158.sof")



This HMI example includes four HMI objects as the following.

- g\_Label : To show the "Soft-GRAF demo for g\_Logger1"
- g\_Label : To show the "[www.icpdas.com](http://www.icpdas.com) > FAQ > software > ISaGRAF > 158"
- g\_Trend : To show the trend curve
- g\_Logger1 : To show the "Data Logger1" button (it will log data automatically)

This paper only lists the usage of the "g\_Logger1". If user is not familiar with the "Soft-GRAF Studio" software, please refer to the document in the <http://www.icpdas.com/faq/isagraf.htm> > FAQ-146.

|                |                 |         |     |      |          |      |        |
|----------------|-----------------|---------|-----|------|----------|------|--------|
| Classification | ISaGRAF FAQ-158 |         |     |      |          |      |        |
| Author         | Chun Tsai       | Version | 1.1 | Date | Nov.2012 | Page | 6 / 12 |

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                                   | B      | C      | 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   |   |

|                |                 |         |     |      |          |      |        |
|----------------|-----------------|---------|-----|------|----------|------|--------|
| Classification | ISaGRAF FAQ-158 |         |     |      |          |      |        |
| Author         | Chun Tsai       | Version | 1.1 | Date | Nov.2012 | Page | 7 / 12 |

g\_Logger1 settings:

If don't want the "File Title", set it as blank (then the first row will become "Column Title") .

**Data Logger 1** (Two click)

**g\_Logger 1** settings:

- Setting - 1: Setting - 2 (Two click)
- File format: .CSV
- File setting: (Two click)
- Font size: 12,Regul
- Fore Color: (Two click)
- Sample rate: 5 secs

**LoggerFileSetting** settings:

- File setting-1: (Two click)
- File title: g\_Logger1 Demo
- Time format: Show Date, Hour, Min., Sec
- Title of the 1st column: Date Time
- Date format: DEC-31-2012

**LoggerFileSetting** table:

| Column title | Data Address | Value Type | Dot |
|--------------|--------------|------------|-----|
| Curve1       | 1            | Float      | 1   |
| Curve2       | 3            | Float      | 1   |
| Curve3       | 5            | Float      | 1   |
| *            |              |            |     |

(Two click)

g\_Logger1 Demo  
Date Time, Curve1, Curve2, Curve3,  
NOV-14-2012 14:54:21

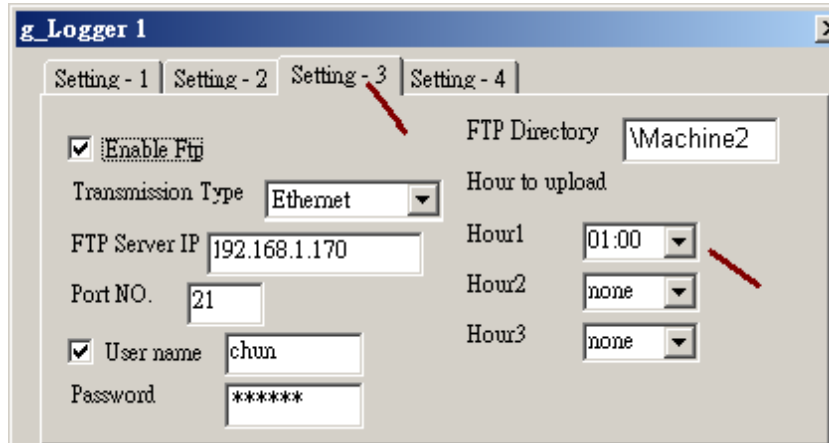
**These 3 address are the address of the ISaGRAF variables "V1" , "V2" and "V3"**

**Note :** The "sample rate" setting of the g\_Logger1 affects the retaining days of data files.  
 The retaining time is 10 days if "sampling rate" setting is 1 or 2 or 3 seconds.  
 The retaining time is 30 days if "sampling rate" setting is 5 to 30 seconds.  
 The retaining time is 3 months if "sampling rate" is 1 minute or more than 1 minute.  
 The other note is one PAC can enable only one g\_Logger1.

