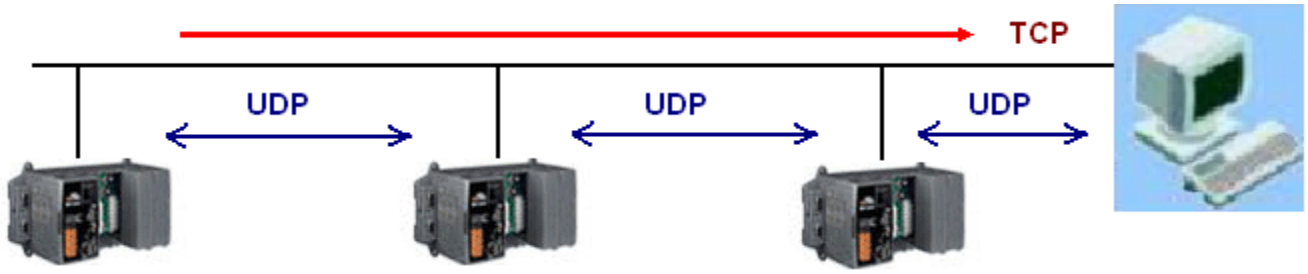
# How to deliver event data by ISaGRAF PAC ?

This paper list the way to deliver event data via UDP by ISaGRAF PAC to remote stations.

There are some applications which require to deliver event data one by one in sequence to one or some remote PC or PAC. The ISaGRAF PAC support “UDP_send” and “UDP_recv” which is very useful for such applications. If an application require more safety than the UDP mechanism, some ISaGRAF PAC support “TCP_send” and “TCP_recv” are suitable to deliver event data to a remote PC.




The following PAC support “IO connection > UDP” to use “UDP_send” and “UDP_recv” to deliver UDP data between PACs (or between PAC and PC).

WP-8xx7 / 8xx6 , VP-25W7 / 25W6 , VP-4137 / 4136 , VP-23W7 / 23W6 , WP-5147 / 5146 , XP-8xx7-CE6 , XP-8xx6-CE6 , XP-8xx7-ATOM-CE6 , XP-8xx6-ATOM-CE6 , i-8437-80 , i-8837-80 , iP-8447 / 8847 , I-7188EG , uP-7186EG

The following PAC support “IO connection > TCP_CLIE” to use “TCP_send” and “TCP_recv” to deliver TCP data between PAC and PC.

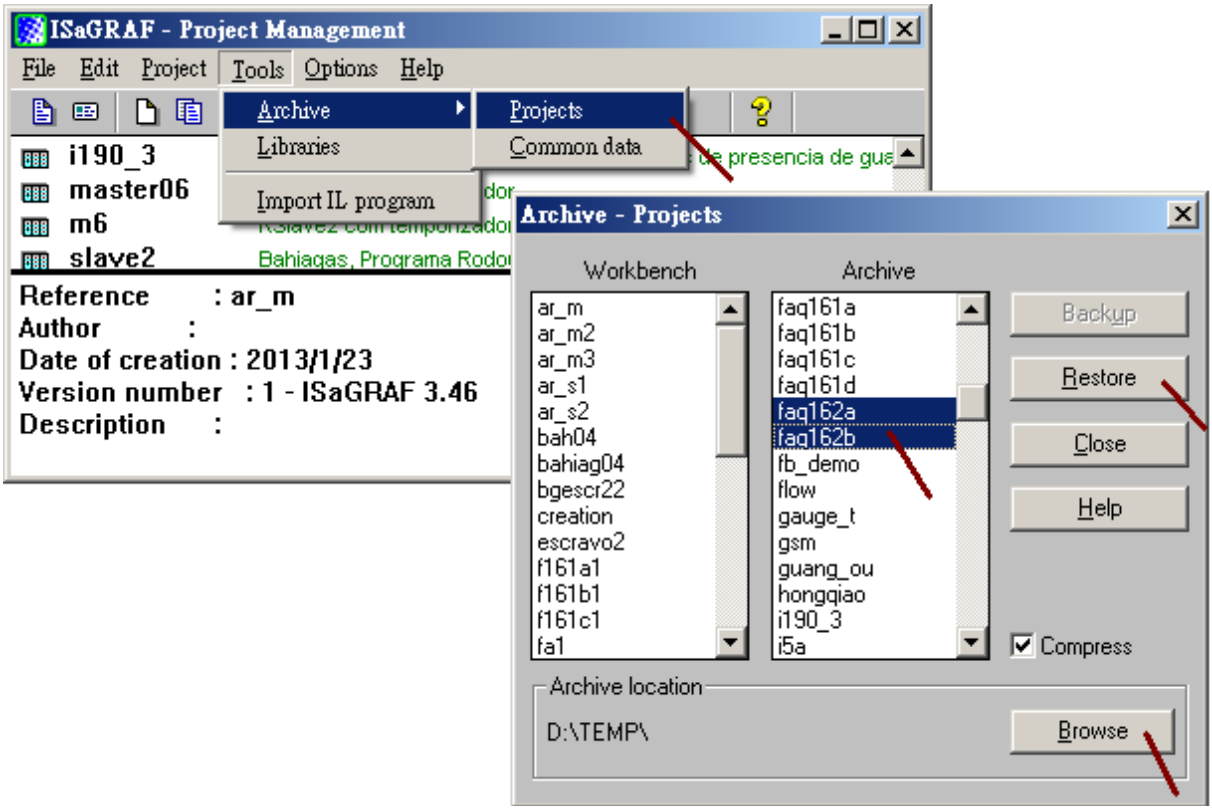
WP-8xx7 / 8xx6 , VP-25W7 / 25W6 , VP-4137 / 4136 , VP-23W7 / 23W6 , WP-5147 / 5146 , XP-8xx7-CE6 , XP-8xx6-CE6 , XP-8xx7-ATOM-CE6 , XP-8xx6-ATOM-CE6

