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# **R1 AT Command Manual**

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PositionX



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 INTRODUCTION

- *AT Command Syntax*
- *AT Command Line*
- *Character Set*

This document will describe all AT commands implemented in SDK. Due to the SDK will support various chips of RDA Microelectronics, and the SDK will support various product types. Not all AT commands will and can be supported in any one target.

## 1.1 AT Command Syntax

The AT, at, aT or At prefix must be set at the beginning of each command line. To terminate a command line enter <CR>.

A/ is a special case. When A/ is received, the previous command line will be handled immediately. Neither AT prefix nor <CR> are needed.

+++ is another special case. Strictly speaking, it is not an AT command. Rather, it is escape input sequence to indicate DCE switch from data mode or PPP online mode to command mode.

AT commands can be split into three categories syntactically: *basic*, *S parameter* and *extended*.

### Basic Syntax

These AT commands have the format of AT<x><n>, or AT&<x><n>, where <x> is the Command, and <n> is the argument for that Command. An example of this is ATE<n>, which tells the DCE whether received characters should be echoed back to the DTE according to the value of <n>. <n> is optional and a default will be used if missing.

### S Parameter Syntax

These AT commands have the format of ATS<n>=<m>, where <n> is the index of the S register to set, and <m> is the value to assign to it. <m> is optional; if it is missing, then a default value is assigned.

### Extended Syntax

These commands can operate in several modes, as in the following table:

Execution Command	AT+<x>
Write Command	AT+<x>=<...>
Read Command	AT+<x>?
Test Command	AT+<x>=?

Note: If Set Command is AT+<x>= , use the default parameters to set or return OK directly. Space characters (IA5 2/0) are ignored and may be used freely for formatting purposes, unless they are embedded in numeric or string constants

---

## 1.2 AT Command Line

Several AT commands can be combined into one command line. AT command line if started with AT prefix, and terminated with <CR>. Extended commands should be separated by semicolon (;). And semicolon can't be inserted between basic commands or S parameter commands.

Empty AT command line (AT<CR>) is valid. DCE will return OK.

Before <CR> is encountered, AT command line is buffered, and no AT commands will be processed. The maximum size of AT command line buffer can be configured in SDK. When the maximum size is exceeded, buffered data will be dropped silently, and AT prefix will be searched again.

When all commands can be handled successfully, OK will be responded. When any command in the command line is failed, ERROR will be responded, and following commands in the command line will be dropped.

When a series of AT commands will be send to DCE in separated lines, DTE MUST wait final response of the previous command line before send next command line.

## 1.3 Character Set

The default character set of AT command interface is IRA character set. The following character sets are supported:

- GSM
- HEX
- PCCP936

- UCS2

## 2 Chapter 1. Introduction CHAPTER

TWO

---

### GENERAL COMMANDS

- *A/ Repeat last command*
- *AT+CPOF Switch Off Mobile Station*
- *ATSO Automatic Answering*
- *ATS3 Response Formatting Character*
- *ATS4 Response Formatting Character*
- *ATS5 Command Line Editing Character*
- *+++ Switch From Online Data Or Ppp Mode To Online Cmd Mode*
- *AT&F Set All Current Parameters To Manufacturer Defaults*
- *ATV Set Result Code Format Mode*
- *AT&W Stores Current Configuration To User Defined Profile*
- *ATQ Set Result Code Presentation Mode*

- *ATX Set Connect Result Code Format And Call Monitoring*
- *ATZ Set All Current Parameters To User Defined Profile*
- *AT+CFUN Set Phone Functionality*
- *AT+CMEE Report Mobile Equipment Error*
- *AT+CSCS Select TE Character Set*
- *AT+CMUX Multiplexing Mode*
- *AT+ICF DTE DCE Character Framing*
- *AT+IPR Set Fixed Local Rate*
- *AT+GSN Request TA Serial Number Identification | IMEI number*
- *AT+GMM Request TA Model Identification*
- *AT+CGMM Request Model Identification*
- *AT+GMR Request Revision Identification*
- *AT+GMI Request TA Manufacturer Identification*
- *ATI Request Manufacturer Specific Information About The TA*
- *AT+CIMI Request International Mobile Subscriber Identity*
- *AT+CALA Set An Alarm Time*
- *AT+CALD Delete One Alarm*
- *AT+CCLK Real Time Clock*



- *AT+CLAC lists all available at commands*
- *AT+CTZR Time zone report*
- *AT+CBC Battery Charging / Discharging And Charge Control*
- *AT+CEER Extended Error Report*
- *AT+CPAS Phone Activity Status*
- *AT+CSCLK Set Low Clock Mode*
- *AT+IFC DTE-DCE local flow control*
- *AT+CIND Set if the indication event send to ate*
- *AT+CMER Mobile Termination Event Reporting*
- *AT+TRB Restart*
- *AT+CGBV baseband version*
- *AT+EGMR Read And Write IMEI*
- *AT+CRSL Set UE volume level*
- *AT+CLVL Loudspeaker Volume Level*
- *AT+CMUT Mute Control*
- *AT+AUDCH Audio device mode type*
- *AT+CAUDPLAY Play audio file*
- *AT+CAUDREC Microphone recording and voice recording*
- *AT+CDTMF Play local DTMF tone*
- *AT+UPDATE firmware upgrade*
- *AT+NVGV Get the NV version information*
- *AT+NVPC NV parameter control*
- *AT+SETDTPORT Switch USB and Uart port*
- *AT^SSIT Set SIT module command*
- *AT+RFTEMPERATURE Get the RF temperature*
- *AT^SIMOPERTIMES Get the total number of SIM card operations(write,update...)*
- *AT+MAI2SY Config the external codec mode*
- *+CIEV Unsolicited result code for indicator control events*

**2.1 A/ Repeat last command**

Command	Possible response(s)
A/	

Reference: V.25ter

Description

If the prefix "A/" or "a/" is received, the DCE shall immediately execute once again the body of the preceding command line. No editing is possible, and no termination character is necessary. A command line may be repeated multiple times through this mechanism, if desired. Responses to the repeated command line shall be issued using the parity and format of the original command line, and the rate of the "A/". If "A/" is received before any command line has been executed, the preceding command line is assumed to have been empty (that results in an OK result code).

## 2.2 AT+CPOF Switch Off Mobile Station

Switch off mobile station.

Command	Possible response
AT+CPOF=?	<ul style="list-style-type: none"> <li>• OK</li> </ul>
AT+CPOF?	<ul style="list-style-type: none"> <li>• +CME ERROR</li> </ul>
AT+CPOF	<ul style="list-style-type: none"> <li>• +CPOF: MS OFF</li> <li>• OK</li> </ul>

Description

Device will be switched off (power down mode) Do not send any command after this command.

Response

+CPOF: MS OFF

OK

+CME ERROR.

Test this command will lead to the dev board switch off. But as soon as the board switches off, it will automatically power on.

Example

AT+CPOF

+CPOF: MS OFF

OK

[Device will be switched off (power down mode) ]

## 2.3 ATSO Automatic Answering

Description

This S-parameter controls the automatic answering feature of the DCE. If set to 0, automatic answering is disabled. If set to a non-zero value, the DCE shall cause the DCE to answer when the incoming call ringing has occurred the number of times indicated by the value.

Command	Possible response
ATSO=?	0-255
ATSO?	<n>
ATSO=[n]	OK

---

Parameter <n>:

## 2.2. AT+CPOF Switch Off Mobile Station

The auto answering times, range from 0~255.

Remark

If set to 0, auto answering is disabled. This command is specially used on data service in GPRS mode.

Example

---

ATS0=2

OK

---

ATS0=?

0-255

OK

---

ATS0?

2

OK

---

## 2.4 ATS3 Response Formatting Character

Description

This S-parameter represents the decimal IA5 value of the character recognized by the DCE from the DTE to terminate an incoming command line. It is also generated by the DCE as part of the header, trailer, and terminator for result codes and information text, along with the S4 parameter.

Command	Possible response
ATS3?	<n>
ATS3=[n]	OK

Parameter

<n>:

Command line termination character 0~13(default)~31

Remark

Using other value than 13 may cause problems when entering commands. If ATS3, ATS4, ATS5 be set to the same value, it may be cause some problem.

Example

---

## 2.5 ATS4 Response Formatting Character

Description

This S-parameter represents the decimal IA5 value of the character generated by the DCE as part of the header, trailer, and terminator for result codes and information text, along with the S3 parameter.

Command	Possible response
ATS4?	<n>
ATS4=[n]	OK

Parameter

<n>:

Command line termination character 0~10(default)~31

Remark

If ATS3, ATS4, ATS5 be set to the same value, it may be cause some problem.

Example

---

## 2.6 ATS5 Command Line Editing Character

Description

This S-parameter represents the decimal IA5 value of the character recognized by the DCE as a request to delete from the command line the immediately preceding character.

Command	Possible response
ATS5?	<n>
ATS5=[n]	OK

Parameter

<n>:

Command line termination character 0~8(default)~31

Remark

If ATS3, ATS4, ATS5 be set to the same value, it may be cause some problem.

Example

---

## 2.7 +++ Switch From Online Data Or Ppp Mode To Online Cmd Mode

Description

Return to online command state from online data state.

Command	Possible response
+++	OK

### 2.5. ATS4 Response Formatting Character

Response

OK If value is valid.

ERROR If value is not recognized or not supported.

Example

---

## 2.8 AT&F Set All Current Parameters To Manufacturer Defaults

### Description

This command instructs the DCE to set all parameters to default values specified by the manufacture, which may take hardware configuration switches and other manufacture-defined criteria into consideration.

Command	Possible response
AT&F[<value>]	OK

### Parameter

<value>:

[0] Set all TA parameters to manufacturer defaults. (other) Reserved for manufacture proprietary use.

### Remark

- List of parameters reset to manufacturer default can be found in Section.
- In addition to the default profile, you can store an individual one with AT&W. To alternate between the two profiles enter either ATZ (loads user profile) or AT&F (restores factory profile).

### Example

---

AT&F

OK

---

## 2.9 ATV Set Result Code Format Mode

### Description

The setting of this parameter determines the contents of the header and trailer transmitted with result codes and information responses. It also determines whether result codes are transmitted in a numeric form or an alphabetic (or "verbose") form. The text portion of information responses is not affected by this setting.

Command	Possible response
ATV[<value>]	<ul style="list-style-type: none"><li>• if &lt;value&gt; is <b>1</b> or empty – OK</li><li>• if &lt;value&gt; is <b>0</b> – 0</li></ul>

Parameter <value>:

- 0 Information response: <text><CR><LF> Short result code format: <numeric code><CR>
- 1 Information response: <CR><LF><text><CR><LF> Long result code format: <CR><LF><verbose code><CR><LF>

Remark

Following table shows the effect of the setting of this parameter on the format of information text and result codes. All references to cr mean "the character with the ordinal value specified in parameter S3"; all references to lf likewise mean "the character with the ordinal value specified in parameter S4"

V0	V1
<text><cr><lf>	<cr><lf> <text><cr><lf>
<numeric code><cr>	<cr><lf><verbose code><cr><lf>

Example

ATV1

<CR><LF><text><CR><LF>

<CR><LF><verbose code><CR><LF>

## 2.10 AT&W Stores Current Configuration To User Defined Profile

Description

This command stores the currently set parameters to a user defined profile in the non-volatile memory.

Command	Possible response
AT&W[<value>]	OK

Parameter

<value>:

0 Profile number

Remark

- The user defined profile will be restored automatically after power-up. Use ATZ to restore user profile and AT&F to restore factory settings. Until the first use of AT&W, ATZ works as AT&F.
- A list of parameters stored to the user profile can be found in Section chapter 29, appendix B, AT Command Settings storable with AT&W.

Example

ATE

OK

## 2.10. AT&W Stores Current Configuration To User Defined Profile

### 2.11 ATQ Set Result Code Presentation Mode

#### Description

This parameter setting determines whether or not the DCE transmits result codes to the DTE.

Command	Possible response
ATQ[<value>]	OK

#### Parameter

<value>:

0 DCE transmits result code

1 Result codes are suppressed and not transmitted

#### Example

---

ATQ0

OK

ATQ1

ATQ

OK

---

### 2.12 ATX Set Connect Result Code Format And Call Monitoring

#### Description

This parameter setting determines whether or not the DCE detects the presence of dial tone and busy signal and whether or not DCE transmits particular result codes.

Command	Possible response
ATX[<value>]	<value> = 0, 1, 2, 3, 4;

#### Parameter

<value>:

The default value is 4.

- 0 CONNECT result code only returned; dial tone and busy detection are both disable.
- 1 CONNECT <text> result code only returned; dial tone and busy detection are both disable.
- 2 CONNECT <text> result code returned; dial tone detection is enabled, busy detection is disabled.
- 3 CONNECT <text> result code returned, dial tone detection is disabled, busy detection is enabled.
- 4 CONNECT <text> result code returned; dial tone and busy detection are both enabled.

### 2.13 ATZ Set All Current Parameters To User Defined Profile

#### Description

This command instructs the DCE to set all parameters to their factory defaults as specified by the manufactured.

Command	Possible response
ATZ[<value>]	OK

Parameter

<value>:

- 0 The default configure of the manufacturer. (other) Not be used.

Remark

- First the profile will be set to factory default (see AT&F). If there is a valid user profile (stored with AT&W), this profile will be loaded afterwards.
- Any additional commands on the same command line may be ignored. A delay of 300 ms is required before next command is sent; otherwise "OK" response may be corrupted.

## 2.14 AT+CFUN Set Phone Functionality

Description

Set command currently can only be used to switch off and on the CSW platform.

Command	Possible response
AT+CFUN=?	+CFUN : (list of supported <fun>s),(list of supported <rst>s)
AT+CFUN?	+CFUN:<fun>
AT+CFUN=<fun>[,<rst> ]	OK

Parameter

<value>:

<fun>:

- 0 Minimum functionality.disable (turn off) both MT transmit and receive RF circuits
- 1 Full functionality
- 4 The same with 0

<rst>

- 0 Do not reset the MT before setting it to <fun> power level.
- 1 Reset the MT before setting it to <fun> power level.

NOTE: this shall be always default when <rst> is not given.

Remark

Currently, for <fun> parameter only 0,1 and 4 is supported,0 and 4 will return the same result.

When <fun> equals to 0 and 1 and 4, the second parameter <rst> is ignored.

For CSW only do the de-registering when switch off, when parameter is set by 0 or 1, CSW will operate the network job independent.

---

## 2.13. ATZ Set All Current Parameters To User Defined Profile

Example

---

AT+CFUN=0

OK



---

AT+CFUN?  
+CFUN:0  
OK

---

Note:

- The max wait time is 120 seconds.
- 

## 2.15 AT+CMEE Report Mobile Equipment Error

Description

This command controls the presentation of the result code +CME ERROR: <err> that indicates errors relating to ME functionality.

Command	Possible response
AT+CMEE=?	<ul style="list-style-type: none"><li>• +CMEE: (0-2)</li><li>• OK</li></ul>
AT+CMEE?	<ul style="list-style-type: none"><li>• +CMEE: &lt;n&gt;</li><li>• OK</li></ul>
AT+CMEE=[<n>]	<ul style="list-style-type: none"><li>• <b>If success:</b><ul style="list-style-type: none"><li>– OK</li></ul></li><li>• <b>If failed:</b><ul style="list-style-type: none"><li>– +CME ERROR: &lt;err&gt;</li></ul></li></ul>

Parameter

<n>:

- 0 Disable +CME ERROR: <err> code and use ERROR instead
- 1 Enable +CME ERROR: <err> code and use numeric <err> values (refer next sub clause)
- 2 Enable +CME ERROR: <err> result code and use verbose <err> values refer next sub clause)

Remark

When enable the result code, MT related errors cause +CME ERROR: <err> final result code instead of the regular ERROR final result code. ERROR is returned normally when error is related to syntax, invalid parameters, or TA functionality.

Example

---

```

AT+CMEE=1
OK
AT+CMEE=5 +CME
ERROR:53
at+cmee=?
+CMEE: (0-2)
OK
at+cmee?
+CMEE: 1
OK

```

---

## 2.16 AT+CSCS Select TE Character Set

### Description

Write command informs DCE which character set <chset> is used by the TE. DCE is then able to convert character strings correctly between TE and ME character sets.

Command	Possible response
AT+CSCS=?	+CSCS: (list of supported < chset >s)
AT+CSCS?	+CSCS: (list of supported < chset>s)
AT+CSCS=[<chset>]	OK

### Parameter

<chset>:

- "GSM" GSM 7 bit default alphabet (3GPP TS 23.038); this setting causes easily software flow control (XON/XOFF) problems.
- "UCS2" 16-bit universal multiple-octet coded character set ( ISO/IEC10646 [32]); UCS2 character strings are converted to hexadecimal numbers from 0000 to FFFF; e.g. "004100620063" equals three 16-bit characters with decimal values 65, 98 and 99.
- "HEX" Hexadecimal mode. No character set used ; the user read or write directly hexadecimal values.
- "PCCP936" PC Set Chinese character.

### Remark

This command is used to read and write phonebook entries. SMS doesn't effected by this command.

### Example

---

```

AT+CSCS ="UCS2"
OK
AT+CSCS?
+CSCS: "UCS2"
OK

```

AT+CSCS=?

## 2.16. AT+CSCS Select TE Character Set

+CSCS: ("GSM", "HEX", "PCCP936", "UCS2")

OK

---

## 2.17 AT+CMUX Multiplexing Mode

### Description

This command is used to enable the multiplexing protocol control channel.

Command	Possible response
AT+CMUX=?	+CMUX: (list of supported <transparency>s),(list of supported <subset>s),(list of supported <port_speed>s),(list of supported <N1>s),(list of supported <T1>s),(list of supported <N2>s),(list of supported <T2>s),(list of supported <T3>s),(list of supported <k>s) OK
AT+CMUX?	+CMUX: <transparency>,[<subset>], <port_speed>,<N1>,<T1>,<N2>,<T2>,<T3>[,<k>] OK
AT+CMUX=<transparency>[,<subset> [,<port_speed>,<N1>,<T1>,<N2> [,<T2>,<T3>,<k>]]]]]]	OK

### Parameter

<transparency>: integer type (multiplexer Transparency Mechanism)

0 Basic option 1 Advanced option

<subset>: integer type. This parameter defines the way in which the multiplexer control channel is set up. A virtual channel may subsequently be set up differently but in the absence of any negotiation for the settings of a virtual channel, the virtual channel shall be set up according to the control channel <subset> setting.

0 UIH frames used only

<port\_speed>: integer type (transmission rate). The default value is implementation specific.

1	9600 bit/s
2	19200 bit/s
3	38400 bit/s

4	57600 bit/s
5	115200 bit/s
6	230400 bits/s

<N1>: integer type (maximum frame size)

1- 2048, where the 31(or 127) is default for Basic option and 64 is default for Advanced option (see <transparency>)

<T1>: integer type (acknowledgement timer in units of ten milliseconds)

1-255, where 10 is default (100 ms)

<N2>: integer type (maximum number of re-transmissions)

0-100, where 3 is default

<T2>: integer type (response timer for the multiplexer control channel in units of ten milliseconds)

2-255, where 30 is default (300 ms).

<T3>: integer type (wake up response timer in seconds)

1-255, where 10 is default

<K>: integer type (window size, for Advanced option with Error-Recovery Mode)

1-7, where 2 is default

Note: T2 must be longer than T1.

Example

```

AT+CMUX=0,0,5,127,10,3,30,10,2
OK
AT+CMUX=?
+CMUX: (0,1),(0),(1-6),(1-2048),(1-255),(0-100),(2-255),(1-255),(1-7)
OK
AT+CMUX?
+CMUX: 0,0,5,127,10,3,30,10,2
OK

```

## 2.18 AT+ICF DTE DCE Character Framing

Command	Possible response(s)
AT+ICF=[<format>[, <parity>]]	
AT+ICF?	+ICF: <format>,<parity>
AT+ICF=?	+ICF: (list of supported <format> values),(list of supported <parity> values)

Reference: V.25ter

## Description

This extended-format compound parameter is used to determine the local serial port start-stop (asynchronous) character framing that the DCE shall use while accepting DTE commands and while transmitting information text and result code, if this is not automatically determined.

## Parameters

### 2.18. AT+ICF DTE DCE Character Framing

<format> determines the number of bits in the data bits, the presence of a parity bit, and the number of stop bits in the start-stop frame.

0	auto detect
1	8 data, 2 stop
2	8 data, 1 parity, 1 stop
3	8 data, 1 stop
4	7 Data 2 Stop
5	7 Data 1 Parity 1 Stop
6	7 Data 1 Stop

<parity> determines how the parity bit is generated and checked, if present (when format is 2 or 5).

0	Odd
1	Even
2	Mark
3	Space

## Note:

- character framing auto detect is not supported.
- For hardware limitation, 8910 8915 only support +ICF:(1-3),(0-1).

## 2.19 AT+IPR Set Fixed Local Rate

Command	Possible response(s)
AT+IPR=<rate>	
AT+IPR?	+IPR: <rate>
AT+IPR=?	+IPR: (list of supported autodetectable <rate> values)[,(list of fixed-only <rate> values)]

Reference: V.25ter

## Description

This numeric extended-format parameter specifies the data rate at which the DCE will accept commands, in addition to 1200 bit/s or 9600 bit/s

## Parameters

<rate> The <rate> value specified shall be the rate in bits per second at which the DTE-DCE interface should operate, e.g. "19200" or "115200". The rates supported by a particular DCE are manufacturer-specific; however, the IPR parameter should permit the setting of any rate supported by the DCE during online operation. Rates which include a non-integral number of bits per second should be truncated to the next lower integer (e.g. 134.5 bit/s should be specified as 134; 45.45 bit/s should be specified as 45). If unspecified or set to 0, automatic detection is selected for the range determined by the DCE

manufacturer.

## 2.20 AT+GSN Request TA Serial Number Identification | IMEI number

### Description

This command request TA serial number identification | IMEI number

Command	Possible response
AT+GSN=?	OK
AT+GSN=0	<sn>
AT+GSN=1	<imei>

### Parameter

<sn>:

the total number of characters, including line terminators, in the information text shall not exceed 2048 characters.

<imei>:

International mobile equipment identity.

### Example

---

```
AT+GSN=0
012345678901234
OK
```

---

## 2.21 AT+GMM Request TA Model Identification

### Description

This command request TA model identification (may equal to +CGMM)

Command	Possible response
AT+GMM=?	OK
AT+GMM	<model>

### Parameter

<model>:

the total number of characters, including line terminators, in the information text shall not exceed 2048 characters.

### Example

---

```
AT+GMM
GSM Ultimate Data Device
OK
```

### 2.21. AT+GMM Request TA Model Identification

## 2.22 AT+CGMM Request Model Identification

#### Description

This command causes the TA to return one or more lines of information text <model>, determined by the MT manufacturer, which is intended to permit the user of the TA to identify the specific model of the MT to which it is connected to. Typically, the text will consist of a single line containing the name of the product, but manufacturers may choose to provide more information if desired.

Command	Possible response
AT+CGMM=?	OK
AT+CGMM	<model>

#### Parameter

<model>:

the total number of characters, including line terminators, in the information text shall not exceed 2048 characters.

#### Example

---

```
AT+CGMM
GSM Ultimate Data Device
OK
```

---

## 2.23 AT+GMR Request Revision Identification

#### Description

This command request TA revision identification (may equal to +CGMR)

Command	Possible response
AT+GMR=?	OK
AT+GMR	<revision>

#### Parameter

<revision>:

the total number of characters, including line terminators, in the information text shall not exceed 2048 characters.

#### Example

AT+GMR

3.00

OK

---

## 2.24 AT+GMI Request TA Manufacturer Identification

### Description

Request TA manufacturer identification (may equal to +CGMI).

Command	Possible response
AT+GMI=?	OK
AT+GMI	<manufacturer>

### Parameter

<manufacturer>:

the total number of characters, including line terminators, in the information text shall not exceed 2048 characters.

### Remark

- The user defined profile will be restored automatically after power-up. Use ATZ to restore user profile and AT&F to restore factory settings. Until the first use of AT&W, ATZ works as AT&F.
- A list of parameters stored to the user profile can be found in Section chapter 29, appendix B, AT Command Settings storable with AT&W.

### Example

---

AT+GMI

Manufacturer ABC

OK

---

## 2.25 ATI Request Manufacturer Specific Information About The TA

### Description

Request manufacturer specific information about the TA (software cannot use this command to determine the capabilities of a TA)

Command	Possible response
ATI	<module name> <module version>

### Parameter

<value>:

may optionally be used to select from among multiple types of identifying information, specified by the manufacturer.. 0 return manufacturer identification, model identification and revision identification of software. (1-255) Reserved for manufacturer proprietary use

### Example



ATI  
RDA AT  
3.0.0  
OK

## 2.24. AT+GMI Request TA Manufacturer Identification

---

## 2.26 AT+CIMI Request International Mobile Subscriber Identity

### Description

This command causes the TA to return <IMSI>, which is intended to permit the TE to identify the individual active application in the UICC (GSM or USIM) or SIM card which is attached to MT.

Command	Possible response
AT+CIMI=?	OK
AT+CIMI	<IMSI>

### Parameter

<IMSI>:

International Mobile Subscriber Identity (string without double quotes)

### Example

---

```
AT+CIMI
460001033113523
OK
```

---

## 2.27 AT+CALA Set An Alarm Time

### Description

This command is used to set/list alarms or date/time in the ME.

Command	Possible response
AT+CALA=?	+CALA: (list of supported <n>s), (list of supported <type>s), <length>,<rlength>,(list of supported <silent>s)
AT+CALA?	[+CALA: <time>,<n1>,<type>, [<text>],[<recurr>], <silent><CR><LF>+CALA: <time>, <n2>,<type>,[<text>],[<recurr>], <silent>[...]]

AT+CALA=<time>[,<n>[,<type>[,<text>[,<recurr>[,<silent>]]]]]	OK
--	----

Parameter

**<time>**: string type value, the format is "yy/mm/dd,hh:mm:ss+zz", where characters indicate year (two last digits), month, day, hour, minutes, seconds and time zone (indicates the difference, expressed in quarters of an hour, between the local time and GMT; range -12. . . +13). E.g. 6th of May 2005, 22:10:00 GMT+2 hours equals to "05/05/06,22:10:00+08" Note: if <time> equals current date and time or is set to an earlier date, returns +CME ERROR: 21.

**<n>,<n1>,<n2>**: Integer type value Indicating the index of the alarm. Default is 1, in the range of 1~16.

**<type>**: Integer type value indicating the type of the alarm (e.g. sound, volume, LED); values and default is 0.

**<text>**: String type value indicating the text to be displayed when alarm time is reached; maximum length <length>

**<length>**: Integer type value indicating the maximum length of <text>

**<recurr>**: String type value indicating day of week for the alarm in one of the following formats: "<1..7>[,<1..7>[...]]" - Sets a recurrent alarm for one or more days in the week. The digits 1 to 7 corresponds to the days in the week, Monday (1),Sunday (7). Example: The string "1,2,3,4,5" may be used to set an alarm for all weekdays. "0" - Sets a recurrent alarm for all days in the week.

**<rlength>**: Integer type value indicating the maximum length of <recurr>

**<silent>**: Integer type value indicating if the alarm is silent or not. If set to 1 the alarm will be silent and the only result from the alarm is the unsolicited result code +CALV. If set to 0 the alarm will not be silent

Remark

- If you want set a recycle alarm,just import the time
- If don't input recur , it will consider it not a recyclable alarm
- If don't input index,the alarm index is 1 will be substitute
- String format of alarm: "yy/MM/dd,hh:mm:ss".
- Maximum number of alarms is 16. Seconds are not taken into account.

Example

---

```

AT+CALA ="07/10/26,10:20:34",1,0, "alarm1"
<Note : Set alarm for Dec 26th, 2007 at 10:20:34 am, the alarm name is alarm1>
OK
<Note : the alarm is stored>
AT+CALA ="18:02:10",2,0, "alarm2", "2"
<Note : >
OK
<Note : the alarm is stored>
AT+CALA?
<Note : >

```

```

+CALA: "07/10/27,17:35:30",1,0, "alarm1", "1,2,3,4,5,6,7"
+CALA: "07/10/27,17:40:23",2,0, "alarm2", "1,2,3,4,5,6,7"
+CALA: "07/10/27,18:50:30",3,0, "alarm test", "2,4,6,"
+CALA: "07/10/27,17:35:30",4,0, "alarm5", "1,3,5,6,"
+CALA: "07/10/29,18:45:30",5,0, "222", "1,3,5,"
OK
<Note : >
AT+CALA=?
<Note : >
+CALA: (1-16),(0),(32),(15)

```

### 2.27. AT+CALA Set An Alarm Time

```

OK
<Note : >

```

## 2.28 AT+CALD Delete One Alarm

### Description

Action command deletes an alarm in the MT

Command	Possible response
AT+CALD=?	+CALD: (list of supported <n>s)
AT+CALD=<n>	OK

### Parameter

<n>:

Integer type value Indicating the index of the alarm. default is manufacturer specific

### Example

```

AT+CALD=1
OK
AT+CALD=?
+CALD: 2 OK

```

## 2.29 AT+CCLK Real Time Clock

### Description

This command stores the currently set parameters to a user defined profile in the non-volatile memory.

Command	Possible response
AT+CCLK?	+CCLK: <time>
AT+CCLK=<time>	OK

Parameter

<time>:

string type value, the format is "yy/mm/dd,hh:mm:ss+zz", where characters indicate year (two last digits), month, day, hour, minutes, seconds and time zone (indicates the difference, expressed in quarters of an hour, between the local time and GMT; range -96. . . +96). E.g. 6th of May 2005, 22:10:00 GMT+2 hours equals to "05/05/06,22:10:00+08" Note: if <time> equals current date and time or is set to an earlier date, returns +CME ERROR: 21.

Remark

If MT does not support time zone information then the three last characters of <time> are not returned by +CCLK? The format of <time> is specified by use of the +CSDF command The range of the year is from 1970 to 2069

Example

---

```
AT+CCLK ="07/10/25,11:33:40+08"
```

```
OK
```

```
AT+CCLK?
```

```
+CCLK: "07/10/25,11:33:44+08"
```

```
OK
```

```
AT+CCLK=?
```

```
OK
```

---

## 2.30 AT+CLAC lists all available at commands

Description

Execution command causes the MT to return one or more lines of AT Commands.

Command	Possible response
AT+CLAC	<ul style="list-style-type: none"> <li>• &lt;ATCommand1&gt;[&lt;CR&gt;&lt;LF&gt;&lt;ATCommand2&gt;[...]]</li> <li>• OK</li> </ul>
AT+CLAC=?	OK

Parameter

<AT Command>:

Defines the AT command including the prefix AT. Text shall not contain the sequence 0<CR> or OK<CR>

## 2.31 AT+CTZR Time zone report

Description

This set command controls the time zone change event reporting. If reporting is enabled the MT returns the unsolicited result code +CTZV: <tz>, +CTZE: <tz>,<dst>,<time>], or +CTZEU: <tz>,<dst>,<utime>] whenever the time zone is changed. The MT also provides the time zone upon network registration if provided by the network. If setting fails in an MT error, +CME ERROR: <err> is returned. Read command returns the current reporting settings in the MT. Test command returns supported <reporting>-values as a compound value.

### 2.30. AT+CLAC lists all available at commands

Command	Possible response
AT+CTZR=[<reporting>]	<ul style="list-style-type: none"> <li>• OK</li> </ul>
AT+CTZR?	<ul style="list-style-type: none"> <li>• +CTZR:&lt;reporting&gt;</li> <li>• OK</li> </ul>
AT+CTZR=?	<ul style="list-style-type: none"> <li>• +CTZR: (list of supported &lt;reporting&gt;s)</li> <li>• OK</li> </ul>

Parameter

**<reporting>**: integer type value indicating

- 0: disable time zone change event reporting.
- 1: Enable time zone change event reporting by unsolicited result code +CTZV: <tz>.
- 2: Enable extended time zone and local time reporting by unsolicited result code +CTZE: <tz>,<dst>,<time>].
- 3: Enable extended time zone and universal time reporting by unsolicited result code +CTZEU: <tz>,<dst>,<utime>].

**<tz>**: string type value representing the sum of the local time zone (difference between the local time and GMT expressed in quarters of an hour) plus daylight saving time. The format is "zz", expressed as a fixed width, two digit integer with the range -48 . . . +56. To maintain a fixed width, numbers in the range -9 . . . +9 are expressed with a leading zero, e.g. "-09", "+00" and "+09".

**<dst>**:integer type value indicating whether <tz> includes daylight savings adjustment;

- 0: <tz> includes no adjustment for Daylight Saving Time
- 1: <tz> includes +1 hour (equals 4 quarters in <tz>) adjustment for daylight saving time
- 2: <tz> includes +2 hours (equals 8 quarters in <tz>) adjustment for daylight saving time

**<time>**: string type value representing the local time. The format is "YYYY/MM/DD,hh:mm:ss", expressed as integers representing year (YYYY), month (MM), date (DD), hour (hh), minute (mm) and second (ss). The local time can be derived by the MT from information provided by the network at the time of delivering time zone information and will be present in the unsolicited result code for extended time zone and local time reporting if the universal time is provided by the network.

**<utime>**: string type value representing the universal time. The format is "YYYY/MM/DD,hh:mm:ss", expressed as integers representing year (YYYY), month (MM), date (DD), hour (hh), minute (mm) and second (ss). The universal time can be provided by the network at the time of delivering time zone information and will be present in the unsolicited result code for extended time zone and universal time reporting if provided by the network.

## 2.32 AT+CBC Battery Charging / Discharging And Charge Control

### Description

Execution command returns battery connection status <bcs> and battery charge level <bcl> of the ME. Test command returns values supported by the TA as compound values. When device has no real power source, the execution command will get default value.

Command	Possible response
AT+CBC=?	+CBC: (list of supported <bcs>s),(list of supported <bcl>s)
AT+CBC	+CBC: <bcs>,<bcl> CME ERROR: <err>

### Parameter

#### <bcs>:

- 0 No charging adapter is connected
- 1 Charging adapter is connected
- 2 Charging adapter is connected, charging in progress
- 3 Charging adapter is connected, charging has finished
- 4 Charging error, charging is interrupted
- 5 False charging temperature, charging is interrupted while temperature is beyond allowed range

---

Note: <bcs> value 1 4 5 not supported now

---

#### <bcl>:

- Battery capacity 0-100 percent of remaining capacity (11 steps)
- 0 indicates that either the battery is exhausted or the capacity value is not available.

### Example

---

```
AT+CBC
+CBC: 0,100
OK
AT+CBC=?
+CBC: (0-5), (0-100)
OK
```

---

## 2.33 AT+CEER Extended Error Report

### Description

This command causes the TA to return one or more lines of information text <report>, determined by the MT manufacturer, which should offer the user of the TA an extended report of the reason for - the failure in the last unsuccessful call setup (originating or answering) or in call modification; - the last call release; - the last unsuccessful GPRS attach or unsuccessful PDP context activation; - the last GPRS detach or PDP context deactivation. Typically, the text will consist of a single line containing the cause information given by GSM/UMTS network in textual format.

### 2.33. AT+CEER Extended Error Report

Command	Possible response
AT+CEER=?	OK
AT+CEER	+CEER: <report>

### Parameter

<report>: the total number of characters, including line terminators, in the information text shall not exceed 2041 characters. Text shall not contain the sequence 0<CR> or OK<CR>

### Example

---

```
AT+CEER = ?
OK
ATD13501275915;
OK
BUSY
AT+CEER
+CEER: CALL RELEASED, NETWORK SENT UDUB TO ME
OK
```

---

## 2.34 AT+CPAS Phone Activity Status

### Description

This command returns the activity status <pas> of the MT. It can be used to interrogate the MT before requesting action from the phone.

Command	Possible response
AT+CPAS=?	+CPAS: (list of supported <pas>s)
AT+CPAS	+CPAS: <pas>

### Parameter

**<pas>:**

- 0 ready (MT allows commands from TA/TE)
- 1 unavailable (MT does not allow commands from TA/TE)
- 2 unknown (MT is not guaranteed to respond to instructions)
- 3 ringing (MT is ready for commands from TA/TE, but the ringer is active)
- 4 call in progress (MT is ready for commands from TA/TE, but a call is in progress)
- 5 asleep (MT is unable to process commands from TA/TE because it is in a low functionality state) also all other values below 128 are reserved by the present document.

Example

---

```
AT+CPAS=?
+CPAS:0,3,4
OK
AT+CPAS
+CPAS:0
OK
```

---

## 2.35 AT+CSCLK Set Low Clock Mode

Description

This command is used to set low clock mode.

Command	Possible response
AT+CSCLK=?	+CSCLK: (list of supported <pas>s)
AT+CSCLK=<pas>	OK
AT+CSCLK?	+CSCLK: (list of supported <pas>s)

Parameter

**<pas>:**

- 0 Disable slow clock
- 1 Enable slow clock mode,use DTR to control slow clock , when DTR is set high, enable slow clock, otherwise disable slow clock.
- 2 Set slow clock mode automaticly , disable slow clock when uart recieve or send data,otherwise enable slow clock.

Example

---

```
AT+CSCLK=?
+CSCLK:(0,1,2)
OK
AT+CSCLK=1
OK
```



---

## 2.36 AT+IFC DTE-DCE local flow control

### Description

This command is used to control DTE\_DCE local flow

### 2.35. AT+CSCLK Set Low Clock Mode

Command	Possible response
AT+IFC?	+IFC: <rxfc>,<txfc> OK
AT+IFC=<rxfc>,<txfc>	OK
AT+IFC=?	+IFC: (0,2),(0,2) OK

### Parameter

#### <rxfc>:

- 0:disable rx flow control
- 2:enable rx flow control

#### <txfc>:

- 0:disable tx flow control
- 2:enable tx flow control

### Example

---

```
AT+IFC?  
+IFC: 2,1  
OK  
AT+IFC=0,0  
OK  
AT+IFC=?
```

---

## <sup>1</sup>.37 AT+CIND Set if the indication event send to ate

### Description

Set if the indication event send to ate

---

+IFC: (0,2),(0,2)

OK

Command	Possible response
AT+CIND=?	+CIND: ("battchg",(0-5)),("signal", (0-5)),("service",(0-1)), ("sounder",,(0-1)),("message", (0-1)),("call",_(0-1)),("roam", (0-1)),("smsfull",(0-1))
AT+CIND?	+CIND:BatteryCharge, Signal, Service, Sounder, Message,Call, Roam,Smsfull
AT+CIND=[<ind>[,<ind>[. . . ]]]	OK ERROR

Parameter

<value>:

<ind>: integer type value, which shall be in range of corresponding <descr>

<descr>:values reserved by the present document and their <ind> ranges:

- "battchg" battery charge level (0-5)
- "signal" signal quality (0-5)
- "service" service availability (0-1)
- "sounder" sounder activity (0-1)
- "message" message received (0-1)
- "call" call in progress (0-1)
- "roam" roaming indicator (0-1)
- "smsfull" message memory storage has become full (1), or memory locations are available (0); i.e. the range is (0-1)

Remark

Example

---

```
AT+CIND=1,1,1,0,1,1,1,1
```

```
OK
```

```
AT+CIND?
```

```
+CIND:5,0,0,0,1,0,0,0
```

```
OK
```

## 2.38 AT+CMER Mobile Termination Event Reporting

Description

This command set or query the sending mode of unsolicited result codes from TA to TE.

### 2.38. AT+CMER Mobile Termination Event Reporting

Command	Possible response
AT+CMER=?	+CMER: (list of supported <mode>s),(list of supported <keyp>s),(list of supported <disp>s),(list of supported <ind>s),(list of supported <bfr>s)
AT+CMER?	+CMER: <mode>,<keyp>,<disp>,<ind>,<bfr>
AT+CMER=[<mode>[, <keyp>[,<disp>[,<ind>[,<bfrOK>]]]]]	

Parameter

<mode>:

- 0 buffer unsolicited result codes in the TA; if TA result code buffer is full, codes can be buffered in some other place or the oldest ones can be discarded
- 1 discard unsolicited result codes when TA TE link is reserved (e.g. in on line data mode); otherwise forward them directly to the TE
- 2 buffer unsolicited result codes in the TA when TA TE link is reserved (e.g. in on line data mode) and flush them to the TE after reservation; otherwise forward them directly to the TE
- 3 forward unsolicited result codes directly to the TE; TA TE link specific inband technique used to embed result codes and data when TA is in on line data mode

<keyp>:

- 0 no keypad event reporting
- 1 keypad event reporting using result code +CKEV: <key>,<press>. <key> indicates the key (refer IRA values defined in table in subclause "Keypad control +CKPD") and <press> if the key is pressed or released (1 for pressing and 0 for releasing). Only those key pressings, which are not caused by +CKPD shall be indicated by the TA to the TE.  
NOTE 1: When this mode is enabled, corresponding result codes of all keys currently pressed should be flushed to the TA regardless of <bfr> setting.
- 2 keypad event reporting using result code +CKEV: <key>,<press>. All key pressings shall be directed from TA to TE.  
NOTE 2: When this mode is enabled, corresponding result codes of all keys currently pressed should be flushed to the TA regardless of <bfr> setting.

<disp>:

- 0 no display event reporting
- 1 display event reporting using result code +CDEV: <elem>,<text>. <elem> indicates the element order number (as specified for +CDIS) and <text> is the new value of text element. Only those display events, which are not caused by +CDIS shall be indicated by the TA to the TE. Character set used in <text> is as specified by command Select TE Character Set +CSCS
- 2 display event reporting using result code +CDEV: <elem>,<text>. All display events shall be directed from TA to TE. Character set used in <text> is as specified by command Select TE Character Set +CSCS

<ind>:

- 0 no indicator event reporting
- 1 indicator event reporting using result code +CIEV: <ind>,<value>. <ind> indicates the indicator order number (as specified for +CIND) and <value> is the new value of indicator. Only those indicator

events, which are not caused by +CIND shall be indicated by the TA to the TE 2 indicator event reporting using result code +CIEV: <ind>,<value>. All indicator events shall be directed from TA to TE

<bfr>:

0 TA buffer of unsolicited result codes defined within this command is cleared when <mode> 1 . . 3 is entered

1 TA buffer of unsolicited result codes defined within this command is flushed to the TE when <mode> 1 . . 3 is entered (OK response shall be given before flushing the codes)

Example

---

```
AT+CMER=3,0,0,2
OK
+CIEV:battchg,5
+CIEV:signal,99
AT+CMER=?
+CMER:(3),(0),(0),(0,2)
OK
AT+CMER?
+CMER:3,0,0,2
OK
```

---

## 2.39 AT+TRB Restart

Description

Execution command restart the module.

Command	Possible response
AT+TRB	REBOOTING OK

Note:

- The max wait time is 120 seconds.

---

## 2.40 AT+CGBV baseband version

### Description

Get baseband version.

### Syntax

## 2.39. AT+TRB Restart

Command	Possible Responses
Test Command AT+CGBV=?	OK
Exec Command AT+CGBV	+CGBV: RDA<Version> OK

### Parameter

None

## 2.41 AT+EGMR Read And Write IMEI

### Description

This command read IMEI from factory partition,also can write IMEI to factory partition.

Command	Possible response
AT+EGMR=?	+EGMR: (1,2),(7)
AT+EGMR=<mode>,<format>[,<data>]	<IMEI>

### Parameter

#### <mode>:

1 write mode

2 read mode

<format>: 7 only can set this value,to match ap.:

<data>: IMEI number.

### Example

---

```

AT+EGMR=1,7, "1111111111111111"
+EGMR OK
AT+EGMR=2,7
+EGMR:1111111111
OK

```

---

## 2.42 AT+CRSL Set UE volume level

### Description

Set UE volume level. It will affect audio player and local DTMF tone volume.

### Syntax

Command	Possible Responses
AT+CRSL=<level>	OK
AT+CRSL?	+CRSL: <level>
AT+CRSL=?	+CRSL: (list of supported <level>s)

Parameter <level>

Integer type value with manufacturer specific range (smallest value represents the lowest sound level).

Though the range is from 0 to 100, the distinguishable audio volume steps is less than 100. So, the hearable audio volume for some levels will be the same.

### Example

```

AT+CRSL=50
OK AT+CRSL?
+CRSL: 50
OK
AT+CRSL=?
+CRSL: (0-100)
OK

```

---

## 2.43 AT+CLVL Loudspeaker Volume Level

### Description

This command is used to select the volume of the internal loudspeaker of the MT.

### Syntax

Command	Possible Responses
AT+CLVL=<level>	OK
AT+CLVL?	+CLVL: <level>

AT+CLVL=?	+CLVL: (list of supported <level>s)
-----------	-------------------------------------

Parameter <level>

Integer type value with manufacturer specific range (smallest value represents the lowest sound level).

Though the range is from 0 to 100, the distinguishable audio volume steps is less than 100. So, the hearable audio volume for some levels will be the same.

Example

---

### 2.43. AT+CLVL Loudspeaker Volume Level

AT+CLVL=50

OK AT+CLVL?

+CLVL:50

OK

AT+CLVL=?

+CLVL: (0-100)

OK

---

## 2.44 AT+CMUT Mute Control

Description

This command is used to enable and disable the uplink voice muting during a voice call.

It can be called either during voice call, or not during voice call. When it is called during voice call, the uplink will be muted or un-muted immediately. When it is called not during voice call, this setting will be applied to next voice call.

This setting won't be saved. Each time system is booted, voice call uplink is un-muted by default.

Syntax

Command	Possible Responses
AT+CMUT=<n>	OK
AT+CMUT?	+CMUT: <n>
AT+CMUT=?	+CMUT: (list of supported <n>s)

Parameter

<n>

Integer type:

- 0: mute off
- 1: mute on.

Example

---

```
AT+CMUT=1
OK AT+CMUT?
+CMUT: 1 OK
```

---

## 2.45 AT+AUDCH Audio device mode type

### Description

This command is used to select the type of the audio of the MT.

### Syntax

Command	Possible Responses
AT+AUDCH=<channel>[,<input>]	OK
AT+AUDCH?	+AUDCH: <channel>
AT+AUDCH=?	+AUDCH: (list of supported <channel>s), (list of supported <input>s)

### Parameter

<channel>

Audio output type:

- 0: Receiver
- 1: Ear piece
- <sup>1</sup>: Loud speaker

<input>

Device audio input type:

- 0: Main mic
- 1: Aux mic
- 2: Dual mic
- 3: HP mic use left
- 4: HP mic use right

### Example

---

```
AT+AUDCH=0
OK AT+AUDCH?
+AUDCH:0
OK
AT+AUDCH=?
+AUDCH: (0-2),(0-4)
```

---

<sup>1</sup>.45. AT+AUDCH Audio device mode type



OK

## 2.46 AT+CAUDPLAY Play audio file

### Description

Play audio file. Audio stream format is determined by the file name suffix.

In any time, only one stream playing is permitted. That is, when there is an audio file is playing, the next AT command for playing audio file will report error.

Pause can only be executed in playing state, and resume can only be executed in pause state. However, stop can be executed in any states.

After audio file playing is finished, it is needed to send AT+CAUDPLAY=2 to stop audio playing.

### Syntax

Command	Possible Responses
AT+CAUDPLAY=<oper>[,<filename>]	OK
AT+CAUDPLAY?	+CAUDPLAY: <state>
AT+CAUDPLAY=?	+CAUDPLAY: (list of supported <oper>s),<filename>

### Parameter

#### <oper>

Audio player operations:

- 1: play
- 2: stop
- 3: pause
- 4: resume

#### <filename>

The file name to be played. The stream type is determined by the file name suffix. For example, *filename.mp3* will be regarded as MP3 file, *filename.wav* is regarded as WAV file.

<filename> should be embraced with double quotation, for example, */example.mp3*. It is mandatory in play operation, and can not be specified for other operations.

The supported stream format is MP3 and WAV.

#### <state>

Audio player states:

- 0: there are no files in playing
- 1: there is an audio file in playing
- 2: audio player is paused
- 3: audio player is finished

## 2.47 AT+CAUDREC Microphone recording and voice recording

### Description

Audio recording can record from local microphone, or record the voice call. Microphone recording can only work when there are no other audio applications, such as audio player or voice call. Voice recording can only work during voice call.

Except *<time>* is specified, audio recording should be stopped by AT command AT+CAUDREC=2.

#### Syntax

Command	Possible Responses
AT+CAUDREC=<oper>[, <filename>,<type>, <quality>[,<time>]]	OK
AT+CAUDREC?	+CAUDREC: <state>
AT+CAUDREC=?	+CAUDREC: (list of supported <oper>s), <filename>,(list of supported <type>s), <time>

#### Parameter

##### <oper>

Audio recording operations:

- 1: start recording
- <sup>1</sup>: stop recording

For stop operation, all other parameters shouldn't be specified.

##### <filename>

The file name for recording. The stream type is determined by the file name suffix. For example, *filename.wav* will be regarded as WAV format.

*<filename>* should be embraced with double quotation.

The supported stream format is WAV.

##### <type>

Audio recoding types:

- 1: microphone recording
- 2: voice recording

##### <quality>

Audio recoding quality:

- 0: low quality
- 1: medium quality
- 2: high quality
- 3: best quality

*<quality>* is reserved for future. For WAV format, the reording will be the same for all quality settings.

##### <time>

When *<time>* is not 0, audio recording will be stopped automatically after the specified period. The time unit is 100ms, for example, 10 means 1 second.

When *<time>* is 0, audio recording won't be automatically stopped. It will stopped only at AT command with stop operation. This is the default.

##### <state>

Audio record states:

- 0: audio recording is not working

---

<sup>1</sup>.47. AT+CAUDREC Microphone recording and voice recording

- 1: audio recoding is working

## 2.48 AT+CDTMF Play local DTMF tone

### Description

This will play DTMF tone locally.

### Syntax

Command	Possible Responses
AT+CDTMF=<DTMF>,<duration>	OK
AT+CDTMF=?	+CDTMF: (list of supported <DTMF>s),(list of supported <duration>s)

### Parameter

#### <DTMF>

The DTMF to be played locally. It can be single tone and multiple tones. For single tone, double quotation is optional, and for multiple tones, double quotation is mandatory.

The supported DTMF tones are 0,1,2,3,4,5,6,7,8,9,\*,#,A,B,C,D.

#### <duration>

The played tone duration. The unit is 100ms, that 10 means 1 second.

## 2.49 AT+UPDATE firmware upgrade

### Description

Transfer delta package to device, and execute firmware upgrade. After execute this command, send delta package from UART to device. When got "OK" response, the device will restart and do firmware upgrade.

Command	Possible response
AT+UPDATE=<size>	send delta package file from UART to device OK

### Parameters <size>

Delta package file size in bytes, must larger than zero

## 2.50 AT+NVCV Get the NV version information

### Description

The execute command get the NV version information.

Command	Possible response
AT+NVCV	+NVCV: <version> OK

### Parameter

---

<version>:

String type, NV version information, the fixed length is 4 bytes, the actual type is u32, the high 16 express the platform information, the bit0-bit7 is the second version, the bit8-bit15 is main version

Example

---

AT+NVMV

+NVMV: "20041389"

OK

---

## 2.51 AT+NVMC NV parameter control

Description

The set command is used to control NV parameter, it can get and set NV parameter.

Command	Possible response
AT+NVMC=?	OK
AT+NVMC=<dataType>, <operationType> [,<offset>,<length> [,<data>]]	operationType is 0 AT+NVMC=<dataType>,<operationType>,<offset>,<length>,"" +NVMC:<data> OK operationType is 1 AT+NVMC=<dataType>,<operationType>,<offset>,<length>,<data> OK / ERROR operationType is 2 AT+NVMC=<dataType>,<operationType> OK / ERROR wrong result ERROR

Parameter

<dataType>:

Integer, data type

- 0 static NV parameter

### 2.51. AT+NVMC NV parameter control

- 1 dynamic NV parameter
- <sup>1</sup>PHY NV parameter

---

## 1.52 AT+SETDTPORT Switch USB and Uart port

Description

<operationType>:

Integer, operation type

- 0 get NV parameter
- 1 set NV parameter
- 2 the NV parameter of psram will be writed to flash
- Other value other PHY operation code, notify PYH to do other operation

<offset>:

Integer, NV data offset, the number of data bytes offset

<length>:

Integer, the length of NV parameter

<data>:

String, NV parameter data

Note

When software launches, it must get the NV version, if NV version doesn't match, it should give a prompt of not allowing operation

Example

```

AT+NVPC=0,0,8,16, ""
+NVPC: "000820000300ACA42400010000000000"
OK
AT+NVPC=0,1,8,16, "000820000300ACA42400010000000000"
OK
AT+NVPC=0,0,8,16, ""
+NVPC: "000820000300ACA42400010000000000"
OK
AT+NVPC=0,2
OK

```

Command	Possible response
AT+SETDTPORT=?	+SETDTPORT: (list of <flag>s for Uart or USB) OK
AT+SETDTPORT=<flag>	OK / ERROR

Parameter

<flag>

The flag fo USB or Uart trace port

The set command will set the flag for using trace port

Example

AT+SETDTPORT=0

OK

AT+SETDTPORT=0?

+SETDTPORT: (0-1)

OK

## 2.53 AT^SSIT Set SIT module command

Description

System Integration Test, the set command control RF calibration

Command	Possible response
AT^SSIT	OK
AT^SSIT=<siModule>,<cmd> ,<v1>,<v2>,<v3>	^SSIT: <result> OK
AT^SSIT=?	OK

Parameter

### 2.53. AT^SSIT Set SIT module command

siModule	cmd	v1	v2	v3	Result	Note
0	2	NA	NA	NA	NA	initiative assert
0	3	NA	NA	NA	NA	initiative abort
0	4	NA	NA	NA	NA	Undefined assert

0	5	NA	NA	NA	NA	Delay assert
0	6	NA	NA	NA	NA	Delay abort
0	7	Address	NA	NA	Value	Read memory address
0	8	Address	Value	NA	0	Write memory address
0	9	NA	NA	NA	NA	Meaningless
0	10	NA	NA	NA	NA	HISR infinite loop
0	11	NA	NA	NA	NA	Task infinite loop
0	12	1	NA	NA	NA	Open watchdog
1	0	NA	NA	NA	0	Open RF TX grab data
1	1	NA	NA	NA	0	Close RF TX grab data
1	2	NA	NA	NA	0	Open RF TX grab data
1	3	NA	NA	NA	0	Close RF TX grab data
2	0	Mode 1: write 2: read 3: both	Startaddr	Endaddr	0	Set page spy monitor



7	0	Setflag 0: off 1: on	Simflag 0: sim1 1: sim2	NA	0	Serving cell measurement control
7	3	Setflag 0: reset 1: set	NA	NA	0	Set TDDband to unlimited/restore
8	GPIO number ID	NA	Initial GPIO value	NA	NA	Set GPIO input state
9	NA	Version control value 0~2	NA	NA	0	Set Verion control

## 2.54 AT+RFTEMPERATURE Get the RF temperature

### Description

The read command get the RF temperature

### 2.54. AT+RFTEMPERATURE Get the RF temperature

Command	Possible response
AT+RFTEMPERATURE?	+RFTEMPERATURE: <rfValue> OK

Parameter

Example

---

AT+RFTEMPERATURE?