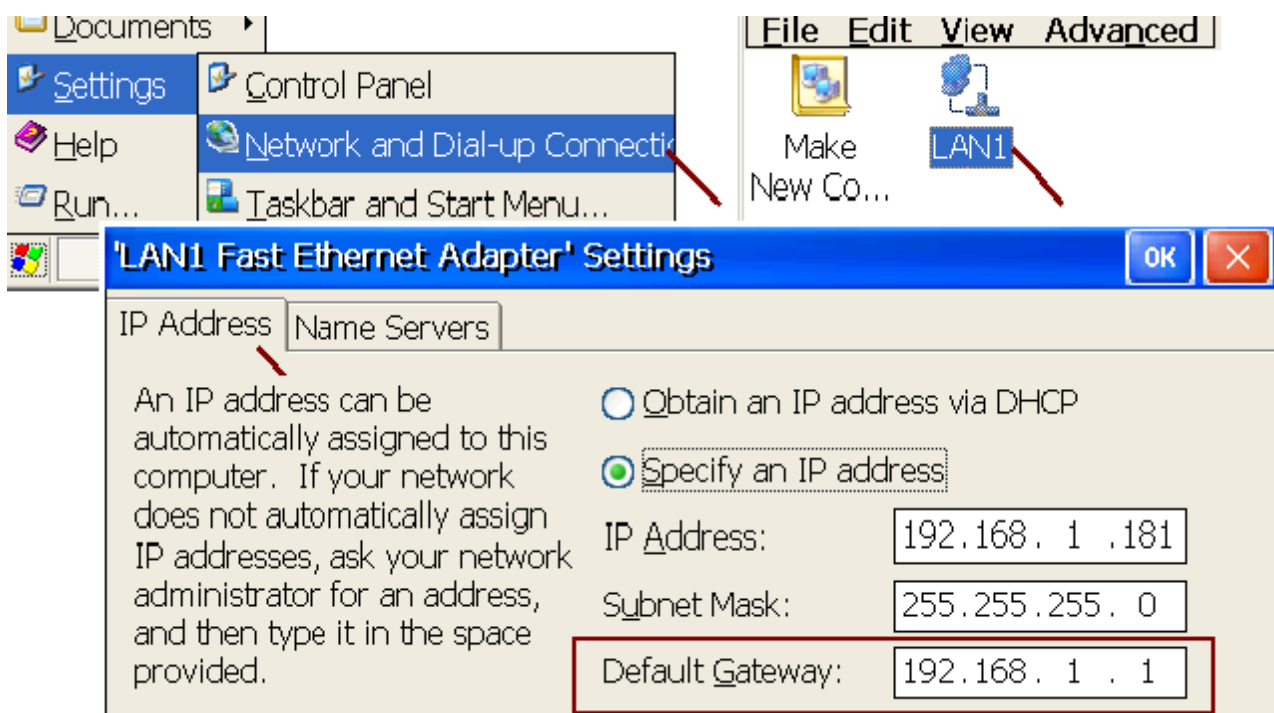
|                |                 |         |     |      |          |      |        |
|----------------|-----------------|---------|-----|------|----------|------|--------|
| Classification | ISaGRAF FAQ-158 |         |     |      |          |      |        |
| Author         | Chun Tsai       | Version | 1.1 | Date | Nov.2012 | Page | 8 / 12 |

