

Application Note

GenPro 20e - SQB

Performing a client TCP connection

Reference : EG_GenPro_SQB_AN039_002_UK

Revision : 002

Date : 28/11/08

Document history

Revision	Modifications	Author	Date
000	CREATION	BBO	08/04/08
001	Addition of command AT\$IDLETO (Time out disconnection)	BBO	19/08/08
002	Addition of DNS resolution function	BBO/SDU	28/11/08

The main modifications in this document compared to its previous version are easily identifiable on a screen by the blue color of the text.

1 - Presentation :

This application note describes the quick implementation of a Client TCP connection on a GenPro 20e SQB modem towards a TCP server. The parameters setting suggested uses the AT commands that belong to the internal module E-III of Enfora.

Material used : GenPro 20e SQB (GenPro20e R3A marking)
OS Version : V1.1.1 (see AT+CGMR command)

2 - Important notes :

- This sequence can be done only if the SIM card is inside the device, if the PIN code is entered and if the modem is attached to the GSM network (AT+CREG ?)
- The Client TCP function uses the operator's GPRS network ; the subscription must then propose this GPRS function.
- The details of the **Access Point Name** are provided by the SIM card operator.
- The following sequences come from a document supplied by the module manufacturer. The complete description of these AT commands is available : please contact our Sales Department

3 - Sequence of parameters setting :

AT\$HOSTIF=2 OK	Sets the management mode of the connection/disconnection messages for the mode TCP client (=2)
AT\$ACTIVE=1 OK	TCP PAD active/ <u>client mode</u>
AT+CGDCONT=1,"IP", " <i>operator's APN name</i> " OK	Entry of the APN supplied by the SIM card operator
AT\$PADDST=" <i>IP server</i> ", <i>port N°</i> " <i>or</i> AT\$PADDST=" <i>DNS server name</i> ",<i>port N°</i> " OK	Entry of the address of the distant TCP Server Note : do not put any quotation marks for the TCP port N° The entry of the server's address can be made by the IP address or by the DNS name : Ex : AT\$PADDST="111.222.333.444",2000 Ex : AT\$PADDST="mytcpserver.com",2000
AT\$PADBLK=xxx OK	Sets the block size of the emission buffer. When the buffer is reached, the data are sent online (default = 512 octets) Ex : AT\$PADBLK=64
AT\$PADTO=xxx OK	Sets the Time Out value of data dispatching Ex : AT\$PADTO=10 (1 second)
AT\$IDLETO=xxx OK	Sets the value of the disconnection Timer on the serial link inactivity (default 120s) Ex : AT\$IDLETO=600 (600s = 10mn)
AT&W OK	Saves the parameters previously registered
ATD*99# CONNECT	Initiates a TCP connection After the message CONNECT, data can be transmitted and received.

Closing of the TCP connection:	
+++ NO CARRIER	Stops the TCP connection Important : the sequence of communication closing +++ is taken into account only if a delay of 1 second minimum is detected <u>before</u> this sequence and <u>after</u> this sequence. For this reason, the sequence +++ must absolutely not be followed by a carriage return 0xOD. Important : by default, the escape command allows a return to the AT commands mode but at the same time, it closes the TCP socket connection (AT\$PADDISC=0). The TCP connection can be kept opened during an escape request, modifying the command AT\$PADDISC=1

Note : to launch the TCP connection, you can replace the syntax ATD*99# by the syntax ATDT directly followed by the IP address or the DNS server name, and finally by the port number.
 In case of using the DNS name, the name has to be put with quotation marks.

Examples :

ATDT111.222.333.444/2000
 or
ATDT"mytcpserver.com",2000

4 - Setting the dispatch of data online :

The dispatch of data online cannot be done character by character, but according to 3 dispatch criteria. These 3 criteria are defined by AT command:

4.1 Size of the emission buffer:

AT\$PADBLK

As soon as the number of data sent by the application on the TXD reaches the value of the Block buffer size, the TCP/IP frames are then built and transmitted online.

As a consequence the size depends on the protocol used, this value should have to be optimized in order to reduce the IP headers and thus to reduce the time of transfer and the consumed data.

By default, this value is maximal (512 octets), it can be adjusted from 3 to 512 octets.

4.2 Emission Time Out:

AT\$PADTO

When there is no more data sent by the application on the TXD modem and when this Time Out value is reached, the buffer data are sent online (even if the block size of the buffer is not reached) Generally speaking, this value must be low.

The value is defined by steps of 100ms. By default the value is 50 (5 seconds) ; this value can be reduced for fast protocols.

If this value is nil, only the criteria of « buffer size » or « dispatch character » will be used to release the data dispatching online.

4.3 Dispatch character:

AT\$PADFWD (also depends on the command AT\$PADCMD)

When this character is sent by the application on the TXD, the buffer data are immediately sent online (even if the block size of the buffer is not reached and regardless of the Time Out value)

AT\$PADCMD: sets the activation or not of the dispatch character, by default (000b) the dispatch character is activated.

AT\$IDLETO

This command allows to fix the value of the inactivity timer which will cause the stopping of the TCP connection. If there is no data transmitted during this period, the modem will close the TCP connection.

Warning, by default this parameter is at **120s** (2mn).

The timer value can be adjusted from 10 to 86400 (**10s to 24h**)

5 - Examples of complete sequence:

Examples with Orange APN, server IP non functional and port N° = 4420

Example with AT*99#

```
AT$HOSTIF=2
AT$ACTIVE=1
AT+CGDCONT=1,"IP","internet-entreprise"
AT$PADST="111.222.333.444",4420
AT$PADBLK=32
AT$PADTO=10
AT$IDLETO=600
AT&W
```

```
ATD*99#
CONNECT
```

Example with ATDTIP/port

This mode allows to change the server address or the port number directly in the dialing string.

```
AT$HOSTIF=2
AT$ACTIVE=1
AT+CGDCONT=1,"IP","internet-entreprise"
AT$PADBLK=32
AT$PADTO=10
AT$IDLETO=600
AT&W
```

```
ATDT111.222.333.444/4420
CONNECT
```