ACKSYS DTUS042 Tunnel UDP For Cometh Range User Guide

Contents

ACKSYS
COMMUNICATIONS & SYSTEMS

ACKSYS DTUS042 Tunnel UDP For Cometh Range

Product Information

Specifications

- **Product Name:** TUNNEL UDP for COMETH Range
- **Model Number:** DDTTUSS004422
- **Release:** A-02, September 2, 2003
- **Manufacturer:** ACKSYS
- **Country of Origin:** France

Product Usage Instructions

Tunnel Mode

1. Access the COMETH administration mode using telnet or hyperterminal (refer to the COMETH user's manual).
2. Type the following command.

Raw UDP Client/Server Mode

1. Access the COMETH administration mode using telnet or hyperterminal (refer to the COMETH user's manual).
2. Type the following command:

Programming Example for Windows

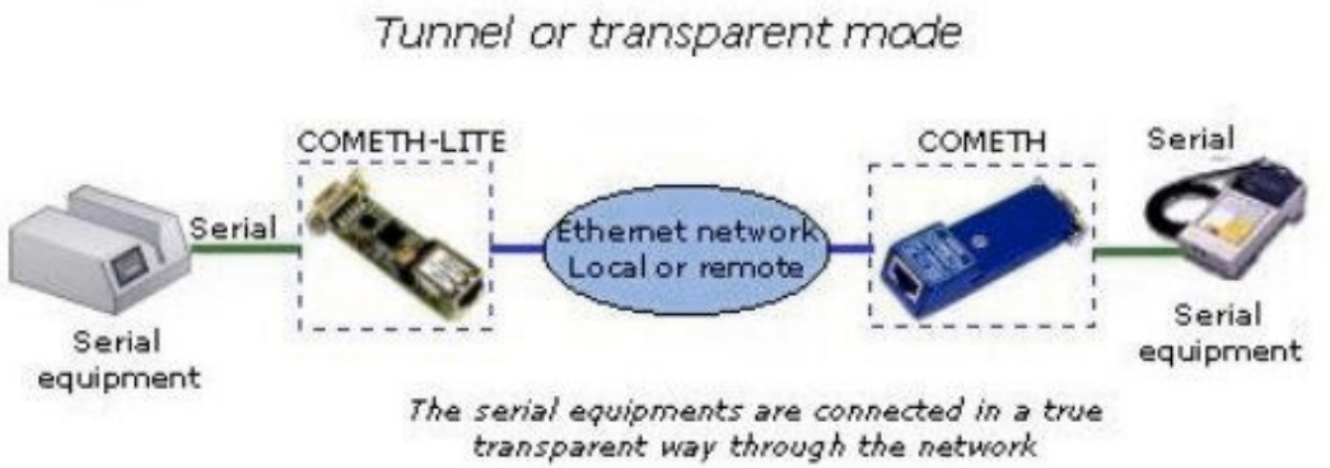
For programming examples and files for Windows, refer to the CD-ROM supplied by ACKSYS.

INTRODUCTION

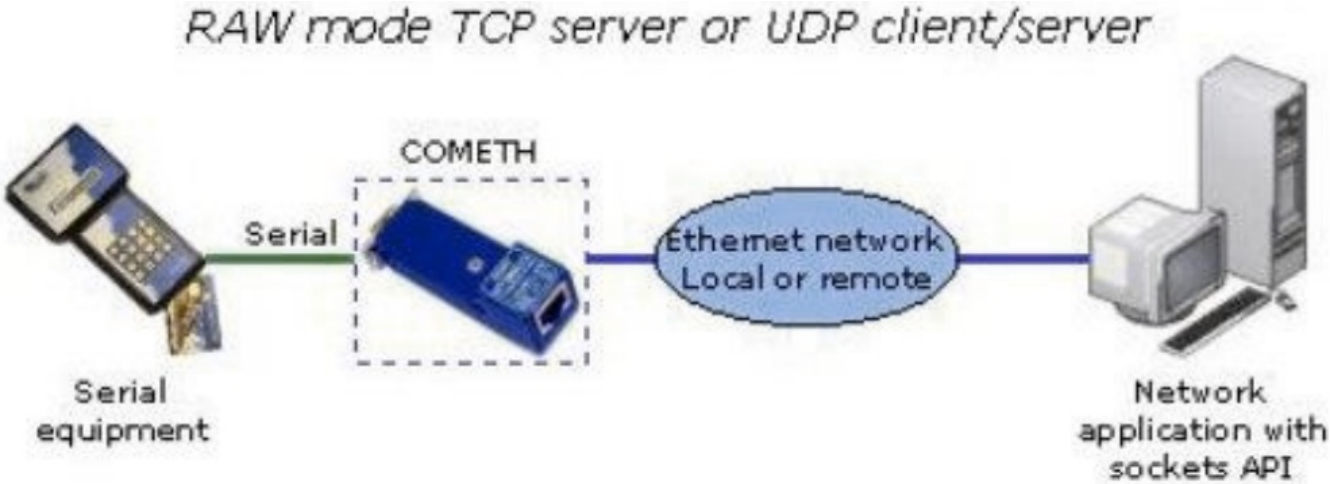
This software allows any product of the COMETH range to be used as a gateway between a UDP/IP network and an asynchronous serial interface.