+RFTEMPERATURE: 28.02

OK

---

## 2.55 AT^SIMOPERTIMES Get the total number of SIM card operations(write,update...)

### Description

The exe command gets the total number of sim card operations.

Command	Possible response
AT^SIMOPERTIMES	Total operation times <number> OK

Parameter

Example

---

```
AT^SIMOPERTIMES
```

```
Total operation times 46
```

```
OK
```

---

## 2.56 AT+MAI2SY Config the external codec mode

### Description

Set command Config the external codec mode, master and width value is fixed,

Syntax

Command	Possible Responses
AT+MAI2SY=<master>, <tran_mode>, <sample>, <width>	+CME ERROR <err>
AT+MAI2SY?	+MAI2SY: <master>,<tran_mode>,<sample>, <width>
AT+MAI2SY=?	+MAI2SY: 1,(list of supported <tran_mode>s),(list of supported <tran_mode>s),0

Parameter

<master>

Audio player operations:

- 0: Module is in slave mode, external CODEC is in master mode

<tran\_mode>

Data Transimisson Mode

- 0: I2S mode
- 1: PCM mode

<sample>

Sample rate:

- 0: 8K
- 1: 16K
- 2: 24K
- 3: 32K
- 4: 44K

<width>

Word width:

- 0: 16 BIT

## 2.57 +CIEV Unsolicited result code for indicator control events

Description

This command is Unsolicited command, battery, call, newwork and sms use this command, for example, when it has a MT sms, it will report CIEV command

Module

<battery>:

- "+CIEV: No Charger, capacity <value>"

### 2.56. AT+MAI2SY Config the external codec mode

- "+CIEV: Charging, capacity <value>" • "+CIEV: Charge Full, capacity <value>"

<cc>:

- "+CIEV: "SOUNDER",1 audio on
- "+CIEV: "SOUNDER",0 audio off
- "+CIEV: "CALL",1 call on • "+CIEV: "CALL",0 call off

<nw>:

- "+CIEV: service,1" register newwork success
- "+CIEV: service,0" fail
- "+CIEV: roam,1" roaming
- "+CIEV: roam,0"

<sms>:

- "+CIEV: "MESSAGE",1 receive new SMS
- "+CIEV: "MMS",1 receive new MMS
- "+CIEV: "SMSFULL",1 mem full and no message waiting for
- "+CIEV: "SMSFULL",2 mem full and have message waiting for

## SIM COMMANDS

## Contents

- *AT+SIM SIM status checking*
- *AT+SIMIF Request SIM type*
- *AT+CCID Request ICC Identification*
- *AT+CPIN Pin Authentication*
- *AT^CPINC Total Times Of Access The Sim Card*
- *AT+CPIN2 Pin2 Authentication(for Sim)*
- *AT+CLCK Facility Lock*
- *AT+CPWD Change Password*
- *AT+QSPN Request Service Provider Name*
- *AT+QGID Request SIM GID*
- *AT+CRSM Restricted Sim Access*
- *AT+CRSML Read records of EF files on (U)SIM*
- *AT+SIMHOTSWAP Enable SIM card hot-plug function*
- *AT+CNUM Subscriber Number*
- *AT+CLIR Calling Line Identification Restriction*

### 3.1 AT+SIM SIM status checking

#### Description

Set command to check and return the type and status of SIM specify by user.

Command	Possible response
AT+SIM=?	+SIM:(0-n)
AT+SIM?	ERROR
AT+SIM=<slot id>	+<type>:<status> OK

#### Parameter

<n>:

integer type, maximum slot identification.

<slot id>:

integer type, slot identification.

<type>: string type, it should be "SIM" or "USIM" according to the SIM type.

<status>:

ABSENT there is no SIM card in the slot.

NORMAL the SIM in the slot is normal SIM card.

TEST the SIM in the slot is test SIM card.

ABNORMAL the SIM in the slot is abnormal SIM card.

Example

---

AT+SIM=?

+SIM: (0 - 1)

OK

---

AT+SIM=0

+USIM: NORMAL

OK

---

AT+SIM=1

+SIM: ABSENT

OK

---

AT+SIM?

+CME ERROR: 53

---

## 3.2 AT+SIMIF Request SIM type

Description

Execution command return the type of SIM.

Command	Possible response
AT^SIMIF=?	^SIMIF:<1>,<0,1>
AT^SIMIF?	^SIMIF:1,<value>
AT^SIMIF=1,<mode>	^SIMIF: <type> OK

Parameter <value>: 0:

SIM.

1: UICC.

<mode>:

0 value mod.

1 text mode.

<type>:

if mode == 0, SIM card return 0, USIM card return 1. if mode == 1,  
SIM card return "SIM", USIM card return "UICC".

Example

---

AT^SIMIF=?

^SIMIF: (1), (0,1)

OK

---

AT^SIMIF?

^SIMIF: 1,0

OK

---

AT^SIMIF=1,1

^SIMIF: SIM

OK

---

### 3.3 AT+CCID Request ICC Identification

Description

Execution command causes the TA to return <ICCID> in the SIM card.

Command	Possible response
AT+CCID=?	ERROR
AT+CCID?	ERROR
AT+CCID	+CCID:<ccid> OK

Parameter

<ccid>:

string type, the ccid read from SIM card.

### 3.3. AT+CCID Request ICC Identification

Example

---

```
AT+CCID
+CCID: 898601061401xxxxxxxxx
OK
```

---

```
AT+CCID=? +CME
ERROR: 53
```

---

```
AT+CCID?
+CME ERROR: 53
```

---

### 3.4 AT+CPIN Pin Authentication

Description

Set command sends to the MT a password which is necessary before it can be operated (SIM PIN, SIM PUK, PH SIM PIN, etc.).

Command	Possible response
AT+CPIN =?	OK
AT+CPIN?	+CPIN: <code>
AT+CPIN=<pin>[,<newpin>]	OK

Parameter

<pin>:

string type values

<newpin>:

string type values, new pin after <pin> check pass.

<code>:

values reserved by the present document:

- READY MT is not pending for any password
- SIM PIN MT is waiting UICC/SIM PIN to be given
- SIM PUK MT is waiting UICC/SIM PUK to be given



- SIM PIN2 MT is waiting active application in the UICC (GSM or USIM) or SIM card PIN2 to be given (this <code> is recommended to be returned only when the last executed command resulted in PIN2 authentication failure (i.e. +CME ERROR: 17); if PIN2 is not entered right after the failure, it is recommended that MT does not block its operation)
- SIM PUK2 MT is waiting active application in the UICC (GSM or USIM) or SIM card PUK2 to be given (this <code> is recommended to be returned only when the last executed command resulted in PUK2 authentication failure (i.e. +CME ERROR: 18); if PUK2 and new PIN2 are not entered right after the failure, it is recommended that MT does not block its operation)

Remark

Commands which interact with MT that are accepted when MT is pending SIM PIN, SIM PUK, or PH SIM are: +CGMI, +CGMM, +CGMR, D112; (emergency call), +CPAS, +CFUN, +CPIN, +CDIS (read and test command only), and +CIND (read and test command only). Notes: After input three times wrong PIN, SIM card will be locked!

Example

---

AT+CPIN="1234"

Ok

---

AT+CPIN="5678"

+CME ERROR: 3

---

AT+CPIN="00000000", "2134"

+CME ERROR: 16

---

AT+CPIN="123456578", "1234"

OK

---

AT+CPIN?

+CPIN: READY

---

### 3.5 AT^CPINC Total Times Of Access The Sim Card

Description

Remaining times of access the sim card

Command	Possible response
AT^CPINC=?	^CPINC: PIN1&PIN2: (1-3), PUK1&PUK2: (1-10)
AT^CPINC	^CPINC: <rest time>

Example

---

```
AT^CPINC
^CPINC:3,10,3,10
OK
```

---

### 3.5. AT^CPINC Total Times Of Access The Sim Card

## 3.6 AT+CPIN2 Pin2 Authentication(for Sim)

### Description

+CPIN2 controls network authentication of the MT.

Command	Possible response
AT+CPIN2=?	OK
AT+CPIN2?	+CPIN2: <code>
AT+CPIN2=<pin>[,<newpin>]	OK

### Parameter

<pin>:

Password (string type), usually SIM PIN2 or, if requested, SIM PUK2

<new pin>:

If the requested code was SIM PUK2: new password (PIN2).

<code>:

values reserved by the present document:

- READY MT is not pending for any password
- SIM PIN MT is waiting UICC/SIM PIN to be given
- SIM PUK MT is waiting UICC/SIM PUK to be given
- SIM PIN2 MT is waiting active application in the UICC (GSM or USIM) or SIM card PIN2 to be given (this <code> is recommended to be returned only when the last executed command resulted in PIN2 authentication failure (i.e. +CME ERROR: 17); if PIN2 is not entered right after the failure, it is recommended that MT does not block its operation)
- SIM PUK2 MT is waiting active application in the UICC (GSM or USIM) or SIM card PUK2 to be given (this <code> is recommended to be returned only when the last executed command resulted in PUK2 authentication failure (i.e. +CME ERROR: 18); if PUK2 and new PIN2 are not entered right after the failure, it is recommended that MT does not block its operation)

### Example

---

```
AT+CPIN2=?
```

OK

---

AT+CPIN2?

+CPIN2: READY

OK

---

AT+CPIN2 ="2345"

OK

---

### 3.7 AT+CLCK Facility Lock

#### Description

This command be used to lock or unlock some functions of the list that be supported by this ME. Currently Chinese network does not support call restrictions, so the set command always return ERROR.

Command	Possible response
AT+CLCK=?	+CLCK: (list of supported <fac>s)
AT+CLCK=<fac>,<mode> [,<passwd>[,<class>]]	+CLCK:<status>[, <class1>[<CR><LF>+CLCK:<status>, <class2>[...]]

#### Parameter

<fac>:

Type: string type

Meaning: values reserved by the present document:

"CS" CNTRL (lock Control surface (e.g. phone keyboard))

"AO" BAOC (Barr All Outgoing Calls) (refer 3GPP TS 22.088 [6] clause 1)

"OI" BOIC (Barr Outgoing International Calls) (refer 3GPP TS 22.088 [6] clause 1)

"OX" BOIC exHC (Barr Outgoing International Calls except to Home Country) (refer 3GPP TS 22.088 [6] clause 1)

"FD" SIM card or active application in the UICC (GSM or USIM) fixed dialling memory feature (if PIN2

<mode>:

0 unlock

1 lock 2 query status

<status>:

Type: integer type

Meaning:

0 not active 1 active

<passwd>:

Type: string type;

Meaning: shall be the same as password specified for the facility from the MT user interface or with command Change Password +CPWD

<classx>:

Type: integer type

Meaning: is a sum of integers each representing a class of information (default 7):

### 3.7. AT+CLCK Facility Lock

1 voice (telephony)

2 data (refers to all bearer services; with <mode>=2 this may refer only to some bearer service if TA does not support values 16, 32, 64 and 128)

4 fax (facsimile services)

8 short message service

16 data circuit sync

32 data circuit async

64 dedicated packet access

128 dedicated PAD access

#### Example

---

```
AT+CLCK="SC",1,"1234"
```

```
OK
```

---

Require lock status

```
AT+CLCK="SC",2
```

```
+CLCK: 1
```

```
OK
```

---

<Restart system> AT+CPIN?

```
+CPIN: SIM PIN
```

```
OK
```

---

```
AT+CPIN="1234"
```

```
OK
```

---

```
AT+CLCK="SC",0,"1234"
```

OK

---

< Restart system > AT+CPIN?

+CPIN: READY

OK

---

<.FD: SIM fixed dialing memory, NO support for the moment > <Call barring>

AT+CLCK="OI",1,"0000",255

OK

ATD13560243602;

NO CARRIER

AT+CLCK="OI",2,"0000"

+CLCK: 1,1

+CLCK: 1,2

+CLCK: 1,4

OK

AT+CLCK="AC",0,"0000",3

OK

---

### 3.8 AT+CPWD Change Password

Description

This command is used to change password [pin/pin2]

Command	Possible response
AT+CPWD=?	+CPWD: list of supported (<fac>, <pwdlength>)
AT+CPWD=<fac>,<oldpwd>,<newpwd>	+CPIN: <code>
AT+CPIN=<pin>[,<newpin>]	OK

Parameter

<fac>:

Type: string type Meaning: "P2" SIM PIN2 refer Facility Lock +CLCK for other values

<oldpwd>,<newpwd>:

Type: string type; Meaning: <oldpwd> shall be the same as password specified for the facility from the MT user interface or with command Change Password +CPWD and <newpwd> is the new password; maximum length of password can be determined with <pwdlength>

<pwdlength>:

Type: integer type Meaning: maximum length of the password for the facility

Example

---

AT+CPWD ="SC", "3333", "1234"

Ok

---

AT+CPIN ="5678"

+CME ERROR: 3

---

AT+CPINC

+CPINC: 2

OK

---

AT+CPWD ="SC", "1234", "0000"

### 3.8. AT+CPWD Change Password

OK

---

AT+CPWD ="P2", "1111", "1234"

+CME ERROR: 16

AT+CPINC

+CPINC: 2

OK

AT+CPWD ="P2", "0000", "1234"

OK

---

## 3.9 AT+QSPN Request Service Provider Name

### Description

Execution command return Service Provider Name.

Command	Possible response
AT+QSPN=?	OK
AT+QSPN?	OK
AT+QSPN	+QSPN:<display mode> ,<spn> OK

### Parameter

<display mode>:

0 doesn't display PLMN

1 display PLMN

<spn>:

string type, Service Provider Name.

Example

---

AT+QSPN

+QSPN: 0, Banglalink

OK

---

AT+QSPN?

OK

---

### 3.10 AT+QGID Request SIM GID

Description

Execution command return SIM GID.

Command	Possible response
AT+QGID=?	OK
AT+QGID?	OK
AT+QGID	+QGID: <gid1>,<gid2> OK

Parameter

<gid1>,<gid2>: Group Identifier

Example

---

AT+QGID

+QGID: FFFFFFFF,FFFFFFF

OK

---

AT+QGID?

OK

---

### 3.11 AT+CRSM Restricted Sim Access

Description

This command support limited access to SIM database.

Command	Possible response
AT+CRSM=?	OK
AT+CRSM=<command>[,<fileid>[,<P1>,<P2>,<P3>[,<data>][,<pathid>]]]	+CRSM: <sw1>,<sw2>[,<response>]

Parameter

<command>:

following commands are used for SIM card.

176 READ BINARY

178 READ RECORD

192 GET RESPONSE

### 3.10. AT+QGID Request SIM GID

214 UPDATE BINARY

220 UPDATE RECORD 242

STATUS

commands above plus one are used for USIM card,e.g. read an record of USIM, the command is 179.  
All other values are reserved

<fileid>:

integer type; this is the identifier of a elementary datafile on SIM. Mandatory for every command except STATUS

<P1>,<P2>,<P3>:

integer type; parameters passed on by the MT to the SIM. These parameters are mandatory for every command, except GET RESPONSE and STATUS. The values are described in GSM 11.11 [28]

<data>:

information which shall be written to the SIM (hexadecimal character format; refer +CSCS)

<pathid>:

string type; contains the path of an elementary file on the SIM/UICC in hexadecimal format as defined in ETSI TS 102 221 [60] (e.g. "7F205F70" in SIM and UICC case). The <pathid> shall only be used in the mode "select by path from MF" as defined in ETSI TS 102 221 [60].

<SW1>,<SW2>:

integer type; information from the SIM about the execution of the actual command. These parameters are delivered to the TE in both cases, on successful or failed execution of the command

<response>:

response of a successful completion of the command previously issued (hexadecimal character format; refer +CSCS). STATUS and GET RESPONSE return data, which gives information about the current elementary datafield. This information includes the type of file and its size (refer GSM 11.11 [28]). After READ BINARY or READ RECORD command the requested data will be returned.



---

<response> is not returned after a successful UPDATE BINARY or UPDATE RECORD command

Example

---

AT+CRSM=176,12258,0,0,10 //read EF ICCID

+CRSM: 144,0, "9868001810810F121561"

OK

---

AT+CRSM=179,20282,1,4,22, "", "7F105F3A" //read EF(4F3A) under 7F105F3A

+CRSM: 144,0, "FF"

OK

---

AT+CRSM=220,20282,2,4,10, "57687775652048777575", "7F105F3A" //update EF(4F3A) under 7F105F3A

+CRSM: 144,0

OK

---

AT+CRSM=179,20282,2,4,10, "", "7F105F3A" //read EF(4F3A) under 7F105F3A

+CRSM: 144,0, "57687775652048777575"

OK

---

### 3.12 AT+CRSML Read records of EF files on (U)SIM

Description

This command read some records of certain files on (U)SIM.

Command	Possible response
AT+CRSML=?	OK
AT+CRSML=<fileid>,<start record>,<count>	+CRSML: <record1\n> ... +CRSML: <recordn\n> OK

Parameter <fileid>:

integer type; This is the identifier of a elementary datafile on SIM.

<start record>:

integer type; First record read from.

<count>:

integer type; The number of records read from (U)SIM.

<record1\n>,<record2\n> ... <recordn\n>:

string type; record data from (U)SIM.

Example

---

AT+CRSML=28474, 1, 2 //read SIM ADN, 28474 is 6F3A(ADN EF ID) in decimal base

+CRSML:144,1,616263FFFFFFFFFFFFFFFFF038121F3FFFFFFFFFFFFFFFFF

+CRSML:144,2,FFF

OK

AT+CRSML=1597656890, 1, 2 //read USIM ADN, 1597656890 is 5F3A4F3A(ADN and PATH ID) in decimal base

+CRSML:144,1,616263FFFFFFFFFFFFFFFFF038121F3FFFFFFFFFFFFFFFFF

+CRSML:144,2,FFF

OK

---

### 3.12. AT+CRSML Read records of EF files on (U)SIM

## 3.13 AT+SIMHOTSWAP Enable SIM card hot-plug function

Description

Execution command causes the TA whether to enable hot plug function of SIM card or not.

Command	Possible response
AT+SIMHOTSWAP=?	ERROR
AT+SIMHOTSWAP?	+SIMHOTSWAP:<status> OK
AT+SIMHOTSWAP=<status>	OK

Parameter

<status>:

integer type, Indication to disable or enable the use of hot-plug function in the TA.

0 – disable sim hot-plut function

1 – enable sim hot-plut function

Example

---

AT+SIMHOTSWAP=1 OK

---

AT+SIMHOTSWAP=?

+CME ERROR: 4

---

AT+SIMHOTSWAP?

+SIMHOTSWAP: 1

OK

---

### 3.14 AT+CNUM Subscriber Number

#### Description

The MS ISDN related to the subscriber.

Command	Possible response
AT+CNUM=?	OK
AT+CNUM	+CNUM: [<alpha1>],<number1>,<type1>[<CR><LF>]

#### Parameter

**<alpha>**: optional alphanumeric string associated with numberx used character set should be the one selected with command Select TE Character Set +CSCS

**<numberx>**: string type phone number of format specified by <typex>

**<typex>**: type of address octet in integer format

**<text>**: field of maximum length <tlength>; character set as specified by command +CSCS. The display of text depending to the storage format in the sim card. If we store the pbk entry with ucs2 format, we show Chinese string here, otherwise, we show NON-Chinese string. We do not care about charsets, it is decided by command +CSCS setting when we store them.

#### Example

---

AT+CNUM

+CNUM: "john", "111",129 (non-Chinese string) (with non-ucs2 of AT+CSCS setting as pbk storing)

+CNUM: "XXXXX", "34",129 (Chinese string) (with ucs2 of AT+CSCS setting as pbk storing)

Ok

---

### 3.15 AT+CLIR Calling Line Identification Restriction

#### Description

The AT+CLIR command refers to the GSM supplementary service CLIR (Calling Line Identification Restriction).

Command	Possible Responses
AT+CLIR=?	+CLIR (list of supported<n>s))
AT+CLIR?	+CLIR: <n>,<m>
AT+CLIR=<n>	OK

---

Parameter

<n>: (parameter sets the adjustment for outgoing calls) 0 presentation indicator is used according to the subscription of the CLIR service 1 CLIR invocation 2 CLIR suppression

<m>: (parameter shows the subscriber CLIR service status in the network) 0 CLIR not provisioned 1 CLIR provisioned in permanent mode 2 unknown (e.g. no network, etc.) 3 CLIR temporary mode presentation restricted 4 CLIR temporary mode presentation allowed

Example

---

AT+CLIR=2

OK

AT+CLIR=?

+CLIR:(0-2)

OK

AT+CLIR?

+CLIR:2,0

OK

---

### 3.15. AT+CLIR Calling Line Identification Restriction

**CALL CONTROL COMMANDS**

<p>Contents</p> <ul style="list-style-type: none"><li>• <i>ATA Answer A Call</i></li><li>• <i>ATD Make A Call</i></li><li>• <i>ATH Disconnect Existing Call</i></li><li>• <i>AT+CHUP Hang Up All Existing Connected Calls</i></li><li>• <i>AT+CHLD Call Hold And Multiparty</i></li><li>• <i>AT+CLCC List Current Calls Of ME</i></li><li>• <i>AT+VTD Tone Duration</i></li><li>• <i>AT+VTS DTMF And Tone Generation</i></li></ul>
--

**4.1 ATA Answer A Call**

Description

This command is used to answer an incoming call.

Syntax

Command	Possible response
ATA	Success: OK Fail: ERROR NO CARRIER
Reference:ITU-T Recommendation V.25 ter	

Unsolicited Result Codes

URC1 RING: URC2 CIEV: SOUNDER 1
--

CIEV: CALL 1

Parameter

NONE:

Remark

This command should be used only when there is one call. When there are several calls, please use the AT+CHLD to answer a new call.

Example

The following examples show the typical application for this command

Command	Possible response
RING<incoming call> ATA	CONNECT

## 4.2 ATD Make A Call

Description

This command is used to make an outgoing call. The length of dial number is less than 20.

Syntax

Command	Possible response
ATD<number>;	Success: When the call is in progress: OK and NO ANSWER or NO CARRIER or //connection be released NO DAILTONE or BUSY  Fail: ERROR

Reference:ITU-T Recommendation V.25 ter	
---	--

Unsolicited Result Codes

URC1 CONNECT: URC2 CIEV: SOUNDER 1 CIEV: CALL 1
---

Parameter

<Number>: Dialing digits, include 1,2,3,4,5,6,7,8,9,0,*,#,+,A,B,C,. . .
--

Remark

Example

The following examples show the typical application for this command.

**4.2. ATD Make A Call**

Command	Possible response
ATD10086;	OK CONNECT
AT+CLCC;	+CLCC: 1,0,0,0,0, "10086",129 OK OK NO CARRIER

ATD112;	<Only an emergency call can be made when we do the test without SIM card. NO CARRIER will be returned when you press the CANCEL
---------	--

### 4.3 ATH Disconnect Existing Call

**Description**

Hang up all existing connected calls, including active, waiting and hold calls.

**Syntax**

Command	Possible response
ATH	Success: OK Fail: ERROR
Reference ITU-T V.25 ter(6.2.7): Result code suppression	

**Unsolicited Result Codes**

URC1 CIEV: SOUNDER 0 CIEV: CALL 0
---

**Parameter**

NONE:

**Remark**

When the link is established or ringing, the command will get OK. But for the establishing, the command will get error.

**Example**

The following examples show the typical application for this command.



Command	Possible response
ATD10086;	OK CONNECT
ATH	OK

## 4.4 AT+CHUP Hang Up All Existing Connected Calls

### Description

Hang up all existing connected calls, including active, waiting and hold calls.

### Syntax

Command	Possible response
Test command AT+CHUP=?	OK
Set command AT+CHUP	Success: OK Fail: ERROR
Reference 3GPP TS 27.007 V3.12.0	

### Unsolicited Result Codes

URC1 CIEV: SOUNDER 0 CIEV: CALL 0
---

#### 4.4. AT+CHUP Hang Up All Existing Connected Calls

Parameter

NONE:

Remark

This command implements the same behavior as ATH.

Example

The following examples show the typical application for this command.

Command	Possible response
<there are two connecting calls, one is active and the other is held> AT+CHUP <Both of the call was hang up>	OK

#### 4.5 AT+CHLD Call Hold And Multiparty

Description

This command deal with call held, retrieve, multiparty and hang up functions and so on.

Syntax

Command	Possible response
Test command AT+CHLD=?	+CHLD: (0,1,1X,2,2X,3) OK
Set command AT+CHLD=<n>	Success: OK Fail: ERROR
Reference 3GPP TS 27.007 V3.12.0	

Unsolicited Result Codes

## Parameter

<n>:

0: Releases all held calls or sets User Determined User Busy (UDUB) for a waiting call.

1: Releases all active calls (if any exist) and accepts the other (held or waiting) call [waiting call is the first].

1X: Releases a specific call X it can be in active, hold or waiting state.

2: Places all active calls (if any exist) on hold and accepts the other (held or waiting) call.

2X: Places all active calls on hold except call X with which communication shall be supported.

3: Adds a held call to the conversation.

<code2>:

2: call has been put on hold (during a voice call).

3: call has been retrieved (during a voice call).

4: multiparty call entered (during a voice call).

## Remark

The multiparty call has the MAX connection is 5, at the same time, the phone can also has a waiting call.

## note

If the multiparty call is on IMS, at+chld=2x isn't allowed

## Example

The following examples show the typical application for this command.

#### **4.5. AT+CHLD Call Hold And Multiparty**

Command	Possible response
ATD10086;	OK
RING	
+CCWA: "13501275915",161,1,,255	
AT+CHLD=0	OK
AT+CHLD=2	OK
AT+CLCC	+CLCC: 1,0,1,0,0, "10086",129 +CLCC: 2,1,0,0,0, "13501275915",161 OK
<when there is a hold call and an active call>	
AT+CHLD=3	OK
AT+CLCC	+CLCC: 1,0,0,0,1, "10086",129 +CLCC: 2,1,0,0,1, "13501275915",161 OK
AT+CHLD=21	OK
AT+CLCC	+CLCC: 1,0,0,0,0, "10086",129 +CLCC: 2,1,1,0,1, "13501275915",161 OK
AT+CHLD=1	OK
AT+CLCC	+CLCC: 2,1,0,0,1, "13501275915",161 OK

	AT+CHLD=12<hang up connect 2>	OK	
	AT+CLCC		
70		OK	Chapter 4. Call Control Comands

## 4.6 AT+CLCC List Current Calls Of ME

### Description

List all calls of ME.

### Syntax

Command	Possible response
Test command AT+CLCC=?	OK
Set command AT+CLCC	Success: [+CLCC: <id1>,<dir>,<stat>,<mode>,<empty>,<number>,<type>][<CR><LF> +CLCC: <id2>,<dir>,<stat>,<mode>,<empty>,<number>,<type>]. . . ] OK Fail: +CME ERROR: <err>
Reference 3GPP TS 27.007 V3.12.0	

### Unsolicited Result Codes

None

Parameter

#### 4.6. AT+CLCC List Current Calls Of ME

<p>&lt;idx&gt;: integer type; call identification number as described in 3GPP TS 22.030 [19] sub clause 4.5.5.1; this number can be used in +CHLD command operations</p>
<p>&lt;dir&gt;: 0 mobile originated (MO) call 1 mobile terminated (MT) call</p>
<p>&lt;stat&gt;:(state of the call) 0 active 1 held 2 dialing (MO call) 3 alerting (MO call) 4 incoming (MT call) 5 waiting (MT call) 7 release (network release this call) 8 handshake</p>

<mode> (bearer/teleservice)

- 0 voice
- 1 data
- 2 fax
- 3 voice followed by data, voice mode
- 4 alternating voice/data, voice mode 5 alternating voice/fax, voice mode
- 6 voice followed by data, data mode
- 7 alternating voice/data, data mode
- 8 alternating voice/fax, fax mode
- 9 unknown

<empty>:

- 0 call is not one of multiparty (conference) call parties
- 1 call is one of multiparty (conference) call parties

<number>:

string type phone number in format specified by <type>

<type>:

type of address octet in integer format (refer GSM 04.08 [8] sub clause 10.5.4.7)

Remark

Example

```
ATD10086
OK
+CIEV: "SOUNDER",1
CONNECT
AT+CLCC
+CLCC: 1,0,0,0,0, "10086",129
OK
ATH
+CIEV: "CALL",0
+CIEV: "SOUNDER",1
OK
AT+CLCC
```



OK

## 4.7 AT+VTD Tone Duration

Description

Set tone duration.

Syntax

### 4.7. AT+VTD Tone Duration

Command	Possible response
Test command AT+VTD=?	Success: +VTD:(1-10) OK Fail: ERROR

Read command AT+VTD?	Success: +VTD:<n> OK Fail: ERROR
Set command AT+VTD=<n>	Success: OK Fail: +CME ERROR: <err>
Reference 3GPP TS 27.007 V3.12.0	

Unsolicited Result Codes

None

Parameter

<n>: Duration of the tone in 1/10 second
---

Remark

Example

The following examples show the typical application for this command.

Command	Possible response
AT+VTD=10	OK
AT+VTD?	+VTD:10 OK

AT+VTD=?	+VTD: (1-10) OK
----------	--------------------

## 4.8 AT+VTS DTMF And Tone Generation

### Description

Sent the DTMF and generate the tone.

### Syntax

Command	Possible response
Test command AT+VTS=?	Success: (list of supported <DTMF>s) OK Fail: ERROR
Set command AT+VTS=<DTMF>,<duration>	Success: OK Fail: +CME ERROR: <err>
Reference 3GPP TS 27.007 V3.12.0	

### Unsolicited Result Codes

None

### Parameter

## 4.8. AT+VTS DTMF And Tone Generation

<p>&lt;DTMF&gt;:  A single ASCII character in the set 0 9, #, *, A D.  This is interpreted as a single ASCII character whose duration is set by the +VTD command.</p>
<p>&lt;duration&gt;:  time in 1/10 second</p>

Remark

Example

The following examples show the typical application for this command.

Command	Possible response
ATD10086;	OK
AT+VTS=1	OK
AT+VTS=2,10	OK
AT+VTS=?	+VTS: (0-9, *, #, A, B, C, D), (1-10) OK

## NETWORK SERVICE COMMANDS

### Contents

- *AT+COPN Read Operator Names*
- *AT+COPS Operator Selects*
- *AT+CREG Network Registration*
- *AT+CPOL Preferred Operator List*
- *AT+CTEC Set user preferred rat*
- *AT+CSQ Signal Quality*
- *AT+CTZU Automatic Update System Time Via Nitz*
- *AT+CCED Cell environment description*
- *AT+CESQ Extended Signal Quality*
- *AT+TUEINFO Query UE status info*

### 5.1 AT+COPN Read Operator Names

#### Description

Execute command returns the list of operator names from the MT. Each operator code <numeric> that has an alphanumeric equivalent <alphan> in the MT memory shall be returned.

#### Syntax

Command	Possible response
	OK
Test Command AT+COPN=?	
Exec Command AT+COPN	+COPN: <numeric1>,<alpha1> +COPN: <numeric2>,<alpha2> [...] OK ERROR +CME ERROR:<err>
Reference: 3GPP TS 27.007 V3.12.0	

Unsolicited Result Codes None

Parameter

<numeric>string type; operator in numeric format (see +COPS).
<alphan>string type; operator in long alphanumeric format (see +COPS).

Remark

Execute command returns the list of operator names from the MT.  
Each operator code <numeric> that has an alphanumeric equivalent <alphan> in the MT memory shall be returned.

Example The following examples show the typical application for this command.

Command	Possible response
AT+COPN	+COPN: 46000, "CMCC" +COPN: 46001, "China Unicom" .....

## 5.2 AT+COPS Operator Selects

Description

This command be used to select the vender.

Syntax

Command	Possible response
Test Command AT+COPS=?	+COPS: [list of supported (<stat>,long alphanumeric <oper> ,short alphanumeric <oper>,numeric <oper>[,<AcT>]]s [,,(list of supported <mode>s),(list of supported <format>s)] +CME ERROR: <err>
Read Command AT+COPS?	+COPS: <mode>[,<format>,<oper>[,<AcT>]] +CME ERROR: <err>
Set Command AT+COPS=mode[,<format>[,<oper>[,<AcT>]]]	+CME ERROR: <err>
Reference: 3GPP TS 27.007 V3.12.0	

## Unsolicited Result Codes

None

Parameter

### 5.2. AT+COPS Operator Selects

<mode>:

- 0 automatic (<oper> field is ignored)
- 1 manual (<oper> field shall be present)
- 2 deregister from network
- 3 set only <format> (for read command +COPS?), do not attempt registration/deregistration (<oper> field is ignored); this value is not applicable in read command response
- 4 manual/automatic (<oper> field shall be present); if manual selection fails, automatic mode (<mode>=0) is entered

<format>:

0 long format alphanumeric <oper>

1 short format alphanumeric <oper>

2 numeric <oper>

<oper>: string type; <format> indicates if the format is alphanumeric or numeric; long alphanumeric format can be upto 16 characters long and short format up to 8 characters (refer GSM MoU SE.13 [9]); numeric format is the GSM Location Area Identification number (refer GSM 04.08 [8] subclause 10.5.1.3) which consists of a three BCD digit country code coded as in ITU T E.212 Annex A [10], plus a two BCD digit network code, which is administration specific; returned <oper> shall not be in BCD format, but in IRA characters converted from BCD; hence the number has structure: (country code digit 3)(country code digit 2)(country code digit 1)(network code digit 2)(network code digit 1)

<stat>:

0 unknown

1 available

2 current

3 forbidden

<AcT>:

0 GSM

1 GSM Compact

2 UTRAN

3 GSM w/EGPRS

4 UTRAN w/HSDPA

5 UTRAN w/HSUPA

6 UTRAN w/HSDPA and HSUPA

7 E-UTRAN

8 EC-GSM-IoT (A/Gb mode)

NOTE: Network maybe change the value of Act,only support 7 Currently.

Remark Set command forces an attempt to select and register the GSM/UMTS network <oper>. Mode is used to decide the register should be automatic or manual. If the selected mode is manual or manual first, the network should return with a list from which user can select one to register on.

Read command returns the current mode and the currently selected operator. If no operator is selected, <format> , <oper> and <AcT> are omitted.

Test command returns a list of quadruplets, each representing an operator present in the network. Quadruplet consists of an integer indicating the availability of the operator <stat>, long and short alphanumeric format of the name of the operator, and numeric format representation of the operator. Any of the formats may be unavailable and should then be an empty field. The



list of operators shall be in order: home network, networks referenced in SIM/UICC, and other networks.

Example The following examples show the typical application for this command.

Command	Possible response
AT+COPS=?	+COPS: (1, "CHINA MOBILE", "CMCC", "46000",7),(1, "CHN-CT", "CT", "46011",7),(0-4),(0,2) OK
AT+COPS?	+COPS:0 OK Register network failed
AT+COPS=3,0 <Set oper format>	OK
AT+COPS?	+COPS: 0,0, "CMCC",7 OK
AT+COPS=3,2	OK
AT+COPS?	+COPS: 0,0,46000,7 OK

Note:

- The max wait time is 120-180 seconds.

## 5.2. AT+COPS Operator Selects

## 5.3 AT+CREG Network Registration

Description

This command be used to query the register status.

NOTE : when CS Network Registration Status changed, ""+CREG:<stat>"" will be reported automatically.

Syntax

Command	Possible response
Test Command AT+CREG=?	+CREG: (list of supported <n>s)
Read Command AT+CREG?	+CREG: <n>,<stat>[,<lac>,<ci>,<act>] +CME ERROR: <err>
Set Command AT+CREG=<n>	OK
Reference: 3GPP TS 27.007 V3.12.0	

#### Unsolicited Result Codes

None

#### Parameter

<n>:

- 0 disable network registration unsolicited result code
- 1 enable network registration unsolicited result code +CREG: <stat>
- 2 enable network registration and location information unsolicited result code +CREG: <stat>[,<lac>,<ci>]

<stat>:

- 0 not registered, MT is not currently searching a new operator to register
- to 1 registered, home network
- 2 not registered, but MT is currently searching a new operator to register
- to 3 registration denied
- 4 unknown
- 5 registered, roaming
- 6 registered for "SMS only", home network (applicable only when <AcT> indicates E-UTRAN)
- 7 registered for "SMS only", roaming (applicable only when <AcT> indicates E-UTRAN)

<p>&lt;lac&gt; :  string type; two byte location area code (when &lt;AcT&gt; indicates value 0 to 6), or tracking area code (when &lt;AcT&gt; indicates value 7). In hexadecimal format (e.g. "00C3" equals 195 in decimal).</p>
<p>&lt;ci&gt;:  string type; two byte cell ID in hexadecimal format</p>
<p>&lt;act&gt;: integer type; access technology of serving cell</p> <ul style="list-style-type: none"> <li>0 GSM</li> <li>1 GSM Compact</li> <li>2 UTRAN</li> <li>3 GSM w/GPRS</li> <li>4 UTRAN w/HSDPA</li> <li>5 UTRAN w/HSUPA</li> <li>6 UTRAN w/HSDPA and HSUPA</li> <li>7 E-UTRAN</li> <li>8 EC-GSM-IoT (A/Gb mode)</li> </ul>

Remark None

Example The following examples show the typical application for this command.

### 5.3. AT+CREG Network Registration

Command	Possible response
AT+CREG=1	OK
AT+CREG?	+CREG:0,1 OK

### 5.4 AT+CPOL Preferred Operator List

#### Description

This command is used to edit the user preferred list of networks in the active application on the UICC

(GSM or USIM) or preferred list of networks in the SIM card. Execute command writes an entry in the SIM list of preferred operators (EFPLMNsel), when the SIM card is present or when the UICC is present with an active GSM application. When UICC is present with an active USIM application, execute commands writes an entry in the User controlled PLMN selector with Access Technology list (EFPLMNwAcT), only the PLMN field could be entered, the Access Technologies for each PLMN in this list is not accesible with this command (Note: new command for accessing the Access Technologies for each PLMN in this list is FFS). If <index> is given but <oper> is left out, entry is deleted. If <oper> is given but <index> is left out, <oper> is put in the next free location. If only <format> is given, the format of the <oper> in the read command is changed.

Note: when adding preferred operator, <format> can only be 2.

Read command returns all used entries from the active application in the UICC (GSM or USIM) user preferred list of networks or SIM card list of preferred operators.

Note: if <format> is 0, but there is no relevant long format alphanumeric <oper>, the numeric <oper> will be returned.

Test command returns the whole index range supported by the active application in the UICC (GSM or USIM) user preferred list of networks or SIM card.

#### Syntax

Command	Possible response
Test Command AT+CPOL=?	+CPOL: (list of supported <index>s) ,(list of supported <format>s) +CME ERROR: <err>
Read Command AT+CPOL?	+CPOL: <index1>,<format>,<oper1> [,<GSM_Act1>, <GSM_Compact_Act1>, <UTRAN_Act1>,<E-UTRAN_Act1>] +CPOL: <index2>,<format>,<oper2> [,<GSM_Act2>, <GSM_Compact_Act2>, <UTRAN_Act2>,<E-UTRAN_Act2>] [. . . ] +CME ERROR: <err>
Set Command AT+CPOL=[<index>][,<format>[,<oper>[, <GSM_Act>, <GSM_Compact_Act>, <UTRAN_Act>,<E-UTRAN_Act>]]]	OK ERROR
Reference: 3GPP TS 27.007 V3.12.0	

Unsolicited Result Codes None

Parameter

#### 5.4. AT+CPOL Preferred Operator List

<indexn>: integer type; range from 1 to 255; the order number of operator in the active application in the UICC (GSM or USIM) user preferred list of networks or SIM card preferred operator list

<format>:

- 0 long format alphanumeric <oper>
- 1 short format alphanumeric <oper>
- 2 numeric <oper>

<opern>:

string type; <format> indicates if the format is alphanumeric or numeric (see +COPS)

<GSM\_AcTn>: integer type; GSM access technology:

- 0 access technology not selected
- 1 access technology selected

<p>&lt;GSM_Compact_AcTn&gt;: integer type; GSM compact access technology  0 access technology not selected  1 access technology selected</p>
<p>&lt;UTRAN_AcTn&gt;: integer type; UTRAN access technology  0 access technology not selected  1 access technology selected</p>
<p>&lt;E-UTRAN_AcTn&gt;: integer type; E-UTRAN access technology  0 access technology not selected  1 access technology selected</p>

Remark None

Example The following examples show the typical application for this command.

Command	Possible response
AT+CPOL=?	+CPOL: (1-82),(0,1,2) OK <Note : ..> Different SIM card has defferent index range
AT+CPOL?	+CPOL: 1,2, "46000" ,0,0,0,1 OK
AT+CPOL=2,2, "46001" ,0,0,0,1	OK <Note : ..>Add a preferred operator
AT+CPOL?	+CPOL: 1,2, "46000" ,0,0,0,1 +CPOL: 2,2, "46001" ,0,0,0,1 OK
AT+CPOL=,0	OK <Note : ..>Set the display format as long format alphanumeric <oper>

AT+CPOL?	+CPOL: 1,0, "CHINA MOBILE" ,0,0,0,0 +CPOL: 2,0, "CHN-UNICOM" ,0,0,0,0 OK
AT+CPOL=1 AT+CPOL?	OK <Note : ..>Delete the preferred operator with index of 1 +CPOL: 2,0, "CHN-UNICOM" ,0,0,0,0
<Note : ..>	OK

## 5.5 AT+CTEC Set user preferred rat

### Description

Set user preferred rat(don't support in NBIOT project)

### Syntax

### 5.5. AT+CTEC Set user preferred rat

Command	Possible response
Set Command AT+CTEC=<nCurrentRat>,<nPreferRat>	OK ERROR +CME ERROR:<err>
Read Command AT+CTEC? +CTEC:<nPreferRat>,<nPreferRat>	OK ERROR +CME ERROR:<err>

### Unsolicited Result Codes

None

### Parameter

<p>&lt;nCurrentRat&gt;: the current rat value</p> <p>0 auto mode</p> <p>2 gsm only</p> <p>4 lte only</p>
<p>&lt;nPreferRat&gt;: the preferred rat value</p> <p>0 auto mode</p> <p>2 gsm only</p> <p>4 lte only</p>

Remark None

Example The following examples show the typical application for this command.

Command	Possible response
AT+CTEC=0,2	OK
AT+CTEC?	+CTEC: 2,2 OK

### 5.6 AT+CSQ Signal Quality

Description

This command be used to query the quality of the signal.

Syntax

Command	Possible response
Test Command AT+CSQ=?	+CSQ: (list of supported <rsi>s),(list of supported <ber>s)
Exec Command AT+CSQ	+CSQ: <rsi>,<ber> +CME ERROR: <err>
Reference: 3GPP TS 27.007 V3.12.0	

Unsolicited Result Codes None

Parameter



<p>&lt;rsssi&gt;:</p> <p>0 113 dBm or less</p> <p>1 111 dBm</p> <p>2 . . 30 109. . . 53 dBm</p> <p>31 51 dBm or greater</p> <p>99 not known or not detectable</p>
<p>&lt;ber&gt;(in percent):</p> <p>0 . . 7 as RXQUAL values in the table in GSM 05.08 [20] sub clause 8.2.4</p> <p>99 not known or not detectable</p>

Remark None

Example The following examples show the typical application for this command.

Command	Possible response
AT+CSQ	+CSQ: 13, 99 OK <Note :..>
AT+CSQ=?	+CSQ: (0-31,99),(0-7,99)

### 5.7 AT+CTZU Automatic Update System Time Via Nitz

Description

#### 5.7. AT+CTZU Automatic Update System Time Via Nitz

Set command enables and disables automatic time zone update via NITZ. If setting fails in an MT error, +CME ERROR: <err> is returned.

Read command returns the current settings in the MT.

Test command returns supported on- and off-values as a compound value.

Syntax

Command	Possible response
Test Command AT+CTZU=?	+CTZU(<mode>) OK

Read Command AT+CTZU?	+CTZU<mode> OK
Set Command AT+CTZU=<enable>	OK ERROR +CME ERROR:<err>
Reference: 3GPP TS 27.007 V3.12.0	

Unsolicited Result Codes

None

Parameter

<mode>: 0: NITZ not update system time 1: NITZ update local time to system 2: NITZ update GMT time to system
---

Remark None

Example The following examples show the typical application for this command.

Command	Possible response
AT+CTZU=?	+CTZU:(0, 1, 2) OK
AT+CTZU?	+CTZU:0 OK
AT+CTZU=0	OK

## 5.8 AT+CCED Cell environment description

Description

This command can be used by the application to retrieve the cell parameters of the main cell and of up to six neighbour cells. Two ways may exist for the external application to know these cell parameters: on request of the application, or automatically by the module every 10 or 15 seconds. The automatic mode is not supported during communication or registration.

Syntax

Command	Possible Responses
---------	--------------------

Test Command AT+CCED=?	+CCED: (0,1),(1,2,8) OK
Set Command AT+CCED=<mode>,<requested dump>	OK

Parameter

<mode>: integer type

0	Stop automatic shots
1	Automatic shots requested

<requested dump>: integer type

1	Main Cell: different between LTE mode to GSM mode
2	Neighbour1 to NeighbourN: different between LTE mode to GSM mode
8	Main cell RSSI indications(Rxlev)from 0 to 31.

Note

When attach the LTE,the below informations will return after sending the set command. The maximum number of neighbour cell can be seven.

LTE rat Main Cell	MCC,MNC,imsi,roamingFlag,bandInfo,bandwidth,dIEarfcn,cellid,rsrp,rsrq,tac,SrxLev,pcid
LTE rat Neighbour Cell	MCC,MNC,frequency,cellid,rsrp,rsrq,tac,SrxLev,pcid

When attach the GSM ,the below informations will return after sending the set command. The maximum number of neighbour cell can be six.

GSM current Cell info	MCC,MNC,lac,cellid,bsic,rxlev,RxLevSub,Arfcn
GSM Neighbour Cell info	MCC,MNC,lac,cellid,bsic,rxlev

## 5.9 AT+CESQ Extended Signal Quality

Description

### 5.8. AT+CCED Cell environment description

Execution command returns received signal quality parameters. If the current serving cell is not a GERAN cell, <rxlev> and <ber> are set to value 99. If the current serving cell is not a UTRA FDD or UTRA TDD cell, <rscp> is set to 255. If the current serving cell is not a UTRA FDD cell, <ecno> is set to 255. If the current serving cell is not an E-UTRA cell, <rsrq> and <rsrp> are set to 255.

Syntax

Command	Possible response
Test Command AT+CESQ=?	+CESQ: (list of supported <rxlev>s),(list of supported <ber>s),(list of supported <rscp>s),(list of supported <ecno>s),(list of supported <rsrq>s),(list of supported <rsrp>s)

Exec Command AT+CESQ	+CESQ: <rxlev>,<ber>,<rscp>,<ecno>,<rsrq>,<rsrp> +CME ERROR: <err>
Reference: 3GPP TS 27.007 V4.0	

Parameter

<p>&lt;rxlev&gt;: integer type, received signal strength level (see 3GPP TS 45.008 [20] subclause 8.1.4).</p> <p>0 rssi &lt; -110 dBm  1 -110 dBm &lt;= rssi &lt; -109 dBm  2 -109 dBm &lt;= rssi &lt; -108 dBm : : :  v61 -50 dBm &lt;= rssi &lt; -49 dBm  62 -49 dBm &lt;= rssi &lt; -48 dBm 63  -48 dBm &lt;= rssi  99 not known or not detectable</p>
<p>&lt;ber&gt;: integer type; channel bit error rate (in percent).</p> <p>0 . . . 7 as RXQUAL values in the table in 3GPP TS 45.008 [20] subclause 8.2.4  99 not known or not detectable</p>
<p>&lt;rscp&gt;: integer type, received signal code power (see 3GPP TS 25.133 [95] subclause 9.1.1.3 and 3GPP TS 25.123 [96] subclause 9.1.1.1.3).</p> <p>0 rscp &lt; -120 dBm  1 -120 dBm &lt;= rscp &lt; -119 dBm  2 -119 dBm &lt;= rscp &lt; -118 dBm : : :  94 -27 dBm &lt;= rscp &lt; -26 dBm  95 -26 dBm &lt;= rscp &lt; -25 dBm  96 - 25 dBm &lt;= rscp  255 not known or not detectable</p>
<p>&lt;ecno&gt;: integer type, ratio of the received energy per PN chip to the total received power spectral density (see 3GPP TS 25.133 [95] subclause).</p> <p>0 Ec/lo &lt; -24 dB  1 -24 dB &lt;= Ec/lo &lt; -23.5 dB  2 -23.5 dB &lt;= Ec/lo &lt; -23 dB : : :  47 -1 dB &lt;= Ec/lo &lt; -0.5 dB  48 -0.5 dB &lt;= Ec/lo &lt; 0 dB  49 0 dB &lt;= Ec/lo  255 not known or not detectable</p>

<rsrq>: integer type, reference signal received quality (see 3GPP TS 36.133 [96] subclause 9.1.7).

0 rsrq < -19.5 dB  
1 -19.5 dB <= rsrq < -19 dB 2 -19 dB <= rsrq < -18.5 dB : : :  
32 -4 dB <= rsrq < -3.5 dB  
33 -3.5 dB <= rsrq < -3 dB  
34 -3 dB <= rsrq  
255 not known or not detectable

### 5.9. AT+CESQ Extended Signal Quality

<rsrp>: integer type, reference signal received power (see 3GPP TS 36.133 [96] subclause 9.1.4).

0 rsrp < -140 dBm  
1 -140 dBm <= rsrp < -139 dBm  
2 -139 dBm <= rsrp < -138 dBm : : :  
95 -46 dBm <= rsrp < -45 dBm  
96 -45 dBm <= rsrp < -44 dBm  
97 -44 dBm <= rsrp  
255 not known or not detectable

Remark None

## 5.10 AT+TUEINFO Query UE status info

Description

Execution command query UE status info

Command	Possible response
Test Command AT+TUEINFO=?	+TUEINFO: (list of supported <ReportFlag>s)  +CME ERROR: <err>
Read Command AT+TUEINFO?	+TUEINFO: <ReportFlag> +CME ERROR: <err>
Set Command AT+TUEINFO=ReportFlag	+CME ERROR: <err>
Exec Command AT+TUEINFO	TUEINFO:DLEARFCN,<dIEarfcn> TUEINFO:PCID,<pcid> TUEINFO:RSRP,<rsrp> TUEINFO:RSRQ,<rsrq> TUEINFO:SINR,<sinr> TUEINFO:MCL,<mcl> TUEINFO:ULMCS,<ulMcs> TUEINFO:DLMCS,<dIMcs> TUEINFO:MPDCCHREPNUM,<mpdcchRepNum> TUEINFO:PUSCHREPNUM,<puschRepNum> TUEINFO:PDSCHREPNUM,<pdschRepNum> TUEINFO:ULINITIALBLER,<ulInitialBler> TUEINFO:DLINITIALBLER,<dIInitialBler> TUEINFO:ULRBNUM,<ulRbNum> TUEINFO:DLRBNUM,<dIRbNum> TUEINFO:ULRLCRATE,<ulRlcRate> TUEINFO:DLRLCRATE,<dIRlcRate> TUEINFO:ULTBS,<ulTbs> TUEINFO:DLTBS,<dITbs> OK

Unsolicited Result Codes None

Parameter

<ReportFlag>: 0 stop cyclic broadcast timer. 1 start cyclic broadcast timer.
---

Remark

## 5.10. AT+TUEINFO Query UE status info

Set command After setting ReportFlag to 1,TUEINFO will always be reported.To stop reporting,set ReportFlag to 0.

## PSM COMMANDS

## Contents

- *AT+CPSMS PSM settings*
- *AT+CEDRXS eDRX settings*
- *AT+CEDRXRDP eDRX dynamic parameter reads*
- *AT+CFGEDRX EDRX features configure*

## 6.1 AT+CPSMS PSM settings

### Description

The set command controls the setting of the UEs power saving mode (PSM) parameters. The command controls whether the UE wants to apply PSM or not, as well as the requested extended periodic RAU value and the requested GPRS READY timer value in GERAN/UTRAN, the requested extended periodic TAU value in E-UTRAN and the requested Active Time value. See the unsolicited result codes provided by commands +CGREG for the Active Time value, the extended periodic RAU value and the GPRS READY timer value that are allocated to the UE by the network in GERAN/UTRAN and +CEREG for the Active Time value and the extended periodic TAU value that are allocated to the UE by the network in E-UTRAN. A special form of the command can be given as +CPSMS= (with all parameters omitted). In this form, the parameter <mode> will be set to 0, the use of PSM will be disabled and data for all parameters in command +CPSMS will be removed or, if available, set to the manufacturer specific default values. The read command returns the current parameter values.

The test command returns the supported <mode>s and the value ranges for the requested extended periodic RAU value and the requested GPRS READY timer value in GERAN/UTRAN, the requested extended periodic TAU value in E-UTRAN and the requested Active Time value as compound values.

### Syntax

Command	Possible response
---------	-------------------



Test Command AT+CPSMS=?	<p>+CPSMS: mode=[0-2],,,Requested_Periodic-TAU ="8bitStringofByte eg. 01000111", Requested_Active-Time ="8bitStringofByte eg. 01100101" OK</p> <p>Fail: +CME ERROR: &lt;err&gt;</p>
Read Command AT+CPSMS?	<p>+CPSMS: 1,,,"01000101", "00000000" OK</p> <p>Fail: +CME ERROR: &lt;err&gt;</p>
Set Command AT+CPSMS=1	<p>OK</p> <p>Fail: +CME ERROR: &lt;err&gt;</p>
Reference: 3GPP TS 27.007 V3.12.0	

Unsolicited Result Codes

None Parameter

<p>&lt;mode&gt;:integer type. Indication to disable or enable the use of PSM in the UE.</p> <p>0    Disable the use of PSM</p> <p>1    Enable the use of PSM</p> <p>2    Disable the use of PSM and discard all parameters for PSM or,if available,reset to the manufacturer specific default values.In this form, the read parameter &lt;mode&gt; will be set to 0.</p>
--

<Requested\_Periodic-RAU>:

string type; one byte in an 8 bit format. Requested extended periodic RAU value (T3312) to be allocated to the UE in GERAN/UTRAN. The requested extended periodic RAU value is coded as one byte (octet 3) of the GPRS Timer 3 information element coded as bit format (e.g. "01000111" equals 70 hours). For the coding and the value range, see the GPRS Timer 3 IE in 3GPP TS 24.008 [8] Table 10.5.163a/3GPP TS 24.008. See also 3GPP TS 23.682 [149] and 3GPP TS 23.060 [47]. The default value, if available, is manufacturer specific

<Requested\_GPRS-READY-timer>:

string type; one byte in an 8 bit format. Requested GPRS READY timer value (T3314) to be allocated to the UE in GERAN/UTRAN. The requested GPRS READY timer value is coded as one byte (octet 2) of the GPRS Timer information element coded as bit format (e.g. "0100011" equals 3 decihours or 18 minutes). For the coding and the value range, see the GPRS Timer IE in 3GPP TS 24.008 [8] Table 10.5.172/3GPP TS 24.008. See also 3GPP TS 23.060 [47]. The default value, if available, is manufacturer specific.

