



SIM76XX Series_AT Command Manual

LTE Module

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Version History

Version	Date	Chapter	Description
V1.00	2023.05.22		
V2.00	2025.04.02	ALL	All instructions optimized specification format This 2.0X document is for software 2388_SIM76XX and later versions only
V2.01	2025.04.08	16.2.17 AT+CMQTTUNSUB	Delete redundant parameters <result code>
	2025.04.16	21.2.15 AT+CGNSSFITNESS 21.2.16 AT+CGNSSGLP 21.2.19 AT+CGNSSFTM	Read Command format error Change 0/1 to <on/off>
	2025.05.06	26 AT Commands for PSM 27 AT Commands for eDRX	26 27 Add more sample information
		5.2.1 AT+CGREG	5.2.1 The CGREG command adds the parameter Act and the information interpretation of the parameter. Modify lac to tac and the parameter description information
		16.2.15 AT+CMQTTSUB	16.2.15 AT+CMQTTSUB? Add comments to the instructions
		16.2.19 AT+CMQTTCFG	16.2.19 Modify the description related to the configuration timing of the AT+CMQTTCFG instruction
	2025.05.14	16.2.14 AT+CMQTTSUBTOPIC	16.2.14 Modified NOTE
		16.2.16 AT+CMQTTUNSUBTOPIC	16.2.16 Modified NOTE
	2025.05.15	16.2.19 AT+CMQTTCFG	16.2.19 Instruction specification and AT instruction design update
		16.2.15 AT+CMQTTSUB 16.2.17 AT+CMQTTUNSUB	Spelling mistakes, sample supplements, etc

		23.2.3 AT+WSLINK 23.2.4 AT+WSUNLINK 23.2.5 AT+WSPUSH 23.2.6 AT+WSSETTINGS 3.2.5 AT+CACM 3.2.6 AT+CAMM 6.2.3 AT+CLCK 15.2.15 AT+CFTPSDELE 16.2.10 AT+CMQTTDISC 16.2.19 AT+CMQTTCFG	
V2.02	2025.06.16		Spelling mistakes or document formatting
	2025.06.18		Spelling mistakes or document formatting
	2025.06.27	21.2.21 AT+CGNSSINFO	Example error
	2025.07.07	22 AT Commands for SMTPS 24 AT Commands for SMTPS MMS Example	SMTPS MMS Example +CSSLCFG "pskid"/"psk" parameter scope
V2.03	2025.09.10	22	Spelling mistakes or document formatting
		9.2.1	Parameter Saving Mode deleted AUTO_SAVE
		9.2.5	
	2025.10.09	21.2.24 AT+CAGPSTOLOCAL 7.2.12、7.2.14、7.2.19	Deleted Execute Command AT+CAGPSTOLOCAL Examples format
V2.04	2025.11.19	8.2.8 AT+LPSTATUS	The AT+LPSTATUS command was previously only supported for models with GPS. Now, compatibility needs to be achieved for models without GPS.
	2025.12.17	21.2.19 AT+CGNSSFTM	AT+CGNSSFTM=? Missing return value
		21 AT Commands for GNSS	GNSS part instructions, lacking "ERROR" description
	2025.12.31	16.5.2 No network	Optimize instruction description

Contents

Version History.....	2
Contents.....	4
1 Introduction.....	15
1.1 Scope of the document.....	15
1.2 Related documents.....	15
1.3 Terms and Abbreviations.....	15
1.4 Definitions and Conventions.....	17
1.5 AT Interface Synopsis.....	18
1.5.1 Interface Settings.....	18
1.5.2 AT Commands Syntax.....	18
1.5.3 Supported character sets.....	20
2 AT Commands According to V.25TER.....	21
2.1 Overview of AT Commands According to V.25TER.....	21
2.2 Detailed Description of AT Commands for V.25TER.....	21
2.2.1 ATD Mobile originated call to dial a number.....	21
2.2.2 ATH Disconnect existing call (reserve)	23
2.2.3 +++ Switch from data mode to command mode.....	24
2.2.4 ATO Switch from command mode to data mode.....	24
2.2.5 ATI Display product identification information.....	25
2.2.6 ATE Enable command echo.....	26
2.2.7 AT&V Display current configuration.....	27
2.2.8 ATV Set result code format mode.....	28
2.2.9 AT&F Set all current parameters to manufacturer defaults.....	29
2.2.10 ATQ Set Result Code Presentation Mode.....	30
2.2.11 AT&W Save the user setting to ME.....	31
2.2.12 ATZ Restore the user setting from ME.....	32
2.2.13 AT+CGMI Request manufacturer identification.....	33
2.2.14 AT+CGMM Request model identification.....	34
2.2.15 AT+CGMR Request revision identification.....	35
2.2.16 AT+CGSN Request product serial number identification.....	36
2.2.17 AT+CSCS Select TE character set.....	37
3 AT Commands for Status Control.....	39
3.1 Overview of AT Commands for Status Control.....	39
3.2 Detailed Description of AT Commands for Status Control.....	39
3.2.1 AT+CFUN Set phone functionality.....	39
3.2.2 AT+CSQ Query signal quality.....	41
3.2.3 AT+CPOF Power down the module.....	42
3.2.4 AT+CRESET Reset the module.....	43
3.2.5 AT+CACM Accumulated call meter.....	44

3.2.6	AT+CAMM	Accumulated call meter maximum.....	46
3.2.7	AT+CCLK	Real time clock management.....	47
3.2.8	AT+CMEE	Report mobile equipment error.....	49
3.2.9	AT+SIMEI	Set the IMEI for the module.....	50
4	AT Commands for Network.....		52
4.1	Overview of AT Commands for Network.....		52
4.2	Detailed Description of AT Commands for Network.....		52
4.2.1	AT+CREG	Network registration.....	52
4.2.2	AT+COPS	Operator selection.....	54
4.2.3	AT+CPOL	Preferred operator list.....	57
4.2.4	AT+COPN	Read operator names.....	59
4.2.5	AT+CNBP	Preferred band selection.....	60
4.2.6	AT+CPSI	Inquiring UE system information.....	63
4.2.7	AT+CNSMOD	Show network system mode.....	65
4.2.8	AT+CTZU	Automatic time and time zone update.....	67
4.2.9	AT+CTZR	Time and time zone reporting.....	68
5	AT Commands for Packet Domain.....		71
5.1	Overview of AT Commands for Packet Domain.....		71
5.2	Detailed Description of AT Commands for Packet Domain.....		71
5.2.1	AT+CGREG	Network registration status.....	71
5.2.2	AT+CEREG	EPS network registration status.....	73
5.2.3	AT+CGATT	Packet domain attach or detach.....	76
5.2.4	AT+CGACT	PDP context activate or deactivate.....	77
5.2.5	AT+CGDCONT	Define PDP context.....	79
5.2.6	AT+CGDSCONT	Define Secondary PDP Context.....	83
5.2.7	AT+CGTFT	Traffic Flow Template.....	85
5.2.8	AT+CGDATA	Enter data state.....	89
5.2.9	AT+CGPADDR	Show PDP address.....	90
5.2.10	AT+CGEREP	GPRS event reporting.....	92
5.2.11	AT+CGAUTH	Set type of authentication for PDP-IP connections of GPRS.....	99
5.2.12	AT+CPING	Ping destination address.....	102
5.2.13	AT+CGCONTRDP	PDP context read dynamic parameters.....	105
5.2.14	AT+SIGNS	Query main antenna signal quality parameters.....	107
6	AT Commands for SIM Card.....		109
6.1	Overview of AT Commands for SIM Card.....		109
6.2	Detailed Description of AT Commands for SIM Card.....		109
6.2.1	AT+CICCID	Read ICCID from SIM card.....	109
6.2.2	AT+CPIN	Enter PIN.....	110
6.2.3	AT+CLCK	Facility lock.....	112
6.2.4	AT+CPWD	Change password.....	113
6.2.5	AT+CIMI	Request international mobile subscriber identity.....	115
6.2.6	AT+CSIM	Generic SIM access.....	116
6.2.7	AT+CRSM	Restricted SIM access.....	117
6.2.8	AT+CSIMSLEEP	Set UE to Allow SIM Card Sleep for Power Consumption.....	122

6.2.9	AT+SPIC	Times remain to input SIM PIN/PUK.....	123
6.2.10	AT+CSPN	Get service provider name from SIM.....	124
6.2.11	AT+UIMHOTSWAPON	Set UIM Hotswap Function On.....	125
6.2.12	AT+UIMHOTSWAPLEVEL	Set UIM Card Detection Level.....	126
7	AT Commands for SMS.....		128
7.1	Overview of AT Commands for SMS.....		128
7.2	Detailed Description of AT Commands for SMS.....		128
7.2.1	AT+CSMS	Select message service.....	128
7.2.2	AT+CPMS	Preferred message storage.....	130
7.2.3	AT+CMGF	Select SMS message format.....	132
7.2.4	AT+CSCA	SMS service center address.....	134
7.2.5	AT+CSCB	Select cell broadcast message indication.....	135
7.2.6	AT+CSMP	Set text mode parameters.....	137
7.2.7	AT+CSDH	Show text mode parameters.....	138
7.2.8	AT+CNMA	New message acknowledgement to ME/TA.....	139
7.2.9	AT+CNMI	New message indications to TE.....	141
7.2.10	AT+CMGL	List SMS messages from preferred store.....	144
7.2.11	AT+CMGR	Read message.....	149
7.2.12	AT+CMGS	Send message.....	154
7.2.13	AT+CMSS	Send message from storage.....	155
7.2.14	AT+CMGW	Write message to memory.....	157
7.2.15	AT+CMGD	Delete message.....	159
7.2.16	AT+CMGMT	Change message status.....	160
7.2.17	AT+CMVP	Set message valid period.....	161
7.2.18	AT+CMGRD	Read and delete message.....	162
7.2.19	AT+CMGSEX	Send message.....	164
7.2.20	AT+CMSSEX	Send multi messages from storage.....	166
7.2.21	AT+CCONCINDEX	Report Concatenated SMS Index.....	167
8	AT Commands for Serial Interface.....		169
8.1	Overview of AT Commands for Serial Interface.....		169
8.2	Detailed Description of AT Commands for Serial Interface.....		169
8.2.1	AT&D	Set DTR function mode.....	169
8.2.2	AT&C	Set DCD function mode.....	170
8.2.3	AT+IPR	Set local baud rate temporarily.....	171
8.2.4	AT+IPREX	Set local baud rate permanently.....	172
8.2.5	AT+ICF	Set control character framing.....	173
8.2.6	AT+IFC	Set local data flow control.....	175
8.2.7	AT+CSCLK	Control UART Sleep.....	176
8.2.8	AT+LPSTATUS	Query information about sleep/wakeup.....	177
8.2.9	AT+CMUX	Enable the multiplexer over the UART.....	179
8.2.10	AT+CATR	Configure URC destination interface.....	180
8.2.11	AT+CFGR1	Configure RI pin.....	181
8.2.12	AT+CURCD	Configure the delay time and number of URC.....	183
9	AT Commands for Hardware.....		185

9.1 Overview of AT Commands for Hardware.....	185
9.2 Detailed Description of AT Commands for Hardware.....	185
9.2.1 AT+CVALARM Low and high voltage Alarm.....	185
9.2.2 AT+CADC Read ADC value.....	187
9.2.3 AT+CADC2 Read ADC2 value.....	188
9.2.4 AT+CMTE Control the module critical temperature URC alarm.....	189
9.2.5 AT+CPMVT Low and high voltage Power Off.....	190
9.2.6 AT+CRIIC Read values from register of IIC device nau8810.....	191
9.2.7 AT+CWIIC Write values to register of IIC device nau8810.....	192
9.2.8 AT+CBC Read the voltage value of the power supply.....	193
9.2.9 AT+CPMUTEMP Read the temperature of the module.....	194
9.2.10 AT+CGDRT Set the direction of specified GPIO.....	194
9.2.11 AT+CGSETV Set the value of specified GPIO.....	196
9.2.12 AT+CGGETV Get the value of specified GPIO.....	197
9.3 Unsolicited Result Codes.....	198
10 AT Commands for File System.....	199
10.1 Overview of AT Commands for File System.....	199
10.2 Detailed Description of AT Commands for File System.....	199
10.2.1 AT+FSCD Select directory as current directory.....	200
10.2.2 AT+FSMKDIR Make new directory in current directory.....	201
10.2.3 AT+FSRMDIR Delete directory in current directory.....	202
10.2.4 AT+FSLS List directories/files in current directory.....	203
10.2.5 AT+FSDEL Delete file in current directory.....	205
10.2.6 AT+FSRENAME Rename file in current directory.....	206
10.2.7 AT+FSATTRI Request file attributes.....	207
10.2.8 AT+FSMEM Check the size of available memory.....	208
10.2.9 AT+FSCOPY Copy an appointed file.....	209
10.2.10 AT+FSPRESET Moves the location of a file.....	211
10.2.11 AT+FSOPEN Open a file.....	211
10.2.12 AT+FSREAD Read a file.....	213
10.2.13 AT+FSWRITE Write a file.....	214
10.2.14 AT+FSSEEK Set a file Pointer to the Specified Position.....	215
10.2.15 AT+FSPOSITION Get the Offset of a File Pointer.....	216
10.2.16 AT+FSCLOSE Close a file.....	217
11 AT Commands for File Transmission.....	219
11.1 Overview of AT Commands for File Transmission.....	219
11.2 Detailed Description of AT Commands for File Transmission.....	219
11.2.1 AT+CFTRANRX Transfer a file to EFS.....	219
11.2.2 AT+CFTRANTX Transfer a file from EFS to host.....	220
12 AT Commands for Internet Service.....	223
12.1 Overview of AT Commands for Internet Service.....	223
12.2 Detailed Description of AT Commands for Internet Service.....	223
12.2.1 AT+CHTTPSERV Set HTP server information.....	223
12.2.2 AT+CHTTPUPDATE Updating date time using HTP protocol.....	225

12.2.3	AT+CHTPCFG	Configure the HTP Context.....	226
12.2.4	AT+CNTPT	Update system time.....	227
12.2.5	AT+CNTPCFG	Configure the NTP Context.....	228
12.3	Command Result Codes.....		229
12.3.1	Description of <err> of HTP.....		229
12.3.2	Description of <err> of NTP.....		229
13	AT Commands for TCP/IP.....		230
13.1	Overview of AT Commands for TCP/IP.....		230
13.2	Detailed Description of AT Commands for TCP/IP.....		230
13.2.1	AT+NETOPEN	Start Socket Service.....	230
13.2.2	AT+NETCLOSE	Stop Socket Service.....	232
13.2.3	AT+CIOPEN	Establish Connection in Multi-Socket Mode.....	235
13.2.4	AT+CIPSEND	Send data through TCP or UDP Connection.....	238
13.2.5	AT+CIPRXGET	Set the Mode to Retrieve Data.....	242
13.2.6	AT+CIPCLOSE	Close TCP or UDP Socket.....	245
13.2.7	AT+IPADDR	Inquire Socket PDP address.....	247
13.2.8	AT+CIPHEAD	Add an IP Header When Receiving Data.....	248
13.2.9	AT+CIPSRIP	Show Remote IP Address and Port.....	250
13.2.10	AT+CIPMODE	Set TCP/IP Application Mode.....	251
13.2.11	AT+CIPTIMEOUT	Set TCP/IP Timeout Value.....	252
13.2.12	AT+CIPCCFG	Configure Parameters of Socket.....	253
13.2.13	AT+CIPCFG	Configure the TCP/IP Context.....	255
13.2.14	AT+SERVERSTART	Startup TCP Sever.....	257
13.2.15	AT+SERVERSTOP	Stop TCP Sever.....	259
13.2.16	AT+CIPACK	Query TCP Connection Data Transmitting Status.....	260
13.2.17	AT+CDNSGIP	Query the IP Address of Given Domain Name.....	261
13.2.18	AT+C SOCKSETPN	Set active PDP context's profile.....	262
13.2.19	AT+CTCPKA	Configure TCP heartbeat.....	264
13.2.20	AT+CDNSCFG	Configure Domain Name Server.....	265
13.3	Command Result Codes.....		266
13.3.1	Description of <err_info>.....		266
13.3.2	Description of <err>.....		267
13.4	Unsolicited Result Codes.....		268
14	AT Commands for HTTP(S).....		269
14.1	Overview of AT Commands for HTTP(S).....		269
14.2	Detailed Description of AT Commands for HTTP(S).....		269
14.2.1	AT+HTTPINIT	Start HTTP Service.....	269
14.2.2	AT+HTTPTERM	Stop HTTP Service.....	270
14.2.3	AT+HTTTPARA	Set HTTP Parameters value.....	271
14.2.4	AT+HTTTPDATA	Input HTTP Data.....	274
14.2.5	AT+HTTTPACTION	HTTP Method Action.....	275
14.2.6	AT+HTTTPACTIONEX	Send Entity Data Directly to The Network(This command is currently not supported).....	276
14.2.7	AT+HTTPHEAD	Read the HTTP Header Information of Server Response.....	277
14.2.8	AT+HTTPREAD	Read the response information of HTTP Server.....	279

14.2.9	AT+HTTPPOSTFILE	Send HTTP Request to HTTP(S)server by File.....	281
14.2.10	AT+HTTPREADFILE	Receive HTTP Response Content to a file.....	283
14.3	Command Result Codes.....		284
14.3.1	Description of <status>.....		284
14.3.2	Description of <err>.....		285
14.4	Unsolicited Result Codes.....		286
15	AT Commands for FTP(S).....		287
15.1	Overview of AT Commands for FTP(S).....		287
15.2	Detailed Description of AT Commands for FTP(S).....		287
15.2.1	AT+CFTPSSTART	Start FTP(S) service.....	287
15.2.2	AT+CFTPSSTOP	Stop FTP(S) Service.....	289
15.2.3	AT+CFTPSLFCFG	Set the SSL context id for FTP(S) session.....	290
15.2.4	AT+CFTPSINGLEIP	Set FTP(S) data socket address type.....	291
15.2.5	AT+CFTPSTYPE	Set the transfer type on FTP(S) server.....	292
15.2.6	AT+CFTPSMODE	Set Active or Passive FTP(S) Mode.....	293
15.2.7	AT+CFTPSLOGIN	Log in to a FTP(S) server.....	294
15.2.8	AT+CFTPSLOGOUT	Log out of the FTP(S) server.....	296
15.2.9	AT+CFTPSCWD	Change the current directory on FTP(S) server.....	297
15.2.10	AT+CFTPSPWD	Get the current directory on FTP(S) server.....	298
15.2.11	AT+CFTPSMKD	Create a new directory on FTP(S) server.....	299
15.2.12	AT+CFTPSRMD	Delete a directory on FTP(S) server.....	300
15.2.13	AT+CFTPSLIST	List the items in the directory on FTP(S) server.....	301
15.2.14	AT+CFTPSIZE	Get the file size on FTP(S) server.....	302
15.2.15	AT+CFTPSDELE	Delete a file on FTP(S) server.....	303
15.2.16	AT+CFTPSGET	Transfer data from a file on FTP(S) server to module's serial... ..	304
15.2.17	AT+CFTPSPUT	Transfer data from module's serial port to a file on FTP(S)	305
15.2.18	AT+CFTPSGETFILE	Download a file from FTP(S) server to module's file	306
15.2.19	AT+CFTPSPUTFILE	Upload a file from module's file system to FTP(S) server.. ..	308
15.2.20	AT+CFTPSCFG	Set optional configuration for FTP(S) (This command is currently not supported).....	309
15.3	Command Result Codes.....		311
15.3.1	Description of <err>.....		311
15.4	Unsolicited Result codes.....		311
15.5	Timeout processing.....		312
16	AT Commands for MQTT(S).....		313
16.1	Overview of AT Commands for MQTT(S).....		313
16.2	Detailed Description of AT Commands for MQTT(S).....		313
16.2.1	AT+CMQTTSTART	Start MQTT service.....	313
16.2.2	AT+CMQTTSTOP	Stop MQTT service.....	315
16.2.3	AT+CMQTTACCQ	Acquire a client.....	316
16.2.4	AT+CMQTTREL	Release a client.....	317
16.2.5	AT+CMQTTSSLCFG	Set the SSL context (only for SSL/TLS MQTT).....	318
16.2.6	AT+CMQTTWILLTOPIC	Input the topic of will message.....	319
16.2.7	AT+CMQTTWILLMSG	Input the will message.....	321
16.2.8	AT+CMQTTWILL	Set up MQTT wills.....	322

16.2.9	AT+CMQTTCONNECT	Connect to MQTT server.....	323
16.2.10	AT+CMQTTDISC	Disconnect from server.....	325
16.2.11	AT+CMQTTTOPIC	Input the topic of publish message.....	327
16.2.12	AT+CMQTTPAYLOAD	Input the publish message.....	328
16.2.13	AT+CMQTTPUB	Publish a message to server.....	329
16.2.14	AT+CMQTTSUBTOPIC	Input the topic of subscribe message.....	331
16.2.15	AT+CMQTTSUB	Subscribe a message to server.....	333
16.2.16	AT+CMQTTUNSUBTOPIC	Input the topic of unsubscribe message.....	335
16.2.17	AT+CMQTTUNSUB	Unsubscribe a message to server.....	336
16.2.18	AT+CMQTTAUTH	Sent the MQTT authentication packet.....	338
16.2.19	AT+CMQTTCFG	Configure the MQTT Context.....	339
16.2.20	AT+CMQTTQUICKCONNECT	Quickly connect to the cloud platform with one ...	346
16.2.21	Additional Report.....		348
16.3	Command Result Codes.....		348
16.3.1	Description of <err>.....		348
16.4	Command Cause Codes.....		350
16.4.1	result code (MQTT 5.0).....		350
16.4.1	connect result code (MQTT 3.1.1/3.1).....		351
16.4.2	subscription code (MQTT 3.1.1/3.1).....		351
16.5	Unsolicited Result Codes.....		352
16.5.1	The mqttts connection is passively disconnected.....		352
16.5.2	No network.....		352
16.5.3	PUBLISH message report.....		352
17	AT Commands for SSL.....		354
17.1	Overview of AT Commands for SSL.....		354
17.2	Detailed Description of AT Commands for SSL.....		354
17.2.1	AT+CSSLCFG	Configure the SSL Context.....	354
17.2.2	AT+CCERTDOWN	Download certificate into the module.....	361
17.2.3	AT+CCERTLIST	List certificates.....	362
17.2.4	AT+CCERTDELETE	Delete certificates.....	363
17.2.5	AT+CCHSET	Configure the report mode of sending and receiving data.....	364
17.2.6	AT+CCHMODE	Configure the mode of sending and receiving data.....	365
17.2.7	AT+CCHSTART	Start SSL service.....	366
17.2.8	AT+CCHSTOP	Stop SSL service.....	368
17.2.9	AT+CCHADDR	Get the IPv4 address.....	369
17.2.10	AT+CCHSSLCFG	Set the SSL context.....	370
17.2.11	AT+CCHCFG	Configure the Client Context.....	372
17.2.12	AT+CCHOPEN	Connect to server.....	374
17.2.13	AT+CCHCLOSE	Disconnect from server.....	376
17.2.14	AT+CCHSEND	Send data to server.....	377
17.2.15	AT+CCHRECV	Read the cached data that received from the server.....	379
17.2.16	AT+CCERTMOVE	Move the cert from file system to cert content.....	381
17.3	Command Result Codes.....		382
17.3.1	Description of <err>.....		382
17.4	Unsolicited Result Codes.....		383

18 AT Commands for FOTA.....	384
18.1 Overview of AT Command for FOTA.....	384
18.2 Detailed Description of AT Command for FOTA.....	384
18.2.1 AT+CFOTA Start FOTA service.....	384
18.2.2 AT+LFOTA Start Local FOTA Service.....	385
18.3 Unsolicited Result Codes.....	386
19 AT Commands for CTBURST.....	387
19.1 Overview of AT Commands for CTBURST.....	387
19.2 Detailed Description of AT Commands for CTBURST.....	387
19.2.1 AT+CTBURST The TX/RX Burst Test.....	387
20 AT Commands for WIFI.....	390
20.1 Overview of AT Commands for WIFI.....	390
20.2 Detailed Description of AT Commands for WIFI.....	390
20.2.1 AT+CWSTASCAN Scan WIFI network.....	390
20.2.2 AT+CWSTASCANEX Scan WIFI network extension command.....	392
20.2.3 AT+CWSTASCANSYN Asynchronous control command of scan Wi-Fi network.....	393
21 AT Commands for GNSS.....	396
21.1 Overview of AT Commands for GNSS.....	396
21.2 Detailed Description of AT Commands for GNSS.....	397
21.2.1 AT+CGNSSPWR GNSS power control.....	397
21.2.2 AT+CGNSSTST Send data received from UART3 to NMEA port.....	398
21.2.3 AT+CGPSCOLD Cold start GPS.....	399
21.2.4 AT+CGPSWARM Warm start GPS.....	400
21.2.5 AT+CGPSHOT Hot start GPS.....	400
21.2.6 AT+CGNSSIPR Configure the baud rate of UART3 and GPS module.....	401
21.2.7 AT+CGNSSMODE Configure GNSS support mode.....	402
21.2.8 AT+CGNSSNMEA Configure NMEA sentence type.....	403
21.2.9 AT+CGNSSNMEARATE Set NMEA output rate.....	405
21.2.10 AT+CGNSSPORTSWITCH Select the output port of data.....	406
21.2.11 AT+CGNSSCMD Send command to GNSS.....	407
21.2.12 AT+CGNSSRTC Configure GNSS RTC mode.....	408
21.2.13 AT+CGNSSSLEEP Set GNSS into Sleep.....	409
21.2.14 AT+CGNSSWAKEUP Set GNSS Wakeup form Sleep.....	410
21.2.15 AT+CGNSSFITNESS Set GNSS into fitness mode.....	410
21.2.16 AT+CGNSSGLP Set GNSS into low-power GLP mode.....	411
21.2.17 AT+CGNSSFLP Set GNSS into Periodic Power Saving Mode.....	413
21.2.18 AT+CGNSSALP Set GNSS into The adaptive low power mode.....	414
21.2.19 AT+CGNSSFTM Start GNSS test mode.....	415
21.2.20 AT+CGPSINFO Get GPS fixed position information.....	417
21.2.21 AT+CGNSSINFO Get GNSS fixed position information.....	418
21.2.22 AT+CGNSSPROD Get the product information of GNSS.....	421
21.2.23 AT+CAGPS Get AGPS data from the AGNSS server for assisted positioning....	421
21.2.24 AT+CAGPSTOLOCAL Get real-time AGPS QEPO data into the module.....	422
21.2.25 AT+CAGPSTOGPS Send locally stored AGPS QEPO data to the GPS chip.....	423

21.2.26	AT+CAGPSCHK	Obtain AGPS QEPO data validity information in GPS chip.....	425
---------	-------------	---	-----

22 AT Commands for SMTPS..... 427

22.1	Overview of AT Commands for SMTPS.....	427
22.2	Detailed Description of AT Commands for SMTPS.....	428
22.2.1	AT+CSMTPSCFG	Config the SMTP context.....428
22.2.2	AT+CSMTPSSRV	Set SMTP server address and port number.....430
22.2.3	AT+CSMTPSAUTH	SMTP server authentication.....431
22.2.4	AT+CSMTPSFROM	Sender address and name.....433
22.2.5	AT+CSMTPSRCPT	Recipient address and name (TO/CC/BCC).....434
22.2.6	AT+CSMTPSSUB	E-mail subject.....436
22.2.7	AT+CSMTPSBODY	E-mail body.....437
22.2.8	AT+CSMTPSBCH	E-mail body character set.....439
22.2.9	AT+CSMTPSFILE	Select attachment.....440
22.2.10	AT+CSMTPSEND	Initiate session and send e-mail.....441
22.2.11	AT+CSMTPSSTOP	Force to stop sending e-mail.....442
22.2.12	AT+CSMTPSCLEAN	Clean mail content and setting.....443
22.3	Summary of result codes for SMTPS.....	444

23 AT Commands for WEBSOCKET..... 445

23.1	Overview of AT Commands for websocket.....	445
23.2	Detailed Description of AT Commands for websocket.....	445
23.2.1	AT+WSSTART	Start websocket service.....445
23.2.2	AT+WSSTOP	Stop websocket service.....446
23.2.3	AT+WSLINK	Connect to websocket server.....447
23.2.4	AT+WSUNLINK	Disconnect from server.....448
23.2.5	AT+WSPUSH	Publish a message to server.....450
23.2.6	AT+WSSETTINGS	Set websocket Parameters value.....451
23.3	Command Result Codes.....	453
23.3.1	Description of <err>.....	453
23.4	Unsolicited Result Codes.....	454

24 AT Commands for MMS..... 455

24.1	Overview of AT Commands for MMS.....	455
24.2	Detailed Description of AT Commands for MMS.....	456
24.2.1	AT+CMMSURL	Set the URL of MMS center.....456
24.2.2	AT+CMMSPROTO	Set the protocol parameters and MMS proxy address.....457
24.2.3	AT+CMMSSENDCFG	Set the parameters for sending MMS.....458
24.2.4	AT+CMMSEDIT	Enter or exit edit mode of mms.....460
24.2.5	AT+CMMSDOWN	Download the file data or title from UART.....461
24.2.6	AT+CMMSDELFILE	Delete a file within the editing MMS body.....463
24.2.7	AT+CMMSSEND	Send MMS.....464
24.2.8	AT+CMMSRECP	Add the recipients.....465
24.2.9	AT+CMMSCC	Add the cc recipients.....467
24.2.10	AT+CMMSBCC	Add the secret recipients.....468
24.2.11	AT+CMMSDELRECP	Delete the recipients.....469
24.2.12	AT+CMMSDELCC	Delete the cc recipients.....470

24.2.13	AT+CMMSDELBOC Delete the secret recipients.....	471
24.2.14	AT+CMMSAVE Save the selected MMS into a mailbox.....	472
24.2.15	AT+CMMSDELETE Delete MMS in the mail box.....	474
24.2.16	AT+CMMSUA Set the User-Agent of MMS packet.....	475
24.2.17	AT+CMMSPROFILE Set the User-Agent profile of MMS packet.....	476
24.2.18	AT+CMMSCFG Config the MMS context.....	477
24.3	Summary of result codes for MMS.....	479
24.3.1	Indication of Sending MMS.....	479
24.3.2	Summary of CME ERROR Codes for MMS.....	480
25	AT Commands for ESIM LPA.....	481
25.1	Overview of AT Commands for LPA.....	481
25.2	Detailed Description of AT Commands for ESIM.....	481
25.2.1	AT+SESIM Manage ESIM LPA.....	481
25.2.2	AT+SESIM=<slot>,"INFO" Get Profile Information.....	482
25.2.3	AT+SESIM=<slot>,"DOWNLOAD" Download Profile.....	484
25.2.4	AT+SESIM=<slot>,"ENABLE" Enable Profile.....	484
25.2.5	AT+SESIM=<slot>,"DISABLE" Disable Profile.....	485
25.2.6	AT+SESIM=<slot>,"DELETE" Delete Profile.....	486
25.2.7	AT+SESIM=<slot>,"EID" Get EID.....	487
25.2.8	AT+SESIM=<slot>,"SMDP" Config SM-DP+ Address.....	488
25.2.9	AT+SESIM=<slot>,"RESET" Reset Esim Memory.....	489
26	AT Commands for PSM.....	490
26.1	Overview of AT Commands for PSM.....	490
26.2	Detailed Description of AT Commands for psm.....	490
26.2.1	AT+CPSMS Power saving mode setting.....	490
27	AT Commands for eDRX.....	493
27.1	Overview of AT Commands for eDRX.....	493
27.2	Detailed Description of AT Commands for eDRX.....	493
27.2.1	AT+CEDRXS DRX Setting.....	493
27.2.2	AT+CEDRXRDP eDRX Read Dynamic Parameters.....	495
28	AT Commands for USBNET.....	497
28.1	Overview of AT Commands for USBNET.....	497
28.2	Detailed Description of AT Commands for USBNET.....	497
28.2.1	AT+DIALMODE Config USBNET network.....	497
28.2.2	AT\$MYCONFIG Set RNDIS/ECM Mode.....	498
28.2.3	AT+USBNETIP Change RNDIS/ECM Private IP to Public IP.....	499
29	AT Commands for LBS.....	501
29.1	Overview of AT Commands for LBS.....	501
29.2	Detailed Description of AT Commands for LBS.....	501
29.2.1	AT+CLBS Base station location.....	501
29.2.2	AT+CLBSCFG Base station location config.....	504
30	Summary of ERROR Codes.....	506
30.1	Verbose Codes and Numeric Codes.....	506

30.2 Response String of AT+CEER.....	506
30.3 Summary of CME ERROR Codes.....	507
30.4 Summary of CMS ERROR Codes.....	511

THIS DOCUMENT IS A REFERENCE GUIDE TO ALL THE AT COMMANDS.

