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AT COMMANDS

Introduction

AT commands are used for controlling modem, GSM, and many other types of communication equipment that come with a serial port. CommFront's **device servers / serial to Ethernet converters** use AT commands for querying or setting parameters such as COM port and IP parameters.

AT Command Syntax

"AT" stands for "attention", and it must be used at the beginning of each command line. The AT command must be terminated with a <CR> code (HEX code: 0D). AT commands are usually responded to by the device, and the response looks something like: "AT+COMMAND<CR><CR><LF><**response**><CR><LF>". Throughout this document, only the responses are presented. "<CR><LF>" is omitted intentionally.

Command syntax

Query command:

AT+COMMAND<CR>

Set command:

AT+COMMAND=<parameter1,parameter2,…><CR>

Response syntax

Query command:

+OK=<parameter1,parameter2,…>

Set command:

+OK

Error:

+ERR=<number>

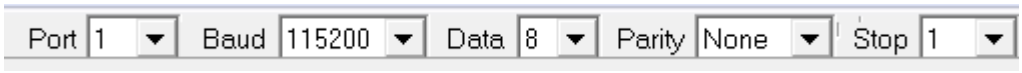
Error codes

Error Code	Description
1	Invalid format
2	Invalid command
3	Invalid operator
4	Invalid parameter
5	Invalid operation

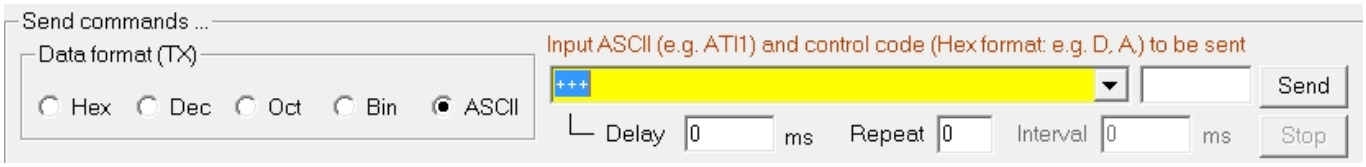
Software Tools and Examples

The example below demonstrates how CommFront's **device servers / serial to Ethernet converters** use AT commands for querying and setting network parameters.

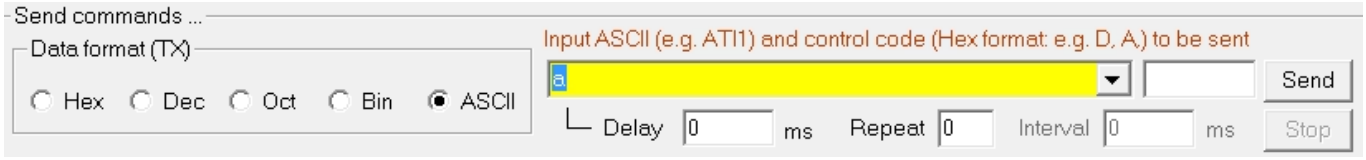
- CommFront's 232Analyzer software provides an easy and fast way for sending AT commands (download link: **https://www.commfront.com/pages/downloads**).
- Run the 232Analyzer software and set the COM port settings to 115.2Kbps, 8, N, 1. Then select "ASCII" for both TX and RX data formats.



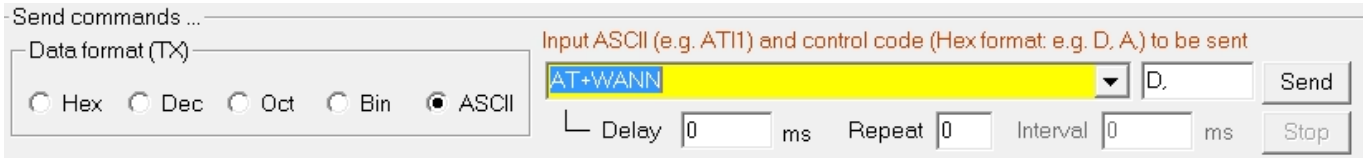
- To enter AT Command mode, first send the ASCII code: **+++**



- The device server responds with an ASCII code: **a**
- Send the second ASCII code within 3 seconds: **a**