<Requested\_Periodic-TAU>:

string type; one byte in an 8 bit format. Requested extended periodic TAU value (T3412) to be allocated to the UE in E-UTRAN. The requested extended periodic TAU value is coded as one byte (octet 3) of the GPRS Timer 3 information element coded as bit format (e.g. "01000111" equals 70 hours). For the coding and the value range, see the GPRS Timer 3 IE in 3GPP TS 24.008 [8] Table 10.5.163a/3GPP TS 24.008. See also 3GPP TS 23.682 [149] and 3GPP TS 23.401 [82]. The default value, if available, is manufacturer specific.

<Requested\_Active-Time>:

string type; one byte in an 8 bit format. Requested Active Time value (T3324) to be allocated to the UE. The requested Active Time value is coded as one byte (octet 3) of the GPRS Timer 2 information element coded as bit format (e.g. "00100100" equals 4 minutes). For the coding and the value range, see the GPRS Timer 2 IE in 3GPP TS 24.008 [8] Table 10.5.163/3GPP TS 24.008. See also 3GPP TS 23.682 [149], 3GPP TS 23.060 [47] and 3GPP TS 23.401 [82]. The default value, if available, is manufacturer specific.

Remark

None

Example The following examples show the typical application for this command.

### 6.1. AT+CPSMS PSM settings

Command	Possible response
AT+CPSMS=?	+CPSMS: mode=[0-2],,Requested_Periodic-TAU="8bitStringofByte eg. 01000111", Requested_Active-Time="8bitStringofByte eg. 01100101" OK
AT+CPSMS?	+CPSMS: 1,, "01000101", "00000000" OK
AT+CPSMS=1	OK

### 6.2 AT+CEDRXS eDRX settings

#### Description

The set command controls the setting of the UEs eDRX parameters. The command controls whether the UE wants to apply eDRX or not, as well as the requested eDRX value for each specified type of access technology.

The set command also controls the presentation of an unsolicited result code +CEDRXP:

<Act-type>[,<Requested\_eDRX\_value>[,<NW-provided\_eDRX\_value>[,<Paging\_time\_window>]]] when <n>=2 and there is a change in the eDRX parameters provided by the network.

A special form of the command can be given as +CEDRXS=3. In this form, eDRX will be disabled and data for all parameters in the command +CEDRXS will be removed or, if available, set to the manufacturer specific default values.

The read command returns the current settings for each defined value of <Act-type>.The test command returns the supported <mode>s and the value ranges for the access technology and the requested eDRX value as compound values.

#### Syntax

Command	Possible response
Test Command AT+CEDRXS=?	+CEDRXS: (list of supported <mode>s),(list of supported <Act-type>s),(list of supported <Requested_eDRX_value>s) OK

Read Command AT+CEDRXS?	+CEDRXS: [<mode>,[<AcTtype>,<Requested_eDRX_value>]] +CEDRXS: [<mode>,[<AcTtype>,<Requested_eDRX_value>]] OK
Set Command AT+CEDRXS=[<mode>,[<AcTtype>,<Requested_eDRX_value>]] AT+CEDRXS=[<mode>,[<AcTtype>,<Requested_eDRX_value>]]	OK ERROR +CME ERROR: <err>
Reference: 3GPP TS 27.007 V14.5.0	

Unsolicited Result Codes

None

Parameter

**6.2. AT+CEDRXS eDRX settings**

<mode>: integer type, indicates to disable or enable the use of eDRX in the UE. This parameter is applicable to all specified types of access technology, i.e. the most recent setting of <mode> will take effect for all specified values of <AcT>.

- 0 Disable the use of eDRX
- 1 Enable the use of eDRX
- 2 Enable the use of eDRX and enable the unsolicited result code, In this form, the read parameter <mode> will be set to 1.

+CEDRXP: <AcT-type>[,<Requested\_eDRX\_value>[,<NWprovided\_eDRX\_value>[,<Paging\_time\_window>]]]

- 3 Disable the use of eDRX and discard all parameters for eDRX or, if available, reset to the manufacturer specific default values. In this form, the read parameter <mode> will be set to 0.

<AcT-type>:

integer type, indicates the type of access technology. This AT-command is used to specify the relationship between the type of access technology and the requested eDRX value.

- 0 Access technology is not using eDRX. This parameter value is only used in the unsolicited result code.
- 1 EC-GSM-IoT (A/Gb mode)
- 2 GSM (A/Gb mode)
- 3 UTRAN (Iu mode)
- 4 E-UTRAN (WB-S1 mode)
- 5 E-UTRAN (NB-S1 mode)

<Requested\_eDRX\_value>:

string type; half a byte in a 4 bit format. The eDRX value refers to bit 4 to 1 of octet 3 of the Extended DRX parameters information element (see subclause 10.5.5.32 of 3GPP TS 24.008 [8]). For the coding and the value range, see Extended DRX parameters information element in 3GPP TS 24.008 [8] Table 10.5.5.32/3GPP TS 24.008. The default value, if available, is manufacturer specific.

<p>&lt;NW-provided_eDRX_value&gt;: string type; half a byte in a 4 bit format. The eDRX value refers to bit 4 to 1 of octet 3 of the Extended DRX parameters information element (see subclause 10.5.5.32 of 3GPP TS 24.008 [8]). For the coding and the value range, see Extended DRX parameters information element in 3GPP TS 24.008 [8] Table 10.5.5.32/3GPP TS 24.008.</p>
<p>&lt;Paging_time_window&gt;: string type; half a byte in a 4 bit format. The paging time window refers to bit 8 to 5 of octet 3 of the Extended DRX parameters information element (see subclause 10.5.5.32 of 3GPP TS 24.008 [8]). For the coding and the value range, see the Extended DRX parameters information element in 3GPP TS 24.008 [8] Table 10.5.5.32/3GPP TS 24.008.</p>

Remark

8910 project support <AcT-type> 4 and 5,8908/8909 project only support <AcT-type> 5.

Example The following examples show the typical application for this command.

Command	Possible response
AT+CEDRXS=?	+CEDRXS: mode=[0-3], AcT-type=[4-5]/[5], Requested_eDRX_value ="4bitString eg.0100" OK
AT+CEDRXS?	+CEDRXS: 0,5, "0000" OK
AT+CEDRXS=1,5, "0100"	OK

### 6.3 AT+CEDRXRDP eDRX dynamic parameter reads

Description

The execution command returns <AcT-type> and <Requested\_eDRX\_value>,<NW-provided\_eDRX\_value> and <Paging\_time\_window> if eDRX is used for the cell that the MS is currently registered to. If the cell that the MS is currently registered to is not using eDRX, AcT-type=0 is returned.

Syntax

Command	Possible response

Test Command AT+CEDRXRDP	+CEDRXRDP: <AcT-type>[,<Requested_eDRX_value>[ ,<NW-provided_eDRX_value>[,<Paging_time_window>]]] OK +CME ERROR: <err>
Test Command AT+CEDRXRDP=?	OK
Reference: 3GPP TS 27.007 V14.5.0	

#### Unsolicited Result Codes

None

Parameter

### 6.3. AT+CEDRXRDP eDRX dynamic parameter reads

<AcT-type>: integer type, indicates the type of access technology. This AT-command is used to specify the relationship between the type of access technology and the requested eDRX value.

- 0 Access technology is not using eDRX
- 1 EC-GSM-IoT (A/Gb mode)
- 2 GSM (A/Gb mode)
- 3 UTRAN (Iu mode)
- 4 E-UTRAN (WB-S1 mode)
- 5 E-UTRAN (NB-S1 mode)

<Requested\_eDRX\_value>:

string type; half a byte in a 4 bit format. The eDRX value refers to bit 4 to 1 of octet 3 of the Extended DRX parameters information element (see subclause 10.5.5.32 of 3GPP TS 24.008 [8]). For the coding and the value range, see Extended DRX parameters information element in 3GPP TS 24.008 [8] Table 10.5.5.32/3GPP TS 24.008.

<NW-provided\_eDRX\_value>:  
string type; half a byte in a 4 bit format. The eDRX value refers to bit 4 to 1 of octet 3 of the Extended DRX parameters information element (see subclause 10.5.5.32 of 3GPP TS 24.008 [8]). For the coding and the value range, see Extended DRX parameters information element in 3GPP TS 24.008 [8] Table 10.5.5.32/3GPP TS 24.008.

<Paging\_time\_window>:  
string type; half a byte in a 4 bit format. The paging time window refers to bit 8 to 5 of octet 3 of the Extended DRX parameters information element (see subclause 10.5.5.32 of 3GPP TS 24.008 [8]). For the coding and the value range, see the Extended DRX parameters information element in 3GPP TS 24.008 [8] Table 10.5.5.32/3GPP TS 24.008

Remark

None

Example

None

## 6.4 AT+CFGEDRX EDRX features configure

Description

Configure and query EDRX parameters

Syntax

Command	Possible response
Test Command AT+CFGEDRX=?	+CFGEDRX: enable=[0-1], edrxPtw=[0-15], edrxValue=[0-15] OK



Set Command AT+CFGEDRX=[<enable> [,<ptw>[,<edrx_val>]]]	OK
Read Command AT+CFGEDRX?	+CFGEDRX: <enable>[,<ptw>[,<edrx_val>]] OK

Parameter

<enable> integer, Value range [0-1], configured to support EDRX functionality.

0	Edrx is not supported, and <ptw> and <edrx_val> are invalid when the value is taken;
1	Support Edrx;

<ptw>

integer, Value range [0-15], to configure the index value of the UE requested paging time Window length.  
See 24.008

#### 6.4. AT+CFGEDRX EDRX features configure

## EPS COMMANDS

## Contents

- *AT+CEMODE UE modes of operation for EPS*
- *AT+CGEQOS Define EPS quality of service*
- *AT+CGEQOSRDP EPS quality of service read dynamic parameters*
- *AT+CEREG EPS network registration status*
- *AT+CISRVCC IMS single radio voice call continuity*
- *AT+CEUS UE'S usage setting for EPS*
- *AT+CEVDP UE'S voice domain preference E-UTRAN*
- *AT+CDU Dial URI*
- *AT+CHCCS Hangup of current calls*
- *AT+SETVOLTE Disable/Enable VOLTE*

## 7.1 AT+CEMODE UE modes of operation for EPS

### Description

The set command is used to set the MT to operate according to the specified mode of operation for EPS (Evolved Packet System). If the requested mode of operation is not supported, an ERROR or +CME ERROR response is returned. Extended error responses are enabled by the +CMEE command. Refer subclause Appendix A for possible <err> values.

The read command returns the mode of operation set by the TE, independent of the current serving cell capability and independent of the current serving cell Access Technology.

The test command is used for requesting information on the supported MT modes of operation as a compound value.

### Syntax

Command	Possible response
Test Command AT+CEMODE=?	+CEMODE(list of supported <mode>s)) OK
Read Command AT+CEMODE?	+CEMODE<mode> OK

Set Command AT+CEMODE=<mode>	OK ERROR +CME ERROR:<err>
Reference: 3GPP TS 27.007 V3.12.0	

Unsolicited Result Codes None

Parameter

<mode>: integer type; indicates the mode of operation. The default value is manufacturer specific.
<p>0 PS mode 2 of operation: The UE registers only to EPS services, and UE's usage setting is "data centric"</p> <p>1 CS/PS mode 1 of operation: The UE registers only to both EPS and non-EPS services, and UE's usage setting is "voice centric"</p> <p>2 CS/PS mode 2 of operation: The UE registers only to both EPS and non-EPS services, and UE's usage setting is "data centric"</p> <p>3 PS mode 1 of operation: The UE registers only to EPS services, and UE's usage setting is "voice centric"</p>

Note:

- When closing CS domain in 4G, it can not be saved to NVM directly, because it can affect GCF test, so it need to send AT+NVPC=0,2 command to save, otherwise it will reset after rebooting
- When closing CS domain in 4G, if sending AT+CEMODE=3 to close, it can register to the 2G before UE open VOLTE or don't support VOLTE. Using AT+CEMODE=0 is suggested. The difference is AT+CEMODE=0 - Data Centric; AT+CEMODE=3 - Voice Centric

Remark None

Example The following examples show the typical application for this command.

Command	Possible response
AT+CEMODE?	+CEMODE:0 OK
AT+CEMODE=?	+CEMODE:(0,1,2,3) OK
AT+CEMODE=0	OK

## 7.2 AT+CGEQOS Define EPS quality of service

Description

The set command allows the TE to specify the EPS Quality of Service parameters

<cid>,<QCI>,<DL\_GBR> and <UL\_GBR>] and [<DL\_MBR> and <UL\_MBR>] for a PDP context or Traffic Flows (see 3GPP TS 24.301 [83] and 3GPP TS 23.203 [85]). When in UMTS/GPRS the MT applies a mapping function to UMTS/GPRS Quality of Service. Refer subclause Appendix A for possible <err> values.

A special form of the set command, +CGEQOS=<cid> causes the values for context number <cid> to become undefined.

The read command returns the current settings for each defined QoS.

The test command returns the ranges of the supported parameters as compound values.

#### Syntax

### 7.2. AT+CGEQOS Define EPS quality of service

Command	Possible response
Test Command AT+CGEQOS=?	+CGEQOS: (range of supported <cid>s),(list of supported <QCI>s),(list of supported <DL_GBR>s),(list of supported <UL_GBR>s),(list of supported <DL_MBR>s),(list of supported <UL_MBR>s) OK

Read Command AT+CGEQOS?	<pre>[+CGEQOS: &lt;cid&gt;,&lt;QCI&gt;,&lt;DL_GBR&gt;,&lt;UL_GBR&gt;],[&lt;DL_MBR&gt;,&lt;UL_MBR&gt;]][&lt;CR&gt;&lt;LF&gt;+CGEQOS: &lt;cid&gt;,&lt;QCI&gt;,&lt;DL_GBR&gt;,&lt;UL_GBR&gt;],[&lt;DL_MBR&gt;,&lt;UL_MBR&gt;][. ..]] OK</pre>
Set Command AT+CGEQOS=<cid>[,<QCI>[,<DL_GBR>,<UL_GBR>[,<DL_MBR>,<UL_MBR>]]]	<pre>OK ERROR +CME ERROR:&lt;err&gt;</pre>
Reference: 3GPP TS 27.007 V3.12.0	

Unsolicited Result Codes None

Parameter

<cid>: integer type; specifies a particular EPS Traffic Flows definition in EPS and a PDP Context definition in UMTS/GPRS (see the +CGDCONT and +CGDSCONT commands).

<QCI>: integer type; specifies a class of EPS QoS (see 3GPP TS 23.203 [85] and 3GPP TS 24.301 [83]).  
 0 QCI is selected by network  
 [1 - 4] value range for guaranteed bit rate Traffic Flows  
 75 value for guaranteed bit rate Traffic Flows  
 [5 - 9] value range for non-guaranteed bit rate Traffic Flows  
 79 value for non-guaranteed bit rate Traffic Flows  
 [128 - 254] value range for Operator-specific QCIs  
 The QCI values 65, 66, 67, 69 and 70 are not allowed to be requested by the UE. If the TE requests a QCI parameter 65, 66, 67, 69 or 70, the MT responds with result code +CME ERROR: 181 (unsupported QCI value).

<DL\_GBR>: integer type; indicates DL GBR in case of GBR QCI. The value is in kbit/s. This parameter is omitted for a non-GBR QCI (see 3GPP TS 24.301 [83]).

<UL\_GBR>: integer type; indicates UL GBR in case of GBR QCI. The value is in kbit/s. This parameter is omitted for a non-GBR QCI (see 3GPP TS 24.301 [83]).

<DL\_MBR>: integer type; indicates DL MBR in case of GBR QCI. The value is in kbit/s. This parameter is omitted for a non-GBR QCI (see 3GPP TS 24.301 [83]).

<UL\_MBR>: integer type; indicates UL MBR in case of GBR QCI. The value is in kbit/s. This parameter is omitted for a non-GBR QCI (see 3GPP TS 24.301 [83]).

Remark None

Example The following examples show the typical application for this command.

Command	Possible response
AT+CGEQOS?	CGEQOS:2,3
AT+CGEQOS=?	+CGEQOS: (1..7),(0..9), , , , OK
AT+CGEQOS=2,3	OK

### 7.3 AT+CGEQOSRDP EPS quality of service read dynamic parameters

#### Description

The execution command returns the Quality of Service parameters <QCI>,[<DL\_GBR> and <UL\_GBR>] and [<DL\_MBR> and <UL\_MBR>] of the active secondary or non secondary PDP context associated to the provided context identifier <cid>.

If the parameter <cid> is omitted, the Quality of Service parameters for all secondary and non secondary active PDP contexts are returned.

---

### 7.3. AT+CGEQOSRDP EPS quality of service read dynamic parameters

The test command returns a list of <cid>s associated with secondary or non secondary active PDP contexts. Parameters of both network and MT/TA initiated PDP contexts will be returned.

Syntax

Command	Possible response
Test Command AT+CGEQOSRDP=?	+CGEQOSRDP: (list of <cid>s associated with active contexts) OK
Set Command AT+CGEQOSRDP=<cid>	[+CGEQOSRDP: <cid>,<QCI>, [<DL_GBR>,<UL_GBR>],[<DL_MBR>, <UL_MBR>],[<DL_AMBR>, <UL_AMBR>]][<CR><LF>+CGEQOSRDP: <cid>,<QCI>,[<DL_GBR>, <UL_GBR>],[<DL_MBR>,<UL_MBR>],[ <DL_AMBR>,<UL_AMBR>]][...] OK
Reference: 3GPP TS 27.007 V3.12.0	

Unsolicited Result Codes None

Parameter

<p>&lt;cid&gt;: integer type; specifies a particular Traffic Flows definition in EPS and a PDP Context definition in UMTS/GPRS (see the +CGDCONT and +CGDSCONT commands).</p> <p>&lt;QCI&gt;: integer type; specifies a class of EPS QoS (see 3GPP TS 23.203 [85] and 3GPP TS 24.301 [83]).</p> <p>0 QCI is selected by network</p> <p>[1 - 4] value range for guaranteed bit rate Traffic Flows</p> <p>75 value for guaranteed bit rate Traffic Flows</p> <p>[5 - 9] value range for non-guaranteed bit rate Traffic Flows</p> <p>79 value for non-guaranteed bit rate Traffic Flows</p> <p>[128 - 254] value range for Operator-specific QCIs</p> <p>&lt;DL_GBR&gt;: integer type; indicates DL GBR in case of GBR QCI. The value is in kbit/s. This parameter is omitted for a non-GBR QCI (see 3GPP TS 24.301 [83]).</p> <p>&lt;UL_GBR&gt;: integer type; indicates UL GBR in case of GBR QCI. The value is in kbit/s. This parameter is omitted for a non-GBR QCI (see 3GPP TS 24.301 [83]).</p> <p>&lt;DL_MBR&gt;: integer type; indicates DL MBR in case of GBR QCI. The value is in kbit/s. This parameter is omitted for a non-GBR QCI (see 3GPP TS 24.301 [83]).</p> <p>&lt;UL_MBR&gt;: integer type; indicates UL MBR in case of GBR QCI. The value is in kbit/s. This parameter is omitted for a non-GBR QCI (see 3GPP TS 24.301 [83]).</p> <p>&lt;DL_AMBR&gt;: integer type; indicates DL APN aggregate MBR (see 3GPP TS 24.301 [83]). The value is in kbit/s.</p> <p>&lt;UL_AMBR&gt;: integer type; indicates UL APN aggregate MBR (see 3GPP TS 24.301 [83]). The value is in kbit/s.</p>
---

Remark None

Example The following examples show the typical application for this command.

Command	Possible response
AT+CGEQSRDP=?	+CGEQSRDP: (1..7) OK
AT+CGEQSRDP=1	OK

## 7.4 AT+CEREG EPS network registration status

### Description

The set command controls the presentation of an unsolicited result code +CEREG: <stat> when <n>=1 and there is a change in the MT's EPS network registration status in E-UTRAN, or unsolicited result code +CEREG: <stat>,[<tac>],[<ci>],[<Act>]] when <n>=2 and there is a change of the network cell in E-UTRAN. The parameters <Act>,<tac> and <ci> are provided only if available. The value <n>=3 further



#### 7.4. AT+CEREG EPS network registration status

extends the unsolicited result code with [*<cause\_type>*,*<reject\_cause>*], when available, when the value of *<stat>* changes.

If the UE wants to apply PSM for reducing its power consumption, see +CPSMS command and 3GPP TS 23.682 [149], the set command controls the presentation of an unsolicited result code+CEREG:

*<stat>*[[*<tac>*],[*<ci>*],[*<Act>*],[*<cause\_type>*],[*<reject\_cause>*],[*<Active-Time>*],[*<Periodic-TAU>*]]].

When *<n>*=4 the unsolicited result code will provide the UE with additional information for the Active Time value and the extended periodic TAU value if there is a change of the network cell in E-UTRAN. The value *<n>*=5 further enhances the unsolicited result code with *<cause\_type>* and *<reject\_cause>* when the value of *<stat>* changes. The parameters *<Act>*,*<tac>*,*<ci>*,*<cause\_type>*,*<reject\_cause>*,*<Active-Time>* and *<Periodic-TAU>* are provided only if available.

NOTE 1: If the EPS MT in GERAN/UTRAN/E-UTRAN also supports circuit mode services and/or GPRS services, the +CREG command and +CREG: result codes and/or the +CGREG command and +CGREG: result codes apply to the registration status and location information for those services.

The read command returns the status of result code presentation and an integer *<stat>* which shows whether the network has currently indicated the registration of the MT. Location information elements *<tac>*,*<ci>* and *<Act>*, if available, are returned only when *<n>*=2 and MT is registered in the network. The parameters [*<cause\_type>*,*<reject\_cause>*], if available, are returned when *<n>*=3.

The parameters [*<cause\_type>*,*<reject\_cause>*], if available, are returned when *<n>*=3.

Test command returns values supported as a compound value.

NOTE 2: when EPS Network(LTE mode PS Network) Registration Status changed, "+CEREG:*<stat>*" will be reported automatically.

#### Syntax

Command	Possible response
Test Command AT+CEREG=?	+CEREG: (list of supported <i>&lt;n&gt;</i> s) OK
Read Command AT+CEREG?	when <i>&lt;n&gt;</i> =0, 1, 2 or 3, <i>stat</i> =0, 3 or 4, and command successful: +CEREG: <i>&lt;n&gt;</i> , <i>&lt;stat&gt;</i> [[ <i>&lt;tac&gt;</i> ],[ <i>&lt;ci&gt;</i> ],[ <i>&lt;Act&gt;</i> ],[ <i>&lt;cause_type&gt;</i> , <i>&lt;reject_cause&gt;</i> ]]] when <i>&lt;n&gt;</i> =0, 1, 2 or 3, <i>stat</i> =1 or 5, and command successful: +CEREG: <i>&lt;n&gt;</i> , <i>&lt;stat&gt;</i> [[ <i>&lt;tac&gt;</i> ],[ <i>&lt;ci&gt;</i> ],[ <i>&lt;Act&gt;</i> ]] when <i>&lt;n&gt;</i> =4 or 5 and command successful: +CEREG: <i>&lt;n&gt;</i> , <i>&lt;stat&gt;</i> [[ <i>&lt;tac&gt;</i> ],[ <i>&lt;ci&gt;</i> ],[ <i>&lt;Act&gt;</i> ]][[ <i>&lt;cause_type&gt;</i> ],[ <i>&lt;reject_cause&gt;</i> ],[ <i>&lt;Active-Time&gt;</i> ],[ <i>&lt;Periodic-TAU&gt;</i> ]]] OK
Set Command AT+CEREG=[ <i>&lt;n&gt;</i> ]	OK ERROR +CME ERROR: <i>&lt;err&gt;</i>
Reference: 3GPP TS 27.007 V3.12.0	

Unsolicited Result Codes None

Parameter

<n>: integer type
<p>0 disable network registration unsolicited result code</p> <p>1 enable network registration unsolicited result code +CEREG: &lt;stat&gt;</p> <p>2 enable network registration and location information unsolicited result code+CEREG: &lt;stat&gt;[,&lt;tac&gt;],[&lt;ci&gt;],[&lt;AcT&gt;]]</p> <p>3 enable network registration, location information and EMM cause value information unsolicited result code +CEREG: &lt;stat&gt;[,&lt;tac&gt;],[&lt;ci&gt;],[&lt;AcT&gt;][,&lt;cause_type&gt;,&lt;reject_cause&gt;]]</p> <p>4 For a UE that wants to apply PSM, enable network registration and location information unsolicited result code +CEREG: &lt;stat&gt;[,&lt;tac&gt;],[&lt;ci&gt;],[&lt;AcT&gt;][,],[&lt;Active-Time&gt;],[&lt;Periodic-TAU&gt;]]]]</p> <p>5 For a UE that wants to apply PSM, enable network registration, location information and EMM cause value information unsolicited result code +CEREG: &lt;stat&gt;[,&lt;tac&gt;],[&lt;ci&gt;],[&lt;AcT&gt;][,],[&lt;cause_type&gt;],[&lt;reject_cause&gt;][,],[&lt;Active-Time&gt;],[&lt;PeriodicTAU&gt;]]]]</p>

**7.4. AT+CEREG EPS network registration status**

<stat>: integer type; indicates the EPS registration status
<p>0 not registered, MT is not currently searching an operator to register to</p> <p>1 registered, home network</p> <p>2 not registered, but MT is currently trying to attach or searching an operator to register to 3 registration denied</p> <p>4 unknown (e.g. out of E-UTRAN coverage)</p> <p>5 registered, roaming</p> <p>6 registered for "SMS only", home network (not applicable)</p> <p>7 registered for "SMS only", roaming (not applicable)</p> <p>8 attached for emergency bearer services only (See NOTE 2)</p> <p>9 registered for "CSFB not preferred", home network (not applicable)</p> <p>10 registered for "CSFB not preferred", roaming (not applicable)</p> <p>NOTE 2: 3GPP TS 24.008 [8] and 3GPP TS 24.301 [83] specify the condition when the MS is considered as attached for emergency bearer services.</p>
<tac>: string type; two byte tracking area code in hexadecimal format (e.g. "00C3" equals 195 in decimal)
<ci>: string type; four byte E-UTRAN cell ID in hexadecimal format
<AcT>: integer type; indicates the access technology of the serving cell

<p>0 GSM (not applicable)</p> <p>1 GSM Compact (not applicable)</p> <p>2 UTRAN (not applicable)</p> <p>3 GSM w/EGPRS (see NOTE 3) (not applicable)</p> <p>4 UTRAN w/HSDPA (see NOTE 4) (not applicable)</p> <p>5 UTRAN w/HSUPA (see NOTE 4) (not applicable)</p> <p>6 UTRAN w/HSDPA and HSUPA (see NOTE 4) (not applicable)</p> <p>7 E-UTRAN</p> <p>9 E-UTRAN(NB-S1 mode)(see NOTE 6)</p> <p>NOTE 3: 3GPP TS 44.060 [71] specifies the System Information messages which give the information about whether the serving cell supports EGPRS.</p> <p>NOTE 4: 3GPP TS 25.331 [74] specifies the System Information blocks which give the information about whether the serving cell supports HSDPA or HSUPA.</p> <p>NOTE 6: 3GPP TS 36.331 [86] specifies the System Information blocks which give the information about whether the serving cell supports NB-IoT, which corresponds to E-UTRAN (NB-S1 mode).</p>
<p>&lt;cause_type&gt;: integer type; indicates the type of &lt;reject_cause&gt;.</p>
<p>0 Indicates that &lt;reject_cause&gt; contains an EMM cause value, see 3GPP TS 24.301 [83] Annex A.</p> <p>1 Indicates that &lt;reject_cause&gt; contains a manufacturer-specific cause.</p>
<p>&lt;reject_cause&gt;: integer type; contains the cause of the failed registration. The value is of type as defined by&lt;cause_type&gt;.</p>
<p>&lt;Active-Time&gt;: string type; one byte in an 8 bit format.</p> <p>Indicates the Active Time value (T3324) allocated to the UE in E-UTRAN. The Active Time value is coded as one byte (octet 3) of the GPRS Timer 2 information element coded as bit format (e.g. "00100100" equals 4 minutes). For the coding and the value range, see the GPRS Timer 2 IE in 3GPP TS 24.008 [8] Table 10.5.163/3GPP TS 24.008. See also 3GPP TS 23.682 [149] and 3GPP TS 23.401 [82].</p>
<p>&lt;Periodic-TAU&gt;: string type; one byte in an 8 bit format.</p> <p>Indicates the extended periodic TAU value (T3412) allocated to the UE in E-UTRAN. The extended periodic TAU value is coded as one byte (octet 3) of the GPRS Timer 3 information element coded as bit format (e.g. "01000111" equals 70 hours). For the coding and the value range, see the GPRS Timer 3 IE in 3GPP TS 24.008 [8] Table 10.5.163a/3GPP TS 24.008. See also 3GPP TS 23.682 [149] and 3GPP TS 23.401 [82].</p>

Remark None

---

Note:

- While the network doesn't assign values of Active-Time and Periodic-TAU, When <n>=4 or 5 and command successful,Read Command Response the same as When <n>=1, 2 or 3. currently, reject\_cause is not support
-

Example The following examples show the typical application for this command.

Command	Possible response
AT+CEREG?	+CEREG:1, 1, "114e", "097c7474",9 OK
AT+CEREG=?	+CEREG:(0-5) OK
AT+CEREG=1	OK

## 7.5 AT+CISRVCC IMS single radio voice call continuity

### Description

SRVCC provides the ability to have a seamless handover of a voice call between the PS domain and the CS domain for calls that are anchored in IMS, when the UE is capable of transmitting/receiving on only one of those access networks (PS or CS) at a given time, see 3GPP TS 23.221 [90] subclause 7.2a, annex A.1 and annex A.2

Set command informs MT about the SRVCC Support. MT normally updates the network when changing this parameter.

Read command returns the status of the MT stored SRVCC Support.

Test command returns supported values as a compound value.

### Syntax

#### 7.5. AT+CISRVCC IMS single radio voice call continuity

Command	Possible response
Test Command AT+CISRVCC=?	+CISRVCC:(list of supported <uesrvcc>s) OK
Read Command AT+CISRVCC?	+CISRVCC: <uesrvcc>
Set Command AT+CISRVCC=<uesrvcc>	OK ERROR +CME ERROR:<err>
Reference: 3GPP TS 27.007 V3.12.0	

Unsolicited Result Codes None

### Parameter

<uesrvcc>: integer type. SRVCC support status

<p>0 The UE does not have SRVCC support</p> <p>1 The UE has SRVCC support</p>
---

Remark None

Example The following examples show the typical application for this command.

Command	Possible response
AT+CISRVCC=?	+CISRVCC: (0-1) OK
AT+CISRVCC?	+CISRVCC: 0 OK
AT+CISRVCC=1	OK

### 7.6 AT+CEUS UE'S usage setting for EPS

Description

The set command is used to set the MT to operate according to the specified UE's usage setting for EPS, see 3GPP TS 24.301 [83].

The read command returns the usage setting set by the TE.

The test command is used for requesting information on the supported MT setting(s) as a compound value.

Syntax

Command	Possible response
Test Command AT+CEUS=?	+CEUS: (list of supported <setting>s) OK
Read Command AT+CEUS?	+CEUS: <setting>
Set Command AT+CEUS=<setting>	OK ERROR +CME ERROR:<err>
Reference: 3GPP TS 27.007 V3.12.0	

Unsolicited Result Codes None

Parameter

<p>&lt;setting&gt;: integer type; indicates the usage setting of the UE. The default value is manufacturer specific.</p>
--

0 voice centric 1 data centric
-----------------------------------

Remark None

Example The following examples show the typical application for this command.

Command	Possible response
AT+CEUS=?	+CEUS: (0,1) OK
AT+CEUS?	+CEUS: 1 OK
AT+CEUS=1	OK

### 7.7 AT+CEVDP UE'S voice domain preference E-UTRAN

Description

The set command is used to set the MT to operate according to the specified voice domain preference for E-UTRAN.

The read command returns the setting, independent of the current serving cell capability and independent of the current serving cell's access technology.

The test command returns supported values as a compound value.

#### 7.7. AT+CEVDP UE'S voice domain preference E-UTRAN

Syntax

Command	Possible response
Test Command AT+CEVDP=?	+CEVDP:(list of supported <setting>s) OK
Read Command AT+CEVDP?	+CEVDP:<setting> OK
Set Command AT+CEVDP=<setting>	OK ERROR +CME ERROR:<err>
Reference: 3GPP TS 27.007 V3.12.0	

Unsolicited Result Codes None

Parameter

<setting>: integer type; indicates the voice domain preference of the UE. The default value is manufacturer specific.
1 CS Voice only 2 CS Voice preferred, IMS PS Voice as secondary 3 IMS PS Voice preferred, CS Voice as secondary 4 IMS PS Voice only

Remark None

Example The following examples show the typical application for this command.

Command	Possible response
AT+CEVDP=?	+CEVDP: 1..4 OK
AT+CEVDP?	+CEVDP: 3 OK
AT+CEVDP=1	OK

## 7.8 AT+CDU Dial URI

### Description

Execution command can be used to dial a URI (with <action>=1) for initiating communication using the specified communication client with the specified media profile. With <action>=0 the command can query which clients are supported for the URI types supported.

When the command is used to query the supported URI types (i.e. <action>=0), the URI types are provided by +CDUT: <URI\_scheme>. When the command is used to dial a URI (i.e. <action>=1) and the dialling succeeds the command is terminated by +CDU: <ccid> and OK. The parameters <CLIR\_OIR> and <CUG\_pointer> are used to set the per call basis values of the supplementary services CLIR / OIR and CUG.

The unsolicited result code +CDUU: <ccid>,<code> can be subsequently provided to give further basic information about the call as it progresses. The value of the <ccid> is kept until the call is released. See command +CMCCS and unsolicited result code +CMCCSI for provision of additional information about the call setup.

If "Call control by USIM" see 3GPP TS 31.111 [92] subclause 4.5 is activated by the USIM, it is the responsibility of the communication client to perform any required call control verification according to the procedures defined in 3GPP TS 31.111 [92] subclause 7.3 prior to the execution of the call setup.

When call control by USIM is applicable, the communication client shall perform the call control (for example by using the Commands for USIM application toolkit, see clause 12) and act upon the result of the call control as follows:

- if call control by USIM performs no modifications to the call request, the call setup shall be executed without any changes to the data;
- if call control by USIM modifies the call request, the call setup shall be executed using the modified data as provided by the call control;
- if call control by USIM modifies the call request to a different service, the appropriate AT command(s) for that service shall be executed; and
- if call control by USIM rejects the call request, the call setup shall not be executed.

If the attempt to dial does not succeed, the command is terminated by ERROR / CME ERROR or +CDUI: <cause> and OK.

Test command returns values supported as a compound value.

Syntax

Command	Possible response
Set Command AT+CDU=<action>[,<URI>[, <client>[,<mpidx>[,<CLIR_OIR>[, <CUG_pointer>[, <type_of_call>]]]]]]	+CME ERROR: <err>  when <action>=0 and command successful: [+CDU: <URI_scheme>[,<client>] [. . .]]
AT+CDU=?	+CDU: (list of supported <URI_scheme>s)

Unsolicited Result Codes None

Parameter

7.8. AT+CDU Dial URI

<p>&lt;action&gt;: integer type</p> <p>0 Query supported communication clients for the supported URI types. Execution command +CDU=0 returns a line of intermediate result code +CDUT: &lt;URI_scheme&gt;[,&lt;client&gt;] for every supported &lt;URI_scheme&gt;.</p> <p>1 Dial &lt;URI&gt; using the indicated communication client with the indicated media profile.</p>
<p>&lt;URI&gt;: string type. URI including the prefix specifying the URI type. The URI may include URI parameters. The used character set should be the one selected with Select TE Character Set +CSCS.</p>
<p>&lt;CLIR_OIR&gt;: integer type. Indicates per call basis changes provided to the supplementary service CLIR / OIR. See +CLIR for further information of the related parameters.</p> <p>0 No per call based changes to CLIR / OIR, the settings with +CLIR apply.</p> <p>1 Restrict the CLI presentation for the current call (CLIR / OIR invocation)</p> <p>2 Allow CLI presentation for the current call (CLIR / OIRsuppression)</p>



<p>&lt;CUG_pointer&gt;: integer type. Indicates per call basis changes provided to the supplementary service closed user group. See +CECUG for further information of the related parameters.</p> <p>0 No per call basis changes to CUG</p> <p>1-n Indicates the CUG index to use for this call. The CUG index and corresponding values used as set with command +CECUG (enable CUG temporary mode). The maximum value of n is implementation specific.</p>
<p>&lt;type_of_call&gt;: integer type. Indicates type of call on per call basis.</p> <p>0 Normal call</p> <p>1 Dual radio voice call continuity call</p>
<p>&lt;URI_scheme&gt;: string type represented with IRA characters. Parameter identifies supported URI scheme. This parameter shall not be subject to conventional character conversion as per +CSCS.</p> <p>sip Internet Assigned Number Authority (IANA) registry as per RFC 3969 [113], used with Session Initiation Protocol (SIP), see RFC 3261 [111].</p> <p>tel Internet Assigned Number Authority (IANA) registry as per RFC 5341 [114], used with SIP, see RFC 3966 [112]</p> <p>urn Internet Assigned Number Authority (IANA) registry according to RFC 2141 [116], only used with SIP in combination with a suitable uniform resource name (URN) namespace.</p>
<p>&lt;client&gt;: integer type. Communication client indication. The default value is implementation specific.</p> <p>1 MMTel. The UE procedures in 3GPP TS 24.173 [87] apply.</p> <p>128-255 Reserved for vendor specific communication clients..</p>
<p>&lt;mpidx&gt;: integer type. Media profile identification number. The parameter is local to the TE-MT interface. The range of permitted values (minimum value = 1) is returned by the test form of the command +CDEFMP. When +CDU is used for dialling (i.e. with &lt;action&gt;=1) this number can be provided to point to a particular media profile. The provided media profile identification number is the number being returned by +CDEFMP when defining the media profile. Usage and value of a default media profile is implementation specific</p>
<p>&lt;ccidx&gt;: integer type. Call identification number as described in 3GPP TS 22.030 [19] subclause 6.5.5.1. This number can be used in +CHLD command operations. Value range is from 1 to N. N, the maximum number of simultaneous call control processes is implementation specific.</p>

<p>&lt;code&gt;: string type represented with IRA characters. Cause codes giving main call state information. Intermediate call status responses can be reported using the unsolicited result code +CMCCSI (see command +CMCCS). This parameter shall not be subject to conventional character conversion as per +CSCS</p> <p>BUSY Busy signal detected.</p> <p>ANSWERED Remote party has answered and the connection between A and B has been established</p> <p>NO ANSWER Connection completion timeout</p> <p>CONNECTION TERMINATED The connection is terminated from either the remote party or the network, or the attempt to establish the call setup is unsuccessful</p>
<p>&lt;cause&gt;: integer type. Reason code providing further details why the call setup fails in the terminal before signalling towards the network is initiated</p> <p>0 Outgoing call attempt rejected by (U)SIM/ME, unspecified.</p> <p>1 Outgoing call attempt rejected by barring services in the SIM/ME.</p>

Remark

Currently only support <action> and <URI>  
 Use CDU instead of CDUT, which is not comply with 3GPP spec

Example

The following examples show the typical application for this command.

Command	Possible response
AT+CDU=1,"tel:13501276219"	OK
AT+CDU=1,"sip:t*99***1#"	CONNECT

## 7.9 AT+CHCCS Hangup of current calls

Description

Execution command causes the TA to initiate hangup and subsequently perform call clearing of the call for which a <ccid> was provided when the call was detected in the MT. The parameter <cause> can be added to indicate particular information on the cause for call clearing. Setting the parameter <cause> to values 2

### 7.9. AT+CHCCS Hangup of current calls

or 3 is typically relevant for call clearing before a call has been established (e.g. an incoming or waiting call). The parameter <cause> is ignored by the lower layers if it is not according to the signalling procedures in question. A special form of the execution command, +CHCCS=0, causes the TA to initiate hangup and subsequently perform call clearing of all calls for which a <ccid> was provided when the call was detected in the MT. The parameter <cause> will be ignored if <ccid>=0. The information text +CHCCSI: <ccid> is provided for each call where a successful hangup is initiated as result of the +CHCCS. If no hangup is initiated, no information text is provided before OK is returned.

Syntax

Command	Possible response
Read Command AT+CHCCS=?	OK

Set Command AT+CHCCS=<ccidx>[,<cause>]	OK ERROR +CME ERROR:<err>
Reference: 3GPP TS 27.007 V13.2.3	

Unsolicited Result Codes None

Parameter

<ccidx>: integer type. Call identification number as described in 3GPP TS 22.030 [19] subclause 6.5.5.1. This number can be used in +CHLD command operations. Value range is from 1 to N. N, the maximum number of simultaneous call control processes is implementation specific
<cause>: integer type. Proposed cause value for call clearing.
<ol style="list-style-type: none"> <li>1 No particular cause indicated</li> <li>2 Cause "Normal call clearing" (value 16), see 3GPP TS 24.008 [8] table 10.5.123 or BYE request, see RFC 3261 [111] subclause 15.1</li> <li>3 Cause "Call rejected" (value 21), see 3GPP TS 24.008 [8] table 10.5.123 or "488 Not Acceptable Here", see RFC 3261 [111] subclause 21.4.26</li> <li>4 Cause "User busy" (value 17), see 3GPP TS 24.008 [8] table 10.5.123 or "486 Busy Here", see RFC 3261 [111] subclause 21.4.24</li> </ol>

Remark None

Example The following examples show the typical application for this command.

Command	Possible response
AT+CHCCS=?	+CHCCS: (0-n) OK
AT+CHCCS=2	OK

## 7.10 AT+SETVOLTE Disable/Enable VOLTE

Description

Disable/Enable VOLTE.

Syntax

Command	Possible response
Test Command AT+SETVOLTE=?	+SETVOLTE: (list of supported <setting>s) OK

Set Command AT+SETVOLTE=<setting>	OK ERROR +CME ERROR:<err>
Read Command AT+SETVOLTE?	+SETVOLTE:1/0 OK ERROR +CME ERROR:<err>

Unsolicited Result Codes None

Parameter

<setting>: integer type;
0 Disable VOLTE 1 Enable VOLTE.

Remark None

Example The following examples show the typical application for this command.

Command	Possible response
AT+SETVOLTE?	+SETVOLTE: :1 OK
AT+SETVOLTE=?	+SETVOLTE: :0,1 OK
AT+SETVOLTE=1	OK

#### 7.10. AT+SETVOLTE Disable/Enable VOLTE

## SMS COMMANDS

## Contents

- *AT+CSDH Show Text Mode Parameters (for SMS)*
- *AT+CSMP Set Text Mode Parameters*
- *AT+CMSS Send Message From Storage(for SMS)*
- *+CMTI/+CMT Indication New Short Message [for SMS]*
- *AT+CMGD Delete SMS Message*
- *AT+CMGF Select SMS Message Format*
- *AT+CMGL List SMS Messages From Preferred Store*
- *AT+CMGR Read SMS Message*
- *AT+CMGS Send SMS Message*
- *AT+CMGC Send command*
- *AT+CMGW Write SMS Message To Memory*
- *AT+CNMI New SMS Message Indications*
- *AT+CPMS Preferred SMS Message Storage*
- *AT+CSCA SMS Service Center Address*
- *+CDS Indicates SMS Status Report Has Been Received*
- *AT+CMMS Set SMS Concat*
- *AT+CSMS Select message service*
- *AT+CGSMS Select Service For MO SMS Messages*
- *AT+CNMA ME/TA new message acknowledgement for*
- *AT+CSCB Set Cell Broadcast function(currently not supported)*

## 8.1 AT+CSDH Show Text Mode Parameters (for SMS)

### Description

Set command controls whether detailed header information is shown in text mode result codes.

Command	Possible response
AT+CSDH=?	list of supported <show>s OK
AT+CSDH?	+CSDH: <show>

AT+CSDH=<show>	OK
----------------	----

Parameter

<show>: Range: 0-1 0 do not show the values in result codes 1 show the values in result codes

Remark

Example

AT+CSDH=0

<not show the message header when list message at the storage, read message in the storage, or indicate to CMTI that new message received.>

OK

AT+CSDH=1

< show the message header when list message at the storage, read message in the storage, or indicate to CMTI that new message received.>

OK

## 8.2 AT+CSMP Set Text Mode Parameters

Description

Set command is used to select values for additional parameters needed when SM is sent to the network or placed in a storage when text format message mode is selected.

Command	Possible response
AT+CSMP=?	OK
AT+CSMP?	+CSMP:<fo>,<vp>,<pid>,<dcs> OK
AT+CSMP=<fo>[,<vp>[,<pid>[,<dcs>]]]	OK

Parameter fo

default:17 User-defined Setting are not currently supported

vp

default:167 User-defined Setting are not currently supported

pid

default:0 User-defined Setting are not currently supported

dcs

depending on the command or result code: 3G TS 23.038 [2] SMS Data Coding Scheme (default0),or Cell Broadcast Data Coding Scheme in integer format [supported there types of csw allowed,0,4,8]

Remark

1. Parameter <fo> <vp> <pid> and <dcs>, we recommend to set default value of them, but can use other values if need according to spec definite.

2. if setting "fo" value for MO message, we must make sure the "mti" segment of "fo" (as 03.40 description) is "01", meanings that bit1 is "0" and bit0 is "1", otherwise exception would happened.
3. if setting "dcs" value for MO message, we must make sure that the dcs is equal to 0, or 4, or 8, other values is not allowed now.

#### Example

---

AT+CSMP=17,167,0,0

<in text mode, send message to others or write message to storage with 7bit encode>

OK

AT+CMGS ="13560243602"

>abc123<CTRL Z>

+CMGS: 5

OK

Receive: abc123

---

AT+CSMP=17,167,0,4

<in text mode, send message to others or write message to storage with 8bit encode>

OK

AT+CMGS ="13560243602",129

>abc123<CTRL Z>

+CMGS:3

OK

Receive: abc123

---

AT+CSMP=17,167,0,8

<in text mode, send message to others or write message to storage with 16bit encode, sometimes the Chinese string>

OK

AT+CMGS ="+13560243602",145

>XXX<CTRL Z> (Chinese string)

+CMGS:4

OK

Receive: XXX (Chinese string)

---

## 8.2. AT+CSMP Set Text Mode Parameters

### 8.3 AT+CMSS Send Message From Storage(for SMS)

#### Description

Execution command sends message with location value <index> from preferred message storage <mem2> to the network (SMS-SUBMIT or SMS-COMMAND).

Command	Possible response
AT+CMSS=?	OK
AT+CMSS=<index>[,<da>[,<toda>]]	if sending fails: +ERROR: <err>

#### Parameter

<index>:

integer type; value in the range of location numbers supported by the associated memory

da:

3G TS 23.040 [3] TP-Destination-Address Address-Value field in string format; BCD numbers (or GSM 7 bit default alphabet characters) are converted to characters of the currently selected TE character set (refer command +CSCS in 3G TS 27.007 [9]); type of address given by <toda>tring type; memory to which writing and sending operations are made toda:

3G TS 24.011 [6] TP-Destination-Address Type-of-Address octet in integer format (when first character of <da> is + (IRA 43) is 145, otherwise default is 129, National number 161)

#### Remark

1. <toda>have there values:161,145,129
2. At PDU mode , wen can't send MT message.

#### Example

---

```

AT+CMGF=1
OK
AT+CSDH=1
OK
AT+CMGR=1
+CMGR: "STO SENT", "13021107315" „129,17,0,0,167, "+8613010112500",145,7 testing
OK
AT+CMSS=1
+CMSS: 7
OK
AT+CMGF=1
OK
    
```



```

AT+CSDH=1
OK
AT+CMGR=1
+CMGR: "STO SENT", "13021107315",129,17,0,0,167, "+8613010112500",145,7 testing
OK
AT+CMSS=1, "13466507607", 129
+CMSS: 10
OK

```

---

## 8.4 +CMTI/+CMT Indication New Short Message [for SMS]

### Description

When receive new short message ,send +CMTI or +CMT[+CDS are message report]

#### Possible response

```

+CMTI: <mem>,<index> or
+CMT: [<alpha>],<length><CR><LF><pdu> (PDU mode enabled)
+CMT: <oa>,<alpha>,<scts>,<tooa>,<fo>,<pid>,<dcsc>,<sca>,<tosca>,<length>]<CR><LF><data> (Text mode
enbaled)

```

#### Parameter

**<mem>** string type; memory for storage new messages

**<index>**

integer type; value in the range of location numbers supported by the associated memory

**<length>**

integer type value indicating in the text mode (+CMGF=1) the length of the message body <data> (or <cdata>) in characters; or in PDU mode (+CMGF=0), the length of the actual TP data unit in octets (i.e. the RP layer SMSC address octets are not counted in the length)

**<fo>**

depending on the command or result code: first octet of 3G TS 23.040 [3] SMS-DELIVER, SMS-SUBMIT (default 17), SMS-STATUS-REPORT, or SMS-COMMAND (default 2) in integer format

**<vp>**

depending on SMS-SUBMIT is supported, in enhanced format (hexadecimal coded string with double quotes)

**<pid>**

3G TS 23.040 [3] TP-Protocol-Identifier in integer format (default 0)

**<dcsc>**

depending on the command or result code: 3G TS 23.038 [2] SMS Data Coding Scheme (default0), or Cell Broadcast Data Coding Scheme in integer format

**<sca>**

---

#### 8.4. +CMTI/+CMT Indication New Short Message [for SMS]

3G TS 24.011 [6] RP SC address Address-Value field in string format;

<tosca>

3G TS 24.011 [6] RP SC address Type-of-Address octet in integer format

<scts>

3G TS 23.040 [3] TP-Service-Centre-Time-Stamp in time-string format (refer <dt>)

<alpha>

string type alphanumeric representation of <da> or <oa> corresponding to the entry found in MT phonebook; implementation of this feature is manufacturer specific; used character set should be the one selected with command Select TE Characte

#### Remark

If the initial PDP context is supported, the context with <cid>=0 is automatically defined at startup, see subclause 10.1.0. Any active PDP contexts will be automatically deactivated when the attachment state changes to detached. The read command returns the current Packet Domain service state. The test command is used for requesting information on the supported Packet Domain service states.

#### Example

---

AT+CNMI=0,1,0,0,0

OK

+CMTI: "SM",7

OK

AT+CMGF=0

OK

AT+CNMI=0,2,0,0,0

OK

+CMT: ,27

0891683110102105F0240D91683120117013F500008070206193930007F4F29C9E769F01

OK

AT+CMGF=1

OK

AT+CSDH=1

OK

AT+CNMI=0,2,0,0,0

OK

+CMT: "+8613021107315", "2008/07/02,16:40:24+00",145,17,0,0, "+8613010112500",145,8

AT+CMGF =1 OK

AT+CNMI=0,0,0,1,0

OK

(need status

report)

AT+CMGS ="13445555991"

OK

+CMGS: 12

+CDS: 2,12,"+8613021107315",145, "2008/07/02,16:42:22+00", "2008/07/02, 16:42:34+00",0

OK

---

## 8.5 AT+CMGD Delete SMS Message

### Description

Execution command deletes message from preferred message storage <mem1> location <index>. If <delflag> is present and not set to 0 then the ME shall ignore <index> and follow the rules for <delflag> shown below. If deleting fails, final result code +CMS ERROR: <err> is returned. See chapter Message Service Failure Result Code for <err> values.

Command	Possible response
AT+CMGD=?	+CMGD: (list of supported <index>s),(list of supported <delflag>s) OK
AT+CMGD=<index>[,<delflag>]	OK

### Parameter

<Index>:

Index : indicate which message will be deleted

<delflag>: an integer indicating multiple message deletion request as follows:

- 0 (or omitted) Delete the message specified in <index>
- 1 Delete all read messages from preferred message storage, leaving unread messages and stored mobile originated messages (whether sent or not) untouched
- 2 Delete all read messages from preferred message storage and sent mobile originated messages, leaving unread messages and unsent mobile originated messages untouched
- 3 Delete all read messages from preferred message storage, sent and unsent mobile originated messages leaving unread messages untouched.
- 4 Delete all messages from preferred message storage including unread messages.

### Remark

Test command .list of supported <index>s

### Example

---

AT+CMGD=1

<note1: delete the specific index message in the storage>

<note2: if have no message we specific to delete, just return "OK" only>

OK

---

### 8.5. AT+CMGD Delete SMS Message

## 8.6 AT+CMGF Select SMS Message Format

### Description

Set command specifies the input and output format of the short messages. The input and output format of the short messages can be either PDU mode or Text mode.

Command	Possible response
AT+CMGF=?	list of supported <mode>s OK
AT+CMGF?	+CMGF:<mode>
AT+CMGF=<mode>	OK

### Parameter

<mode>:

- 0 PDU mode (default when implemented)
- 1 text mode

### Example

---

```
AT+CMGF=0
```

```
< PDU mode>
```

```
OK
```

---

## 8.7 AT+CMGL List SMS Messages From Preferred Store

### Description

Execution command returns messages with status value <stat> from message storage <mem1> to the TE.

Command	Possible response
AT+CMGL=?	list of supported <stat>s OK
AT+CMGL=<state>	OK

### Parameter

<stat>:

integer type in PDU mode (default 0), or string type in text mode (default **"REC UNREAD"**); indicates the status of message

- 0 "REC UNREAD" received unread message (i.e. new message)
- 1 "REC READ" received read message
- 2 "STO UNSENT" stored unsent message (only applicable to SMS)
- 3 "STO SENT" stored sent message (only applicable to SMS)
- 4 "ALL" all messages (only applicable to +CMGL command)
- 8 "RESEND" after use cmss to send the unsent message

#### Remark

1. <alpha> is not supported now.
2. if PDU mode, each bit meaning of DCS byte are reference in chapter 11.10,5, CMGW remark.

#### Example

---

AT+CMGL=n

<note1: n=0,1,2,3,4, meaning as description of 11.7.4 parameters definition>

<note2: if have no message we specific to list, just return "OK" only>

<note3: don't care about the dcs value with at+csmg setting or charset value with at+cscs setting here, the display is only depending to formats when the message store.>

OK

---

## 8.8 AT+CMGR Read SMS Message

### Description

Execution command returns message with location value <index> from preferred message storage <mem1> to the TE.

Command	Possible response
AT+CMGR=?	OK
AT+CMGR=<index>	+CMGR:<stat>,<oa>,[<alpha>],<scts>[,<toa>,<fo>,<pid>,<dcs>,<sca>,<tosca>,<length>] <data> OK

### Parameter

<index>:

Indicate which message will be read.