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1 Introduction

1.1 Scope of the document

This document presents the AT Command Set for SIMCom QCX216 SIM76XX Series.

This document is for software 2388_SIM76XX and later versions only.

More information about the SIMCom Module which includes the Software Version information can be retrieved by the command ATI. In this document, a short description, the syntax, the possible setting values and responses, and some Examples of AT commands are presented.

Prior to using the Module, please read this document and the Version History to know the difference from the previous document.

In order to implement communication successfully between Customer Application and the Module, it is recommended to use the AT commands in this document, but not to use some commands which are not included in this document.

1.2 Related documents

[1] SIM767XX_Series_Hardware_Design

You can visit the SIMCom Website for more information by the following link:

<http://www.simcom.com>

1.3 Terms and Abbreviations

For the purposes of the present document, the following abbreviations apply:

Abbreviation	Description
AT	ATtention; the two-character abbreviation is used to start a command line to be sent from TE/DTE to TA/DCE
DCE	Data Communication Equipment
DCS	Digital Cellular Network
DTE	Data Terminal Equipment
DTMF	Dual Tone Multi-Frequency
EDGE	Enhanced Data GSM Environment
EGPRS	Enhanced General Packet Radio Service
GPIO	General-Purpose Input/Output
GPRS	General Packet Radio Service
GSM	Global System for Mobile communications
HSDPA	High Speed Downlink Packet Access
HSUPA	High Speed Uplink Packet Access
I2C	Inter-Integrated Circuit
IMEI	International Mobile station Equipment Identity
IMSI	International Mobile Subscriber Identity
ME	Mobile Equipment
MO	Mobile Originated
MS	Mobile Station
MT	Mobile Terminated; Mobile Termination
PCS	Personal Communication System
PDU	Protocol Data Unit
PIN	Personal Identification Number
PUK	Personal Unlock Key
SIM	Subscriber Identity Module
SMS	Short Message Service
SMS-SC	Short Message Service Service Center
TA	Terminal Adaptor, e.g. a data card (equal to DCE)
TE	Terminal Equipment, e.g. a computer (equal to DTE)
UE	User Equipment
UMTS	Universal Mobile Telecommunications System
USIM	Universal Subscriber Identity Module
WCDMA	Wideband Code Division Multiple Access
FTP	File Transfer Protocol
HTTP	Hyper Text Transfer Protocol
RTC	Real Time Clock
URC	Unsolicited Result Code

1.4 Definitions and Conventions

1. Definitions

For the purposes of the present document, the following syntactical definitions apply:

- ◆ **<CR>** Carriage return character.
- ◆ **<LF>** Linefeed character.
- ◆ **<...>** Name enclosed in angle brackets is a syntactical element. Brackets themselves do not appear in the command line.
- ◆ **[...]** Optional subparameter of AT command or an optional part of TA information response is enclosed in square brackets. Brackets themselves do not appear in the command line. If subparameter is not given, its value equals to its previous value or the recommended default value.
- ◆ **underline** Underlined and defined subparameter value is the recommended default setting or factory setting.
- ◆ **Parameter Saving Mode**
 - NO_SAVE:** The parameter of the current AT command will be lost if module is rebooted, or current AT command doesn't have parameter.
 - AUTO_SAVE:** The parameter of the current AT command will be kept in NVRAM automatically and take in effect immediately, and it won't be lost if module is rebooted.
 - AUTO_SAVE_REBOOT:** The parameter of the current AT command will be kept in NVRAM automatically and take in effect after reboot, and it won't be lost if module is rebooted.
 - AT&W_SAVE:** The parameter of the current AT command will be kept in usersetting_save.nvm by sending the command of "AT&W".

◆ Max Response Time

Max response time is estimated maximum time to get response, the unit is seconds.

2. Document Conventions

- ◆ Generally, the characters <CR> and <LF> are intentionally omitted throughout this document.
- ◆ If command response is ERROR, not list the ERROR response inside command syntax.

NOTE

AT commands and responses in figures may be not following above conventions.

1.5 AT Interface Synopsis

1.5.1 Interface Settings

Between Customer Application and the Module, standardized RS-232 interface is used for the communication, and default values for the interface settings as following:

115200bps, 8-bit data, no parity, 1 bit stop, no data stream control.

1.5.2 AT Commands Syntax

The "AT" or "at" or "aT" or "At" prefix must be included at the beginning of each command line (except A/ and +++), and the character <CR> is used to finish a command line so as to issue the command line to the module. It is recommended that a command line only includes a command.

When Customer Application issues a series of AT commands on separate command lines, leave a pause between the preceding and the following command until information responses or result codes are retrieved by Customer Application, for Examples, "OK" is appeared. This advice avoids too many AT commands are issued at a time without waiting for a response for each command.

The AT Command set implemented by SIM76XX Series is a combination of 3GPP TS 27.005, 3GPP TS 27.007 and ITU-T recommendation V.25ter and the AT commands developed by SIMCom.

In the present document, AT commands are divided into three categories: Basic Command, S Parameter Command, and Extended Command.

1. Basic Command

The format of Basic Command is "AT<x><n>" or "AT&<x><n>", where "<x>" is the command name, and "<n>" is/are the parameter(s) for the basic command which is optional. An Examples of Basic Command is "ATE<n>", which informs the TA/DCE whether received characters should be echoed back to the TE/DTE according to the value of "<n>"; "<n>" is optional and a default value will be used if omitted.

2. S Parameter syntax

The format of S Parameter Command is "ATS<n>=<m>", "<n>" is the index of the S-register to set, and "<m>" is the value to assign to it. "<m>" is optional; in this case, the format is "ATS<n>", and then a default value is assigned.

3. Extended Syntax

The Extended Command has several formats, as following table list:

Table 1: Types of AT commands and responses

Test Command AT+<x>=?	The mobile equipment returns the list of parameters and value ranges set with the corresponding Write Command or by internal processes.
Read Command AT+<x>?	This command returns the currently set value of the parameter or parameters.
Write Command AT+<x>=<...>	This command sets the user-definable parameter values.
Execute Command AT+<x>	The execution command reads non-variable parameters affected by internal processes in the GSM engine.

NOTE

The character "+" between the prefix "AT" and command name may be replaced by other character. For Examples, using "#" or "\$" instead of "+".

4. Combining AT commands on the same Command line

You can enter several AT commands on the same line. In this case, you do not need to type the "AT" or "at" prefix before every command. Instead, you only need type "AT" or "at" the beginning of the command line. Please note to use a semicolon as the command delimiter after an extended command; in basic syntax or S parameter syntax, the semicolon need not enter, for Examples:

ATE1Q0S0=1S3=13V1X4;+IFC=0,0;+IPR=115200.

The Command line buffer can accept a maximum of 3071 characters (counted from the first command without "AT" or "at" prefix). If the characters entered exceeded this number then none of the Command will execute and TA will return "ERROR".

5. Entering successive AT commands on separate lines

When you need to enter a series of AT commands on separate lines, please Note that you need to wait the final response (for Examples OK, CME error, CMS error) of last AT Command you entered before you enter the next AT Command.

1.5.3 Supported character sets

The SIM76XX Series AT Command interface defaults to the IRA character set. The SIM76XX Series supports the following character sets:

GSM format

UCS2

IRA

The character set can be set and interrogated using the "AT+CSCS" Command (3GPP TS 27.007). The character set is defined in GSM specification 3GPP TS 27.005.

The character set affects transmission and reception of SMS and SMS Cell Broadcast messages, the entry and display of phone book entries text field and SIM Application Toolkit alpha strings.

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2 AT Commands According to V.25TER

2.1 Overview of AT Commands According to V.25TER

Command	Description
ATD	Mobile originated call to dial a number
ATH	Disconnect existing call
+++	Switch from data mode to command mode
ATO	Switch from command mode to data mode
ATI	Display product identification information
ATE	Enable command echo
AT&V	Display current configuration
ATV	Set result code format mode
AT&F	Set all current parameters to manufacturer defaults
ATQ	Set Result Code Presentation Mode
AT&W	Save the user setting to ME
ATZ	Restore the user setting from ME
AT+CGMI	Request manufacturer identification
AT+CGMM	Request model identification
AT+CGMR	Request revision identification
AT+CGSN	Request product serial number identification
AT+CSCS	Select TE character set

2.2 Detailed Description of AT Commands for V.25TER

2.2.1 ATD Mobile originated call to dial a number

This command is used to list characters that may be used in a dialling string for making a call or controlling

supplementary services.

ATD Mobile originated call to dial a number

Execute Command ATD<n>[<mgs>][:]	Response
	Originate a voice call successfully: <CR><LF> OK <CR><LF> <CR><LF> VOICE CALL: BEGIN <CR><LF>
	Originate a data call successfully: <CR><LF> CONNECT <CR><LF>
	Originate a call unsuccessfully during command execution: <CR><LF> ERROR <CR><LF>
	Originate a call unsuccessfully for failed connection recovery: <CR><LF> NO CARRIER <CR><LF>
	Originate a call unsuccessfully for error related to the MT: <CR><LF> +CME ERROR: <err> <CR><LF>
Parameter Saving Mode	-
Max Response Time	50s
Reference	-

Defined Values

<n>	String of dialing digits and optionally V.25ter modifiers dialing digits: 0-9, *, #, +, A, B, C Following V.25ter modifiers are ignored: , (comma), T, P, !, W, @
<n>	Standardized emergency number 112 (no SIM needed)
<mgs>	String of GSM modifiers: I Activates CLIR (Disables presentation of own number to called party) i Deactivates CLIR (Enable presentation of own number to called party) G Activates Closed User Group invocation for this call only g Deactivates Closed User Group invocation for this call only
<;>	The termination character ";" is mandatory to set up voice calls. It must not be used for data and fax calls.
<err>	Service failure result code string: the string formats please refer +CME

ERROR result code and AT+CME command.

Examples

ATD*99#
CONNECT

NOTE

1. Only data call is supported currently.

2.2.2 ATH Disconnect existing call (reserve)

This command is used to disconnect existing call. Before using ATH command to hang up a voice call, it must set AT+CVHU=0. Otherwise, ATH command will be ignored and "OK" response is given only.

This command is also used to disconnect PS data call, and in this case it doesn't depend on the value of AT+CVHU.

ATH Disconnect existing call

Execute Command ATH	Response 1)If AT+CVHU=0: <CR><LF> OK <CR><LF> <CR><LF> VOICE CALL: END: <time> <CR><LF>
	2) <CR><LF> ERROR <CR><LF> or <CR><LF> +CME ERROR: <err> <CR><LF>
Parameter Saving Mode	-
Max Response Time	50s
Reference	-

Examples

AT+CVHU=0

OK

ATH

OK

VOICE CALL: END: 000017

2.2.3 +++ Switch from data mode to command mode

This command is only available during a connecting PS data call. The +++ character sequence causes the TA to cancel the data flow over the AT interface and switch to Command Mode. This allows to enter AT commands while maintaining the data connection to the remote device.

+++ Switch from data mode to command mode

Execute Command +++	Response <CR><LF>
	OK <CR><LF> or <CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	-

Examples

+++

OK

NOTE

To prevent the +++ escape sequence from being misinterpreted as data, it must be preceded and followed by a pause of at least 1000 milliseconds, and the interval between two '+' character can't exceed 900 milliseconds.

2.2.4 ATO Switch from command mode to data mode

ATO is the corresponding command to the +++ escape sequence. When there is a PS data call connected and the TA is in Command Mode, ATO causes the TA to resume the data and takes back to Data Mode.

ATO Switch from command mode to data mode

Execute Command ATO	Response
	1)TA/DCE switches to Data Mode from Command Mode: <CR><LF> CONNECT <CR><LF>
	2)If connection is not successfully resumed: <CR><LF> NO CARRIER <CR><LF>
	3) <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	-

Examples

ATO
CONNECT

2.2.5 ATI Display product identification information

This command is used to request the product information, which consists of manufacturer identification, model identification, revision identification, International Mobile station Equipment Identity (IMEI).

ATI Display product identification information

Execute Command ATI	Response
	<CR><LF> Manufacturer: <manufacturer><CR><LF> Model: <model><CR><LF> Revision: <revision><CR><LF> IMEI: <sn><CR><LF> <CR><LF> OK <CR><LF>
Parameter Saving Mode	-
Max Response Time	5000ms
Reference	-

Defined Values

<manufacturer>	The identification of manufacturer.
<model>	The identification of model.
<revision>	The revision identification of firmware.
<sn>	Serial number identification, which consists of a single line containing IMEI (International Mobile station Equipment Identity)number.

Examples

ATI

Manufacturer: SIMCOM INCORPORATED
 Model: SIM76XX-XXXX
 Revision: V1.9.01
 IMEI: 351602000330570

OK

2.2.6 ATE Enable command echo

This command sets whether or not the TA echoes characters.

ATE Enable command echo

Execute Command ATE[<value>]	Response
	1)if format is right <CR><LF> OK <CR><LF>
	2) <CR><LF> ERROR <CR><LF>
	3) <CR><LF> +CME ERROR: <err> <CR><LF>
Parameter Saving Mode	AT&W_SAVE
Max Response Time	5000ms
Reference	-

Defined Values

<value>	0	Echo mode off
	1	Echo mode on

Examples

ATE1

OK

ATE0

OK

2.2.7 AT&V Display current configuration

This command returns some of the base configuration parameters settings.

AT&V Display current configuration

Execute Command AT&V	Response
	1) <CR><LF> <TEXT> <CR><LF> <CR><LF>
	OK <CR><LF>
	2) <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	3) <CR><LF> +CME ERROR: <err> <CR><LF>
	-
	120000ms
Max Response Time	-
Reference	-

Defined Values

<TEXT>	All relative configuration information.
--------	---

Examples

AT&V

```
&F: 0; &W: 0; E: 1; Q: 0; &C: 1; &D: 0; V: 1; Z: 0; +IPR: 115200; +IPREX: 115200; +CSCS: IRA;
+CREG: 0; +CEREG: 0; +CSMP: 17,167,0,241; +CGEREP: (0,0); +CMEE: 2; +CFUN: 1; +CMGF:
0; +CSDH: 0; +CSCA: "+8613010831500",145; +CPMS: "SM",50,50,"SM",50,50,"SM",50,50;
+CGAUTH: 1,0,"",""+CGAUTH: 2,0,"",""+CGAUTH: 3,0,"",""+CGAUTH: 4,0,"",""; +CGACT: 1,1
+CGACT: 2,0
+CGACT: 3,0
+CGACT: 4,0;
+CGDCONT: 1,"IPV4V6","3gnet","10.78.103.28"
+CGDCONT: 2,"IP","CMNET"
+CGDCONT: 3,"IP","UNINET"
+CGDCONT: 4,"IP","3GNET";
```

OK

2.2.8 ATV Set result code format mode

This parameter setting determines the contents of the header and trailer transmitted with result codes and information responses. Not yet supported ATV0 .

ATV Set result code format mode

Write Command ATV[<value>]	Response
	1)If <value>=1 <CR><LF> OK <CR><LF>
	2) <CR><LF> ERROR <CR><LF>
	3) <CR><LF> +CME ERROR: <err> <CR><LF>
Parameter Saving Mode	AT&W_SAVE
Max Response Time	-
Reference	-

Defined Values

<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>

Examples

ATV1
OK

NOTE

In case of using This command without parameter <value> will be set to 1.

2.2.9 AT&F Set all current parameters to manufacturer defaults

This command is used to set all current parameters to the manufacturer defined profile. Every ongoing or incoming call will be terminated.

AT&F Set all current parameters to manufacturer defaults

Execute Command AT&F[<value>]	Response
	1) <CR><LF> OK <CR><LF>
	2) <CR><LF> ERROR <CR><LF>
	3) <CR><LF> +CME ERROR: <err> <CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	-

Defined Values

<value>	0 Set some temporary TA parameters to manufacturer defaults. The setting after power on or reset is same as value 0.
---------	---

default values

TA parameters

AT+CATR

AT+CTZU

VALUE

0

1

Examples

AT&F

OK

NOTE

List of parameters reset to manufacturer default can be found in Defined Values, factory default settings restorable with AT&F[<value>].

2.2.10 ATQ Set Result Code Presentation Mode

Specify whether the TA transmits any result code to the TE or not. Text information transmitted in response is not affected by this setting

ATQ Set Result Code Presentation Mode

Write Command

ATQ<n>

Response

1)If <n>=0:

<CR><LF>

OK<CR><LF>

2)If <n>=1:

No Responses

3)

<CR><LF>

+CME ERROR: <err><CR><LF>

or

<CR><LF>

ERROR<CR><LF>

Execute Command

ATQ

Response

1)Set default value:0

<CR><LF>

OK<CR><LF>

2)

No Responses

Parameter Saving Mode	AT&W_SAVE
Max Response Time	-
Reference	-

Defined Values

<n>	0	DCE transmits result code
	1	DCE not transmits result code

Examples

```
ATQ0
OK
ATQ
OK
```

2.2.11 AT&W Save the user setting to ME

This command will save the user settings to ME which set by ATE, ATQ, ATV, AT&C, AT&D, AT+IFC .After restarted, the value saved by AT&W must be restored by ATZ.

AT&W Save the user setting to ME

Write Command AT&W<value>	Response
	1) <CR><LF> OK <CR><LF>
	2) <CR><LF> ERROR <CR><LF>
Execute Command AT&W	3) <CR><LF> +CME ERROR: <err> <CR><LF>
	Response
	1)Set default value: 0 <CR><LF> OK <CR><LF>
	2) <CR><LF> ERROR <CR><LF>

	3) <CR><LF> +CME ERROR: <err><CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	-

Defined Values

<value>	0 Save
---------	--------

Examples

```

AT&W0
OK
AT&W
OK

```

2.2.12 ATZ Restore the user setting from ME

This command will restore the user setting from ME which set by ATE, ATQ, ATV, AT&C, AT&D and AT+IFC. AT&W must be executed once, then ATZ can be executed correctly.

ATZ Restore the user setting from ME

Write Command ATZ<value>	Response 1) <CR><LF> OK<CR><LF> 2) <CR><LF> ERROR<CR><LF> 3) <CR><LF> +CME ERROR: <err><CR><LF>
Execute Command ATZ	Response 1)Set default value: 0 <CR><LF> OK<CR><LF> 2)

	<CR><LF> ERROR <CR><LF> 3) <CR><LF> +CME ERROR: <err> <CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	-

Defined Values

<value>	0 Restore
---------	-----------

Examples

ATZ0

OK

ATZ

OK

2.2.13 AT+CGMI Request manufacturer identification

This command is used to request the manufacturer identification text, which is intended to permit the user of the Module to identify the manufacturer.

AT+CGMI Request manufacturer identification

Test Command AT+CGMI=?	Response <CR><LF> OK <CR><LF>
Execute Command AT+CGMI	Response <CR><LF> <manufacturer> <CR><LF> <CR><LF> OK <CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	-

Defined Values

<manufacturer>	The identification of manufacturer.
----------------	-------------------------------------

Examples

```

AT+CGMI
SIMCOM INCORPORATED

OK
AT+CGMI=?
OK

```

2.2.14 AT+CGMM Request model identification

This command is used to requests model identification text, which is intended to permit the user of the Module to identify the specific model.

AT+CGMM Request model identification

Test Command AT+CGMM=?	Response <CR><LF> OK <CR><LF>
Execute Command AT+CGMM	Response <CR><LF> <model><CR><LF> <CR><LF> OK <CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	-

Defined Values

<model>	The identification of model.
---------	------------------------------

Examples

```

AT+CGMM

```

SIM76XX-XXXX

OK

AT+CGMM=?

OK

2.2.15 AT+CGMR Request revision identification

This command is used to request product firmware revision identification text, which is intended to permit the user of the Module to identify the version.

AT+CGMR Request revision identification

Test Command AT+CGMR=?	Response <CR><LF> OK <CR><LF>
Execute Command AT+CGMR	Response <CR><LF> +CGMR: <revision> <CR><LF> <CR><LF> OK <CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	-

Defined Values

<revision>	The revision identification of firmware.
------------	--

Examples

AT+CGMR

+CGMR: 2348B01SIM767XM5A

OK

AT+CGMR=?

OK

2.2.16 AT+CGSN Request product serial number identification

This command requests product serial number identification text, which is intended to permit the user of the Module to identify the individual ME to which it is connected to.

AT+CGSN Request product serial number identification

Test Command AT+CGSN=?	Response <CR><LF> OK <CR><LF>
Execute Command AT+CGSN	Response <CR><LF> <sn><CR><LF> <CR><LF> OK <CR><LF> If there is any error, response <CR><LF> ERROR <CR><LF> or <CR><LF> +CME ERROR: <err> <CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	-

Defined Values

<sn>	Serial number identification, which consists of a single line containing the IMEI (International Mobile station Equipment Identity) number of the MT.
------	---

Examples

AT+CGSN
351602000330570

OK
AT+CGSN=?
OK

2.2.17 AT+CSCS Select TE character set

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

Read command shows current setting and test command displays conversion schemes implemented in the TA.

AT+CSCS Select TE character set

Test Command AT+CSCS=?	Response <CR><LF> +CSCS: (list of supported <chset>s)<CR><LF> <CR><LF> OK <CR><LF>
Read Command AT+CSCS?	Response <CR><LF> +CSCS: <chset><CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+CSCS=<chset>	Response <CR><LF> OK <CR><LF> or <CR><LF> ERROR <CR><LF> or <CR><LF> +CME ERROR: <err> <CR><LF>
Execute Command AT+CSCS	Response Set subparameters as default value(IRA): <CR><LF> OK <CR><LF>
Parameter Saving Mode	AUTO_SAVE
Max Response Time	-
Reference	-

Defined Values

<chset>	Character set, the definition as following: <u>"IRA"</u> International reference alphabet. <u>"GSM"</u> GSM default alphabet; this setting causes easily software flow control (XON /XOFF)problems. <u>"UCS2"</u> 16-bit universal multiple-octet coded character set; UCS2 character strings are converted to
---------	---

hexadecimal numbers from 0000 to FFFF.

Examples

```
AT+CSCS="IRA"
```

```
OK
```

```
AT+CSCS?
```

```
+CSCS: "IRA"
```

```
OK
```

```
AT+CSCS=?
```

```
+CSCS: ("IRA","UCS2","GSM")
```

```
OK
```

```
AT+CSCS
```

```
OK
```

3 AT Commands for Status Control

3.1 Overview of AT Commands for Status Control

Command	Description
AT+CFUN	Set phone functionality
AT+CSQ	Query signal quality
AT+CPOF	Power down the module
AT+CRESET	Reset the module
AT+CACM	Accumulated call meter
AT+CAMM	Accumulated call meter maximum
AT+CCLK	Real time clock management
AT+CMEE	Report mobile equipment error
AT+CPAS	Phone activity status
AT+SIMEI	Set IMEI for the module

3.2 Detailed Description of AT Commands for Status Control

3.2.1 AT+CFUN Set phone functionality

This command is used to select the level of functionality <fun> in the ME. Level "full functionality" is where the highest level of power is drawn. "Minimum functionality" is where minimum power is drawn. Level of functionality between these may also be specified by manufacturers. When supported by manufacturers, ME resetting with <rst> parameter may be utilized.

AT+CFUN Set phone functionality

Test Command AT+CFUN=?	Response <CR><LF> +CFUN: (range of supported <fun>s),(range of supported <rst>s)<CR><LF> <CR><LF> OK <CR><LF>
----------------------------------	---

Read Command AT+CFUN?	Response 1) <CR><LF> +CFUN: <fun><CR><LF> <CR><LF> OK<CR><LF> 2) <CR><LF> ERROR<CR><LF> 3) <CR><LF> +CME ERROR: <err><CR><LF>
Write Command AT+CFUN=<fun>[,<rst>]	Response 1) <CR><LF> OK<CR><LF> 2) <CR><LF> ERROR<CR><LF> 3) <CR><LF> +CME ERROR: <err><CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	25s
Reference	3GPP TS 27.007

Defined Values

<fun>	0 minimum functionality <u>1</u> full functionality, online mode 4 disable phone both transmit and receive RF circuits 5 Factory Test Mode (The 5 and 1 have the same function) 6 Reset 7 Offline Mode
<rst>	0 do not reset the ME before setting it to <fun> power level 1 reset the ME before setting it to <fun> power level. This value only takes effect when <fun> equals 1.

Examples

AT+CFUN=?
+CFUN: (0-1,4-7),(0-1)

OK

AT+CFUN?

+CFUN: 1

OK

AT+CFUN=1

OK

NOTE

AT+CFUN=6 must be used after setting AT+CFUN=7. If module in offline mode, must execute AT+CFUN=6 or restart module to online mode.

3.2.2 AT+CSQ Query signal quality

This command is used to return received signal strength indication <rsqi> and channel bit error rate <ber> from the ME. Test command returns values supported by the TA as compound values.

AT+CSQ Query signal quality

Test Command
AT+CSQ=?

Response
<CR><LF>
+CSQ: (range of supported <rsqi>s),(range of supported <ber>s)<CR><LF>
<CR><LF>
OK<CR><LF>

Execute Command
AT+CSQ

Response
1)
<CR><LF>
+CSQ: <rsqi>,<ber><CR><LF>
<CR><LF>
OK<CR><LF>
2)
<CR><LF>
ERROR<CR><LF>
3)
<CR><LF>
+CME ERROR: <err><CR><LF>

Parameter Saving Mode

NO_SAVE

Max Response Time

5000ms

Reference

3GPP TS 27.007

Defined Values

<rssI>	0	-113 dBm or less
	1	-111 dBm
	2...30	-109... -53 dBm
	31	-51 dBm or greater
	99	not known or not detectable
<ber>		(in percent)
	0	<0.01%
	1	0.01% --- 0.1%
	2	0.1% --- 0.5%
	3	0.5% --- 1.0%
	4	1.0% --- 2.0%
	5	2.0% --- 4.0%
	6	4.0% --- 8.0%
	7	>=8.0%
	99	not known or not detectable

Examples

```
AT+CSQ=?
+CSQ: (0-31,99),(0-7,99)
```

```
OK
AT+CSQ
+CSQ: 31,99
```

```
OK
```

3.2.3 AT+CPOF Power down the module

This command is used to power off the module. Once the AT+CPOF command is executed, the module will store user data and deactivate from network, and then shutdown.

AT+CPOF Power down the module

Test Command	Response
AT+CPOF=?	<CR><LF>
	+CPOF: (list of supported <poweroff_mode>s)<CR><LF>
	<CR><LF>

	OK<CR><LF>
Write Command AT+CPOF=<poweroff_mode>	Response 1) <CR><LF> OK<CR><LF> <CR><LF> POWERD DOWN<CR><LF> 2) ERROR
Execute Command AT+CPOF	Response <CR><LF> OK<CR><LF> <CR><LF> POWERD DOWN<CR><LF>
Parameter Saving Mode	-
Max Response Time	5000ms
Reference	Vendor

Defined Values

<poweroff_mode>	0: Ordinary shutdown 1: Quick shutdown
-----------------	---

Examples

AT+CPOF=?
+CPOF: (0,1)

OK

AT+CPOF

OK

POWERD DOWN

AT+CPOF=1

OK

POWERD DOWN

3.2.4 AT+CRESET Reset the module

This command is used to reset the module.

AT+CRESET Reset the module

Execute Command AT+CRESET	Response <CR><LF> OK <CR><LF>
Test Command AT+CRESET=?	Response <CR><LF> OK <CR><LF>
Parameter Saving Mode	-
Max Response Time	5000ms
Reference	Vendor

Examples

```
AT+CRESET=?
OK
AT+CRESET
OK
```

3.2.5 AT+CACM Accumulated call meter

This command is used to reset the Advice of Charge related accumulated call meter value in SIM file EFACM.

The SIM sleep (power off) shall be disabled by AT+CSIMSLEEP=0 (refer to 6.2.8) before enter AT+CACM.

AT+CACM Accumulated call meter

Test Command AT+CACM=?	Response 1) <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF>
Read Command AT+CACM?	Response 1) <CR><LF> +CACM: <acm> <CR><LF> <CR><LF> OK <CR><LF> 2) <CR><LF>

Write Command AT+CACM=<passwd>	ERROR <CR><LF> 3) <CR><LF> +CME ERROR: <err> <CR><LF>
	Response 1) <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF> 3) <CR><LF> +CME ERROR: <err> <CR><LF>
	Response 1) <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF> 3) <CR><LF> +CME ERROR: <err> <CR><LF>
Execute Command AT+CACM	
Parameter Saving Mode	NO_SAVE
Max Response Time	5000ms
Reference	3GPP TS 27.007

Defined Values

<passwd>	String type, SIM PIN2.
<acm>	String type, accumulated call meter value similarly coded as <ccm> under +CAOC.

Examples

```

AT+CACM=?
OK
AT+CACM?
+CACM: "000000"

OK
AT+CACM="000000"

```

+CME ERROR: operation not supported

AT+CACM

OK

3.2.6 AT+CAMM Accumulated call meter maximum

This command is used to set the Advice of Charge related accumulated call meter maximum value in SIM file EFACMmax.

The SIM sleep(power off) shall be disabled by AT+CSIMSLEEP=0 (refer to 6.2.8) before enter AT+CAMM.