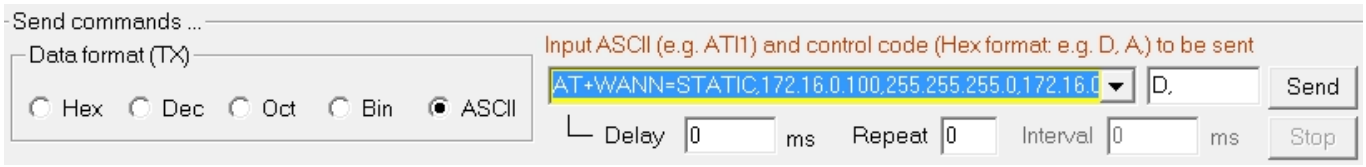


- The device server responds with an ASCII code and it now enters into "AT Command" mode: **+ok**
- Query current network settings: **AT+WANN<CR>**

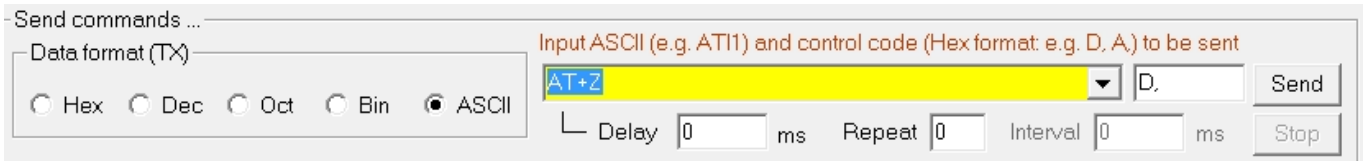


- The device server responds with the current network settings: **+OK=STATIC,192.168.1.201,255.255.255.0,192.168.1.254**
- Change current network settings to the same sub network as your PC's, e.g.: **AT+WANN=STATIC,172.16.0.100,255.255.255.0,172.16.0.1**

<CR>



- The device server responds with a confirmation code: **+OK**
- Restart the device server for the new settings to take effect: **AT+Z<CR>**



- The device server restarts and exits the “AT command” mode.

AT Commands Set

- Switch from data mode to AT command mode

Command	Response
+++	**a**
Send next command within 3 seconds	
a	**+ok**
	Enter AT Command mode

- Switch from AT command mode to data mode

Command	Response
AT+ENTM<CR>	**+OK**
	Exit AT Command mode

- Restart the device

Command	Response
AT+Z<CR>	**+OK**
	Restart the device and exit AT Command mode

- Restore factory settings

Command	Response
AT+RELD<CR>	**+OK**
	Require device restart for factory settings to take effect

- Query MAC address

Command	Response
AT+MAC<CR>	**+OK=<MAC>**
	Example: +OK=D8C561010001

- Query or set Network parameters

Command	Response
AT+WANN<CR>	**+OK=<type,IP_address,subnet_mask,gateway>**
AT+WANN=<type,IP_address,subnet_mask,gateway><CR>	**+OK**
Example: AT+WANN=STATIC, 192.168.1.201,255.255.255.0,192.168.1.254<CR>	

- Query or set DNS address

Command	Response
AT+DNS<CR>	**+OK=<address>**
AT+DNS=<address><CR>	**+OK**
Example: AT+DNS=8.8.8.8<CR>	

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- Query or set COM port parameters

Command	Response

AT+UART<CR>	**+OK=<baud_rate,data_bit,stop_ bit,parity,flowctrl>**
AT+UART=<baud_rate,data_bit,stop_ bit,parity,flow_ctrl><CR>	**+OK**
Baud rate: 9600,19200,38400,57600, 115200,128000,256000 Data bit: 7,8 Stop bit: 1,2 Parity: None, Even, Odd, Mask, Space Flow Ctrl: No Hardware Control (NFC), Hardware Control (FCH)	
Example: AT+UART=115200,8,1,NONE,NFC<CR>	

- Query or set Socket parameters

Command	Response
AT+SOCK<CR>	**+OK=<socket,IP,port>**
AT+SOCK=<socket,IP,port><CR>	**+OK**
Socket: TCPS – TCP Server TCPC – TCP Client UDPS – UDP Server UDPC – UDP Client HTPC – Httpd Client IP: Remote IP address or domain Port: Local port (for server) or Remote port (for client)	
Example 1: AT+SOCK=TCPS, 192.168.1.211,502<CR> Example 2: AT+SOCK=TCPC, 192.168.1.211,20000<CR>	1