Please download this dicument and its demo programs at the following web site.
https://www.icpdas.com/en/faq/index.php?kind=280#751 > FAQ-162 .

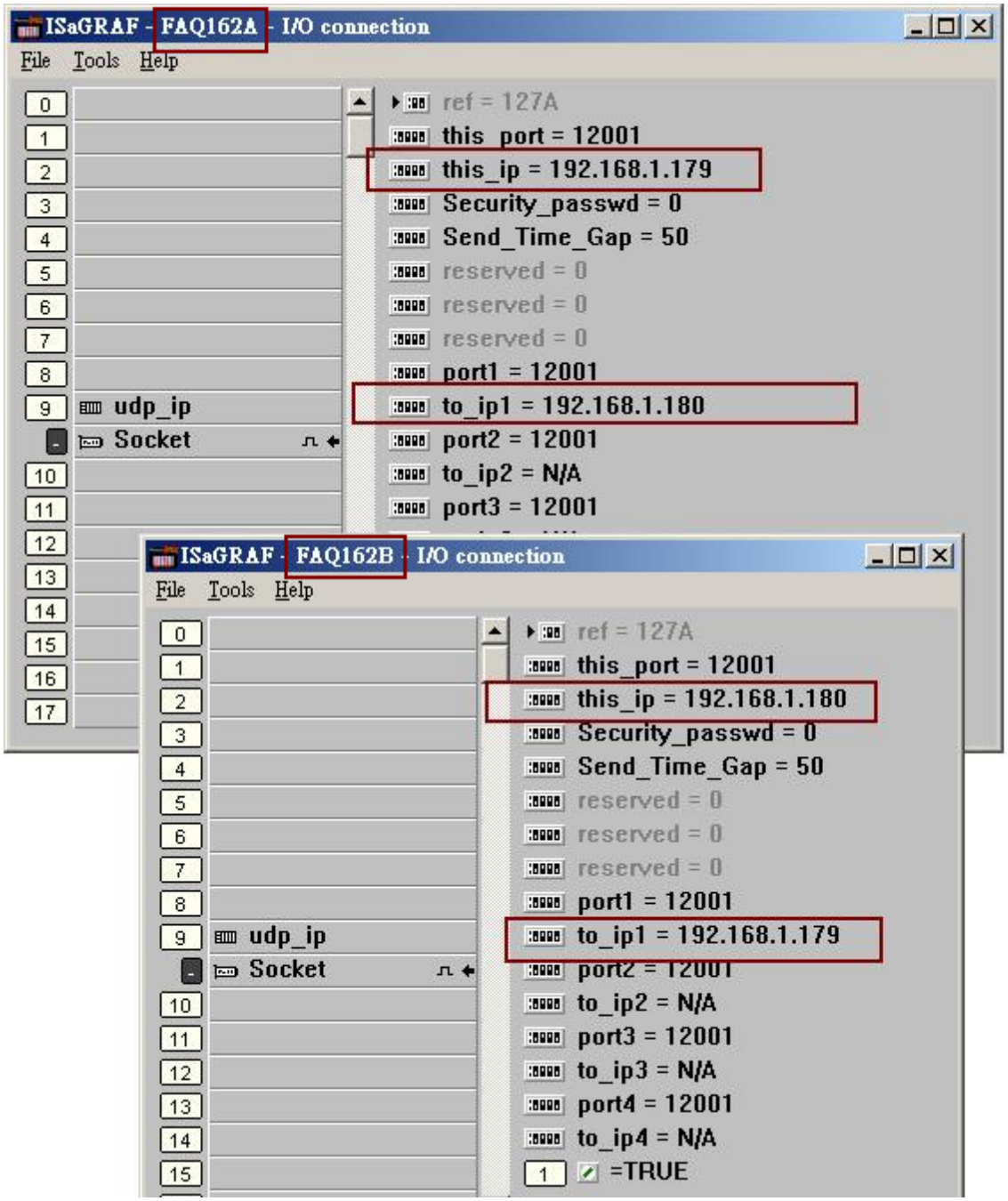
The section 1.1 lists the way to deliver event data via UDP between two PAC.
If user want to know about deliving event data between PAC and PC, please refer to section 1.2 and 1.3 of this paper. Or refer to https://www.icpdas.com/en/faq/index.php?kind=280#751 > FAQ-065 and chapter 19.2 and 19.3 of the “ISaGRAF User's Manual” at (http://www.icpdas.com/en/download/show.php?num=333&nation=US&kind1=&model=&kw=isagraf).