AT+CAMM Accumulated call meter maximum

Test Command AT+CAMM=?	Response 1) <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF>
Read Command AT+CAMM?	1) <CR><LF> +CAMM: <acmmax> <CR><LF> <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF> 3) <CR><LF> +CME ERROR: <err> <CR><LF>
Write Command AT+CAMM=<acmmax>[,<passwd>]	Response 1) <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF> 3) <CR><LF> +CME ERROR: <err> <CR><LF>
Execute Command AT+CAMM	1) <CR><LF> OK <CR><LF>

	2) <CR><LF> ERROR <CR><LF>
	3) <CR><LF> +CME ERROR: <err> <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	5000ms
Reference	3GPP TS 27.007

Defined Values

<acmmax>	String type, accumulated call meter maximum value similarly coded as <ccm> under AT+CAOC, value zero disables ACMmax feature.
<passwd>	String type, SIM PIN2.

Examples

```

AT+CMM=?
OK
AT+CMM?
+CMM: "000000"

OK
AT+CMM="000000"
+CME ERROR: operation not supported
AT+CMM
OK

```

3.2.7 AT+CCLK Real time clock management

This command is used to manage Real Time Clock of the module. Hibernate mode will auto save time, power off won't . Manual setting time is not supported when AT+CTZU equals 3.

AT+CCLK Real time clock management

Test Command AT+CCLK=?	Response <CR><LF> OK <CR><LF>
Read Command AT+CCLK?	Response <CR><LF>

Write Command AT+CCLK=<time>	+CCLK: <time><CR><LF> <CR><LF> OK<CR><LF>
	Response 1) <CR><LF> OK<CR><LF> 2) <CR><LF> ERROR<CR><LF> 3) <CR><LF> +CME ERROR: <err><CR><LF>
	Parameter Saving Mode AUTO_SAVE NOTE: timezone not save
	Maximum Response Time 5000ms
	Reference 3GPP TS 27.007

Defined Values

<time>	String type value; format is "yy/MM/dd, hh:mm:ss±zz", where characters indicate year (two digits ,range 00 to 99), month, day, hour, minutes, seconds and time zone (indicates the difference, expressed in quarters of an hour, between the local time and GMT; three last digits are mandatory, range (-96 to 96). E.g., 6th of May 2008, 14:28:10 GMT+8 equals to "08/05/06,14:28:10+32". NOTE: 1. Time zone is nonvolatile, and the factory value is invalid time zone. 2. Command +CCLK? will return time zone when time zone is valid, and if time zone is 00, command +CCLK? will return "+00", but not "-00".
---------------------	---

Examples

```
AT+CCLK=?
OK
AT+CCLK?
+CCLK: "14/01/01,04:14:36+08"

OK
AT+CCLK="14/01/01,04:14:36+08"
OK
```

3.2.8 AT+CMEE Report mobile equipment error

This command is used to disable or enable the use of result code "+CME ERROR: <err>" or "+CMS ERROR: <err>" as an indication of an error relating to the functionality of ME; when enabled, the format of <err> can be set to numeric or verbose string.

AT+CMEE Report mobile equipment error	
Test Command AT+CMEE=?	Response <CR><LF> +CMEE: (list of supported <n>s)<CR><LF> <CR><LF> OK <CR><LF>
Read Command AT+CMEE?	Response <CR><LF> +CMEE: <n><CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+CMEE=<n>	Response 1) <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF> 3) <CR><LF> +CME ERROR: <err> <CR><LF>
Execute Command AT+CMEE	Response <CR><LF> OK <CR><LF> Note: Set default value
Parameter Saving Mode	NO_SAVE
Max Response Time	5000ms
Reference	3GPP TS 27.007

Defined Values

<n>	0	Disable result code,i.e. only "ERROR" will be displayed.
	1	Enable error result code with numeric values.
	2	Enable error result code with string values.

Examples

AT+CMEE=?

+CMEE: (0-2)

OK

AT+CMEE?

+CMEE: 2

OK

AT+CMEE=2

OK

3.2.9 AT+SIMEI Set the IMEI for the module

This command is used to set the module's IMEI value.

AT+SIMEI Set the IMEI for the module

Test Command

AT+SIMEI=?

Response

<CR><LF>

OK<CR><LF>

Read Command

AT+SIMEI?

Response

1)

<CR><LF>

+SIMEI: <imei><CR><LF>

<CR><LF>

OK<CR><LF>

2)

<CR><LF>

ERROR<CR><LF>

Write Command

AT+SIMEI=<imei>

Response

1)

<CR><LF>

OK<CR><LF>

2)

<CR><LF>

ERROR<CR><LF>

3)

<CR><LF>

+CME ERROR: <err><CR><LF>

Parameter Saving Mode

AUTO_SAVE

Max Response Time	5000ms
Reference	Vendor

Defined Values

<imei>	The 15-digit IMEI value.
--------	--------------------------

Examples

```
AT+SIMEI=?
OK
AT+SIMEI?
+SIMEI: 357396012183175

OK
AT+SIMEI=357396012183175
OK
```

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4 AT Commands for Network

4.1 Overview of AT Commands for Network

Command	Description
AT+CREG	Network registration
AT+COPS	Operator selection
AT+CPOL	Preferred operator list
AT+COPN	Read operator names
AT+CNBP	Preferred band selection
AT+CPSI	Inquiring UE system information
AT+CNSMOD	Show network system mode
AT+CTZU	Automatic time and time zone update
AT+CTZR	Time and time zone reporting

4.2 Detailed Description of AT Commands for Network

4.2.1 AT+CREG Network registration

This command is used to control the presentation of an unsolicited result code +CREG: <stat> when <n>=1 and there is a change in the ME network registration status, or code +CREG: <stat>[,<lac>,<ci>, <AcT>] when <n>=2 and there is a change of the network cell.

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 ME. Location information elements <lac> and <ci> are returned only when <n>=2 and ME is registered in the network.

AT+CREG Network registration

Test Command	Response
AT+CREG=?	<CR><LF> +CREG: (range of supported <n> s)<CR><LF> <CR><LF>

	OK<CR><LF>
Read Command AT+CREG?	Response 1) <CR><LF> +CREG: <n>,<stat>[,<lac>,<ci>,<AcT>]<CR><LF> <CR><LF> OK<CR><LF> 2) <CR><LF> ERROR<CR><LF> 3) <CR><LF> +CME ERROR: <err><CR><LF>
Write Command AT+CREG=<n>	Response 1) <CR><LF> OK<CR><LF> 2) <CR><LF> ERROR<CR><LF> 3) <CR><LF> +CME ERROR: <err><CR><LF>
Execute Command AT+CREG	Response Set default value(<n>=0): <CR><LF> OK<CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	5000ms
Reference	3GPP TS 27.007

Defined Values

<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>,<AcT>].
<stat>	0 not registered, ME is not currently searching a new operator to register to. 1 registered, home network. 2 not registered, but ME is currently searching a new operator to register to. 3 registrations denied. 4 unknowns.

	5 registered, roaming. 6 registered for "SMS only", home network (applicable only when E-UTRAN)
<lac>	Two-byte location area code in hexadecimal format(e.g."00C3" equals 193 in decimal).
<ci>	Cell Identify in hexadecimal format. GSM: Maximum is two bytes. WCDMA: Maximum is four bytes.
<AcT>	Integer type; access technology of the serving cell 7 E-UTRAN

Examples

AT+CREG=?

+CREG: (0-2)

OK

AT+CREG?

+CREG: 0,1

OK

AT+CREG=1

OK

AT+CREG

OK

4.2.2 AT+COPS Operator selection

Write command forces an attempt to select and register the GSM/UMTS network operator. <mode> is used to select whether the selection is done automatically by the ME or is forced by this command to operator <oper> (it shall be given in format <format>). If the selected operator is not available, no other operator shall be selected (except <mode>=4). The selected operator name format shall apply to further read commands (AT+COPS?)also. <mode>=2 forces an attempt to deregister from the network. The selected mode affects to all further network registration (e.g., after <mode>=2, ME shall be unregistered until <mode>=0 or 1 is selected).

Read command returns the current mode and the currently selected operator. If no operator is selected,<format> and <oper> 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, and other networks.

It is recommended (although optional) that after the operator list TA returns lists of supported <mode>s and <format>s. These lists shall be delimited from the operator list by two commas.

AT+COPS Operator selection

Test Command AT+COPS=?	Response 1) [<CR><LF> +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)]<CR><LF>] <CR><LF> OK<CR><LF> 2) <CR><LF> ERROR<CR><LF> 3) <CR><LF> +CME ERROR: <err><CR><LF>
Read Command AT+COPS?	Response 1) <CR><LF> +COPS: <mode>[, <format>, <oper>[, <AcT>]]<CR><LF> <CR><LF> OK<CR><LF> 2) <CR><LF> ERROR<CR><LF> 3) <CR><LF> +CME ERROR: <err><CR><LF>
Write Command AT+COPS=<mode>[, <format> >[, <oper>[, <AcT>]]]	Response 1) <CR><LF> OK<CR><LF> 2) <CR><LF> ERROR<CR><LF> 3) <CR><LF> +CME ERROR: <err><CR><LF>
Parameter Saving Mode	AUTO_SAVE

Max Response Time	60S
Reference	3GPP TS 27.007

Defined Values

<mode>	<u>0</u> automatic 1 manual 2 forces deregister 3 set only <format> 4 manual/automatic NOTE: if <mode> is set to 1, 4 in write command, the <oper> is needed. Set <mode> to 0,1,4 will save to NVM
<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.
<stat>	0 unknown 1 available 2 current 3 forbidden
<AcT>	Access technology selected 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 EUTRAN 8 UTRAN HSPA+

Examples

AT+COPS=?

```
+COPS: (2,"CHINA MOBILE","CMCC","46000",7),(3,"460 15","460
15","46015",7),(0,"CHN-CT","CT","46011",7),(3,"CHN-UNICOM","UNICOM","46001",7
),,(0,1,2,3,4),(0,1,2)
```

OK

AT+COPS?

```
+COPS: 0,2,"46001",7
```

```
OK
AT+COPS=1,2,"46001",7
OK
AT+COPS=0
OK
```

4.2.3 AT+CPOL Preferred operator list

This command is used to edit the SIM preferred list of networks.

AT+CPOL Preferred operator list

Test Command AT+CPOL=?	Response 1) <CR><LF> OK<CR><LF> 2) <CR><LF> ERROR<CR><LF>
Read Command AT+CPOL?	Response 1) [<CR><LF> +CPOL: <index1>,<format>,<oper1>[<GSM_AcT1>,<GSM_Compact_AcT1>,<UTRAN_AcT1>,<LTE_AcT1>]]<CR><LF> +CPOL: <index2>,<format>,<oper2>[,<GSM_AcT1>,<GSM_Compact_AcT1>,<UTRAN_AcT1>,<LTE_AcT1>] [.]]<CR><LF>] <CR><LF> OK<CR><LF> 2) <CR><LF> ERROR<CR><LF>
Write Command AT+CPOL=<index>[,<format>[,<oper>][,<GSM_AcT1>,<GSM_Compact_AcT1>,<UTRAN_AcT1>,<LTE_AcT1>]] NOTE: If using USIM card, the last four parameters must set.	Response 1) <CR><LF> OK<CR><LF> 2) <CR><LF> ERROR<CR><LF> 3)

	<CR><LF> +CME ERROR: <err><CR><LF>
Parameter Saving Mode	AUTO_SAVE
Max Response Time	5000ms
Reference	3GPP TS 27.007

Defined Values

<index>	Integer type, the order number of operator in the SIM preferred operator list. If only input <index>, command will delete the value indicate by <index>.
<format>	0 long format alphanumeric <oper> 1 short format alphanumeric <oper> 2 numeric <oper>
<operX>	String type.
<GSM_AcTn>	GSM access technology: 0 access technology not selected 1 access technology selected
<GSM_Compact_AcTn>	GSM compact access technology: 0 access technology not selected 1 access technology selected
<UTRA_AcTn>	UTRA access technology: 0 access technology not selected 1 access technology selected
<LTE_AcTn>	LTE access technology: 0 access technology not selected 1 access technology selected

Examples

```

AT+CPOL=?
OK
AT+CPOL?
+CPOL: 1,2,"46001"
+CPOL: 2,2,"46001"
+CPOL: 3,2,"46001",0,0,0,1
+CPOL: 4,2,"46009",0,0,0,1
+CPOL: 5,2,"46001",0,0,1,0
+CPOL: 6,2,"46009",0,0,1,0

OK
AT+CPOL=1,2,"46001"

```

OK

4.2.4 AT+COPN Read operator names

This command is used to return the list of operator names from the ME. Each operator code <numericX> that has an alphanumeric equivalent <alphaX> in the ME memory shall be returned.

AT+COPN Read operator names

Test Command AT+COPN=?	Response 1) <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF>
Execute Command AT+COPN	Response 1) <CR><LF> +COPN: <numeric1>,<alpha1> <CR><LF> +COPN: <numeric2>,<alpha2>[.]] <CR><LF> <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF> 3) <CR><LF> +CME ERROR: <err> <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	5000ms
Reference	3GPP TS 27.007

Defined Values

<numericX>	String type, operator in numeric format (see AT+COPS).
<alphaX>	String type, operator in long alphanumeric format (see AT+COPS).

Examples

AT+COPN=?

OK

AT+COPN

+COPN: "46000","CMCC"

+COPN: "46001","UNICOM"

.....

OK

4.2.5 AT+CNBP Preferred band selection

This command is used to select or set the state of the band preference.

AT+CNBP Preferred band selection

Test Command AT+CNBP=?	Response 1) <CR><LF> +CNBP: (list of supported <band>s)<CR><LF> <CR><LF> OK<CR><LF> 2) <CR><LF> ERROR<CR><LF>
Read Command AT+CNBP?	Response <CR><LF> +CNBP: <mode>,<lte_mode>,<lte_ext_mode><CR><LF> <CR><LF> OK<CR><LF>
Write Command AT+CNBP=<mode>[,<lte_mode>[,<lte_ext_mode>[,<save Mode>]]]	Response 1) <CR><LF> OK<CR><LF> 2) <CR><LF> ERROR<CR><LF> 3) <CR><LF> +CME ERROR: <err><CR><LF>
Parameter Saving Mode	AUTO_SAVE
Max Response Time	25s
Reference	3GPP TS 27.007

Defined Values

<band>	Band list in decimal number, the default value is decided by RF Calibration table
<mode>	64bit number, the value is "1" << "<pos>", then or by bit.
<pos>	Value: 0xFFFFFFFF7FFFFFFF Any (any value) 7 GSM_DCS_1800 8 GSM_EGSM_900 9 GSM_PGSM_900 16 GSM_450 17 GSM_480 18 GSM_750 19 GSM_850 20 GSM_RGSM_900 21 GSM_PCS_1900 22 WCDMA_IMT_2000 23 WCDMA_PCS_1900 24 WCDMA_III_1700 25 WCDMA_IV_1700 26 WCDMA_850 27 WCDMA_800 48 WCDMA_VII_2600 49 WCDMA_VIII_900 50 WCDMA_IX_1700
<lte_mode>	64-bit number, the value is "1" << "<lte_pos>", then or by bit.
<lte_pos>	Value: 0x000007FF3FDF3FFF Any (any value) 0 EUTRAN_BAND1(UL:1920-1980; DL:2110-2170) 1 EUTRAN_BAND2(UL:1850-1910; DL:1930-1990) 2 EUTRAN_BAND3(UL:1710-1785; DL:1805-1880) 3 EUTRAN_BAND4(UL:1710-1755; DL:2110-2155) 4 EUTRAN_BAND5(UL: 824-849; DL: 869-894) 5 EUTRAN_BAND6(UL: 830-840; DL: 875-885) 6 EUTRAN_BAND7(UL:2500-2570; DL:2620-2690) 7 EUTRAN_BAND8(UL: 880-915; DL: 925-960) 8 EUTRAN_BAND9(UL:1749.9-1784.9; DL:1844.9-1879.9) 9 EUTRAN_BAND10(UL:1710-1770; DL:2110-2170) 10 EUTRAN_BAND11(UL:1427.9-1452.9; DL:1475.9-1500.9) 11 EUTRAN_BAND12(UL:698-716; DL:728-746) 12 EUTRAN_BAND13(UL: 777-787; DL: 746-756) 13 EUTRAN_BAND14(UL: 788-798; DL: 758-768) 16 EUTRAN_BAND17(UL: 704-716; DL: 734-746) 17 EUTRAN_BAND18(UL: 815-830; DL: 860-875)

	18 EUTRAN_BAND19(UL: 830-845; DL: 875-890) 19 EUTRAN_BAND20(UL: 832-862; DL: 791-821) 20 EUTRAN_BAND21(UL:1447.9-1462.9; DL: 1495.9-1510.9) 22 EUTRAN_BAND23(UL: 2000-2020; DL: 2180-2200) 23 EUTRAN_BAND24(UL: 1626.5-1660.5; DL: 1525 -1559) 24 EUTRAN_BAND25(UL: 1850-1915; DL: 1930 -1995) 25 EUTRAN_BAND26(UL: 814-849; DL: 859 -894) 26 EUTRAN_BAND27(UL: 807.5-824; DL: 852 -869) 27 EUTRAN_BAND28(703-748; DL: 758-803) 28 EUTRAN_BAND29(UL:1850-1910 or 1710-1755; DL:716-728) 29 EUTRAN_BAND30(UL: 2305-2315 ; DL: 2350 - 2360) 32 EUTRAN_BAND33(UL: 1900-1920; DL: 1900-1920) 33 EUTRAN_BAND34(UL: 2010-2025; DL: 2010-2025) 34 EUTRAN_BAND35(UL: 1850-1910; DL: 1850-1910) 35 EUTRAN_BAND36(UL: 1930-1990; DL: 1930-1990) 36 EUTRAN_BAND37(UL: 1910-1930; DL: 1910-1930) 37 EUTRAN_BAND38(UL: 2570-2620; DL: 2570-2620) 38 EUTRAN_BAND39(UL: 1880-1920; DL: 1880-1920) 39 EUTRAN_BAND40(UL: 2300-2400; DL: 2300-2400) 40 EUTRAN_BAND41(UL: 2496-2690; DL: 2496-2690) 41 EUTRAN_BAND42(UL: 3400-3600; DL: 3400-3600) 42 EUTRAN_BAND43(UL: 3600-3800; DL: 3600-3800)
<lte_Ext_mode>	8-bit number, the value is "1" << "<lte_EXT_pos>", then or by bit.
<lte_Ext_pos>	Value: 0 EUTRAN_BAND65 1 EUTRAN_BAND66 2 EUTRAN_BAND67 3 EUTRAN_BAND68 4 EUTRAN_BAND69 5 EUTRAN_BAND70 6 EUTRAN_BAND71 7 EUTRAN_BAND72
<saveMode>	<u>0</u> Save in NVM 1 Don't save in NVM

Examples

AT+CNBP=?

+CNBP: (1,2,3,4,5,7,8,12,13,18,19,20,25,26,28,34,38,39,40,41,66)

OK

AT+CNBP?

+CNBP: 0X0000000000000000,0X000001E20A0818DF,0X0002

OK

AT+CNBP= 0X0000000000000000,0X000001E20A0818DF

OK

NOTE

1. <mode>: QCX216 only support LTE, <mode> invalid.
2. <lte_mode>: FDD(band1 ~ band32), TDD(band33 ~ band42).
3. <lte_Ext_mode>: band65 ~ band72.
4. <saveMode>: QCX216 only support save in NVM.

4.2.6 AT+CPSI Inquiring UE system information

This command is used to return the UE system information.

AT+CPSI Inquiring UE system information

Test Command

AT+CPSI=?

Response

1)
<CR><LF>
OK<CR><LF>

2)
<CR><LF>
ERROR<CR><LF>

Read Command

AT+CPSI?

Response

1)If camping on a gsm cell:
<CR><LF>
+CPSI: <System Mode>,<Operation Mode>,<MCC>,<MNC>,<LAC>,<Cell ID>,<Absolute RF Ch Num>,<RxLev>,<Track LO Adjust>,<C1-C2><CR><LF>
<CR><LF>
OK<CR><LF>

2)If camping on a wcdma cell:
<CR><LF>
+CPSI: <System Mode>,<Operation Mode>,<MCC>,<MNC>,<LAC>,<Cell ID>,<Frequency Band>,<PSC>,<Freq>,<SSC>,<EC/IO>,<RSCP>,<Qual>,<RxLev>,<TXPWR><CR><LF>
<CR><LF>
OK<CR><LF>

3)If camping on a lte cell:
<CR><LF>
+CPSI: <System Mode>,<Operation Mode>[,<MCC>,<MNC>,<TA

	C>,<SCellID>,<PCellID>,<Frequency Band>,<earfcn>,<dlbw>,<ulbw>,<RSRQ>,<RSRP>,<RSSI>,<RSSNR>]<CR><LF> <CR><LF> OK<CR><LF> 4)If no service: <CR><LF> +CPSI: NO SERVICE, Low Power Mode<CR><LF> <CR><LF> OK<CR><LF> 5) <CR><LF> ERROR<CR><LF> 6) <CR><LF> +CME ERROR: <err><CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	5000ms
Reference	3GPP TS 27.007

Defined Values

<System Mode>	System mode, values: "NO SERVICE", "GSM", "WCDMA", "LTE"
<Operation Mode>	UE operation mode, values: "Unknown", "Online", "Offline", "Factory Test Mode", "Reset", "Low Power Mode", "Flight Mode".
<MCC>	Mobile Country Code (first part of the PLMN code)
<MNC>	Mobile Network Code (second part of the PLMN code)
<LAC>	Location Area Code (hexadecimal digits)
<Cell ID>	Service-cell Identify.
<Absolute RF Ch Num>	AFRCN for service-cell.
<Track LO Adjust>	Track LO Adjust
<C1>	Coefficient for base station selection
<C2>	Coefficient for Cell re-selection
<Frequency Band>	Frequency Band of active set
<PSC>	Primary synchronization code of active set.
<Freq>	Downlink frequency of active set.
<SSC>	Secondary synchronization code of active set
<EC/IO>	Ec/Io value
<RSCP>	Received Signal Code Power
<Qual>	Quality value for base station selection
<RxLev>	RX level value for base station selection
<TXPWR>	UE TX power in dBm. If no TX, the value is 500.
<Cpid>	Cell Parameter ID

<TAC>	Tracing Area Code
<PCellID>	Physical Cell ID
<earfcn>	E-UTRA absolute radio frequency channel number for searching LTE cells
<dlbw>	Transmission bandwidth configuration of the serving cell on the downlink
<ulbw>	Transmission bandwidth configuration of the serving cell on the uplink
<RSRP>	Current reference signal received power in (RSRP report value -140) dBm. Available for LTE
<RSRQ>	Current reference signal receive quality as measured by L1: (RSRQ report value -40)/2 dBm
<RSSNR>	Average reference signal signal-to-noise ratio of the serving cell
<SCellID>	String type. cell ID in decimal format for serving cell
<RSSI>	Number format. Received signal strength indication: (RSSI report value -110) dBm

Examples

AT+CPSI?

+CPSI:

LTE,Online,460-01,0x230A,175499523,318,EUTRAN-BAND3,1650,5,0,21,67,255,19

OK

4.2.7 AT+CNSMOD Show network system mode

This command is used to return the current network system mode.

AT+CNSMOD Show network system mode

Test Command AT+CNSMOD=?	Response <CR><LF> +CNSMOD: (list of supported <n>s)<CR><LF> <CR><LF> OK <CR><LF>
Read Command AT+CNSMOD?	Response 1) <CR><LF> +CNSMOD: <n>,<stat><CR><LF> <CR><LF> OK <CR><LF>

Write Command AT+CNSMOD=<n>	2) <CR><LF> ERROR <CR><LF>
	3) <CR><LF> +CME ERROR: <err> <CR><LF>
	Response 1) <CR><LF> OK <CR><LF>
	2) <CR><LF> ERROR <CR><LF>
	3) <CR><LF> +CME ERROR: <err> <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	5000ms
Reference	3GPP TS 27.007

Defined Values

<n>	0 disable auto report the network system mode information
	1 auto report the network system mode information, command: +CNSMOD: <stat>
<stat>	0 no service
	1 GSM
	2 GPRS
	3 EGPRS (EDGE)
	4 WCDMA
	5 HSDPA only(WCDMA)
	6 HSUPA only(WCDMA)
	7 HSPA (HSDPA and HSUPA, WCDMA)
	8 LTE

Examples

AT+CNSMOD=?

+CNSMOD: (0,1)

OK

AT+CNSMOD?

+CNSMOD: 0,8

```
OK
AT+CNSMOD=0
OK
```

4.2.8 AT+CTZU Automatic time and time zone update

This command is used to enable and disable automatic time and time zone update via NITZ

AT+CTZU Automatic time and time zone update

Test Command AT+CTZU=?	Response <CR><LF> +CTZU: (range of supported <on/off>s)<CR><LF> <CR><LF> OK <CR><LF>
Read Command AT+CTZU?	Response <CR><LF> +CTZU: <on/off><CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+CTZU=<on/off>	Response 1) <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF> 3) <CR><LF> +CME ERROR: <err> <CR><LF>
Parameter Saving Mode	AUTO_SAVE
Max Response Time	5000ms
Reference	3GPP TS 27.007

Defined Values

<on/off>	Integer type value indicating: 0 Disable automatic time zone update via NITZ 1 Enable automatic time zone update via NITZ and update GMT time to RTC((default).). 3 Enable automatic time zone update via NITZ and update LOCAL
----------	--

time to RTC

Examples

AT+CTZU=?

+CTZU: (0,1,3)

OK

AT+CTZU?

+CTZU: 0

OK

AT+CTZU=0

OK

4.2.9 AT+CTZR Time and time zone reporting

This command is used to enable and disable the time zone change event reporting. If the reporting is enabled the MT returns the unsolicited result code +CTZV: <tz> /+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.

AT+CTZR Time and time zone reporting

Test Command AT+CTZR=?	Response <CR><LF> +CTZR: (range of supported <on/off>s)<CR><LF> <CR><LF> OK<CR><LF>
Read Command AT+CTZR?	Response <CR><LF> +CTZR: <on/off><CR><LF> <CR><LF> OK<CR><LF>
Write Command AT+CTZR=<on/off>	Response 1) <CR><LF> OK<CR><LF> 2) <CR><LF> ERROR<CR><LF> 3)

	<CR><LF> +CME ERROR: <err><CR><LF>
Execute Command AT+CTZR	Response <CR><LF> OK<CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	5000ms
Reference	3GPP TS 27.007

Defined Values

<on/off>	Integer type value indicating: <u>0</u> Disable time zone change event reporting. 1 Enable time zone change event reporting by unsolicited result code +CTZV: <tz>. 3 Enable extended time zone and universal time reporting by unsolicited result code +CTZEU: <tz>,<dst>,[<utime>]
<tz>	String type, 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, 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 Note: if tz or dst not present, there is not present
<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.

Examples

AT+CTZR=?
+CTZR: (0,1,3)

OK
AT+CTZR?
+CTZR: 3

OK
AT+CTZR=3
OK

NOTE

The time zone reporting is not affected by the Automatic Time and Time Zone command AT+CTZU.

5 AT Commands for Packet Domain

5.1 Overview of AT Commands for Packet Domain

Command	Description
AT+CGREG	Network registration status
AT+CEREG	EPS network registration status
AT+CGATT	Packet domain attach or detach
AT+CGACT	PDP context activate or deactivate
AT+CGDCONT	Define PDP context
AT+CGDSCONT	Define Secondary PDP Context
AT+CGTFT	Traffic Flow Template
AT+CGDATA	Enter data state
AT+CGPADDR	Show PDP address
AT+CGEREP	GPRS event reporting
AT+CGAUTH	Set type of authentication for PDP-IP connections of GPRS
AT+CPING	Ping destination address
AT+CGCONTRDP	PDP context read dynamic parameters
AT+SIGNALS	Query main antenna signal quality parameters

5.2 Detailed Description of AT Commands for Packet Domain

5.2.1 AT+CGREG Network registration status

This command controls the presentation of an unsolicited result code "+CGREG: <stat>" when <n>=1 and there is a change in the MT's GPRS network registration status.

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.

AT+CGREG Network registration status

Test Command	Response
AT+CGREG=?	1) <CR><LF> +CGREG: (list of supported <n>s)<CR><LF>

	<CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF>
Read Command AT+CGREG?	Response <CR><LF> +CGREG: <n>,<stat>[,<tac>,<ci>,<AcT>] <CR><LF> <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF>
Write Command AT+CGREG=<n>	Response 1) <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF> 3) <CR><LF> +CME ERROR: <err> <CR><LF>
Execute Command AT+CGREG	Response Set default value:0 1) <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	9000ms
Reference	3GPP TS 27.007

Defined Values

<n>	0 disable network registration unsolicited result code 1 enable network registration unsolicited result code +CGREG: <stat> 2 there is a change in the ME network registration status or a change of the network cell: +CGREG: <stat>[,<lac>,<ci>,<AcT>]
<stat>	0 not registered, ME is not currently searching an operator to register to 1 registered, home network

	2 not registered, but ME is currently trying to attach or searching an operator to register to 3 registration denied 4 unknown 5 registered, roaming 6 registered for "SMS only", home network(applicable only when E-UTRAN) 11 attached for emergency bearer services only
<ta>	string type; two byte tracking area code in hexadecimal format (e.g. "00C3" equals 195 in decimal)
<ci>	Cell ID in hexadecimal format. GSM: Maximum is two byte. WCDMA: Maximum is four byte.
<AcT>	A numeric parameter that indicates the access technology of serving cell 7 E-UTRAN

Examples

AT+CGREG=?

+CGREG: (0-2)

OK

AT+CGREG?

+CGREG: 0,1

OK

AT+CGREG=1

OK

AT+CGREG

OK

5.2.2 AT+CEREG EPS network registration status

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>[,<ta>,<ci>[,<AcT>]] when <n>=2 and there is a change of the network cell in E-UTRAN; in this latest case <AcT>,<ta> and <ci> are sent only if available.

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 <ta>,<ci> and <AcT>, if available, are returned only when <n>=2 and MT is registered in the network.

AT+CEREG EPS network registration status

Test Command AT+CEREG=?	Response 1) <CR><LF> +CEREG: (range of supported <n>s)<CR><LF> <CR><LF> OK<CR><LF> 2) <CR><LF> ERROR<CR><LF>
Read Command AT+CEREG?	Response 1) <CR><LF> +CEREG: <n>,<stat>[,<tac>,<ci>[,<AcT>[,<cause_type>,<reject_cause>]]]<CR><LF> <CR><LF> OK<CR><LF> 2) <CR><LF> ERROR<CR><LF>
Write Command AT+CEREG=<n>	Response 1) <CR><LF> OK<CR><LF> 2) <CR><LF> ERROR<CR><LF> 3) <CR><LF> +CME ERROR: <err><CR><LF>
Execute Command AT+CEREG	Response 1) Set default value (<n>=0): <CR><LF> OK<CR><LF> 2) <CR><LF> ERROR<CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	5000ms
Reference	3GPP TS 24.008 [8]

Defined Values

<n>	0 disable network registration unsolicited result code 1 enable network registration unsolicited result code +CEREG: <stat> 2 enable network registration and location information unsolicited result code +CEREG: <stat>[,<tac>,<ci>[,<AcT>]] 3 enable network registration and location information and reject cause type and reject cause result code +CEREG: <stat>[,<tac>,<ci>[,<AcT>[,<cause_type>,<reject_cause>]]]
<stat>	0 not registered, MT is not currently searching an operator to register to 1 registered, home network 2 not registered, but MT is currently trying to attach or searching an operator to register to 3 registration denied 4 unknown (e.g. out of E-UTRAN coverage) 5 registered, roaming 6 registered for "SMS only", home network (not applicable) 7 registered for "SMS only", roaming (not applicable) 11 attached for emergency bearer services only
<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 identify in hexadecimal format
<AcT>	A numeric parameter that indicates the access technology of serving cell 0 GSM (not applicable) 1 GSM Compact (not applicable) 2 UTRAN (not applicable) 3 GSM w/EGPRS (see NOTE 3)(not applicable) 4 UTRAN w/HSDPA (see NOTE 4)(not applicable) 5 UTRAN w/HSUPA (see NOTE 4)(not applicable) 6 UTRAN w/HSDPA and HSUPA (see NOTE 4)(not applicable) 7 E-UTRAN
<cause_type>	type of network registration reject, only support 0 by now
<reject_cause>	network reject code

Examples

AT+CEREG=?
+CEREG: (0-3)

OK

AT+CEREG?

