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How to send and receive UDP / TCP data ?

The following ISaGRAF PAC supports receiving and sending UDP broadcast or normal package data. The package data format can be message (string) .

XP-8xx7-CE6

WP-8xx7

VP-2xW7 (driver version 1.24 or later)

uPAC-7186EG (driver version 1.12 or later)

iP-8xx7 (driver version 1.08 or later)

VP-2117 (driver version 1.01 or later)

and future released WP-5xx7.

Additionally the XP-8xx7-CE6, WP-8xx7, VP-2xW7 and future released WP-5xx7 also support package data which can contain ASCII value 0.

(However the uPAC-7186EG, iP-8xx7 and VP-2117 don't support it) .

If your ISaGRAF driver in your PAC is older than the above version, please visit the following web site to download it and then update it.

<http://www.icpdas.com/en/download/show.php?num=368&nation=US&kind1=&model=&kw=isagraf>

Please refer to the Chapter 19.2 and 19.3 for more information about using the UDP and TCP to receive or send data.

<http://www.icpdas.com/en/download/show.php?num=333&nation=US&kind1=&model=&kw=isagraf> .

You can get the "faq133_demo.zip" from <https://www.icpdas.com/en/faq/index.php?kind=280#751> > 133. It contains the following ISaGRAF example programs.

UDP receive / send string : Wpdmo19 , Wpdmo19a

The following are supported only by the XP-8xx7-CE6, WP-8xx7, VP-2xW7 and WP-5xx7

UDP receive / send data which may contain ASCII value 0 : Wpdmo77a

TCP receive / send string : Wpdmo_32 , Wpdmo_33

TCP receive / send data which may contain ASCII value 0 : Wpdmo77b

Please refer to the next page to restore the above programs to your PC / ISaGRAF.

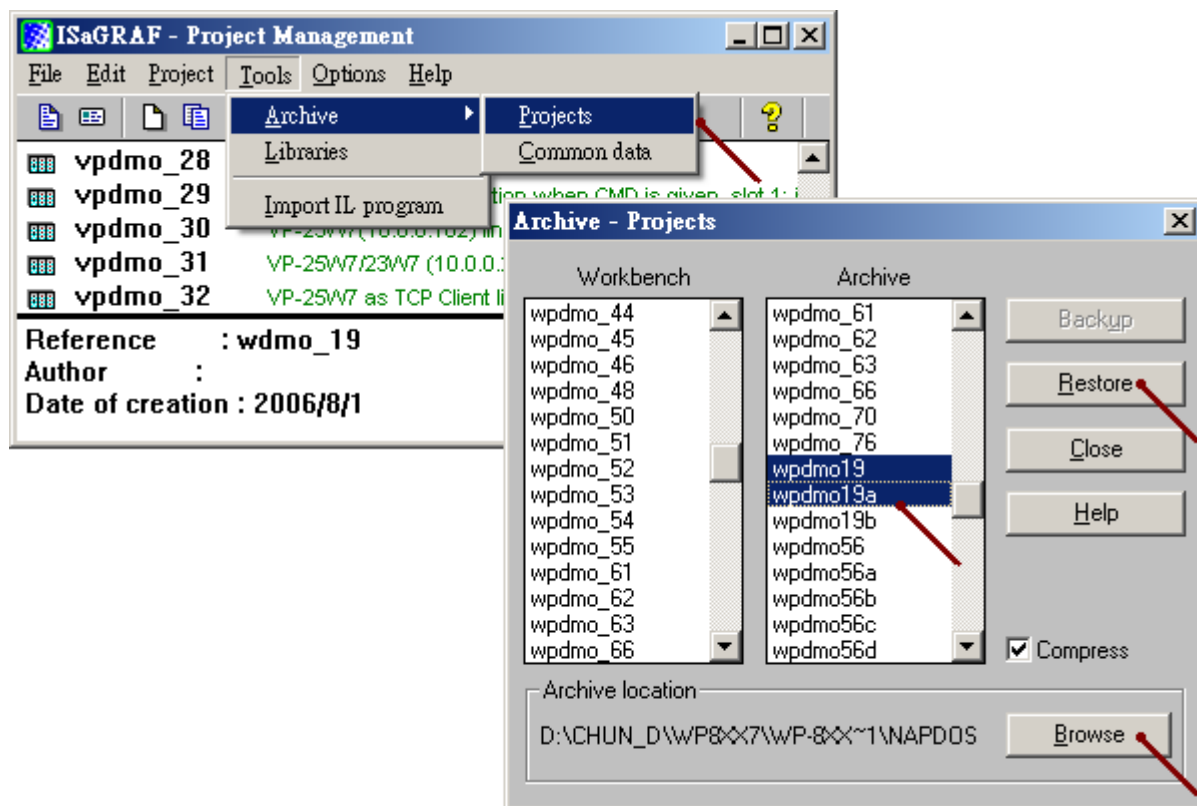
More product information is at the following.