### 1.1 Install the UDP example project and test it

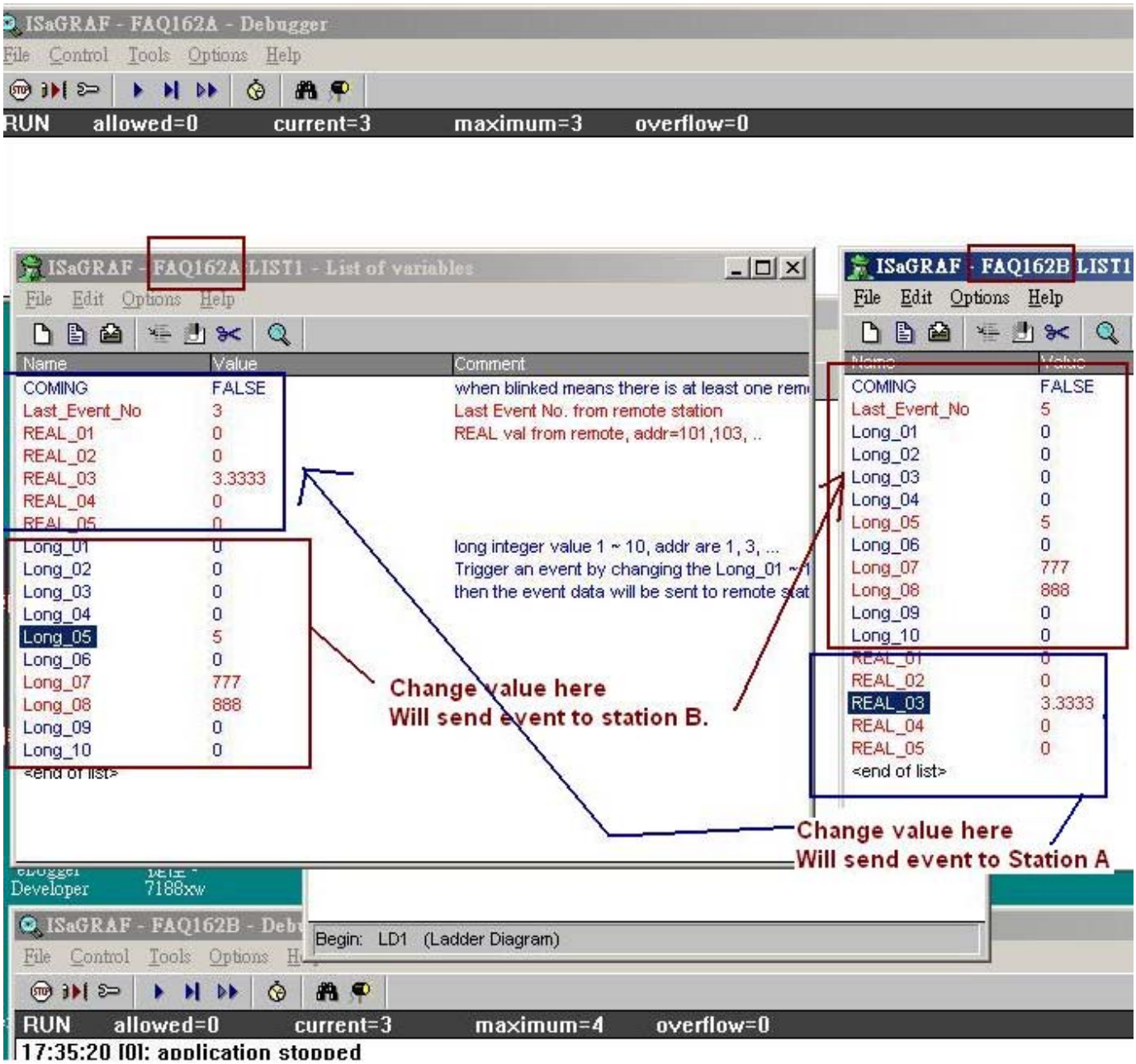
There are three demo programs “faq162a.pia” , “faq162b.pia” and “faq162c.pia” in the “faq162_demo_chinese.zip” (download it from https://www.icpdas.com/en/faq/index.php?kind=280#751 > FAQ-162 ) . Please restore them to your PC / ISaGRAF .