+CEREG: 0,1

OK

AT+CEREG?

+CEREG: 3,3,9A5F,051009A5,7,0,111

OK

AT+CEREG?

+CEREG: 3,3,,,,,0,111

OK

AT+CEREG=1

OK

AT+CEREG

OK

5.2.3 AT+CGATT Packet domain attach or detach

The write command is used to attach the MT to, or detach the MT from, the Packet Domain service. The read command returns the current Packet Domain service state.

AT+CGATT Packet domain attach or detach

Test Command

AT+CGATT=?

Response

1)

<CR><LF>

+CGATT: (list of supported <state>s)<CR><LF>

<CR><LF>

OK<CR><LF>

2)

<CR><LF>

ERROR<CR><LF>

Read Command

AT+CGATT?

Response

1)

<CR><LF>

+CGATT: <state><CR><LF>

<CR><LF>

OK<CR><LF>

2)

<CR><LF>

ERROR<CR><LF>

3)

<CR><LF>

Write Command AT+CGATT=<state>	+CME ERROR: <err><CR><LF>
	Response
	1) <CR><LF> OK <CR><LF>
	2) <CR><LF> ERROR <CR><LF>
	3) <CR><LF> +CME ERROR: <err><CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	45s
Reference	3GPP TS 27.007

Defined Values

<state>	Indicates the state of Packet Domain attachment:
0	detached
<u>1</u>	attached

Examples

AT+CGATT=?

+CGATT: (0-1)

OK

AT+CGATT?

+CGATT: 1

OK

AT+CGATT=1

OK

5.2.4 AT+CGACT PDP context activate or deactivate

The write command is used to activate or deactivate the specified PDP context (s).

AT+CGACT PDP context activate or deactivate

Test Command	Response
--------------	----------

AT+CGACT=?	<CR><LF> +CGACT: (list of supported <state>s)<CR><LF> <CR><LF> OK <CR><LF>
Read Command AT+CGACT?	Response 1) <CR><LF> +CGACT: <cid>,<state>[<CR><LF> +CGACT: <cid>,<state>[.]]<CR><LF> <CR><LF> OK <CR><LF> 2) <CR><LF> OK <CR><LF>
Write Command AT+CGACT=<state>[,<cid>]	Response 1) <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF> 3) <CR><LF> +CME ERROR: <err><CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	45s
Reference	3GPP TS 27.007

Defined Values

<state>	Indicates the state of PDP context activation: 0 deactivated 1 activated
<cid>	A numeric parameter which specifies a particular PDP context definition (see AT+CGDCONT command). 1...15

Examples

AT+CGACT=?

+CGACT: (0,1)

OK

AT+CGACT?

+CGACT: 1,1

OK

AT+CGACT=1,1

OK

5.2.5 AT+CGDCONT Define PDP context

The set command specifies PDP context parameter values for a 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. A special form of the write command (AT+CGDCONT=<cid>) causes the values for context <cid> to become undefined.

AT+CGDCONT Define PDP context

Test Command AT+CGDCONT=?	Response 1) <CR><LF> +CGDCONT: (range of supported<cid>s),<PDP_type>,,,(list of supported<d_comp>s),(list of supported<h_comp>s),(list of <ipv4_ctrl>s),(list of <request_type>s),(list of supported<PCSCF_discovery>s),(list of supported<IM_CN_Signalling_Flag_Ind>s),(list of supported <NSLPI>s),(list of supported<securePCO>s),(list of supported<IPv4_MTU_discovery>s),(list of supported<Local_Addr_Ind>s)<CR><LF> <CR><LF> OK<CR><LF> 2) <CR><LF> ERROR<CR><LF>
Read Command AT+CGDCONT?	Response 1) <CR><LF> +CGDCONT: <cid>,<PDP_type>,<APN>[[,<PDP_addr>],<d_comp>,<h_comp>,<ipv4_ctrl>,<request_type>,<P-CSCF_discovery>,<IM_CN_Signalling_Flag_Ind>[<NSLPI>,<securePCO>,<IPv4_MTU_discovery>]]]<CR><LF> +CGDCONT: <cid>,<PDP_type>,<APN>[[,<PDP_addr>],<d_comp>,<h_comp>,<ipv4_ctrl>,<request_type>,<P-CSCF_discovery>,<IM_CN_Signa

	<pre> lling_Flag_Ind>[<NSLPI>[,<securePCO>[,<IPv4_MTU_discovery>]]][...]]<CR><LF> <CR><LF> OK<CR><LF> 2) <CR><LF> ERROR<CR><LF> 3) <CR><LF> +CME ERROR: <err><CR><LF> </pre>
Write Command AT+CGDCONT=<cid>[,<PDP_type>[,<APN>[,<PDP_addr>[,<d_comp>[,<h_comp>][,<ip v4_ctrl>[,<request_type>[,<PCSCF_discovery>[,<IM_CN_Signalling_Flag_Ind>[,<NSLPI>[,<securePCO>[,<IPv4_MTU_discovery>]]]]]]]]]]]	<pre> Response 1) <CR><LF> OK<CR><LF> 2) <CR><LF> ERROR<CR><LF> 3) <CR><LF> +CME ERROR: <err><CR><LF> </pre>
Execute Command AT+CGDCONT	<pre> Response 1) <CR><LF> OK<CR><LF> 2) <CR><LF> ERROR<CR><LF> 3) <CR><LF> +CME ERROR: <err><CR><LF> </pre>
Parameter Saving Mode	AUTO_SAVE
Max Response Time	5000ms
Reference	3GPP TS 27.007

Defined Values

<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)is returned by the test form of the command. 1...15
<PDP_type>	(Packet Data Protocol type)a string parameter which specifies the type of packet data protocol.

	IP Internet Protocol IPV6 Internet Protocol Version 6 IPV4V6 Dual PDN Stack Non-IP Transfer of Non-IP data to external packet data network
<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.
<PDP_addr>	A string parameter that identifies the MT in the address space applicable to the PDP. This parameter will be omitted when PDP_type is PPP type. Read 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 command AT+CGPADDR.
<d_comp>	A numeric parameter that controls PDP data compression, this value may depend on platform: 0 off (default if value is omitted) 1 on 2 V.42bis
<h_comp>	A numeric parameter that controls PDP header compression, this value may depend on platform: 0 off (default if value is omitted) 1 RFC1144
<ipv4_ctrl>	Parameter that controls how the MT/TA requests to get the IPv4 address information: 0 Address Allocation through NAS Signaling 1 on
<request_type>	integer type; indicates the type of PDP context activation request for the PDP context, see 3GPP TS 24.301 [83] (subclause 6.5.1.2)and 3GPP TS 24.008 [8] (subclause 10.5.6.17). If the initial PDP context is supported (see subclause 10.1.0)it is not allowed to assign <cid>=0 for emergency bearer services. According to 3GPP TS 24.008 [8] (subclause 4.2.4.2.2 and subclause 4.2.5.1.4)and 3GPP TS 24.301 [83] (subclause 5.2.2.3.3 and subclause 5.2.3.2.2), a separate PDP context must be established for emergency bearer services. NOTE 4: If the PDP context for emergency bearer services is the only activated context, only emergency calls are allowed, see 3GPP TS 23.401 [82] subclause 4.3.12.9. 0 PDP context is for new PDP context establishment or for handover from a non-3GPP access network (how the MT decides whether the PDP context is for new PDP context establishment or for handover is implementation specific) 1 PDP context is for emergency bearer services 2 PDP context is for new PDP context establishment
<P-CSCF_discovery>	integer type; influences how the MT/TA requests to get the P-CSCF address, see 3GPP TS 24.229 [89] annex B and annex L. 0 Preference of P-CSCF address discovery not influenced by

	+CGDCONT 1 Preference of P-CSCF address discovery through NAS signalling 2 Preference of P-CSCF address discovery through DHCP
<IM_CN_Signalling_Flag_Ind>	integer type; indicates to the network whether the PDP context is for IM CN subsystem-related signalling only or not. 0 UE indicates that the PDP context is not for IM CN subsystem-related signalling only 1 UE indicates that the PDP context is for IM CN subsystem-related signalling only
<NSLPI>	integer type; indicates the NAS signaling priority requested for this PDP context 0 indicates that this PDP context is to be activated with the value for the low priority indicator configured in the MT. 1 indicates that this PDP context is to be activated with the value for the low priority indicator set to "MS is not configured for NAS signaling low priority"
<securePCO>	integer type; specifies if security protected transmission of PCO is requested or not 0 Security protected transmission of PCO is not requested 1 Security protected transmission of PCO is requested (Not support)
<IPv4_MTU_discovery>	Integer type; influences how the MT/TA requests to get the IPv4 MTU size 0 Preference of IPv4 MTU size discovery not influenced by +CGDCONT 1 Preference of IPv4 MTU size discovery through NAS signalling
<Local_Addr_Ind>	integer type; indicates to the network whether or not the MS supports local IP address in TFTs 0 Indicates that the MS does not support local IP address in TFTs 1 Indicates that the MS supports local IP address in TFTs (Not support)

Examples

AT+CGDCONT=?

+CGDCONT: (1-15),"IP",,,,,,(0),(0,2),(0),(0),(0,1),(0),(0,1),(0)

+CGDCONT: (1-15),"IPV6",,,,,,(0),(0,2),(0),(0),(0,1),(0),(0),(0)

+CGDCONT: (1-15),"IPV4V6",,,,,,(0),(0,2),(0),(0),(0,1),(0),(0,1),(0)

+CGDCONT: (1-15),"Non-IP",,,,,,(0),(0,2),(0),(0),(0,1),(0),(0),(0),(0,1)

OK

AT+CGDCONT?

+CGDCONT: 1,"IP",""

OK

AT+CGDCONT=1,"IP","cnnnet"

OK

AT+CGDCONT

OK

5.2.6 AT+CGDSCONT Define Secondary PDP Context

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

AT+CGDSCONT Define Secondary PDP Context

Test Command

AT+CGDSCONT=?

Response

1)

<CR><LF>

+CGDSCONT: (range of supported <cid>s),(list of <p_cid>s for active primary contexts)<CR><LF>

<CR><LF>

OK<CR><LF>

2)

<CR><LF>

ERROR<CR><LF>

Response

1)

<CR><LF>

+CGDSCONT:

<cid>,<p_cid>,<d_comp>,<h_comp>,<IM_CN_Signalling_Flag_In d>[<CR><LF>

+CGDSCONT:

<cid>,<p_cid>,<d_comp>,<h_comp>,<IM_CN_Signalling_Flag_In d>[.]]<CR><LF>

<CR><LF>

OK<CR><LF>

2)

<CR><LF>

OK<CR><LF>

3)

Read Command

AT+CGDSCONT?

Write Command AT+CGDSCONT=<cid>[,<p_cid>[,<d_comp>[,<h_comp>][,<IM_CN_Signalling_Flag_Ind>]]]	<CR><LF> ERROR <CR><LF> 4) <CR><LF> +CME ERROR: <err> <CR><LF>
	Response 1) <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF> 3) <CR><LF> +CME ERROR: <err> <CR><LF>
	Parameter Saving Mode NO_SAVE
	Max Response Time 5000ms
Reference	3GPP TS 27.007

Defined Values

<cid>	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) is returned by the test form of the command. NOTE: The <cid>s for network-initiated PDP contexts have values outside the ranges activated by the +CGACT.
<p_cid>	a numeric parameter which specifies a particular PDP context definition which has been specified by use of the +CGDSCONT command and activated by the +CGACT. The parameter is local to the TE-MT interface. The list of permitted values is returned by the test form of the command.
<d_comp>	a numeric parameter that controls PDP data compression (applicable for SNDCPonly)(refer 3GPP TS 44.065 [61]), do not need for Cat1 0 off 1 on (manufacturer preferred compression) 2 V.42bis Other values are reserved.
<h_comp>	a numeric parameter that controls PDP header compression (refer 3GPP TS 44.065 [61] and 3GPP TS 25.323 [62]) , do not need for Cat1 0 off 1 RFC1144 Other values are reserved.

<IM_CN_Signalling_Flag_In d>	integer type; indicates to the network whether the PDP context is for IM CN subsystem-related signalling only or not. 0 UE indicates that the PDP context is not for IM CN subsystem-related signalling only 1 UE indicates that the PDP context is for IM CN subsystem-related signalling only(Not support).
---------------------------------	---

Examples

AT+CGDSCONT=?

+CGDSCONT: (1-15),(1-15)

OK

AT+CGDSCONT=2,1

OK

AT+CGDSCONT?

+CGDSCONT: 2,1,,,0

OK

5.2.7 AT+CGTFT Traffic Flow Template

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 15 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.

AT+CGTFT Traffic Flow Template

Test Command AT+CGTFT=?	Response 1) <CR><LF> +CGTFT: <PDP_type>,(list of supported <packet filter identifier>s),(list of supported <evaluation precedence index>s),(list of supported <source address and subnet mask>s),(list of supported <protocol number (ipv4)/ next header (ipv6)>s),(list of supported <destination port range>s),(list of supported <source port range>s),(list of supported <ipsec security parameter index (spi)>s),(list of supported <type of service (tos)(ipv4)and mask / traffic class (ipv6)and mask>s),(list of
-----------------------------------	--

supported <flow label (ipv6)>s),(list of supported <direction>s),(list of supported <local address and subnet mask>s),(range of supported <QRI>s),(list of supported <traffic_segregation>s)[<CR><LF>
+CGTFT: <PDP_type>, (list of supported <packet filter identifier>s), (list of supported <evaluation precedence index>s), (list of supported <source address and subnet mask>s), (list of supported <protocol number (ipv4)/ next header (ipv6)>s), (list of supported <destination port range>s), (list of supported <source port range>s), (list of supported <ipsec security parameter index (spi)>s), (list of supported <type of service (tos)(ipv4)and mask / traffic class (ipv6)and mask>s), (list of supported <flow label (ipv6)>s), (list of supported <direction>s), (list of supported <local address and subnet mask>s), (range of supported <QRI>s), (list of supported <traffic_segregation>s)[..]<CR><LF>
 <CR><LF>
OK<CR><LF>
 2)
 <CR><LF>
ERROR<CR><LF>

Response

1)
 <CR><LF>
+CGTFT: <cid>,<packet filter identifier>,<evaluation precedence index>,<remote address and subnet mask>,<protocol number (ipv4) / next header (ipv6)>,<local port range>,<remote port range>,<ipsec security parameter index (spi)>,<type of service (tos) (ipv4) and mask /traffic class (ipv6) and mask>,<flow label (ipv6)>,<direction>[<CR><LF>
+CGTFT: <cid>,<packet filter identifier>,<evaluation precedence index>,<remote address and subnet mask>,<protocol number (ipv4) / next header (ipv6)>,<local port range>,<remote port range>,<ipsec security parameter index (spi)>,<type of service (tos) (ipv4) and mask /traffic class (ipv6) and mask>,<flow label (ipv6)>,<direction>[..]<CR><LF>
 <CR><LF>
OK<CR><LF>
 2)
 <CR><LF>
OK<CR><LF>
 3)
 <CR><LF>
ERROR<CR><LF>
 4)

Read Command
AT+CGTFT?

	<CR><LF> +CME ERROR: <err><CR><LF>
Write Command AT+CGTFT=<cid>[,<packet filter identifier>,<evaluation precedence index>,<source address and subnet mask>,<protocol number (ipv4)/ next header (ipv6)>,<destination port range>,<source port range>,<ipsec security parameter index (spi)>,<type of service (tos)(ipv4)and mask / traffic class (ipv6)and mask>,<flow label (ipv6)>,<direction>]]]]]]]]]	Response 1) <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF> 3) <CR><LF> +CME ERROR: <err><CR><LF>
Execute Command AT+CGTFT	Response <CR><LF> OK <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	5000ms
Reference	3GPP TS 27.007

Defined Values

<cid>	a numeric parameter which specifies a particular PDP context definition (see the AT+CGDCONT and AT+CGDSCONT commands).
<PDP_type>	(Packet Data Protocol type)a string parameter which specifies the type of packet data protocol. IP Internet Protocol IPV6 Internet Protocol Version 6
<packet filter identifier>	a numeric parameter, value range from 1 to 16.
<evaluation precedence index>	a numeric parameter. The value range is from 0 to 255.
<source 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. NOTE: subnet mask can't be 0.0.0.0
<protocol number (ipv4)/ next header (ipv6)>	a numeric parameter, value range from 0 to 255.

<destination port range>	string type. The string is given as dot-separated numeric (0-65535)parameters on the form "f.t".
<source 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 1 Uplink 2 Downlink 3 Up & Downlink

Examples

AT+CGTFT=?

+CGTFT:

"IP",(1-16),(0-255),("0.0.0.0.0.0.0.0"- "255.255.255.255.255.255.255"),(0-255),("0.0"- "65535.65535"),("0.0"- "65535.65535"),(0-FFFFFFFFFF),("0.0"- "255.255"),(0-3)

+CGTFT:

[illegible]

OK

AT+CGTFT?

OK

AT+CGTFT=1,1,0,"74.125.71.100.255.255.255.255"

OK

AT+CGTFT

OK

NOTE

If a specified PDP context is deactivate, the corresponding Packet Filter TFT need to be specified again.

5.2.8 AT+CGDATA Enter data state

The 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.

AT+CGDATA Enter data state

Test Command AT+CGDATA=?	Response 1) <CR><LF> +CGDATA: (list of supported <L2P>s)<CR><LF> <CR><LF> OK<CR><LF> 2) <CR><LF> ERROR<CR><LF>
Write Command AT+CGDATA=[<L2P>,<cid>]]	Response 1) <CR><LF> CONNECT<CR><LF> 2) <CR><LF> NO CARRIER<CR><LF> 3) <CR><LF> OK<CR><LF> 4) <CR><LF> ERROR<CR><LF> 5) <CR><LF> +CME ERROR: <err><CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	5000ms
Reference	3GPP TS 27.007

Defined Values

<L2P>	A string parameter that indicates the layer 2 protocol to be used between the TE and MT.
-------	--

	M-PT Eigencomm specified protocol – PDP Type, such as IP/IPV6/IPV4V6/Non-IP
<cid>	A numeric parameter which specifies a particular PDP context definition (see AT+CGDCONT command). 1...15

Examples

AT+CGDATA=?

+CGDATA: ("M-PT")

OK

AT+CGDATA="M-PT",1

OK

NOTE

1) This AT command is not fully followed the 3GPP 27.007, execution command just trigger MT to activate a PDP context, just same as: +CGACT=1,<cid>.

2) If PDP activation success, MT issues the result code: OK, not: CONNECT, as not support V.250 online data state now.

5.2.9 AT+CGPADDR Show PDP address

The write command returns a list of PDP addresses for the specified context identifiers.

AT+CGPADDR Show PDP address

	Response
	1)
	[<CR><LF>
	+CGPADDR: (list of defined <cid>s)<CR><LF>
	]<CR><LF>
	OK<CR><LF>
Test Command	2)
AT+CGPADDR=?	<CR><LF>
	ERROR<CR><LF>
	3)
	<CR><LF>
	+CME ERROR: <err><CR><LF>
Write Command	Response
AT+CGPADDR=<cid>	1)

Execute Command
AT+CGPADDR

Parameter Saving Mode

```

<CR><LF>
+CGPADDR: <cid>,<PDP_addr><CR><LF>
<CR><LF>
OK<CR><LF>
2)
SIM card supports IPV4V6 type and the PDP_type of the command
"at+cgdcont" defined is ipv4v6:
<CR><LF>
+CGPADDR:
<cid>,<PDP_addr_IPV4>,<PDP_addr_IPV6><CR><LF>
<CR><LF>
OK<CR><LF>
3)
<CR><LF>
ERROR<CR><LF>
4)
<CR><LF>
+CME ERROR: <err><CR><LF>
-----
Response
1)
<CR><LF>
+CGPADDR: <cid>,<PDP_addr>[<CR><LF>
+CGPADDR: <cid>,<PDP_addr>[..]]<CR><LF>
<CR><LF>
OK<CR><LF>
2)
SIM card supports IPV4V6 type and the PDP_type of the command
"at+cgdcont" defined is ipv4v6:
<CR><LF>
+CGPADDR:
<cid>,<PDP_addr_IPV4>,<PDP_addr_IPV6>[<CR><LF>
+CGPADDR:
<cid>,<PDP_addr_IPV4>,<PDP_addr_IPV6>[..]]<CR><LF>
<CR><LF>
OK<CR><LF>
3)
<CR><LF>
OK<CR><LF>
4)
<CR><LF>
ERROR<CR><LF>
5)
<CR><LF>
+CME ERROR: <err><CR><LF>
-----
NO_SAVE

```

Max Response Time	5000ms
Reference	3GPP TS 27.007

Defined Values

<cid>	A numeric parameter which specifies a particular PDP context definition (see AT+CGDCONT command). If no <cid> is specified, the addresses for all defined contexts are returned. 1...15
<PDP_addr>	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 AT+CGDCONT command 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_addr> is omitted if none is available.
<PDP_addr_IPV4>	A string parameter that identifies the MT in the address space applicable to the PDP.
<PDP_addr_IPV6>	A string parameter that identifies the MT in the address space applicable to the PDP when the sim_card supports ipv6. The pdp type must be set to "ipv6" or "ipv4v6" by the AT+CGDCONT command.

Examples

AT+CGPADDR=?

+CGPADDR: (1)

OK

AT+CGPADDR=1

+CGPADDR: 1,10.83.214.110

OK

AT+CGPADDR

+CGPADDR: 1,10.83.214.110

OK

5.2.10 AT+CGEREP GPRS event reporting

The write command enables or disables sending of unsolicited result codes, "+CGEV" from MT to TE in the case of certain events occurring in the Packet Domain MT or the network. <mode> controls the processing

of unsolicited result codes specified within this command. <bfr> controls the effect on buffered codes when <mode> 1 is entered. If a setting is not supported by the MT, ERROR or +CME ERROR: is returned.

Read command returns the current <mode> and buffer settings.

Test command returns the modes and buffer settings supported by the MT as compound values.

AT+CGEREP GPRS event reporting

Test Command AT+CGEREP=?	Response 1) <CR><LF> +CGEREP: (list of supported <mode>s),(list of supported <bfr>s)<CR><LF> <CR><LF> OK<CR><LF> 2) <CR><LF> ERROR<CR><LF>
Read Command AT+CGEREP?	Response 1) <CR><LF> +CGEREP: <mode>,<bfr><CR><LF> <CR><LF> OK<CR><LF> 2) <CR><LF> ERROR<CR><LF>
Write Command AT+CGEREP=<mode>[,<bfr>]	Response 1) <CR><LF> OK<CR><LF> 2) <CR><LF> ERROR<CR><LF> 3) <CR><LF> +CME ERROR: <err><CR><LF>
Execute Command AT+CGEREP	Response 1)Set default value (<mode>=0,<bfr>=0): <CR><LF> OK<CR><LF> 2) <CR><LF> ERROR<CR><LF>
Parameter Saving Mode	NO_SAVE

Max Response Time	5000ms
Reference	3GPP TS 27.007

Defined Values

<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 ; Only it now

The events are valid for GPRS/UMTS and LTE unless explicitly mentioned.

For network attachment, the following unsolicited result codes and the corresponding events are defined:

+CGEV: NW DETACH	The network has forced a PS detach. This implies that all active contexts have been deactivated. These are not reported separately.
+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.

For MT class, the following unsolicited result codes and the corresponding events are defined:

+CGEV: NW CLASS <class>	The network has forced a change of MT class. The highest available class is reported (see +CGCLASS). The format of the parameter <class> is found in command +CGCLASS.
+CGEV: ME CLASS <class>	The mobile termination has forced a change of MT class. The highest available class is reported (see +CGCLASS). The format of the parameter <class> is found in command +CGCLASS.

For PDP context activation, the following unsolicited result codes and the corresponding events are defined:

+CGEV: NW PDN ACT <cid>[,<WLAN_Offload>]	The network has activated a context. The context represents a Primary PDP context in GSM/UMTS. The <cid> for this context is provided to the TE. The format of the parameter <cid> is found in command +CGDCONT. <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 bit 1 (E-UTRAN offload acceptability
---	---

value) and bit 2 (UTRAN offload acceptability value) in 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.

NOTE

This event is not applicable for EPS.

+CGEV: ME PDN ACT
<cid>[,<reason>[,<cid_other
>]][,<WLAN_Offload>]

The mobile termination has activated a context. The context represents a PDN connection in LTE or a Primary PDP context in GSM/UMTS. The <cid> for this context is provided to the TE. This event is sent either in result of explicit context activation request (+CGACT), or in result of implicit context activation request associated to attach request (+CGATT=1). The format of the parameters <cid> and <cid_other> are found in command +CGDCONT. The format of the parameter <WLAN_Offload> is defined above.

<reason>: integer type; indicates the reason why the context activation request for PDP type IPv4v6 was not granted. This parameter is only included if the requested PDP type associated with <cid> is IPv4v6, and the PDP type assigned by the network for <cid> is either IPv4 or IPv6.

- 0 IPv4 only allowed
- 1 IPv6 only allowed
- 2 single address bearers only allowed.
- 3 single address bearers only allowed and MT initiated context activation for a second address type bearer was not successful.
- 4 CI_PS_PDP_INVALID_REASON

<cid_other>: integer type; indicates the context identifier allocated by MT for an MT initiated context of a second address type. MT shall only include this parameter if <reason> parameter indicates single address bearers only allowed, and MT supports MT initiated context activation of a second address type without additional commands from TE, and

MT has activated the PDN connection or PDP context associated with <cid_other>.

NOTE

For legacy TEs supporting MT initiated context activation without TE requests, there is also a subsequent event +CGEV: ME PDN ACT <cid_other> returned to TE.

+CGEV: NW ACT <p_cid>,<cid>,<event_type> [,<WLAN_Offload>]	The network has activated a context. The <cid> for this context is provided to the TE in addition to the associated primary <p_cid>. The format of the parameters <p_cid> and <cid> are found in command +CGDSCONT. The format of the parameter <WLAN_Offload> is defined above. <event_type>: integer type; indicates whether this is an informational event or whether the TE has to acknowledge it. 0 Informational event 1 Information request: Acknowledgement required. The acknowledgement can be accept or reject, see +CGANS.
+CGEV: ME ACT <p_cid>,<cid>,<event_type> [,<WLAN_Offload>]	The network has responded to an ME initiated context activation. The <cid> for this context is provided to the TE in addition to the associated primary <p_cid>. The format of the parameters <p_cid> and <cid> are found in command +CGDSCONT. The format of the parameters <event_type> and <WLAN_Offload> are defined above.

For PDP context deactivation, the following unsolicited result codes and the corresponding events are defined:

+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. The format of the parameters <PDP_type>,<PDP_addr> and <cid> are found in command +CGDSCONT.
+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. The format of the parameters <PDP_type>,<PDP_addr> and <cid> are found in command +CGDSCONT.
+CGEV: NW PDN DEACT <cid>[,<WLAN_Offload>]	The network has deactivated a context. The context represents a PDN connection in LTE or a Primary PDP context in GSM/UMTS. The

associated <cid> for this context is provided to the TE. The format of the parameter <cid> is found in command +CGDCONT. The format of the parameter <WLAN_Offload> is defined above.

NOTE

Occurrence of this event replaces usage of the event +CGEV: NW DEACT <PDP_type>,<PDP_addr>[,<cid>].

+CGEV: ME PDN DEACT <cid>

The mobile termination has deactivated a context. The context represents a PDN connection in LTE or a Primary PDP context in GSM/UMTS. The <cid> for this context is provided to the TE. The format of the parameter <cid> is found in command +CGDCONT.

NOTE

Occurrence of this event replaces usage of the event +CGEV: ME DEACT <PDP_type>,<PDP_addr>[,<cid>].

+CGEV: NW DEACT <p_cid>,<cid>,<event_type> [,<WLAN_Offload>]

The network has deactivated a context. The <cid> for this context is provided to the TE in addition to the associated primary <p_cid>. The format of the parameters <p_cid> and <cid> are found in command +CGDSCONT. The format of the parameters <event_type> and <WLAN_Offload> are defined above.

NOTE

Occurrence of this event replaces usage of the event +CGEV: NW DEACT <PDP_type>,<PDP_addr>[,<cid>].

+CGEV: ME DEACT <p_cid>,<cid>,<event_type>

The network has responded to an ME initiated context deactivation request. The associated <cid> is provided to the TE in addition to the associated primary <p_cid>. The format of the parameters <p_cid> and <cid> are found in command +CGDSCONT. The format of the parameter <event_type> is defined above.

NOTE

Occurrence of this event replaces usage of the event +CGEV: ME DEACT
<PDP_type>,<PDP_addr>[,<cid>].

For PDP context modification, the following unsolicited result codes and the corresponding events are defined:

+CGEV: NW MODIFY <cid>,<change_reason>,<event_type>[,<WLAN_Offload>]	The network has modified a context. The associated <cid> is provided to the TE in addition to the <change_reason> and <event_type>. The format of the parameter <cid> is found in command +CGDCONT or +CGDSCONT. The format of the parameters <change_reason>,<event_type>, and <WLAN_Offload> are defined above. <change_reason>: integer type; a bitmap that indicates what kind of change occurred. The <change_reason> value is determined by summing all the applicable bits. For Examples if both the values of QoS changed (Bit 2)and <WLAN_Offload> changed (Bit 3)have changed, then the <change_reason> value is 6.
---	---

NOTE

The WLAN offload value will change when bit 1 or bit 2 or both of the indicators in the WLAN offload acceptability IE change, see the parameter <WLAN_Offload> defined above.

- Bit 1 TFT changed
- Bit 2 Qos changed
- Bit 3 WLAN Offload changed

+CGEV: ME MODIFY <cid>,<change_reason>,<event_type>[,<WLAN_Offload>]	The mobile termination has modified a context. The associated <cid> is provided to the TE in addition to the <change_reason> and <event_type>. The format of the parameter <cid> is found in command +CGDCONT or +CGDSCONT. The format of the parameters <change_reason>,<event_type> and <WLAN_Offload> are defined above.
---	--

For other PDP context handling, the following unsolicited result codes and the corresponding events are defined:

+CGEV: REJECT
<PDP_type>,<PDP_addr>

A network request for context activation occurred when the MT was unable to report it to the TE with a +CRING unsolicited result code and was automatically rejected. The format of the parameters <PDP_type> and <PDP_addr> are found in command +CGDCONT.