### 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.)



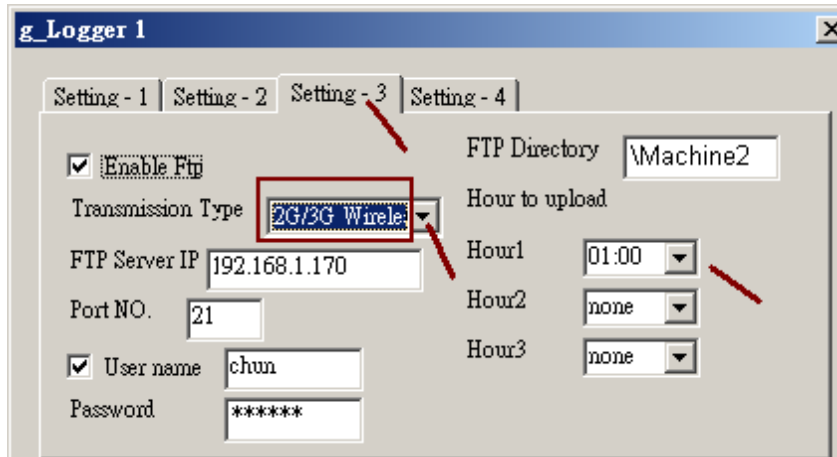
- Note:**
1. The data file of the g\_Logger1 is sent at about 05 minute of the selected hour. i.e, if setting the Hour1 as 08:00, the data file is sent at about 08:05.
  2. If sending file to ftp server fails, the g\_Logger1 will re-try once at about 4-hours later. It will continuously re-try once every 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) .





|                |                 |         |     |      |          |      |        |
|----------------|-----------------|---------|-----|------|----------|------|--------|
| Classification | ISaGRAF FAQ-158 |         |     |      |          |      |        |
| Author         | Chun Tsai       | Version | 1.1 | Date | Nov.2012 | Page | 9 / 12 |

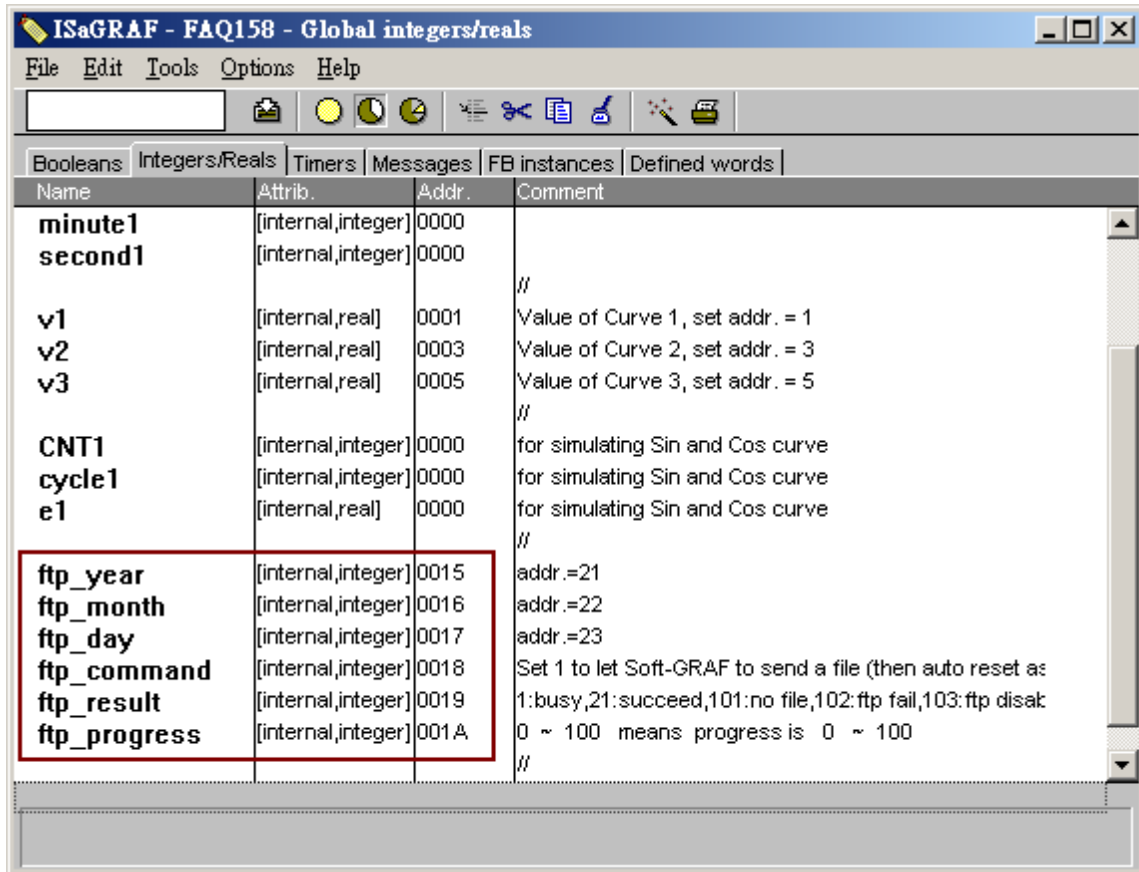
To send data file to a remote PC / ftp server by 2G / 3G dial-up wireless connection, set the "Transmission Type" as "2G/3G Wireless". And this PAC requires a 2G/3G I/O module and a SIM card. (for example, the I-8212W-3GWA : <http://m2m.icpdas.com/i-8212w-3GWA.html> ) . Then follow steps listed in the section 1.1 and section 1.2 of the following web site to setup the 2G/3G I/O module . ( <http://www.icpdas.com/faq/isagraf.htm> > FAQ-143 ) .