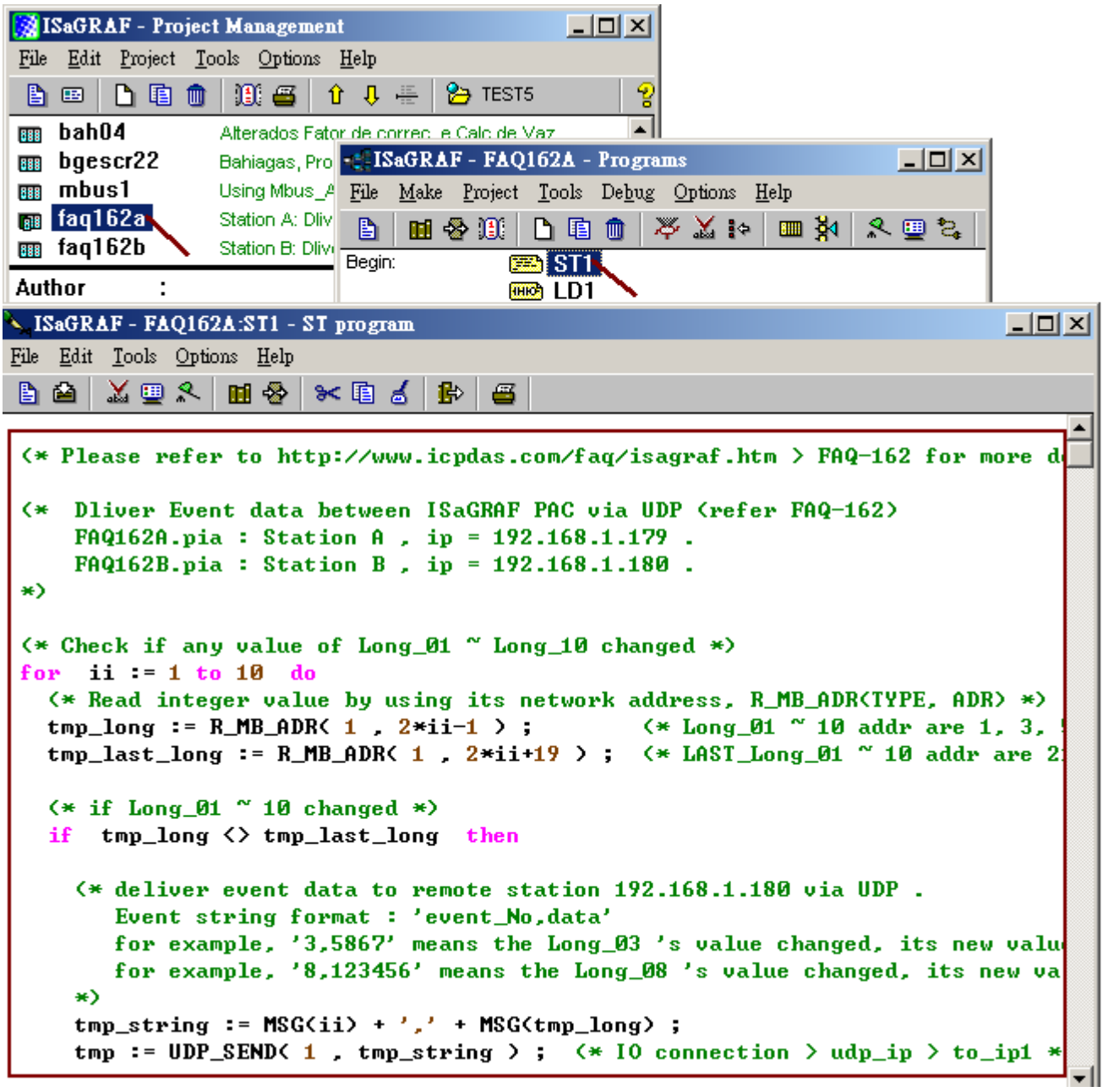
The “FAQ162A” is for the PAC with IP address “192.168.1.179” (named as “Station A”).
The “FAQ162B” is for the PAC with IP address “192.168.1.180” (named as “Station B”).
Both enable “UDP” in the IO connection to communicate with each other.
(“FAQ162C” enables PAC as TCP client to deliver TCP data to a PC, refer to the section 1.3).