NOTE

This event is not applicable for EPS.

+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. The format of the parameters <PDP_type>,<PDP_addr> and <cid> are found in command +CGDCONT.

NOTE

This event is not applicable for EPS.

Examples

AT+CGEREP=?

+CGEREP: (0,1),(0)

OK

AT+CGEREP?

+CGEREP: 0,0

OK

AT+CGEREP=1

OK

AT+CGEREP

OK

5.2.11 AT+CGAUTH Set type of authentication for PDP-IP connections of GPRS

This command is used to set type of authentication for PDP-IP connections of GPRS.

AT+CGAUTH Set type of authentication for PDP-IP connections of GPRS

Test Command
AT+CGAUTH=?

Response
1)
<CR><LF>
+CGAUTH: (range of supported <cid>**s**),(list of supported
<auth_type> **s**),(range of supported <user>**s**),(range of supported
<passwd>**s**)<CR><LF>
<CR><LF>
OK<CR><LF>
2)
<CR><LF>
ERROR<CR><LF>
3)
<CR><LF>
+CME ERROR: <err><CR><LF>

Read Command
AT+CGAUTH?

Response
1)
<CR><LF>
+CGAUTH: <cid>,<auth_type>[,<user>,<passwd>][<CR><LF>
+CGAUTH: <cid>,<auth_type>[,<user>,<passwd>][...]]<CR><LF>
<CR><LF>
OK<CR><LF>
2)
<CR><LF>
OK<CR><LF>
3)
<CR><LF>
ERROR<CR><LF>
4)
<CR><LF>
+CME ERROR: <err><CR><LF>

Write Command
**AT+CGAUTH=<cid>[,<auth_t
ype>[,<passwd> [,<user>]]]**

Response
1)
<CR><LF>
OK<CR><LF>
2)
<CR><LF>
ERROR<CR><LF>
3)
<CR><LF>
+CME ERROR: <err><CR><LF>

Execute Command
AT+CGAUTH

Response
1)
<CR><LF>

	OK <CR><LF> 2) <CR><LF> ERROR <CR><LF> 3) <CR><LF> +CME ERROR: <err> <CR><LF>
Parameter Saving Mode	AUTO_SAVE
Max Response Time	5000ms
Reference	3GPP TS 27.007

Defined Values

<cid>	Parameter specifies a particular PDP context definition. This is also used in other PDP context-related commands. 1...15
<auth_type>	Indicate the type of authentication to be used for the specified context. If CHAP is selected another parameter <passwd> needs to be specified. If PAP is selected two additional parameters <passwd> and <user> need to be specified. 0 none 1 PAP 2 CHAP
<passwd>	Parameter specifies the password used for authentication.
<user>	Parameter specifies the user name used for authentication.

Examples

AT+CGAUTH=?

+CGAUTH: (1-15),(0-2),(64),(64)

OK

AT+CGAUTH?

+CGAUTH: 1,0,"",""

OK

AT+CGAUTH=1,0

OK

AT+CGAUTH

OK

5.2.12 AT+CPING Ping destination address

This command is used to ping destination address.

AT+CPING Ping destination address	
Test Command AT+CPING=?	Response 1) <CR><LF> +CPING: IP address, (list of supported <dest_addr_type>s), (1-5), (4-188), (1000-10000), (10000-100000), (1 6-255)<CR><LF> <CR><LF> OK<CR><LF> 2) <CR><LF> ERROR<CR><LF>
Write Command AT+CPING=<dest_addr>,<dest_addr_type>[,<num_pings>[,<data_packet_size>[,<interval_time>[,<wait_time>[,<TTL>]]]]]	Response 1) <CR><LF> OK<CR><LF> If ping's result_type=1 <CR><LF> +CPING: <result_type>,<resolved_ip_addr>,<data_packet_size>,<rtt>,<TTL><CR><LF> If ping's result_type=2 <CR><LF> +CPING: <result_type><CR><LF> If ping's result_type=3> <CR><LF> +CPING: <result_type>,<num_pkts_sent>,<num_pkts_recvd>,<num_pkts_lost>,<min_rtt>,<max_rtt>,<avg_rtt><CR><LF> 2) <CR><LF> ERROR<CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	5000ms
Reference	3GPP TS 27.007

Defined Values

<dest_addr>	The destination is to be pinged; it can be an IP address or a domain
-------------	--

	name.
<dest_addr_type>	Integer type. Address family type of the destination address 1 IPv4. 2 IPv6(reserved)
<num_pings>	Integer type. The num_pings specifies the number of times the ping request (1-5) is to be sent. The default value is 4.
<data_packet_size>	Integer type. Data byte size of the ping packet (4-188). The default value is 64 bytes.
<interval_time>	Integer type. Interval between each ping. Value is specified in milliseconds (1000ms-10000ms). The default value is 2000ms.
<wait_time>	Integer type. Wait time for ping response. A ping response received after the timeout shall not be processed. Value specified in milliseconds (10000ms-100000ms). The default value is 10000ms.
<TTL>	Integer type. TTL(Time-To-Live) value for the IP packet over which the ping(ICMP ECHO Request message) is sent (16-255), the default value is 255.
<result_type>	1 Ping success 2 Ping time out 3 Ping result
<num_pkts_sent>	Indicates the number of ping requests that were sent out.
<num_pkts_rcvd>	Indicates the number of ping responses that were received.
<num_pkts_lost>	Indicates the number of ping requests for which no response was received.
<min_rtt>	Indicates the minimum Round Trip Time(RTT).
<max_rtt>	Indicates the maximum RTT.
<avg_rtt>	Indicates the average RTT.
<resolved_ip_addr>	Indicates the resolved ip address.
<rtt>	Round Trip Time.

Examples

AT+CPING=?

+CPING: IP

address,(1,2),(1-5),(4-188),(1000-10000),(10000-100000),(16-255)

OK

AT+CPING="www.baidu.com",1,4,64,1000,10000,255

OK

+CPING: 2

+CPING: 2

+CPING: 2

+CPING: 2

+CPING: 3,4,0,4,0,0,0

SIMCom
Confidential

5.2.13 AT+CGCONTRDP PDP context read dynamic parameters

The execution command returns the relevant information for an active non-secondary PDP context with the context identifier <cid>. 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 DNS servers, multiple of such pairs of lines are returned.

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.

AT+CGCONTRDP PDP context read dynamic parameters

Test Command

AT+CGCONTRDP=?

Response

1)

<CR><LF>

+CGCONTRDP: (list of <cid>s associated with active contexts)<CR><LF>

<CR><LF>

OK<CR><LF>

2)

<CR><LF>

ERROR<CR><LF>

3)

<CR><LF>

+CME ERROR: <err><CR><LF>

Response

1)

[<CR><LF>

+CGCONTRDP: <cid>,<bearer_id>,<apn>[,<local_addr and subnet_mask>[,<gw_addr>[,<DNS_prim_addr>[,<DNS_sec_addr>[,<PCSCF_prim_addr>[,<PCSCF_sec_addr>[,<IM_CN_Signalling_Flag>[,<LIPA_indication>[,<IPv4_MTU>[,<WLAN_Offload>[,<Local_Addr_Ind>[,<Serving_PLMN_rate_control_value>]]]]]]]]]]<CR><LF>

+CGCONTRDP: <cid>,<bearer_id>,<apn>[,<local_addr and subnet_mask>[,<gw_addr>[,<DNS_prim_addr>[,<DNS_sec_addr>[,<PCSCF_prim_addr>[,<PCSCF_sec_addr>[,<IM_CN_Signalling_Flag>[,<LIPA_indication>[,<IPv4_MTU>[,<WLAN_Offload>[,<Local_Addr_Ind>[,<Serving_PLMN_rate_control_value>]]]]]]]]]]<CR><LF>

]<CR><LF>

OK<CR><LF>

2)

<CR><LF>

ERROR<CR><LF>

Write Command

AT+CGCONTRDP[=<cid>]

	3) <CR><LF> +CME ERROR: <err><CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	5000ms
Reference	3GPP TS 27.007

Defined Values

<cid>	Parameter specifies a particular PDP context definition. This is also used in other PDP context-related commands. 1...15
<bearer_id>	Integer type; identifies the bearer.
<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).
<gw_addr>	String type; gateway address.
<DNS_prim_addr>	String type; the IP address of the primary DNS server.
<DNS_sec_addr>	String type; the IP address of the secondary DNS server.
<P_CSCF_prim_addr>	String type; shows the IP address of the primary P-CSCF server. (Not displayed)
<P_CSCF_sec_addr>	String type; shows the IP address of the secondary P-CSCF server. (Not displayed)
<IM_CN_Signalling_Flag>	Integer type; shows whether the PDP context is for IM CN subsystem-related signaling only or not. (Not displayed)
<LIPA_indication>	Integer type; indicates that the PDP context provides connectivity using a LIPA PDN connection. (Not displayed)
<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. (Not displayed)
<Local_Addr_Ind>	integer type; indicates whether the MS and the network support local IP address in TFTs. (Not displayed)
<Serving_PLMN_rate_control_value>	Integer type; indicates the maximum number of uplink messages that the UE is allowed to send in a 6 minute interval.

Examples

AT+CGCONTRDP=?
+CGCONTRDP: (1,2)

OK

5.2.14 AT+SIGNS Query main antenna signal quality parameters

Read/Execute Command obtain reference signal received power(RSRP), reference signal received quality(RSRQ) , received signal strength indication(RSSI), actual transmission power of the terminal uplink PUSCH channel in the current service community(txpower) and maximum available uplink transmission power of the terminal in the current service community(p-Max) of the main antenna.

AT+SIGNS Query main antenna signal quality parameters

Test Command AT+SIGNS=?	Response <CR><LF> +SIGNS: <CR><LF> <CR><LF> OK <CR><LF>
Read Command AT+SIGNS?	Response <CR><LF> +RSRP: <RP><CR><LF> +RSRQ: <RQ><CR><LF> +RSSI: <SI><CR><LF> +TXPOWER: <txpower><CR><LF> +MAXTXPOWER: <p-Max><CR><LF> <CR><LF> OK <CR><LF>
Execute Command AT+SIGNS	Response <CR><LF> +RSRP: <RP><CR><LF> +RSRQ: <RQ><CR><LF> +RSSI: <SI><CR><LF> +TXPOWER: <txpower><CR><LF> +MAXTXPOWER: <p-Max><CR><LF> <CR><LF> OK <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	5000ms

Defined Values

<RP>	Main antenna Reference Signal Receiving Power
<RQ>	Main antenna Reference Signal Receiving Quality
<SI>	Main antenna Received Signal Strength Indicator
<txpower>	The actual transmission power of the terminal uplink PUSCH channel in the current service community
<p-Max>	The maximum available uplink transmission power of the terminal in the current service community

Examples

AT+SIGNS

+RSRP: -103

+RSRQ: -9

+RSSI: -94

+TXPOWER: 15

+MAXTXPOWER: 23

OK

AT+SIGNS

ERROR

NOTE

The <p-Max> value is invalid, not support yet at SIM76XX.

6 AT Commands for SIM Card

6.1 Overview of AT Commands for SIM Card

Command	Description
AT+CICCID	Read ICCID from SIM card
AT+CPIN	Enter PIN
AT+CLCK	Facility lock
AT+CPWD	Change password
AT+CIMI	Request international mobile subscriber identity
AT+CSIM	Generic SIM access
AT+CRSM	Restricted SIM access
AT+CSIMSLEEP	Set UE to Allow SIM Card Sleep for Power Consumption
AT+SPIC	Times remain to input SIM PIN/PUK
AT+CSPN	Get service provider name from SIM
AT+UIMHOTSWAPON	Set UIM hotswap function on
AT+UIMHOTSWAPLEVEL	Set UIM card detection level

6.2 Detailed Description of AT Commands for SIM Card

6.2.1 AT+CICCID Read ICCID from SIM card

This command is used to Read the ICCID from SIM card.

AT+CICCID Read ICCID from SIM card	
Test Command AT+CICCID=?	Response <CR><LF> OK <CR><LF>
Execute Command AT+CICCID	Response 1) <CR><LF> +ICCID: <ICCID> <CR><LF>

	<CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF> 3) <CR><LF> +CME ERROR: <err> <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	5000ms
Reference	Vendor

Defined Values

<ICCID>	Integrate circuit card identity, a standard ICCID is a 20-digit serial number of the SIM card, it presents the publish state, network code, publish area, publish date, publish manufacture and press serial number of the SIM card.
---------	--

Examples

```

AT+CICCID
+ICCID: 89860318760238610932

OK
AT+CICCID=?
OK
  
```

6.2.2 AT+CPIN Enter PIN

This command is used to send the ME a password which is necessary before it can be operated (SIM PIN, SIM PUK, PH-SIM PIN, etc.). If the PIN is to be entered twice, the TA shall automatically repeat the PIN. If no PIN request is pending, no action is taken towards MT and an error message, +CME ERROR, is returned to TE.

If the PIN required is SIM PUK or SIM PUK2, the second pin is required. This second pin, <newpin>, is used to replace the old pin in the SIM.

AT+CPIN Enter PIN

Test Command	Response
--------------	----------

AT+CPIN=?	<CR><LF> OK <CR><LF>
Read Command AT+CPIN?	Response 1) <CR><LF> +CPIN: <code> <CR><LF> <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF> 3) <CR><LF> +CME ERROR: <err> <CR><LF>
Write Command AT+CPIN=<pin>[,<newpin>]	Response 1) <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF> 3) <CR><LF> +CME ERROR: <err> <CR><LF>
Parameter Saving Mode	AUTO_SAVE_REBOOT
Max Response Time	5000ms
Reference	3GPP TS 27.007

Defined Values

<pin>	String type values.
<newpin>	String type values.
<code>	Values reserved by the present document: READY ME is not pending for any password SIM PIN ME is waiting SIM PIN to be given SIM PUK ME is waiting SIM PUK to be given PH-SIM PIN ME is waiting phone-to-SIM card password to be given SIM PIN2 ME is waiting SIM PIN2 to be given SIM PUK2 ME is waiting SIM PUK2 to be given PH-NET PIN ME is waiting network personalization password to be given

Examples

AT+CPIN=?

OK

AT+CPIN?

+CPIN: READY

OK

AT+CPIN=1234

OK

6.2.3 AT+CLCK Facility lock

Execution command is used to lock, unlock, or interrogate a MT or a network facility <fac>. Password is normally needed to do such actions. When querying the status of a network service (<mode>=2) the response line for 'not active' case (<status>=0) should be returned only if service is not active for any <class>. This command should be abortable when network facilities are set or interrogated. Test command returns facility values supported as a compound value.

AT+CLCK Facility lock

Test Command

AT+CLCK=?

Response

<CR><LF>

+CLCK: (list of supported <fac>s)<CR><LF>

<CR><LF>

OK<CR><LF>

Write Command

**AT+CLCK=<fac>,<mode>
[,<passwd>]**

Response

1)

<CR><LF>

OK<CR><LF>

2)

When <mode>=2 and command successful:

<CR><LF>

+CLCK: <status><CR><LF>

<CR><LF>

OK<CR><LF>

3)

<CR><LF>

ERROR<CR><LF>

4)

<CR><LF>

+CME ERROR: <err><CR><LF>

Parameter Saving Mode

AUTO_SAVE_REBOOT

Max Response Time

5000ms

Reference 3GPP TS 27.007

Defined Values

<fac>	"SC" SIM (lock SIM/UICC card installed in the currently selected cardslot) (SIM/UICC asks password in MT power-up and when this lock command issued)
<mode>	0 unlock 1 lock 2 query status
<status>	0 not active 1 active
<passwd>	Password. string type; shall be the same as password specified for the facility from the ME user interface or with command Change Password +CPWD

Examples

AT+CLCK="SC",2

+CLCK: 0

OK

AT+CLCK=?

+CLCK: ("SC")

OK

6.2.4 AT+CPWD Change password

Command sets a new password for the facility lock function defined by command Facility Lock +CLCK. Test command returns a list of pairs which present the available facilities and the maximum length of their password.

AT+CPWD Change password

Test Command AT+CPWD=?	Response 1) <CR><LF> +CPWD: (list of supported (<fac>,<pwdlength>)s)<CR><LF> <CR><LF>
----------------------------------	--

	OK <CR><LF> 2) <CR><LF> ERROR <CR><LF> 3) <CR><LF> +CME ERROR: <err> <CR><LF>
Write Command AT+CPWD=<fac>,<oldpwd>,<newpwd>	Response 1) <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF> 3) <CR><LF> +CME ERROR: <err> <CR><LF>
Parameter Saving Mode	AUTO_SAVE_REBOOT
Max Response Time	5000ms
Reference	3GPP TS 27.007

Defined Values

<fac>	Refer Facility Lock +CLCK for other values: "SC" SIM (lock SIM/UICC card installed in the currently selected card slot) (SIM/UICC asks password in MT power-up and when this lock command issued)
<oldpwd>	String type, it shall be the same as password specified for the facility from the ME user interface or with command Change Password AT+CPWD.
<newpwd>	String type, it is the new password; maximum length of password can be determined with <pwdlength>.
<pwdlength>	Integer type, max length of password.

Examples

```

AT+CPWD=?
+CPWD: ("SC",8)

OK
AT+CPWD="SC","1234","4321"
OK

```

6.2.5 AT+CIMI Request international mobile subscriber identity

Execution command causes the TA to return <IMSI>, which is intended to permit the TE to identify the individual SIM card which is attached to MT.

AT+CIMI Request international mobile subscriber identity

Test Command AT+CIMI=?	Response 1) <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF>
Execute Command AT+CIMI	Response 1) <CR><LF> < IMSI ><CR><LF> <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF> 3) <CR><LF> +CME ERROR: <err> <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	5000ms
Reference	3GPP TS 27.007

Defined Values

< IMSI >	International Mobile Subscriber Identity (string, without double quotes).
-----------------	---

Examples

```
AT+CIMI=?
OK
AT+CIMI
460010222028133
```

OK

NOTE

If USIM card contains two apps, like China Telecom 4G card, one RUIM/CSIM app, and another USIM app; so there are two IMSI in it; AT+CIMI will return the RUIM/CSIM IMSI.

6.2.6 AT+CSIM Generic SIM access

This command is used to control the SIM card directly.

Compared to restricted SIM access command AT+CRSM, AT+CSIM allows the ME to take more control over the SIM interface.

For SIM-ME interface please refer 3GPP TS 11.11.

The SIM sleep (power off) shall be disabled by AT+CSIMSLEEP=0 (refer to 6.2.8) before enter AT+CSIM.

AT+CSIM Generic SIM access

Test Command AT+CSIM=?	Response <CR><LF> OK <CR><LF>
Write Command AT+CSIM=<length>,<command>	Response 1) <CR><LF> +CSIM: <length>,<response> <CR><LF> <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF> 3) <CR><LF> +CME ERROR: <err> <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	5000ms
Reference	3GPP TS 27.007

Defined Values

<length>	Integer type; length of characters that are sent to TE in <command> or <response>
<command>	Command passed from MT to SIM card.
<response>	Response to the command passed from SIM card to MT.

Examples

```
AT+CSIM=?
OK
AT+CSIM=10,"A0F2000016"
+CSIM: 4,"6E00"
OK
```

NOTE

The SIM Application Toolkit functionality is not supported by AT+CSIM. Therefore the following SIM commands can not be used: TERMINAL PROFILE, ENVELOPE, FETCH and TEMINAL RESPONSE. The SIM sleep (power off) shall be disabled by AT+CSIMSLEEP=0 (refer to 6.2.8) before enter AT+CRSM.

6.2.7 AT+CRSM Restricted SIM access

By using AT+CRSM instead of Generic SIM Access AT+CSIM, TE application has easier but more limited access to the SIM database.

Write command transmits to the MT the SIM <command> and its required parameters. MT handles internally all SIM-MT interface locking and file selection routines. As response to the command, MT sends the actual SIM information parameters and response data. MT error result code +CME ERROR may be returned when the command cannot be passed to the SIM, but failure in the execution of the command in the SIM is reported in <sw1> and <sw2> parameters.

AT+CRSM Restricted SIM access

Test Command AT+CRSM=?	Response <CR><LF> OK <CR><LF>
Write Command AT+CRSM=<command>[,<fileID>[,<p1>,<p2>,<p3>[,<data>]]]	Response 1) <CR><LF> +CRSM: <sw1>,<sw2>[,<response>]<CR><LF>

	<CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF> 3) <CR><LF> +CME ERROR: <err> <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	3GPP TS 27.007

Defined Values

<command>	Command passed on by the MT to the SIM: 176 READ BINARY 178 READ RECORD 192 GET RESPONSE 214 UPDATE BINARY 220 UPDATE RECORD 242 STATUS 203 RETRIEVE DATA 219 SET DATA
<fileID>	Identifier for an elementary data file on SIM, if used by <command>. The following list the fileID hex value, user needs to convert them to decimal. EFs under MF 0x2FE2 ICCID 0x2F05 Extended Language Preferences 0x2F00 EF DIR 0x2F06 Access Rule Reference EFs under USIM ADF 0x6F05 Language Indication 0x6F07 IMSI 0x6F08 Ciphering and Integrity keys 0x6F09 C and I keys for pkt switched domain 0x6F60 User controlled PLMN selector w/Acc Tech 0x6F30 User controlled PLMN selector 0x6F31 HPLMN search period 0x6F37 ACM maximum value 0x6F38 USIM Service table 0x6F39 Accumulated Call meter 0x6F3E Group Identifier Level 0x6F3F Group Identifier Level 2 0x6F46 Service Provider Name

0x6F41	Price Per Unit and Currency table
0x6F45	Cell Bcast Msg identifier selection
0x6F78	Access control class
0x6F7B	Forbidden PLMNs
0x6F7E	Location information
0x6FAD	Administrative data
0x6F48	Cell Bcast msg id for data download
0x6FB7	Emergency call codes
0x6F50	Cell bcast msg id range selection
0x6F73	Packet switched location information
0x6F3B	Fixed dialling numbers
0x6F3C	Short messages
0x6F40	MSISDN
0x6F42	SMS parameters
0x6F43	SMS Status
0x6F49	Service dialling numbers
0x6F4B	Extension 2
0x6F4C	Extension 3
0x6F47	SMS reports
0x6F80	Incoming call information
0x6F81	Outgoing call information
0x6F82	Incoming call timer
0x6F83	Outgoing call timer
0x6F4E	Extension 5
0x6F4F	Capability Config Parameters 2
0x6FB5	Enh Multi Level Precedence and Pri
0x6FB6	Automatic answer for eMLPP service
0x6FC2	Group identity
0x6FC3	Key for hidden phonebook entries
0x6F4D	Barred dialling numbers
0x6F55	Extension 4
0x6F58	Comparison Method information
0x6F56	Enabled services table
0x6F57	Access Point Name Control List
0x6F2C	De-personalization Control Keys
0x6F32	Co-operative network list
0x6F5B	Hyperframe number
0x6F5C	Maximum value of Hyperframe number
0x6F61	OPLMN selector with access tech
0x6F5D	OPLMN selector
0x6F62	HPLMN selector with access technology
0x6F06	Access Rule reference
0x6F65	RPLMN last used access tech
0x6FC4	Network Parameters
0x6F11	CPHS: Voice Mail Waiting Indicator
0x6F12	CPHS: Service String Table

0x6F13	CPHS: Call Forwarding Flag
0x6F14	CPHS: Operator Name String
0x6F15	CPHS: Customer Service Profile
0x6F16	CPHS: CPHS Information
0x6F17	CPHS: Mailbox Number
0x6FC5	PLMN Network Name
0x6FC6	Operator PLMN List
0x6F9F	Dynamic Flags Status
0x6F92	Dynamic2 Flag Setting
0x6F98	Customer Service Profile Line2
0x6F9B	EF PARAMS - Welcome Message
0x4F30	Phone book reference file
0x4F22	Phone book synchronization center
0x4F23	Change counter
0x4F24	Previous Unique Identifier
0x4F20	GSM ciphering key Kc
0x4F52	GPRS ciphering key
0x4F63	CPBCCH information
0x4F64	Investigation scan
0x4F40	MExE Service table
0x4F41	Operator Root Public Key
0x4F42	Administrator Root Public Key
0x4F43	Third party Root public key
0x6FC7	Mail Box Dialing Number
0x6FC8	Extension 6
0x6FC9	Mailbox Identifier
0x6FCA	Message Waiting Indication Status
0x6FCD	Service Provider Display Information
0x6FD2	UIM_USIM_SPT_TABLE
0x6FD9	Equivalent HPLMN
0x6FCB	Call Forwarding Indicator Status
0x6FD6	GBA Bootstrapping parameters
0x6FDA	GBA NAF List
0x6FD7	MBMS Service Key
0x6FD8	MBMS User Key
0x6FCE	MMS Notification
0x6FD0	MMS Issuer connectivity parameters
0x6FD1	MMS User Preferences
0x6FD2	MMS User connectivity parameters
0x6FCF	Extension 8
0x5031	Object Directory File
0x5032	Token Information File
0x5033	Unused space Information File EFs under Telecom DF
0x6F3A	Abbreviated Dialing Numbers
0x6F3B	Fixed dialling numbers
0x6F3C	Short messages

	0x6F3D Capability Configuration Parameters 0x6F4F Extended CCP 0x6F40 MSISDN 0x6F42 SMS parameters 0x6F43 SMS Status 0x6F44 Last number dialled 0x6F49 Service Dialling numbers 0x6F4A Extension 1 0x6F4B Extension 2 0x6F4C Extension 3 0x6F4D Barred Dialing Numbers 0x6F4E Extension 4 0x6F47 SMS reports 0x6F58 Comparison Method Information 0x6F54 Setup Menu elements 0x6F06 Access Rule reference 0x4F20 Image 0x4F30 Phone book reference file 0x4F22 Phone book synchronization center 0x4F23 Change counter 0x4F24 Previous Unique Identifier
<p1> <p2> <p3>	Integer type; parameters to be passed on by the Module to the SIM.
<data>	Information which shall be written to the SIM (hexadecimal character format, refer AT+CSCS).
<sw1> <sw2>	Status information from the SIM about the execution of the actual command. It is returned in both cases, on successful or failed execution of the command.
<response>	Response data in case of a successful completion of the previously issued command. "STATUS" and "GET RESPONSE" commands return data, which gives information about the currently selected elementary data field. This information includes the type of file and its size. After "READ BINARY" or "READ RECORD" commands the requested data will be returned. <response> is empty after "UPDATE BINARY" or "UPDATE RECORD" commands.

Examples

```

AT+CRSM=?
OK
AT+CRSM=242
+CRSM:
144,0,"000000003F00040000FFBB01020000"

```

OK

6.2.8 AT+CSIMSLEEP Set UE to Allow SIM Card Sleep for Power Consumption

The write command set UE to allow SIM card sleep (power off SIM) or not (power on SIM) for **AT+CSIM** and **AT+CRSM,AT+CMM,AT+CACM**. Must shall set SIM sleep not allowed (power on SIM) before use **AT+CSIM** or **AT+CRSM ,AT+CMM,AT+CACM**, then set SIM sleep allowed (power off SIM) to save power after finish all commands of **AT+CSIM** or **AT+CRSM ,AT+CMM,AT+CACM**.

The read command return current setting of each parameter.

The test command returns values supported as a compound value.

AT+CSIMSLEEP Set UE to Allow SIM Card Sleep for Power Consumption

Test Command AT+CSIMSLEEP=?	Response <CR><LF> +CSIMSLEEP: (0,1) <CR><LF> <CR><LF> OK <CR><LF>
Read Command AT+CSIMSLEEP?	Response <CR><LF> +CSIMSLEEP: <mode> <CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+CSIMSLEEP=<mode>	Response <CR><LF> OK <CR><LF> or <CR><LF> +CME ERROR: <err> <CR><LF> or <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<mode>	0 Not allowed SIM sleep 1 Allowed SIM sleep
--------	--

Examples

AT+CSIMSLEEP=?

+CSIMSLEEP: (0,1)

OK

AT+CSIMSLEEP=0

OK

6.2.9 AT+SPIC Times remain to input SIM PIN/PUK

This command is used to inquire times remain to input SIM PIN/PUK.

AT+SPIC Times remain to input SIM PIN/PUK

Test Command	Response
AT+SPIC=?	<CR><LF> OK <CR><LF>
Execute Command	Response
AT+SPIC	1) <CR><LF> +SPIC: <pin1>,<puk1>,<pin2>,<puk2> <CR><LF> <CR><LF> OK <CR><LF>
Parameter Saving Mode	2) <CR><LF> +CME ERROR: <err> <CR><LF>
Max Response Time	NO_SAVE
Reference	-
	Vendor

Defined Values

<pin1>	Times remain to input PIN1 code.
<puk1>	Times remain to input PUK1 code.
<pin2>	Times remain to input PIN2 code.
<puk2>	Times remain to input PUK2 code.

Examples

AT+SPIC=?

```
OK
AT+SPIC
+SPIC: 3,10,0,10
OK
```

6.2.10 AT+CSPN Get service provider name from SIM

This command is used to get service provider name from SIM card.

AT+CSPN Get service provider name from SIM

Test Command AT+CSPN=?	Response 1) <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF>
Read Command AT+CSPN?	Response 1) <CR><LF> +CSPN: <spn>,<display mode> <CR><LF> <CR><LF> OK <CR><LF> 2) <CR><LF> OK <CR><LF> 3) <CR><LF> ERROR <CR><LF> 4) <CR><LF> +CME ERROR: <err> <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Vendor

Defined Values

<spn>	String type; service provider name on SIM
-------	---

<display mode>	0	doesn't display PLMN. Already registered on PLMN.
	1	display PLMN

Examples

```
AT+CSPN=?
OK
AT+CSPN?
+CSPN: "China Telecom",1
OK
```

6.2.11 AT+UIMHOTSWAPON Set UIM Hotswap Function On

AT+UIMHOTSWAPON Set UIM Hotswap Function On

Test Command AT+UIMHOTSWAPON=?	Response 1) <CR><LF> +UIMHOTSWAPON: (0-1)<CR><LF> <CR><LF> OK<CR><LF> 2) <CR><LF> ERROR<CR><LF>
Read Command AT+UIMHOTSWAPON?	Response 1) <CR><LF> +UIMHOTSWAPON: <onoff><CR><LF> <CR><LF> OK<CR><LF> 2) <CR><LF> ERROR<CR><LF>
Write Command AT+UIMHOTSWAPON=<onoff>	Response 1) <CR><LF> OK<CR><LF> 2) <CR><LF> ERROR<CR><LF>
Parameter Saving Mode	AUTO_SAVE

Max Response Time	5000ms
Reference	Vendor

Defined Values

<onoff>	0	The UIM hotswap function is disabled
	1	The UIM hotswap function is enabled

Examples

AT+UIMHOTSWAPON=?

+UIMHOTSWAPON: (0-1)

OK

AT+UIMHOTSWAPON?