This gateway can be used in two modes:

- **Tunnel mode:** This mode enables two serial devices to establish a full serial link (data/control signals) through an IP network.
- Characters and states of the control signals (RTS, DTR, CTS, DCD, DSR) are encoded in the packet according to a specific protocol which guarantees the timing preservation between characters and signal transition events.
- Because of the specific protocol, two COMETH devices are necessary at each end. The packet is transmitted in a UDP datagram.
- Notice that UDP protocol (against TCP protocol) solves timing synchronization problems, but is not able to retransmit datagrams in case of error/loss.
  RTS/CTS or DTR/CTS can be used for hardware input/output flow control on the local serial link; in this case transition events are not transmitted in the UDP datagram.



- **raw mode UDP client/server:** Simple Tx/Rx gateway between UDP network and a serial network.
- RAW mode doesn't require two COMETH.
- RAW mode supports only Tx and Rx serial data transfer, control signals transition events are not transmitted.



TUNNEL MODE

- To select this mode, use COMETH administration mode (by running telnet or hyperterminal, see COMETH user's manual) and type the following command: set serial mode tunnelpp

RAW UDP CLIENT/SERVER

- To select this mode, use COMETH administration mode (by running telnet or hyperterminal, see COMETH user's manual) and type the following command: set serial mode raw

Programming example for Windows

- Source file and executable file are on the CD-ROM supplied by ACKSYS.

```
/*************************************************************************/
/*    this program is an example about socket using under windows      */
/*    with MFC library provided by Microsoft.                          */
/*    To compile this program use command : "cl udp_loopback.cpp /MT   */
/*    with microsoft compiler.                                         */
/*    This example is provided by Acksys without without guarantee and */
/*    is not covered by Acksys quality system.                         */
/*************************************************************************/

#include <afxsock.h>          // MFC socket extensions
#include <conio.h>
#define MINTAMPON 13    // 9 meters + space + 'A' + CR + LF
#define MAXTAMPON 4095
#define TIME_DELTA      10
#define NB_FRM_AFF      10

#define UDP_PORT 2300 //Must match with the COMETH configuration

char initbuf[MAXTAMPON] = "123456789 "
      "ABCDEFGHIJKLMNOPQRSTUVWXYZ"
      "abcdefghijklmnopqrstuvwxyz Test en cours.<=>";
char sendbuf[MAXTAMPON];

void initsock(void)
{
// initialisations
      AfxWinInit(GetModuleHandle(NULL),NULL,"",0);

      WSADATA Wsadata;
      Int rc;
      If((rc=WSAStartup(0x202,&Wsadata))) {
            fprintf(stderr,"Cannot init WSAStartup, %d\n", rc);
            exit(1);
      }

      if(!AfxSocketInit()) {
            fprintf(stderr,"Cannot init AfxSocket, %d\n", GetLastError());
            exit(1);
      }
}
```

```
void main(int argc,char**argv)
{
      int Len = strlen(initbuf);
      ULONG nb = 0;

      initsock();
      CSocket *sock = new CSocket;
      unsigned int count=0, nc=0;
      unsigned int TotalCount = 0;

      if(argc == 2) {
            TotalCount = atoi(argv[1]);
            nb = TotalCount / Len;
            TotalCount -= nb * Len;
      }
      printf("this program sends all data received "
            "on udp port %d to the sender\n",UDP_PORT);
      printf("Len=%d, %d trames+%d\n",Len,nb,TotalCount);

      if(!sock->Create(UDP_PORT,SOCK_DGRAM,0)) {
            fprintf(stderr,"Err create %d\n",sock->GetLastError());
            exit(1);
      }

      setbuf(stdout,NULL);
      Cstring ClientIp;
      UINT ClientPort;

      for(;;)
      {
            nc = sock->ReceiveFrom(sendbuf,Len,ClientIp,ClientPort);
            sock->SendTo(sendbuf,nc,ClientPort,ClientIp);
            putchar('w');
      }
}
```

PARAMETER SETTINGS IN ADMINISTRATION MENU

General purpose commands

- Setting or displaying the General Parameters
- Setting or displaying the Network Parameters
- Firmware selection
- Setting or displaying groups of parameters
- The commands involved in the five groups above are the same for all the firmwares that can be used on the COMETH. Please refer to the appropriate COMETH user manual where they are described.
- Please note that the “set net reconnect” and “set net keepalive” commands, though available to all firmwares, do not apply to the TUNNEL firmware.