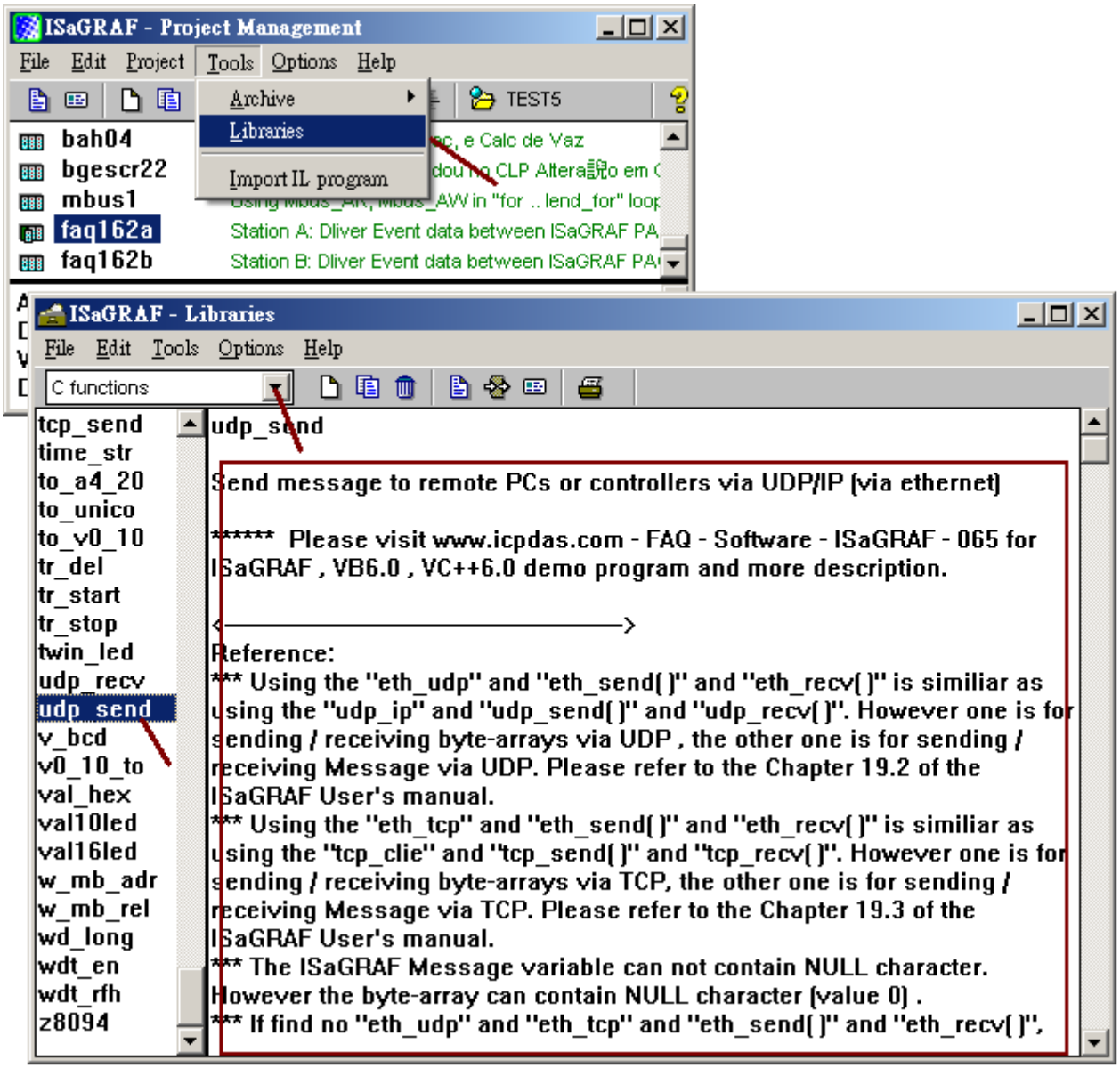
When download the “FAQ162A” and “FAQ162B” to these two PAC successfully (192.168.1.179 and 192.168.1.180), the below ISaGRAF debugger windows on PAC will show up . Then you can try to test them by modify some value to trigger an event. For example, change the value of “Long_05” or “Long_08” (left hand side), it will trigger an event in the FAQ162A and then deliver event data to FAQ162B (right hand side) . You can see the “COMING” signal (a Boolean variable) on the right hand side blinking about 10 seconds which means it has received events.