### Remark

1. <alpha> and <scts> is not supported now.
2. Can't read short message report now.
3. When DTE character set is "GSM" (set by +CSCS command),the SMS content will be output by an ASCII string form if it is a pure ASCII SMS,otherwise it will be output in an UCS2 hex string form. If the DET character set is "UCS2" it will always b output in UCS2 hex string form.
4. if PDU mode, each bit meaning of DCS byte are reference in chapter 11.10,5, CMGW remark.

### Example

---

AT+CMGR=2

(the message store in the mem with 8bit encode of dcs) +CMGR: "STO UNSENT", "456" testing

OK

---

## 8.8. AT+CMGR Read SMS Message

## 8.9 AT+CMGS Send SMS Message

### Description

The write command transmits a short message from TE to network (SMS-SUBMIT). After invoking the write command wait for the prompt ">" and then start to write the message. To send the message simply enter <CTRLZ>

Command	Possible response
AT+CMGS =?	OK
if text mode: AT+CMGS=<da>[,<toda>]<CR> if PDU mode: AT+CMGS=<length><CR>  text/PDU is entered<ctrl-Z/ESC>	if text/PDU mode and send success: +CMGS:<mr> OK if send fails: +ERROR: <err>

### Parameter

<da>

3G TS 23.040 [3] TP-Destination-Address Address-Value field in string format; BCD numbers (or GSM 7 bit default alphabet characters) are converted to characters of the currently selected TE character set (refer command +CSCS in 3G TS 27.007 [9]); type of address given by <toda>tring type; memory to which writing and sending operations are made

<toda>

3G TS 24.011 [6] TP-Destination-Address Type-of-Address octet in integer format (when first character of <da> is + (IRA 43) default is 145, otherwise default is 129)

<length>

integer type value indicating in the text mode (+CMGF=1) the length of the message body <data> > (or <cdata>) in characters; or in PDU mode (+CMGF=0), the length of the actual TP data unit in octets (i.e. the RP layer SMSC address octets are not counted in the length) PDU is given: we can send pdu message depending to the dcs value of oct in the pdu header. the PDU shall be hexadecimal format (similarly as specified for <pdu>) and given in one line; ME/TA converts this coding into the actual octets of PDU.text is entered

- we should care about the dcs of at+csmp setting, if we set 7bit encode of dcs, we can send 7bit encode message with text mode.
- If we set 8bit or 16bit encode of dcs, we can send 8bit or 16bit message with text mode.the entered text should be formatted as follows:

---

if <dc> (set with +CSMP) indicates that 3GPP TS 23.038 [2] GSM 7 bit default alphabet is used and <fo> indicates that 3GPP TS 23.040 [3] TP-User-Data-Header-Indication is not set:

if TE character set other than "HEX" (refer command Select TE Character Set +CSCS in 3GPP TS 27.007 [9]): ME/TA converts the entered text into the GSM 7 bit default alphabet according to rules of Annex A; backspace can be used to delete last character and carriage returns can be used (previously mentioned four character sequence shall be sent to the TE after every carriage return entered by the user);

if TE character set is "HEX": the entered text should consist of two IRA character long hexadecimal numbers which ME/TA converts into the GSM 7 bit default alphabet characters. (e.g. 17 (IRA 49 and 55) will be converted to character ? (GSM 7 bit default alphabet 23)).

<mr>

integer type 3GPP TS 23.040 [3] TP-Message-Reference in integer format, Parameter identifying the SMS-SUBMIT. | After each SMS SUBMIT has been submitted to the network, the Last Used TP MR value in the (U)SIM is updated with the TP MR that was used in the SMS SUBMIT operation. | The reference number may possess values in the range 0 to 255

Remark

1. Not support long short message.
2. <tda>have there values: 161,145,129
3. At PDU mode,wen can't send MT message.
4. Message date input at input window, <Ctrl z> input at receive window

Example

---

AT+CMGF=0

OK

AT+CMGS=17

(value of "dcs" is getting from dcs oct in the pdu header)

>0011000B813170862334F20000A70361F118<CTRL Z>

+CMGS: 1

OK

---

AT+CMGF=1

OK

AT+CSMP=17,167,0,0

(7bit encode of message to store or send in text mode)

OK

AT+CMGS ="13560243602"

>abc<CTRL Z>

+CMGS: 5

OK

AT+CSMP=17,167,0,4 (8bit encode of message to store or send in text mode)

OK

AT+CMGS ="13560243602",129

>abc<CTRL Z>

+CMGS:3

OK

AT+CSMP=17,167,0,8

(16bit encode of message to store or send in text mode)

### 8.9. AT+CMGS Send SMS Message

OK

AT+CMGS ="+8613560243602",145

>XXX<CTRL Z> (Chinese string)

+CMGS:4

OK

---

## 8.10 AT+CMGC Send command

### Description

Execution command sends a command message from a TE to the network (SMS-COMMAND). The entering of text (3GPP TS 23.040 [3] TP-Command-Data) is done similarly as specified in command Send Message +CMGS, but the format is fixed to be a sequence of two IRA character long hexadecimal numbers which ME/TA converts into 8-bit octets (refer +CMGS). Message reference value <mr> is returned to the TE on successful message delivery. Optionally (when +CSMS <service> value is 1 and network supports) <scts> is returned. Values can be used to identify message upon unsolicited delivery status report result code. If sending fails in a network or an ME error, final result code +CMS ERROR: <err> is returned. See chapter Message Service Failure Result Code for a list of <err> values. This command should be abortable.

Command	Possible response
Set Command if text mode (+CMGF=1): AT+CMGC=<fo>,<ct>[,<pid>[,<mn>[,<da>[,<toda>]]]]<CR> if pdu mode (+CMGF=0): AT+CMGC=<length><CR> text is entered<ctrl-Z/ESC>	+CMGC: <mr>[,<scts>] OK
Reference 3GPP TS 27.005	

Parameter



<p>&lt;fo&gt;:  depending on the command or result code: first octet of 3GPP TS 23.040 [3]  SMS-DELIVER,SMS-SUBMIT (default 17), SMS-STATUS-REPORT, or  SMS-COMMAND  (default 2) in integer format</p>
<p>&lt;ct&gt;:  3GPP TS 23.040 [3] TP-Command-Type in integer format (default 0)</p>
<p>&lt;pid&gt;:  3GPP TS 23.040 [3] TP-Protocol-Identifier in integer format (default 0)</p>
<p>&lt;mn&gt;:  3GPP TS 23.040 [3] TP-Message-Number in integer format,The mn value is the mr value  of a previously submitted SM.</p>
<p>&lt;da&gt;:  3GPP TS 23.040 [3] TP-Destination-Address Address-Value field in string format; BCD  numbers (or GSM 7 bit default alphabet characters) are converted to characters of the  currently selected TE character set (refer command +CSCS in 3GPP TS 27.007 [9]); type of  address given by &lt;toda&gt;</p>
<p>&lt;toda&gt;:  3GPP TS 24.011 [6] TP-Destination-Address Type-of-Address octet in integer  format (when first character of &lt;da&gt; is + (IRA 43) default is 145, otherwise  default is 129)</p>

---

Example

---

```

AT+CMGF=0
OK
AT+CMGC=17
(value of "dcs" is getting from dcs oct in the pdu header)
>0011000B813170862334F20000A70361F118<CTRL Z>

```

+CMGS: 1

OK

---

AT+CMGF=1

### 8.10. AT+CMGC Send command

OK

AT+CSMP=17,167,0,0

(7bit encode of message to store or send in text mode)

OK

AT+CMGC ="13560243602",129

>abc<CTRL Z>

+CMGS: 5

OK

AT+CSMP=17,167,0,4 (8bit encode of message to store or send in text mode)

OK

AT+CMGC ="13560243602",129

>abc<CTRL Z>

+CMGS:3

OK

AT+CSMP=17,167,0,8

(16bit encode of message to store or send in text mode)

OK

AT+CMGC ="13560243602",145

>XXX<CTRL Z> (Chinese string)

+CMGS:4

OK

---

## 8.11 AT+CMGW Write SMS Message To Memory

### Description

Execution command stores message (either SMS-DELIVER or SMS-SUBMIT) to memory storage <mem2>. Memory location <index> of the stored message is returned.

Command	Possible response

AT+CMGW=?	OK
Set Command if text mode (+CMGF=1): AT+CMGW=<oa/da>[,<tooa/toda>[,<stat>]]<CR> if pdu mode (+CMGF=0): AT+CMGW=<length>[,<stat>]<CR> text is entered<ctrl-Z/ESC>	If writing is successful +CMGW: <index> OK if writing error +CME ERROR: <err>

Parameter

<oa>

GSM 03.40 TP-Prigination-Address Address-Value field in string format(string should be included in quotation marks);BCD numbers(or GSM default alphabet characters) are converted to characters of the currently selected TE character set(specified by +CSCS in TS 07.07); type of address given by <tooa>

<da>

3G TS 23.040 [3] TP-Destination-Address Address-Value field in string format; BCD numbers (or GSM 7 bit default alphabet characters) are converted to characters of the currently selected TE character set (refer command +CSCS in3G TS 27.007 [9]); type of address given by <toda>tring type; memory to which writing and sending operations are made

<tooa>

GSM 04.11 TP-Originating-Address Type-of-Address octet in integer format(default refer <tode>)

<toda>

3G TS 24.011 [6] TP-Destination-Address Type-of-Address octet in integer format (when first character of <da> is + (IRA 43) default is 145, otherwise default is 129)

<length>

integer type value indicating in the text mode (+CMGF=1) the length of the message body <data> > (or <cdata>) in characters; or in PDU mode (+CMGF=0), the length of the actual TP data unit in octets (i.e. the RP layer SMSC address octets are not counted in the length)

<stat>

Integer type in PDU mode (default 2 for +CMGW), or string type in text mode (default .STO UNSENT. for +CMGW). Indicates the status of message in memory.

Remark

1. not support long message.
2. <toda> have three values: 161, 145 and 129.
3. if pdu mode, each bit meaning of the dcs byte are following: Dcs byte: bit7..bit0

bit7..bit4 - encode group

bit7 - reserved bit6

- reserved

bit5 - 0:text uncompress 1: GSM default compress  
bit4 - 0: bit0 and bit1 no use 1: bit0 and bit1 useful

bit0: bit1:

0 0 class1  
0 1 class2  
1 0 class3  
1 1 class4

bit2: bit3:

0 0 GSM default 7 bit encode  
0 1 8 bit encode  
1 0 16bit(UCS2) encode  
1 1 reserved

4. At PDU mode ,if we want to write MT message at storage, we must specify the status of UNREAD or READ.And at PDU mode , wen can't write MT message which have status of UNSENT or SENT.

Example

---

### 8.11. AT+CMGW Write SMS Message To Memory

AT+CMGF=0

OK

AT+CMGW=17 (value of "dcs" is getting from dcs oct in the pdu header)

>0011000B813170862334F20000A70361F118<CTRL Z>

+CMGW: 1

OK

AT+CMGF=1

OK

AT+CSMP=17,167,0,0 (7bit encode of message to store or send in text mode)

OK

AT+CMGW ="13560243602"

>abc<CTRL Z>

+CMGW: 5

OK

AT+CSMP=17,167,0,4

OK

AT+CMGW ="13560243602",129

>abc<CTRL Z>

+CMGW:3

OK

AT+CSMP=17,167,0,8 (16bit encode of message to store or send in text mode)

OK

AT+CMGW

```
="13560243602"
>XXX<CTRL Z> (Chinese string)
+CMGW:4
OK
```

---

## 8.12 AT+CNMI New SMS Message Indications

### Description

Set command selects the procedure, how receiving of new messages from the network is indicated to the TE when TE is active.

Command	Possible response
AT+CNMI=?	+CNMI: (list of supported <mode>s), (list of supported <mt>s), (list of supported <bm>s), (list of supported <ds>s), (list of supported <bfr>s) OK
AT+CNMI?	+CNMI:<mode>,<mt>,<bm>,<ds>,<bfr> OK
AT+CNMI=<mode>[,<mt>[,<bm>[,<ds>[,<bfr>]]]]	OK

### Parameter

<mode> support one value

now [0]

- 0 Buffer unsolicited result codes in the TA. If TA result code buffer is full, indications can be buffered in some other place or the oldest indications may be discarded and replaced with the new received indications.
- 1 Discard indication and reject new received message unsolicited result codes when TA-TE link is reserved (e.g. in on-line data mode). Otherwise forward them directly to the TE.
- 2 Buffer unsolicited result codes in the TA when TA-TE link is reserved (e.g. in on-line data mode) and flush them to the TE after reservation. Otherwise forward them directly to the TE.
- 3 Forward unsolicited result codes directly to the TE. TA-TE link specific inband technique used to embed result codes and data when TA is in on-line data mode.

<mt>

support four values now: 0,1,2,3 and has no CLASS type.

- 0 No SMS DELIVER indications are routed to the TE.
- 1 If SMS DELIVER is stored into ME/TA, indication of the memory location is routed to the TE using unsolicited result code:+CMTI: <mem>,<index>
- 2 SMS DELIVERS (except class 2 messages and messages in the message waiting indication group (store message)) are routed directly to the TE using unsolicited result code:+CMT: [<alpha>],<length><CR><LF><pdu> (PDU mode enabled) or +CMT: <oa>,<alpha>,<scts>[,<tooa>,<fo>,<pid>,<dcs>,<sca>,<tosca>,<length>]<CR><LF><data>
- 3 Class 3 SMS-DELIVERS are routed directly to TE using unsolicited result codes defined in <mt>=2. Messages of other data coding schemes result in indication as defined in <mt>=1.

<bm>

Broadcast-csw not supported

0 No CBM indications are routed to the TE.

1 If CBM is stored into ME/TA, indication of the memory location is routed to the TE using unsolicited result code:+CBMI: <mem>,<index>

2 New CBMs are routed directly to the TE using unsolicited result code:+CBM:

<length><CR><LF><pdu> (PDU mode enabled)or+CBM:

<sn>,<mid>,<dcs>,<page>,<pages><CR><LF><data> (text mode enabled) If ME supports data coding groups which define special routing also for messages other than class 3 (e.g. (U)SIM specific messages), ME may choose not to route messages of such data coding schemes into TE (indication of a stored CBM may be given as defined in <bm>=1).

3 Class 3 CBMs are routed directly to TE using unsolicited result codes defined in <bm>=2. If CBM storage is supported, messages of other classes result in indication as defined in <bm>=1.

<ds>:

### 8.12. AT+CNMI New SMS Message Indications

message report can't be stored,the value 2 is not supported now

0 No SMS TATUS-REPORTs are routed to the TE.

1 SMS STATUS-REPORTs are routed to the TE using unsolicited result code:+CDS:

<length><CR><LF><pdu> (PDU mode enabled)or+CDS:

<fo>,<mr>,<ra>],[<tora>],[<scts>,<dt>,<st> (text mode enabled)

2 If SMS STATUS-REPORT is stored into ME/TA, indication of the memory location is routed to the TE using unsolicited result code:+CDSI: <mem>,<index>

<bfr>:

not supported

0 TA buffer of unsolicited result codes defined within this command is flushed to the TE when <mode> 1 . . 3 is entered (OK response shall be given before flushing the codes).

1 TA buffer of unsolicited result codes defined within this command is cleared when <mode> 1 . . 3 is entered.

Remark

1. if PDU mode, each bit meaning of DCS byte are reference in chapter 11.10,5, CMGW remark.

Example

---

AT+CNMI=0,1,0,0,0

+CMTI: "SM",7

OK

AT+CMGF=0

OK

AT+CNMI=0,2,0,0,0

+CMT: ,27 0891683110102105F0240D91683120117013F500008070206193930007F4F29C9E769F01

OK

AT+CMGF=1

OK

A

```

T+CSDH=1 OK
AT+CNMI=0,2,0,0,0
+CMT: "+8613021107315", "2008/07/02,16:40:24+00",145,17,0,0, "+8613010112500",145,8 testing
OK
AT+CMGF=1
OK
AT+CNMI=0,0,0,1,0
OK
AT+CMGS ="13445555991"
>abc<CTRL Z>
+CMGS: 12 OK
+CDS: 2,12,"+8613021107315",145, "2008/07/02,16:42:22+00", "2008/07/02, 16:42:34+00",0

```

---

### 8.13 AT+CPMS Preferred SMS Message Storage

#### Description

Set command selects memory storages <mem1>,<mem2> and <mem3> to be used for reading, writing, etc

Command	Possible response
AT+CPMS =?	+CPMS: (list of supported <mem1>s),(list of supported <mem2>s),(list of supported <mem3>s) OK
AT+CPMS?	+CPMS: <mem1>,<used1>,<total1>,<mem2>,<used2>,<total2>,<mem3>,<used3>,<total3> OK
AT+CPMS=<mem1>[,<mem2>[,<mem3>]]	+CPMS: <used1>,<total1>,<used2>,<total2>,<used3>,<total3> OK

#### Parameter

<mem1> string type; mmory from which messages are read and deleted

<mem2> string type; memory to which writing and sending operations are made

<mem3> string type; memory to which received SMS are preferred to be stored

<used1> integer type;number of messages currently in <mem1>

<used2>

---

integer type;number of messages currently in <mem2>

<used3> integer type;number of messages currently in <mem3>

<total1> integer type;number of messages storable in <mem1>

<total2> integer type;number of messages storable in <mem2> <total3>

integer type;number of messages storable in <mem3>

Remark

Parameters <mem1>,<mem2> and <mem3> have three kinds fo values:"SM", "ME", "MT"

"ME" ME message storage

"SM" (U)SIM message storage

"MT" Any of the storages associated with ME, current default is "SM"

Example

### 8.13. AT+CPMS Preferred SMS Message Storage

---

AT+CPMS ="SM", "ME", "SM"

<"SM" : SMS message storage in SIM, default>

+CPMS: 11,50,1,100,11,50

OK

AT+CPMS?

+CPMS: "SM",11,50, "ME",1,100, "SM",11,50

OK

AT+CPMS ="ME", "ME", "ME"

+CPMS: 0,100,0,100,0,100

OK

AT+CPMS?

+CPMS: "ME",0,100, "ME",0,100, "ME",0,100

OK

AT+CPMS ="SM", "SM", "SM"

+CPMS: 11,50,11,50,11,50

OK

AT+CPMS?

+CPMS: "SM",11,50, "SM",11,50, "SM",11,50

OK

---



## 8.14 AT+CSCA SMS Service Center Address

### Description

Set command updates the SMSC address.

Command	Possible response
AT+CSCA=?	OK
AT+CSCA?	+CSCA:<sca>,<tosca> OK
AT+CSCA=<sca>[,<tosca> ]	OK

### Parameter

<sca>

GSM 04.11 RP SC address Address-Value field in string format

<tosca>

GSM 04.11 RP SC address Type-of-Address octet in integer format

### Remark

If the initial PDP context is supported, the context with <cid>=0 is automatically defined at startup, see subclause 10.1.0. Any active PDP contexts will be automatically deactivated when the attachment state changes to detached. The read command returns the current Packet Domain service state. The test command is used for requesting information on the supported Packet Domain service states.

Example

---

```
AT+CSCA="+8613800100500"  
OK  
AT+CSCA?  
+CSCA: "+8613800100500",145  
OK
```

---

## 8.15 +CDS Indicates SMS Status Report Has Been Received

Description

Indicates that SMS status report has been received (not a AT Command)

Possible response
+CDS: <length><CR><LF><pdu> (PDU mode enabled)
+CDS: <fo>,<mr>,<ra>],[<tora>],<scts>,<dt>,<st> (text mode enabled)

Parameter

<pdu>

In the case of SMS: 3G TS 24.011 [6] SC address followed by 3G TS 23.040 [3] TPDU in hexadecimal format: ME/TA converts each octet of TP data unit into two IRA character long hexadecimal number (e.g. octet with integer value 42 is presented to TE as two characters 2A (IRA 50 and 65))

<length>

integer type value indicating in the text mode (+CMGF=1) the length of the message body <data> > (or <cdata>) in characters; or in PDU mode (+CMGF=0), the length of the actual TP data unit in octets (i.e. the RP layer SMSC address octets are not counted in the length)

<fo>

depending on the command or result code: first octet of 3G TS 23.040 [3] SMS-DELIVER, SMS-SUBMIT SMSSTATUS-REPORT, or SMS-COMMAND in integer format is supported, in enhanced format (hexadecimal coded string with double quotes)

<scts>

3G TS 23.040 [3] TP-Service-Centre-Time-Stamp in time-string format (refer <dt>)

<st>

3G TS 23.040 [3] TP-Status in integer format

<mr>

3G TS 23.040 [3] TP-Message-Reference in integer format

<ra>

3G TS 23.040 [3] TP-Recipient-Address Address-Value field in string format; BCD numbers (or GSM 7 bit default alphabet characters) are converted to characters of the currently selected TE character set (refer command +CSCS in 3G TS 27.007 [9]); type of address given by <tora>

<dt>

---

---

### 8.15. +CDS Indicates SMS Status Report Has Been Received

3G TS 23.040 [3] TP-Discharge-Time in time-string format: "yy/MM/dd,hh:mm:ss:zz", where characters indicate year (two last digits), month, day, hour, minutes, seconds and time zone. E.g. 6th of May 1994, 22:10:00 GMT+2 hours equals to "94/05/06,22:10:00+08"

<tora>

3G TS 24.011 [6] TP-Recipient-Address Type-of-Address octet in integer format (default refer <toda>)

Remark

Please refer to +CNMI

Example

---

AT+CMGF=0

OK

AT+CNMI=0,0,0,1,0

+CDS: 3491683110102105F006110D91683120117013F5807020812014008070208120740000

OK

AT+CMGF=1

OK

AT+CNMI=0,0,0,1,0

OK

AT+CMGS="13466507607"

+CMGS: 12

OK

+CDS: 2,14,"+8613021107315",145, "2008/07/02,17:30:50+00", "2008/07/02, 17:30:55+00 ",0

---

Note:

- NULL
- 

### 8.16 AT+CMMS Set SMS Concat

Description Set SMS Concat include "long sms"(ture) and "common sms"(false)

Command	Possible response
Test Command AT+CMMS=?	+CMMS:(0,1) OK

Read Command AT+CMMS?	+CMMS:<nConcat> OK
Set Command AT+CMMS=<nConcat>	OK

Unsolicited Result Codes None

Parameter

<nConcat>: integer type; indicates the concat value
<p>default value is 0</p> <p>0    command sms text mode, UCS2 code, max length is 70, other max length is 140, pdu mode unicode max length is 70, otherwise is 140</p> <p>1    long sms UCS2 code, max length is 210, other max length is 420</p>

Example The following examples show the typical application for this command.

#### 8.16. AT+CMMS Set SMS Concat

Command	Possible response
---------	-------------------

AT+CMMS?	+CMMS: 0 OK
AT+CMMS=?	+CMMS: (0,1) OK
AT+CMMS=1	OK
AT+CMMS?	+CMMS: 1 OK
AT+CMMS=0	OK
AT+CMMS?	+CMMS: 0 OK

---

Note:

- NULL
- 

## 8.17 AT+CSMS Select message service

### Description

Set command selects messaging service <service>. It returns the types of messages supported by the ME: <mt> for mobile terminated messages, <mo> for mobile originated messages and <bm> for broadcast type messages. If chosen service is not supported by the ME (but is supported by the TA), final result code +CMS ERROR: <err> shall be returned. See chapter Message Service Failure Result Code for a list of <err> values. Also read command returns supported message types along the current service setting. Test command returns a list of all services supported by the TA.

Command	Possible response
AT+CSMS=?	<ul style="list-style-type: none"> <li>• +CSMS: (list of supported &lt;service&gt;s)</li> <li>• OK</li> </ul>
AT+CSMS?	<ul style="list-style-type: none"> <li>• +CSMS: &lt;service&gt;,&lt;mt&gt;,&lt;mo&gt;,&lt;bm&gt;</li> <li>• OK</li> </ul>

AT+CSMS=<service>	<ul style="list-style-type: none"> <li>• +CSMS: &lt;mt&gt;,&lt;mo&gt;,&lt;bm&gt;</li> <li>• OK</li> </ul>
-------------------	---

Parameter

<service>: integer type

- 0 3GPP TS 23.040 [3] and 3GPP TS 23.041 [4]
- 1 3GPP TS 23.040 [3] and 3GPP TS 23.041 [4]the requirement of <service> setting 1 is mentioned under corresponding command descriptions)
- 2. . . 127 reserved
- 128. . . manufacturer specific

<mt>,<mo>,<bm>:

integer type \* 0 type not supported \* 1 type supported

## 8.18 AT+CGSMS Select Service For MO SMS Messages

Description

The set command is used to specify the service or service preference that the MT will use to send MO SMS messages

Command	Possible response
AT+CGSMS=?	Success: +CGSMS: (list of supported <service>s) OK
AT+CGSMS?	Success: +CGSMS: <service> OK
AT+CGSMS=[<service>]	Success: OK

Parameter

< service >

a numeric parameter which indicates the service or service preference to be used 0 Packet Domain 1 circuit switched 2 Packet Domain preferred (use circuit switched if GPRS not available) 3 circuit switched preferred (use Packet Domain if circuit switched not available)

Remark

This command is NOT available now

### 8.18. AT+CGSMS Select Service For MO SMS Messages

Example

---

```
AT+CGSMS=?
+CGSMS:(0,1,2,3)
OK
```

AT+CGSMS=0

OK

AT+CGSMS?

+CGSMS: 0

OK

---

## 8.19 AT+CNMA ME/TA new message acknowledgement for

### Description

Execution command confirms correct reception of a new message (SMS-DELIVER or SMSSTATUS-REPORT) which is routed directly to the TE (refer command +CNMI table 3.4.1-3 and table 3.4.1-5). This acknowledgement command (causing ME to send RP-ACK to the network) shall be used when +CSMS parameter <service> equals 1. TA shall not send another +CMT or +CDS result code to TE before previous one is acknowledged. If ME does not get acknowledgement within required time (network timeout), ME should respond as specified in 3GPP TS 24.011 [6] to the network. ME/TA shall automatically disable routing to TE by setting both <mt> and <ds> values of +CNMI to zero. If command is executed, but no acknowledgement is expected, or some other ME related error occurs, final result code +CMS ERROR: <err> is returned. See chapter Message Service Failure Result Code for a list of <err> values.

Command	Possible response
AT+CNMA	+CMS ERROR: <err>
CMS ERROR	Description
52	The command not support,check your input,pls
302	Operation not allowed

### Implementation

Mandatory when <service> value 1 of command Select Message Service +CSMS is supported.

---

Note: In case that a directly routed message must be buffered in ME/TA (possible when +CNMI parameter <mode> equals 0 or 2) or AT interpreter remains too long in a state where result codes cannot be sent to TE (e.g. user is entering a message using +CMGS), acknowledgement (RP-ACK) must be sent to the network without waiting +CNMA command from TE. Later, when buffered result codes are flushed to TE, TE must send +CNMA[=0]

acknowledgement for each result code. In this way, ME/TA can determine if message should be placed in nonvolatile memory and routing to TE disabled (+CNMA[=0] not received). Refer command +CNMI for more details how to use <mode> parameter reliably.

## 8.20 AT+CSCB Set Cell Broadcast function(currently not supported)

Description Set Cell Broadcast function related paramter

Command	Possible response
Test Command AT+CSCB=?	+CSCB:(0,1),(0,1,5,320-478,922), (0-3,5) OK
Read Command AT+CSCB?	+CSCB:<mode>, "<mids>", "<dcss>" OK
Set Command AT+CSCB=<mode>, "<mids>", "<dcss>"	OK

Unsolicited Result Codes None

Parameter

<p>&lt;mode&gt;: integer type; indicates the mode            0 message types specified in &lt;mids&gt; and &lt;dcss&gt; are accepted            1 message types specified in &lt;mids&gt; and &lt;dcss&gt; are not accepted</p>
<p>&lt;mids&gt;: string type; all different possible combinations of CBM message identifiers</p>
<p>&lt;dcss&gt;: string type; all different possible combinations of CBM data coding schemas</p>

Example The following examples show the typical application for this command.

## 8.20. AT+CSCB Set Cell Broadcast function(currently not supported)



Command	Possible response
AT+CSCB=?	+CSCB:(0,1),(0,1,5,320-478,922),(0-3,5) OK
AT+CSCB?	+CSCB:1, "5", "3" OK
AT+CSCB=1, "5", "3"	OK

---

Note:

- NULL
-

---

CHAPTER

**NINE**

---

## GPRS COMMANDS

### Contents

- *AT+CGATT PS Attach Or Detach*
- *AT+CGDCONT Define PDP Context*
- *AT+CGACT PDP Context Activate Or Deactivate*
- *AT+CRC Cellular Result Codes*
- *AT+CGQMIN Quality Of Service Profile (Minimum Acceptable)*
- *AT+CGPADDR Show PDP Address*
- *AT+CGAUTO Automatic Response To A Network Request For PDP Context Activation*
- *AT+CGQREQ Quality Of Service Profile (requested)*
- *AT+CGREG GPRS Network Registration Status*
- *ATD\*99\*\*\*1# Request GPRS Service*
- *AT+CGANS PDP Manual Response To A Nw Req For PDP Context Activation*
- *AT+CGEREP Packet Domain Event Reporting*
- *AT+CGDATA Enter Data State*
- *AT+CGCLASS GPRS Mobile Station Class*
- *AT+CGEQREQ 3G quality of service profile (requested)*
- *AT+CGEQMIN 3G quality of service profile (minimum acceptable)*
- *AT+CGDSCONT Define secondary PDP context*
- *AT+CGTFT Traffic flow template*
- *AT+CGCMOD PDP context modify*
- *AT+CGPDNSADDR Get active pdp dns address*
- *AT+CGCONTRDP PDP context read dynamic parameters*
- *AT+CGSCONTRDP Secondary PDP context read dynamic parameters*
- *AT+CGTFTRDP Traffic flow template read dynamic parameters*
- *AT+CGDEL Delete non-active PDP contexts*
- *AT+CSCON Signalling connection status*
- *AT+CSODCP Sending of originating data via the control plane*
- *AT+CGAUTH Define PDP context authentication parameters*
- *AT+PING Start Ping IP Address Or Host*

- *AT+CFGCIOT CIOT feature configuration*
- *AT+CRTDCP Escalate the finalization data through the control surface*

## 9.1 AT+CGATT PS Attach Or Detach

### Description

The execution command is used to attach the MT to, or detach the MT from, the Packet Domain service. After the command has completed, the MT remains in V.250 command state. If the MT is already in the requested state, the command is ignored and the OK response is returned. If the requested state cannot be achieved, an ERROR or +CME ERROR response is returned. Extended error responses are enabled by the +CMEE command.

Command	Possible response
AT+CGATT=?	+CGATT: (list of supported <state>s) OK
AT+CGATT?	+CGATT: <state>
AT+CGATT=<state>	OK

### Parameter

<state>:

<state>: integer type; indicates the state of PS attachment

- 0 detached
- 1 attached

### Remark

If the initial PDP context is supported, the context with <cid>=0 is automatically defined at startup, see subclause 10.1.0. Any active PDP contexts will be automatically deactivated when the attachment state changes to detached. The read command returns the current Packet Domain service state. The test command is used for requesting information on the supported Packet Domain service states.

### Example

---

```
AT+CGATT=1
```

```
Ok
```

---

```
AT+CGATT=?
```

```
+CGATT:(0,1)
```

```
OK
```

---

## 9.2 AT+CGDCONT Define PDP Context

### Description

This command be used to defined PDP context.

Command	Possible response
AT+CGDCONT=?	+CGDCONT: (range of supported <cid>s), <PDP_type>,(list of supported<d_comp>s), (list of supported <h_comp>s) [<CR><LF> [+CGDCONT: (range of supported <cid>s), <PDP_type>,(list of supported <d_comp>s), (list of supported <h_comp>s)] OK
AT+CGDCONT?	+CGDCONT: <cid>,<PDP_type>,<APN>,<PDP_addr>, <d_comp>,<h_comp>[<CR><LF> +CGDCONT: <cid>,<PDP_type>,<APN>,<PDP_addr>, <d_comp>,<h_comp> OK
AT+CGDCONT=<cid> [,<PDP_type> [,<APN> [,<PDP_addr> [,<d_comp> [,<h_comp>]]]]]	OK

Parameter

<cid>

(PDP Context Identifier) a numeric parameter which specifies a particular PDP context definition. The parameter is local to the TE-MT interface and is used in other PDP context-related commands. The range of permitted values (minimum value = 1, maximum value =7) is returned by the test form of the command.

NOTE:cid 0 means default PDN,only used in read command,read only.

<PDP\_type>

(Packet Data Protocol type) a string parameter which specifies the type of packet data protocol

IP Internet Protocol (IETF STD 5)

IPV6 Internet Protocol, version 6 (IETF RFC 2460)

IPV4V6 Virtual <PDP\_type> introduced to handle dual IP stack UE capability. (See 3GPP TS 24.301 [83])

PPP Point to Point Protocol (IETF STD 51)

Non-IP Transfer of Non-IP data to external packet data network (see 3GPP TS 23.401 [82])

## 9.2. AT+CGDCONT Define PDP Context

<APN>

(Access Point Name) a string parameter which is a logical name that is used to select the GGSN or the external packet data network. If the value is null or omitted, then the subscription value will be requested.

<PDP\_address>

a string parameter that identifies the MT in the address space applicable to the PDP. If the value is null or omitted, then a value may be provided by the TE during the PDP startup procedure or, failing that, a dynamic address will be requested. The read form of the command will continue to return the null string even if an address has been allocated during the PDP startup procedure. The allocated address may be read using the +CGPADDR command.

<d\_comp>

a numeric parameter that controls PDP data compression (applicable for SNDCCP only) (refer 3GPP TS 04.65 [59])

- 0 off (default if value is omitted)
- 1 on (manufacturer preferred compression)
- 2 V.42bis
- 3 V.44bis Other values are reserved.

<h\_comp>

a numeric parameter that controls PDP header compression (refer 3GPP TS 04.65 [59])

- 0 off (default if value is omitted)
- 1 on (manufacturer preferred compression)
- 2 RFC1144
- 3 RFC2507
- 4 RFC3095 Other values are reserved.

#### Example

```
AT+CGDCONT=?
+CGDCONT: (1..7), (IP,IPV6,IPV4V6,PPP,Non-IP),(0..3),(0..4)
OK
AT+CGDCONT=1, "IP", "cmnet"
OK
AT+CGDCONT?
+CGDCONT:1, "IP", "cmnet", ,0,0
OK
```

---

## 9.3 AT+CGACT PDP Context Activate Or Deactivate

### Description

This command is used to activate or deactivate the specified PDP context (s). After the command has completed, the MT remains in V.25ter command state. If any PDP context is already in the requested state, the

state for that context remains unchanged. If the MT is not PS attached when the activation form of the command is executed, the MT first performs a PS attach and then attempts to activate the specified contexts. If no <cid>s are specified the activation form of the command activates all defined contexts or deactivates all active contexts. Specially,if no cid defined,CGACT=1 will active cid 1.

Command	Possible response
AT+CGACT=?	<b>+CGACT: (list of supported &lt;state&gt;s) OK</b>
AT+CGACT?	<ul style="list-style-type: none"> <li>• +CGACT: &lt;cid&gt;,&lt;state&gt;</li> <li>• OK</li> </ul>
AT+CGACT=<state>[,<cid>[,<cid>[ ]]]OK	

Parameter

<state>

State indicates the state of PS attachment 0 deactivated 1 activated

Other values are reserved and will result in an ERROR response to the execution command.

<cid>

A numeric parameter which specifies a particular PDP context definition (see the +CGDCONT and +CGDSCONT commands). Range from 1 to 7.

Remark

1. Before activating, use command AT+CGATT=1 first to attach to the network. Example

```
AT+CGACT=?
```

```
+CGACT: (0,1)
```

```
OK
```

```
AT+CGACT=1,1
```

```
OK AT+CGACT?
```

```
+CGACT: (1,1)
```

```
OK
```

Note:

- The max wait time is 60 seconds.

### 9.3. AT+CGACT PDP Context Activate Or Deactivate

## 9.4 AT+CRC Cellular Result Codes

Description

This command is to control whether or not the extended format of incoming call indication or GPRS network request for PDP context activation or notification for VBS/VGCS calls is used. When enabled, an incoming call is indicated to the TE with unsolicited result code +CRING: <type> instead of the normal RING

Command	Possible response
AT+CRC=?	<ul style="list-style-type: none"> <li>• +CRC:(0,1)</li> <li>• OK</li> </ul>
AT+CRC?	<ul style="list-style-type: none"> <li>• +CRC: &lt;mode&gt;</li> <li>• OK</li> </ul>
AT+CRC=<mode>	OK

Parameter

<mode>:

0 disables extended format (default) 1 enables extended format

Remark

NULL

Example

---

```

AT+CRC=?
+CRC: (0,1)
OK
AT+CRC=1
OK
AT+CRC?
+CRC: 1
OK

```

---

## 9.5 AT+CGQMIN Quality Of Service Profile (Minimum Acceptable)

Description

This command allows the TE to specify a minimum acceptable profile which is checked by the MT against the negotiated profile returned in the Activate PDP Context Accept message. A special form of the set command, +CGQMIN=<cid> causes the minimum acceptable profile for context number <cid> to become undefined. In this case no check is made against the negotiated profile



Command	Possible response
AT+CGQMIN=?	<p>Success:</p> <p>+CGQMIN: &lt;PDP_type&gt;,  (list of supported &lt;precedence&gt;s),  (list of supported &lt;delay&gt;s),  (list of supported &lt;reliability&gt;s),  (list of supported &lt;peak&gt;s),  (list of supported &lt;mean&gt;s)</p> <p>+CGQMIN: &lt;PDP_type&gt;,  (list of supported &lt;precedence&gt;s),  (list of supported &lt;delay&gt;s),  (list of supported &lt;reliability&gt;s) ,  (list of supported &lt;peak&gt;s),  (list of supported &lt;mean&gt;s)</p> <p>[]</p> <p>OK</p>
AT+CGQMIN=<cid> [,<precedence > [,<delay> [,<reliability.>[,<peak> [,<mean>]]]]]	<p>Success:</p> <p>+CGQMIN: &lt;cid&gt;,&lt;precedence &gt;,&lt;delay&gt;,&lt;reliability&gt;,&lt;peak&gt;,&lt;mean&gt;</p> <p>OK</p>
AT+CGQMIN?	<p>Success:</p> <p>+CGQMIN: &lt;cid&gt;,&lt;precedence &gt;,&lt;delay&gt;,&lt;reliability&gt;,&lt;peak&gt;,&lt;mean&gt;</p> <p>[+CGQMIN: &lt;cid&gt;,&lt;precedence&gt;,&lt;delay&gt;,&lt;reliability.&gt;,&lt;peak&gt;,&lt;mean&gt;</p> <p>[]</p> <p>OK</p>

Parameter cid

a numeric parameter which specifies a particular PDP context definition (see the +CGDCONT and +CGDSCONT commands).

precedence

Specifies the precedence class

- 0 network subscribed value
- 1 High Priority. Service commitments shall be maintained ahead of precedence classes 2 and 3
- 2 Normal priority. Service commitments shall be maintained ahead of precedence class 3
- 3 Low priority. Service commitments shall be maintained ahead of precedence classes 1 and 2

delay

### 9.5. AT+CGQMIN Quality Of Service Profile (Minimum Acceptable)

Specifies the delay class.

- 0 network subscribed value
- 1 < 0.5
- 2 < 5
- 3 < 50
- 4 Unspecified (Best Effort)

reliability

Specify the reliability class.

- 0 network subscribed value
- 1 Non real-time traffic, error-sensitive application that cannot cope with data loss
- 2 Non real-time traffic, error-sensitive application that can cope with infrequent data loss
- 3 Non real-time traffic, error-sensitive application that can cope with data loss, GMM/SM, and

SMS

- 4 Real-time traffic, error-sensitive application that can cope with data loss
- 5 Real-time traffic, error non-sensitive application that can cope with data loss

peak

Specify the peak throughput class. Class Peak Throughput(in octets per second)

- 0 network subscribed value
- 1 Up to 1 000 (8 kbit/s)
- 2 Up to 2 000 (16 kbit/s).
- 3 Up to 4 000 (32 kbit/s)
- 4 Up to 8 000 (64 kbit/s)
- 5 Up to 16 000 (128 kbit/s)
- 6 Up to 32 000 (256 kbit/s)
- 7 Up to 64 000 (512 kbit/s)
- 8 Up to 128 000 (1 024 kbit/s)
- 9 Up to 256 000 (2 048 kbit/s) mean

Class Peak Throughput(in octets per second)

- 0 network subscribed value
- 1 (in octets per hour) 100 (~0.22 bit/s)
- 2 200 (~0.44 bit/s)
- 3 500 (~1.11 bit/s)
- 4 1 000 (~2.2 bit/s)
- 5 2 000 (~4.4 bit/s)
- 6 5 000 (~11.1 bit/s)
- 7 10 000 (~22 bit/s)

- 8 20 000 (~44 bit/s)
- 9 50 000 (~111 bit/s)
- 10 100 000 (~0.22 kbit/s)
- 11 200 000 (~0.44 kbit/s)
- 12 500 000 (~1.11 kbit/s)
- 13 1 000 000 (~2.2 kbit/s)
- 14 2 000 000 (~4.4 kbit/s)
- 15 5 000 000 (~11.1 kbit/s)
- 16 10 000 000 (~22 kbit/s)
- 17 20 000 000 (~44 kbit/s)
- 18 50 000 000 (~111 kbit/s)
- 31 best effort

#### PDP\_type

(Packet Data Protocol type) a string parameter which specifies the type of packet data protocol:

- IP Internet Protocol (IETF STD 5)
- IPV6 Internet Protocol, version 6 (IETF RFC 2460)
- IPV4V6 Virtual <PDP\_type> introduced to handle dual IP stack UE capability. (See 3GPP TS 24.301 [83])
- PPP Point to Point Protocol (IETF STD 51)

#### Example

---

```

AT+CGQMIN=?
+CGQMIN: (IP,PPP,IPV6,IPV4V6), (0..3), (0..4), (0..5) , (0..9), (0..18,31)
OK
AT+CGQMIN=1,1,1,1,1,1
+CGQMIN:1,1,1,1,1,1
OK
AT+CGQMIN?
+CGQMIN: 1,1,1,1,1,1
+CGQMIN: 2,0,0,0,0,0 +CGQMIN:
3,0,0,0,0,0
OK

```

---

## 9.6 AT+CGPADDR Show PDP Address

### Description

The execution command returns a list of PDP addresses for the specified context identifiers

## 9.6. AT+CGPADDR Show PDP Address

Command	Possible response
AT+CGPADDR=?	+CGPADDR: (list of defined <cid>s) OK
AT+CGPADDR[=<cid>[,<cid>[. . . ]]]	Success: +CGPADDR: <cid>,<PDP_addr><CR><LF> +CGPADDR: <cid>,<PDP_addr>[. . . ] OK

### Parameter

<cid>

a numeric parameter which specifies a particular PDP context definition (see the +CGDCONT and +CGDSCONT commands). If no <cid> is specified, the addresses for all defined contexts are returned.

<PDP\_address>

a string that identifies the MT in the address space applicable to the PDP. The address may be static or dynamic. For a static address, it will be the one set by the +CGDCONT and +CGDSCONT commands when the context was defined. For a dynamic address it will be the one assigned during the last PDP context activation that used the context definition referred to by <cid>. <PDP\_address> is omitted if none is available

### Example

```
AT+CGPADDR=?
```

```
+CGPADDR: (1,2,3)
```

```
OK
```

```
AT+CGPADDR=1
```

```
+CGPADDR: 1, "10.14.57.241"
```

```
OK
```

## 9.7 AT+CGAUTO Automatic Response To A Network Request For PDP Context Activation

### Description

The set command disables or enables an automatic positive response (auto-answer) to the receipt of a Request PDP Context Activation message from the network. It also provides control over the use of the V.25ter basic commands 'S0', 'A' and 'H' for handling network requests for PDP context activation. The setting does not affect the issuing of the unsolicited result code RING or +CRING

Command	Possible response
---------	-------------------

AT+CGAUTO=?	Success: +CGAUTO: (list of supported <n>s) OK
AT+CGAUTO?	Success: +CGAUTO: <n> OK
AT+CGAUTO=<n>	Success: OK

Parameter

<n>

0 turn off automatic response for Packet Domain only

1 turn on automatic response for Packet Domain only

2 modem compatibility mode, Packet Domain only

3 modem compatibility mode, Packet Domain and circuit switched calls (default)

For <n> = 0 Packet DomainS network requests are manually accepted or rejected by the +CGANS command.

For <n> = 1 Packet Domain network requests are automatically accepted according to the description above.

For <n> = 2, automatic acceptance of Packet Domain network requests is controlled by the 'S0' command. Manual control uses the 'A' and 'H' commands, respectively, to accept and reject Packet Domain requests. (+CGANS may also be used.) Incoming circuit switched calls can be neither manually nor automatically answered.

For <n> = 3, automatic acceptance of both Packet Domain network requests and incoming circuit switched calls is controlled by the 'S0' command. Manual control uses the 'A' and 'H' commands, respectively, to accept and reject Packet Domain requests. (+CGANS may also be used.) Circuit switched calls are handled as described elsewhere in this specification.

Remark

When the +CGAUTO=0 command is received, the MT shall not perform a PS detach if it is attached.

Subsequently, when the MT announces a network request for PDP context activation by issuing the unsolicited result code RING or +CRING, the TE may manually accept or reject the request by issuing the +CGANS command or may simply ignore the network request.

When the +CGAUTO=1 command is received, the MT shall attempt to perform a PS attach if it is not already attached. Failure will result in ERROR or, if enabled, +CME ERROR being returned to the TE. Subsequently, when the MT announces a network request for PDP context activation by issuing the unsolicited result code RING or +CRING to the TE, this is followed by the intermediate result code CONNECT. The MT then enters V.25ter online data state and follows the same procedure as it would after having received a +CGANS=1 with no <L2P> or <cid> values specified.

Example

### 9.7. AT+CGAUTO Automatic Response To A Network Request For PDP Context Activation AT+CGAUTO=?

+CGAUTO: (0-3)

OK

AT+CGAUTO=0

OK AT+CGAUTO?

+CGAUTO: 0

OK

---

### 9.8 AT+CGQREQ Quality Of Service Profile (requested)

#### Description

This AT command be used to set the parameters of the QoS when MT send the PDP context message

Command	Possible response
AT+CGQREQ=?	Success: +CGQREQ: (list of supported ) OK
AT+CGQREQ?	Success: +CGQREQ: <cid>,<precedence>,<delay>,<reliability>,<peak>,<me OK
AT+CGQREQ=[<cid>,<precedence>,<delay>,<reliability>,<peak>,<mean>]]]]]]	Success: OK

for activation

>

## Parameter

<cid>

a numeric parameter which specifies a particular PDP context definition (see the +CGDCONT and +CGDSCONT commands)

< precedence > Specifies the precedence class

0 network subscribed value

1 High Priority. Service commitments shall be maintained ahead of precedence classes 2 and 3

2 Normal priority. Service commitments shall be maintained ahead of precedence class 3

3 Low priority. Service commitments shall be maintained ahead of precedence classes 1 and 2

<delay>

Specifies the delay class

0 network subscribed value

1 < 0.5

2 < 5

3 < 50

4 Unspecified (Best Effort)

<reliability>

Specify the reliability class

0 network subscribed value

1 Non real-time traffic, error-sensitive application that cannot cope with data loss

2 Non real-time traffic, error-sensitive application that can cope with infrequent data loss

3 Non real-time traffic, error-sensitive application that can cope with data loss, GMM/SM, and SMS

4 Real-time traffic, error-sensitive application that can cope with data loss

5 Real-time traffic, error non-sensitive application that can cope with data loss

<peak>

Specify the peak throughput class

0 network subscribed value

1 Up to 1 000 (8 kbit/s).

2 Up to 2 000 (16 kbit/s)

3 Up to 4 000 (32 kbit/s).

4 Up to 8 000 (64 kbit/s)

5 Up to 16 000 (128 kbit/s)

6 Up to 32 000 (256 kbit/s)

7 Up to 64 000 (512 kbit/s)

8 Up to 128 000 (1 024 kbit/s)

9 Up to 256 000 (2 048 kbit/s)

<mean>

Specify the mean throughput class.

0 network subscribed value

1 (in octets per hour) 100 (~0.22 bit/s)

2 200 (~0.44 bit/s)

3 500 (~1.11 bit/s)

4 1 000 (~2.2 bit/s)

5 2 000 (~4.4 bit/s)

6 5 000 (~11.1 bit/s)



---

7 10 000 (~22 bit/s)  
8 20 000 (~44 bit/s)  
9 50 000 (~111 bit/s)

### 9.8. AT+CGQREQ Quality Of Service Profile (requested)

10 100 000 (~0.22 kbit/s)  
11 200 000 (~0.44 kbit/s)  
12 500 000 (~1.11 kbit/s)  
13 1 000 000 (~2.2 kbit/s)  
14 2 000 000 (~4.4 kbit/s)  
15 5 000 000 (~11.1 kbit/s)  
16 10 000 000 (~22 kbit/s)  
17 20 000 000 (~44 kbit/s)  
18 50 000 000 (~111 kbit/s)  
31 best effort

<PDP\_type>

(Packet Data Protocol type) a string parameter which specifies the type of packet data protocol:

IP Internet Protocol (IETF STD 5)  
IPV6 Internet Protocol, version 6 (IETF RFC 2460)  
PPP Point to Point Protocol (IETF STD 51)

### Example

---

```
AT+CGQREQ=?  
+CGQREQ: IP,(0..3),(0..4), (0..5),(0..9),(0..18,31)  
+CGQREQ: IPV6, (0..3), (0..4), (0..5) , (0..9), (0..18,31)  
+CGQREQ: PPP, (0..3), (0..4), (0..5) , (0..9), (0..18,31)  
OK  
AT+CGQREQ=1,1,1,1,1,1  
+CGQREQ:1,1,1,1,1,1  
OK  
AT+CGQREQ?  
+CGQREQ: 1,1,1,1,1,1  
+CGQREQ: 2,0,0,0,0,0 +CGQREQ:  
3,0,0,0,0,0  
OK
```

---

## 9.9 AT+CGREG GPRS Network Registration Status

### Description

This AT command be used to set and show the register information of MT and the position information of the MT.

Command	Possible response
AT+CGREG=?	Success: +CGREG: (list of supported <n>s) OK
AT+CGREG?	Success: +CGREG: <n>,<stat>[,<lac>,<ci>,<pstype>] OK
AT+CGREG=<n>	Success: OK

### Parameter

<n>

0 disable network registration unsolicited result code

1 enable network registration unsolicited result code +CGREG: <stat>

2 enable network registration and location information  
unsolicited result code +CGREG:

<stat>[,<lac>,<ci>]

<stat>

0 not registered, MT is not currently searching an operator to register to

The UE is in GMM state GMM-NULL or GMM-DEREGISTERED-INITIATED.

The GPRS service is disabled, the UE is allowed to attach for GPRS if requested by the user.

1 registered, home network

The UE is in GMM state GMM-REGISTERED or GMM-ROUTING-AREA-UPDATINGINITIATED INITIATED on the home PLMN.

2 not registered, but MT is currently trying to attach or searching an operator to register to

The UE is in GMM state GMM-DEREGISTERED or GMM-REGISTERED-INITIATED. The GPRS service is enabled, but an allowable PLMN is currently not available. The UE will start a GPRS attach as soon as an allowable PLMN is available.

3 registration denied

The UE is in GMM state GMM-NULL. The GPRS service is disabled, the UE is not allowed to attach for GPRS if requested by the user.

4 unknown

5 registered, roaming

The UE is in GMM state GMM-REGISTERED or GMM-ROUTING-AREA-UPDATINGINITIATED on a visited PLMN.

<lac>

string type; two byte location area code in hexadecimal format (e.g. "00C3" equals 195 in decimal)

<ci>

string type; two byte cell ID in hexadecimal format <PsType>

string type; one byte ps type in hexadecimal format

Example

---

### 9.9. AT+CGREG GPRS Network Registration Status

AT+CGREG=?

+CGREG: (0-2)

OK

AT+CGREG=2

OK AT+CGREG?

+CGREG: 2,1, "10DC", "0D2B"

OK

---

### 9.10 ATD\*99\*\*\*1# Request GPRS Service

Description

Login the server, the IP of it be provided by DHCP of GGSN. This command causes the MT to perform whatever actions are necessary to establish communication between the TE and the external PDN. The V.25ter 'D' (Dial) command causes the MT to enter the V.25ter online data state and, with the TE, to start the specified layer 2 protocols. The MT shall return CONNECT to confirm acceptance of the command prior to entering the V.25ter online data state. No further commands may follow on the AT command line.

Command	Possible response
ATD*99[*[<called_address>][*[L2P][*<id>]]#	Success: CONNECT OK

Parameter

< called\_address >

It's a string that identifies the called party in the address space applicable to the PDP. For communications software that does not support arbitrary characters in the dial string, a numeric equivalent may be used. Also, the character comma ',' may be used as a substitute for the character period '.'.

< L2P >

It's a string which indicates the layer 2 protocol to be used (see +CGDATA command). For communications software that does not support arbitrary characters in the dial string, the following numeric equivalents shall be used: "PPP"

< cid >

It's a digit string which specifies a particular PDP context definition (see the +CGDCONT and +CGDSCONT commands).

Example

---

ATD\*99\*\*\*1# CONNECT

dial GPRS service code and start up connecting.>

End date connection mode:

- 1.Command line input ATH
  - 2.Not check the Addrn lable , then command line input +++, The last check the Addrn lable
- 

## 9.11 AT+CGANS PDP Manual Response To A Nw Req For PDP Context Activation

### Description

The execution command requests the MT to respond to a network request for Packet Domain PDP context activation which has been signaled to the TE by the RING or +CRING: unsolicited result code. The <response> parameter allows the TE to accept or reject the request. Commands following the +CGANS command in the AT command line shall not be processed by the MT

Command	Possible response
AT+CGANS=?	<ul style="list-style-type: none"> <li>• Success:</li> <li>• +CGANS: (list of supported &lt;response&gt;s), (list of supported &lt;L2P&gt;s)</li> <li>• OK</li> </ul>
AT+CGANS=<response>,<L2P>,<cid>]]	<ul style="list-style-type: none"> <li>• Success:</li> <li>• OK</li> </ul>

### Parameter

< response >

Response is a numeric parameter which specifies how the request should be responded to.

0 reject the request (default value)

1 accept and request that the PDP context be activated

< L2P >

a string parameter which indicates the layer 2 protocol to be used (see +CGDATA command).

< cid >

a numeric parameter which specifies a particular PDP context definition (see the +CGDCONT and +CGDSCONT commands).

### Example

---

AT+CGANS=?