Data Sheet :

<http://www.icpdas.com/en/download/index.php?nation=US&kind1=6&kind2=15&model=&kw=isagraf>

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Restore example programs to the PC / ISaGRAF .



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To use the UDP in the ISaGRAF PAC , first connecting the “udp_ip” in the IO connection.

This_port: Port No. of UDP used for receiving message from remote PC or controllers. It is better to use value larger than 1000. Default is 12001

This_ip: Not necessary for PAC which has only one ethernet port (one IP). However it is necessary for the ISaGRAF PAC which has two Ethernet ports (two IP), then you need to specify the correct IP of “LAN1” or “LAN2” port.

The last number 255 means UDP broadcasting .

“Send_Time_Gap”:
10 ~ 5000 . Time gap between two sending message. Unit is ms .

Only necessary for sending message out. Please set IP as N/A if the controller only receiving message .

Port1 to Port4: Port No. of the UDP of the remote PCs and controllers. Max. 4 connection to send message to remote PCs or controllers.

to_ip1 ~ to_ip4: IP address of the remote PC or controller. If the sending connection is not used, please set as N/A.

Note : The uPAC-7186EG, iP-8xx7 and VP-2117 support only to_ip1 and to_ip2, they don't support to_ip3 and to_ip4 .

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Then user may write a ST program similar as below to send UDP message periodically.

```
(* INIT1 is declared as internal Boolean with initial value TRUE , TMP is an internal Boolean.
   TMR1 , TMR1_next and TMR1_interval are declared as internal timers.
   CNT1 is declared as an internal Integer *)
if INIT1 then
  INIT1 := False;    (* No more *)
  TMR1_interval := T#5s ;
  TMR1 := T#0s ;
  TMR1_next := TMR1_interval ;
  tStart(TMR1);    (* start ticking timer *)
end_if ;

(* send UDP message to 1st connection every 5 seconds *)
if TMR1 >= TMR1_next then

  TMR1_next := TMR1_next + TMR1_interval ;
  if TMR1 >= T#12h then    (* reset TMR1 every 12 hour *)
    TMR1 := T#0s ;
    TMR1_next := TMR1_interval ;
  end_if ;
  CNT1 := CNT1 + 1 ;
  if CNT1 >= 10000 then
    CNT1 := 0 ;
  end_if ;
  (* send UDP message to the 1st connection *)
  TMP := udp_send( 1 , 'CNT1=' + MSG(CNT1) ) ;

end_if ;
```

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There is one utility - "udp.exe" coming with the "faq133_demo.zip" which can run in the PC with Windwos 2000, XP or compatible OS. It can receive the UDP message and display the data. Please open a command console, then for example, to receive data from UDP port 25000, type "udp 25000" .

D:\> udp 25000

```

C:\ 命令提示字元 - udp 25000
D:\> udp 25000

Receive message via UDP/IP, port No.=25000
try to create socket..      Socket  Ok.

0:Receive 7 bytes
 43 4E 54 31 3D 33 31

1:Receive 7 bytes
 43 4E 54 31 3D 33 32

2:Receive 7 bytes
 43 4E 54 31 3D 33 33

3:Receive 7 bytes
 43 4E 54 31 3D 33 34

4:Receive 7 bytes
 43 4E 54 31 3D 33 35

```

udp.exe displays data as hexadecimal format. For example,
 43 4E 54 31 3D 33 31
 means "CNT1=31"