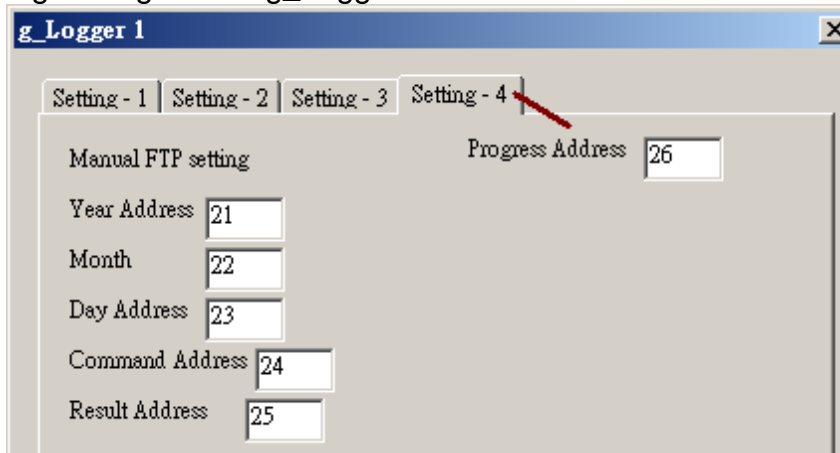
|                |                 |         |     |      |          |      |         |
|----------------|-----------------|---------|-----|------|----------|------|---------|
| Classification | ISaGRAF FAQ-158 |         |     |      |          |      |         |
| Author         | Chun Tsai       | Version | 1.1 | Date | Nov.2012 | Page | 10 / 12 |