Setting Network Parameters specific to the TUNNEL firmware

- set net tdgram nbyte nbyte is the minimum number of bytes (characters or signal transition events) required before the UDP datagram can be sent to the remote device.
- If the programmed number nbyte is not reached when the time out defined with command “set serial tbuf” expires, the datagram is sent anyway.
- The maximum number of bytes in one datagram is fixed to 200.
- set net add rcv IP_address Add IP address of the remote receiver
- set net add snd IP_address Add IP address of the remote sender
- set net rmv rcv IP_address Remove remote receiver IP address

- set net rmv snd IP_address Remove remote sender IP address
- In point-to-point architecture, the remote receiver and sender must have the same IP addresses.
- IP address is represented in the so-called “decimal dotted notation” which consists of the decimal value of each of the four bytes, separated by dots.

Serial port parameters changes

- **set serial interface mode option mode:** one of rs232/rs422/4wires/rs485/2wires option : master or slave for RS-422 / 4wires mode, noecho or echo for rs485 / 2wires mode

PLEASE NOTE:

- On some COMETH products, only is meaningful. Other choices will result in communication errors. See the serial port specifications of the appropriate COMETH user manual.
  Keywords “rs422” and “4wires” are synonyms. Their meaning is identical.
- **Keywords** “rs485” and “2wires” are synonyms. Their meaning is identical.
- **RS-232:** setting for RS-232 serial interface equipment, RS-422 master or 4-wires master: setting for master equipment in multidrop, configuration or for both equipments in point-to-point configuration, RS-422 slave or 4wires slave: setting for slave in multidrop configuration. RS-485 noecho or 2wires noecho: setting for all equipment in multidrop or point-to-point configuration. RS-485 echo or 2-wire echo: setting for all equipment in multidrop or point to point configuration. In this mode, transmitted characters on the RS-485 line are echoed on the LAN line. set serial dtr mode DTR management: one of flow/modem/high/low or a combination of DSR,cts, DCD,r ing. set serial rts mode RTS management: one of flow/modem/high/low or a combination of dsr,cts,dcd, ring.
- **modem:** the signal acts as if connected to a modem (DTR the COMETH is on line, RTS the COMETH wants to send data).
- **flow:** the signal is used for input flow control.
- **high/low:** the signal permanently asserted/deasserted.
- **dsr:** the signal follows the remote DSR.
- **CTS:** the signal follows the remote CTS.
- **dcd:** the signal follows the remote DCD.
- **ring:** the signal follows the remote RI.
- **set serial dsr mode local DSR management:** one of use, modem, ignore
- **set serial cts mode local CTS management:** one of use, modem, ignore, flow
- **set serial dcd mode local DCD management:** one of use, modem, ignore
- **set serial ring mode local RING management:** one of use, modem, ignore
- **use:** transmit signal state to remote device.
- **modem:** signal acts as if connected to a modem (CTS, the modem allows the COMETH to send data, DSR the modem is on line, DCD the modem says that the data it sends to the COMETH is valid).
- **ignore:** the signal state is ignored.
- **flow:** the signal is used for hardware output flow control. set serial port nnnn associated UDP data port. nnnn is 1 to 65534 set serial baudrate speed any baud rate from 229 bauds to 230400 bauds set serial format nbits parity 1 nbits is 7 or 8 bits, parity is one of e, o, n, m, s (meaning even, odd, none, mark or space), 1 is the number of stop bits. Only one stop bit is supported.

- set serial xonxoff mode software flow control: mode is one of use or ignore.
- Mixed (software and hardware) flow control is allowed.
- set serial tdsr delay acceptable delay between DTR rise and corresponding DSR rise at the beginning of a data session, when DSR is in modem mode. DTR DSR in tenth of a second. 0 to 255.
- set serial tbuf delay delay between char reception and ETH emission in ms. 0 to 255. Use this to improve outgoing Ethernet buffering. set serial toff duration when DTR is in modem mode, and the TCP connection is closed or lost, DTR will stay low for at least duration, expressed in tenths of a second. 0 to 255. set serial mode mode one of tunnelpp, raw
- **tunnelpp**: point to point tunnel with UDP
- **raw**: allows data exchange with a UDP application.
- set serial stime delay Delay between UDP reception and serial emission in ms (0 to 255). Use this value to limit delay between characters in serial interface. The factory setting of 2 ms is suitable for most of the common applications.