- Query TCP connection status

Command	Response
AT+SOCKLK<CR>	**+OK=<status>**
Status: CONNECT – TCP connection has been established DISCONNECT – TCP connection has not been established	
	Example: +OK=CONNECT

- Query or set Local port

Command	Response
AT+SOCKPORT<CR>	**+OK=<number>**
AT+SOCKPORT=<number><CR>	**+OK**
Number: 0 – Random 1-65535 – Local port	
Example: AT+SOCKPORT=502<CR>	

- Query Production time

Command	Response
AT+PDTIME<CR>	**+OK=<time>**
	Example: +OK=2021-01-01 15:43:11

- Query or set Registry packet type

Command	Response
AT+REGEN<CR>	**+OK=<type>**

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AT+REGEN=<type><CR>	**+OK**
Type: OFF: No registry packet is used MAC – Use MAC address as registry packet USR – Use user-defined packet CLOUD – Use cloud packet	
Example: AT+REGEN=MAC<CR>	

- Query or set When to send registry packet

Command	Response
AT+REGTCP<CR>	**+OK=<type>**
AT+REGTCP=<type><CR>	**+OK**
Type: FIRST – Send together with connection string EVERY – Send together with data string ALL – Send together with connection and data string	
Example: AT+REGTCP=FIRST<CR>	

- Query or set Device ID and cloud key for cloud connection

Command	Response
AT+REGCLOUD<CR>	**+OK=<deviceID,cloudKey>**
AT+REGCLOUD=<deviceID,cloudKey><CR>	**+OK**
Device ID – Device ID for cloud connection Cloud Key – Cloud key for cloud connection	

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Example: AT+REGCLOUD=00000001,0001<CR>	

- Query or set User-defined registry packet

Command	Response
AT+REGUSR<CR>	**+OK=<data>**
AT+REGUSR=<data><CR>	**+OK**
Data: ASCII codes (up to 40 bytes)	
Example: AT+REGUSR=www.commfront.com <CR>	

- Query or set HTTP request method

Command	Response
AT+HTPTP<CR>	**+OK=<method>**
AT+HTPTP=<method><CR>	**+OK**
Method: GET – Use GET method for HTTP request POST – Use POST method for HTTP request	
Example: AT+HTPTP=GET<CR>	

- Query or set HTTP request URL

Command	Response
AT+HTPURL<CR>	**+OK=<url>**
AT+HTPURL=<url><CR>	**+OK**
URL: Less than 100 characters	

Example: AT+HTPURL=/1.php<CR>	

- Query or set HTTP request header

Command	Response
AT+HTPHEAD<CR>	**+OK=<data>**
AT+HTPHEAD=<data><CR>	**+OK**
Header: Less than 200 characters	
Example: AT+HTPHEAD=User_Agent: Mozila/4.0<CR>	

- Enable or disable Remove HTTP request header

Command	Response
AT+HTPCHD<CR>	**+OK=<status>**
AT+HTPCHD=<status><CR>	**+OK**
Status: ON – Remove HTTP request header OFF – Keep HTTP request header	
Example: AT+HTPCHD=OFF<CR>	

- Enable or disable Heartbeat function

Command	Response
AT+HEARTEN<CR>	**+OK=<status>**
AT+HEARTEN=<status><CR>	**+OK**

Status: ON – Enable heartbeat function OFF – Disable heartbeat function	
Example: AT+HEARTEN=ON<CR>	

- Query or set Direction to send heartbeat packet

Command	Response
AT+HEARTTP<CR>	**+OK=<type>**
AT+HEARTTP=<type><CR>	**+OK**
Type: COM – Send heartbeat packet to COM port NET – Send heartbeat packet to network port	
Example: AT+HEARTTP=NET<CR>	

- Query or set Heartbeat interval

Command	Response
AT+HEARTTM<CR>	**+OK=<time>**
AT+HEARTTM=<time><CR>	**+OK**
Time: 1 – 65535s	
Example: AT+HEARTTM=30<CR>	

- Query or set Heartbeat packet

Command	Response
AT+HEARTDT<CR>	**+OK=<data>**

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AT+HEARTDT=<data><CR>	**+OK**
Data: ASCII codes (up to 40 bytes)	
Example: AT+HEARTDT=www.commfront.com<CR>	