+UIMHOTSWAPON: 0

OK

AT+UIMHOTSWAPON=1

OK

6.2.12 AT+UIMHOTSWAPLEVEL Set UIM Card Detection Level

AT+UIMHOTSWAPLEVEL Set UIM Card Detection Level

Test Command AT+UIMHOTSWAPLEVEL=?	Response 1) <CR><LF> +UIMHOTSWAPLEVEL: (0-1)<CR><LF> <CR><LF> OK<CR><LF>
	2) <CR><LF> ERROR<CR><LF>
Read Command AT+UIMHOTSWAPLEVEL?	Response 1) <CR><LF> +UIMHOTSWAPLEVEL: <level><CR><LF> <CR><LF> OK<CR><LF>

Write Command AT+UIMHOTSWAPLEVEL=<level>	2) <CR><LF> ERROR <CR><LF>
	Response
	1) <CR><LF> OK <CR><LF>
	2) <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	AUTO_SAVE
Max Response Time	5000ms
Reference	Vendor

Defined Values

<level>	<u>0</u> ACTIVE LOW
	1 ACTIVE HIGH

Examples

AT+UIMHOTSWAPLEVEL=?
+UIMHOTSWAPLEVEL: (0-1)

OK
AT+UIMHOTSWAPLEVEL?
+UIMHOTSWAPLEVEL: 0

OK
AT+UIMHOTSWAPLEVEL=1
OK

7 AT Commands for SMS

7.1 Overview of AT Commands for SMS

Command	Description
AT+CSMS	Select message service
AT+CPMS	Preferred message storage
AT+CMGF	Select SMS message format
AT+CSCA	SMS service center address
AT+CSCB	Select cell broadcast message indication
AT+CSMP	Set text mode parameters
AT+CSDH	Show text mode parameters
AT+CNMA	New message acknowledgement to ME/TA
AT+CNMI	New message indications to TE
AT+CMGL	List SMS messages from preferred store
AT+CMGR	Read message
AT+CMGS	Send message
AT+CMSS	Send message from storages
AT+CMGW	Write message to memory
AT+CMGD	Delete message
AT+CMGMT	Change message status
AT+CMVP	Set message valid period
AT+CMGRD	Read and delete message
AT+CMGSEX	Send message
AT+CMSSEX	Send multi messages from storage
AT+CCONCINDEX	Report Concatenated SMS Index

7.2 Detailed Description of AT Commands for SMS

7.2.1 AT+CSMS Select message service

This command is used to select messaging service <service>.

AT+CSMS Select message service

Test Command AT+CSMS=?	Response <CR><LF> +CSMS: (range of supported <service>s)<CR><LF> <CR><LF> OK <CR><LF>
Read Command AT+CSMS?	Response <CR><LF> +CSMS: <service>,<mt>,<mo>,<bm><CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+CSMS=<service>	Response 1) <CR><LF> +CSMS: <mt>,<mo>,<bm><CR><LF> <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF> 3) <CR><LF> +CMS ERROR: <err><CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	5000ms
Reference	3GPP TS 27.005

Defined Values

<service>	0	SMS at command is compatible with GSM phase 2.
	1	SMS at command is compatible with GSM phase 2+.
<mt>	0	type not supported.
	1	type supported.
<mo>	0	type not supported.
	1	type supported.
<bm>	0	type not supported.
	1	type supported.

Examples

AT+CSMS=0

+CSMS: 1,1,1

OK

AT+CSMS?

+CSMS: 0,1,1,1

OK

AT+CSMS=?

+CSMS: (0-1)

OK

7.2.2 AT+CPMS Preferred message storage

This command is used to select memory storages <mem1>, <mem2> and <mem3> to be used for reading, writing, etc.

AT+CPMS Preferred message storage

Test Command

AT+CPMS=?

Response

<CR><LF>

+CPMS: (list of supported <mem1>s),(list of supported <mem2>s),(list of supported <mem3>s)<CR><LF>

<CR><LF>

OK<CR><LF>

Read Command

AT+CPMS?

Response

<CR><LF>

+CPMS:

<mem1>,<used1>,<total1>,<mem2>,<used2>,<total2>,<mem3>,<used3>,<total3><CR><LF>

<CR><LF>

OK<CR><LF>

Write Command

AT+CPMS=<mem1>[,<mem2>[,<mem3>]]

Response

1)

<CR><LF>

+CPMS:

<used1>,<total1>,<used2>,<total2>,<used3>,<total3><CR><LF>

<CR><LF>

OK<CR><LF>

2)

<CR><LF>

ERROR<CR><LF>

Execute Command AT+CPMS	3) <CR><LF> +CMS ERROR: <err> <CR><LF>
	Response 1)Set default value (<mem1>="SM",<mem2>="SM",<mem3>="SM"): <CR><LF> +CPMS: <used1>,<total1>,<used2>,<total2>,<used3>,<total3><CR><LF> <CR><LF> OK <CR><LF>
	2) <CR><LF> ERROR <CR><LF>
	3) <CR><LF> +CMS ERROR: <err> <CR><LF>
Parameter Saving Mode	AUTO_SAVE
Max Response Time	5000ms
Reference	3GPP TS 27.005

Defined Values

<mem1>	String type, memory from which messages are read and deleted (commands List Messages AT+CMGL, Read Message AT+CMGR and Delete Message AT+CMGD). "ME" FLASH message storage "SM" SIM message storage
<mem2>	String type, memory to which writing and sending operations are made (commands Send Message from Storage AT+CMSS and Write Message to Memory AT+CMGW). "ME" FLASH message storage "SM" SIM message storage
<mem3>	String type, memory to which received SMS is preferred to be stored (unless forwarded directly to TE; refer command New Message Indications AT+CNMI). "ME" FLASH message storage "SM" SIM message storage
<usedX>	Integer type, number of messages currently in <memX>.
<totalX>	Integer type, total number of message locations in <memX>.

Examples

AT+CPMS=?

+CPMS: ("ME","SM"),("ME","SM"),("ME","SM")

OK

AT+CPMS?

+CPMS: "ME",0,10,"ME",0,10,"ME",0,10

OK

AT+CPMS="SM","SM","SM"

+CPMS: 3,50,3,50,3,50

OK

AT+CPMS

+CPMS: 3,50,3,50,3,50

OK

7.2.3 AT+CMGF Select SMS message format

This command is used to specify the input and output format of the short messages.

AT+CMGF Select SMS message format

Test Command

AT+CMGF=?

Response

1)

<CR><LF>

+CMGF: (range of **supported <mode>s**)<CR><LF>

<CR><LF>

OK<CR><LF>

2)

<CR><LF>

ERROR<CR><LF>

Read Command

AT+CMGF?

Response

1)

<CR><LF>

+CMGF: <mode><CR><LF>

<CR><LF>

OK<CR><LF>

2)

<CR><LF>

ERROR<CR><LF>

Write Command

AT+CMGF=<mode>

Response

1)

	<CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF> 3) <CR><LF> +CMS ERROR: <err> <CR><LF>
Execute Command AT+CMGF	Response 1) _ Set default value (<mode>=0): <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	AUTO_SAVE
Max Response Time	5000ms
Reference	3GPP TS 27.005

Defined Values

<mode>	0	PDU mode
	1	Text mode

Examples

AT+CMGF?

+CMGF: 0

OK

AT+CMGF=?

+CMGF: (0-1)

OK

AT+CMGF=1

OK

AT+CMGF

OK

7.2.4 AT+CSCA SMS service center address

This command is used to update the SMSC address, through which mobile originated SMS are transmitted.

AT+CSCA SMS service center address

Test Command AT+CSCA=?	Response <CR><LF> OK <CR><LF>
Read Command AT+CSCA?	Response 1) <CR><LF> +CSCA: <sca>,<tosca> <CR><LF> <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF>
Write Command AT+CSCA=<sca>[,<tosca>]	Response 1) <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF> 3) <CR><LF> +CMS ERROR: <err> <CR><LF>
Parameter Saving Mode	AUTO_SAVE
Max Response Time	5000ms
Reference	3GPP TS 27.005

Defined Values

<sca>	Service Center 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 to command AT+CSCS), type of address given by <tosca>.
<tosca>	SC address Type-of-Address octet in integer format, when first character of <sca> is + (IRA 43) default is 145, otherwise default is 129.

Examples

```
AT+CSCA=?
OK
AT+CSCA="+8613012345678"
OK
AT+CSCA?
+CSCA: "+8613010314500",145
OK
```

7.2.5 AT+CSCB Select cell broadcast message indication

The test command returns the supported <mode>s as a compound value.

The read command displays the accepted message types.

Depending on the <mode> parameter, the write command adds or deletes the message types accepted.

AT+CSCB Select cell broadcast message indication

Test Command

AT+CSCB=?

Response

```
1)
<CR><LF>
+CSCB: (range of supported <mode>s)<CR><LF>
<CR><LF>
OK<CR><LF>
2)
<CR><LF>
ERROR<CR><LF>
```

Read Command

AT+CSCB?

Response

```
1)
<CR><LF>
+CSCB: <mode>,<mids>,<dcss><CR><LF>
<CR><LF>
OK<CR><LF>
2)
<CR><LF>
ERROR<CR><LF>
or
<CR><LF>
+CMS ERROR: <err><CR><LF>
```

Write Command

AT+CSCB=<mode>[,<mids>[,<dcss>]]

Response

```
1)
<CR><LF>
OK<CR><LF>
```

	2) <CR><LF> ERROR <CR><LF>
	3) <CR><LF> +CMS ERROR: <err> <CR><LF>
Parameter Saving Mode	AUTO_SAVE
Max Response Time	5000ms
Reference	3GPP TS 27.005

Defined Values

<mode>	<u>0</u> message types specified in <mids> and <dcss> are accepted. 1 message types specified in <mids> and <dcss> are not accepted.
<mids>	String type; all different possible combinations of CBM message identifiers.
<dcss>	String type; all different possible combinations of CBM data coding schemes.

NOTE

The Read command for SIM76XX series return a list of available parameters <mids> and <dcss> with <mode> 0. If no parameters are available, return <mode> 1.

Examples

AT+CSCB=?

+CSCB: (0-1)

OK

AT+CSCB?

+CSCB: 1,"0-0,0-0,0-0,0-0,0-0,0-0,00000","0-0,0-0,0-0,0-0,0-0,0-0,00000"

OK

AT+CSCB=0,"15-17,86","15-19,86"

OK

7.2.6 AT+CSMP Set text mode parameters

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

AT+CSMP Set text mode parameters	
Test Command AT+CSMP=?	Response <CR><LF> OK <CR><LF>
Read Command AT+CSMP?	Response 1) <CR><LF> +CSMP: <fo>,<vp>,<pid>,<dc> <CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+CSMP=<fo>,<vp>,<pid>,<dc>]]	Response 1) <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF> 3) <CR><LF> +CMS ERROR: <err> <CR><LF>
Parameter Saving Mode	AUTO_SAVE
Max Response Time	5000ms
Reference	3GPP TS 27.005

Defined Values

<fo>	Depending on the Command or result code: first octet of GSM 03.40 SMS-DELIVER, SMS-SUBMIT (default 17), SMS-STATUS-REPORT, or SMS-COMMAND (default 2)in integer format. SMS status report is supported under text mode if <fo> is set to 49.
<vp>	Depending on SMS-SUBMIT <fo> setting: GSM 03.40,TP-Validity-Period either in integer format (default 167), in time-string format, or if is supported, in enhanced format (hexadecimal coded string with quotes),(<vp> is in range 0.. 255).
<pid>	GSM 03.40 TP-Protocol-Identifier in integer format (default 0).

<dc>

GSM 03.38 SMS Data Coding Scheme (default 0), or Cell Broadcast Data Coding Scheme in integer format depending on the command or result code.

Examples

AT+CSMP=17,23,0,244

OK

AT+CSMP?

+CSMP: 17,23,0,244

OK

AT+CSMP=?

OK

7.2.7 AT+CSDH Show text mode parameters

This command is used to control whether detailed header information is shown in text mode result codes.

AT+CSDH Show text mode parameters

Test Command

AT+CSDH=?

Response

<CR><LF>

+CSDH: (range of supported <show>s)<CR><LF>

<CR><LF>

OK<CR><LF>

Read Command

AT+CSDH?

Response

<CR><LF>

+CSDH: <show><CR><LF>

<CR><LF>

OK<CR><LF>

Write Command

AT+CSDH=<show>

Response

1)

<CR><LF>

OK<CR><LF>

2)

<CR><LF>

ERROR<CR><LF>

3)

<CR><LF>

+CMS ERROR: <err><CR><LF>

Execute Command

Set default value (<show>=0):

AT+CSDH	1) <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	5000ms
Reference	3GPP TS 27.005

Defined Values

<show>	0 do not show header values defined in commands AT+CSCA and AT+CSMP (<sca>,<tosca>,<fo>,<vp>,<pid> and <dcs>)nor <length>,<toda> or <toa> in +CMT, AT+CMGL, AT+CMGR result codes for SMS-DELIVERs and SMS-SUBMITs in text mode; for SMS-COMMANDs in AT+CMGR result code, do not show <pid>,<mn>,<da>,<toda>,<length> or <data> 1 show the values in result codes
---------------------	---

Examples

AT+CSDH=?

+CSDH: (0-1)

OK

AT+CSDH?

+CSDH: 0

OK

AT+CSDH=1

OK

AT+CSDH

OK

7.2.8 AT+CNMA New message acknowledgement to ME/TA

This command is used to confirm successful receipt of a new message (SMS-DELIVER or SMS-STATUSREPORT) routed directly to the TE. If ME does not receive acknowledgement within required time (network timeout), it will send RP-ERROR to the network.

AT+CNMA New message acknowledgement to ME/TA

Test Command AT+CNMA=?	Response if text mode(AT+CMGF=1): <CR><LF> OK <CR><LF> if PDU mode (AT+CMGF=0): <CR><LF> +CNMA: (range of supported <n>s)<CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+CNMA=<n>	Response 1) <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF> 3) <CR><LF> +CMS ERROR: <err> <CR><LF>
Execute Command AT+CNMA	1) <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF> 3) <CR><LF> +CMS ERROR: <err> <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	5000ms
Reference	3GPP TS 27.005

Defined Values

<n>	Parameter required only for PDU mode. 0 Command operates similarly as Execute Command in text mode. 1 Send positive (RP-ACK)acknowledgement to the network. Accepted only in PDU mode. 2 Send negative (RP-ERROR)acknowledgement to the network. Accepted only in PDU mode.
-----	--

Examples

AT+CNMI=1,2,0,0,0

OK

+CMT: "1380022xxxx", "", "02/04/03,11:06:38+32"

// receive new short message

Testing

AT+CNMA

OK

//send ACK to the network

NOTE

The execute / write command shall only be used when AT+CSMS parameter <service> equals 1 (= phase 2+) and appropriate URC has been issued by the module, i.e.:

<+CMT> for <mt>=2 incoming message classes 0, 1, 3 and none;

<+CMTI> for <mt>=3 incoming message classes 0;

<+CDS> for <ds>=1.

7.2.9 AT+CNMI New message indications to TE

This command is used to select the procedure how receiving of new messages from the network is indicated to the TE when TE is active, e.g., DTR signal is ON. If TE is inactive (e.g., DTR signal is OFF). If set <mt>=3 or <ds>=1, make sure <mode>=1, If set <mt>=2, make sure <mode>=1 or 2, otherwise it will return error.

AT+CNMI New message indications to TE

Test Command

AT+CNMI=?

Response

<CR><LF>

+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)<CR><LF>

<CR><LF>

OK<CR><LF>

Read Command

AT+CNMI?

Response

<CR><LF>

+CNMI: <mode>,<mt>,<bm>,<ds>,<bfr><CR><LF>

<CR><LF>

OK<CR><LF>

Write Command

Response

AT+CNMI=<mode>[,<mt>[,<bm>[,<ds>[,<bfr>]]]]	1) <CR><LF> OK<CR><LF> 2) <CR><LF> ERROR<CR><LF> 3) <CR><LF> +CMS ERROR: <err><CR><LF>
Execute Command AT+CNMI	Set default value: <CR><LF> OK<CR><LF>
Parameter Saving Mode	AUTO_SAVE
Max Response Time	5000ms
Reference	3GPP TS 27.005

Defined Values

<mode>	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.
<mt>	The rules for storing received SMS depend on its data coding scheme, preferred memory storage (AT+CPMS) setting and this value: 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: <mem3>,<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>,<dc>,<sca>,<tosca>,<length>]<CR> <LF><data> (text mode enabled, about parameters in italics, refer command

	Show Text Mode Parameters AT+CSDH). 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>	The rules for storing received CBMs depend on its data coding scheme, the setting of Select CBM Types (AT+CSCB) and this value: <u>0</u> 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: <mem3>,<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>,<dc>,<page>,<pages><CR><LF><data> (text mode enabled)
<ds>	<u>0</u> No SMS-STATUS-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: <mem3>,<index>.
<bfr>	<u>0</u> TA buffer of unsolicited result codes defined within this command is flushed to the TE when <mode> 1 to 2 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 to 2 is entered.

Examples

AT+CNMI?

+CNMI: 2,1,0,0,0

OK

AT+CNMI=?

+CNMI: (0,1,2),(0,1,2,3),(0,1,2),(0,1,2),(0,1)

OK

AT+CNMI=2,1 (unsolicited result codes after received messages.)

OK

AT+CNMI

OK

7.2.10 AT+CMGL List SMS messages from preferred store

This command is used to return messages with status value <stat> from message storage <mem1> to the TE.

If the status of the message is 'received unread', the status in the storage changes to 'received read'.

AT+CMGL List SMS messages from preferred store

Test Command

AT+CMGL=?

Response

<CR><LF>

+CMGL: (list of supported <stat>s)<CR><LF>

<CR><LF>

OK<CR><LF>

Response

1)If text mode (AT+CMGF=1), command successful and SMS-SUBMITs and/or SMS-DELIVERs:

<CR><LF>

+CMGL:

<index>,<stat>,<oa>/<da>,<alpha>,<scts>,<tooa>/<toda>,<length><CR><LF>

<data>[<CR><LF>

+CMGL:

<index>,<stat>,<oa>/<da>,<alpha>,<scts>,<tooa>/<toda>,<length><CR><LF>

<data>[..]<CR><LF>

<CR><LF>

OK<CR><LF>

2)If text mode (AT+CMGF=1), command successful and SMS-STATUS-REPORTs:

<CR><LF>

+CMGL:

<index>,<stat>,<fo>,<mr>,<ra>,<tora>,<scts>,<dt>,<st>[<CR><LF>

+CMGL:

<index>,<stat>,<fo>,<mr>,<ra>,<tora>,<scts>,<dt>,<st>[..]<CR><LF>

<CR><LF>

Write Command

AT+CMGL=<stat>

Execute Command
Only list the unread message.
AT+CMGL

OK<CR><LF>

3)If text mode (AT+CMGF=1), command successful and SMS-COMMANDs:

<CR><LF>

+CMGL: <index>,<stat>,<fo>,<ct>[<CR><LF>

+CMGL: <index>,<stat>,<fo>,<ct>[..]<CR><LF>

<CR><LF>

OK<CR><LF>

4)If text mode (AT+CMGF=1), command successful and CBM storage:

<CR><LF>

+CMGL: <index>,<stat>,<sn>,<mid>,<page>,<pages><CR><LF>

<data>[<CR><LF>

+CMGL: <index>,<stat>,<sn>,<mid>,<page>,<pages><CR><LF>

<data>[..]<CR><LF>

<CR><LF>

OK<CR><LF>

5)If PDU mode (AT+CMGF=0)and Command successful:

<CR><LF>

+CMGL: <index>,<stat>,<[alpha]>,<length><CR><LF>

<pdu>[<CR><LF>

+CMGL: <index>,<stat>,<[alpha]>,<length><CR><LF>

<pdu>[...]<CR><LF>

<CR><LF>

OK<CR><LF>

6)

<CR><LF>

+CMS ERROR: <err><CR><LF>

or

<CR><LF>

ERROR<CR><LF>

Response

1)If text mode (AT+CMGF=1), command successful and SMS-SUBMITs and/or SMS-DELIVERs:

<CR><LF>

+CMGL:

<index>,<stat>,<oa>/<da>,<[alpha]>,<[scts]>,<[tooa]/<toda>,<length>]<CR><LF>

<data>[<CR><LF>

+CMGL:

<index>,<stat>,<oa>/<da>,<[alpha]>,<[scts]>,<[tooa]/<toda>,<length>]<CR><LF>

<data>[..]<CR><LF>

<CR><LF>

OK<CR><LF>

2)If text mode (AT+CMGF=1), command successful and SMS-STATUS-REPORTs:

<CR><LF>

+CMGL:

<index>,<stat>,<fo>,<mr>,<ra>,<tora>,<scts>,<dt>,<st>[<CR><LF>

+CMGL:

<index>,<stat>,<fo>,<mr>,<ra>,<tora>,<scts>,<dt>,<st>[..]<CR><LF>

<CR><LF>

OK<CR><LF>

3)If text mode (AT+CMGF=1), command successful and SMS-COMMANDs:

<CR><LF>

+CMGL: <index>,<stat>,<fo>,<ct>[<CR><LF>

+CMGL: <index>,<stat>,<fo>,<ct>[..]<CR><LF>

<CR><LF>

OK<CR><LF>

4)If text mode (AT+CMGF=1), command successful and CBM storage:

<CR><LF>

+CMGL: <index>,<stat>,<sn>,<mid>,<page>,<pages><CR><LF>

<data>[<CR><LF>

+CMGL: <index>,<stat>,<sn>,<mid>,<page>,<pages><CR><LF>

<data>[..]<CR><LF>

<CR><LF>

OK<CR><LF>

5)If PDU mode (AT+CMGF=0)and Command successful:

<CR><LF>

+CMGL: <index>,<stat>,<alpha>,<length><CR><LF>

<pdu>[<CR><LF>

+CMGL: <index>,<stat>,<alpha>,<length><CR><LF>

<pdu>[...]<CR><LF>

<CR><LF>

OK<CR><LF>

6)

<CR><LF>

+CMS ERROR: <err><CR><LF>

or

<CR><LF>

ERROR<CR><LF>

Parameter Saving Mode

NO_SAVE

Max Response Time

30s

Reference

3GPP TS 27.005

Defined Values

<stat>	1. Text Mode: "REC UNREAD" received unread message (i.e., new message) "REC READ" received read message "STO UNSENT" stored unsent message "STO SENT" stored sent message "ALL" all messages 2. PDU Mode: 0 received unread message (i.e. new message) 1 received read message 2 stored unsent message 3 stored sent message 4 all messages
<index>	Integer type; value in the range of location numbers supported by the associated memory and start with zero.
<oa>	Originating-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, type of address given by <toa>.
<da>	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, type of address given by <toa>.
<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 Character Set AT+CSCS.
<scts>	TP-Service-Center-Time-Stamp in time-string format (refer <dt>).
<toa>	TP-Originating-Address, Type-of-Address octet in integer format. (default refer <toa>).
<toa>	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). The range of value is from 128 to 255.
<length>	Integer type value indicating in the text mode (AT+CMGF=1) the length of the message body <data> in characters; or in PDU mode (AT+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)
<data>	In the case of SMS: TP-User-Data in text mode responses; format: 1. If <dc> indicates that GSM 7 bit default alphabet is used and <fo> indicates that TP-User-Data-Header-Indication is not set:

	a. If TE character set other than "HEX": ME/TA converts GSM alphabet into current TE character set. b. If TE character set is "HEX": ME/TA converts each 7-bit character of GSM 7 bit default alphabet into two IRA character long hexadecimal numbers. (e.g. character (GSM 7 bit default alphabet 23) is presented as 17 (IRA 49 and 55)) 2. If <dc> indicates that 8-bit or UCS2 data coding scheme is used, or <fo> indicates that TP-User-Data-Header-Indication is set: ME/TA converts each 8-bit octet into two IRA character long hexadecimal numbers. (e.g., octet with integer value 42 is presented to TE as two characters 2A (IRA 50 and 65)) 3. If <dc> indicates that GSM 7 bit default alphabet is used: a. If TE character set other than "HEX": ME/TA converts GSM alphabet into current TE character set. b. If TE character set is "HEX": ME/TA converts each 7-bit character of the GSM 7 bit default alphabet into two IRA character long hexadecimal numbers. 4. If <dc> indicates that 8-bit or UCS2 data coding scheme is used: ME/TA converts each 8-bit octet into two IRA character long hexadecimal numbers.
<fo>	Depending on the command or result code: first octet of GSM 03.40 SMS-DELIVER, SMS-SUBMIT (default 17), SMS-STATUS-REPORT, or SMS-COMMAND (default 2) in integer format. SMS status report is supported under text mode if <fo> is set to 49.
<mr>	Message Reference GSM 03.40 TP-Message-Reference in integer format.
<ra>	Recipient Address GSM 03.40 TP-Recipient-Address Address-Value field in string format; BCD numbers (or GSM default alphabet characters) are converted to characters of the currently selected TE character set (refer to command AT+CSCS); type of address given by <tora>
<tora>	Type of Recipient Address GSM 04.11 TP-Recipient-Address Type-of-Address octet in integer format (default refer <tora>)
<dt>	Discharge Time GSM 03.40 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.
<st>	Status GSM 03.40 TP-Status in integer format 0...255
<ct>	Status GSM 03.40 TP-Status in integer format 0...255

<ct>	Command Type GSM 03.40 TP-Command-Type in integer format 0...255
<sn>	Serial Number GSM 03.41 CBM Serial Number in integer format
<mid>	Message Identifier GSM 03.41 CBM Message Identifier in integer format
<page>	Page Parameter GSM 03.41 CBM Page Parameter bits 4-7 in integer format
<pages>	Page Parameter GSM 03.41 CBM Page Parameter bits 0-3 in integer format
<pdu>	In the case of SMS: SC address followed by TPDU in hexadecimal format: ME/TA converts each octet of TP data unit into two IRA character long hexadecimal numbers. (e.g., octet with integer value 42 is presented to TE as two characters 2A (IRA 50 and 65)).

Examples

AT+CMGL=?

+CMGL: ("REC UNREAD","REC READ","STO UNSENT","STO SENT","ALL")

OK

AT+CMGL="ALL"

+CMGL: 1,"STO UNSENT","+10011",,,145,4

"Hello World"

OK

7.2.11 AT+CMGR Read message

This command is used to return message with location value <index> from message storage <mem1> to the TE.

AT+CMGR Read message

Test Command AT+CMGR=?	Response <CR><LF> OK <CR><LF>
Write Command AT+CMGR=<index>	Response 1)If text mode (AT+CMGF=1), command successful and SMS-DELIVER:

<CR><LF>

+CMGR:

<stat>,<oa>,<[alpha]>,<scts>,<[tooa]>,<fo>,<pid>,<dcsc>,<sca>,<tosca>,<length>]<CR><LF>

<data><CR><LF>

<CR><LF>

OK<CR><LF>

2)If text mode (AT+CMGF=1), command successful and SMS-SUBMIT:

<CR><LF>

+CMGR:

<stat>,<da>,<[alpha]>,<[toda]>,<fo>,<pid>,<dcsc>,<[vp]>,<sca>,<tosca>,<length>]<CR><LF>

<data><CR><LF>

<CR><LF>

OK<CR><LF>

3)If text mode (AT+CMGF=1), command successful and SMS-STATUS-REPORT:

<CR><LF>

+CMGR:

<stat>,<fo>,<mr>,<[ra]>,<[tora]>,<scts>,<dt>,<st>]<CR><LF>

<CR><LF>

OK<CR><LF>

If text mode (AT+CMGF=1), command successful and SMS-COMMAND:

<CR><LF>

+CMGR:

<stat>,<fo>,<ct>,<[pid]>,<[mn]>,<[da]>,<[toda]>,<length>]<CR><LF>

<data><CR><LF>

<CR><LF>

OK<CR><LF>

4)If text mode (AT+CMGF=1), command successful and CBM storage:

<CR><LF>

+CMGR: <stat>,<sn>,<mid>,<dcsc>,<page>,<pages>]<CR><LF>

<data><CR><LF>

<CR><LF>

OK<CR><LF>

5)If PDU mode (AT+CMGF=0)and Command successful:

<CR><LF>

+CMGR: <stat>,<[alpha]>,<length>]<CR><LF>

<pdu><CR><LF>

<CR><LF>

OK<CR><LF>

	6) <CR><LF> +CMS ERROR: <err><CR><LF> or <CR><LF> ERROR<CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	5000ms
Reference	3GPP TS 27.005

Defined Values

<index>	Integer type; value in the range of location numbers supported by the associated memory and start with zero.
<stat>	1. Text Mode: "REC UNREAD" received unread message (i.e., new message) "REC READ" received read message "STO UNSENT" stored unsent message "STO SENT" stored sent message 2. PDU Mode: 0 received unread message (i.e. new message) 1 received read message 2 stored unsent message 3 stored sent message
<oa>	Originating-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, type of address given by <tooa>.
<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 Character Set AT+CSCS.
<scts>	TP-Service-Center-Time-Stamp in time-string format (refer <dt>).
<tooa>	TP-Originating-Address, Type-of-Address octet in integer format. (default refer <toda>).
<fo>	Depending on the command or result code: first octet of GSM 03.40 SMS-DELIVER, SMS-SUBMIT (default 17), SMS-STATUS-REPORT, or SMS-COMMAND (default 2) in integer format. SMS status report is supported under text mode if <fo> is set to 49.
<pid>	Protocol Identifier GSM 03.40 TP-Protocol-Identifier in integer format 0...255

<dc>	Depending on the command or result code: SMS Data Coding Scheme (default 0), or Cell Broadcast Data Coding Scheme in integer format.
<sc>	RP SC 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, type of address given by <tosca>.
<tosca>	RP SC address Type-of-Address octet in integer format (default refer < toda>).
<length>	Integer type value indicating in the text mode (AT+CMGF=1) the length of the message body <data> in characters; or in PDU mode (AT+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)
<data>	In the case of SMS: TP-User-Data in text mode responses; format: 1. If <dc> indicates that GSM 7 bit default alphabet is used and <fo> indicates that TP-User-Data-Header-Indication is not set: a. If TE character set other than "HEX": ME/TA converts GSM alphabet into current TE character set. b. If TE character set is "HEX": ME/TA converts each 7-bit character of GSM 7 bit default alphabet into two IRA character long hexadecimal numbers. (e.g. character (GSM 7 bit default alphabet 23) is presented as 17 (IRA 49 and 55)) 2. If <dc> indicates that 8-bit or UCS2 data coding scheme is used, or <fo> indicates that TP-User-Data-Header-Indication is set: ME/TA converts each 8-bit octet into two IRA character long hexadecimal numbers. (e.g., octet with integer value 42 is presented to TE as two characters 2A (IRA 50 and 65)) 3. If <dc> indicates that GSM 7 bit default alphabet is used: a. If TE character set other than "HEX": ME/TA converts GSM alphabet into current TE character set. b. If TE character set is "HEX": ME/TA converts each 7-bit character of the GSM 7 bit default alphabet into two IRA character long hexadecimal numbers. 4. If <dc> indicates that 8-bit or UCS2 data coding scheme is used: ME/TA converts each 8-bit octet into two IRA character long hexadecimal numbers.
<da>	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, type of address given by < toda>.
< toda>	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). The range of value is from 128 to 255.
<vp>	Depending on SMS-SUBMIT <fo> setting: TP-Validity-Period either in integer format (default 167) or in time-string format (refer

	<dt>).
<mr>	Message Reference GSM 03.40 TP-Message-Reference in integer format.
<ra>	Recipient Address GSM 03.40 TP-Recipient-Address Address-Value field in string format; BCD numbers (or GSM default alphabet characters) are converted to characters of the currently selected TE character set (refer to command AT+CSCS); type of address given by <tora>
<tora>	Type of Recipient Address GSM 04.11 TP-Recipient-Address Type-of-Address octet in integer format (default refer <toda>)
<dt>	Discharge Time GSM 03.40 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.
<st>	Status GSM 03.40 TP-Status in integer format 0...255
<ct>	Command Type GSM 03.40 TP-Command-Type in integer format 0...255
<mn>	Message Number GSM 03.40 TP-Message-Number in integer format
<sn>	Serial Number GSM 03.41 CBM Serial Number in integer format
<mid>	Message Identifier GSM 03.41 CBM Message Identifier in integer format
<page>	Page Parameter GSM 03.41 CBM Page Parameter bits 4-7 in integer format
<pages>	Page parameter GSM 03.41 CBM Page Parameter bits 0-3 in integer format
<pdu>	In the case of SMS: SC address followed by TPDU in hexadecimal format: ME/TA converts each octet of TP data unit into two IRA character long hexadecimal numbers. (eg. octet with integer value 42 is presented to TE as two characters 2A (IRA 50 and 65)).