CGANS: (0,1),( "PPP,IP,IPV6")

OK

---

## 9.11. AT+CGANS PDP Manual Response To A Nw Req For PDP Context Activation

## 9.12 AT+CGEREP Packet Domain Event Reporting

### Description

This command is to enable or disable sending of unsolicited result codes, +CGEV: XXX from MT to TE in the case of certain events occurring in the Packet Domain MT or the network

Command	Possible response
AT+CGEREP=?	Success: +CGEREP: (list of supported <mode>s),(list of supported <bfr>s) OK
AT+CGEREP?	Success: +CGEREP: <mode>,<bfr> OK
AT+CGEREP=<mode>[,<bfr>]	Success: OK

### Parameter

#### < mode >

0 buffer unsolicited result codes in the MT; if MT result code buffer is full, the oldest ones can be discarded. No codes are forwarded to the TE.

1 discard unsolicited result codes when MT TE link is reserved (e.g. in on line data mode); otherwise forward them directly to the TE

#### < bfr >

0 MT buffer of unsolicited result codes defined within this command is cleared when <mode> 1 is entered

1 MT buffer of unsolicited result codes defined within this command is flushed to the TE when <mode> 1 is entered (OK response shall be given before flushing the codes)

### Unsolicited Result Codes

#### URC1

+CGEV: REJECT <PDP\_type>,<PDP\_addr> A network request for PDP context activation occurred when the MT was unable to report it to the TE with a +CRING unsolicited result code and was automatically rejected. . .

#### URC2

+CGEV: NW REACT <PDP\_type>,<PDP\_addr>,<cid> The network has requested a context reactivation. The <cid> that was used to reactivate the context is provided if known to the MT. . .

#### URC3

+CGEV: NW DEACT <PDP\_type>,<PDP\_addr>,<cid> The network has forced a context deactivation. The <cid> that was used to activate the context is provided if known to the MT.

---

#### URC4

+CGEV: ME DEACT <PDP\_type>,<PDP\_addr>,<cid>] The mobile termination has forced a context deactivation. The <cid> that was used to activate the context is provided if known to the MT. . .

#### URC5

+CGEV: NW DETACH The network has forced a PS detach. This implies that all active contexts have been deactivated. These are not reported separately. . .

#### URC6

+CGEV: ME DETACH The mobile termination has forced a PS detach. This implies that all active contexts have been deactivated. These are not reported separately. . .

#### URC7

+CGEV: NW CLASS <class> The network has forced a change of UE class. The highest available class is reported (see +CGCLASS). . .

#### URC8

+CGEV: ME CLASS <class> The mobile termination has forced a change of UE class. The highest available class is reported (see +CGCLASS). . .

#### Example

---

AT+CGEREP=?

+CGEREP: (0,1),(0,1)

OK

AT+CGEREP=1,1

OK AT+CGEREP?

+CGEREP: 1,1

OK

---

## 9.13 AT+CGDATA Enter Data State

### Description

The execution command causes the MT to perform whatever actions are necessary to establish communication between the TE and the network using one or more Packet Domain PDP types. This may include performing a PS attach and one or more PDP context activations. If the <L2P> parameter value is unacceptable to the MT, the MT shall return an ERROR or +CME ERROR response. Otherwise, the MT issues the intermediate result code CONNECT and enters V.25ter online data state.

Commands following +CGDATA command in the AT command line shall not be processed by the MT.

The context shall be activated using the matched value for PDP type and a static PDP address if available, together with the other information found in the PDP context definition. If a static PDP address is not available then a dynamic address is requested.

If no <cid> is given or if there is no matching context definition, the MT shall attempt to activate the context with whatever information is available to the MT. The other context parameters shall

be set to their default values. If the activation is successful, data transfer may proceed.

After data transfer is complete, and the layer 2 protocol termination procedure has completed successfully, the V.25ter command state is re-entered and the MT returns the final result code OK. In the

### 9.13. AT+CGDATA Enter Data State

event of an erroneous termination or a failure to start up, the V.25ter command state is re-entered and the MT returns the final result code NO CARRIER or, if enabled, +CME ERROR. Attach, activate and other errors may be reported.

Command	Possible response
AT+CGDATA=?	Success: +CGDATA: (list of supported <L2P>s) OK
AT+CGDATA=<L2P>,<cid>	Success: CONNECT . . . (data transfer) OK

Parameter

< L2P >

a string parameter that indicates the layer 2 protocol to be used between the TE and MT PPP Point-to-point protocol for a PDP such as IP

< cid >

a numeric parameter which specifies a particular PDP context definition (see the +CGDCONT and +CGDSCONT commands).

Remark

This command may be used in both normal and modem compatibility modes. This command is NOT available now

Example

---

```
AT+CGDATA=?
+CGDATA: ("PPP")
OK
AT+CGDATA="PPP",1
CONNECT 115200
```

---

## 9.14 AT+CGCLASS GPRS Mobile Station Class

Description

The set command is used to set the MT to operate according to the specified mode of operation, see TS 23.060 [47]. If the requested mode of operation is not supported, an ERROR or +CME ERROR response is returned. Extended error responses are enabled by the +CMEE command

Command	Possible response
---------	-------------------



AT+CGCLASS=?	Success: +CGCLASS: (list of supported <class>s) OK
AT+CGCLASS?	Success: +CGCLASS: <class> OK
AT+CGCLASS =<class>	Success: OK

Parameter

< class >

a string parameter which indicates the mode of operation

B Class-B mode of operation (A/Gb mode), (not applicable in lu mode)

CG Class-C mode of operation in PS only mode (A/Gb mode), or PS mode of operation (lu mode)

NOTE:

<class> B means that the MT would operate PS and CS services but not simultaneously

<class> CG means that the MT would only operate PS services

Other values are reserved and will result in an ERROR response to the set command.

If the MT is attached to the PS domain when the set command is issued with a <class> = CC specified, a PS detach shall be performed by the MT.

Example

---

```

AT+CGCLASS=?
+CGCLASS: B,CG,A(NO SUPPORT),CC(NO SUPPORT)
OK
AT+CGCLASS ="B"
OK
AT+CGCLASS?
+CGCLASS: B
OK

```

---

Note:

- NULL
-

**9.14. AT+CGCLASS GPRS Mobile Station Class**

**9.15 AT+CGEQREQ 3G quality of service profile (requested)**

**Description**

This command allows the TE to specify a UMTS Quality of Service Profile that is used when the MT activates a PDP context.

The set command specifies a profile for the context identified by the (local) context identification parameter, <cid>. The specified profile will be stored in the MT and sent to the network only at activation or MS-initiated modification of the related context. Since this is the same parameter that is used in the +CGDCONT and +CGDSCONT commands, the +CGEQREQ command is effectively an extension to these commands. The QoS profile consists of a number of parameters, each of which may be set to a separate value.

A special form of the set command, +CGEQREQ=<cid> causes the requested profile for context number <cid> to become undefined.

The read command returns the current settings for each defined context.

The test command returns values supported as compound values. If the MT supports several PDP types, the parameter value ranges for each PDP type are returned on a separate line.

Command	Possible response
AT+CGEQREQ=?	+CGEQREQ: <PDP_type>,(list of supported <Traffic class>s),(list of supported <Maximum bitrate UL>s),(list of supported <Maximum bitrate DL>s),(list of supported <Guaranteed bitrate UL>s),(list of supported <Guaranteed bitrate DL>s),(list of supported <Delivery order>s),(list of supported <Maximum SDU size>s),(list of supported <SDU error ratio>s),(list of supported <Residual bit error ratio>s),(list of supported <Delivery of erroneous SDUs>s),(list of supported <Transfer delay>s),(list of supported <Traffic handling priority>s),(list of supported <Source statistics descriptor>s),(list of supported <Signalling indication>s) +CGEQREQ: <PDP_type>,(list of supported <Traffic class>s),(list of supported <Maximum bitrate UL>s),(list of supported <Maximum bitrate DL>s),(list of supported <Guaranteed bitrate UL>s),(list of supported <Guaranteed bitrate DL>s),(list of supported <Delivery order>s),(list of supported <Maximum SDU size>s),(list of supported <SDU error ratio>s),(list of supported <Residual bit error ratio>s),(list of supported <Delivery of erroneous SDUs>s),(list of supported <Transfer delay>s),(list of supported <Traffic handling priority>s),(list of supported <Source statistics descriptor>s),(list of supported <Signalling indication>s) [. . . ]
Command	Possible response

<p>AT+CGEQREQ?</p>	<p>[+CGEQREQ: &lt;cid&gt;,&lt;Traffic class&gt;,&lt;Maximum bitrate UL&gt;,&lt;Maximum bitrate DL&gt;,&lt;Guaranteed bitrate UL&gt;,&lt;Guaranteed bitrate DL&gt;,&lt;Delivery order&gt;,&lt;Maximum SDU size&gt;,&lt;SDU error ratio&gt;,&lt;Residual bit error ratio&gt;,&lt;Delivery of erroneous SDUs&gt;,&lt;Transfer delay&gt;,&lt;Traffic handling priority&gt;,&lt;Source statistics descriptor&gt;,&lt;Signalling indication&gt;]</p> <p>[+CGEQREQ: &lt;cid&gt;,&lt;Traffic class&gt;,&lt;Maximum bitrate UL&gt;,&lt;Maximum bitrate DL&gt;,&lt;Guaranteed bitrate UL&gt;,&lt;Guaranteed bitrate DL&gt;,&lt;Delivery order&gt;,&lt;Maximum SDU size&gt;,&lt;SDU error ratio&gt;,&lt;Residual bit error ratio&gt;,&lt;Delivery of erroneous SDUs&gt;,&lt;Transfer delay&gt;,&lt;Traffic handling priority&gt;,&lt;Source Statistics Descriptor&gt;,&lt;Signalling Indication&gt; [. . .]]</p>
--------------------	---



### 9.15. AT+CGEQREQ 3G quality of service profile (requested)

<cid>: integer type; specifies a particular PDP context definition (see +CGDCONT and +CGDSCONT commands).
<PDP_type>: string type; specifies the type of packet data protocol (see the +CGDCONT command).
For the following parameters, see also 3GPP TS 23.107 [46].
<p>&lt;Traffic class&gt;: integer type; indicates the type of application for which the UMTS bearer service is optimised (refer 3GPP TS 24.008 [8] subclause 10.5.6.5).</p> <p>0 conversational  1 streaming  2 interactive  3 background  4 subscribed value</p>
If the Traffic class is specified as conversational or streaming, then the Guaranteed and Maximum bitrate parameters should also be provided.
<Maximum bitrate UL>: integer type; indicates the maximum number of kbits/s delivered to UMTS (up-link traffic) at a SAP. As an example a bitrate of 32kbit/s would be specified as '32' (e.g. AT+CGEQREQ=. . .,32,. . .). This parameter should be provided if the Traffic class is specified as conversational or streaming (refer 3GPP TS 24.008 [8] subclause 10.5.6.5).
<Maximum bitrate DL>: integer type; indicates the maximum number of kbits/s delivered by UMTS (down-link traffic) at a SAP. As an example a bitrate of 32kbit/s would be specified as '32' (e.g. AT+CGEQREQ=. . .,32,. . .). If the parameter is set to '0' the subscribed value will be requested. This parameter should be provided if the Traffic class is specified as conversational or streaming (refer 3GPP TS 24.008 [8] subclause 10.5.6.5).
<Guaranteed bitrate UL>: integer type; indicates the guaranteed number of kbits/s delivered to UMTS (up-link traffic) at a SAP (provided that there is data to deliver). As an example a bitrate of 32kbit/s would be specified as '32' (e.g. AT+CGEQREQ=. . .,32,. . .). If the parameter is set to '0' the subscribed value will be requested. This parameter should be provided if the Traffic class is specified as conversational or streaming (refer 3GPP TS 24.008 [8] subclause 10.5.6.5).
<Guaranteed bitrate DL>: integer type; indicates the guaranteed number of kbits/s delivered by UMTS (down-link traffic) at a SAP (provided that there is data to deliver). As an example a bitrate of 32kbit/s would be specified as '32' (e.g. AT+CGEQREQ=. . .,32,. . .). If the parameter is set to '0' the subscribed value will be requested. This parameter should be provided if the Traffic class is specified as conversational or streaming (refer 3GPP TS 24.008 [8] subclause 10.5.6.5).
<p>&lt;Delivery order&gt;: integer type; indicates whether the UMTS bearer shall provide in-sequence SDU delivery or not (refer 3GPP TS 24.008 [8] subclause 10.5.6.5).</p> <p>0 no  1 yes  2 subscribed value</p>
<Maximum SDU size>: integer type; (1,2,3,. . .) indicates the maximum allowed SDU size in octets. If the parameter is set to '0' the subscribed value will be requested (refer 3GPP TS 24.008 [8] subclause 10.5.6.5).

<p>&lt;SDU error ratio&gt;: string type; indicates the target value for the fraction of SDUs lost or detected as erroneous. SDU error ratio is defined only for conforming traffic. The value is specified as 'mEe'. As an example a target SDU error ratio of <math>5 \times 10^{-3}</math> would be specified as "5E3" (e.g. AT+CGEQREQ=. . . , "5E3",. . . ). "0E0" means subscribed value (refer 3GPP TS 24.008 [8] subclause 10.5.6.5).</p>
<p>&lt;Residual bit error ratio&gt;: string type; indicates the target value for the undetected bit error ratio in the delivered SDUs. If no error detection is requested, Residual bit error ratio indicates the bit error ratio in the delivered SDUs. The value is specified as "mEe". As an example a target residual bit error ratio of <math>5 \times 10^{-3}</math> would be specified as "5E3" (e.g. AT+CGEQREQ=. . . , "5E3",. . . ). "0E0" means subscribed value (refer 3GPP TS 24.008 [8] subclause 10.5.6.5).</p>
<p>&lt;Delivery of erroneous SDUs&gt;: integer type; indicates whether SDUs detected as erroneous shall be delivered or not (refer 3GPP TS 24.008 [8] subclause 10.5.6.5).</p> <p>0 no  1 yes  2 no detect  3 subscribed value</p>
<p>&lt;Transfer delay&gt;: integer type; (0,1,2,. . . ) indicates the targeted time between request to transfer an SDU at one SAP to its delivery at the other SAP, in milliseconds. If the parameter is set to '0' the subscribed value will be requested (refer 3GPP TS 24.008 [8] subclause 10.5.6.5).</p>
<p>&lt;Traffic handling priority&gt;: integer type; (1,2,3,. . . ) specifies the relative importance for handling of all SDUs belonging to the UMTS bearer compared to the SDUs of other bearers. If the parameter is set to '0' the subscribed value will be requested (refer 3GPP TS 24.008 [8] subclause 10.5.6.5).</p>
<p>&lt;Source Statistics Descriptor&gt;: integer type; specifies characteristics of the source of the submitted SDUs for a PDP context. This parameter should be provided if the Traffic class is specified as conversational or streaming (refer 3GPP TS 24.008 [8] subclause 10.5.6.5).</p> <p>0 Characteristics of SDUs is unknown  1 Characteristics of SDUs corresponds to a speech source</p>
<p>&lt;Signalling Indication&gt;: integer type; indicates signalling content of submitted SDUs for a PDP context. This parameter should be provided if the Traffic class is specified as interactive (refer 3GPP TS 24.008 [8] subclause 10.5.6.5).</p> <p>0 PDP context is not optimized for signalling  1 PDP context is optimized for signalling&lt;PDP_type&gt; (see +CGDCONT and +CGDSCONT commands).</p>
<p>If a value is omitted for a particular class then the value is considered to be unspecified.</p>

---

Note:

- When in dual mode with EPS the MT provides a mapping function to EPS Quality of Service parameter used for an EPS bearer resource activation request.

---

---

---

---

### 9.15. AT+CGEQREQ 3G quality of service profile (requested)

## 9.16 AT+CGEQMIN 3G quality of service profile (minimum acceptable)

### Description

This command allows the TE to specify a minimum acceptable profile, which is checked by the MT against the negotiated profile returned in the PDP context establishment and PDP context modification procedures. The set command specifies a profile for the context identified by the (local) context identification parameter, <cid>. The specified profile will be stored in the MT and checked against the negotiated profile only at activation or MS-initiated modification of the related context. Since this is the same parameter that is used in the +CGDCONT and +CGDSCONT commands, the +CGEQMIN command is effectively an extension to these commands. The QoS profile consists of a number of parameters, each of which may be set to a separate value. A special form of the set command, +CGEQMIN=<cid> causes the minimum acceptable profile for context number <cid> to become undefined. In this case no check is made against the negotiated profile. The read command returns the current settings for each defined context. The test command returns values supported as compound values. If the MT supports several PDP types, the parameter value ranges for each PDP type are returned on a separate line.

Command	Possible response
AT+CGEQMIN=?	+CGEQMIN: <PDP_type>,(list of supported <Traffic class>s),(list of supported <Maximum bitrate UL>s),(list of supported <Maximum bitrate DL>s),(list of supported <Guaranteed bitrate UL>s),(list of supported <Guaranteed bitrate DL>s),(list of supported <Delivery order>s),(list of supported <Maximum SDU size>s),(list of supported <SDU error ratio>s),(list of supported <Residual bit error ratio>s),(list of supported <Delivery of erroneous SDUs>s),(list of supported <Transfer delay>s),(list of supported <Traffic handling priority>s),(list of supported <Source statistics descriptor>s),(list of supported <Signalling indication>s) +CGEQMIN: <PDP_type>,(list of supported <Traffic class>s),(list of supported <Maximum bitrate UL>s),(list of supported <Maximum bitrate DL>s),(list of supported <Guaranteed bitrate UL>s),(list of supported <Guaranteed bitrate DL>s),(list of supported <Delivery order>s),(list of supported <Maximum SDU size>s),(list of supported <SDU error ratio>s),(list of supported <Residual bit error ratio>s),(list of supported <Delivery of erroneous SDUs>s),(list of supported <Transfer delay>s),(list of supported <Traffic handling priority>s),(list of supported <Source statistics descriptor>s),(list of supported <Signalling indication>s) [ . . . ]





<Guaranteed bitrate UL>: integer type; indicates the guaranteed number of kbits/s delivered to UMTS (up-link traffic) at a SAP (provided that there is data to deliver). As an example a bitrate of 32kbit/s would be specified as '32' (e.g. AT+CGEQMIN=. . . ,32,. . . ) (refer 3GPP TS 24.008 [8] subclause 10.5.6.5).

<Guaranteed bitrate DL>: integer type; indicates the guaranteed number of kbits/s delivered by UMTS (down-link traffic) at a SAP (provided that there is data to deliver). As an example a bitrate of 32kbit/s would be specified as '32' (e.g. AT+CGEQMIN=. . . ,32,. . . ) (refer 3GPP TS 24.008 [8] subclause 10.5.6.5).

---

### 9.16. AT+CGEQMIN 3G quality of service profile (minimum acceptable)

<Delivery order>: integer type; indicates whether the UMTS bearer shall provide in-sequence SDU delivery or not (refer 3GPP TS 24.008 [8] subclause 10.5.6.5).

0: no

1: yes

<Maximum SDU size>: integer type; (1,2,3,. . . ) indicates the maximum allowed SDU size in octets (refer 3GPP TS 24.008 [8] subclause 10.5.6.5).

<SDU error ratio>: string type; indicates the target value for the fraction of SDUs lost or detected as erroneous. SDU error ratio is defined only for conforming traffic. The value is specified as "mEe". As an example a target SDU error ratio of  $5 \times 10^{-3}$  would be specified as "5E3" (e.g. AT+CGEQMIN=. . . , "5E3",. . . ) (refer 3GPP TS 24.008 [8] subclause 10.5.6.5).

<Residual bit error ratio>: string type; indicates the target value for the undetected bit error ratio in the delivered SDUs. If no error detection is requested, Residual bit error ratio indicates the bit error ratio in the delivered SDUs. The value is specified as "mEe". As an example a target residual bit error ratio of  $5 \times 10^{-3}$  would be specified as "5E3" (e.g. AT+CGEQMIN=. . . , "5E3",. . . ) (refer 3GPP TS 24.008 [8] subclause 10.5.6.5).

<Delivery of erroneous SDUs>: integer type; indicates whether SDUs detected as erroneous shall be delivered or not (refer 3GPP TS 24.008 [8] subclause 10.5.6.5).

0: no

1: yes

2: no detect

<Transfer delay>: integer type; (0,1,2,. . . ) indicates the targeted time between request to transfer an SDU at one SAP to its delivery at the other SAP, in milliseconds (refer 3GPP TS 24.008 [8] subclause 10.5.6.5).

<Traffic handling priority>: integer type; (1,2,3,. . . ) specifies the relative importance for handling of all SDUs belonging to the UMTS bearer compared to the SDUs of other bearers (refer 3GPP TS 24.008 [8] subclause 10.5.6.5).

<Source Statistics Descriptor>: integer type; specifies characteristics of the source of the submitted SDUs for a PDP context. This parameter should be provided if the Traffic class is specified as conversational or streaming (refer 3GPP TS 24.008 [8] subclause 10.5.6.5).

0: Characteristics of SDUs is unknown

1: Characteristics of SDUs corresponds to a speech source

<Signalling Indication>: integer type; indicates signalling content of submitted SDUs for a PDP context. This parameter should be provided if the Traffic class is specified as interactive (refer 3GPP TS 24.008 [8] subclause 10.5.6.5).

0: PDP context is not optimized for signalling

1: PDP context is optimized for signalling

| If a value is omitted for a particular class then the value is considered to be unspecified.

---

Note:

- NULL
- 
- 

## 9.17 AT+CGDSCONT Define secondary PDP context

### Description

The set command specifies PDP context parameter values for a Secondary PDP context identified by the (local) context identification parameter, <cid>. The number of PDP contexts that may be in a defined state at the same time is given by the range returned by the test command.

In EPS the command is used to define traffic flows.

A special form of the set command, +CGDSCONT=<cid> causes the values for context number <cid> to become undefined.

NOTE: If the initial PDP context is supported, the context with <cid>=0 is automatically defined at startup, see subclause 10.1.0.

The read command returns the current settings for each defined context.

The test command returns values supported as compound values.

### 9.17. AT+CGDSCONT Define secondary PDP context

Command	Possible response
AT+CGDSCONT =?	Success:   +CGDSCONT: (range of supported <cid>s),(list of <p_cid>s for active primary contexts),(list of supported <d_comp>s),(list of supported <h_comp>s) OK
AT+CGDSCONT?	[+CGDSCONT: <cid>,<p_cid>,<d_comp>,<h_comp> +CGDSCONT: <cid>,<p_cid>,<d_comp>,<h_comp>] OK
AT+CGDSCONT=<cid>,<p_cid> [,<d_comp>[,<h_comp>]]	Success: OK

Parameter

<p>&lt;cid&gt;: integer type; which specifies a particular PDP context definition. The parameter is local to the TE-MT interface and is used in other PDP context-related commands. The range of permitted values (minimum value = 1) is returned by the test form of the command.</p> <p>NOTE: The &lt;cid&gt;s for network-initiated PDP contexts will have values outside the ranges indicated for the &lt;cid&gt; in the test form of the commands +CGDCONT and +CGDSCONT.</p>
<p>&lt;p_cid&gt;: integer type; specifies a particular PDP context definition which has been specified by use of the +CGDCONT command. The parameter is local to the TE-MT interface. The list of permitted values is returned by the test form of the command.</p>
<p>&lt;d_comp&gt;: integer type; controls PDP data compression (applicable for SMDCP only) (refer 3GPP TS 44.065 [61])</p> <p>0 off</p> <p>1 on (manufacturer preferred compression)</p> <p>2 V.42bis</p> <p>3 V.44</p>
<p>&lt;h_comp&gt;: integer type; controls PDP header compression (refer 3GPP TS 44.065 [61] and 3GPP TS 25.323 [62])</p> <p>0 off</p> <p>1 on (manufacturer preferred compression)</p> <p>2 RFC 1144 [105] (applicable for SMDCP only)</p> <p>3 RFC 2507 [107]</p> <p>4 RFC 3095 [108] (applicable for PDCP only)</p>
<p>&lt;IM_CN_Signalling_Flag_Ind&gt;: integer type; indicates to the network whether the PDP context is for IM CN subsystem-related signalling only or not.</p> <p>0 UE indicates that the PDP context is not for IM CN subsystem-related signalling only</p> <p>1 UE indicates that the PDP context is for IM CN subsystem-related signalling only</p>

---

Note:

- IM\_CN\_Signalling\_Flag\_Ind parameter not supported
- 

## 9.18 AT+CGTFT Traffic flow template

### Description

This command allows the TE to specify a Packet Filter - PF for a Traffic Flow Template - TFT that is used in the GGSN in UMTS/GPRS and Packet GW in EPS for routing of packets onto different QoS flows towards the TE. The concept is further described in the 3GPP TS 23.060 [47]. A TFT consists of from one and up to 16 Packet Filters, each identified by a unique <packet filter identifier>. A Packet

Filter also has an <evaluation precedence index> that is unique within all TFTs associated with all PDP contexts that are associated with the same PDP address.

### 9.18. AT+CGTFT Traffic flow template

The set command specifies a Packet Filter that is to be added to the TFT stored in the MT and used for the context identified by the (local) context identification parameter, <cid>. The specified TFT will be stored in the GGSN in UMTS/GPRS and Packet GW in EPS only at activation or MS-initiated modification of the related context. Since this is the same parameter that is used in the +CGDCONT and +CGDSCONT commands, the +CGTFT command is effectively an extension to these commands. The Packet Filters consist of a number of parameters, each of which may be set to a separate value.

A special form of the set command, +CGTFT=<cid> causes all of the Packet Filters in the TFT for context number <cid> to become undefined. At any time there may exist only one PDP context with no associated TFT amongst all PDP contexts associated to one PDP address. At an attempt to delete a TFT, which would violate this rule, an ERROR or +CME ERROR response is returned. Extended error responses are enabled by the +CMEE command.

The read command returns the current settings for all Packet Filters for each defined context.

The test command returns values supported as compound values. If the MT supports several PDP types, the parameter value ranges for each PDP type are returned on a separate line. TFTs shall be used for PDP-type IP and PPP only. For PDP-type PPP a TFT is applicable only when IP traffic is carried over PPP. If PPP carries header-compressed IP packets, then a TFT cannot be used.

Command	Possible response
AT+CGTFT=?	<p>+CGTFT: &lt;PDP_type&gt;,(list of supported &lt;packet filter identifier&gt;s),(list of supported &lt;evaluation precedence index&gt;s),(list of supported &lt;remote address and subnet mask&gt;s),(list of supported &lt;protocol number (ipv4) / next header (ipv6)&gt;s),(list of supported &lt;local port range&gt;s),(list of supported &lt;remote port range&gt;s),(list of supported &lt;ipsec security parameter index (spi)&gt;s),(list of supported &lt;type of service (tos) (ipv4) and mask / traffic class (ipv6) and mask&gt;s),(list of supported &lt;flow label (ipv6)&gt;s),(list of supported &lt;direction&gt;s),(list of supported &lt;local address and subnet mask&gt;s)</p> <p>[+CGTFT: &lt;PDP_type&gt;,(list of supported &lt;packet filter identifier&gt;s),(list of supported &lt;evaluation precedence index&gt;s),(list of supported &lt;remote address and subnet mask&gt;s),(list of supported &lt;protocol number (ipv4) / next header (ipv6)&gt;s),(list of supported &lt;local port range&gt;s),(list of supported &lt;remote port range&gt;s),(list of supported &lt;ipsec security parameter index (spi)&gt;s),(list of supported &lt;type of service (tos) (ipv4) and mask / traffic class (ipv6) and mask&gt;s),(list of supported &lt;flow label (ipv6)&gt;s),(list of supported &lt;direction&gt;s),(list of supported &lt;local address and subnet mask&gt;s) [ . . . ]]</p> <p>OK</p>



<p>&lt;remote address and subnet mask&gt;: string type. The string is given as dot-separated numeric (0-255) parameters on the form:  "a1.a2.a3.a4.m1.m2.m3.m4" for IPv4 or  "a1.a2.a3.a4.a5.a6.a7.a8.a9.a10.a11.a12.a13.a14.a15.a16.  m1.m2.m3.m4.m5.m6.m7.m8.m9.m10.m11.m12.m13.m14.m15.m16", for IPv6.  When +CGPIAF is supported, its settings can influence the format of this parameter returned with the read form of +CGTFT.</p>
<p>&lt;protocol number (ipv4) / next header (ipv6)&gt;: integer type. Value range is from 0 to 255.</p>
<p>&lt;local port range&gt;: string type. The string is given as dot-separated numeric (0-65535) parameters on the form "f.t".</p>
<p>&lt;remote port range&gt;: string type. The string is given as dot-separated numeric (0-65535) parameters on the form "f.t".</p>
<p>&lt;ipsec security parameter index (spi)&gt;: numeric value in hexadecimal format. The value range is from 00000000 to FFFFFFFF.</p>
<p>&lt;type of service (tos) (ipv4) and mask / traffic class (ipv6) and mask&gt;:  string type. The string is given as dot-separated numeric (0-255) parameters on the form "t.m".</p>
<p>&lt;flow label (ipv6)&gt;: numeric value in hexadecimal format. The value range is from 00000 to FFFFF. Valid for IPv6 only.</p>
<p>&lt;direction&gt;: integer type. Specifies the transmission direction in which the packet filter shall be applied.  0 Pre-Release 7 TFT filter (see 3GPP TS 24.008 [8], table 10.5.162)  1 Uplink  2 Downlink  3 Birectional (Up &amp; Downlink)</p>
<p>&lt;local address and subnet mask&gt;: string type. The string is given as dot-separated numeric (0-255) parameters on the form:  "a1.a2.a3.a4.m1.m2.m3.m4" for IPv4 or</p>



"a1.a2.a3.a4.a5.a6.a7.a8.a9.a10.a11.a12.a13.a14.a15.a16.  
m1.m2.m3.m4.m5.m6.m7.m8.m9.m10.m11.m12.m13.m14.m15.m16", for IPv6.  
When +CGPIAF is supported, its settings can influence the format of this parameter returned with the read form of +CGTFT.

Some of the above listed attributes may coexist in a Packet Filter while others mutually exclude each other, the possible combinations are shown in 3GPP TS 23.060 [47].

---

Note:

- NULL
- 

## 9.19 AT+CGCMOD PDP context modify

### Description

The execution command is used to modify the specified PDP context (s) with respect to QoS profiles and TFTs. After the command has completed, the MT returns to V.250 online data state. If the requested modification for any specified context cannot be achieved, an ERROR or +CME ERROR response is returned. Extended error responses are enabled by the +CMEE command. Refer subclause Appendix A for possible <err> values.

For EPS, the modification request for an EPS bearer resource will be answered by the network by an EPS bearer modification request. The request must be accepted by the MT before the PDP context is effectively changed.

If no <cid>s are specified the activation form of the command modifies all active contexts.

The test command returns a list of <cid>s associated with active contexts.

### Syntax

Command	Possible response
Test Command AT+CGCMOD=?	+CGCMOD:(list of <cid>s associated with active contexts) OK
Set Command AT+CGCMOD=<cid>[,<cid>[...]]	OK +CME ERROR: <err>
Reference: 3GPP TS 27.007 V3.12.0	

### 9.19. AT+CGCMOD PDP context modify

Unsolicited Result Codes None

Parameter

<cid>: integer type; specifies a particular PDP context definition (see the +CGDCONT and +CGDSCONT commands).

Remark None

Example The following examples show the typical application for this command.

Command	Possible response
AT+CGCMOD=?	+CGCMOD: (1-7) OK
AT+CGCMOD=1	OK

## 9.20 AT+CGPDNSADDR Get active pdp dns address

Description

This command allows the TE get all actived pdp dns address

Command	Possible response
AT+CGPDNSADDR =?	+CGPDNSADDR:(list cids of actived pdp) OK
+CGPDNSADDR=<cid>[,<cid>[,]]	+CGPDNSADDR:[dns address] OK

Parameter

<list cids>: integer type; which specifies a particular PDP context definition. The parameter is local to the TE-MT interface and is used in other PDP context-related commands. The range of permitted values (minimum value = 1) is returned by the test form of the command.

NOTE: The <cid>s for network-initiated PDP contexts will have values outside the ranges indicated for the <cid> in the test form of the commands +CGDCONT and +CGDSCONT.

---

Note:

- NULL
- 
-

## 9.21 AT+CGCONTRDP PDP context read dynamic parameters

### Description

The execution command returns the relevant information <bearer\_id>, <apn>, <local\_addr and subnet\_mask>, <gw\_addr>, <DNS\_prim\_addr>, <DNS\_sec\_addr>, <P-CSCF\_prim\_addr>, <PCSCF\_sec\_addr>, <IM\_CN\_Signalling\_Flag>, <LIPA\_indication>, <IPv4\_MTU>, <WLAN\_Offload>, <Non-IP\_MTU>, <Serving\_PLMN\_rate\_control\_value>, <Reliable\_Data\_Service>, <PS\_Data\_Off\_Support>, <PDU\_session\_id>, <QFI>, <NSSAI>, <Access\_type>, <RQ\_timer> and <Always-on\_ind> for an active non secondary PDP context or a QoS flow of the default QoS rule with the context identifier <cid>.

If the MT indicates more than two IP addresses of P-CSCF servers or more than two IP addresses of DNS servers, multiple lines of information per <cid> will be returned.

If the MT has dual stack capabilities, at least one pair of lines with information is returned per <cid>. First one line with the IPv4 parameters followed by one line with the IPv6 parameters. If this MT with dual stack capabilities indicates more than two IP addresses of P-CSCF servers or more than two IP addresses of DNS servers, multiple of such pairs of lines are returned.

NOTE: If the MT doesn't have all the IP addresses to be included in a line, e.g. in case the UE received four IP addresses of DNS servers and two IP addresses of P-CSCF servers, the parameter value representing an IP address that can not be populated is set to an empty string or an absent string.

If the parameter <cid> is omitted, the relevant information for all active non secondary PDP contexts is returned.

The test command returns a list of <cid>s associated with active non secondary contexts.



<apn>

string type; a logical name that was used to select the GGSN or the external packet data network.

<local\_addr and subnet\_mask>

string type; shows the IP address and subnet mask of the MT.

The string is given as dot-separated numeric (0-255) parameters on the form:

- "a1.a2.a3.a4.m1.m2.m3.m4" for IPv4 or
- "a1.a2.a3.a4.a5.a6.a7.a8.a9.a10.a11.a12.a13.a14.a15.a16.m1. m2. m3.m4.m5.m6.m7.m8.m9.m10.m11.m12.m13.m14.m15.m16" for IPv6.

<gw\_addr>

string type; shows the Gateway Address of the MT. The string is given as dot-separated numeric (0-255) parameters.

<DNS\_prim\_addr>

string type; shows the IP address of the primary DNS server.

<DNS\_sec\_addr>

string type; shows the IP address of the secondary DNS server.

<P\_CSCF\_prim\_addr>

string type; shows the IP address of the primary P-CSCF server.

<P\_CSCF\_sec\_addr>

string type; shows the IP address of the secondary P-CSCF server.

<IM\_CN\_Signalling\_Flag>

integer type; shows whether the PDP context is for IM CN subsystem-related signalling only or not.  
\* 0 PDP context is not for IM CN subsystem-related signalling only \* 1 PDP context is for IM CN subsystem-related signalling only

<LIPA\_indication>

integer type; indicates that the PDP context provides connectivity using a LIPA PDN connection. This parameter cannot be set by the TE.

- 0 indication not received that the PDP context provides connectivity using a LIPA PDN connection
- 1 indication received that the PDP context provides connectivity using a LIPA PDN connection

<IPv4\_MTU>

integer type; shows the IPv4 MTU size in octets.

<WLAN\_Offload>

integer type; indicates whether traffic can be offloaded using the specified PDN connection via a WLAN or not. This refers to bits 1 and 2 of the WLAN offload acceptability IE as specified in 3GPP TS 24.008 [8] subclause 10.5.6.20.

- 0 offloading the traffic of the PDN connection via a WLAN when in S1 mode or when in lu mode is not acceptable.
- 1 offloading the traffic of the PDN connection via a WLAN when in S1 mode is acceptable, but not acceptable in lu mode.
- 2 offloading the traffic of the PDN connection via a WLAN when in lu mode is acceptable, but not acceptable in S1 mode.
- 3 offloading the traffic of the PDN connection via a WLAN when in S1 mode or when in lu mode is acceptable.

<Local\_Addr\_Ind>

---

### 9.21. AT+CGCONTRDP PDP context read dynamic parameters

integer type; indicates whether or not the MS and the network support local IP address in TFTs (see 3GPP TS 24.301 [83] and 3GPP TS 24.008 [8] subclause 10.5.6.3).

- 0 indicates that the MS or the network or both do not support local IP address in TFTs
- 1 indicates that the MS and the network support local IP address in TFTs

#### <Non-IP\_MTU>

integer type; shows the Non-IP MTU size in octets.

#### <Serving\_PLMN\_rate\_control\_value>

integer type; indicates the maximum number of uplink messages the UE is allowed to send in a 6 minute interval. This refers to octet 3 to 4 of the Serving PLMN rate control IE as specified in 3GPP TS 24.301 [8] subclause 9.9.4.28.

#### <Reliable\_Data\_Service>

integer type; indicates whether the UE is using Reliable Data Service for a PDN connection or not, see 3GPP TS 24.301 [83] and 3GPP TS 24.008 [8] subclause 10.5.6.3.

- 0 Reliable Data Service is not being used for the PDN connection
- 1 Reliable Data Service is being used for the PDN connection

#### <PS\_Data\_Off\_Support>

integer type; indicates whether the network supports PS data off or not, see 3GPP TS 24.301 [83] subclause 6.3.10 and 3GPP TS 24.501 [161] subclause 6.2.10.

- 0 indicates that the network does not support PS data off
- 1 indicates that the network supports PS data off

#### <PDU\_session\_id>

integer type; identifies the PDU session, see 3GPP TS 24.501 [161].

#### <QFI>

integer type; identifies the QoS flow, see 3GPP TS 24.501 [161].

#### <SSC\_mode>

integer type; indicates the session and service continuity (SSC) mode for the PDU session in 5GS, see 3GPP TS 23.501 [165].

- 0 indicates that the PDU session is associated with SSC mode 1
- 1 indicates that the PDU session is associated with SSC mode 2
- 2 indicates that the PDU session is associated with SSC mode 3

#### <S-NSSAI>

string type; indicates the S-NSSAI associated with the PDU session for identifying a network slice in 5GS, see 3GPP TS 23.501 [165] and 3GPP TS 24.501 [161]. Refer parameter <S-NSSAI> in subclause 10.1.1.

#### <Access\_type>

integer type; indicates the access type over which the PDU session is established in 5GS, see 3GPP TS 23.501 [165] and 3GPP TS 24.501 [161].

- 0 indicates that the preferred access type is 3GPP access
- 1 indicates that the preferred access type is non-3GPP access

<RQ\_timer>

integer type; indicates the timer for reflective QoS, see 3GPP TS 23.501 [165] and 3GPP TS 24.501 [161].

<Always-on\_ind>

integer type; indicates whether the PDU session is an always-on PDU session, see 3GPP TS 24.501 [161].

- 0 indicates that the PDU session is not an always-on PDU session
- 1 indicates that the PDU session is an always-on PDU session

## 9.22 AT+CGSCONTRDP Secondary PDP context read dynamic parameters

### Description

The execution command returns <p\_cid>,<bearer\_id>,<IM\_CN\_Signalling\_Flag>,<WLAN\_Offload>,<PDU\_session\_id> and <QFI> for an active secondary PDP context or a QoS flow of non-default QoS rule with the context identifier <cid>.

If the parameter <cid> is omitted, the <cid>,<p\_cid>,<bearer\_id>,<IM\_CN\_Signalling\_Flag>,<WLAN\_Offload>,<PDU\_session\_id> and <QFI> are returned for all active secondary PDP contexts or all QoS flows of non-default QoS rule.

In EPS, the Traffic Flow parameters are returned.

NOTE: Parameters for UE initiated and network initiated PDP contexts are returned.

The test command returns a list of <cid>s associated with active secondary PDP contexts.

Command	Possible response
AT+CGSCONTRDP[=<cid>]	<pre>[+CGSCONTRDP: &lt;cid&gt;,&lt;p_cid&gt;,&lt;bearer_id&gt; [,&lt;IM_CN_Signalling_Flag&gt;[,&lt;WLAN_Offload&gt; [,&lt;PDU_session_id&gt;,&lt;QFI&gt;]]]]  [+CGSCONTRDP: &lt;cid&gt;,&lt;p_cid&gt;, &lt;bearer_id&gt;[,&lt;IM_CN_Signalling_Flag&gt; [,&lt;WLAN_Offload&gt;[,&lt;PDU_session_id&gt;,&lt;QFI&gt;]]] [. . . ]</pre>
AT+CGSCONTRDP=?	<pre>Success: +CGSCONTRDP: (list of &lt;cid&gt;s associated with active contexts) OK</pre>

### Parameter

<cid>

integer type; specifies a particular active secondary PDP context or Traffic Flows definition. The parameter is local to the TE-MT interface and is used in other PDP context-related commands (see the +CGDCONT and +CGDSCONT commands).

<p\_cid> integer type; specifies a particular PDP context definition or default EPS context Identifier which has been specified by use of the +CGDCONT command. The parameter is local to the TE-MT interface (see the +CGDSCONT command).

<bearer\_id>

integer type; identifies the bearer, EPS Bearer and NSAPI.

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## 9.22. AT+CGSCONTRDP Secondary PDP context read dynamic parameters

<IM\_CN\_Signalling\_Flag>

integer type; shows whether the PDP context is for IM CN subsystem-related signalling only or not.

- 0 PDP context is not for IM CN subsystem-related signalling only
- 1 PDP context is for IM CN subsystem-related signalling only

<WLAN\_Offload>

integer type. An integer that indicates whether traffic can be offloaded using the specified PDN connection via a WLAN or not. This refers to bits 1 and 2 of the WLAN offload acceptability IE as specified in 3GPP TS 24.008 [8] subclause 10.5.6.20.

- 0 offloading the traffic of the PDN connection via a WLAN when in S1 mode or when in lu mode is not acceptable.
- 1 offloading the traffic of the PDN connection via a WLAN when in S1 mode is acceptable, but not acceptable in lu mode.
- 2 offloading the traffic of the PDN connection via a WLAN when in lu mode is acceptable, but not acceptable in S1 mode.
- 3 offloading the traffic of the PDN connection via a WLAN when in S1 mode or when in lu mode is acceptable.

<PDU\_session\_id>

integer type; identifies the PDU session, see 3GPP TS 24.501 [161].

<QFI>

integer type; identifies the QoS flow, see 3GPP TS 24.501 [161].

---

### Note:

- IM\_CN\_Signalling\_Flag\_Ind parameter not supported
- 

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## 9.23 AT+CGTFTRDP Traffic flow template read dynamic parameters

### Description

The execution command returns the relevant information about Traffic Flow Template for an active secondary or non secondary PDP context specified by <cid> together with the additional network assigned values when established by the network. If the parameter <cid> is omitted, the Traffic Flow Templates for all active secondary and non secondary PDP contexts are returned.

Parameters of both network and MT/TA initiated PDP contexts will be returned.

The test command returns a list of <cid>s associated with active secondary and non secondary contexts

Command	Possible response
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AT+CGTFTRDP[=<cid>]	<pre>[+CGTFTRDP: &lt;cid&gt;,&lt;packet filter identifier&gt;, &lt;evaluation precedence index&gt;, &lt;remote address and subnet mask&gt;, &lt;protocol number (ipv4) / next header (ipv6)&gt;, &lt;local port range&gt;,&lt;remote port range&gt;, &lt;ipsec security parameter index (spi)&gt;, &lt;type of service (tos) (ipv4) and mask / traffic class (ipv6) and mask&gt;, &lt;flow label (ipv6)&gt;,&lt;direction&gt;, &lt;NW packet filter Identifier&gt;, &lt;local address and subnet mask&gt;]  +CGTFTRDP: &lt;cid&gt;, &lt;packet filter identifier&gt;, &lt;evaluation precedence index&gt;, &lt;remote address and subnet mask&gt;, &lt;protocol number (ipv4) / next header (ipv6)&gt;, &lt;local port range&gt;,&lt;remote port range&gt;, &lt;ipsec security parameter index (spi)&gt;, &lt;type of service (tos) (ipv4) and mask / traffic class (ipv6) and mask&gt;, &lt;flow label (ipv6)&gt;,&lt;direction&gt;, &lt;NW packet filter Identifier&gt;, &lt;local address and subnetmask&gt;  [. . . ]</pre>
AT+CGTFTRDP=?	<pre>Success: +CGTFTRDP: (list of &lt;cid&gt;s associated with active contexts) OK</pre>

Parameter

<cid>

integer type; Specifies a particular secondary or non secondary PDP context definition or Traffic Flows definition (see +CGDCONT and +CGDSCONT commands).

For the following parameters, see also 3GPP TS 23.060 [47], 3GPP TS 23.501 [165] and 3GPP TS 24.501 [161].

<packet filter identifier>

integer type. The value range is from 1 to 16.

<evaluation precedence index>

integer type. The value range is from 0 to 255.

<remote address and subnet mask>

string type. The string is given as dot-separated numeric (0-255) parameters on the form:

- "a1.a2.a3.a4.m1.m2.m3.m4" for IPv4 or

---

**9.23. AT+CGTFTRDP Traffic flow template read dynamic parameters**

- **"a1.a2.a3.a4.a5.a6.a7.a8.a9.a10.a11.a12.a13.a14.a15.a16.m1.m2.m3.m4.m5.m6.m7.m8.m9.m10.m11.m12.m13.m14.m15.m16"** for IPv6.

<protocol number (ipv4) / next header (ipv6)>

integer type. The value range is from 0 to 255.

<local port range>

string type. The string is given as dot-separated numeric (0-65535) parameters on the form "f.t".

<remote port range>

string type. The string is given as dot-separated numeric (0-65535) parameters on the form "f.t".

<ipsec security parameter index (spi)>

numeric value in hexadecimal format. The value range is from 00000000 to FFFFFFFF.

<type of service (tos) (ipv4) and mask / traffic class (ipv6) and mask>

string type. The string is given as dot-separated numeric (0-255) parameters on the form "t.m".

<flow label (ipv6)>

numeric value in hexadecimal format. The value range is from 00000 to FFFFF. Valid for IPv6 only.

<direction>

integer type. Specifies the transmission direction in which the Packet Filter shall be applied.

- 0 Pre Release 7 TFT Filter (see 3GPP TS 24.008 [8], table 10.5.162)
- 1 Uplink
- 2 Downlink
- 3 Bidirectional (Used for Uplink and Downlink)

<NW packet filter Identifier>

integer type. The value range is from 1 to 16. In EPS the value is assigned by the network when established

<local address and subnet mask>

string type. The string is given as dot-separated numeric (0-255) parameters on the form:

- "a1.a2.a3.a4.m1.m2.m3.m4" for IPv4 or
- **"a1.a2.a3.a4.a5.a6.a7.a8.a9.a10.a11.a12.a13.a14.a15.a16.m1.m2.m3.m4.m5.m6.m7.m8.m9.m10.m11.m12.m13.m14.m15.m16"**, for IPv6.

<QRI>

integer type. Identifies the QoS rule, see 3GPP TS 23.501 [165] and 3GPP TS 24.501 [161].

## 9.24 AT+CGDEL Delete non-active PDP contexts

### Description

The execution command +CGDEL=<cid> removes the indicated PDP context and removes all associated data related to the indicated PDP contexts that are not activated. The AT command will not delete or remove information for activated PDP contexts. The removed PDP context is listed by the +CGDEL: <cid> intermediate result code. If the initial PDP context is supported (see subclause 10.1.0), +CGDEL=0 will return ERROR and the context will not be removed.

If <cid> points to a primary PDP context, the PDP context will be deleted together with all linked secondary PDP contexts if none of the PDP contexts are activated.

If <cid> points to a secondary PDP context, the PDP context will be deleted if it is not activated. A special form of the command can be given as +CGDEL (with the=<cid> omitted). In this form, all primary PDP contexts that are not activated or have any activated secondary PDP contexts will be removed and all secondary PDP contexts that are not activated will be removed. The associated data of all the deleted PDP contexts will be removed, and the removed PDP context are listed by the +CGDEL: <cid>[,<cid>[, . . .]] intermediate result code. Activated PDP contexts will not cause this form of the command to return ERROR or +CMEERROR.

If the initial PDP context is supported (see subclause 10.1.0), +CGDEL (with the=<cid> omitted) will not cause the initial PDP context to be removed or cause +CGDEL to return ERROR.

Command	Possible response
AT+CGDEL=<cid>	[+CGDEL: <cid>[,<cid>[, . . .]]] +CME ERROR: <err> OK
AT+CGDEL=?	+CGDEL:(1-7) OK
AT+CGDEL	+CGDEL: (ths list of support cids) OK

Parameter

<cid>

integer type; specifies a particular PDP context definition (see the +CGDCONT and +CGDSCONT commands).

## 9.25 AT+CSCON Signalling connection status

Description

The set command controls the presentation of an unsolicited result code +CSCON. If <n>=1, +CSCON: <mode> is sent from the MT when the connection mode of the MT is changed. If <n>=2 and there is a state within the current mode, +CSCON: <mode>[,<state>] is sent from the MT when the connection mode or state information of the MT is changed. If <n>=3, +CSCON: <mode>[,<state>[,<access>]] is sent from the MT when the connection mode, state or access information of the MT is changed. If <n>=4, +CSCON: <mode>[,<state>[,<access>[,<coreNetwork>]]] is sent from the MT. If setting fails, an MT error, +CME ERROR: <err> is returned.

When the MT is in UTRAN, E-UTRAN or NG-RAN, the <mode> refers to idle when no PS signalling connection between UE and network is setup and to connected mode when a PS signalling connection between UE and network is setup. When the UE is in GERAN, the mode refers to idle when the MT is in either the IDLE state or the STANDBY state and to connected mode when the MT is in READY state.

The <state> indicates the state of the MT when the MT is in GERAN, UTRAN connected mode, E-UTRAN or NG-RAN.

The <access> indicates the current radio access type of the MT when the MT is in GERAN, UTRAN, E-UTRAN or NG-RAN.

The <coreNetwork> indicates the core network type the MT is connected to when the MT is in E-UTRAN or NG-RAN.

---

### 9.25. AT+CSCON Signalling connection status

The read command returns the status of result code presentation and an integer <mode> which shows whether the MT is currently in idle mode or connected mode. State information <state> is returned only when <n>=2. Radio access type information <access> is returned only when <n>=3. Core network type information <coreNetwork> is returned only when <n>=4. For Multi-RAT Dual Connectivity (MR-DC) architecture (see 3GPP TS 37.340 [162]), information is presented for the master RAT followed by optionally, information for each of the secondary RATs on a separate line.

Test command returns supported values as a compound value.

Command	Possible response
AT+CSCON=<n>	+CME ERROR: <err>
AT+CSCON?	+CSCON: <n>,<mode>[,<state>[,<access>]] [<CR><LF>+CSCON: <n>,<mode>[,<state>[,<access>[,<coreNetwork>]]] [. . . ] +CME ERROR: <err>
AT+CSCON=?	+CSCON: (list of supported <n>s)

Parameter

<n>

integer type

- 0 disable unsolicited result code
- 1 enable unsolicited result code +CSCON: <mode>
- 2 enable unsolicited result code +CSCON: <mode>[,<state>]
- 3 enable unsolicited result code +CSCON: <mode>[,<state>[,<access>]]

<mode>

integer type; indicates the signalling connection status

- 0 idle
- 1 connected

<state>

integer type; indicates the CS or PS state while in GERAN and the RRC state information if the MT is in connected mode while in UTRAN, E-UTRAN and NG-RAN.

- 0 UTRAN URA\_PCH state
- 1 UTRAN Cell\_PCH state
- 2 UTRAN Cell\_FACH state
- 3 UTRAN Cell\_DCH state
- 4 GERAN CS connected state
- 5 GERAN PS connected state
- 6 GERAN CS and PS connected state
- 7 E-UTRAN connected state
- 8 NG-RAN connected state
- 9 NG-RAN inactive state (see 3GPP TS 38.331 [160]).

<access>

integer type; indicates the current radio access type.

- 0 Indicates usage of radio access of type GERAN, see 3GPP TS 45.001 [146].
- 1 Indicates usage of radio access of type UTRAN TDD, see 3GPP TS 25.212 [144].
- 2 Indicates usage of radio access of type UTRAN FDD, see 3GPP TS 25.212 [144].
- 3 Indicates usage of radio access of type E-UTRA TDD, see 3GPP TS 36.300 [145].
- 4 Indicates usage of radio access of type E-UTRA FDD, see 3GPP TS 36.300 [145].
- 5 Indicates usage of radio access of type NR, see 3GPP TS 38.300 [159].

<coreNetwork>

integer type; indicates the core network type the UE is connected to.

- 0 Indicates MT is connected to EPC, see 3GPP TS 23.401 [82].
- 1 Indicates MT is connected to 5GCN, see 3GPP TS 23.501 [165].

## 9.26 AT+CSODCP Sending of originating data via the control plane

### Description

The set command is used by the TE to transmit data over control plane to network via MT. Context identifier <cid> is used to link the data to particular context.

This command optionally indicates that the application on the MT expects that the exchange of data:

- will be completed with this uplink data transfer; or
- will be completed with the next received downlink data.

This command also optionally indicates whether or not the data to be transmitted is an exception data.

If the UE is using Reliable Data Service to transmit data, then this command optionally also indicates the source port number used by the originator, the destination port number to be used by the receiver and whether the originator is soliciting an acknowledgement from the receiver as defined in 3GPP TS 24.250 [168].

This command causes transmission of an ESM DATA TRANSPORT message, as defined in 3GPP TS 24.301 [83].

Command	Possible response
AT+CSODCP=?	+CSODCP: (1~7), (400), (0~2), (0~1) OK
AT+CSODCP=<cid>,<cpdata_length>,<cpdata> [,<RAI>[,<type_of_user_data>]]	OK +CME ERROR: <err>

### Parameter

<cid>

integer type. A numeric parameter which specifies a particular PDP context or EPS bearer context definition. The <cid> parameter is local to the TE-MT interface and identifies the PDP or EPS bearer contexts which have been setup via AT command (see the +CGDCONT and +CGDSCONT commands).

<cpdata\_length>

## 9.26. AT+CSODCP Sending of originating data via the control plane

integer type. Indicates the number of octets of the <cpdata> information element. When there is no data to transmit, the value shall be set to zero.

<cpdata>

string of octets. Contains the user data container contents (refer 3GPP TS 24.301 [83] subclause 9.9.4.24). When there is no data to transmit, the <cpdata> shall be an empty string ( ""). This parameter shall not be subject to conventional character conversion as per +CSCS. The coding format of the user data container and the maximum length of <cpdata> are implementation specific.

<RAI>

integer type. Indicates the value of the release assistance indication, refer 3GPP TS 24.301 [83] subclause 9.9.4.25.

0 No information available.

1 The MT expects that exchange of data will be completed with the transmission of the ESM DATA TRANSPORT message.

2 The MT expects that exchange of data will be completed with the receipt of an ESM DATA TRANSPORT message.

<type\_of\_user\_data>

integer type. Indicates whether the user data that is transmitted is regular or exceptional.