TUNNEL firmware parameters display

- Displaying the configuration parameters is allowed if the showperm parameter is set to « allow ». If it is set to « deny », the configuration parameters can only be displayed by the administrator after logging in..
- Some parameters can be displayed for your information but cannot be changed.
- show the serial port associated with the UDP data port. 1-65534
- show serial mode type of usage: tunnelpp / raw
- show serial interface rs232 / 2wires noecho (rs485) / 2 wires echo (rs485) / 4wires
- master (rs422) / 4wires slave (rs422)
- show serial dtr DTR management mode: flow/modem/high/low/dsr/cts/dcd/ring
- show serial rts RTS management mode: flow/modem/high/low/dsr/cts/dcd/ring
- show serial dsr DSR management mode: use, modem, ignore
- show serial cts CTS management mode: use, modem, ignore, flow
- show serial dcd DCD management mode: use, modem, ignore
- show serial ring RING management mode: use, modem, ignore
- show serial baudrate 300 … 230400 bps
- show serial format parity, bits per char, stop bits
- show serial xonxoff use of XON/XOFF flow control: use / ignore
- show serial txbufsz send buffer size
- show serial rxbufsz receive buffer size
- show serial tdsr allowed delay from DTR to DSR in 1/10 s
- Show the serial tbuf allowed delay from the char reception to the UDP emission in ms
- show serial toff duration of a low DTR indicating a disconnect request in 1/10 s
- show net list, the IP address used to exchange UDP datagrams
- Show the net traffic the minimum number of bytes in a UDP datagram

Factory settings

- prog enable SERVERCOM firmware located in segment /2
- login root

- password root
- location unknown location
- showperm allowed
- netconfigperm allowed
- net ethernet device serial number written on the label
- net dhcp off
- net dhcp hname empty (not sent)
- net dhcp clientid empty (MAC address sent as string)
- net ip 192.168.1.253
- net mask 255.255.255.0
- net gateway 0.0.0.0
- net configport 23
- net txsize 576
- net rxsize 576
- net metric 10
- net keepalive off
- net reconnect off
- serial port 2300
- serial mode tunneling
- serial interface RS-232
- serial dtr dsr
- serial rts cts
- serial dsr ignore
- serial cts ignore
- serial dcd ignore
- serial ring ignore
- serial baudrate 9600 bauds
- serial format 8 bits, no parity, one stop bit
- serial xonxoff ignore
- serial txbufsz 1024
- serial rxbufsz 1024
- serial tdsr 5
- serial tbuf 2
- serial toff 5

GETTING STARTED

First, you must read the main user manual of your product:

- Cometh232UserGuide (DTUS033).pdf : for COMETH DONGLE
- ComethfieldUserGuide (DTUS036).pdf : For COMETH FIELD
- ComethembdUserGuide (DTUS035).pdf for COMETH EMBEDDED
- Next, the “MUX/TUNNEL UDP firmware” must be enabled.
- To enable a firmware, see documentation: download firmware user guide(DTUS040).pdf

TROUBLESHOOTING

- See paragraph “troubleshooting” in the main manual of your product.
- Check the IP address used to receive or send UDP datagrams. The command “show net list” displays these IP addresses.

SEE ALSO

- For documentation download or firmware update, click **here**.
- For COMETH firmware updating, see “Download firmware user guide” on CD.

DEFECT REPORT FORM

- Name————————————
- Company————————————
- Telephone————————————
- Fax————————————
- E-mail————————————
- COMETH————————————-
- Operating system————————————-
- Driver version————————————
- Type of computer————————————

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Frequently Asked Questions

- **Q: What is the purpose of the TUNNEL UDP for COMETH Range?**
  - **A:** This software allows any product of the COMETH range to be used as a gateway between a UDP/IP network and an asynchronous serial interface.
- **Q: How do I switch between tunnel mode and raw UDP client/server mode?**
  - **A:** To switch modes, access the COMETH administration mode and use the specified commands as outlined in the user manual.

Documents / Resources

	**ACKSYS DTUS042 Tunnel UDP For Cometh Range** [pdf] User Guide DTUS042, DTUS042 Tunnel UDP For Cometh Range, Tunnel UDP For Cometh Range, UDP For Cometh Range, Cometh Range, Range

References

- Solutions de communication WiFi et cellulaires ACKSYS
- Solutions de communication WiFi et cellulaires ACKSYS
- User Manual