### 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).

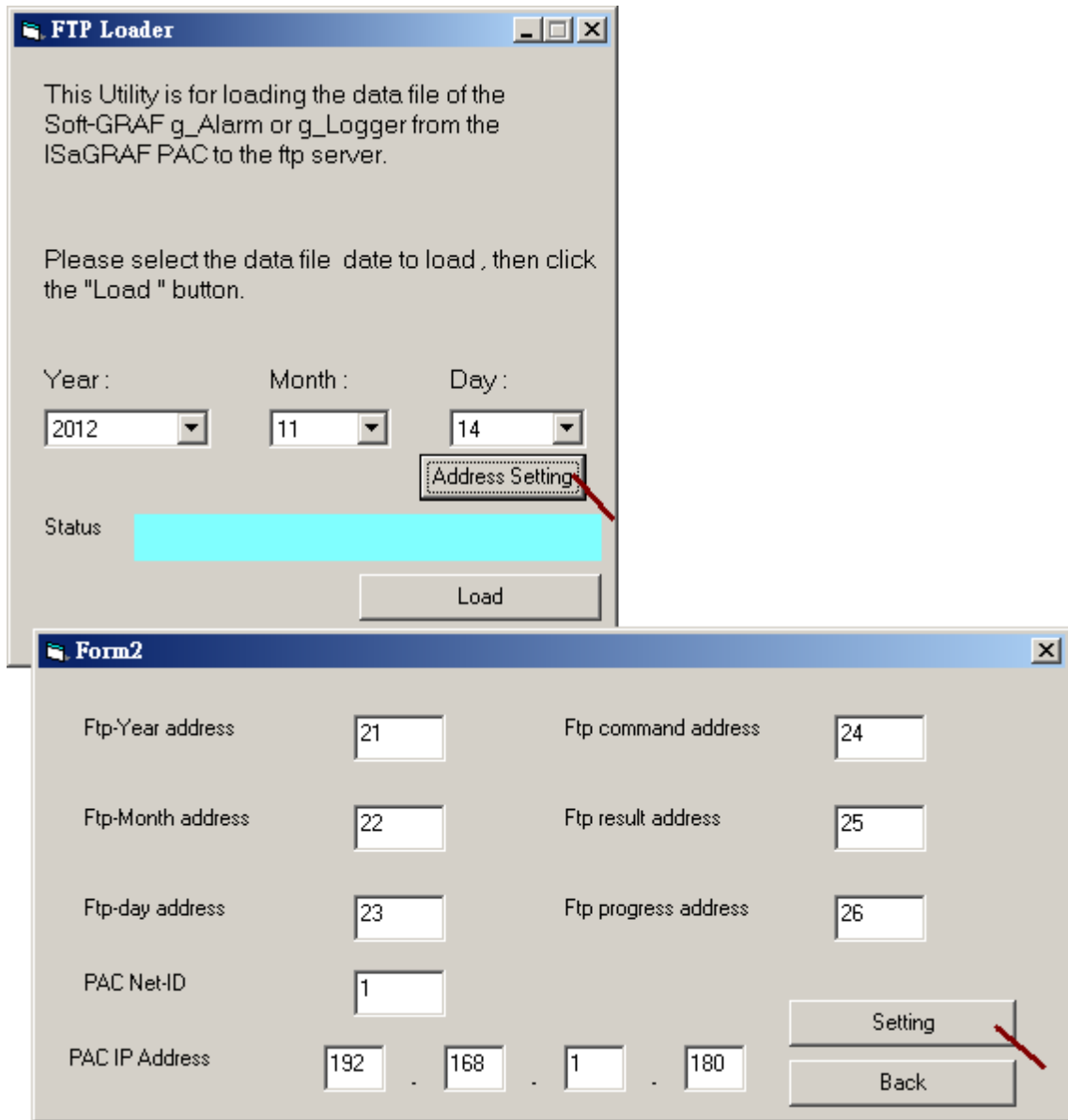


Then do the following settings in the g\_Logger1.



|                |                 |         |     |      |          |      |         |
|----------------|-----------------|---------|-----|------|----------|------|---------|
| Classification | ISaGRAF FAQ-158 |         |     |      |          |      |         |
| Author         | Chun Tsai       | Version | 1.1 | Date | Nov.2012 | Page | 11 / 12 |

Then run the “FTP\_Loader.exe” in a PC to do the “Address Setting” .



|                |                 |         |     |      |          |      |         |
|----------------|-----------------|---------|-----|------|----------|------|---------|
| Classification | ISaGRAF FAQ-158 |         |     |      |          |      |         |
| Author         | Chun Tsai       | Version | 1.1 | Date | Nov.2012 | Page | 12 / 12 |

Then after, key-in the date and click the "Load" button to command the PAC to upload the data file to the PC / ftp server.