Examples

AT+CMGR=?

OK

AT+CMGR=1

+CMGR: "STO UNSENT", "+10011", 145, 17, 0, 0, 167, "+8613800100500", 145, 11
"Hello World"

OK

7.2.12 AT+CMGS Send message

This command is used to send message from a TE to the network (SMS-SUBMIT).

AT+CMGS Send message

Test Command

AT+CMGS=?

Response

<CR><LF>

OK<CR><LF>

Write Command

If text mode(AT+CMGF=1)

AT+CMGS=<da>[,<toda>]

Text is entered.

<CTRL-Z/ESC>

If PDU mode(AT+CMGF=0)

AT+CMGS=<length>

PDU is entered

<CTRL-Z/ESC>

Response

1)If sending successfully:

If text mode(AT+CMGF=1)

<CR><LF>

+CMGS: <mr>[,<scts>]<CR><LF>

<CR><LF>

OK<CR><LF>

If PDU mode(AT+CMGF=0)

<CR><LF>

+CMGS: <mr>[,<ackpdu>]<CR><LF>

<CR><LF>

OK<CR><LF>

2)If cancel sending:

<CR><LF>

+CMS ERROR: <err><CR><LF>

3)If sending fails

<CR><LF>

ERROR<CR><LF>

4)If sending fails:

<CR><LF>

+CMS ERROR: <err><CR><LF>

Parameter Saving Mode

NO_SAVE

Max Response Time

60s

Reference

3GPP TS 27.005

Defined Values

<da>

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, type of address given by <toda>.

<tda>	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). The range of value is from 128 to 255.
<length>	integer type value indicating in the text mode (AT+CMGF=1) the length of the message body <data> > (or <cdata>) in characters; or in PDU mode (AT+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)
<mr>	Message Reference GSM 03.40 TP-Message-Reference in integer format.
<scts>	The sending time of the SMS.
<ackpdu>	RP-User-Data element of RP-ACK PDU.

Examples

```
AT+CMGS=?
OK
//TEXT MODE
AT+CMGS="13012832788"
>
ABCD<ctrl-Z/ESC>
+CMGS: 46
OK
```

NOTE

In text mode, the maximum length of an SMS depends on the used coding scheme: It is 160 characters if the 7 bit GSM coding scheme is used.

7.2.13 AT+CMSS Send message from storage

This command is used to send message with location value <index> from preferred message storage <mem2> to the network (SMS-SUBMIT or SMS-COMMAND).

AT+CMSS Send message from storage

Test Command AT+CMSS=?	Response <CR><LF> OK <CR><LF>
Write Command	Response

AT+CMSS=<index>[,<da>[,<today>]]

1)If text mode(AT+CMGF=1)
<CR><LF>
+CMSS: <mr>[,<scts>]<CR><LF>
<CR><LF>
OK<CR><LF>
If PDU mode(AT+CMGF=0)
<CR><LF>
+CMSS: <mr>[,<ackpdu>]<CR><LF>
<CR><LF>
OK<CR><LF>
2)
<CR><LF>
ERROR<CR><LF>
3)If sending fails:
<CR><LF>
+CMS ERROR: <err><CR><LF>

Parameter Saving Mode	NO_SAVE
Max Response Time	5000ms
Reference	3GPP TS 27.005

Defined Values

<index>	Integer type; value in the range of location numbers supported by the associated memory and start with zero.
<da>	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, type of address given by <today>.
<mr>	Message Reference GSM 03.40 TP-Message-Reference in integer format.
<today>	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). The range of value is from 128 to 255.
<scts>	The sending time of the SMS.
<ackpdu>	RP-User-Data element of RP-ACK PDU.

Examples

AT+CMSS=?
OK
AT+CMSS=3
+CMSS: 0

OK

AT+CMSS=3,"13012345678"

+CMSS: 55

OK

NOTE

In text mode, the maximum length of an SMS depends on the used coding scheme: It is 160 characters if the 7 bit GSM coding scheme is used.

7.2.14 AT+CMGW Write message to memory

This command is used to store message (either SMS-DELIVER or SMS-SUBMIT) to memory storage <mem2>.

AT+CMGW Write message to memory

Test Command

AT+CMGW=?

Response

<CR><LF>

OK<CR><LF>

Write Command

If text mode(AT+CMGF=1)

AT+CMGW=<oa>/<da>[,<toa>/
<toda>[,<stat>]]

Text is entered.

<CTRL-Z/ESC>

If PDU mode(AT+CMGF=0):

AT+CMGW=<length>[,<stat>]

PDU is entered.

<CTRL-Z/ESC>

Response

1)If write successfully:

<CR><LF>

+CMGW: <index><CR><LF>

<CR><LF>

OK<CR><LF>

2)If write fails:

<CR><LF>

ERROR<CR><LF>

3)If write fails:

<CR><LF>

+CMS ERROR: <err><CR><LF>

Parameter Saving Mode

NO_SAVE

Max Response Time

60s

Reference

3GPP TS 27.005

Defined Values

<index>	Integer type; value in the range of location numbers supported by the associated memory and start with zero.
<oa>	Originating-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, type of address given by <toa>.
<toa>	TP-Originating-Address, Type-of-Address octet in integer format. (default refer <toa>).
<da>	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, type of address given by <toa>.
<tda>	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). The range of value is from 128 to 255.
<length>	Integer type value indicating in the text mode (AT+CMGF=1) the length of the message body <data> > (or <cdata>) in characters; or in PDU mode (AT+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>	1. Text Mode: "REC UNREAD" received unread message (i.e., new message) "REC READ" received read message "STO UNSENT" stored unsent message "STO SENT" stored sent message 2. PDU Mode: 0 received unread message (i.e. new message) 1 received read message 2 stored unsent message 3 stored sent message

Examples

```

AT+CMGW=?
OK
AT+CMGW="13012832788"
>
ABCD<ctrl-Z/ESC>
+CMGW: 1

OK
//TEXT MODE

```

NOTE

In text mode, the maximum length of an SMS depends on the used coding scheme: It is 160 characters if the 7 bit GSM coding scheme is used.

7.2.15 AT+CMGD Delete message

This command is used to delete 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.

AT+CMGD Delete message

Test Command AT+CMGD=?	Response <CR><LF> +CMGD: (list of supported <index>s)[,(list of supported <delflag>s)]<CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+CMGD=<index>[,<delflag>]	Response 1) <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF> 3) <CR><LF> +CMS ERROR: <err> <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	20s
Reference	3GPP TS 27.005

Defined Values

<index>	Integer type; value in the range of location numbers supported by the associated memory and start with zero.
<delflag>	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.

Examples

AT+CMGD=?

+CMGD: (0,1,2,3),(0-4)

OK

AT+CMGD=1

OK

NOTE

If set <delflag>=1, 2, 3 or 4, <index> is omitted, such as AT+CMGD=,1.

7.2.16 AT+CMGMT Change message status

This command is used to change the message status. If the status is unread, it will be changed read. Other statuses don't change.

AT+CMGMT Change message status

Test Command

AT+CMGMT=?

Response

<CR><LF>

OK<CR><LF>

Write Command

AT+CMGMT=<index>

Response

1)

<CR><LF>

OK<CR><LF>

2)

<CR><LF>

	ERROR <CR><LF> 3) <CR><LF> +CMS ERROR: <err> <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	5000ms
Reference	3GPP TS 27.005

Defined Values

<index>	Integer type; value in the range of location numbers supported by the associated memory and start with zero.
---------	--

Examples

AT+CMGMT=?

OK

AT+CMGMT=1

OK

7.2.17 AT+CMVP Set message valid period

This command is used to set valid period for sending short message.

AT+CMVP Set message valid period

Test Command AT+CMVP=?	Response <CR><LF> +CMVP: (list of supported <vp>s)<CR><LF> <CR><LF> OK <CR><LF>
Read Command AT+CMVP?	Response <CR><LF> +CMVP: <vp><CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+CMVP=<vp>	Response 1) <CR><LF>

	OK <CR><LF> 2) <CR><LF> ERROR <CR><LF> 3) <CR><LF> +CMS ERROR: <err> <CR><LF>
Parameter Saving Mode	AUTO_SAVE
Max Response Time	5000ms
Reference	3GPP TS 27.005

Defined Values

<vp>	Validity period value: 0 to 143 (<vp>+1)x 5 minutes (up to 12 hours) 144 to 167 12 hours + (<vp>-143)x 30 minutes 168 to 196 (<vp>-166)x 1 day 197 to 255 (<vp>-192)x 1 week
------	--

Examples

AT+CMVP=?

+CMVP: (0-255)

OK

AT+CMVP=167

OK

AT+CMVP?

+CMVP: 167

OK

7.2.18 AT+CMGRD Read and delete message

This command is used to read message, and delete the message at the same time. It integrate AT+CMGR and AT+CMGD, but it doesn't change the message status.

AT+CMGRD Read and delete message

Test Command

AT+CMGRD=?

Response

<CR><LF>

OK<CR><LF>

Response

1)If text mode(AT+CMGF=1),command successful and SMS-DE-LIVER:

<CR><LF>

+CMGRD:

<stat>,<oa>,<[alpha]>,<scts>,<[tooa]>,<fo>,<pid>,<dcsc>,<sca>,<tosca>,<length><CR><LF>

<data><CR><LF>

<CR><LF>

OK<CR><LF>

2)If text mode(AT+CMGF=1),command successful and SMS-SUBMIT:

<CR><LF>

+CMGRD:

<stat>,<da>,<[alpha]>,<[toda]>,<fo>,<pid>,<dcsc>,<[vp]>,<sca>,<tosca>,<length><CR><LF>

<data><CR><LF>

<CR><LF>

OK<CR><LF>

3)If text mode(AT+CMGF=1),command successful and SMS-STATUS-REPORT:

<CR><LF>

+CMGRD:

<stat>,<fo>,<mr>,<[ra]>,<[tora]>,<scts>,<dt>,<st><CR><LF>

<CR><LF>

OK<CR><LF>

4)If text mode(AT+CMGF=1),command successful and SMS-COMMAND:

<CR><LF>

+CMGRD:

<stat>,<fo>,<ct>,<[pid]>,<[mn]>,<[da]>,<[toda]>,<length><CR><LF>

<data><CR><LF>

<CR><LF>

OK<CR><LF>

5)If text mode(AT+CMGF=1),command successful and CBM storage:

<CR><LF>

+CMGRD: <stat>,<sn>,<mid>,<dcsc>,<page>,<pages><CR><LF>

<data><CR><LF>

<CR><LF>

OK<CR><LF>

Write Command

AT+CMGRD=<index>

6)If PDU mode(AT+CMGF=0)and command successful:

<CR><LF>

+CMGRD: <stat>,[<alpha>],<length><CR><LF>

<pdu><CR><LF>

<CR><LF>

OK<CR><LF>

7)

<CR><LF>

ERROR<CR><LF>

8)

<CR><LF>

+CMS ERROR: <err><CR><LF>

Parameter Saving Mode	NO_SAVE
Max Response Time	20s
Reference	3GPP TS 27.005

Defined Values

Refer to command AT+CMGR.

Examples

AT+CMGRD=?

OK

AT+CMGRD=6

+CMGRD: "REC

READ","+8613917787249",,"06/07/10,12:09:

38+32",145,4,0,0, "+86138002105 00",145,4

"How do you do"

OK

7.2.19 AT+CMGSEX Send message

This command is used to send message from a TE to the network (SMS-SUBMIT).

AT+CMGSEX Send message

Test Command AT+CMGSEX=?	Response <CR><LF> OK <CR><LF>
Write Command If text mode(AT+CMGF=1): AT+CMGSEX=<da>[,<toda>][,<mr>,<msg_seg>,<msg_total>] Text is entered. <CTRL-Z/ESC>	Response 1) <CR><LF> +CMGSEX: <mr> <CR><LF> <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF> 3) <CR><LF> +CMS ERROR: <err> <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	60s
Reference	3GPP TS 27.005

Defined Values

<da>	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, type of address given by <toda>.
<toda>	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). The range of value is from 128 to 255.
<mr>	Message Reference GSM 03.40 TP-Message-Reference in integer format. The range of value is from 0 to 255.
<msg_seg>	The segment number for long sms
<msg_total>	The segment number for long sms, max value is 255.

Examples

```

AT+CMGSEX=?
OK                                     //TEXT MODE
AT+CMGSEX="13012832788",129,190,1,2
>
ABCD<ctrl-Z/ESC>
+CMGSEX: 52                           //TEXT MODE
OK
AT+CMGSEX="13012832788",129,190,2,2

```

```
>
EFGH<ctrl-Z/ESC>
+CMGSEX: 53

OK
```

NOTE

In text mode, the maximum length of an SMS depends on the used coding scheme: For single SMS, it is 160 characters if the 7 bit GSM coding scheme is used; For multiple long sms, it is 153 characters if the 7 bit GSM coding scheme is used. If there is only the <da> (<toda>) parameter, it is treated as single SMS.

7.2.20 AT+CMSSEX Send multi messages from storage

This command is used to send messages with location value <index1>,<index2>,<index3>... from preferred message storage <mem2> to the network (SMS-SUBMIT or SMS-COMMAND).The max count of index is 13 one time.

AT+CMSSEX Send multi messages from storage

Test Command
AT+CMSSEX=?

Response
<CR><LF>
OK<CR><LF>

Write Command
**AT+CMSSEX=<index>[,<index>[
,...]]**

Response
1)
[<CR><LF>
+CMSSEX: <mr>[,<mr>[,...]]<CR><LF>
]
<CR><LF>
OK<CR><LF>
2)
<CR><LF>
ERROR<CR><LF>
3)If sending fails:
[<CR><LF>
+CMSSEX: <mr>[,<mr>[,...]]<CR><LF>
]
<CR><LF>
+CMS ERROR: <err><CR><LF>

Parameter Saving Mode

NO_SAVE

Max Response Time	60s
Reference	3GPP TS 27.005

Defined Values

<index>	Integer type; value in the range of location numbers supported by the associated memory and start with zero.
<mr>	Message Reference GSM 03.40 TP-Message-Reference in integer format.

Examples

AT+CMSSEX=?

OK

AT+CMSSEX=1,2

+CMSSEX: 239,240

OK

AT+CMSSEX=1,2

+CMSSEX: 241

+CMS ERROR: Invalid memory index

NOTE

In text mode, the maximum length of an SMS depends on the used coding scheme: For single SMS, it is 160 characters if the 7 bit GSM coding scheme is used.

7.2.21 AT+CCONCINDEX Report Concatenated SMS Index

This command is used to list the SMS index numbers of received short and long messages.

AT+CCONCINDEX Report Concatenated SMS Index

Test Command AT+CCONCINDEX=?	Response <CR><LF> +CCONCINDEX: (0-10),(1-50),...<CR><LF> <CR><LF> OK<CR><LF>
Execute Command AT+CCONCINDEX	Response 1)

```
<CR><LF>
+CCONCINDEX: N,i,j,k,...<CR><LF>
<CR><LF>
OK<CR><LF>
2)
<CR><LF>
OK<CR><LF>
3)
<CR><LF>
+CMS ERROR: <err><CR><LF>
or
<CR><LF>
ERROR<CR><LF>
```

Parameter Saving Mode	NO_SAVE
Max Response Time	12s
Reference	3GPP TS 27.005

Defined Values

<N>	N is the number of segments that form the whole concatenated SMS.
<i, j, k>	i,j,k are the SMS indexes of each SMS segment

Examples

```
AT+CCONCINDEX=?
+CCONCINDEX: (0-10),(1-50),...
```

```
OK
AT+CCONCINDEX
+CCONCINDEX: 3,1,2,3
+CCONCINDEX: 2,45
```

```
OK
```

NOTE

If no segment is received, N is 0.
There is no long message on the SIM card or ME, only the OK result code is returned.

8 AT Commands for Serial Interface

8.1 Overview of AT Commands for Serial Interface

Command	Description
AT&D	Set DTR function mode
AT&C	Set DCD function mode
AT+IPR	Set local baud rate temporarily
AT+IPREX	Set local baud rate permanently
AT+ICF	Set control character framing
AT+IFC	Set local data flow control
AT+CSCLK	Control UART Sleep
AT+LPSTATUS	Query information about sleep/wakeup
AT+CMUX	Enable the multiplexer over the UART
AT+CATR	Configure URC destination interface
AT+CFGRI	Configure RI pin
AT+CURCD	Configure the delay time and number of URC

8.2 Detailed Description of AT Commands for Serial Interface

8.2.1 AT&D Set DTR function mode

This command determines how the TA responds when DTR PIN is changed from the ON to the OFF condition during data mode.

AT&D Set DTR function mode

Execute Command AT&D[<value>]	Response 1) <CR><LF> OK <CR><LF> 2) <CR><LF>
---	--

	ERROR <CR><LF>
Parameter Saving Mode	AT&W_SAVE
Max Response Time	5000ms
Reference	-

Defined Values

<value>	0 TA ignores status on DTR.
	1 ON->OFF on DTR: Change to Command mode with remaining the connected call.
	2 ON->OFF on DTR: Disconnect call, change to Command mode. During state DTR=OFF is auto-answer off.

Examples

AT&D1

OK

8.2.2 AT&C Set DCD function mode

This command determines how the state of DCD PIN relates to the detection of received line signal from the distant end.

AT&C Set DCD function mode

Execute Command AT&C[<value>]	Response
	1) <CR><LF> OK <CR><LF>
	2) <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	AT&W_SAVE
Max Response Time	5000ms
Reference	-

Defined Values

<value>	0 DCD line shall always be on.
---------	--------------------------------

- 1 DCD line shall be on only when data carrier signal is present.
- 2 Setting the DCD line be on just 1 second after the data calls end.

Examples

AT&C1

OK

8.2.3 AT+IPR Set local baud rate temporarily

This command sets the baud rate of module's serial interface temporarily, after reboot the baud rate is set to value of IPREX.

AT+IPR Set local baud rate temporarily

Test Command AT+IPR=?	Response <CR><LF> +IPR: (list of supported <speed>s)<CR><LF> <CR><LF> OK <CR><LF>
Read Command AT+IPR?	Response <CR><LF> +IPR: <speed><CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+IPR=<speed>	Response 1) <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF>
Execute Command AT+IPR	Response Set the value to boot value: <CR><LF> OK <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	5000ms
Reference	-

Defined Values

<speed>	Baud rate per second: 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, <u>115200</u> , 230400, 460800, 921600.
---------	---

Examples

AT+IPR?

+IPR: 115200

OK

AT+IPR=?

+IPR: (600,1200,2400,4800,9600,19200,38400,57600,115200,230400,460800,921600)

OK

AT+IPR=115200

OK

8.2.4 AT+IPREX Set local baud rate permanently

This command sets the baud rate of module's serial interface permanently, after reboot the baud rate is also valid.

AT+IPREX Set local baud rate permanently

Test Command AT+IPREX=?	Response <CR><LF> +IPREX: (list of supported <speed>s)<CR><LF> <CR><LF> OK<CR><LF>
Read Command AT+IPREX?	Response <CR><LF> +IPREX: <speed><CR><LF> <CR><LF> OK<CR><LF>
Write Command AT+IPREX=<speed>	Response 1) <CR><LF> OK<CR><LF> 2) <CR><LF> ERROR<CR><LF>

Execute Command AT+IPREX	Response Set default value 115200: <CR><LF> OK <CR><LF>
Parameter Saving Mode	AUTO_SAVE
Max Response Time	5000ms
Reference	-

Defined Values

<speed>	Baud rate per second: 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, <u>115200</u> , 230400, 460800, 921600.
---------	--

Examples

AT+IPREX?

+IPREX: 115200

OK

AT+IPREX=?

+IPREX: (600,1200,2400,4800,9600,19200,38400,57600,115200,230400,460800,921600)

OK

AT+IPREX=115200

OK

8.2.5 AT+ICF Set control character framing

This command sets character framing which contains data bit, stop bit and parity bit.

AT+ICF Set control character framing

Test Command AT+ICF=?	Response <CR><LF> +ICF: (list of supported<format>s),(list of supported<parity>s)<CR><LF> <CR><LF> OK <CR><LF>
Read Command AT+ICF?	Response <CR><LF>

	+ICF: <format>,<parity><CR><LF> <CR><LF> OK<CR><LF>
Write Command AT+ICF=<format>[,<parity>]	Response 1) <CR><LF> OK<CR><LF> 2) <CR><LF> ERROR<CR><LF>
Execute Command AT+ICF	Response Set default value: <CR><LF> OK<CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	5000ms
Reference	-

Defined Values

<format>	1 data bit 8, parity bit 1,stop bit 1. 2 data bit 8, stop bit 1. 3 data bit 7, parity bit 1,stop bit 1. 4 data bit 7, stop bit 1.
<parity>	0 Odd 1 Even 2 none

Examples

AT+ICF?

+ICF: 2,2

OK

AT+ICF=?

+ICF: (1-4),(0-2)

OK

AT+ICF=2,2

OK

AT+ICF

OK

8.2.6 AT+IFC Set local data flow control

The command sets the flow control mode of the module.

AT+IFC Set local data flow control	
Test Command AT+IFC=?	Response <CR><LF> +IFC: (list of supported<DCE>s),(list of supported<DTE>s)<CR><LF> <CR><LF> OK <CR><LF>
Read Command AT+IFC?	Response <CR><LF> +IFC: <DCE>,<DTE><CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+IFC=<DCE>[,<DTE>]	Response 1) <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF>
Execute Command AT+IFC	Response Set default value: <CR><LF> OK <CR><LF>
Parameter Saving Mode	AT&W_SAVE
Max Response Time	5000ms
Reference	-

Defined Values

<DCE>	0 none
	2 RTS hardware flow control
<DTE>	0 none
	2 CTS hardware flow control

Examples

AT+IFC?

+IFC: 0,0

OK

AT+IFC=?

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

OK

AT+IFC=2,2

OK

AT+IFC

OK

8.2.7 AT+CSCLK Control UART Sleep

This command is used to enable UART Sleep or always work. If set to 0, UART always work. If set to 1, ensure that DTR is pulled high and the module can go to DTR sleep. If set to 2, the module will enter RX sleep. RX wakeup directly sends data through the serial port (for example: AT) to wake up.

AT+CSCLK Control UART Sleep

Test Command

AT+CSCLK=?

Response

<CR><LF>

+CSCLK: (range of supported <status>s)<CR><LF>

<CR><LF>

OK<CR><LF>

Read Command

AT+CSCLK?

Response

<CR><LF>

+CSCLK: <status><CR><LF>

<CR><LF>

OK<CR><LF>

Write Command

AT+CSCLK=<status>

Response

1)

<CR><LF>

OK<CR><LF>

2)

<CR><LF>

ERROR<CR><LF>

Execute Command

AT+CSCLK

Response

Set <status>=0:

<CR><LF>

OK<CR><LF>

Parameter Saving Mode

NO_SAVE

Max Response Time	5000ms
Reference	-

Defined Values

<status>	0	off
	1	DTR sleep
	2	RX sleep

Examples

AT+CSCLK?
+CSCLK: 0

OK
AT+CSCLK=?
+CSCLK: (0-2)

OK
AT+CSCLK=1
OK
AT+CSCLK=2
OK
AT+CSCLK
OK

8.2.8 AT+LPSTATUS Query information about sleep/wakeup

This command is used to query information about the wake up module, including DTR,USB, and how to wake up the module.

AT+LPSTATUS Query information about sleep/wakeup

Test Command AT+LPSTATUS=?	Response <CR><LF> +LPSTATUS: (SLEEP:DTR_LEVEL,USB_PHY,CSCLK;WAKEUP:DTR,USB,UAR T,CSCLK,GPS_STATUS) <CR><LF> <CR><LF> OK <CR><LF>
Execute Command	Response

AT+LPSTATUS

```
<CR><LF>
+LPSTATUS: <CR><LF>
SLEEP: <CR><LF>
DTR_LEVEL = <DTR_level>,<CR><LF>
USB_PHY = <USB_phy>,<CR><LF>
CSCLK = <SLEEP_mode>,<CR><LF>
GPS_STATUS = <GPS_status>.<CR><LF>
If CSCLK = 1, you can wake up the module by lowering the DTR
and plugging in the USB; <CR><LF>
If CSCLK = 2, you can send data through the serial port and plug
in the USB to wake up the module. <CR><LF>
<CR><LF>
OK<CR><LF>
```

Parameter Saving Mode	NO_SAVE
Max Response Time	5000ms
Reference	-

Defined Values

< DTR_level >	0 DTR is low.
	1 DTR is high.
< USB_phy >	0 USB absent.
	1 USB on position.
< SLEEP_mode >	0 Forbidden sleep mode.
	1 DTR sleep mode.
	2 UART_RX sleep mode.
< GPS_status >	0 GPS not working.
	1 GPS is working.

NOTE

Models that do not support GPS do not display GPS information.

Examples

AT+LPSTATUS=?

```
+LPSTATUS:
(SLEEP:DTR_LEVEL,USB_PHY,CSCLK;WAKEUP:DTR,USB,UART,CSCLK,GPS_STATUS)
```

OK

AT+LPSTATUS

```
+LPSTATUS:
SLEEP:
DTR_LEVEL = 1,
```

USB_PHY = 1,
CSCLK = 0.
GPS_STATUS = 0.

If CSCLK = 1, you can wake up the module by lowering the DTR and plugging in the USB;
If CSCLK = 2, you can send data through the serial port and plug in the USB to wake up the module.

OK

8.2.9 AT+CMUX Enable the multiplexer over the UART

This command is used to enable the multiplexer over the UART, after enabled four virtual ports can be used as AT command port or MODEM port, the physical UART can no longer transfer data directly under this case. By default all of the four virtual ports are used as AT command port. Second serial port is not support this command.

Only 2364 baseline and later versions are supported.

AT+CMUX Enable the multiplexer over the UART

Test Command AT+CMUX=?	Response <CR><LF> +CMUX: (0),(0),(1-8),(1-1500),(0),(0),(2-1000) <CR><LF> <CR><LF> OK <CR><LF>
Read Command AT+CMUX?	Response <CR><LF> +CMUX: <value>,<subset>,<port_speed>,<N1>,<T1>,<N2>,<T2> <CR><LF> > <CR><LF> OK <CR><LF>
Write Command AT+CMUX=<value>,<subset> >,<port_speed>,<N1>,<T1> >,<N2>,<T2>]]]]]	Response 1) <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	5000ms
Reference	-

Defined Values

<value>	0 currently only 0 is supported (basic operation mode).
<subset>	Currently omitted
<port_speed>	Currently omitted, you can set speed before enable multiplexer
<N1>	1-1500
<T1>	Currently omitted
<N2>	Currently omitted
<T2>	2-1000

Examples

AT+CMUX?

+CMUX: 0,0,5,64,0,0,0

OK

AT+CMUX=?

+CMUX: (0),(0),(1-8),(1-1500),(0),(0),(2-1000)

OK

AT+CMUX=0

OK

8.2.10 AT+CATR Configure URC destination interface

This command is used to configure the serial port which will be used to output URCs. We recommend configure a destination port for receiving URC in the system initialization phase, in particular, in the case that transmitting large amounts of data, e.g. use TCP/UDP and MT SMS related AT command.

AT+CATR Configure URC destination interface

Test Command AT+CATR=?	Response <CR><LF> +CATR: (list of supported <port>s)<CR><LF> <CR><LF> OK<CR><LF>
Read Command AT+CATR?	Response <CR><LF> +CATR: <port><CR><LF> <CR><LF> OK<CR><LF>
Write Command	Response

AT+CATR=<port>	1) <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	5000ms
Reference	-

Defined Values

<port>	<u>0</u> all ports 1 use USB1 port to output URCs 2 use RIL port to output URCs 3 use UART port to output URCs 4 use USB2 port1 to output URCs
--------	--

Examples

AT+CATR?

+CATR: 0

OK

AT+CATR=?

+CATR: (0-4)

OK

AT+CATR=1

OK

8.2.11 AT+CFGRI Configure RI pin

This command configures the time of pulling RI down. These places are going to use it, for Examples: SMS, FTP, NETWORK, PB, CM, OS and so on.

AT+CFGRI Configure RI pin

Test Command	Response
AT+CFGRI=?	<CR><LF>

	+CFGRI: (list of supported<status>),(list of supported<URC_time>ms), (list of supported<SMS_time>ms)<CR><LF><CR><LF> OK <CR><LF>
Read Command AT+CFGRI?	Response <CR><LF> +CFGRI: <status>,<URC_time>,<SMS_time><CR><LF><CR><LF> OK <CR><LF>
Write Command AT+CFGRI=<status>[,<URC_time >[,< SMS_time >]]	Response 1) <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF>
Execute Command AT+CFGRI	Response Set default value: <CR><LF> OK <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	5000ms
Reference	-

Defined Values

<status>	0 off. 1 on.
<URC_time>	a numeric parameter which is number of milliseconds to assert RI delay to reset RI. The range is 10 to 6000, default value is 60ms.
<SMS_time>	a numeric parameter which is number of milliseconds to assert RI delay to reset RI. The range is 20 to 6000, default value is 120ms.

Examples

AT+CFGRI?

+CFGRI: 0,60,120

OK

AT+CFGRI=?

+CFGRI: (0-1),(10-6000),(20-6000)

```
OK
AT+CFGRI=0,60,120
OK
AT+CFGRI
OK
```

8.2.12 AT+CURCD Configure the delay time and number of URC

This command is used to configure delay time when output URC and the number of cached URCs. You can control delay time if some URC supports delay output. You can also set size to store URCs, they will output together when the delay time ends. For Examples, if you set delay time to 10ms and set the number of cached URCs to 1, there is only one URC output after 10ms.