0 Regular data.

1 Exception data.

## 9.27 AT+CGAUTH Define PDP context authentication parameters

### Description

Set command allows the TE to specify authentication parameters for a PDP context identified by the (local) context identification parameter <cid> used during the PDP context activation and the PDP context modification procedures. Since the <cid> is the same parameter that is used in the +CGDCONT and +CGDSCONT commands, +CGAUTH is effectively as an extension to these commands.

The read command returns the current settings for each defined context.

The test command returns values supported as compound values.

Command	Possible response
AT+CGAUTH=<cid>,<auth_prot> [,<userid>[,<password>]]	+CME ERROR: <err>
AT+CGAUTH?	[+CGAUTH: <cid>,<auth_prot>,<userid>,<password> [<CR><LF>+CGAUTH: <cid>,<auth_prot>,<userid>,<password> [. . . ]]

AT+CGAUTH=?	+CGAUTH: (range of supported <cid>s), (list of supported <auth_prot>s), (range of supported <userid>s), (range of supported <password>s)
-------------	---

#### Parameter

<cid>

integer type. Specifies a particular PDP context definition (see the +CGDCONT and +CGDSCONT commands).

<auth\_prot>

integer type. Authentication protocol used for this PDP context.

- 0 None. Used to indicate that no authentication protocol is used for this PDP context. Username and password are removed if previously specified.
- 1 PAP
- 2 CHAP

<userid>

String type. User name for access to the IP network.

<password>

String type. Password for access to the IP network.

#### Example

---

AT+CGAUTH=?

+CGAUTH: <cid>,<auth\_prot>,<userid>,<password>][<CR><LF>[. . .]]

OK

AT+CGAUTH=1,0,"Y6dNgXbuLRsTzcbD1aNL","0YSaZWrr9lhckeuBt9gC"

OK

---

## 9.28 AT+PING Start Ping IP Address Or Host

Command	Possible response(s)
<ul style="list-style-type: none"><li>• AT+PING=&lt;IP address&gt;,[&lt;timeout&gt;,&lt;packet_length&gt;,&lt;ping_count&gt;]</li><li>• AT+PING=&lt;domain name&gt;,[&lt;timeout&gt;,&lt;packet_length&gt;,&lt;ping_count&gt;]</li></ul>	<ul style="list-style-type: none"><li>• OK</li><li>• Reply from &lt;IP address&gt;: bytes=&lt;nbyte&gt; time=&lt;replyTime &gt;(ms), TTL=&lt;ttl&gt;</li><li>• Reply from &lt;IP address&gt;: bytes=&lt;nbyte&gt; time=&lt;replyTime &gt;(ms), TTL=&lt;ttl&gt;</li><li>• [...]</li><li>• Ping statistics for &lt;IP address&gt;:Packets: Sent=&lt;nsendPackage&gt;, Received=&lt;nreceivePackage&gt; Lose=&lt;nlostPackage&gt;&lt;&lt;lostRange&gt;%&gt;</li></ul>
AT+PING=?	+PING: (DNS/IP address),(list of supported<timeout>s),(list of supported <packet_length>),(list of supported <ping_count>s)

#### Reference

#### Description



## Parameters

### 9.28. AT+PING Start Ping IP Address Or Host

<IP address> A string parameter which indicates ping IP address

<domain name> A string parameter which indicates ping domain name

<timeout> Ping ICMP package timeout (1~255)

<packet\_length> Ping ICMP package size (36~1500 ipv4) (56~1500 ipv6)

<ping\_count> Ping ICMP package send times (1~65535)

<nbyte> Ping package size

<replyTime > Time, in units of ms, required to receive the response

<tll> Time to live

<nsendPackage> Send package number

<nreceivePackage > Receive package number

<nlostPackage> Lost package number

<lostRange> Lost package range

---

Note:

- NULL
- 

## 9.29 AT+CFGCIOT CIOT feature configuration

### Description

Configure and query the CIOT parameters.

### Syntax

Command	Possible response
Test Command AT+CFGCIOT=?	+CFGCIOT: nonip=[0-1], cpciot=[0-1](NBloT ignore), upciot=[0-3], erwopdn=[0-2], sms_wo_comb_att=[0-1], apn_rate_control=[0-1], epco=[0-1], cpbackoff=[0-1], roam=[0-1], nasRai=[0-1] OK

Set Command AT+CFGCIOT=<nonip>[,<cpciot> [,<upciot>[,<erwopdn>[,<sms_wocomb_att>  [,<apn_rate_control>[,epco>][,cpbackoff>][,roam>][, nasRai]]]]]]	OK
Read Command AT+CFGCIOT?	+CFGCIOT: <nonip>[,<cpciot>[,<upciot> [,<erwopdn>[,<sms_wocomb_att>  [,<apn_rate_control>[,epco>][,cpbackoff>][,roam>][, nasRai]]]]]] OK

Parameter

<nonip> Configure NonIP

0	not support NonIP
1	support NonIP

<cpciot> Configure CPCIoT

0	not support CPCIoT, this value is not configured for NB-IoT
1	support CPCIoT

<upciot>

Configure whether the UPCLoT feature is supported and preferred.

0	not support S1uData and UPCLoT
1	support S1uData, not support UPCLoT
2	Supports but does not optimize UPCLoT (CP mode is preferred for PDN services that can use both CP and up)
3	Supports and optimizes UPCLoT (preferred up method for PDN business that can use both CP and UP)

### 9.29. AT+CFGCIOT CIOT feature configuration

Note: About 2 and 3 is the preference for Upciot, which affects:

- The EMM indicates prefer in the Additionupdatestypeie which way;
- for the PDN business where CP and up can be used, RABM takes precedence over which way

<erwopdn> Configure whether the ERwoPDN is supported and preferred.

0	not support ERwoPDN
1	supports but does not optimize ERwoPDN (attach process necessarily carries PDN)
2	support and optimize ERwoPDN (when attach process can not carry PDN, do not carry PDN);

<sms\_wocomb\_att> Configure whether the SmsWithoutCombinedAttach is supported.

0	not support SmsWithoutCombinedAttach
1	support SmsWithoutCombinedAttach

<apn\_rate\_control> Configure whether the ApnRateControl is supported.

0	not support ApnRateControl
1	support ApnRateControl

<epco>

Configure whether the ePCO is supported.

0	not support ePCO
1	support ePCO

Note that for Nbiot, the EPCO must be used in accordance with the Protocol, but the actual test found that some vendor protocol versions are older and do not support EPCO, so add the configuration entry.

<cpbackoff> Configure whether the cpbackoff is supported.

0	not support cpbackoff
1	support cpbackoff

<roam> Configure whether the roam is supported.

0	not support roam
1	support roam

<nasRai> Configure whether the nasRai is supported.

0	not support nasRai
1	support nasRai

Remark

Example

## 9.30 AT+CRTDCP Escalate the finalization data through the control surface

### Description

The set command is used to enable and disable reporting of data from the network to the MT that is transmitted via the control plane in downlink direction. If reporting is enabled, the MT returns the unsolicited result code +CMTDCP: <cid>,<cpdata\_length>,<cpdata> when data is received from the network.

Read command returns the current settings.

Test command returns supported values as compound values.

### Syntax

Command	Possible response
Test Command AT+CRTDCP=?	+CMTDCP: (list of supported <reporting>s),(range of supported <cid>s),(maximum number of octets of user data indicated by <cpdata_length>) OK +CME ERROR: <err>
Read Command AT+CRTDCP?	+CMTDCP: <reporting> OK +CME ERROR: <err>
Set Command AT+CRTDCP=[<reporting>]	OK +CME ERROR: <err>
Reference: 3GPP TS 27.007 V14.5.0	

### Unsolicited Result Codes

None

### Parameter

<reporting>: integer type, controlling reporting of mobile terminated control plane data events  
0 Disable reporting of MT control plane data.  
1 Enable reporting of MT control plane data by the unsolicited result code +CRTDCP.

<cid>:  
integer type. A numeric parameter which specifies a particular PDP context or EPS bearer context definition. The <cid> parameter is local to the TE-MT interface and identifies the PDP or EPS bearer contexts which have been setup via AT command (see the +CGDCONT and +CGDSCONT commands).

<cpdata\_length>: integer type. Indicates the number of octets of the <cpdata> information element. When there is no data to transmit, the value shall be set to zero.

<cpdata>:  
i string of octets. Contains the user data container contents (refer 3GPP TS 24.301 [83] subclause 9.9.4.24). When there is no data to transmit, the <cpdata> shall be an empty string ( ""). This parameter shall not be subject to conventional character conversion as per +CSCS. The coding format of the user data container and the maximum length of <cpdata> are implementation specific.

Remark

None

Example None

---

CHAPTER

TEN

---

## TCP/IP COMMANDS

### Contents

- *AT+CIPMUX Start Up Multi-IP Connection*
- *AT+CIPSTART Start Up TCP Or UDP Connection*
- *AT+CIPSEND Send Data Through TCP Or UDP Connection*
- *AT+CIPQSEND Select Data Transmitting Mode*
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- *AT+CIPSERVER Configure Module As Server*
- *AT+CIPCSGP Set CSD Or GPRS For Connection Mode*
- *AT+CIPSRIP Show Remote IP Address And Port When Received Data*
- *AT+CIPMODE Select TCPIP Application Mode*
- *AT+CIPCCFG Configure Transparent Transfer Mode*
- *AT+CIPSHOWTP Display Transfer Protocol In IP Head When Received Data*
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- *AT+CIPRXGET Get Data From Network Manually*
- *AT+CIPSCONT Save TCPIP Application Context*
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- *AT+CIPTKA Set TCPKeep-alive Parameters*
- *AT^NETIF Show Net Interface Information*
- *AT+SNTP Client Time Synchronize with Network Time Server*
- *Example of TCP Client (Single IP connection)*
- *Example of TCP Client (Multi IP connection)*
- *Example of TCP Server*

## 10.1 AT+CIPMUX Start Up Multi-IP Connection

Command	Possible response(s)
AT+CIPMUX=<n>	OK
AT+CIPMUX?	+CIPMUX: <n>
AT+CIPMUX=?	+CIPMUX: (show <n> values)

Reference:

Description

Parameters <n>

Connection mode

0	Single IP connection
1	Multi IP connection

Note:

- Only in IP initial state, AT+CIPMUX=1 is effective
- Only when multi IP connection and GPRS application are both shut down, AT+CIPMUX=0 is effective

Example

AT+CIPMUX=0

OK

AT+CIPMUX?

+CIPMUX:0

OK

AT+CIPMUX=?

+CIPMUX:(0,1)

OK

## 10.2 AT+CIPSTART Start Up TCP Or UDP Connection

Command	Possible response(s)
<ul style="list-style-type: none"> <li>• CIPMUX=0               <ul style="list-style-type: none"> <li>– AT+CIPSTART=&lt; &lt;IP mode&gt;, &lt;IP address&gt;, &lt;port&gt;</li> <li>– AT+CIPSTART=&lt; &lt;domain name&gt;, &lt;port&gt;</li> </ul> </li> <li>• CIPMUX=1               <ul style="list-style-type: none"> <li>– AT+CIPSTART=&lt; &lt;mode&gt;, &lt;IP address&gt;, &lt;port&gt;</li> <li>– AT+CIPSTART=&lt; &lt;mode&gt;, &lt;domain name&gt;, &lt;port&gt;</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• CIPMUX=0               <ul style="list-style-type: none"> <li>– OK</li> <li>– +CME ERROR &lt;err&gt;</li> <li>– ALREADY CONNECT</li> <li>– CONNECT OK</li> <li>– STATE: &lt;state&gt;CONNECT FAIL</li> <li>– ALREADY OPENED</li> </ul> </li> <li>• CIPMUX=1               <ul style="list-style-type: none"> <li>– OK</li> <li>– +CME ERROR &lt;err&gt;</li> <li>– &lt;n&gt;,ALREADY CONNECT</li> <li>– &lt;n&gt;,CONNECT OK n&gt;, –</li> <li>– &lt;n&gt;,CONNECT FAIL</li> <li>– &lt;n&gt;,ALREADY OPENED</li> </ul> </li> </ul>
AT+CIPSTART=?	<ul style="list-style-type: none"> <li>• CIPMUX=0               <ul style="list-style-type: none"> <li>– +CIPSTART: (list of supported &lt;mode&gt;), &lt;IP address&gt;, &lt;port&gt;</li> </ul> </li> <li>• CIPMUX=1               <ul style="list-style-type: none"> <li>– +CIPSTART: (list of supported &lt;n&gt;), (list of supported &lt;mode&gt;), &lt;IP address&gt;, &lt;port&gt;</li> </ul> </li> </ul>

### Reference

Max Response Time:

75 seconds	When mode is multi-IP state
160 seconds	When mode is single state, and the state is IP INITIAL

### Description Parameters

<n> 0..7 A numeric parameter which indicates the connection number

<mode> A string parameter which indicates the connection type

<IP address> A string parameter which indicates remote server IP address

<port> Remote server port

<domain name> A string parameter which indicates remote server domain name

<state> A string parameter which indicates the progress of connecting

In Single IP state (CIPMUX=0):

## 10.2. AT+CIPSTART Start Up TCP Or UDP Connection



0	IP INITIAL
1	IP START
2	IP CONFIG
3	IP GPRSACT
4	IP STATUS
5	TCP CONNECTING/UDP CONNECTING/SERVER LISTENING
6	CONNECT OK
7	TCP CLOSING/UDP CLOSING
8	TCP CLOSED/UDP CLOSED
9	PDP DEACT

In Multi-IP state (CIPMUX=1):

0	IP INITIAL
1	IP START
2	IP CONFIG
3	IP GPRSACT
4	IP STATUS
5	IP PROCESSING
9	PDP DEACT

---

Note:

- This command allows establishment of a TCP/UDP connection only when the state is IP INITIAL or IP STATUS or IP GPRSACT when it is in single state. In multi-IP state, the state is in IP STATUS or IP GPRSACT only. So it is necessary to process "AT+CIPSHUT" before user establishes a TCP/UDP connection with this command when the state is not IP INITIAL or IP STATUS.
  - When module is in multi-IP state, before this command is executed, it is necessary to process "AT+CSSTT, AT+CIICR, AT+CIFSR".
  - When an outside pdp CID is used, the bearer status will be changed from IP INITIAL to IP GPRSACT even executed AT+CIPSTART is failure.
  - When the AT+CIPSTART return "CONNECT FAIL" and then the AT+CIPCLOSE is not executed, executing AT+CIPSTART again will prompt "ALREADY OPENED"
- 

Example

---

AT+CIPSTART="TCP", "111.205.140.139",6800

OK

CONNECT OK

---

AT+CIPSTART=1, "TCP", "111.205.140.139",6800

OK

1,CONNECT OK

---

AT+CIPSTART=?

+CIPSTART: ("TCP", "UDP"), ("(0-255).(0-255).(0-255).(0-255)", (0-65535)

OK

---

AT+CIPSTART=?

+CIPSTART: (0-7), ("TCP", "UDP"), ("(0-255).(0-255).(0-255).(0-255)", (0-65535)

OK

---

Note:

- The max wait time is 60 seconds.
- 
- 

### 10.3 AT+CIPSEND Send Data Through TCP Or UDP Connection

Command	Possible response(s)
CIPMUX=0  AT+CIPSEND=<length>  CIPMUX=1 AT+CIPSEND=<n>,<length>	<ul style="list-style-type: none"><li>• CIPMUX=0<ul style="list-style-type: none"><li>– +CME ERROR &lt;err&gt;</li><li>– SEND OK When +CIPQSEND=0</li><li>– DATA ACCEPT:&lt;length&gt; When +CIPQSEND=1</li><li>– SEND FAIL If sending fails</li></ul></li><li>• CIPMUX=1<ul style="list-style-type: none"><li>– +CME ERROR &lt;err&gt;</li><li>– &lt;n&gt;,SEND OK When +CIPQSEND=0</li><li>– DATA ACCEPT:&lt;n&gt;,&lt;length&gt; +CIPQSEND=1</li><li>– &lt;n&gt;,SEND FAIL If sending fails</li></ul></li></ul> <p style="text-align: right;">When</p>
AT+CIPSEND?	<ul style="list-style-type: none"><li>• CIPMUX=0<ul style="list-style-type: none"><li>– +CIPSEND: &lt;size&gt;</li><li>– OK</li></ul></li><li>• CIPMUX=1<ul style="list-style-type: none"><li>– +CIPSEND: &lt;n&gt;,&lt;size&gt; – OK</li></ul></li></ul>
AT+CIPSEND=?	<ul style="list-style-type: none"><li>• CIPMUX=0<ul style="list-style-type: none"><li>– +CIPSEND: &lt;length&gt;</li><li>– OK</li></ul></li><li>• CIPMUX=1<ul style="list-style-type: none"><li>– +CIPSEND: (0-7),&lt;length&gt; – OK</li></ul></li></ul>
AT+CIPSEND	<ul style="list-style-type: none"><li>• response &gt;, then type data for send, tap CTRL+Z to send, tap ESC to cancel the operation</li><li>• +CME ERROR &lt;err&gt;</li><li>• SEND OK When +CIPQSEND=0</li><li>• DATA ACCEPT:&lt;length&gt; When +CIPQSEND=1</li><li>• SEND FAIL If sending fails</li></ul>

Reference

- The data length which can be sent depends on network status.

---

### 10.3. AT+CIPSEND Send Data Through TCP Or UDP Connection

- Set the time that send data automatically with the Command of AT+CIPATS.
- Only send data at the status of established connection.

Description

Parameters

<n> 0..7 A numeric parameter which indicates the connection number

<length> A numeric parameter which indicates the length of sending data, it must be less than <size>

---

Note:

- +CIPSEND EXE Command can only be used in single IP connection mode (+CIPMUX=0) and to send data on the TCP or UDP connection that has been established already. Ctrl-Z is used as a termination symbol. ESC is used to cancel sending data. There are at most <size> bytes which can be sent at a time.

---

Example

---

```
AT+CIPSTART="TCP","111.205.140.139",6800
```

```
OK
```

```
CONNECT OK
```

---

```
AT+CIPSEND (CIPMUX=0)
```

```
> test trontrol+z
```

```
SEND OK
```

---

```
AT+CIPSEND=10 (CIPMUX=0)
```

```
> abcdefghij
```

```
SEND OK
```

---

```
AT+CIPSEND=1 (CIPMUX=1)
```

```
> test1 trontrol+z
```

```
1,SEND OK
```

---

```
AT+CIPSEND=1,10 (CIPMUX=1)
```

```
> abcdefghij
```

1,SEND OK

---

Note:

- The max wait time is 120 seconds.
- 

## 10.4 AT+CIPQSEND Select Data Transmitting Mode

Command	Possible response(s)
AT+CIPQSEND=<n>	<ul style="list-style-type: none"><li>• OK</li></ul>
AT+CIPQSEND?	<ul style="list-style-type: none"><li>• +CIPQSEND: &lt;n&gt;</li><li>• OK</li></ul>
AT+CIPQSEND=?	<ul style="list-style-type: none"><li>• +CIPQSEND: (0,1)</li><li>• OK</li></ul>

Reference

Description Parameters

<n>

0	Normal mode – when the server receives TCP data, it will response SEND OK.
1	Quick send mode – when the data is sent to module, it will response DATA ACCEPT:<n>, <length>.

Note:

- NULL
- 

Example

---

AT+CIPQSEND=0

OK

---

AT+CIPQSEND?

+CIPQSEND:0

OK

---

AT+CIPQSEND=?

+CIPQSEND:(0,1)

OK

#### 10.4. AT+CIPQSEND Select Data Transmitting Mode

### 10.5 AT+CIPACK Query Previous Connection Data Transmitting State

Command	Possible response(s)
<ul style="list-style-type: none"><li>• CIPMUX=0<ul style="list-style-type: none"><li>– AT+CIPACK</li></ul></li><li>• CIPMUX=1<ul style="list-style-type: none"><li>– AT+CIPACK=&lt;n&gt;</li></ul></li></ul>	<ul style="list-style-type: none"><li>• CIPMUX=0<ul style="list-style-type: none"><li>– +CIPACK: &lt;txlen&gt;,&lt;acklen&gt;,&lt;nacklen&gt;</li><li>– OK</li></ul></li><li>• CIPMUX=1<ul style="list-style-type: none"><li>– +CIPACK: &lt;txlen&gt;,&lt;acklen&gt;,&lt;nacklen&gt; – OK</li></ul></li></ul>
AT+CIPACK=?	OK

Reference

Description

Parameters

<n> A numeric parameter which indicates the connection number

<txlen> The data amount which has been sent

<acklen> The data amount confirmed successfully by the server

<nacklen> The data amount without confirmation by the server

---

Note:

- NULL

---

Example

---

AT+CIPACK (CIPMUX=0)

+CIPACK:0,0,0

OK

---

AT+CIPACK=1 (CIPMUX=1)

+CIPACK:0,0,0

OK

AT+CIPACK=?

OK

---

## 10.6 AT+CIPCLOSE Close TCP Or UDP Connection

Command	Possible response(s)
<ul style="list-style-type: none"><li>• CIPMUX=0 – AT+CIPCLOSE=&lt;n&gt;</li><li>• CIPMUX=1 – AT+CIPCLOSE=&lt;id&gt;, [&lt;n&gt;]</li></ul>	<ul style="list-style-type: none"><li>• CIPMUX=0 – CLOSE OK</li><li>• CIPMUX=1 – &lt;id&gt;, CLOSE OK</li></ul>
AT+CIPCLOSE=?	OK
AT+CIPCLOSE	<ul style="list-style-type: none"><li>• CLOSE OK If close is successfully</li><li>• +CME ERROR &lt;err&gt; If close fails</li></ul>

### Reference

- AT+CIPCLOSE only closes connection at corresponding status of TCP/UDP stack. To see the status use AT+CIPSTATUS command. Status should be:TCP CONNECTING,UDP CONNECTING, SERVER LISTENING or CONNECT OK in single-connection mode (see <state> parameter); CONNECTING or CONNECTED in multi-connection mode (see <client state>);OPENING or LISTENING in multi-connection mode (see <server state>).Otherwise it will return ERROR”.

### Description

### Parameters

<id> 0..7 A numeric parameter which indicates the connection number

<n> Close Mode

0	Slow close
1	Quick close

---

### Note:

- +CIPCLOSE EXE Command can only be used in single IP connection mode (+CIPMUX=0)

---

### Example

AT+CIPCLOSE (CIPMUX=0)

CLOSE OK

---

AT+CIPCLOSE=1 (CIPMUX=1)

1,CLOSE OK

---

---

AT+CIPCLOSE=?

OK

---

Note:

### 10.6. AT+CIPCLOSE Close TCP Or UDP Connection

- The max wait time is 30 seconds.
- 
- 

## 10.7 AT+CIPSHUT Disconnect Wireless Connection

Command	Possible response(s)
AT+CIPSHUT=?	OK
AT+CIPSHUT	<ul style="list-style-type: none"><li>• SHUT OK If close is successfully</li><li>• +CME ERROR &lt;err&gt; If close fails</li></ul>

Reference

Max Response Time: 65

seconds Description Parameters

---

Note:

- If this command is executed in multi-connection mode, all of the IP connection will be shut.
  - User can close gprs pdp context by AT+CIPSHUT. After it is closed, the status is IP INITIAL.
  - If +PDP: DEACT urc is reported which means the gprs is released by the network, then user still needs to execute AT+CIPSHUT command to make PDP context come back to original state.
- 

Example

---

AT+CIPSHUT

SHUT OK

---

AT+CIPSHUT=?

OK

---

Note:

- The max wait time is 60 seconds.



## 10.8 AT+CLPORT Set Local Port

Command	Possible response(s)
<ul style="list-style-type: none"> <li>• CIPMUX=0               <ul style="list-style-type: none"> <li>– AT+CLPORT=&lt;mode&gt;,&lt;port&gt;</li> </ul> </li> <li>• CIPMUX=1               <ul style="list-style-type: none"> <li>– AT+CLPORT=&lt;n&gt;,&lt;mode&gt;,&lt;port&gt;</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• OK</li> <li>• +CME ERROR &lt;err&gt;</li> </ul>
AT+CLPORT?	<ul style="list-style-type: none"> <li>• CIPMUX=0               <ul style="list-style-type: none"> <li>– +CLPORT: &lt;TCP port&gt;,&lt;UDP port&gt;</li> <li>– OK</li> </ul> </li> <li>• CIPMUX=1               <ul style="list-style-type: none"> <li>– +CLPORT: 0,&lt;TCP port&gt;,&lt;UDP port&gt;</li> <li>– +CLPORT: 1,&lt;TCP port&gt;,&lt;UDP port&gt;</li> <li>– +CLPORT: 2,&lt;TCP port&gt;,&lt;UDP port&gt;</li> <li>– +CLPORT: 3,&lt;TCP port&gt;,&lt;UDP port&gt;</li> <li>– +CLPORT: 4,&lt;TCP port&gt;,&lt;UDP port&gt;</li> <li>– +CLPORT: 5,&lt;TCP port&gt;,&lt;UDP port&gt;</li> <li>– +CLPORT: 6,&lt;TCP port&gt;,&lt;UDP port&gt;</li> <li>– +CLPORT: 7,&lt;TCP port&gt;,&lt;UDP port&gt; – OK</li> </ul> </li> </ul>
AT+CLPORT=?	<ul style="list-style-type: none"> <li>• CIPMUX=0               <ul style="list-style-type: none"> <li>– +CLPORT: ( "TCP", "UDP"),(0-65535)</li> <li>– OK</li> </ul> </li> <li>• CIPMUX=1               <ul style="list-style-type: none"> <li>– +CLPORT: (0-7),( "TCP", "UDP"),(0-65535)</li> <li>– OK</li> </ul> </li> </ul>

### Reference

### Description

### Parameters

<n> 0..7 A numeric parameter which indicates the connection number

<mode> A string parameter which indicates the connection type

<port> 0-65535 A numeric parameter which indicates the local port. Default value is 0, a port can be dynamically allocated a port.

### Note:

- This command will be effective when module is set as a Client.

### Example

---

---

AT+CLPORT="TCP",23400 (CIPMUX=0)

OK

### 10.8. AT+CLPORT Set Local Port

---

AT+CLPORT=? (CIPMUX=0)

+CLPORT:( "TCP", "UDP"),(0-65535)

OK

---

AT+CLPORT?

+CLPORT: TCP:23400,UDP:0

---

AT+CLPORT=1, "TCP",23400 (CIPMUX=1)

OK

---

AT+CLPORT=? (CIPMUX=1)

+CLPORT: (0-7),( "TCP", "UDP"),(0-65535)

OK

---

AT+CLPORT?

+CLPORT:0,TCP:0,UDP:0

+CLPORT:1,TCP:23400,UDP:0

+CLPORT:2,TCP:0,UDP:0

+CLPORT:3,TCP:0,UDP:0

+CLPORT:4,TCP:0,UDP:0

+CLPORT:5,TCP:0,UDP:0

+CLPORT:6,TCP:0,UDP:0 +CLPORT:7,TCP:0,UDP:0

OK

---

### 10.9 AT+CSTT Start Task And Set APN, User ID, Password

Command	Possible response(s)
AT+CSTT=<apn>, <username>, <password>	<ul style="list-style-type: none"><li>• OK</li><li>• +CME ERROR &lt;err&gt;</li></ul>

AT+CSTT?	<ul style="list-style-type: none"> <li>• +CSTT: &lt;apn&gt;,&lt;user name&gt;,&lt;password&gt;</li> <li>• OK</li> </ul>
AT+CSTT=?	<ul style="list-style-type: none"> <li>• +CSTT: "APN", "USER", "PWD"</li> <li>• OK</li> </ul>
AT+CSTT	<ul style="list-style-type: none"> <li>• OK</li> <li>• +CME ERROR &lt;err&gt;</li> </ul>

## Reference

## Description

## Parameters

<apn> A string parameter which indicates the GPRS access point name. The max length is 50 bytes. Default value is "CMNET".

<user name> A string parameter which indicates the GPRS user name. The max length is 20 bytes <password> A string parameter which indicates the GPRS password. The max length is 20 bytes.

---

## Note:

- The write command and execution command of this command is valid at the state of IP INITIAL and IP START. After this command is executed, the state will be changed to IP START.
- If there have been an activated outside pdp, then the cstt command will return error, as a result of the apn,password and username can not be set into an activated pdp.

---

## Example

---

```
AT+CSTT="CMNET", "", ""
```

```
OK
```

---

```
AT+CSTT=?
```

```
+CSTT: "APN", "USER", "PWD"
```

```
OK
```

---

```
AT+CSTT?
```

```
+CSTT: "CMNET", "", ""
```

```
OK
```

---

## 10.10 AT+CIICR Bring Up Wireless Connection With GPRS

Command	Possible response(s)
AT+CIICR=?	OK
AT+CIICR	<ul style="list-style-type: none"><li>• OK</li><li>• +CME ERROR &lt;err&gt;</li></ul>

## Reference

Max Response Time: 85

seconds Description Parameters

---

Note:

---

### 10.10. AT+CIICR Bring Up Wireless Connection With GPRS

- AT+CIICR only activates moving scene at the status of IP START, after operating this Command is executed, the state will be changed to IP CONFIG.
  - After module accepts the activated operation, if it is activated successfully, module state will be changed to IP GPRSACT, and it responds OK, otherwise it will respond ERROR.
- 

Example

---

AT+CIICR=?

OK

---

AT+CIICR

OK

---

Note:

- The max wait time is 90 seconds.
- 
- 

### 10.11 AT+CIFSR Get Local IP Address

Command	Possible response(s)
AT+CIFSR=?	OK
AT+CIFSR	<ul style="list-style-type: none"><li>• &lt;IP address&gt;</li><li>• OK</li></ul>

Reference

Description

Parameters

<IP address> A string parameter which indicates the IP address assigned from GPRS or CSD.

---

Note:

- Only after PDP context is activated, local IP address can be obtained by AT+CIFSR, otherwise it will respond ERROR. To see the status use AT+CIPSTATUS command. Status should be: IP GPRSACT, TCP CONNECTING, UDP CONNECTING, SERVER LISTENING, IP STATUS, CONNECT OK, TCP CLOSING, UDP CLOSING, TCP CLOSED, UDP CLOSED in single-connection mode (see <state> parameter); IP STATUS, IP PROCESSING in multi-connection mode (see <state> parameter).
-

## Example

---

AT+CIFSR

10.203.20.202

OK

---

AT+CIFSR=?

OK

---

## 10.12 AT+CIPSTATUS Query Current Connection Status

Command	Possible response(s)
AT+CIPSTATUS=?	OK
<ul style="list-style-type: none"><li>• CIPMUX=1</li><li>–</li></ul> AT+CIPSTATUS=<n>	<ul style="list-style-type: none"><li>• +CIPSTATUS: &lt;n&gt;,&lt;bearer&gt;,&lt;TCP/UDP&gt;,&lt;IP address&gt;,&lt;port&gt;,&lt;client state&gt; • OK</li></ul>

AT+CIPSTATUS	<ul style="list-style-type: none"> <li>• CIPMUX=0 <ul style="list-style-type: none"> <li>– OK</li> <li>– &lt;state&gt; If the module is set as client</li> <li>– S: 0, &lt;bearer&gt;,&lt;port&gt;,&lt;server state&gt; If the module is set as server</li> <li>– C: 0, &lt;bearer&gt;,&lt;TCP/UDP&gt;,&lt;IP address&gt;,&lt;port&gt;,&lt;client state&gt;</li> <li>– C: 1, &lt;bearer&gt;,&lt;TCP/UDP&gt;,&lt;IP address&gt;,&lt;port&gt;,&lt;client state&gt;</li> <li>– C: 2, &lt;bearer&gt;,&lt;TCP/UDP&gt;,&lt;IP address&gt;,&lt;port&gt;,&lt;client state&gt;</li> <li>– C: 3, &lt;bearer&gt;,&lt;TCP/UDP&gt;,&lt;IP address&gt;,&lt;port&gt;,&lt;client state&gt;</li> <li>– C: 4, &lt;bearer&gt;,&lt;TCP/UDP&gt;,&lt;IP address&gt;,&lt;port&gt;,&lt;client state&gt;</li> <li>– C: 5, &lt;bearer&gt;,&lt;TCP/UDP&gt;,&lt;IP address&gt;,&lt;port&gt;,&lt;client state&gt;</li> <li>– C: 6, &lt;bearer&gt;,&lt;TCP/UDP&gt;,&lt;IP address&gt;,&lt;port&gt;,&lt;client state&gt;</li> <li>– C: 7, &lt;bearer&gt;,&lt;TCP/UDP&gt;,&lt;IP address&gt;,&lt;port&gt;,&lt;client state&gt;</li> </ul> </li> <li>• CIPMUX=1 <ul style="list-style-type: none"> <li>– OK</li> <li>– STATE:&lt;bearer state&gt;</li> <li>– C:0,&lt;bearer&gt;,&lt;TCP/UDP&gt;,&lt;IP address&gt;,&lt;port&gt;,&lt;client state&gt;</li> <li>– C:1,&lt;bearer&gt;,&lt;TCP/UDP&gt;,&lt;IP address&gt;,&lt;port&gt;,&lt;client state&gt;</li> <li>– C:2,&lt;bearer&gt;,&lt;TCP/UDP&gt;,&lt;IP address&gt;,&lt;port&gt;,&lt;client state&gt;</li> <li>– C:3,&lt;bearer&gt;,&lt;TCP/UDP&gt;,&lt;IP address&gt;,&lt;port&gt;,&lt;client state&gt;</li> <li>– C:4,&lt;bearer&gt;,&lt;TCP/UDP&gt;,&lt;IP address&gt;,&lt;port&gt;,&lt;client state&gt;</li> <li>– C:5,&lt;bearer&gt;,&lt;TCP/UDP&gt;,&lt;IP address&gt;,&lt;port&gt;,&lt;client state&gt;</li> <li>– C:6,&lt;bearer&gt;,&lt;TCP/UDP&gt;,&lt;IP address&gt;,&lt;port&gt;,&lt;client state&gt;</li> <li>– C:7,&lt;bearer&gt;,&lt;TCP/UDP&gt;,&lt;IP address&gt;,&lt;port&gt;,&lt;client state&gt;</li> </ul> </li> </ul>
--------------	---

**10.12. AT+CIPSTATUS Query Current Connection Status**

Reference

Description Parameters

<n> 0-7 A numeric parameter which indicates the connection number

<bearer> 0-1 GPRS bearer, default is 0

<server state>

	OPENING
	LISTENING

CLOSING

<client state>

	INITIAL
	CONNECTING
	CONNECTED
	REMOTE CLOSING
	CLOSING
	CLOSED

<state> A string parameter which indicates the progress of connecting

In Single IP state (CIPMUX=0):

0	IP INITIAL
1	IP START
2	IP CONFIG
3	IP GPRSACT
4	IP STATUS
5	TCP CONNECTING/UDP CONNECTING/SERVER LISTENING
6	CONNECT OK
7	TCP CLOSING/UDP CLOSING
8	TCP CLOSED/UDP CLOSED
9	PDP DEACT

In Multi-IP state (CIPMUX=1):

0	IP INITIAL
1	IP START
2	IP CONFIG
3	IP GPRSACT
4	IP STATUS
5	IP PROCESSING
9	PDP DEACT

---

Note:

- NULL

---

Example

---

AT+CIPSTATUS (CIPMUX=0)

OK

STATE:IP INITIAL

---

AT+CIPSTATUS (CIPMUX=1)



OK  
 STATE:IP INITIAL  
 C:0,0,TCP,,0,IP INITIAL  
 C:1,0,TCP,,0,IP INITIAL  
 C:2,0,TCP,,0,IP INITIAL  
 C:3,0,TCP,,0,IP INITIAL  
 C:4,0,TCP,,0,IP INITIAL  
 C:5,0,TCP,,0,IP INITIAL  
 C:6,0,TCP,,0,IP INITIAL  
 C:7,0,TCP,,0,IP INITIAL

---

### 10.13 AT+CDNSCFG Configure Domain Name Server

Command	Possible response(s)
AT+CDNSCFG=<pri_dns> <sec_dns>]	[ , <ul style="list-style-type: none"> <li>• OK</li> <li>• +CME ERROR &lt;err&gt;</li> </ul>
AT+CDNSCFG?	<ul style="list-style-type: none"> <li>• +CDNSCFG: DNS1:0.0.0.0 DNS2:0.0.0.0 if not active PDP •</li> <li>+CDNSCFG: &lt;ip_type&gt; DNS1:( "Primary DNS")&lt;ip_type&gt; DNS2:( "Secondary DNS") if active IPV4 or IPV6</li> <li>• +CDNSCFG: &lt;ip_type&gt; DNS1:( "Primary DNS") &lt;ip_type&gt; DNS2:( "Secondary DNS") &lt;ip_type&gt; DNS1:( "Primary DNS") &lt;ip_type&gt; DNS2:( "Secondary DNS") if active IPV4V6</li> <li>• OK</li> </ul>
AT+CDNSCFG=?	<ul style="list-style-type: none"> <li>• +CDNSCFG: ( "Primary DNS"),( "Secondary DNS")</li> <li>• OK</li> </ul>

#### Reference

#### Description

#### Parameters

<pri\_dns> A string parameter which indicates the IP address of the primary domain name server. Default value is 0.0.0.0.

<sec\_dns> A string parameter which indicates the IP address of the secondary domain name server. Default value is 0.0.0.0.

<ip\_type>

#### 10.13. AT+CDNSCFG Configure Domain Name Server

A string parameter which indicates the IP address type.

	IPV4
	IPV6

---

Note:

- The IP address of the primary and secondary domain name server can not set 255.255.255.255.
- 

Example

---

AT+CDNSCFG? if not active PDP  
+CDNSCFG: DNS1:0.0.0.0 DNS2:0.0.0.0  
OK

---

AT+CDNSCFG=?  
+CDNSCFG: "PrimaryDNS", "SecondaryDNS"  
OK

---

AT+CDNSCFG ="168.48.6.0", "8.8.8.8"  
OK

---

## 10.14 AT+CDNSGIP Query The IP Address Of Given Domain Name

Command	Possible response(s)
AT+CDNSGIP=<domain name>	<ul style="list-style-type: none"><li>• OK If successful</li><li>• +CDNSGIP: 1, &lt;domain name&gt;,&lt;IP1&gt;[,&lt;IP2&gt;]</li><li>• ERROR If fail</li><li>• +CDNSGIP:0,&lt;dns error code&gt;</li></ul>
AT+CDNSGIP=?	OK

Reference

Description

Parameters

<domain name> A string parameter which indicates the domain name

<IP1> A string parameter which indicates the first IP address corresponding to the domain name

<IP2> A string parameter which indicates the second IP address corresponding to the domain name

<dns error code> A numeric parameter which indicates the error code

8	DNS COMMON ERROR
3	NETWORK ERROR

There are some other error codes as well.

Note:

- NULL

---

Example

---

AT+CDNSGIP=?

OK

---

AT+CDNSGIP="www.baidu.com"

OK

+CDNSGIP: 1, "www.baidu.com", "111.13.100.92", "111.13.100.91"

---

Note:

- The max wait time is 60 seconds.
- 
- 

## 10.15 AT+CIPHEAD Add an IP head at the beginning of a package received

Command	Possible response(s)
AT+CIPHEAD=<mode>	<ul style="list-style-type: none"><li>• OK</li><li>• +CME ERROR &lt;err&gt;</li></ul>
AT+CIPHEAD?	<ul style="list-style-type: none"><li>• +CIPHEAD: &lt;mode&gt;</li><li>• OK</li></ul>
AT+CIPHEAD=?	<ul style="list-style-type: none"><li>• +CIPHEAD: (list of supported &lt;mode&gt; s)</li><li>• OK</li></ul>

Reference

CIPHEAD=1 the format is:

- For single IP connection (**+CIPMUX=0**) +IPD,<data length>:
- For multi IP connection (**+CIPMUX=1**) +RECEIVE,<n>,<data length>:

Description

Parameters

<mode> A numeric parameter which indicates whether an IP header is added to the received data or not.

0	Not add IP header
1	Add IP header

---

Example

---

### 10.15. AT+CIPHEAD Add an IP head at the beginning of a package received

Note:

- NULL
- 

Example

---

AT+CIPHEAD?

+CIPHEAD:0

OK

---

AT+CIPHEAD=?

+CIPHEAD:(0,1)

OK

---

AT+CIPHEAD=1

OK

---

### 10.16 AT+CIPATS Set Auto Sending Timer

Command	Possible response(s)
AT+CIPATS=<mode>, [<time>]	<ul style="list-style-type: none"><li>• OK</li><li>• +CME ERROR &lt;err&gt;</li></ul>
AT+CIPATS?	<ul style="list-style-type: none"><li>• +CIPATS: &lt;mode&gt;,&lt;time&gt;</li><li>• OK</li></ul>
AT+CIPATS=?	<ul style="list-style-type: none"><li>• +CIPATS: (list of supported &lt;mode&gt; s),(list of supported &lt;time&gt;)</li><li>• OK</li></ul>

Reference

Description

Parameters

<mode> A numeric parameter which indicates whether set timer when module is sending data

0	Not set timer when module is sending data
1	Set timer when module is sending data

### Example

---

<time> 1..100 A numeric parameter which indicates the seconds after which the data will be sent

---

#### Note:

- When the mode is set to 0, the second parameter time should not be set; when the mode is set to 1, the time should be set.

AT+CIPATS=?

+CIPATS:(0,1),(1-100)

OK

---

AT+CIPATS=1,50

OK

---

AT+CIPATS?

+CIPATS:1,50

OK

---

## 10.17 AT+CIPSPRT Set Prompt Of '>' When Module Sends Data

Command	Possible response(s)
AT+CIPSPRT=<send prompt>	<ul style="list-style-type: none"><li>• OK</li><li>• +CME ERROR &lt;err&gt;</li></ul>
AT+CIPSPRT?	<ul style="list-style-type: none"><li>• +CIPSPRT: &lt;send prompt&gt;</li><li>• OK</li></ul>
AT+CIPSPRT=?	<ul style="list-style-type: none"><li>• +CIPSPRT: (list of supported &lt;send prompt&gt; s)</li><li>• OK</li></ul>

#### Reference

#### Description

#### Parameters

<send prompt>

A numeric parameter which indicates whether to echo prompt '>' after module issues AT+CIPSEND command.

0	It shows "send ok" but does not prompt echo '>' when sending is successful.
1	It prompts echo '>' and shows "send ok" when sending is successful.
2	It neither prompts echo '>' nor shows "send ok" when sending is successful.

---

Example

---

Note:

- NULL
- 

#### **10.17. AT+CIPSPRT Set Prompt Of '>' When Module Sends Data**

Example

```
AT+CIPSPRT=?
+CIPSPRT:(0,1,2)
OK
```

```
AT+CIPSPRT=2
OK
```

```
AT+CIPSPRT?
+CIPSPRT:2
OK
```

## 10.18 AT+CIPSERVER Configure Module As Server

Command	Possible response(s)
AT+CIPSERVER=<mode>,<port>	<ul style="list-style-type: none"> <li>• OK</li> <li>• +CME ERROR &lt;err&gt;</li> </ul>
AT+CIPSERVER?	<ul style="list-style-type: none"> <li>• +CIPSERVER: &lt;mode&gt;[,&lt;port&gt;]</li> <li>• OK</li> </ul>
AT+CIPSERVER=?	<ul style="list-style-type: none"> <li>• +CIPSERVER: (0-CLOSE SERVER, 1-OPEN SERVER), (1-65535)</li> <li>• OK</li> </ul>

Reference

Description

Parameters

<mode>

0	Close server
1	Open server

<port> 1..65535 Listening port

Note:

- This command is allowed to establish a TCP server only when the state is IP STATUS or IP GPRSACT when it is in multi\_IP mode.

```
AT+CIPSERVER=?
+CIPSERVER:(0-CLOSE SERVER,1-OPEN SERVER),(1-65535)
OK
```

---

---

### Example

---

AT+CIPSERVER=1,10254

OK

SERVER OK

---

AT+CIPSERVER?

+CIPSERVER:1,10254

OK

---

### Note:

- The max wait time is 60 seconds.
- 
- 

## 10.19 AT+CIPCSGP Set CSD Or GPRS For Connection Mode

Command	Possible response(s)
AT+CIPCSGP=<mode>[,<apn>,<username>,<password>],(<dial number>,<user name>,<password>,<rate>)]	<ul style="list-style-type: none"><li>• OK</li><li>• +CME ERROR &lt;err&gt;</li></ul>
AT+CIPCSGP?	<ul style="list-style-type: none"><li>• +CIPCSGP: &lt;mode&gt;,&lt;apn&gt;,&lt;user name&gt;,&lt;password&gt;[, &lt;rate&gt;]</li><li>• OK</li></ul>
AT+CIPCSGP=?	<ul style="list-style-type: none"><li>• +CIPCSGP:0-CSD,DIALNUMBER,USERNAME,PASSWORD, RATE(0-3)-- NOT SUPPORT</li><li>• +CIPCSGP: 1-GPRS,APN,USER NAME,PASSWORD • OK</li></ul>

### Reference

### Description

### Parameters

---

### 10.19. AT+CIPCSGP Set CSD Or GPRS For Connection Mode

<mode> A numeric parameter which indicates the wireless connection Mode



---

Example

---

0	set CSD as wireless connection mode
1	set GPRS as wireless connection mode

GPRS parameters:

<apn> A string parameter which indicates the access point name

<user name> A string parameter which indicates the user name

<password> A string parameter which indicates the password

CSD parameters:

<dial number> A string parameter which indicates the CSD dial numbers

<user name> A string parameter which indicates the CSD user name

<password> A string parameter which indicates the CSD password <rate>

A numeric parameter which indicates the CSD connection rate

0	2400
1	4800
2	9600
3	14400

---

Note:

- NULL

---

Example

---

```
AT+CIPCSGP=1, "CMNET", "", ""
```

```
OK
```

---

```
AT+CIPCSGP?
```

```
+CIPCSGP:1, "CMNET", "", ""
```

```
OK
```

---

```
AT+CIPCSGP=?
```

```
+CIPCSGP: 0-CSD,DIALNUMBER,USER NAME,PASSWORD,RATE(0-3) – NOT SUPPORT
```

```
+CIPCSGP: 1-GPRS,APN,USER NAME,PASSWORD
```

```
OK
```

---

## 10.20 AT+CIPSRIP Show Remote IP Address And Port When Received Data

Command	Possible response(s)
AT+CIPSRIP=<mode>	<ul style="list-style-type: none"> <li>• OK</li> <li>• +CME ERROR &lt;err&gt;</li> </ul>
AT+CIPSRIP?	<ul style="list-style-type: none"> <li>• +CIPSRIP: &lt;mode&gt;</li> <li>• OK</li> </ul>
AT+CIPSRIP=?	<ul style="list-style-type: none"> <li>• +CIPSRIP: (list of supported &lt;mode&gt; s)</li> <li>• OK</li> </ul>

### Reference

CIPSRIP=1 the format is:

- For single IP connection (**+CIPMUX=0**) +RECV FROM:<IP ADDRESS>:<PORT>
- For multi IP connection (**+CIPMUX=1**) +RECEIVE,<n>,<data length>,<IP ADDRESS>:<PORT>

### Description

### Parameters

<mode> A numeric parameter which shows remote IP address and port.

0	Do not show the prompt
1	Show the prompt

### Note:

- NULL

### Example

```
AT+CIPSRIP=?
+CIPSRIP:(0,1)
OK
```

```
AT+CIPSRIP=1
OK
```

```
AT+CIPSRIP?
+CIPSRIP:1
OK
```

---

## 10.20. AT+CIPSRIP Show Remote IP Address And Port When Received Data

### 10.21 AT+CIPMODE Select TCPIP Application Mode

Command	Possible response(s)
AT+CIPMODE=<mode>	<ul style="list-style-type: none"><li>• OK</li><li>• +CME ERROR &lt;err&gt;</li></ul>
AT+CIPMODE?	<ul style="list-style-type: none"><li>• +CIPMODE: &lt;mode&gt;</li><li>• OK</li></ul>
AT+CIPMODE=?	<ul style="list-style-type: none"><li>• +CIPMODE: (0-NORMAL MODE, 1-TRANSPARENT MODE)</li><li>• OK</li></ul>

#### Reference

#### Description Parameters

<mode>

0	Normal mode
1	Transparent mode

---

#### Note:

- NULL

---

#### Example

AT+CIPMODE?

+CIPMODE:0

OK

---

AT+CIPMODE=?

+CIPMODE: (0-NORMAL MODE, 1-TRANSPARENTMODE)

OK

---

AT+CIPMODE=0

OK

---

### 10.22 AT+CIPCCFG Configure Transparent Transfer Mode

Command	Possible response(s)
---------	----------------------

AT+CIPCCFG=<NmRetry>,<WaitTm>,<SendSz>,<esc>[,<Rxmode>,<RxSize>,<Rxtimer>]	<ul style="list-style-type: none"> <li>• OK</li> <li>• +CME ERROR &lt;err&gt;</li> </ul>
AT+CIPCCFG?	<ul style="list-style-type: none"> <li>• +CIPCCFG:&lt;NmRetry&gt;,&lt;WaitTm&gt;,&lt;SendSz&gt;,&lt;esc&gt;,&lt;Rxmode&gt;,&lt;RxSize&gt;,&lt;Rxtimer&gt;</li> <li>• OK</li> </ul>
AT+CIPCCFG=?	<ul style="list-style-type: none"> <li>• +CIPCCFG:(NmRetry:3-8),(WaitTm:1-10),(SendSz:1-1460),(esc:0,1) , (Rxmode:0,1),(RxSize:50-1460),(Rxtimer:20-1000) • OK</li> </ul>

Reference

Description

Parameters

<NmRetry> Number of retries to be made for an IP packet.Default value is 5.

<WaitTm> Number of 100ms intervals to wait for serial input before sending the packet. Default value is 2.

<SendSz> Size in bytes of data block to be received from serial port before sending. Default value is 128.

<esc> Whether turn on the escape sequence, default is TRUE.

0	Turn off the escape sequence
1	Turn on the escape sequence

<Rxmode> Whether to set time interval during output data from serial port.

0	output data to serial port without interval
1	output data to serial port within <Rxtimer> interval.

<RxSize> Output data length for each time. Default value is 1460.

<Rxtimer> Time interval (ms) to wait for serial port to output data again. Default value: 50ms

Note:

- This command will be effective only in single connection mode (+CIPMUX=0)

Example

AT+CIPCCFG?

+CIPCCFG:5,2,1024,1,0,1460,50

OK

AT+CIPCCFG=?

### 10.22. AT+CIPCCFG Configure Transparent Transfer Mode

+CIPCCFG:(NmRetry:3-8),(WaitTm:1-10),(SendSz:1-1460),(esc:0,1),(Rxmode:0,1),(RxSize:501460),(Rxtimer:20-1000)

OK

---

AT+CIPCCFG=4,2,1024,1,0,1440,80

OK

---

### 10.23 AT+CIPSHOWTP Display Transfer Protocol In IP Head When Received Data

Command	Possible response(s)
AT+CIPSHOWTP=<mode>	<ul style="list-style-type: none"><li>• OK</li><li>• +CME ERROR &lt;err&gt;</li></ul>
AT+CIPSHOWTP?	<ul style="list-style-type: none"><li>• +CIPSHOWTP: &lt;mode&gt;</li><li>• OK</li></ul>
AT+CIPSHOWTP=?	<ul style="list-style-type: none"><li>• +CIPSHOWTP: (list of supported &lt;mode&gt; s)</li><li>• OK</li></ul>

Reference

if +CIPSHOWTP=1 The format is +IPD,<data size>,<TCP/UDP>:<data>

Description

Parameters

<mode> A numeric parameter which indicates whether to display transfer protocol in IP header to received data or not

0	Not display transfer protocol
1	Display transfer protocol

Note:

- This command will be effective only in single connection mode (+CIPMUX=0)
  - Only when +CIPHEAD is set to 1, the setting of this command will Work.
- 

Example

---

AT+CIPSHOWTP?

+CIPSHOWTP:0

OK

---

AT+CIPSHOWTP=?

+CIPSHOWTP: (0,1)

OK

AT+CIPSHOWTP=0

OK

## 10.24 AT+CIPUDPMODE UDP Extended Mode

Command	Possible response(s)
<ul style="list-style-type: none"><li>• CIPMUX=0<ul style="list-style-type: none"><li>– AT+CIPUDPMODE=&lt;mode&gt;[, &lt;IPaddress&gt;, &lt;Port&gt;]</li></ul></li><li>• CIPMUX=1<ul style="list-style-type: none"><li>– AT+CIPUDPMODE=&lt;n&gt;[, &lt;mode&gt;[, &lt;IPaddress&gt;, &lt;Port&gt;]</li></ul></li></ul>	<ul style="list-style-type: none"><li>• CIPMUX=0<ul style="list-style-type: none"><li>– OK</li><li>– +CME ERROR &lt;err&gt;</li></ul></li><li>• CIPMUX=1<ul style="list-style-type: none"><li>– OK</li><li>– +CME ERROR &lt;err&gt;</li></ul></li></ul>
<ul style="list-style-type: none"><li>• CIPMUX=0<ul style="list-style-type: none"><li>– AT+CIPUDPMODE?</li></ul></li><li>• CIPMUX=1<ul style="list-style-type: none"><li>– AT+CIPUDPMODE?</li></ul></li></ul>	<ul style="list-style-type: none"><li>• CIPMUX=0<ul style="list-style-type: none"><li>– +CIPUDPMODE: &lt;mode&gt;[, &lt;IP address&gt;, &lt;Port&gt;]</li><li>– OK</li></ul></li><li>• CIPMUX=1<ul style="list-style-type: none"><li>– +CIPUDPMODE: 0, &lt;mode&gt;[, &lt;IP address&gt;, &lt;Port&gt;]</li><li>– +CIPUDPMODE: 1, &lt;mode&gt;[, &lt;IP address&gt;, &lt;Port&gt;]</li><li>– +CIPUDPMODE: 2, &lt;mode&gt;[, &lt;IP address&gt;, &lt;Port&gt;]</li><li>– +CIPUDPMODE: 3, &lt;mode&gt;[, &lt;IP address&gt;, &lt;Port&gt;]</li><li>– +CIPUDPMODE: 4, &lt;mode&gt;[, &lt;IP address&gt;, &lt;Port&gt;]</li><li>– +CIPUDPMODE: 5, &lt;mode&gt;[, &lt;IP address&gt;, &lt;Port&gt;]</li><li>– +CIPUDPMODE: 6, &lt;mode&gt;[, &lt;IP address&gt;, &lt;Port&gt;]</li><li>– +CIPUDPMODE: 7, &lt;mode&gt;[, &lt;IP address&gt;, &lt;Port&gt;]</li><li>– OK</li></ul></li></ul>
<ul style="list-style-type: none"><li>• CIPMUX=0<ul style="list-style-type: none"><li>– + CIPUDPMODE=?</li></ul></li><li>• CIPMUX=1<ul style="list-style-type: none"><li>– + CIPUDPMODE=?</li></ul></li></ul>	<ul style="list-style-type: none"><li>• CIPMUX=0<ul style="list-style-type: none"><li>– +CIPUDPMODE: (0-2), ("(0-255).(0-255).(0-255).(0-255)", (1-65535))</li><li>– OK</li></ul></li><li>• CIPMUX=1<ul style="list-style-type: none"><li>– +CIPUDPMODE: (0-7), (0-2), ("(0-255).(0-255).(0-255).(0-255)", (1-65535))</li><li>– OK</li></ul></li></ul>

Reference

Description Parameters

<n> 0..7 A numeric parameter which indicates the connection number

### 10.24. AT+CIPUDPMODE UDP Extended Mode

---

<mode>

0	UDP Normal Mode
1	UDP Extended Mode
2	Set UDP address to be sent

<IP address> A string parameter which indicates remote IP address, except for invalid local ip(for example:0.0.0.0, 255.255.255.255 ). <Port> Remote port

---

Note:

- The <IP address> can not set 255.255.255.255.