- Enable or disable Restart after 30 times of unsuccessful connection attempts (TCP client mode)

Command	Response
AT+CLIENTRST<CR>	**+OK=<status>**
AT+CLIENTRST=<status><CR>	**+OK**
Status: ON – Enable restart after 30 times of unsuccessful TCP connection attempts OFF – Disable restart after 30 times of unsuccessful TCP connection attempts	
Example: AT+CLIENTRST=ON<CR>	

- Enable or disable Link function

Command	Response
AT+SCSLINK<CR>	**+OK=<status>**
AT+SCSLINK=<status><CR>	**+OK**
Status: ON – Socket link function is ON OFF – Socket link function is OFF	
Example: AT+SCSLINK=ON<CR>	1

- Enable or disable Index function (TCP server mode)

Command	Response
AT+INDEXEN<CR>	**+OK=<status>**
AT+INDEXEN=<status><CR>	**+OK**
Status: ON – Enable index function OFF – Disable index function	
Example: AT+INDEXEN=ON<CR>	

- Enable or disable RFC2217

Command	Response
AT+RFCEN<CR>	**+OK=<status>**
AT+RFCEN=<status><CR>	**+OK**
Status: ON – Enable RFC2217 OFF – Disable RFC2217	
Example: AT+RFCEN=ON<CR>	

- Enable or disable Short connection function

Command	Response
AT+SOCKSL<CR>	**+OK=<status>**
AT+SOCKSL=<status><CR>	**+OK**
Status: ON – Enable short connection function	

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OFF – Disable short connection function	
Example: AT+SOCKSL=ON<CR>	

- Query or set Short connection timeout

Command	Response
AT+SHORTO<CR>	**+OK=<time>**
AT+SHORTO=<time><CR>	**+OK**
Time: 2-255s	
Example: AT+SHORTO=3<CR>	

- Query or set Server actions when maximum number of client connections is reached

Command	Response
AT+TCPSE<CR>	**+OK=<action>**
AT+TCPSE=<action><CR>	**+OK**
Status: KEEP – Keep old connection KICK – Disable old connection and allow new connection	
Example: AT+TCPSE=KEEP<CR>	

- Enable or disable Clear serial buffer upon TCP/IP connection

Command	Response
AT+UARTCLBUF<CR>	**+OK=<status>**

1

AT+UARTCLBUF=<status><CR>	**+OK**
Status: ON – Enable Clear serial buffer upon TCP/IP connection OFF – Disable Clear serial buffer upon TCP/IP connection	
Example: AT+UARTCLBUF=ON<CR>	

- Enable or disable Modbus RTU to Modbus TCP conversion

Command	Response
AT+MODTCP<CR>	**+OK=<status>**
AT+MODTCP=<status><CR>	**+OK**
Status: ON – Enable Modbus RTU to Modbus TCP conversion OFF – Disable Modbus RTU to Modbus TCP conversion	
Example: AT+MODTCP=ON<CR>	

- Query or set Device name

Command	Response
AT+MID<CR>	**+OK=<name>**
AT+MID=<name><CR>	**+OK**
Name: Up to 14 characters	
Example: AT+MID=DVS-485-2<CR>	

- Query or set Web port

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Command	Response

AT+WEBPORT<CR>	**+OK=<port>**
AT+WEBPORT=<port><CR>	**+OK**
Example: AT+WEBPORT=80<CR>	

- Query or set User_name and password

Command	Response
AT+WEBU<CR>	**+OK=<username,password>**
AT+WEBU=<username,password><CR>	**+OK**
Example: AT+WEBU=user,password<CR>	

- Query Firmware version

Command	Response
AT+VER<CR>	**+OK=<ver>**

- Query or set Maximum number or client connections (server mode)

Command	Response
AT+MAXSK<CR>	**+OK=<number>**
AT+MAXSK=<number><CR>	**+OK**
Number: 1 to 8	
Example: AT+MAXSK=8<CR>	

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- Query or set No data auto-restart timeout

Command	Response

AT+RSTIM<CR>	**+OK=<time>**
AT+RSTIM=<time><CR>	**+OK**
Time: 0 – No auto-restart 60-65535s – Auto-restart timeout if no data received from serial or network port	
Example: AT+RSTIM=3600<CR>	

- Get Help information

Command	Response
AT+H<CR>	**+OK=<info>**

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