Please open the PC / ISaGRAF > FAQ162A and FAQ162B to know more about thier program.

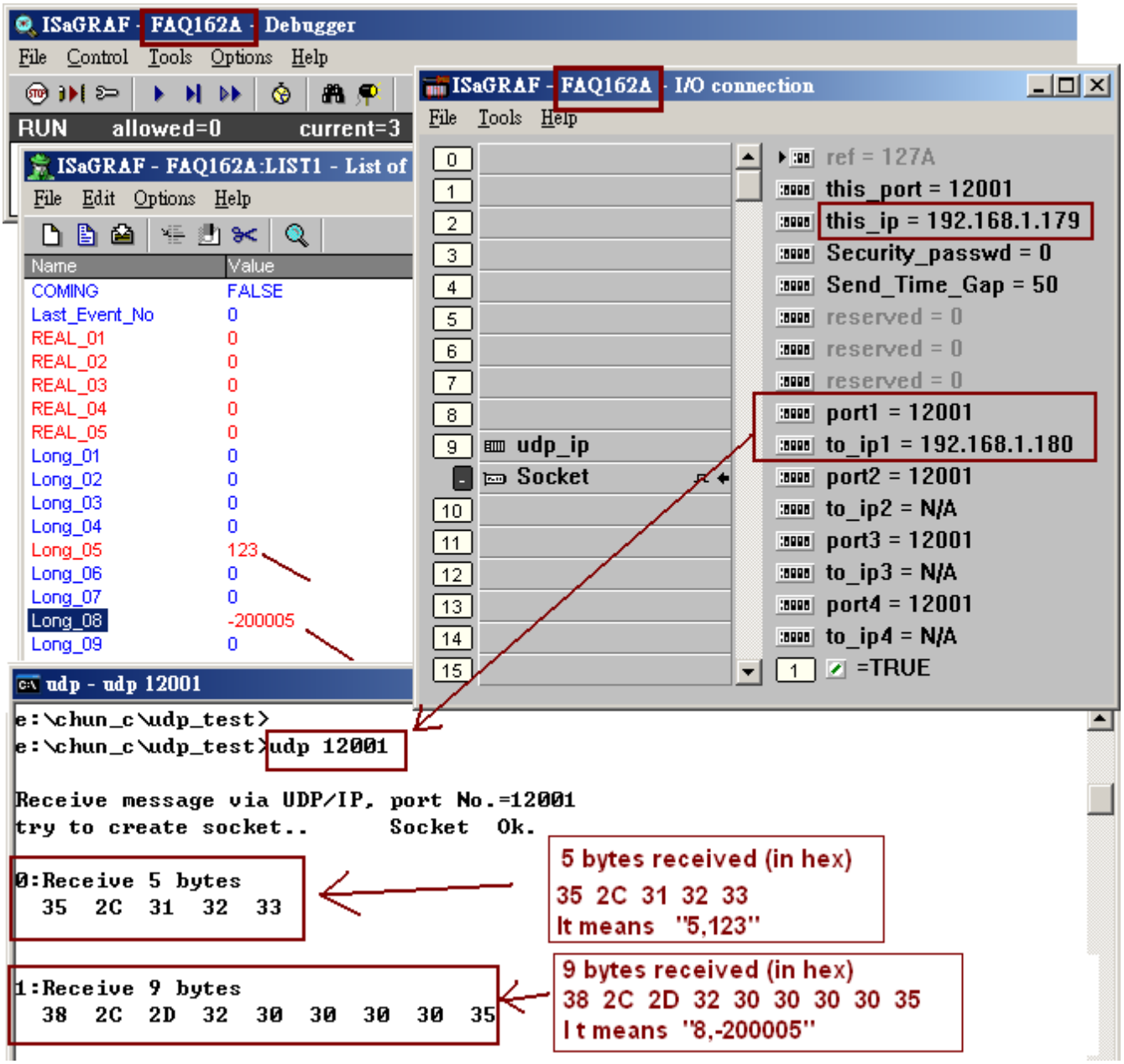


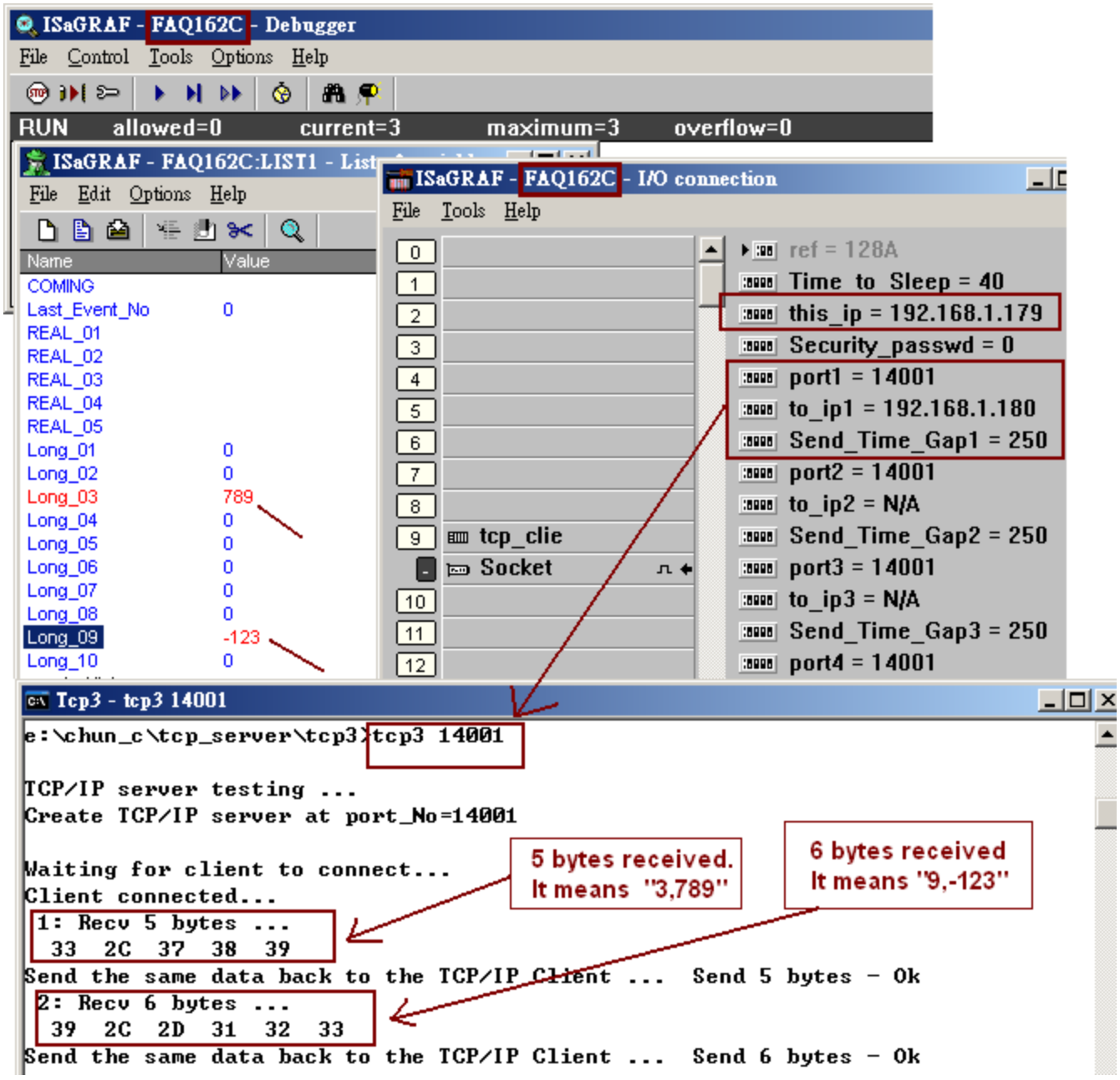

The next page show you how to get description of c-functions which are used in these two programs (the R_MB_ADR , W_MB_ADR , R_MB_REL , W_MB_REL , MSG_N , ARY_N_R , INT_REAL , REAL_INT , UDP_SEND and UDP_RECV).


ISaGRAF - Project Management
File Edit Project Tools Options Help
Archive
Libraries
Import IL program
TEST5
bah04
bgescr22
mbus1
faq162a
faq162b
Station A: Dliver Event data between ISaGRAF PA
Station B: Dliver Event data between ISaGRAF PA
ISaGRAF - Libraries
File Edit Tools Options Help
C functions
tcp_send
time_str
to_a4_20
to_unico
to_v0_10
tr_del
tr_start
tr_stop
twin_led
udp_recv
udp_send
v_bcd
v0_10_to
val_hex
val10led
val16led
w_mb_adr
w_mb_rel
wd_long
wdt_en
wdt_rfh
z8094
udp_send
Send message to remote PCs or controllers via UDP/IP (via ethernet)
****** Please visit www.icpdas.com - FAQ - Software - ISaGRAF - 065 for ISaGRAF , VB6.0 , VC++6.0 demo program and more description.
<----------->
Reference:
*** Using the "eth_udp" and "eth_send( )" and "eth_recv( )" is similiar as using the "udp_ip" and "udp_send( )" and "udp_recv( )". However one is for sending / receiving byte-arrays via UDP , the other one is for sending / receiving Message via UDP. Please refer to the Chapter 19.2 of the ISaGRAF User's manual.
*** Using the "eth_tcp" and "eth_send( )" and "eth_recv( )" is similiar as using the "tcp_clie" and "tcp_send( )" and "tcp_recv( )". However one is for sending / receiving byte-arrays via TCP, the other one is for sending / receiving Message via TCP. Please refer to the Chapter 19.3 of the ISaGRAF User's manual.
*** The ISaGRAF Message variable can not contain NULL character. However the byte-array can contain NULL character (value 0) .
*** If find no "eth_udp" and "eth_tcp" and "eth_send( )" and "eth_recv( )",

## 1.2 Deliver UDP data from one PAC to a PC

The “faq162_demo.zip” downloaded from FAQ-162 includes one “udp.exe” utility. It can enable one PC as a UDP server to wait and then receive UDP data from one or some PAC. To test it, first prepare one PC and set its IP address to 192.168.1.180 and set the mask address as 255.255.255.0 . Then download the “FAQ162A” project to one PAC (IP is 192.168.1.179). Then, open a command shell on PC to run “udp.exe”, for example, “udp 12001” which means to enable the PC as a UDP server at port No. 12001. You may test it by change the value in the PAC (for example, change the value of “Long_05” and “Long_08”), then you will see the data received by the “udp.exe”



## 1.3 Deliver TCP data from one PAC to a PC

The “faq162_demo.zip” downloaded from FAQ-162 includes one “tcp3.exe” utility. It can enable one PC as a TCP server to wait the PAC to connect it and then receive TCP data from the PAC. To test it, first prepare one PC and set its IP address to 192.168.1.180 and set the mask address as 255.255.255.0 . Then download the “FAQ162C” project to one PAC (IP is 192.168.1.179). Then, open a command shell on PC to run “tcp3.exe”, for example, “tcp3 14001” which means to enable the PC as a TCP server at port No. 14001. You may test it by change the value in the PAC (for example, change the value of “Long_03” and “Long_09”), then you will see the data received by the “tcp3.exe”.