---

Example

---

AT+CIPUDPMODE=?

+CIPUDPMODE:(0-2),( "(0-255).(0-255).(0-255).(0-255)",(1-65535)

OK

---

AT+CIPUDPMODE=2,"192.168.1.108",4500

OK

---

AT+CIPUDPMODE?

+CIPUDPMODE:0,192.168.1.108,4500

OK



**AT+CIPRXG  
ET Get  
Data From  
Network  
Manually**

Command	Possible response(s)
<ul style="list-style-type: none"> <li>• CIPMUX=0                             <ul style="list-style-type: none"> <li>- +CIPRXGET=&lt;mode&gt;[, &lt;reqlength&gt;]</li> </ul> </li> <li>• CIPMUX=1                             <ul style="list-style-type: none"> <li>- +CIPRXGET=&lt;mode&gt;[, &lt;id&gt;[, &lt;reqlength&gt;]]</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• CIPMUX=0                             <ul style="list-style-type: none"> <li>- AT+CIPRXGET=0</li> <li>- OK</li> <li>- +CME ERROR &lt;err&gt;</li> <li>- 1) For single IP connection</li> <li>- If "AT+CIPSRIP=1" is set, IP address and port are contained.</li> <li>- if &lt;mode&gt;=1</li> <li>- AT+CIPRXGET=1</li> <li>- +CIPRXGET: 1[, &lt;IP ADDRESS&gt;:&lt;PORT&gt;]</li> <li>- if &lt;mode&gt;=2</li> <li>- AT+CIPRXGET=2,&lt;reqlength&gt;</li> <li>- +CIPRXGET: 2,&lt;cnflength&gt;,&lt;rmdlength&gt;[, &lt;IP ADDRESS&gt;:&lt;PORT&gt;] - AD-</li> <li>1234567890. . .</li> <li>- OK</li> <li>- if &lt;mode&gt;=3</li> <li>- AT+CIPRXGET=3,&lt;reqlength&gt;</li> <li>- +CIPRXGET: 3,&lt;cnflength&gt;,&lt;rmdlength&gt;[, &lt;IP ADDRESS&gt;:&lt;PORT&gt;] - AD-</li> <li>5151. . .</li> <li>- OK</li> <li>- if &lt;mode&gt;=4</li> <li>- AT+CIPRXGET=4</li> <li>- +CIPRXGET: 4, &lt;rmdlength&gt;</li> <li>- OK</li> </ul> </li> <li>• CIPMUX=1                             <ul style="list-style-type: none"> <li>- For multi IP connection</li> <li>- If "AT+CIPSRIP=1" is set, IP address and port is contained.</li> <li>- if &lt;mode&gt;=1</li> <li>- AT+CIPRXGET=1,&lt;id&gt;</li> <li>- +CIPRXGET: 1,&lt;id&gt;[, &lt;IP ADDRESS&gt;:&lt;PORT&gt;]</li> <li>- if &lt;mode&gt;=2</li> <li>- AT+CIPRXGET=2,&lt;id&gt;,&lt;reqlength&gt;</li> <li>- +</li> <li>- 1234567890. . .</li> <li>- OK</li> <li>- if &lt;mode&gt;=3</li> <li>- AT+CIPRXGET=3,&lt;id&gt;,&lt;reqlength&gt;</li> <li>- +</li> <li>- 5151. . .</li> <li>- OK</li> <li>- if &lt;mode&gt;=4</li> <li>- AT+CIPRXGET=4,&lt;id&gt;</li> <li>- +CIPRXGET: 4, &lt;id&gt;,&lt;rmdlength&gt;</li> <li>- OK</li> </ul> </li> </ul>

CIPRXGET:  
2,<id>,<cnflengt  
h>,<rmdlength>  
[, <IPADDRESS>:  
<PORT>]

CIPRXGET:

**10.25. AT+CIPRXGET Get Data From Network Manually**

AT+CIPRXGET?	<ul style="list-style-type: none"> <li>+CIPRXGET: &lt;mode&gt;</li> <li>OK</li> </ul>
<ul style="list-style-type: none"> <li>CIPMUX=0</li> <li>-</li> <li>AT+CIPRXGET?</li> </ul>	<ul style="list-style-type: none"> <li>CIPMUX=0</li> <li>- +CIPRXGET: (list of supported &lt;mode&gt;s),(list of supported &lt;reqlength&gt;)</li> <li>- OK</li> </ul>
<ul style="list-style-type: none"> <li>CIPMUX=1</li> <li>-</li> <li>AT+CIPRXGET?</li> </ul>	<ul style="list-style-type: none"> <li>CIPMUX=1</li> <li>- +CIPRXGET: (list of supported &lt;mode&gt;s), (list of supported &lt;id&gt;s), (list of supported &lt;reqlength&gt;)</li> <li>- OK</li> </ul>

Reference

Description

Parameters

<mode> 0 Disable getting data from network manually, the module is set to normal mode, data will be pushed to TE directly. 1 Enable getting data from network manually. 2 The module can get data, but the length of output data can not exceed 1460 bytes at a time. 3 Similar to mode 2, but in HEX mode, which means the module can get 730 bytes maximum at a time. 4 Query how many data are not read with a given ID.

<id> A numeric parameter which indicates the connection number

<reqlength> Requested number of data bytes (1-1460 bytes)to be read.

<cnflength> Confirmed number of data bytes to be read. 0 indicates that no data can be read.

<rmdlength> Remainder number of data bytes in the buffer.

Note:

- To enable this function, parameter <mode> must be set to 1 before connection.

**10.26 AT+CIPSCONT Save TCPIP Application Context**

Command	Possible response(s)
---------	----------------------

AT+CIPSCONT?	<ul style="list-style-type: none"> <li>• +CIPTKA: &lt;mode&gt;,&lt;keepIdle&gt;,&lt;keepInterval&gt;, &lt;keepCount&gt;</li> <li>• +CIPSCONT: &lt;mode0&gt;</li> <li>• +CIPCSGP: &lt;mode&gt;</li> <li>• Gprs Config APN: &lt;apn&gt;</li> <li>• Gprs Config UserId: &lt;user name&gt;</li> <li>• Gprs Config Password: &lt;password&gt;</li> <li>• +CIPHEAD: &lt;mode&gt;</li> <li>• +CIPSHOWTP: &lt;mode&gt;</li> <li>• +CIPSRIP: &lt;mode&gt;</li> <li>• +CIPATS: &lt;mode&gt;,&lt;time&gt;</li> <li>• +CIPSPRT: &lt;send prompt&gt;,&lt;notshowsendok&gt;</li> <li>• +CIPQSEND: &lt;n&gt;</li> <li>• +CIPMODE: &lt;mode&gt;</li> <li>• +CIPCCFG:&lt;NmRetry&gt;,&lt;WaitTm&gt;,&lt;SendSz&gt;,&lt;esc&gt;,&lt;Rxmode&gt;,&lt;RxSize&gt;,&lt;Rxtimer&gt;</li> <li>• +CIPMUX: &lt;n&gt;</li> <li>• +CIPRXGET: &lt;mode&gt;</li> <li>• +CIPRDTIMER: &lt;rdsigtimer&gt;,&lt;rdmuxtimer&gt; • OK</li> </ul>
AT+CIPSCONT	<ul style="list-style-type: none"> <li>• OK If success Module saves current TCPIP Application Contexts to NVRAM. When system is rebooted, the parameters will be loaded automatically.</li> <li>• ERROR If error is related to ME functionality</li> </ul>

Reference

Description Parameters

<mode0>

0	Saved, the value from NVRAM
1	Unsaved, the value from RAM

Note:

- NULL

### 10.26. AT+CIPSCONT Save TCPIP Application Context

### 10.27 AT+CIPRDTIMER Set Remote Delay Timer

Command	Possible response(s)
---------	----------------------

AT+CIPRDTIMER=<rdsigtimer>,<rdmuxtimer>	<ul style="list-style-type: none"> <li>• OK If success</li> <li>• ERROR If error is related to ME functionality</li> </ul>
AT+CIPRDTIMER?	<ul style="list-style-type: none"> <li>• +CIPRDTIMER: &lt;rdsigtimer&gt;,&lt;rdmuxtimer&gt;</li> <li>• OK</li> </ul>
AT+CIPRDTIMER=?	<ul style="list-style-type: none"> <li>• +CIPRDTIMER: (100-4000),(100-7000)</li> <li>• OK</li> </ul>

Reference

Description

Parameters

<rdsigtimer> Remote delay timer of single connection. Default value is 2000.

<rdmuxtimer> Remote delay timer of multi-connections. Default value is 3500.

Note:

- This command is used to shorten the disconnect time locally when the remote server has been disconnected.

## 10.28 AT+CIPSGTXT Select GPRS PDP Context

Command	Possible response(s)
AT+CIPSGTXT=<mode>	<ul style="list-style-type: none"> <li>• OK If success</li> <li>• ERROR If error is related to ME functionality</li> </ul>
AT+CIPSGTXT=?	<ul style="list-style-type: none"> <li>• +CIPSGTXT: (0,1,2)</li> <li>• OK</li> </ul>
AT+CIPSGTXT?	<ul style="list-style-type: none"> <li>• +CIPSGTXT: &lt;mode&gt;,(0,&lt;status&gt;),(1,&lt;status&gt;),(2, &lt;status&gt;)</li> <li>• OK</li> </ul>

Reference

Description

Parameters

<mode>

0	Select first PDP context
1	Select second PDP context
2	Select WIFI context

<status>

The network connection status.

ACTIVE	active PDP contxt
DEACTIVE	deactive PDP contxt

Note:

- If select PDP context(0,1), must set multi IP connection (+CIPMUX=1) first.
- If select the WIFI context(2), the WIFI must be connect first

---

## 10.29 AT+CIPTKA Set TCP Keep-alive Parameters

Command	Possible response(s)
AT+CIPTKA=<mode>[,<keepIdle>[,<keepInterval>[,<keepCount>]]]	<ul style="list-style-type: none"><li>• OK If success</li><li>• ERROR If error is related to ME functionality</li></ul>
AT+CIPTKA?	<ul style="list-style-type: none"><li>• +CIPTKA: &lt;mode&gt;,&lt;keepIdle&gt;,&lt;keepInterval&gt;, &lt;keepCount&gt;</li><li>• OK</li></ul>
AT+CIPTKA=?	<ul style="list-style-type: none"><li>• +CIPTKA: (list of supported &lt;mode&gt;s),(list of supported&lt;keepIdle&gt;s),(list of supported &lt;keepInterval&gt;),(list of supported &lt;keepCount&gt;s) • OK</li></ul>

Reference

Description

Parameters

<mode> Set TCP keepalive option. 0 Disable TCP keep alive mechanism 1 Enable TCP keep alive mechanism

<keepIdle> Integer type; Idle time (in second) before TCP send the initial keepalive probe. 30-7200 Default: 7200

<keepInterval> Interval time (in second) between keepalive probes retransmission.30-600 Default: 75 <keepCount>

Integer type; Maximum number of keepalive probes to be sent. 1-9 Default: 9

---

Note:

- NULL
- 

### 10.29. AT+CIPTKA Set TCP Keep-alive Parameters

## 10.30 AT^NETIF Show Net Interface Information

Command	Possible response(s)
---------	----------------------

AT^NETIF?	<ul style="list-style-type: none"> <li>• default netif: &lt;netif&gt;</li> <li>• [&lt;netif0&gt;:</li> <li>• inet4 addr: &lt;ip address&gt;</li> <li>• inet6 addr0: &lt;ip address&gt;</li> <li>• inet6 addr1: &lt;ip address&gt;</li> <li>• gw addr: &lt;ip address&gt;</li> <li>• mask addr &lt;ip address&gt; • dns addr &lt;ip address&gt;</li> <li>• dns2 addr &lt;ip address&gt;</li> <li>• [...]]</li> <li>• OK</li> </ul>
-----------	---

Reference

Description Parameters inet4 addr: <ip address> A string parameter which indicates local IPv4 address inet6 addr0: <ip address> A string parameter which indicates the first local IPv6 address inet6 addr1: <ip address> A string parameter which indicates the second local IPv6 address gw addr: <ip address> A string parameter which indicates the gateway address mask addr <ip address> A string parameter which indicates the subnet mask dns addr <ip address> A string parameter which indicates the first DNS server address dns2 addr <ip address> A string parameter which indicates the second DNS server address

---

Note:

- NULL
- 

### 10.31 AT+SNTP Client Time Synchronize with Network Time Server

Command	Possible response(s)
AT+SNTP=<IP address>	<ul style="list-style-type: none"> <li>• OK</li> </ul> +SNTP: OK If success +SNTP: FAILED If failed SNTP is working, please wait result if processing
AT+SNTP=<domain name>	<ul style="list-style-type: none"> <li>• OK</li> </ul> +SNTP: OK If success +SNTP: FAILED If failed SNTP is working, please wait result if processing
AT+SNTP=?	<ul style="list-style-type: none"> <li>• +SNTP: ntpserver</li> <li>• OK</li> </ul>

## Reference

### Description

### Parameters

<IP address> A string parameter which indicates the time server IP address <domain

name> A string parameter which indicates the time server domain name

---

### Note:

- If you want to executed AT+SNTP=?, please use AT+CCLK=<time> to make sure the module time is the zero time zone.
- NTP server also requies authorization, so the server list is not guaranteed to be available. If the server can ping, then it basically can provide ntp service. • The list of servers from network is as follows:

domain name IP address

-----  
cn.ntp.org.cn: 118.24.4.66, 182.92.12.11, 203.107.6.88, 120.25.108.11

-----  
hk.ntp.org.cn: none

-----  
tw.ntp.org.cn: none

-----  
us.ntp.org.cn: none

-----  
kr.ntp.org.cn: none

---

### Example

---

AT+CCLK?

+CCLK: "83/06/02,19:02:46+32"

---

AT+CCLK="07/10/25,11:33:40+00"

OK

AT+CCLK?

+CCLK: "07/10/25,11:33:41+00"

OK

---

AT+SNTP="36.110.97"

OK

+SNTP: FAILED

---

### 10.31. AT+SNTP Client Time Synchronize with Network Time Server

AT+CCLK?

+CCLK: "07/10/25,11:36:36+00"

OK

AT+SNTP="time.windows.com"

OK +SNTP:

OK AT+CCLK?

+CCLK: "19/05/29,02:05:29+00"

OK

---

### 10.32 Example of TCP Client (Single IP connection)

1. AT+CIPMUX=0

OK

2. AT+CSTT="CMNET", "", ""

OK

3. AT+CIICR

OK

4. AT+CIPSTART="TCP", "111.205.140.139", 6800

OK

CONNECT OK

5. AT+CIPSEND

> Just test `Control+z`

SEND OK

6. AT+CIPCLOSE

CLOSE OK

7. AT+CIPSHUT

SHUT OK

### 10.33 Example of TCP Client (Multi IP connection)

1. AT+CIPMUX=1



```

OK
2. AT+CSTT="CMN
ET", "", "" OK
3. AT
T+CIICR
OK
4. AT+CIPSTART=1,"TCP","111.205.140.139",6800
OK
1,CONNECT OK
5. AT+CIPSTART=2,"UDP","111.205.140.139",7000
OK
2,CONNECT OK
6. AT+CIPSEND=1
> Just test 1 `Control+z`
1,SEND OK
7. AT+CIPSEND=2
> Just test 2 `Control+z`
2,SEND OK
8. AT+CIPC
LOSE=1 1,CLOSE
OK
9. AT+CIPC
LOSE=2 2,CLOSE
OK
10. AT+CIPSHUT
SHUT OK

```

### 10.34 Example of TCP Server

```

1. AT+CSTT="CMNET", "", ""
OK
2. AT+CIICR
OK
3. AT+CIPSERVER=1,11003
OK
SERVER OK
4. AT+CIPSERVER=0
OK

```

SERVER CLOSED

5. AT+CIPSHUT

SHUT OK

#### **10.34. Example of TCP Server**

## HTTP COMMANDS

## Contents

- *HTTP COMMANDS OVERVIEW*
- *AT+HTTPIPINIT Initialize HTTP service*
- *AT+HTTPTERM Terminate HTTP service*
- *AT+HTTPPARA Set HTTP parameters value*
- *AT+HTTPDATA Input HTTP data*
- *AT+HTTPSETCRT Set HTTPS certificates*
- *AT+HTTPACTION HTTP method action*
- *AT+HTTPREAD Read the HTTP server response*
- *AT+HTTPSTATUS Read HTTP status*
- *Example*

**11.1 HTTP COMMANDS OVERVIEW**

Description Before the AT Commands is executed, AT+HTTPIPINIT should be executed first.

The Commands should be used in combination, a complete example is shown.

**11.2 AT+HTTPIPINIT Initialize HTTP service**

Command	Possible response(s)
AT+HTTPIPINIT	<ul style="list-style-type: none"> <li>• <b>If success:</b> <ul style="list-style-type: none"> <li>– OK</li> </ul> </li> <li>• <b>If failed:</b> <ul style="list-style-type: none"> <li>– +CME ERROR: &lt;err&gt;</li> </ul> </li> </ul>
AT+HTTPIPINIT=?	<ul style="list-style-type: none"> <li>• <b>If success:</b> <ul style="list-style-type: none"> <li>– +HTTPIPINIT</li> <li>– OK</li> </ul> </li> <li>• <b>If failed:</b> <ul style="list-style-type: none"> <li>– +CME ERROR:&lt;err&gt;</li> </ul> </li> </ul>

## Reference

AT+HTTPIPINIT

OK

Description Parameters

NULL

---

Note:

1. Before this command executed, it is necessary to process "AT+CGACT".
  2. HTTPINIT should first be executed to initialize the HTTP service.
- 

### 11.3 AT+HTTPTERM Terminate HTTP service

Command	Possible response(s)
AT+HTTPTERM	<ul style="list-style-type: none"><li>• <b>If success:</b><ul style="list-style-type: none"><li>– OK</li></ul></li><li>• <b>If failed:</b><ul style="list-style-type: none"><li>– +CME ERROR: &lt;err&gt;</li></ul></li></ul>
AT+HTTPTERM=?	<ul style="list-style-type: none"><li>• <b>If success:</b><ul style="list-style-type: none"><li>– +HTTPTERM</li></ul></li><li>• <b>If failed:</b><ul style="list-style-type: none"><li>– +CME ERROR:&lt;err&gt;</li></ul></li></ul>

Reference

AT+HTTPTERM

OK

Description Parameters

NULL

---

Note:

1. Before this command executed, it is necessary to process "AT+HTTPINIT".
  2. HTTPTERM should last be executed to terminate the HTTP service.
- 

### 11.4 AT+HTTTPARA Set HTTP parameters value

Command	Possible response(s)
AT+HTTTPARA=<HTTPParamTag <HTTPParamValue>	<ul style="list-style-type: none"><li>• <b>If success:</b><ul style="list-style-type: none"><li>– OK</li></ul></li><li>• <b>If failed:</b><ul style="list-style-type: none"><li>– +CME ERROR: &lt;err&gt;</li></ul></li></ul>

AT+HTTTPARA=?	<ul style="list-style-type: none"> <li>• <b>If success:</b> <ul style="list-style-type: none"> <li>- +HTTTPARA:&lt;tag&gt;,&lt;value&gt;</li> <li>- OK</li> <li>• <b>If failed:</b></li> <li>- +CME ERROR:&lt;err&gt;</li> </ul> </li> </ul>
---------------	--

Reference

AT+HTTTPARA ="CID", "1"

OK

Description

Parameters

<HTTPParamTag> Name of HTTP parameter. parameter list: **"CID"**

(Mandatory Parameter) Bearer profile identifier

**"URL"** (Mandatory Parameter) HTTP client URL: "http://server'/path':tcpPort". "server": FQDN or IP-address, "path": path of file or directory, "tcpPort": default value is 80. Refer to "IETF-RFC 2616".

**"UA"** The user agent string which is set by the application to identify the mobile. Usually this parameter is set as operation system and software version information. Default value is "RDA8955".

**"REDIR"** This flag controls the redirection mechanism of the RDA8955 when it is acting as HTTP client (numeric). If the server sends a redirect code (range 30x), the client will automatically send a new HTTP request when the flag is set to (1).

**"BREAK"** Parameter for HTTP method "GET", used for resuming broken transfer.

**"BREAKEND"** Parameter for HTTP method "GET", used for resuming broken transfer. which is used together with "BREAK", If the value of "BREAKEND" is bigger than "BREAK", the transfer scope is from "BREAK" to "BREAKEND". If the value of "BREAKEND" is smaller than "BREAK", the transfer scope is from "BREAK" to the end of the file.

**"TIMEOUT"** If both "BREAKEND" and "BREAK" are 0, the resume broken transfer function is disabled. HTTP session timeout value, scope: 30-1000 second. Default value is 120 seconds. HTTP Parameter value. Type and supported content depend on related <HTTPParamTag>.

**"CONTENT"** Used to set the "Content-Type" field in HTTP header.

**"USERDATA"** User data

<HTTPParamValue> HTTP Parameter value. Type and supported content depend on related <HTTPParamTag>.

Note:

1. Before this command is executed, it is necessary to process "AT+HTTTPINIT".
2. Not all the HTTP Server supports "BREAK" and "BREAKEND" parameters.

**11.4. AT+HTTTPARA Set HTTP parameters value**

**11.5 AT+HTTTPDATA Input HTTP data**

Command	Possible response(s)
---------	----------------------

AT+HTTPDATA	<ul style="list-style-type: none"> <li>• <b>If success:</b> – &gt;</li> <li>– OK • <b>If failed:</b></li> <li>– +CME ERROR:</li> <li>&lt;err&gt;</li> </ul>
AT+HTTPDATA=?	<ul style="list-style-type: none"> <li>• <b>If success:</b></li> <li>– +HTTPDATA</li> <li>– OK • <b>If failed:</b></li> <li>– +CME ERROR:&lt;err&gt;</li> </ul>

Reference

AT+HTTPDATA

>

1234567

->

OK

Description

Parameters

<'> When receive this parameters, you can enter your data in send box and send out. When you send out your data, you should focus your cursor in receive box and use combination key: "CTRL+Z" to finish this command.

Note:

1. Before this command is executed, it is necessary to process "AT+HTTPIPINIT"

## 11.6 AT+HTTPSSETCRT Set HTTPS certificates

Command	Possible response(s)
AT+HTTPSSETCRT=<crtFlag>	<ul style="list-style-type: none"> <li>• <b>If success:</b></li> <li>– OK</li> <li>– &lt;response_data&gt;</li> <li>• <b>If failed:</b></li> <li>– +CME ERROR: &lt;err&gt;</li> </ul>
AT+HTTPSSETCRT=?	<ul style="list-style-type: none"> <li>• <b>If success:</b></li> <li>– +HTTPSSETCRT:(0~2)</li> <li>– OK • <b>If failed:</b></li> <li>– +CME ERROR:&lt;err&gt;</li> </ul>

Reference

AT+HTTPSSETCRT= 0

> ca/cert ctrl+z

OK

Description

Parameters

< crtFlag> 0 Set CA certificate 1 Set client certificate 2 Set client private key

Note: 1.After this command is executed, it is necessary to process "AT+HTTPDATA" to finish set CRT.

## 11.7 AT+HTTPACTION HTTP method action

Command	Possible response(s)
AT+HTTPACTION=<method_code>	<ul style="list-style-type: none"><li>• <b>If success:</b><ul style="list-style-type: none"><li>- OK</li><li>- &lt;method_code&gt;,&lt;status_code&gt;,&lt;content_length&gt;</li></ul></li><li>• <b>If failed:</b><ul style="list-style-type: none"><li>- +CME ERROR: &lt;err&gt;</li></ul></li></ul>
AT+HTTPACTION=?	<ul style="list-style-type: none"><li>• <b>If success:</b><ul style="list-style-type: none"><li>- +HTTPACTION=(0~3)</li><li>- OK</li></ul></li><li>• <b>If failed:</b><ul style="list-style-type: none"><li>- +CME ERROR:&lt;err&gt;</li></ul></li></ul>

Reference

AT+HTTPACTION=0

OK

0,200,10

Description

Parameters

<method\_code> HTTP methods. 0 GET 1 POST 2 HEAD 3 DELETE 4 DELETE(for onenet) 5 PUT(for onenet)

<status\_code> HTTP Status Code responded by remote server, it identifier refer to HTTP1.1(RFC2616) 100

Continue

101 Switching Protocols

200 OK

201 Created

202 Accepted

203 Non-Authoritative Information

204 No Content

205 Reset Content

### 11.7. AT+HTTPACTION HTTP method action



206 Partial Content  
300 Multiple Choices  
301 Moved Permanently  
302 Found  
303 See Other  
304 Not Modified  
305 Use Proxy  
307 Temporary Redirect  
400 Bad Request  
401 Unauthorized  
402 Payment Required  
403 Forbidden  
404 Not Found  
405 Method Not Allowed  
406 Not Acceptable  
407 Proxy Authentication Required  
408 Request Time-out  
409 Conflict  
410 Gone  
411 Length Required  
412 Precondition Failed  
413 Request Entity Too Large  
414 Request-URI Too Large  
415 Unsupported Media Type  
416 Requested range not satisfiable  
417 Expectation Failed  
500 Internal Server Error  
501 Not Implemented  
502 Bad Gateway  
503 Service Unavailable  
504 Gateway Time-out  
505 HTTP Version not supported  
600 Not HTTP PDU  
601 Network Error  
602 No memory  
603 DNS Error

## 604 Stack Busy

<content\_length> HTTP content\_length responded by remote server.

---

### Note:

1. Before this command is executed, it is necessary to process "AT+HTTTPARA"
  2. The <content\_length> will be 0 except GET method.
- 

## 11.8 AT+HTTPREAD Read the HTTP server response

Command	Possible response(s)
AT+HTTPREAD=<start_address> <byte_size>	>, <ul style="list-style-type: none"><li>• <b>If success:</b><ul style="list-style-type: none"><li>– OK</li><li>– +HTTPREAD:&lt;data_len&gt;,&lt;data&gt;</li></ul></li><li>• <b>If failed:</b><ul style="list-style-type: none"><li>– +CME ERROR: &lt;err&gt;</li></ul></li></ul>
AT+HTTPREAD=?	<ul style="list-style-type: none"><li>• <b>If success:</b><ul style="list-style-type: none"><li>– AT+HTTPREAD:&lt;start_address&gt;,&lt;byte_size&gt;</li></ul></li><li>• <b>If failed:</b><ul style="list-style-type: none"><li>– +CME ERROR:&lt;err&gt;</li></ul></li></ul>

### Reference

AT+HTTPREAD=2,8

OK

+HTTPREAD:8

12345678

### Description

#### Parameters

<start\_address> The starting point for data output. 0-319488 (bytes)

<byte\_size> The length for data output.1-319488 (bytes)

<data\_len> The actual length for data output.

<data> Data from HTTP server or user input.

---

### Note:

1. Read data when AT+HTTPACTION=0 or AT+HTTPDATA is executed. If<byte\_size> is bigger than the data size received, module will only Return actual data size.
2. It is strongly recommended to set enough time to input all data with the length of<byte\_size>.

---

### 11.8. AT+HTTPREAD Read the HTTP server response

### 11.9 AT+HTTPSTATUS Read HTTP status

Command	Possible response(s)
AT+HTTPSTATUS	<ul style="list-style-type: none"><li>• <b>If success:</b><ul style="list-style-type: none"><li>– &lt;mode&gt;,&lt;status&gt;,&lt;finish&gt;,&lt;remain&gt;</li><li>– OK</li></ul></li><li>• <b>If failed:</b><ul style="list-style-type: none"><li>– +CME ERROR: &lt;err&gt;</li></ul></li></ul>
AT+HTTPSTATUS=?	<ul style="list-style-type: none"><li>• <b>If success:</b><ul style="list-style-type: none"><li>– +HTTPSTATUS</li><li>– OK</li></ul></li><li>• <b>If failed:</b><ul style="list-style-type: none"><li>– +CME ERROR:&lt;err&gt;</li></ul></li></ul>

#### Reference

AT+HTTPSTATUS

GET,1,210,0

OK

#### Description

#### Parameters

<mode> GET POST HEAD

<status> 0 idle 1 receiving 2 sending

<finish> The amount of data which have been transmitted

<remain> The amount of data remaining to be sent or received

---

#### Note:

1. Before this command is executed, it is necessary to process "AT+HTTPACTION"
- 

### 11.10 Example

1) Activate net

AT+CGACT=1,1

OK

2) Init HTTP DATA structure

AT+HTTPIPINIT

OK

3) Set parameters according to the app info

AT+HTTTPARA = "CID", "1"

OK

AT+HTTTPARA = "URL", "http://api.heclouds.com/devices/25336211/datapoints? type=5"

OK

AT+HTTTPARA ="CONTENT", "application/json"

OK

AT+HTTTPARA ="API\_KEY", "qnx1RqyuLFOfliMXmwe243HUZeo="

OK

AT+HTTTPDATA

>

,;temperature,2015-03-22T22:31:12,22.5;102;pm2.5,89;10

->

OK

4) executed HTTP action

AT+HTTTPACTION =1

OK

1 200 26

5) Read the response data

AT+HTTTPREAD = 0, 26

OK

+HTTTPREAD: 26

{"errno":0, "error": "succ"}

6) Term HTTP DATA structure

AT+HTTTPTERM

OK

Another HTTP ACTION in step 4

AT+HTTTPACTION = 0

0 200 223

OK

After this action we can get the action status use AT+HTTTPSTATUS, the HTTPSTATUS only support action 0~3

AT+HTTTPSTATUS

GET 1 223 0

OK

### 11.10. Example

## FTP COMMANDS

## Contents

- *AT^FTPOPEN* Open ftp connect
- *AT^FTPCLOSE* Close ftp connect
- *AT^FTPGETSET* Set GET Params
- *AT^FTPGET* Get file
- *AT^FTPPUTSET* Set PUT Params
- *AT^FTPPUT* Put file
- *AT^FTPSIZE* Get file size

## 12.1 AT^FTPOPEN Open ftp connect

Command	Possible response(s)
AT^FTPOPEN=<url>, <username>,<password>, <mode>,<tout>,<type>	<ul style="list-style-type: none"> <li>• <b>If success:</b> <ul style="list-style-type: none"> <li>– OK</li> </ul> </li> <li>• <b>If failed:</b> <ul style="list-style-type: none"> <li>– +CME ERROR: &lt;err&gt;</li> </ul> </li> </ul>
AT^FTPOPEN?	<ul style="list-style-type: none"> <li>• <b>Get the opened status, if had opened:</b> <ul style="list-style-type: none"> <li>– ^FTPOPEN:1</li> </ul> </li> <li>• <b>Get the opened status, if not opened yet:</b> – ^FTPOPEN:0</li> </ul>
AT^FTPOPEN=?	<ul style="list-style-type: none"> <li>• <b>If success:</b> <ul style="list-style-type: none"> <li>– ^FTPOPEN:&lt;url&gt;,&lt;username&gt;, &lt;password&gt;,&lt;mode&gt;,&lt;tout&gt;,&lt;type&gt;</li> </ul> </li> <li>– OK</li> <li>• <b>If failed:</b> <ul style="list-style-type: none"> <li>– +CME ERROR: &lt;err&gt;</li> </ul> </li> </ul>

## Parameters

<url> <string> Server address (ex. "192.168.1.101:21").

<username> <string> The username for FTP authentication.

<password> <string> The password for FTP authentication.

<mode> <int> 1 Passive FTP mode only

<tout> <int> 5~180(s) The device will logout in background when no FTP operation during the "tout".

<type> <int> 1 for FTP Binary sessions, 0 for ascii session.

#### Reference

- AT^FTPOPEN ="192.168.1.101:21", "username", "passwd",0,180,0
- OK
- 
- AT^FTPOPEN?
- ^FTPOPEN:1
- OK
- 
- AT^FTPOPEN=?
- ^FTPOPEN:<url>,<username>,<password>,<mode>,<tout>,<type>
- OK

---

#### Note:

- The commands executed before, must connect to net with "GPRS" or "WIFI"
  - The max wait time is 100 seconds.
- 

## 12.2 AT^FTPCLOSE Close ftp connect

Command	Possible response(s)
AT^FTPCLOSE	<ul style="list-style-type: none"><li>• <b>If success:</b><ul style="list-style-type: none"><li>– OK – ^URCFTP:0</li></ul></li><li>• <b>If failed:</b><ul style="list-style-type: none"><li>– +CME ERROR: &lt;err&gt;</li></ul></li></ul>

#### Parameters

NULL

#### Reference

- AT^FTPCLOSE
- OK
- ^URCFTP:0

---

#### Note:

- The max wait time is 60 seconds.
- 

## 12.3 AT^FTPGETSET Set GET Params

Command	Possible response(s)
---------	----------------------

AT^FTPGETSET=<filename>, [offset, [size]]	<ul style="list-style-type: none"> <li>• <b>If success:</b> <ul style="list-style-type: none"> <li>– OK</li> </ul> </li> <li>• <b>If failed:</b> <ul style="list-style-type: none"> <li>– +CME ERROR: &lt;err&gt;</li> </ul> </li> </ul>
AT^FTPGETSET?	<ul style="list-style-type: none"> <li>• <b>If success:</b> <ul style="list-style-type: none"> <li>– ^FTPGETSET:&lt;filename&gt;,&lt;offset&gt;, &lt;size&gt;</li> </ul> </li> <li>• <b>If failed:</b> <ul style="list-style-type: none"> <li>– OK</li> <li>– +CME ERROR: &lt;err&gt;</li> </ul> </li> </ul>
AT^FTPGETSET=?	<ul style="list-style-type: none"> <li>• <b>If success:</b> <ul style="list-style-type: none"> <li>– ^FTPGETSET:&lt;filename&gt;, [offset, [size]]</li> </ul> </li> <li>• <b>If failed:</b> <ul style="list-style-type: none"> <li>– OK</li> <li>– +CME ERROR: &lt;err&gt;</li> </ul> </li> </ul>

#### Parameters

<filepath> <string> The file with full path in FTP server.

<offset> <int> Download offset from the file, if this parameter is empty, download from file begin (optional).

<size> <int> Download length from the file <offset> or begin. if this parameter is empty, download file from <offset> or begin to end (optional).

#### Reference

- AT^FTPGETSET ="/file.1M",1024,256
- OK
- 
- AT^FTPGETSET?
- ^FTPGETSET: "/file.1M",1024,256
- OK
- 
- AT^FTPGETSET=?
- ^FTPGETSET:<filename>, [offset, [size]]
- OK

---

#### Note:

- 1. If run the command AT^FTPGETSET with 1 parameter, then the parameter must be <filepath> value.
- 2. If run the command AT^FTPGETSET with 2 parameters, then the parameter must be <filepath> and <offset> value.

### 12.3. AT^FTPGETSET Set GET Params



- 3. You cannot use the command such as AT^FTPGETSET="/file.1M",,256 to skip the second parameter. Instead of you can run the command AT^FTPGETSET with 3 parameters AT^FTPGETSET="/file.1M",0,256.

## 12.4 AT^FTPGET Get file

Command	Possible response(s)
AT^FTPGET=<mode>[, reqlength]	<ul style="list-style-type: none"> <li>• <b>If success, when "mode = 1":</b> <ul style="list-style-type: none"> <li>– OK</li> <li>– ^FTPGET:1,1</li> <li>– ^FTPGET=2,reqlength</li> <li>– ... //output data</li> <li>– ^FTPGET=2,0</li> </ul> </li> <li>• <b>If success, when "mode = 2 &amp; reqlength = 0":</b> <ul style="list-style-type: none"> <li>– OK</li> <li>– ^FTPGET=2,0</li> </ul> </li> <li>• <b>If failed:</b> <ul style="list-style-type: none"> <li>– +CME ERROR: &lt;err&gt;</li> </ul> </li> </ul>

### Parameters

<mode>: <int>

- 1: if mode is 1, reqlength is unused, to start the transfer
- 2: if mode is 2, reqlength must be 0, to stop the transfer

<reqlength>: <int> when mode is 2, reqlength is 0, stop the transfers

### Reference

- AT^FTPGET=1
- OK
- ^FTPGET:1,1
- ^FTPGET=2,1440
- ... //output data
- ^FTPGET=2,1440
- ... //output data
- ^FTPGET=2,1440
- ... //output data
- ^FTPGET=2,0 // finish
- 
- AT^FTPGET=2,0
- OK
- ^FTPGET=2,0 // finish

Note:

- 1. The info "`^FTPGET=2,1440`" means received the 1440 bytes data from server.
  - 2. The command "`AT^FTPGET=2,0`" must be run when data is received now. If the transfers is over, running this command will return fails.
- 

## 12.5 AT^FTPPUTSET Set PUT Params

Command	Possible response(s)
<code>AT^FTPPUTSET=&lt;filename&gt;</code>	<ul style="list-style-type: none"><li>• <b>If success:</b><ul style="list-style-type: none"><li>– OK</li></ul></li><li>• <b>If failed:</b><ul style="list-style-type: none"><li>– +CME ERROR: &lt;err&gt;</li></ul></li></ul>
<code>AT^FTPPUTSET?</code>	<ul style="list-style-type: none"><li>• <b>If success:</b><ul style="list-style-type: none"><li>– ^FTPPUTSET:&lt;filename&gt;</li><li>– OK</li></ul></li><li>• <b>If failed:</b><ul style="list-style-type: none"><li>– +CME ERROR: &lt;err&gt;</li></ul></li></ul>
<code>AT^FTPPUTSET=?</code>	<ul style="list-style-type: none"><li>• <b>If success:</b><ul style="list-style-type: none"><li>– ^FTPPUTSET:&lt;filename&gt;</li><li>– OK</li></ul></li><li>• <b>If failed:</b><ul style="list-style-type: none"><li>– +CME ERROR: &lt;err&gt;</li></ul></li></ul>

Parameters

<filename> : <string> The file name with full path will stored in FTP server.

Reference

- `AT^FTPPUTSET ="/put.txt"`
- OK
- 
- `AT^FTPPUTSET?`
- `^FTPPUTSET:"/put.txt"`
- OK
- 
- `AT^FTPPUTSET=?`
- `^FTPPUTSET:<filename>`
- OK

---

Note: NULL

## 12.5. AT^FTPPUTSET Set PUT Params

## 12.6 AT^FTPPUT Put file

Command	Possible response(s)
AT^FTPPUT= :<mode>[, <reqlength>]	<ul style="list-style-type: none"> <li>• <b>If success, when "mode = 1":</b> <ul style="list-style-type: none"> <li>– OK</li> <li>– ^FTPPUT:1,3072</li> </ul> </li> <li>• <b>If success, when "mode = 2 &amp; reqlength != 0":</b> <ul style="list-style-type: none"> <li>– ... //input data</li> <li>– OK</li> </ul> </li> <li>• <b>If success, when "mode = 2 &amp; reqlength = 0":</b> <ul style="list-style-type: none"> <li>– OK</li> <li>– ^FTPPUT:2,0</li> </ul> </li> <li>• <b>If failed:</b> <ul style="list-style-type: none"> <li>– +CME ERROR: &lt;err&gt;</li> </ul> </li> </ul>
AT^FTPPUT=?	<ul style="list-style-type: none"> <li>• <b>If success:</b> <ul style="list-style-type: none"> <li>– ^FTPPUT: mode[,&lt;reqlength&gt;]</li> <li>– OK</li> </ul> </li> <li>• <b>If failed:</b> <ul style="list-style-type: none"> <li>– +CME ERROR: &lt;err&gt;</li> </ul> </li> </ul>

### Parameters

<mode>: <int> • 1: start

trans file

- 2: transfer data.

<reqlength>: <int> Request length of data bytes to be transmitted, if reqlength is 0, stop transfer.

### Reference

- AT^FTPPUT=1 //start transfer
- OK
- ^FTPPUT:1,3072
- 
- AT^FTPPUT=2,10
- ... // input data, size is 10
- OK
- 
- AT^FTPPUT=2,0

- OK
- ^FTPPUT:2,0 //transfer finish confirm
- 
- AT^FTPPUT=?
- ^FTPPUT: mode[,<reqlength>]
- OK

Note:

- 1. The command "AT^FTPPUT=2,10" means there are 10 bytes data will upload to server.
- 2. When "AT^FTPPUT=2,10" running successfully, user can't input bytes data more than 10.
- 3. The command "AT^FTPPUT=2,0" must be run when data is transmitted now. If the transfers is over, running this command will return fails.
- 4. The max wait time is 60 seconds.

## 12.7 AT^FTPSIZE Get file size

Command	Possible response(s)
AT^FTPSIZE=<filename>	<ul style="list-style-type: none"> <li>• <b>If success:</b> <ul style="list-style-type: none"> <li>– ^FTPSIZE:xxx</li> <li>– OK</li> </ul> </li> <li>• <b>If failed:</b> <ul style="list-style-type: none"> <li>– +CME ERROR: &lt;err&gt;</li> </ul> </li> </ul>

Parameters

<filename>: <string> The file name with full path which stored in FTP server.

Reference

- AT^FTPSIZE ="\\size.txt"
- ^FTPSIZE:xxx
- OK

Note: NULL

---

## 12.7. AT^FTPSIZE Get file size

## COAP COMMANDS

## Contents

- *AT^COAPGET Get the resource from COAP server*
- *AT^COAPPUT Update the resource from COAP server*
- *AT^COAPPOST Create the resource on the server*
- *AT^COAPDELETE Delete the resource on the server*
- *AT^COAPDATA Input the data from serial port or sscm tool*
- *AT^COAPREG Configuration data register to the server*
- *Parameters and response explanation*
- *Example of COAP client*

**13.1 AT^COAPGET Get the resource from COAP server**

Command	Possible response(s)
AT^COAPGET=<url>,<cmdline>,[timer]	If success it returns the resource length, contents and OK, if error it returns +CME ERROR: <err>

## Parameters

<url> A string parameter which is the address of the resource, usually the url includes uri-host, uri-port, uri-path and uri- query.

<cmdline> A string parameter which includes many optional parameters, each optional parameter must be followed by an optional tag.

[timer] A integer parameter which indicates the execution cycle of the request, and if timeout request must be terminated and clear the request.

## Max Response Time

If [timer] is not set, the max response time 90 seconds.

If [timer] is set, the max response time [timer]+5 seconds.

Note: GPRS or WIFI must be connected before AT+COAPGET executed.

**13.2 AT^COAPPUT Update the resource from COAP server**

Command	Possible response(s)
AT^COAPPUT=<url>,<cmdline>,[timer],[data]	If success it returns the resource length, contents and OK, if error it returns +CME ERROR: <err>

## Parameters

<url> A string parameter which is the address of the resource, usually the url includes uri-host, uri-port, uri-path and uri-query.

<cmdline> A string parameter which includes many optional parameters, each optional parameter must be followed by an optional tag.

[timer] A integer parameter which indicates the execution cycle of the request, and if timeout request must be terminated and clear the request.

[data]

- 0 No need data input
  - 1 need input data
  - 1 default value

## Max Response Time

If [timer] is not set, the max response time 90 seconds.

If [timer] is set, the max response time [timer]+5 seconds.

---

Note: Before executed COAPPUT needs GPRS or WIFI connect and data input, use AT^COAPDATA prepare the input resource data.

---

## 13.3 AT^COAPPOST Create the resource on the server

Command	Possible response(s)
AT^COAPPOST=<url>,<cmdline>,[timer],[data]	If success it returns the resource length, post contents and OK, if error ir returns +CME ERROR: <err>

## Parameters

See AT^COAPPUT command

## Max Response Time

If [timer] is not set, the max response time 90 seconds.

If [timer] is set, the max response time [timer]+5 seconds.

[timer] range of 1-120

## 13.4 AT^COAPDELETE Delete the resource on the server

Command	Possible response(s)
AT^COAPDELETE=<url>,<cmdline>,[timer]	If success it returns OK, if error ir returns +CME ERROR: <err>

## Parameters

See AT^COAPGET command

## 13.5 AT^COAPDATA Input the data from serial port or sscm tool

Command	Possible response(s)
AT^COAPDATA=<length>[, timer]	If success it returns OK, if error ir returns +CME ERROR: <err>

AT^COAPDATA=?	If success, it returns: +COAPDATA:<1-65535>[, [1-120]] & OK
---------------	---

Parameters

<length> 1 to 65535 The data length of input.

[timer] Timer is the data input cycle, if timeout data input must be terminated. The <length> is input data already. Max Response Time

If [timer] is not set, the max response time 90 seconds.

If [timer] is set, the max response time [timer]+5 seconds.

Note:

- If auto input end with resource or length or timer, if manual end with ctrl+z.
- The max wait time is 1-120 seconds.

### 13.6 AT^COAPREG Configuration data register to the server

Command	Possible response(s)
AT^COAPREG=<reset>	If success it returns OK, if error it returns +CME ERROR: <err>

Parameters

<reset> 1 Update the ICCID saved in NV item.

0 ICCID saved in NV item without updated.

Note: Don't support this cmd.

### 13.4. AT^COAPDELETE Delete the resource on the server

### 13.7 Parameters and response explanation

cmdline

- Cmdline include many optional parameters, each optional parameter must be followed by an optional tag, and cmdline also include must parameter uri, uri doesn't need tag but must be at the end of cmdline.
- General tag: -t content-format -p port -k psk -u userId

Content-Format

- The payload type of the coap message.
- 1: plain
- 2: text/plain
- 3: link
- 4: link-format



- 5: application/link-format
- 6: xml
- 7: binary
- 8: octet-stream
- 9: application/octet-stream
- 10: exi
- 11: application/exi
- 12: json
- 13: application/json

psk

- Pre-shared key for the specified user. This argument required with PSK to be available.

userId

- User identity for pre-shared key mode. This argument requires DTLS with PSK to be available.

port

- The coap default port is 5683. While coaps default port is 5684 which requires DTLS to be available.

url

- The address of the resource:
- 1: Uri-Host Option specifies the Internet host of the resource being requested.
- 2: Uri-Port Option specifies the transport-layer port number of the resource.
- 3: Uri-Path Option specifies one segment of the absolute path to the resource.
- 4: Uri-Query Option specifies one argument parameterizing the resource.

Server response error

- Client Error 4.xx
- 4.00 Bad Resuest
- 4.01 Unauthorized
- 4.02 Bad Option
- 4.03 Forbidden

- 4.04 Not Found
- 4.05 Method Not Allowed
- 4.06 Not Acceptable
- 4.12 Precondition Failed
- 4.13 Request Entity Too Large
- 4.15 Unsupported Content-Format
- Server Error 5.xx
- 5.00 Internal Server Error
- 5.01 Not Implemented
- 5.02 Bad Gateway
- 5.03 Service Unavailable
- 5.05 Proxying Not Supported

### 13.8 Example of COAP client

GPRS connected

1. *AT+CGATT=1*

- +CGATT:1
- OK

2. *AT+CGDCONT=1,"IP","cmnet"*

- OK

3. *AT+CGACT=1,1*

- OK

COAP command

1. *AT^COAPGET="coap://californium.eclipse.org:5683/", "-p 5683"*

- +COAP(448):
- \*\*\*\*\*
- CoAP RFC 7252 Cf 2.0.0-SNAPSHOT
- \*\*\*\*\*
- This server is using the Eclipse Californium (Cf) CoAP framework published under EPL+EDL: [http://www.eclipse.org/californium/\(c\) 2014, 2015, 2016 Institute for Pervasive Computing, ETH Zurich and others](http://www.eclipse.org/californium/(c) 2014, 2015, 2016 Institute for Pervasive Computing, ETH Zurich and others)
- \*\*\*\*\*
- OK

2. *AT^COAPDATA=11*

- testforpost
- OK

*AT^COAPPOST="coap://californium.eclipse.org:5683/large-post",-t text/plain -p 5683",20,1*

- *+COAP(11):TESTFORPOST*
- *OK*

### **13.8. Example of COAP client**

3. *AT^COAPDELETE="coap://californium.eclipse.org:5683/obs",-p 5683",20,1*

- *OK*

4. *AT^COAPDATA=10*

- *testforput*
- *OK*

*AT^COAPPUT="coap://californium.eclipse.org:5683/large-update",-t text/plain -p 5683",20,1*

- *OK*

## MQTT COMMANDS

## Contents

- *AT+MQTTCONN Create MQTT connection*
- *AT+MQTTSUBUNSUB Subscribe or Unsubscribe a MQTT topic*
- *AT+MQTTPUB Publish a MQTT message on topic*
- *AT+MQTTDISCONN Disconnect the MQTT connection*
- *Examples to use MQTT*

**14.1 AT+MQTTCONN Create MQTT connection**

Command	Possible response(s)
AT+MQTTCONN=<host>,<port>,<clientid>,<keepalive>,<cleansession>,[username],[password]	<ul style="list-style-type: none"> <li>• <b>success:</b> OK</li> <li>• <b>fail:</b> +CME ERROR: &lt;err&gt;</li> <li>• <b>connected timeout:</b> +MQTTDISCONNECTED:&lt;num&gt;</li> </ul>

## Parameters

<host> host name of MQTT server.

<port> port of MQTT server.

<clientid> client ID.

<keepalive> keep-alive of mqtt connection; range of [1-3600]; time in seconds.

<cleansession> whether clean session.

[username] user name.

[password] password.

## 14.2 AT+MQTTSUBUNSUB Subscribe or Unsubscribe a MQTT topic

Command	Possible response(s)
AT+MQTTSUBUNSUB=<topic>,<sub flag>,<qos>	<ul style="list-style-type: none"><li>• <b>success:</b> OK</li><li>• <b>fail:</b> +CME ERROR: &lt;err&gt;</li></ul>

### Parameters

<topic> topic of mqtt

<sub flag>

1: subscribe 0: unsubscribe

<qos> quality of service values include 0, 1, 2

---

### Note:

- The max wait time is 60 seconds.
- 

## 14.3 AT+MQTTPUB Publish a MQTT message on topic

Command	Possible response(s)
AT+MQTTPUB=<topic>,<message>,<qos>,<duplicate>,<retain>	<ul style="list-style-type: none"><li>• <b>success:</b> OK</li><li>• <b>fail:</b> +CME ERROR: &lt;err&gt;</li></ul>

### Parameters

<topic> topic of MQTT, see note for max length

<message> message to publish, see note for max length

<qos> quality of service values include 0, 1, 2

<duplicate> duplicate flag of MQTT, value include 0, 1

<retain> retain flag of MQTT, value include 0, 1

---

### Note:

- the max length of mqtt publish package is set to 256. the total length of topic, message and other mqtt package data must be no larger than it, other mqtt package data may use 9 byte at max, so the max length of topic and message is the length of mqtt publish package subtract the length of other mqtt package data
  - The max wait time is 60 seconds.
-

## 14.4 AT+MQTTDISCONN

## Disconnect the MQTT connection

Command	Possible response(s)
AT+MQTTDISCONN	<ul style="list-style-type: none"> <li>• <b>success:</b> OK</li> <li>• <b>fail:</b> +CME ERROR: &lt;err&gt;</li> </ul>

Parameters no

## 14.5 Examples to use MQTT

### 1) Connect to mosquitto

1. Craete MQTT connection AT+MQTTCONN ="test.mosquitto.org",1883, "rdatest",90,0
2. Subscribe a MQTT topic AT+MQTTSUBUNSUB ="/rda/test\_topic",1,1
3. Publish a MQTT message on topic AT+MQTTPUB ="/rda/test\_topic", "hello mqtt message published by RDA",1,0,0
4. Unsubscribe a MQTT topic AT+MQTTSUBUNSUB ="/rda/test\_topic",0
5. Disconnect MQTT connection AT+MQTTDISCONN

### 1) Connect to onenet

To connection to onenet, firstly we should register account on onenet website: <https://open.iot.10086.cn>, and create product and device, then we will get product id, device id, and auth\_info; use device id to fill clientid, product id to fill username, and auth\_info to fill password.

1. Craete MQTT connection AT+MQTTCONN ="183.230.40.39",6002, "23036025",120,0, "112333", "ABC123RDA"
2. Subscribe a MQTT topic AT+MQTTSUBUNSUB ="RDATEST\_TOPIC",1,1
3. Publish a MQTT message on topic AT+MQTTPUB ="RDATEST\_TOPIC", "hello mqtt published by rda",1,0,0
4. Unsubscribe a MQTT topic AT+MQTTSUBUNSUB ="RDATEST\_TOPIC",0
5. Disconnect MQTT connection AT+MQTTDISCONN



## ONENET MIPL COMMANDS

### Contents

- *AT+MIPLCREATE Create a basic communication suite instance*
- *AT+MIPLDELETE Delete a basic communication suite instance*
- *AT+MIPLOPEN Register to the OneNet platform*
- *AT+MIPLCLOSE Send a de-register request to the OneNet platform*
- *AT+MIPLADDOBJ Add a dynamic object for communication suite instance*
- *AT+MIPLDELOBJ Delete a dynamic object for communication suite instance*
- *AT+MIPLNOTIFY Notify OneNet platform a value change*
- *AT+MIPLREADRSP Read specific object resource value*
- *AT+MIPLWRITERSP Change specific object resource value*
- *AT+MIPLEXECUTERSP Perform on individual resources*
- *AT+MIPLOBSERVERSP Determine whether the observation command is valid*
- *AT+MIPLDISCOVERRSP Discover all attributes attached to an Object*
- *AT+MIPLPARAMETERRSP Notify the result for communication suite instances*
- *AT+MIPLUPDATE Update register informaton*
- *AT+MIPLVER Get communication suite instances version information*
- *AT+MIPLSETRAI Whether does or not release rrc connection right now*
- *AT+MIPLNMI Report a miplnsmi event to MCU after notify data*
- *AT+MIPLCLEARSTATE Clear the Fota config file*
- *AT+MIPLAUTHCODE Set onenet device auth code*
- *Example of OneNet lwm2m*

### 15.1 AT+MIPLCREATE Create a basic communication suite instance

Command	Possible response(s)
AT+MIPLCREATE	+MIPLCREATE:0 OK
AT+MIPLCREATE=<totalsize> <config>,<index>, <currentsize>,<flag>	OK or +CME ERROR: <err>
AT+MIPLCREATE=?	OK



OTHER	+CME ERROR: <err>
-------	-------------------

Parameters

<totalsize> Config file total length

<config> Config file

<index> Config file index

<currentsize> Current config file length

<flag> Message flag

0 Last config file

1 First config file

2 Middle config file

---

Note: 1.AT+MIPLCREATE is the standard command, it stores the host address and port data at code, if suite has been created, an error will be returned

2.AT+MIPLCREATE=<totalsize>,<config>,<index>,<currentsize>,<flag> is the old standard at command, but we always keep it

---

## 15.2 AT+MIPLDELETE Delete a basic communication suite instance

Command	Possible response(s)
AT+MIPLDELETE=<ref>	If success it returns OK, if error it returns +CME ERROR: <err>

Parameters

<ref> Basic communication suite instance index

---

Note: 1.Ref must be a unsigned integer

## 15.3 AT+MIPLOPEN Register to the OneNet platform

Command	Possible response(s)
AT+MIPLOPEN=<ref>,<lifetime>[,<timeout>]	If success it returns OK, +MIPLEVENT: 0, 4, +MIPLEVENT: 0,6, +MIPLDISCOVER:0,msgid, objectid, +MIPLOBSEVE:0,msgid,1,objectid, instanceid,-1, if error it returns +CME ERROR: <err>

Parameters

<ref> Basic communication suite instance index

<lifetime> Client register lifetime, the lifetime min value is 0XF, the max value is 0x0FFFFFFF

<timeout> Timeout duration of registration, it is not set, the default value is 60, min value is 0, max value is 60

## 15.4 AT+MIPLCLOSE Send a de-register request to the OneNet platform

Command	Possible response(s)
---------	----------------------

AT+MIPLCLOSE=<ref>	If success it returns OK, if error ir returns +CME ERROR: <err>
--------------------	---

## 15.5 AT+MIPLADDOBJ Add a dynamic object for communication suite instance

Command	Possible response(s)
AT+MIPLADDOBJ=<ref>, <objectid>, <instancecount>, <instancebitmap>, <attributecount>, <actioncount>	If success it returns OK, if error ir returns +CME ERROR: <err>

### Parameters

<ref> Basic communication suite instance index

<objectid> Object instance id

<instancecount> Object instance count

<instancebitmap> How many instance the object need to create

<attributecount> The attrubute count of writable and readable resource

<actioncount> The attrubute count of executable resource

### 15.3. AT+MIPLOPEN Register to the OneNet platform

## 15.6 AT+MIPLDELOBJ Delete a dynamic object for communication suite instance

Command	Possible response(s)
AT+MIPLDELOBJ=<ref>, <objectid>	If success it returns OK, if error ir returns +CME ERROR: <err>

### Parameters

<ref> Basic communication suite instance index

<objectid> Object id, the max value is 0xFFFF - 1

## 15.7 AT+MIPLNOTIFY Notify OneNet platform a value change

Command	Possible response(s)
AT+MIPLNOTIFY=<ref>, <msgid>,<objectid>, <instanceid>, <resourceid>, <valuetype>,<len>, <value>,<index>,<flag>[, <ackid>]	If success it returns OK, if error ir returns +CME ERROR: <err>

## Parameters

<ref> Basic communication suite instance index

<objectid> Message id, the max value is 0xFFFF - 1

<instanceid> Object instance id, the max value is 0xFFFF - 1

<resourceid> Object instance resource id, the max value is 0xFFFF - 1

<valuetype> Resource data type

1 String

2 Opaque

3 Integer

4 Float

5 Bool

<len> Resource data length, the length of String and Opaque are the string length within double quotes, and Bool length is 1, the Integer length is 2 or 4 or 8 byte, and the Float length is 4 or 8 byte

<value> Resource data

<index> The N message combination is a complete instruction, and the index is numbered from N-1 to 0, and when the index number is 0, the local Notify instruction is finished.

<flag> Message flag

0 Last config file

1 First config file

2 Middle config file

<ackid> MCU will report message by CON, if ignore ackid, the parameter count is ten, the +MIPLNSMI and +MIPLNOTIFY command will be not reported

## 15.8 AT+MIPLREADRSP Read specific object resource value

Command	Possible response(s)
AT+MIPLREADRSP=<ref>,<msgid>,<result>[,<objectid>,<instanceid>,<resourceid>,<valuetype>,<len>,<value>,<index>,<flag>]	If success it returns OK, if error it returns +CME ERROR: <err>

### Parameters

<ref> Basic communication suite instance index

<result>

1 2.05 Content read success

11 4.00 Bad Request

12 4.01 Unauthorized

13 4.04 Not Found

14 4.05 Method Not Allowed

15 4.06 Not Acceptable

<msgid> Message id

<objectid> Message id, the max value is 0xFFFF - 1

<instanceid> Object instance id, the max value is 0xFFFF - 1

<resourceid> Object instance resource id, the max value is 0xFFFF - 1

<valuetype> Resource data type

1 String

2 Opaque

3 Integer

4 Float

5 Bool

<len> Resource data length, the length of String and Opaque are the string length within double quotes, and Bool length is 1, the Integer length is 2 or 4 or 8 byte, and the Float length is 4 or 8 byte

<value> Resource data

<index> The N message combination is a complete instruction, and the index is numbered from N-1 to 0, and when the index number is 0, the local Notify instruction is finished.

<flag> Message flag

0 Last config file

1 First config file

2 Middle config file

---

### Note:

1. After receive the report command +MIPLREAD, it will send this AT command

2. If the result is 1, the number of the parameter must be 11, otherwise it will return error

---

### 15.8. AT+MIPLREADRSP Read specific object resource value

3. If the result is 11,12,13,14,15, the number of the parameter must be 3, otherwise it will return error

---

## 15.9 AT+MIPLWRITERSP Change specific object resource value

Command	Possible response(s)
AT+MIPLWRITERSP=<ref>,<msgid>,<result>	If success it returns OK, if error it returns +CME ERROR: <err>

Parameters

<ref> Basic communication suite instance index

<msgid> Message id

<result> Write resource result

2 2.04 Changed

11 4.00 Bad Request

12 4.01 Unauthorized

13 4.04 Not Found

14 4.05 Method Not Allowed

15 4.06 Not Acceptable

---

Note: 1. After receive the report command +MIPLWRITE, it will send this AT command

---

## 15.10 AT+MIPLEXECUTERSP Perform on individual resources

Command	Possible response(s)
AT+MIPLEXECUTERSP=<ref>,<msgid>,<result>	If success it returns OK, if error it returns +CME ERROR: <err>

Parameters

<ref> Basic communication suite instance index

<msgid> Message id

<result> Execute resource result

0 error

1 success

---

Note: 1. After receive the report command +MIPLEXECUTE, it will send this AT command

---

## 15.11 AT+MIPLOBSERVERSP Determine whether the observation command is valid

Command	Possible response(s)
AT+MIPLOBSERVERSP=<ref>,<msgid>,<result>	If success it returns OK, if error it returns +CME ERROR: <err>

### Parameters

<ref> Basic communication suite instance index

<msgid> Message id

<result> Observe resource result

0 error

1 success

---

Note: 1.After receive the report command +MIPLOBSERVERSP, it will send this AT command

2.The new msgid will overwrite the old msgid

---

## 15.12 AT+MIPLDISCOVERRSP Discover all attributes attached to an Object

Command	Possible response(s)
AT+MIPLDISCOVERRSP=<ref>,<msgid>,<result>,<length>,<valuestring>	If success it returns OK, if error it returns +CME ERROR: <err>

### Parameters

<ref> Basic communication suite instance index

<msgid> Message id

<result> the discover result

1 2.05 Content

11 4.00 Bad Request

12 4.01 Unauthorized

13 4.04 Not Found

14 4.05 Method Not Allowed

15 4.06 Not Acceptable

<length> Valuestring length

<valuestring> Object property requirements, comma partition, for example "1101;1102;1103"

---

Note: 1.After receive the report command +MIPLDISCOVER, it will send this AT command

2.The count of discovering resource must not be more than the actual resource count, but it can less than the actual resource count

---

### 15.11. AT+MIPOBSERVERSP Determine whether the observation command is valid

## 15.13 AT+MIPLPARAMETERRSP Notify the result for communication suite instances

Command	Possible response(s)
AT+MIPLPARAMETERRSP=<ref> <msgid>,<result>	If success it returns OK, if error it returns +CME ERROR: <err>

#### Parameters

<ref> Basic communication suite instance index

<msgid> Message id

<result> The operation result

0 error

1 success

---

Note: 1.After receive the report command +MIPLPARAMETERRSP, it will send this AT command

---

## 15.14 AT+MIPLUPDATE Update register informaton

Command	Possible response(s)
AT+MIPLUPDATE=<ref>, <lifetime>, <withObjectFlag>	If success it returns OK, if error it returns +CME ERROR: <err>

#### Parameters

<ref> Basic communication suite instance index

<lifetime> new lifetime

<withObjectFlag> Whether or not update the registered object

---

Note: 1.If the lifetime is zero, it will not change the lifetime

2.If the withObjectFlag is zero, just update registration, if withObjectFlag is 1, it will discover resource

---

## 15.15 AT+MIPLVER Get communication suite instances version information

Command	Possible response(s)
AT+MIPLVER?	+MIPLVER:VER <err>

## 15.16 AT+MIPLSETRAI Whether does or not release rrc connection right now

#### Description

The set command set the flag of whether does or not release the rrc connect after notify data to server, and read command will get the raimode flag

Command	Possible response(s)
AT+MIPLSETRAI?	If it have not registered to the onenet, it will return ERROR: 50, otherwise it will return +MIPLSETRAI: <raimode>
AT+MIPLSETRAI=<raimode>	OK or ERROR

Parameters

<raimode> The range is 0~2 0

don't release

1 release right now

2 release after receiving downlink data

## 15.17 AT+MIPLNMI Report a miplnsmi event to MCU after notify data

Description

After notify data to protocol stack, the protocol stack will report a ack, and if we send this command, it will report a +MIPLNSMI command

Command	Possible response(s)
AT+MIPLNMI?	+MIPLNMI:<nnmi>,<nsmi> OK
AT+MIPLNMI=<ref>,<nnmi>,<nsmi>	OK/ERROR

Parameters

<ref> Basic communication suite instance index

<nnmi> Accept the report information mode

0 default mode, report to MCU directly

1 just notify MCU there is a operation

2 do nothing

<nsmi> Whether does or not enable sending messages to the air interface status report

0 off

1 on

## 15.18 AT+MIPLCLEARSTATE Clear the Fota config file

Description

When device will have a Fota operation, it will save the download state, data length and result, sometimes it will have something wrong, so before register the server, the command can set flag whether does or not clear the save file

---

### 15.17. AT+MIPLNMI Report a miplnsmi event to MCU after notify data

Command	Possible response(s)
AT+MIPLCLEARSTATE=<flag>	OK/ERROR



## Parameters

<flag> the flag of clean fota state

0 don't clear

1 clear

## 15.19 AT+MIPLAUTHCODE Set onenet device auth code

### Description

When creating a device in onenet platform, it has a auth code item, it can be null, bu if the auth code is not null, and device register to the onenet platsorm

Command	Possible response(s)
AT+MIPLAUTHCODE=<auth_cod	>OK/ERROR

### Parameters

<auth\_code> If the onenet device has auth code, before registering onenet, it need to set auth code

## 15.20 Example of OneNet lwm2m

### 1) Activate net

1. AT+CGATT=1

OK

2. AT+CGDCONT=1, "IP", "cmnet"

OK

3. AT+CGACT=1,1

OK

### 2) Get device IMEI and IMSI

1. at+egmr=1,7, "862391039046100" // set device IMEI, if the IMET exists, ignore this step

OK

2. at+egmr=2,7 // get device IMEI

+EGMR:862391039046100

OK

3. at+cimi // get device IMSI

460111175062972

OK

---

Note: After we get the IMEI and IMSI, we should create device in the ONENET platform with the IMEI and IMSI

---

3) Create a basic communication suite instance

1. AT+MIPLCREATE

+MIPLCREATE:0

OK

4) Add a dynamic object for communication suite

instance 1. AT+MIPLADDOBJ=0,3303,2, "11",6,1

OK

2. AT+MIPLADDOBJ=0,3306,1, "1",5,0

OK

5) Register to the OneNet

platform 1.

AT+MIPLOPEN=0,3600,30

OK

+MIPLEVENT: 0, 0x06 // Register success

2. +MIPLDISCOVER:0,61350,3303 // Get object 3303 resource id

AT+MIPLDISCOVERRSP=0,61350,1,34, "5700;5601;5602;5603;5604;5701;5605"

OK

3. +MIPLDISCOVER:0,61351,3306

AT+MIPLDISCOVERRSP=0,61351,1,24, "5850;5851;5852;5853;5750"

OK

4. +MIPLOBSEVE:0,4937,1,3303,0,-1

AT+MIPLOBSEVERSP=0,4937,1

OK

5. +MIPLOBSEVE:0,4938,1,3306,0,-1

AT+MIPLOBSEVERSP=0,4938,1

OK

---

Note: +MIPLDISCOVER and +MIPLOBSEVE are report command, and after receive these commands, MCU will send AT+MIPLDISCOVERRSP and AT+MIPLOBSEVERSP command.

---

6) Read resource value

1. +MIPLREAD:0,39279,3303,0,5700 // Read one resource

AT+MIPLREADRSP=0,39279,1,3303,0,5700,4,13, "6.92655815081",0,0

OK

2. +MIPLREAD:0,39280,3303,0,-1,7 // Read one instance resources

---

AT+MIPLREADRSP=0,39280,1,3303,0,5700,4,13, "7.57421538099",6,0

AT+MIPLREADRSP=0,39280,1,3303,0,5601,4,13, "5.67451324594",5,0

AT+MIPLREADRSP=0,39280,1,3303,0,5602,4,13, "5.58077212636",4,0

#### 15.20. Example of OneNet lwm2m

AT+MIPLREADRSP=0,39280,1,3303,0,5603,4,13, "6.73103056235",3,0

AT+MIPLREADRSP=0,39280,1,3303,0,5604,4,13, "3.28244762159",2,0

AT+MIPLREADRSP=0,39280,1,3303,0,5701,1,5, "9Y5FC",1,0

AT+MIPLREADRSP=0,39280,1,3303,0,5605,1,5, "UXDPF",0,0

---

Note: +MIPLREAD is report command, when server wants to read object all resources, it will read every instance resources like step two, it will send different instance id

---

#### 7) Write resource

1. +MIPLWRITE:0,43357,3306,0,5850,2,1,01,0,0

AT+MIPLWRITERSP=0,43357,2

---

Note: The value must be hexstring

---

#### 8) Observe resource value

1. +MIPLPARAMETER:0,41208,3303,0,5700,34,pmin=15; pmax=60; gt=0; lt=0; st=0

AT+MIPLPARAMETERRSP=0,41208,3303,0,5700, "pmin=15; pmax=60; gt=0; lt=0; st=0",34

OK

2. +MIPLOBSERVE:0,39283,0,3303,0,5700 // one resource

AT+MIPLOBSERVERSP=0,39283,1

OK

3. +MIPLOBSERVE:0,39284,0,3303,0,-1 // instance resource

AT+MIPLOBSERVERSP=0,39284,1

OK

4. +MIPLOBSERVE:0,39285,0,3303,-1,-1 // object resource

AT+MIPLOBSERVERSP=0,39285,1

OK

#### 9) Cancel observe

1. +MIPLOBSERVE:0,1063,0,3303,0,5700

AT+MIPLOBSERVERSP=0,1063,1

OK

2. +MIPLOBSERVE:0,1064,0,3303,0,-1

---

AT+MIPLOBSEVERSP=0,1064,1

OK

3. +MIPLOBSEVER:0,1065,0,3303,-1,-1

AT+MIPLOBSEVERSP=0,1065,1

10) Notify data

1. AT+MIPLNOTIFY=0,5555,3303,0,5700,4,3, "9.8",0,0,15

OK

+MIPLEVENT:0,0x0b,15

Note: After we change resource value, and it has a watcher, it will read the value, and report to server

---

11) Update register

1. AT+MIPLUPDATE=0,3600,0

+MIPLEVENT:0,0x0a

OK

12) Delete object

1. AT+MIPLDELOBJ=0,3306

OK

13) De-register

1. AT+MIPLCLOSE=0

OK

14) Delete combination suite

1. AT+MIPLDELETE=0

OK

15) Data report

1. AT+MIPLNOTIFY=0,5555,3303,0,5700,4,3,8.8,0,0,15

OK

16) BootStrap

1. AT+MIPLCREATE ="-n sda18810;da18810 -h 183.230.40.39 -b -p 5683 -4 -t  
60"

0

OK

+MIPLEVENT:0,0x01

+MIPLEVENT:0,0x02

+MIPLEVENT:0,0x04

+MIPLEVENT:0,0x06

---

Note: other operation refer to step 1

---

---

## 15.20. Example of OneNet lwm2m

DM COMMANDS

Contents

- *AT+SELFREGISTER* Set the flag of operator self-register
- *AT+SETDMADPPPLATFORM* Select the test platform

**16.1 AT+SELFREGISTER Set the flag of operator self-register**

Command	Possible response
AT+SELFREGISTER=<OPERATOR> [,<FLAG>]	OK or ERROR if parameter count is 1, it will return +SELFREGISTER: <FLAG>]

Parameters

<OPERATOR>

operator name

0 CMCC

1 UNICOM

2 CTCC

<FLAG> flag

0 turn off self-register

1 turn on self-register

Note:

- After save the flag, it need to reboot, so when pdp is active, it can register to the DM platform automatically

Example

AT+SELFREGISTER=0, 1  
OK

---

## 16.2 AT+SETDMADPPLATFORM Select the test platform

Command	Possible response
AT+SETDMADPPLATFORM=<flag>	OK
AT+SETDMADPPLATFORM=?	+SETDMADPPLATFORM: (list of supported <flag>s))
AT+SETDMADPPLATFORM?	+SETDMADPPLATFORM: <flag> OK

### Parameters

<flag> platform flag

0 adapter platform

1 commercial platform

---

### Note:

- CMCC tester can set the register status in the browser
  - The flag is not stored in the flash, when device reboot, it need to set again
- 

### Example

---

```
AT+SETDMADPPLATFORM=1
OK AT+SETDMADPPLATFORM?
```



---

**FILESYSTEM COMMANDS**
**Contents**

- *AT+FSDWNFILE Write File*
- *AT+FSLSTFILE List Files Information*
- *AT+FSRDFILE Read File*
- *AT+FSRDBLOCK Partial Read File*
- *AT+FSDELFILE Delete File*
- *AT+FSMKDIR Create Directory*
- *AT+FSRMDIR Remove Directory*
- *AT+FSLSTPART List Partition Information*
- *AT+FSREMOUNT Remount Partition*

**17.1 AT+FSDWNFILE Write File**

Command	Possible response(s)
AT+FSDWNFILE=<filename>,<size>[,<tag>]>text	<ul style="list-style-type: none"> <li>• OK</li> </ul>
AT+FSDWNFILE=?	<ul style="list-style-type: none"> <li>• +FSDWNFILE: filename,size[,tag]</li> <li>• OK</li> </ul>

Example:

```
AT+FSDWNFILE="test",10
```

```
>  
1234567890  
OK
```

#### Description

Stores(writes) a file into the file system. The stream of bytes can be entered after the > prompt has been provided to the user. The file transfer is terminated exactly when <size> bytes have been sent entered and either "OK" final result code or an error result code is returned. The feed process cannot be interrupted i.e. the command mode is re-entered once the user has provided the declared the number of bytes.

In implementation, <size> is limited to AT\_CMD\_LINE\_BUFF\_LEN (5KB by default). When <size> is larger than AT\_CMD\_LINE\_BUFF\_LEN, it will return error.

## Parameters

<filename> File's name. It is an utf-8 string, and file name length must smaller than <specific fs>\_FILE\_NAME\_MAX (mostly default 64 bytes)

<size> File size expressed in bytes, must larger than zero, and smaller than min(AT\_CMD\_LINE\_BUFF\_LEN, file system size).

<tag> Option parameter that specifies the application file type

<text> Stream of bytes

## 17.2 AT+FSLSTFILE List Files Information

Command	Possible response(s)
AT+FSLSTFILE=?	OK
AT+FSLSTFILE=<filename>	+FSLSTFILE:[<filename1>[,<size>]] OK
AT+FSLSTFILE=<dir>	+FSLSTFILE:[<subdir>] +FSLSTFILE:[<filename1>[,<size1>]] +FSLSTFILE:[<filename2>[,<size2>]] OK

Example:

```
AT+FSLSTFILE="modemnv/rf_nv.bin"
+FSLSTFILE:"modemnv/rf_nv.bin", 1234
OK

AT+FSLSTFILE="/"
+FSLSTFILE: "/modemnv"
+FSLSTFILE: "/nv"
+FSLSTFILE: "/fota"
OK

AT+FSLSTFILE="/modemnv"
+FSLSTFILE:"modemnv/rf_nv.bin", 1234
+FSLSTFILE:"modemnv/static_nv_2.bin",
2351
OK
```

## Description

List the files and directory of a directory or a file. Just like shell command ls.

## Parameters

<filename> the file name

<dir> the directory name

<size> the file size in byte

### 17.3 AT+FSRDFILE Read File

Command	Possible response(s)
AT+FSRDFILE=<filename>[,<tag>]	<ul style="list-style-type: none"> <li>• +FSRDFILE:&lt;filename&gt;,&lt;size&gt;,&lt;data&gt;</li> <li>• OK</li> </ul>
AT+FSRDFILE=?	<ul style="list-style-type: none"> <li>• +FSRDFILE: file_name[,tag]</li> <li>• OK</li> </ul>

Example:

```
AT+FSRDFILE="test" +FSRDFILE:
test,10,1234567890
OK
AT+FSRDFILE="test2" +FSRDFILE:
test2,100000,
OK
```

#### Description

Retrieves a file from the file system. When the file size is larger than AT\_CMD\_LINE\_BUFF\_LEN, only the file name and size will be output, and the file data will be ignored.

#### Parameters

<tag> Specifies the application file type

<filename> File name

<data> File content

<size> File size, in bytes

### 17.4 AT+FSRDBLOCK Partial Read File

Command	Possible response(s)
AT+FSRDBLOCK=<filename>,<offset>,<size>[,<tag>]	<ul style="list-style-type: none"> <li>• +FSRDBLOCK:&lt;filename&gt;,&lt;size&gt;,&lt;data&gt;</li> <li>• OK</li> </ul>
AT+FSRDBLOCK=?	<ul style="list-style-type: none"> <li>• +FSRDBLOCK: filename,offset,size[,tag]</li> <li>• OK</li> </ul>

Example:

### 17.3. AT+FSRDFILE Read File

```
AT+FSRDBLOCK="test",5,5 +FSRDBLOCK:
test,5,67890
OK
```

#### Description

Retrieves a file from the file system. this command allows the user to read only a portion of the file. <size> should be larger than zero, and smaller than AT\_CMD\_LINE\_BUFF\_LEN.

When <offset> is larger than or equal to file size, it will return error.

The returned <size> is the real data size. It may less than the <size> in parameter.

#### Parameters

<filename> File name

<offset> Offset in bytes from the beginning of the file

<size> Number of bytes to be read starting from the <offset>

<data> Content of the file read

<tag> Specifies the application file type

## 17.5 AT+FSDELFILE Delete File

Command	Possible response(s)
AT+FSDELFILE=<filename>[,<tag>]	<ul style="list-style-type: none"> <li>• <b>If success</b> – OK</li> <li>• <b>If failed</b> – +CME ERROR &lt;err&gt;</li> </ul>
AT+FSDELFILE=?	<ul style="list-style-type: none"> <li>• +FSDELFILE: filename[,tag]</li> <li>• OK</li> </ul>

Example:

```
AT+FSDELFILE="test"
OK
```

#### Description

Deletes a stored file from the file system.

#### Parameters

<filename> File name

<tag> Specifies the application file type

## 17.6 AT+FSMKDIR Create Directory

Command	Possible response(s)
AT+FSMKDIR=<dirname>	+CME ERROR: <err>
AT+FSMKDIR=?	OK

Example:

```
AT+FSMKDIR="dir"
```

```
OK
```

#### Description

Create a directory on file system.

#### Parameters

<dirname> Directory name

## 17.7 AT+FSRMDIR Remove Directory

Command	Possible response(s)
AT+FSRMDIR=<dirname>	+CME ERROR: <err>
AT+FSRMDIR=?	OK

Example:

```
AT+FSRMDIR="dir"  
OK
```

#### Description

Remove an empty directory on file system.

#### Parameters

<dirname> Directory name

## 17.8 AT+FSLSTPART List Partition Information

Command	Possible response(s)
AT+FSLSTPART	+FSLSTPART: <mount_point>,<available_size> +FSLSTPART: <mount_point>,<available_size> CME ERROR: <ERR>
AT+FSLSTPART=?	OK

Example:

```
AT+FSLSTPART  
+FSLSTPART: "/",100  
+FSLSTPART: "/factory",200  
OK
```

## 17.6. AT+FSMKDIR Create Directory

#### Description

List all partition, and available size in bytes of each partition.

<mount\_point> Partition mount point

<available\_size> Partition available size in bytes

## 17.9 AT+FSREMOUNT Remount Partition

Command	Possible response(s)
---------	----------------------

AT+FSREMOUNT=<mount_point>,<mount_flags>	CME ERROR: <ERR>
AT+FSREMOUNT=?	OK

Example:

```
AT+FSREMOUNT="/factory",0
OKAT+FSREMOUNT="/factory",1
OK
```

**Description**

List all partition, and available size in bytes of each partition.

<mount\_point> Partition mount point

<mount\_flags>

0	mount as read-write
1	mount as read-only

## USB COMMANDS

## Contents

- *AT+USBSWITCH ON/OFF USB function*
- *AT+USBRMTWK invoke remote wakeup*

**18.1 AT+USBSWITCH ON/OFF USB function**

## Syntax

Command	Possible response(s)
AT+USBSWITCH=?	+USBSWITCH: (0,1) 0. Disable 1. Enable OK
AT+USBSWITCH?	+USBSWITCH: <enable> OK
AT+USBSWITCH=1	OK

## Parameters

<enable> "1. Enabled" or "0. Disabled"

## Reference:

AT+USBSWITCH=?

+USBSWITCH: (0,1) 0. Disable USB 1. Enable USB

OK

AT+USBSWITCH?

+USBSWITCH: 1. Enabled

OK

AT+USBSWITCH=0

OK

## Description



---

Enable/Disable the USB function

---

## 18.2 AT+USBRTWK invoke remote wakeup

Syntax

Command	Possible response
AT+USBRTWK	OK

Description

This command will invoke remote wakeup, and always response OK.

If the device is suspended, the command will wakeup the device and host else do nothing.

## SYSNV COMMANDS

## Contents

- *AT+SYSNV SET/READ current system NV value*

**19.1 AT+SYSNV SET/READ current system NV value**

## Syntax

Command	Possible response(s)
AT+SYSNV=?	+SYSNV: "ap_trace_en", "0.Disable; 1.Enable" +SYSNV: "deep_sleep_en", "0.Disable; 1.Enable" +SYSNV: "psm_sleep_en", "0.Disable; 1.Enable" +SYSNV: "usbmode", "0.Charger only; 1.RDA (8910 ROM) serial; 2.Eight serials; 3.RNDIS and serials; 4.SPRD U2S Diag; 5.ECM and serials" +SYSNV: "diag_device", "1.diag device uart; 2.diag device usb serial" OK
AT+SYSNV=0, <item>	+SYSNV: "<item>", <value> OK
AT+SYSNV=1, <item>, <value>	OK

## Parameters

<item> the item name

<value> the value to be set

## Reference:

AT+SYSNV=?

+SYSNV: "ap\_trace\_en", "0.Disable; 1.Enable" +SYSNV: "deep\_sleep\_en",  
"0.Disable; 1.Enable" +SYSNV: "psm\_sleep\_en", "0.Disable; 1.Enable"

OK

AT+SYSNV=0, "ap\_trace\_en"

---

+SYSNV: "ap\_trace\_en",1

OK

---

AT+SYSNV=1, "ap\_trace\_en",1

OK

#### Description

Set/Read SYSNV item value. This DOC can not enumerate all the items because they are always changing.

Read the item use *AT+SYSNV=0, "<item>"*, set item with *AT+SYSNV=1, "<item>,<value>"*. And

---

`AT+SYSNV=?` will list all available items.



---

## GDW EXTENDED COMMANDS

### Contents

- *AT\$MYPOWEROFF Power off the device*
- *AT\$MYSOCKETLED Network status indicator LED control*
- *AT\$MYGMR Get MT Revision Identification*
- *AT\$MYCCID Request ICC Identification*
- *AT\$MYNETURC Turn on/off unsolicited report*
- *AT\$MYTYPE Query remote communication element type*
- *AT\$MYNETCON Initial network configuration*
- *AT\$MYNETACT Active/deactive network connection*
- *AT\$MYIPFILTER IP access filter control*
- *AT\$MYNETSRV Configure service parameter*
- *AT\$MYNETOPEN Open service*
- *AT\$MYNETREAD Read data*
- *AT\$MYNETWRITE Send data*
- *AT\$MYNETCLOSE Close connection*
- *AT\$MYNETACK Query TCP ACK count by peer*
- *AT\$MYNETACCEPT Accept listening request*
- *AT\$MYNETCREATE Open service*
- *AT\$MYURCREAD Unsolicited report for data incoming*
- *AT\$MYURCCLOSE Unsolicited report for socket close*
- *AT\$MYURCACT Unsolicited report for network connection status*
- *AT\$MYURCLIENT Unsolicited report for client connection*
- *AT\$MYURCFTP Unsolicited report for FTP disconnected*
- *AT\$MYFTPOPEN Open FTPservice*
- *AT\$MYFTPCLOSE Close FTPservice*
- *AT\$MYFTPSIZE Get file size*
- *AT\$MYFTPGET File download*
- *AT\$MYFTPPUT File upload*
- *AT\$MYBCCH(for 8910 is AT+LOCKBCCH) Lock BCCH*

- *AT\$MYBAND Lock GSM band*
- *AT\$MYSYSINFO Check network mode and info*
- *AT\$MYSYSMODE Set network mode*

## 20.1 AT\$MYPOWEROFF Power off the device

Description

Power off the device. After execute this command, the device will power off.

Command	Possible response
AT\$MYPOWEROFF	OK

## 20.2 AT\$MYSOCKETLED Network status indicator LED control

Description

Network status indicator LED control

Command	Possible response
AT\$MYSOCKETLED=<mode>	OK

Parameter

<mode>:

0 LED on when socket inactive

1 LED on when socket active

## 20.3 AT\$MYGMR Get MT Revision Identification

Description

Get MT Revision Identification

Parameter

<module\_manufacture> 4 byte ASCII

<module\_model> 8 bytes ASCII

<firmware\_version> 4 bytes ASCII

<firmware\_release\_date> firmware release date, format is DDMMYY

<module\_hardware\_version> 4 bytes ASCII

<module\_hardware\_release\_date> format same as firmware\_release\_date

## 20.4 AT\$MYCCID Request ICC Identification

Description

Request ICC Identification

Command	Possible response
AT\$MYCCID	\$MYCCID: <CCID>

Parameter

<CCID> SIM CCID read from SIM card

## 20.5 AT\$MYNETURC Turn on/off unsolicited report

Description Turn on/off unsolicited report

Command	Possible response
AT\$MYNETURC=<mode>	OK

Parameter

**<mode>**:

- 0 unsolicited report off
- 1 unsolicited report on (default)

## 20.6 AT\$MYTYPE Query remote communication element type

Description

Query remote communication element type

Command	Possible response
AT\$MYTYPE?	\$MYTYPE: <mode>,<network_type>,<extended_feature> OK

Parameter

**<mode>**:

- bit 0: support transparent mode
- bit 1: support AT command mode

**<network\_type>**: bit 0: support GPRS bit 1: support WCDMA bit 2: support TDS-CDMA bit 3: support CDMA 2000 bit 4: support CDMA EVDO bit 5: support LTE bit 6: support PSTN bit 7: means have 1 more byte for extra feature

**<extended\_feature>**:

- bit 0: support GPS

### 20.5. AT\$MYNETURC Turn on/off unsolicited report

- bit 1: support Beidou
- bit 7: means have 1 more byte for extra feature



## 20.7 AT\$MYNETCON Initial network configuration

Description

Initial network configuration

Command	Possible response
AT\$MYNETCON=<channel>,<type>,<typename>	OK

Parameter

**<channel>:**

channel id, 0~5

**<type>,<typename>:**

type	typename
userpwd	string, "user,pwd"
APN	string, APN
CFGT	wait time for every packet, 0~65535ms, default 100ms ( in transparent mode)
CFGP	CFGP limit size, 1-1460, default 1024 ( in transparent mode)
AUTH	auth type, 0-none 1-PAP(default) 2-CHAP

## 20.8 AT\$MYNETACT Active/deactive network connection

Description

Active/deactive network connection

Command	Possible response
AT\$MYNETACT?	\$MYNETACT: <channel>,<status>,<ip> OK
AT\$MYNETACT	\$MYNETACT: <status>,<channel> OK
AT\$MYNETACT=<channel>,<action>	OK

Parameter

**<channel>:**

channel id, 0~5

**<action>:**

0 deactive PDP

1 active PDP

**<status>:**

0 not active

1 active

**<ip>:** if active, local IP; if not active, "0.0.0.0"

---

Note:

- The max wait time is 60 seconds.

## 20.9 AT\$MYIPFILTER IP access filter control

### Description

When device work in server mode, configure legal IP address that can access from remote client.

Command	Possible response
AT\$MYIPFILTER?	\$MYIPFILTER: <id>,<ip_address>,<net_mask> OK
AT\$MYIPFILTER=?	\$MYIPFILTER: <id>,<ip_address>,<net_mask>
AT\$MYIPFILTER=<id>,<action>,<ip_address>,<net_mask>	OK

### Parameter

<id>: integer type, 0~4

#### <action>:

- 0 delete IP
- 1 add IP
- 2 delete all IP

<ip\_address>,<net\_mask>: string, format is xx.xx.xx.xx

## 20.10 AT\$MYNETSRV Configure service parameter

### Description

Configure service parameter

Command	Possible response
AT\$MYNETSRV=<Channel>,<SocketID>,<nettype>,<viewMode>,<ip:port>	<viewMode>,<ip:port>OK
AT\$MYNETSRV?	\$MYNETSRV: <Channel>,<SocketID>,<nettype>,<viewMode>,<ip:port> OK

### Parameter

#### 20.9. AT\$MYIPFILTER IP access filter control

<Channel> integer channel

id, 0~5

<SocketID> integer socket  
 index, 0~5  
 <nettype> integer mode, 0-TCP client 1-TCP Server 2-UDP  
 client  
 <viewMode> integer type,display type, 0-hex mode 1-  
 text mode  
 <ip:port> string type, should be  
 "IP:PORT"

Example

AT\$MYNETSRV=0,0,0,0,"172.22.33.2:5000"

OK

AT\$MYNETSRV=0,2,0,1,"182.120.50.45:7200"

OK

## 20.11 AT\$MYNETOPEN Open service

Description

Open service

Command	Possible response
AT\$MYNETOPEN=<SocketID>	\$MYNETOPEN: <SocketID>,<Remote_MSS> OK
AT\$MYNETOPEN?	\$MYNETOPEN:<SocketID>,<LocalIP>, <local_port>,<gate>, <DNS1>,<DNS2>,<type>,< dest_ip>,<dest_port> OK
AT\$MYNETOPEN=?	\$MYNETOPEN:<SocketID> OK

Parameter

<SocketID> integer socket  
 index, 0~5

<Remote\_MSS> integer, MSS when open TCP  
 connection success

<LocalIP>  
 string, local IP

<local\_port>

integer

<gate>,<DNS1>,<DNS2>

string, IP

<type>

0-TCP client 1-TCP server 2-UDP client

<local\_port>

integer

<dest\_ip>

String, IP to connect (when no connection, will be 0.0.0.0)

<dest\_port> integer, port to connect (when no connection,  
will be 0)

Example

AT\$MYNETOPEN=0

\$MYNETOPEN: 0,1460

OK

---

Note:

- The max wait time is 90 seconds.
- 

## 20.12 AT\$MYNETREAD Read data

Description

Read data

Command	Possible response
AT\$MYNETREAD=<SocketID>,<data_len>	\$MYNETREAD: <SocketID>,<data_length> data OK

Parameter

<SocketID> integer socket

index, 0~5

<data\_len> data length requested,

1~1460

<data\_length> data length

read 1~1460

### 20.12. AT\$MYNETREAD Read data

### Example

AT\$MYNETREAD=0,1408

\$MYNETREAD: 0,10

1234567890

OK

## 20.13 AT\$MYNETWRITE Send data

### Description

Send data

Command	Possible response
AT\$MYNETWRITE=<SocketID>,<data_len>	<SocketID>,<data_len> <input_data> OK

### Parameter

<SocketID> integer socket

index, 0~5

<data\_len> data length to transfer,

1~1460

<input\_data>

data

### Example

---

### Note:

- The max wait time is 60 seconds.
- 

---

AT\$MYNETWRITE=2,12 \$MYNETWRITE=2,12 112233445566 OK

---

## 20.14 AT\$MYNETCLOSE Close connection

### Description

Close connection

Command	Possible response
---------	-------------------

AT\$MYNETCLOSE=<SocketID>	\$MYURCCLOSE:<SocketID> OK
---------------------------	-------------------------------

Parameter

<SocketID> integer socket  
index, 0~5

Note:

- The max wait time is 60 seconds.

## 20.15 AT\$MYNETACK Query TCP ACK count by peer

Description

Query TCP ACK Configuration

Command	Possible response
AT\$MYNETACK=<SocketID>	\$MYNETACK:<SocketID>, <unAked_dataLen>,<rest_bufferLen> OK

Parameter

<SocketID> integer socket  
index, 0~5

<unAked\_dataLen> ack count,  
max is 2<sup>32</sup>-1

<rest\_bufferLen> remain buffer count in device,  
max is 2<sup>32</sup>-1

## 20.16 AT\$MYNETACCEPT Accept listening request

Description

This command is for server mode. When command executed, can send/receive data. When work in transparent mode, only one socket can be established. If close this socket, all connections will be closed.

Command	Possible response
AT\$MYNETACCEPT=<SocketID>,<action>, <transportMode>	OK CONNECT

AT\$MYNETACCEPT?	\$MYNETACCEPT: <SocketID>,<action>,<transportMode> OK
------------------	---

### 20.15. AT\$MYNETACK Query TCP ACK count by peer

Parameter

<SocketID> integer socket

index, 0~5

<action> integer, 0-accept 1-

refuse

<transportMode> integer, 0-cmd mode 1-

transparent mode

Note:

When use <transportMode>=0, reponse OK if success.

When use <transportMode>=1, reponse CONNECT if success.

Example

AT\$MYNETSRV=0,2,1,0, "127.0.0.1:5100"

OK

AT\$MYNETOPEN=2

\$MYNETOPEN: 2

OK

\$MYURCLIENT: 1, "172.16.23.100",31256

AT\$MYNETACCEPT=1,0,0

OK

## 20.17 AT\$MYNETCREATE Open service

Description

The device will enter transparent mode after execute this command. Same command is +++. Use AT\$MYNETCLOSE to close service. Can use ATO to switch from transparent mode to command mode. The Pdp should be activated(MYNETACT) before execute this command.

Command	Possible response
AT\$MYNETCREATE=<channel>,<mode>, <SocketID>,<ip>,<port>[, <local_port>]	CONNECT OK
AT\$MYNETCREATE	\$MYNETREADY: <TYPE>,<SocketID> OK

Parameter

<channel> channel id, 0~5

<mode> 0~2

<TYPE> 0-TCP client 1-TCP server 2-UDP

<SocketID> socket id, 0~5



---

<ip> string, ip address

<port> integer, port

<local\_port> integer, local port

Example

---

Note:

- The max wait time is 90 seconds.
- 

---

AT\$MYNETCREATE=1,2,2, "172.22.44.123",5300,3000

CONNECT

OK

---

## 20.18 AT\$MYURCREAD Unsolicited report for data incoming

Description

Unsolicited report for data incoming

Command	Possible response
	\$MYURCREAD: <SocketID>

Parameter

<SocketID> socket

id, 0~5

## 20.19 AT\$MYURCCLOSE Unsolicited report for socket close

Description

Unsolicited report for socket close

Command	Possible response
	\$MYURCCLOSE: <SocketID>

Parameter

<SocketID> socket id, 0~5

## 20.20 AT\$MYURCACT Unsolicited report for network connection status

Description

Unsolicited report for network connection status

---

### 20.18. AT\$MYURCREAD Unsolicited report for data incoming

Command	Possible response
	\$MYURCACT: <con>,<type>,<IP>

#### Parameter

<con> channel id, 0~5

<type> 0-disconnected 1-connected

<IP> IP address

#### Example

```
AT$MYNETCON=1, "APN", "CMNET"
```

```
OK
```

```
AT$MYNETCON=1, "Userpwd", "user,password"
```

```
OK
```

```
AT$MYNETACT=1,1
```

```
OK
```

```
$MYURCACT: 1,1, "172.168.1.15"
```

### 20.21 AT\$MYURCLIENT Unsolicited report for client connection

#### Description

After start server listening, when client connect, will report this message.

Command	Possible response
	\$MYURCLIENT: <SocketID>,<IP>,<port>

#### Parameter

<SocketID> socket id, 0~5

<IP> string

<port> integer, port number

#### Example

```
AT$MYNETSRV=0,2,1,0, "127.0.0.1:5100"
```

```
OK
```

```
AT$MYNETOPEN=2
```

```
$MYNETOPEN: 2
```

```
OK
```

```
$MYURCLIENT: 1, "172.16.23.100",31256
```

### 20.22 AT\$MYURCFTP Unsolicited report for FTP disconnected

#### Description

Unsolicited report for FTP disconnected

Command	Possible response
	\$MYURCFTP: <Status>

Parameter

<Status>

0 FTP command socket disconnected

1 FTP data socket disconnected

## 20.23 AT\$MYFTPOPEN Open FTP service

Description

Open FTP service. The device can only establish one FTP service, which will use 2 different socket id. When FTP service running, cannot do other transparent transportation.

Command	Possible response
AT\$MYFTPOPEN=<Channel>,<destination_ip/url>,<username>,<password>,<mode>,<Tout>,<FTPtype>	\$MYFTPOPEN: <connection_status> OK
AT\$MYFTPOPEN?	\$MYFTPOPEN: <connection_status> OK
AT\$MYFTPOPEN=?	\$MYFTPOPEN:(<destination_ip/url>,<username>,<password>),<account>,(range of supported port's),<range of supported port's>,<range of supported port's>] OK

Parameter

<Channel> integer, channel

number

<destination\_ip/url> string, IP or URL,

max length 255

<username> string, username for FTP, max

length 255

<password> string, password for FTP, max

length 255

<mode> integer, 0-active mode 1-passive

---

mode

### 20.23. AT\$MYFTPOPEN Open FTP service

<Tout> integer, idle time, 5~30s, default

30

<FTPtype> integer, 0-binary mode (default) 1-text

mode

<connection\_status> integer,

1-success 0-fail

Example

```
AT$MYFTPOPEN=1, "someftpsite.com", "anonymous", "qwerty@somemail.com",1,30,1
```

OK

```
AT+CMEE=2
```

OK

```
AT$MYFTPOPEN=1, "someftpsite.com", "anonymous", "qwerty@somemail.com",1,30,1
```

OK

```
AT$MYFTPOPEN=1, "anotherftpsite.com", "anonymous", "qwerty@somemail.com",1,30,1 +CME ERROR: FTP session is active
```

---

Note:

- The max wait time is 60 seconds.
- 

### 20.24 AT\$MYFTPCLOSE Close FTP service

Description Close  
FTP service

Command	Possible response
AT\$MYFTPCLOSE	OK

---

Note:

- The max wait time is 60 seconds.
- 

### 20.25 AT\$MYFTPSIZE Get file size

Description Get  
file size

Command	Possible response
---------	-------------------

AT\$MYFTPSIZE=<File_Name>	\$MYFTPSIZE: <File_length> OK
---------------------------	----------------------------------

Parameter

<File\_Name> string, file name to be download  
or upload

<File\_length> integer, file size to be download, max  
is 2^32-1

Note:

- The max wait time is 60 seconds.

## 20.26 AT\$MYFTPGET File download

Description

Download a file from server.

Command	Possible response
AT\$MYFTPGET=<File_Name>, [<data_offset>,<data_Length>]	CONNECT <file_content> OK

Parameter

<File\_Name> string, file name to  
download

<data\_offset> integer, from which offset of the file begin to  
download

<data\_Length> integer, data length to  
downloaded

Example

```
AT$MYFTPOPEN=1, "someftpsite.com", "anonymous", "qwerty@somemail.com",1,30,1
```

```
OK
```

```
AT$MYFTPGET ="ftp_download.txt",0,18
```

```
CONNECT
```

```
I like traveling
```

```
OK
```

Note:

- The max wait time is 60 seconds.

---

## 20.26. AT\$MYFTPGET File download

## 20.27 AT\$MYFTPPUT File upload

Description

File upload

Command	Possible response
AT\$MYFTPPUT=<File_Name>,<data_length>,<EOF>	CONNECT > <file_content> OK

Parameter

<File\_Name> string, file name to  
be upload

<data\_length> integer, data length to  
upload, 1~3072

<EOF>

integer, upload finish flag  
0-not last package  
1-last package

---

Note:

- The max wait time is 60 seconds.
- 

## 20.28 AT\$MYBCCH(for 8910 is AT+LOCKBCCH) Lock BCCH

Description

Lock BCCH

Command	Possible response
---------	-------------------

Test Command AT\$MYBCCH=?	\$MYBCCH: (list of supported <mode>),(list of supported <bcch>) +CME ERROR: <err>
Read Command AT\$MYBCCH	\$MYBCCH: <mode> +CME ERROR: <err>
Set Command AT\$MYBCCH=<mode>[,<bcch1>],[<bcch2>],[<bcch3>]	OK

Parameter

<mode>

integer, 0-unlock 1-lock

<bcch> channel

number

## 20.29 AT\$MYBAND Lock GSM band

Description

Lock GSM band

Command	Possible response
AT\$MYBAND=<band>	OK

Parameter

<band>:

0 Auto select,900P/900E/850/1800/1900

1 Lock 900E

2 Lock 1800

## 20.30 AT\$MYSYSINFO Check network mode and info

Description

Check network mode and info

Command	Possible response
AT\$MYSYSINFO=<sysmode>	\$MYSYSINFO:<rat>,<mnc>

## 20.29. AT\$MYBAND Lock GSM band

## 20.31 AT\$MYSYSMODE Set network mode

Description

Set network mode

Command	Possible response
AT\$MYSYSMODE=<mode>	OK

Parameter

<mode>: interger type, should be one of 0 2 3 4



SUMMARY OF ERROR CODE

- *Code of CME ERROR Meaning*
- *Code of CMS ERROR Meaning*

### 21.1 Code of CME ERROR Meaning

- 0 PHONE\_FAILURE
- 1 NO\_CONNECT\_PHONE
- 2 PHONE\_ADAPTER\_LINK\_RESERVED
- 3 OPERATION\_NOT\_ALLOWED
- 4 OPERATION\_NOT\_SUPPORTED
- 5 PHSIM\_PIN\_REQUIRED
- 6 PHFSIM\_PIN\_REQUIRED
- 7 PHFSIM\_PUK\_REQUIRED
- 10 SIM\_NOT\_INSERTED
- 11 SIM\_PIN\_REQUIRED
- 12 SIM\_PUK\_REQUIRED
- 13 SIM\_FAILURE
- 14 SIM\_BUSY
- 15 SIM\_WRONG
- 16 INCORRECT\_PASSWORD
- 17 SIM\_PIN2\_REQUIRED
- 18 SIM\_PUK2\_REQUIRED
- 20 MEMORY\_FULL
- 21 INVALID\_INDEX
- 22 NOT\_FOUND
- 23 MEMORY\_FAILURE
- 24 TEXT\_LONG
- 25 INVALID\_CHAR\_INTEXT
- 26 DAIL\_STR\_LONG
- 27 INVALID\_CHAR\_INDIAL

30 NO\_NET\_SERVICE  
31 NETWORK\_TIMEOUT  
32 NOT\_ALLOW\_EMERGENCY  
40 NET\_PER\_PIN\_REQUIRED  
41 NET\_PER\_PUK\_REQUIRED  
42 NET\_SUB\_PER\_PIN\_REQ  
43 NET\_SUB\_PER\_PUK\_REQ  
44 SERVICE\_PROV\_PER\_PIN\_REQ  
45 SERVICE\_PROV\_PER\_PUK\_REQ  
46 CORPORATE\_PER\_PIN\_REQ  
47 CORPORATE\_PER\_PUK\_REQ  
48 PHSIM\_PBK\_REQUIRED  
49 EXE\_NOT\_SURPORT  
50 EXE\_FAIL  
51 NO\_MEMORY  
52 OPTION\_NOT\_SURPORT  
53 PARAM\_INVALID  
54 EXT\_REG\_NOT\_EXIT  
55 EXT\_SMS\_NOT\_EXIT  
56 EXT\_PBK\_NOT\_EXIT  
57 EXT\_FFS\_NOT\_EXIT  
58 INVALID\_COMMAND\_LINE  
59 ITF\_DIFFERENT  
60 BURN\_FLASH\_FAIL  
61 TFLASH\_NOT\_EXIST  
103 GPRS\_ILLEGAL\_MS\_3  
106 GPRS\_ILLEGAL\_MS\_6  
107 GPRS\_SVR\_NOT\_ALLOWED  
111 GPRS\_PLMN\_NOT\_ALLOWED  
112 GPRS\_LOCATION\_AREA\_NOT\_ALLOWED  
113 GPRS\_ROAMING\_NOT\_ALLOWED  
132 GPRS\_OPTION\_NOT\_SUPPORTED  
133 GPRS\_OPTION\_NOT\_SUBSCRIBED  
134 GPRS\_OPTION\_TEMP\_ORDER\_OUT  
149 GPRS\_PDP\_AUTHENTICATION\_FAILURE  
150 GPRS\_INVALID\_MOBILE\_CLASS  
148 GPRS\_UNSPECIFIED\_GPRS\_ERROR  
264 SIM\_VERIFY\_FAIL  
265 SIM\_UNBLOCK\_FAIL  
266 SIM\_CONDITION\_NO\_FULLFILLED  
267 SIM\_UNBLOCK\_FAIL\_NO\_LEFT  
268 SIM\_VERIFY\_FAIL\_NO\_LEFT  
269 SIM\_INVALID\_PARAMETER  
270 SIM\_UNKNOW\_COMMAND

271 SIM\_WRONG\_CLASS  
272 SIM\_TECHNICAL\_PROBLEM  
273 SIM\_CHV\_NEED\_UNBLOCK  
274 SIM\_NOEF\_SELECTED  
275 SIM\_FILE\_UNMATCH\_COMMAND  
276 SIM\_CONTRADICTION\_CHV  
277 SIM\_CONTRADICTION\_INVALIDATION  
278 SIM\_MAXVALUE\_REACHED  
279 SIM\_PATTERN\_NOT\_FOUND  
280 SIM\_FILEID\_NOT\_FOUND  
281 SIM\_STK\_BUSY  
282 SIM\_UNKNOW  
283 SIM\_PROFILE\_ERROR

## 21.2 Code of CMS ERROR Meaning

1 UNASSIGNED\_NUM  
8 OPER\_DETERM\_BARR  
10 CALL\_BARRED  
21 SM\_TRANS\_REJE  
27 DEST\_OOS  
28 UNINDENT\_SUB  
29 FACILIT\_REJE  
30 UNKONWN\_SUB  
38 NW\_OOO  
41 TMEP\_FAIL  
42 CONGESTION  
47 RES\_UNAVAILABLE  
50 REQ\_FAC\_NOT\_SUB  
69 RFQ\_FAC\_NOT\_IMP  
81 INVALID\_SM\_TRV  
95 INVALID\_MSG  
96 INVALID\_MAND\_INFO  
97 MSG\_TYPE\_ERROR  
98 MSG\_NOT\_COMP  
99 INFO\_ELEMENT\_ERROR  
111 PROT\_ERROR  
127 IW\_UNSPEC  
128 TEL\_IW\_NOT\_SUPP  
129 SMS\_TYPE0\_NOT\_SUPP  
130 CANNOT\_REP\_SMS  
143 UNSPEC\_TP\_ERROR  
144 DCS\_NOT\_SUPP  
145 MSG\_CLASS\_NOT\_SUPP

159 UNSPEC\_TD\_ERROR  
160 CMD\_CANNOT\_ACT  
161 CMD\_UNSUPP  
175 UNSPEC\_TC\_ERROR  
176 TPDU\_NOT\_SUPP  
192 SC\_BUSY  
193 NO\_SC\_SUB  
194 SC\_SYS\_FAIL  
195 INVALID\_SME\_ADDR  
196 DEST\_SME\_BARR  
197 SM\_RD\_SM  
198 TP\_VPF\_NOT\_SUPP  
199 TP\_VP\_NOT\_SUPP  
208 DO\_SIM\_SMS\_STO\_FULL  
209 NO\_SMS\_STO\_IN\_SIM  
210 ERR\_IN\_MS  
211 MEM\_CAP\_EXCCEEDED  
212 SIM\_APP\_TK\_BUSY  
213 SIM\_DATA\_DL\_ERROR  
255 UNSPEC\_ERRO\_CAUSE

#### **21.2. Code of CMS ERROR Meaning**

300 ME\_FAIL  
301 SMS\_SERVIEC\_RESERVED  
302 OPER\_NOT\_ALLOWED  
303 OPER\_NOT\_SUPP  
304 INVALID\_PDU\_PARAM  
305 INVALID\_TXT\_PARAM  
310 SIM\_NOT\_INSERT  
311 SIM\_PIN\_REQUIRED  
312 PH\_SIM\_PIN\_REQUIRED  
313 SIM\_FAIL  
314 SIM\_BUSY  
315 SIM\_WRONG  
316 SIM\_PUK\_REQUIRED  
317 SIM\_PIN2\_REQUIRED  
318 SIM\_PUK2\_REQUIRED  
320 MEM\_FAIL  
321 INVALID\_MEM\_INDEX  
322 MEM\_FULL  
330 SCA\_ADDR\_UNKNOWN  
331 NO\_NW\_SERVICE  
332 NW\_TIMEOUT  
340 NO\_CNMA\_ACK\_EXPECTED

500 UNKNOWN\_ERROR  
512 USER\_ABORT  
513 UNABLE\_TO\_STORE  
514 INVALID\_STATUS  
515 INVALID\_ADDR\_CHAR  
516 INVALID\_LEN  
517 INVALID\_PDU\_CHAR  
518 INVALID\_PARA  
519 INVALID\_LEN\_OR\_CHAR  
520 INVALID\_TXT\_CHAR  
521 TIMER\_EXPIRED