AT+CURCD Configure the delay time and number of URC

Test Command AT+CURCD=?	Response <CR><LF> +CURCD: (range of supported <delay_time>ms),(1)<CR><LF> <CR><LF> OK <CR><LF>
Read Command AT+CURCD?	Response <CR><LF> +CURCD: <delay_time>,1<CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+CURCD=<delay_time>,<cache_size>	Response 1) <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	5000ms
Reference	-

Defined Values

<delay_time>	0-10000 the unit is ms
<cache_size>	1 currently only 1 is supported

Examples

AT+CURCD?

+CURCD: 0,1

OK

AT+CURCD=?

+CURCD: (0-10000),(1)

OK

AT+CURCD=100,1

OK

NOTE

Currently only support delay time setting, the default cache size for URC is one.

9 AT Commands for Hardware

9.1 Overview of AT Commands for Hardware

Command	Description
AT+CVALARM	Low and high voltage Alarm
AT+CADC	Read ADC value
AT+CADC2	Read ADC2 value
AT+CMTE	Control the module critical temperature URC alarm
AT+CPMVT	Low and high voltage Power Off
AT+CRIIC	Read values from register of IIC device nau8810
AT+CWIIC	Write values to register of IIC device nau8810
AT+CBC	Read the voltage value of the power supply
AT+CPMUTEMP	Read the temperature of the module
AT+CGDRT	Set the direction of specified GPIO
AT+CGSETV	Set the value of specified GPIO
AT+CGGETV	Get the value of specified GPIO

9.2 Detailed Description of AT Commands for Hardware

9.2.1 AT+CVALARM Low and high voltage Alarm

This command is used to open or close the low voltage alarm function.

AT+CVALARM Low and high voltage Alarm	
Test Command AT+CVALARM=?	Response <CR><LF> +CVALARM: (list of supported <enable>s),(list of supported <low voltage>s),(list of supported <high voltage>s),[,<save to flash>]<CR><LF> <CR><LF> OK<CR><LF>

Read Command AT+CVALARM?	Response <CR><LF> +CVALARM: <enable>,<low voltage>,<high voltage> <CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+CVALARM=<enable>[,<low voltage>][,<high voltage>][,<save to flash>]	Response 1) <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	-

Defined Values

<enable>	0 Close 1 Open. If voltage less than <low voltage>, it will report "UNDER-VOLTAGE WARNING" every 10s. If voltage greater than <high voltage>, it will report "OVER-VOLTAGE WARNING" every 10s.
<low voltage>	Between 3200mV and 4000mV. Default value is 3200.
<high voltage>	Between 4001mV and 4300mV. Default value is 4300.
<save to flash>	0 Do not write to flash 1 write to flash

Examples

AT+CVALARM=1,3400,4300,0

OK

AT+CVALARM?

+CVALARM: 1,3400,4300

S

OK

AT+CVALARM=?

+CVALARM: (0-1),(3200-4000),(4001-4300),(0-1)

OK

9.2.2 AT+CADC Read ADC value

This command is used to read the ADC value from modem. ME supports 2 types of ADC, which are raw type and voltage type.

AT+CADC Read ADC value

Test Command AT+CADC=?	Response <CR><LF> +CADC: (range of supported <adc>s)<CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+CADC=<adc>	Response 1) <CR><LF> +CADC: <value><CR><LF> <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	-

Defined Values

<adc>	ADC type: 0 raw type. 2 voltage type(mv).
<value>	Integer type value of the ADC.

Examples

```
AT+CADC=?
+CADC: (0,2)

OK
AT+CADC=2
+CADC: 908

OK
```

9.2.3 AT+CADC2 Read ADC2 value

This command is used to read the ADC2 value from modem. ME supports 2 types of ADC, which are raw type and voltage type.

AT+CADC2 Read ADC2 value

Test Command AT+CADC2=?	Response <CR><LF> +CADC2: (range of supported <adc>s)<CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+CADC2=<adc>	Response 1)<CR><LF> +CADC2: <value><CR><LF> <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	-

Defined Values

<adc>	ADC2 type: 0 raw type. 2 voltage type(mv)
<value>	Integer type value of the ADC2.

Examples

AT+CADC2=?

+CADC2: (0,2)

OK

AT+CADC2=2

+CADC2: 904

OK

9.2.4 AT+CMTE Control the module critical temperature URC alarm

This command is used to control the module whether URC alarm when the module's temperature upon the critical temperature.

AT+CMTE Control the module critical temperature URC alarm

Test Command AT+CMTE=?	Response <CR><LF> +CMTE: (list of supported<on/off>s),[,<save to flash>]<CR><LF> <CR><LF> OK <CR><LF>
Read Command AT+CMTE?	Response <CR><LF> +CMTE: <on/off><CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+CMTE=<on/off>[,<save to flash>]	Response 1) <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	-

Defined Values

<on/off>	0 Disable temperature detection 1 Enable temperature detection
<save to flash>	0 Do not write to flash 1 write to flash

Examples

AT+CMTE=?
+CMTE: (0-1),(0-1)

```
OK
AT+CMTE=1,0
OK
AT+CMTE?
+CMTE: 1
OK
```

9.2.5 AT+CPMVT Low and high voltage Power Off

This command is used to open or close the low and high voltage power off function and set the threshold of power off voltage.

AT+CPMVT Low and high voltage Power Off

Test Command AT+CPMVT=?	Response <CR><LF> +CPMVT: (list of supported <enable>s),(list of supported <low voltage>s),(list of supported <high voltage>s),[<save to flash>]<CR><LF> <CR><LF> OK <CR><LF>
Read Command AT+CPMVT?	Response <CR><LF> +CPMVT: <enable>,<low voltage>,<high voltage><CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+CPMVT=<enable>[,<low voltage>],[<high voltage>],[<save to falsh>]	Response 1) <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	-

Defined Values

<enable>	0 Close. 0 is the default value
----------	---------------------------------

	1 Open. If voltage less than <low voltage>, it will report "UNDER-VOLTAGE WARNING POWER DOWN" and power off the module. If voltage greater than <high voltage>, it will report "OVER-VOLTAGE WARNING POWER DOWN" and power off the module
<low voltage>	Between 3200mV and 4000mV. Default value is 3200.
<high voltage>	Between 4001mV and 4300mV. Default value is 4300.
<save to flash>	0 Do not write to flash 1 write to flash

Examples

AT+CPMVT=1,3400,4300,0

OK

AT+CPMVT?

+CPMVT: 1,3400,4300

OK

AT+CPMVT=?

+CPMVT: (0-1),(3200-4000),(4001-4300),(0-1)

OK

9.2.6 AT+CRILC Read values from register of IIC device nau8810

This command is used to read values from register of IIC device nau8810.

AT+CRILC Read values from register of IIC device nau8810

Test Command AT+CRILC=?	Response <CR><LF> OK <CR><LF>
Write Command AT+CRILC=<addr>,<reg>,<len>	Response 1) <CR><LF> +CRILC: <data> <CR><LF> <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	-

Max Response Time	-
Reference	-

Defined Values

<addr>	Device address. Input format must be hex, such as FF (do not input "0x").
<reg>	Register address. Input format must be hex, such as FF (do not input "0x").
<len>	Read length. Range:2; unit:byte.
<data>	Data read. Input format must be hex, such as 0xFFFF.

Examples

AT+CRIIC=34,f,2

+CRIIC: 0xff

OK

AT+CRIIC=34,6,2

+CRIIC: 0x140

OK

9.2.7 AT+CWIIC Write values to register of IIC device nau8810

This command is used to write values to register of IIC device nau8810.

AT+CWIIC Write values to register of IIC device nau8810

Test Command AT+CWIIC=?	Response <CR><LF> OK <CR><LF>
Write Command AT+CWIIC=<addr>,<reg>,<d ata>,<len>	1) <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	-
Max Response Time	-

Reference

-

Defined Values

<addr>	Device address. Input format must be hex, such as FF (do not input "0x").
<reg>	Register address. Input format must be hex, such as FF(do not input "0x").
<len>	Read length. Range: 2; unit: byte.
<data>	Data written. Input format must be hex, such as 0xFFFF

Examples

AT+CWIIC=34,6,141,2

OK

9.2.8 AT+CBC Read the voltage value of the power supply

This command is used to read the voltage value of the power supply.

AT+CBC Read the voltage value of the power supply

Execute Command AT+CBC	Response 1) <CR><LF> +CBC: <vol><CR><LF> <CR><LF> OK<CR><LF> 2) <CR><LF> ERROR<CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	-

Defined Values

<vol>	The voltage value, such as 3.8.
-------	---------------------------------

Examples

AT+CBC

+CBC: 3.749V

OK

9.2.9 AT+CPMUTEMP Read the temperature of the module

This command is used to read the temperature of the module.

AT+CPMUTEMP Read the temperature of the module

Execute Command AT+CPMUTEMP	Response <CR><LF> +CPMUTEMP: <temp><CR><LF> <CR><LF> OK<CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	-

Defined Values

<temp>	The Temperature value, such as 29.
--------	------------------------------------

Examples

AT+CPMUTEMP

+CPMUTEMP: 15

OK

9.2.10 AT+CGDRT Set the direction of specified GPIO

This command is used to set the specified GPIO to input or output state. If setting to input state, then this GPIO can not be set to high or low value.

AT+CGDRT Set the direction of specified GPIO

Test Command AT+CGDRT=?	Response <CR><LF> +CGDRT: (list of supported <GPIO>s),(list of supported <gpio_io>s),[<save to flash>]<CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+CGDRT=<GPIO>	Response 1) <CR><LF> +CGDRT: <GPIO>,<gpio_io><CR><LF> <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF>
Write Command AT+CGDRT=<GPIO>,<gpio_io>[,<save to flash>]	Response 1) <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	-

Defined Values

<GPIO>	The value is GPIO ID, different hardware versions have different values.
<gpio_io>	0 in 1 out
<save to flash>	0 Do not write to flash 1 write to flash

Examples

```
AT+CGDRT=?
+CGDRT: (1,3,4,5,6,7,8,9,10,11,12),(0-1),(0-1)

OK
AT+CGDRT=3
```

+CGDRT: 3,0

OK

AT+CGDRT=3,0,1

OK

9.2.11 AT+CGSETV Set the value of specified GPIO

This command is used to set the value of the specified GPIO to high or low.

The direction of specified GPIO must be set as OUT direction by using AT+CGDRT before this AT command, otherwise an error will be returned. (Note: After module initialization, the general GPIO status is input, after the sleep is woken up, it will also become an input, and you need to deliver AT+CGDRT and AT+CGSETV commands to control it)

AT+CGSETV Set the value of specified GPIO

Test Command AT+CGSETV=?	Response <CR><LF> +CGSETV: (list of supported <GPIO>s),(list of supported <gpio_hl>s),[<save to flash>]<CR><LF> <CR><LF> OK<CR><LF>
Write Command AT+CGSETV=<GPIO>,<gpio_hl>,<save to flash>	Response 1) <CR><LF> OK<CR><LF> 2) <CR><LF> ERROR<CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	-

Defined Values

<GPIO>	The value is GPIO ID, different hardware versions have different values.
<gpio_hl>	0 low 1 high
<save to flash>	0 Do not write to flash 1 write to flash

Examples

AT+CGSETV=?

+CGSETV: (1,3,4,5,6,7,8,9,10,11,12),(0-1),(0-1)

OK

AT+CGSETV=6,0

OK

AT+CGSETV=6,0,1

OK

9.2.12 AT+CGGETV Get the value of specified GPIO

This command is used to get the value (high or low) of the specified GPIO.

The direction of specified GPIO must be set as IN direction by using AT+CGDRT before this AT command, otherwise an error will be returned.

AT+CGSETV Get the value of specified GPIO

Test Command

AT+CGGETV=?

Response

<CR><LF>

+CGGETV: (list of supported <GPIO>s)<CR><LF>

<CR><LF>

OK<CR><LF>

Write Command

AT+CGGETV=<GPIO>

Response

1)

<CR><LF>

+CGGETV: <GPIO>,<gpio_hl><CR><LF>

<CR><LF>

OK <CR><LF>

2)

<CR><LF>

ERROR<CR><LF>

Parameter Saving Mode

-

Max Response Time

-

Reference

-

Defined Values

<GPIO>

The value is GPIO ID, different hardware versions have different values.

<gpio_hl>

0 low

1 high

Examples

AT+CGGETV=?

+CGGETV: (1,3,4,5,6,7,8,9,10,11,12)

OK

AT+CGGETV=3

+CGGETV: 3,0

OK

9.3 Unsolicited Result Codes

URC	Description	AT Command
CMTE: <temp_level>	While module's temperature over the high threshold and below the low threshold, the URC will occur.	AT+CMTE
UNDER-VOLTAGE WARNING	This is a URC ALARM when Current voltage is UNDER the value which you set.	AT+CVALARM
OVER-VOLTAGE WARNING	This is a URC ALARM when Current voltage is OVER the value which you set.	AT+CVALARM
UNDER-VOLTAGE WARNING POWER DOWN	This is a URC ALARM when Current voltage is UNDER the value which you set.	AT+CPMVT
OVER-VOLTAGE WARNING POWER DOWN	This is a URC ALARM when Current voltage is OVER the value which you set.	AT+CPMVT

Defined Values

<temp_level>	-2 below -45 celsius degree.
	-1 (-45,-30] celsius degree.
	1 (80,85] celsius degree.
	2 over 85 celsius degree.

10 AT Commands for File System

10.1 Overview of AT Commands for File System

Command	Description
AT+FSCD	Select directory as current directory
AT+FSMKDIR	Make new directory in current directory
AT+FSRMDIR	Delete directory in current directory
AT+FSLS	List directories/files in current directory
AT+FSDEL	Delete file in current directory
AT+FSRENAME	Rename file in current directory
AT+FSATTRI	Request file attributes
AT+FSMEM	Check the size of available memory
AT+FSCOPY	Copy an appointed file
AT+FSPRESET	Move the location of a file
AT+FSOPEN	Open a file
AT+FSCLOSE	Close a file
AT+FSREAD	Read a file
AT+FSWRITE	Write a file
AT+FSSEEK	Set a file pointer to the specified position
AT+FSPOSITION	Get the offset of a file pointer

10.2 Detailed Description of AT Commands for File System

The file system is used to store files in a hierarchical (tree) structure, and there are some definitions and conventions to use the AT commands.

Local storage space is mapped to "C:".

NOTE: General rules for naming (both directories and files):

- The length of actual fully qualified names of files on "C:" drive can not exceed 55 (excluding "C:" in the name).
- The length of actual fully qualified names of directories and files on "D:" drive can not exceed 55 (excluding "D:" in the name).
- Directory and file names can not include the following characters: \ / : * ? " < > |

d)Between directory name and file/directory name, use character “/” as list separator, thus “/” can not appear in directory name or file name.

e) File names on “C:” drive cannot begin with “.” .

If the last character of names is period “/”, it will be deleted by the file system automatically.

10.2.1 AT+FSCD Select directory as current directory

This command is used to select a directory. The Module supports absolute path and relative path.

AT+FSCD Select directory as current directory

Test Command AT+FSCD=?	Response <CR><LF> OK <CR><LF>
Read Command AT+FSCD?	Response <CR><LF> +FSCD: <curr_path> <CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+FSCD=<path>	Response 1)If set current directory successfully: <CR><LF> +FSCD: <curr_path> <CR><LF> <CR><LF> OK <CR><LF> 2)If set current directory failed: <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<path>	Directory for selection.
<curr_path>	Current directory.

Examples

AT+FSCD=C:

+FSCD: C:/

OK

AT+FSCD=C:/

+FSCD: C:/

OK

AT+FSCD?

+FSCD: C:/

OK

AT+FSCD=D:

+FSCD: D:/

OK

NOTE

If <path> is "..", it will go back to previous level of directory.

10.2.2 AT+FSMKDIR Make new directory in current directory

This command is used to create a new directory in current directory. Support "D:".

AT+FSMKDIR Make new directory in current directory

Test Command
AT+FSMKDIR=?

Response
<CR><LF>
OK<CR><LF>

Write Command
AT+FSMKDIR=<dir>

Response
1)If successfully:
<CR><LF>
OK<CR><LF>
2)If failed:
<CR><LF>
ERROR<CR><LF>

Parameter Saving Mode

-

Max Response Time

-

Reference

Defined Values

<dir>	Directory name which does not already exist in current directory.
--------------------	---

Examples

```
AT+FSMKDIR=SIMTech
OK
AT+FSCD?
+FSCD: D:/

OK
AT+FSLS
+FSLS: SUBDIRECTORIES:
SIMTech

OK
```

NOTE

Only support "D:".

10.2.3 AT+FSRMDIR Delete directory in current directory

This command is used to delete existing directory in current directory. Support "D:".

AT+FSRMDIR Delete directory in current directory

Test Command AT+FSRMDIR=?	Response <CR><LF> OK <CR><LF>
Write Command AT+FSRMDIR=<dir>	Response 1)If successfully: <CR><LF> OK <CR><LF> 2)If failed: <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<dir>	The directory name which already exists in current directory.
-------	---

Examples

```

AT+FSRMDIR=SIMTech
OK
AT+FSCD?
+FSCD: D:/

OK
AT+FSLs
+FSLs: SUBDIRECTORIES:

OK

```

NOTE

Only support "D:".

10.2.4 AT+FSLs List directories/files in current directory

This command is used to list informations of directories and/or files in current directory. Support "C:", "D:".

AT+FSLs List directories/files in current directory

Test Command AT+FSLs=?	Response <CR><LF> +FSLs: (list of supported <type>s)<CR><LF> <CR><LF> OK <CR><LF>
Read Command AT+FSLs?	Response <CR><LF> +FSLs: SUBDIRECTORIES: <dir_num>, FILES: <file_num><CR><LF> <CR><LF> OK <CR><LF>

Write Command AT+FSLS=<type>	Response <CR><LF> [+FSLS: SUBDIRECTORIES: <CR><LF> <list of subdirectories>]<CR><LF> <CR><LF> [+FSLS: FILES: <CR><LF> <list of files>]<CR><LF> <CR><LF> OK<CR><LF>
Execute Command AT+FSLS	Response <CR><LF> [+FSLS: SUBDIRECTORIES: <CR><LF> <list of subdirectories>]<CR><LF> <CR><LF> [+FSLS: FILES: <CR><LF> <list of files>]<CR><LF> <CR><LF> OK<CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<dir_num>	Integer type, the number of subdirectories in current directory.
<file_num>	Integer type, the number of files in current directory.
<type>	0 list both subdirectories and files 1 list subdirectories only 2 list files only

Examples

AT+FSLS?

+FSLS: SUBDIRECTORIES:2,FILES:2

OK

AT+FSLS

+FSLS: SUBDIRECTORIES:

FirstDir

SecondDir

+FSLS: FILES:

image_0.jpg

image_1.jpg

OK

AT+FSLS=2

+FSLS: FILES:

image_0.jpg

image_1.jpg

OK

10.2.5 AT+FSDEL Delete file in current directory

This command is used to delete a file in current directory. Before do that, it needs to use AT+FSCD select the father directory as current directory. Support "C:", "D:".

AT+FSDEL Delete file in current directory

Test Command AT+FSDEL=?	Response <CR><LF> OK <CR><LF>
Write Command AT+FSDEL=<filename>	Response 1)If successfully: <CR><LF> OK <CR><LF> 2)If failed: <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<filename>	String with or without double quotes, file name which is relative and already existing.
-------------------------	---

Examples

AT+FSDEL=image_0.jpg

OK

NOTE

If <filename> is *.* , it means delete all files in current directory.

10.2.6 AT+FSRENAME Rename file in current directory

This command is used to rename a file in current directory. Support "C:", "D:".

AT+FSRENAME Rename file in current directory

Test Command AT+FSRENAME=?	Response <CR><LF> OK <CR><LF>
Write Command AT+FSRENAME=<old_name> >,<new_name>	Response 1)If successfully: <CR><LF> OK <CR><LF> 2)If failed: <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<old_name>	String with or without double quotes, file name which is existed in current directory.
<new_name>	New name of specified file, string with or without double quotes.

Examples

AT+FSRENAME=image_0.jpg,image_1.jpg

OK

NOTE

In Cat 4 modules, "D:" does not support AT+FSRENAME.
Cannot rename files that length is 0.

10.2.7 AT+FSATTRI Request file attributes

This command is used to request the attributes of file which exists in current directory. Support "C:", "D:".

AT+FSATTRI Request file attributes

Test Command AT+FSATTRI=?	Response <CR><LF> OK <CR><LF>
Write Command AT+FSATTRI=<filename>	Response 1)If successfully: <CR><LF> +FSATTRI: <file_size> <CR><LF> <CR><LF> OK <CR><LF> 2)If failed: <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<filename>	String with or without double quotes, file name which is in current directory.
<file_size>	The size of specified file, and the unit is in Byte.

Examples

AT+FSATTRI=image_0.jpg

+FSATTRI: 8604

OK

10.2.8 AT+FSMEM Check the size of available memory

This command is used to check the size of available memory. The response will list total size and used size of local storage space if present and mounted. Support "C:", "D:". Due to the file system being used, this command should not be used to detect small changes of the size of the available memory.

AT+FSMEM Check the size of available memory	
Test Command AT+FSMEM=?	Response: <CR><LF> OK <CR><LF>
Execute Command AT+FSMEM	Response: 1)If successfully, currently C:/: <CR><LF> +FSMEM: C:(<total>,<used>) <CR><LF> <CR><LF> OK <CR><LF> 2)If successfully, currently D:/: <CR><LF> +FSMEM: D:(<total>,<used>) <CR><LF> <CR><LF> OK <CR><LF> 3)If failed: <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<total>	The total size of local storage space.
<used>	The used size of local storage space.

Examples

```

AT+FSMEM
+FSMEM: C:(11348480, 2201600)

OK
```

NOTE

The unit of storage space size is in Byte.

10.2.9 AT+FSCOPY Copy an appointed file

This command is used to copy an appointed file on C:/ to an appointed directory on C:/, the new file name should give in parameter. Support "C:", "D:".

AT+FSCOPY Copy an appointed file

Test Command

AT+FSCOPY=?

Response

<CR><LF>

OK<CR><LF>

Response

1)If successfully, synchronous mode:

<CR><LF>

+FSCOPY: <percent><CR><LF>

<CR><LF>

[+FSCOPY: <percent>]<CR><LF>

<CR><LF>

OK<CR><LF>

2)If successfully, asynchronous mode:

<CR><LF>

OK<CR><LF>

<CR><LF>

+FSCOPY: <percent><CR><LF>

<CR><LF>

Write Command

**AT+FSCOPY=<file1>,<file2>[
,<sync_mode>]**

[+FSCOPY: <percent>]<CR><LF>

<CR><LF>

+FSCOPY: END<CR><LF>

3)If any error:

<CR><LF>

SD CARD NOT PLUGGED IN<CR><LF>

FILE IS EXISTING<CR><LF>

FILE NOT EXISTING<CR><LF>

DIRECTORY IS EXISTED<CR><LF>

DIRECTORY NOT EXISTED<CR><LF>

INVALID PATH NAME<CR><LF>

INVALID FILE NAME<CR><LF>

SD CARD HAVE NO ENOUGH MEMORY<CR><LF>

EFS HAVE NO ENOUGH MEMORY<CR><LF>

FILE CREATE ERROR<CR><LF>

	READ FILE ERROR<CR><LF> WRITE FILE ERROR<CR><LF> ERROR<CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<file1>	The sources file name or the whole path name with sources file name.
<file2>	The destination file name or the whole path name with destination file name.
<percent>	The percent of copy done. The range is 0.0 to 100.0
<sync_mode>	The execution mode of the command: 0 synchronous mode 1 asynchronous mode

Examples

```

AT+FSCOPY=C:/TESTFILE,COPYFILE           //Copy file TESTFILE on C:/ to C:/COPYFILE
+FSCOPY: 0.0

+FSCOPY: 9.7

+FSCOPY: 19.4

...

+FSCOPY: 100.0

OK

```

NOTE

The <file1> and <file2> should give the whole path and name, if only given file name, it will refer to current path (AT+FSCD) and check the file's validity.

If <file2> is a whole path and name, make sure the directory exists, make sure that the file name does not exist or the file name is not the same name as the sub folder name, otherwise return error.

<percent> report refer to the copy file size. The big file maybe report many times, and little file report less.

If <sync_mode> is 1, the command will return OK immediately, and report final result with +FSCOPY: END.

10.2.10 AT+FSPRESET Moves the location of a file

This command is used to move an appointed file on C:/ to C:/simdir/, or from C:/simdir to C:/.

AT+FSPRESET Move the location of a file

Test Command AT+FSPRESET=?	Response <CR><LF> OK <CR><LF>
Write Command AT+ FSPRESET =<fileName>[,<direction>]	Response 1)If successfully <CR><LF> OK <CR><LF> 2)If error <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<fileName>	The file name to be moved without the path.
<direction>	The direction in which the file was moved 0 from root directory to the user directory 1 from user directory to the root directory

Examples

```
AT+FSPRESET=test.txt,0 //move file from root directory to the user directory
OK
```

10.2.11 AT+FSOPEN Open a file

This command is used to open a file and gets the file handle to be used in commands such as **AT+FSREAD,AT+FSWRITE, AT+FSSEEK,AT+FSPOSITION, AT+FSCLOSE**.

AT+FSOPEN Open a file

Test Command AT+FSOPEN=?	Response <CR><LF> +FSOPEN: <filename>[, (0-2)] <CR><LF> <CR><LF> OK <CR><LF>
Read Command AT+FSOPEN?	Response <CR><LF> OK <CR><LF>
Write Command AT+FSOPEN =<fileName>[, <mode>]	Response 1) If successfully <CR><LF> +FSOPEN: <filehandle> <CR><LF> <CR><LF> OK <CR><LF> 2) If failed: <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<filename>	The file name to be opened with the path. The maximum length is 115 bytes.
<filehandle>	The handle of the file.
<mode>	The open mode of the file. 0 if the file does not exist, it will be created. If the file exists, it will be directly opened. And both of them can be read and written. 1 if the file does not exist, it will be created. If the file exists, it will be overwritten and cleared. And both of them can be read and written. 2 if the file exist, open it and it can be read only. When the file does not exist, it will respond an error.

Examples

AT+FSOPEN=C:/test.txt,0

+FSOPEN: 1

OK

NOTE

Due to system resources, the maximum length of the **<filename>** is currently 55 (excluding C:).

10.2.12 AT+FSREAD Read a file

This command is used to read the data of a file which is specified by the handle. The data starts from the current position of the pointer which belongs to the file handle.

AT+FSREAD Read a file

Test Command AT+FSREAD=?	Response <CR><LF> +FSREAD: <filehandle>[,<length>]<CR><LF> <CR><LF> OK<CR><LF>
Write Command AT+FSREAD =<filehandle>[,<length>]	Response 1)If successfully: <CR><LF> CONNECT <read_length><CR><LF> TA switches to data mode. When the total size of the data reaches <length> (unit: byte), TA will return to command mode, display the result and then reply the following codes: <CR><LF> OK<CR><LF> 2)If failed: <CR><LF> ERROR<CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<filehandle>	The handle of the file.
<length>	The length of the file to be read out and the default is the file length.
<read_length>	The actual read length.

Examples

AT+FSREAD=1,10

CONNECT 10

1234567890

OK

10.2.13 AT+FSWRITE Write a file

This command is used to write data into a file. The data starts from the current position of the file pointer which belongs to the file handle.

AT+FSWRITE Write a file

Test Command

AT+FSWRITE=?

Response

<CR><LF>

+FSWRITE: <filehandle>[,<length>[,<timeout>]]<CR><LF>

<CR><LF>

OK<CR><LF>

Write Command

AT+FSWRITE=<filehandle>[,<length>[,<timeout>]]

Response

1)If successfully:

<CR><LF>

><CR><LF>

TA switches to data mode. When the total size of the written data reaches **<length>** (unit: byte) or the time reaches **<timeout>**, TA will return to command mode and reply the following codes:

<CR><LF>

+FSWRITE: <written_length>,<total_length><CR><LF>

<CR><LF>

OK<CR><LF>

2)If failed:

<CR><LF>

><CR><LF>

ERROR<CR><LF>

3)If failed:

<CR><LF>

ERROR<CR><LF>

Parameter Saving Mode

-

Max Response Time

-

Reference

Defined Values

<filehandle>	The handle of the file to be operated.
<length>	The length of the file to be written ,and the default is 10K. The maximum value of this parameter is determined by <freesize> from AT+FSMEM .
<timeout>	The time waiting for data to be inputted to USB/UART. The default value is 5.Unit: s.
<written_length>	The actual written length.
<total_length>	The total length of the file.

Examples

AT+FSWRITE=1,5,10

```
>                                     //input data
+FSWRITE: 0,5
OK
```

10.2.14 AT+FSSEEK Set a file Pointer to the Specified Position

This command is used to set a file pointer to the specified position. This will decide the starting position of commands such as **AT+FSREAD**,**AT+FSWRITE**, **AT+FSSEEK**,**AT+FSPOSITION**.

AT+FSSEEK Set a file Pointer to the Specified Position

Test Command AT+FSSEEK=?	Response <CR><LF> +FSSEEK: <filehandle>,<offset>[,<position>]<CR><LF> <CR><LF> OK<CR><LF>
Write Command AT+FSSEEK=<filehandle>,<offset>[,<position>]	Response 1)If successfully: <CR><LF> OK<CR><LF> 2)If failed: <CR><LF> ERROR<CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<filehandle>	The handle of the file to be operated.
<offset>	The number of bytes of the file pointer movement.
<position>	Pointer movement mode. 0 The beginning of the file. 1 The current position of the pointer. 2 The end of the file.

Examples

AT+FSSEEK=1,0,0
OK

10.2.15 AT+FSPOSITION Get the Offset of a File Pointer

This command is used to get the offset of a file pointer from the beginning of the file.

AT+FSPOSITION Get the Offset of a File Pointer

Test Command AT+FSPOSITION=?	Response <CR><LF> +FSPOSITION: <filehandle><CR><LF> <CR><LF> OK<CR><LF>
Write Command AT+FSPOSITION=<filehandle>	Response 1)If successfully: <CR><LF> +FSPOSITION: <offset><CR><LF> <CR><LF> OK<CR><LF> 2)If failed: <CR><LF> ERROR<CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<filehandle>	The handle of the file to be operated.
<offset>	The offset from the beginning of the file.

Examples

AT+FSPOSITION=1

+FSPOSITION: 0

//move file from root directory to the user directory

OK

10.2.16 AT+FSCLOSE Close a file

This command is used to close a file and end the operation to the file. After that, the file handle is release and should not be used again, unless the file is opened again by **AT+FSOPEN**.

AT+FSCLOSE Close a file

Test Command AT+FSCLOSE=?	Response <CR><LF> +FSCLOSE: <filehandle><CR><LF> <CR><LF> OK<CR><LF>
Write Command AT+FSCLOSE=<filehandle>	Response 1)If successfully: <CR><LF> OK<CR><LF> 2)If failed: <CR><LF> ERROR<CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<filehandle>	The handle of the file to be operated.
--------------	--

Examples

AT+FSCLOSE=1

//move file from root directory to the user directory

OK

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11 AT Commands for File Transmission

11.1 Overview of AT Commands for File Transmission

Command	Description
AT+CFTRANRX	Transfer a file to EFS
AT+CFTRANTX	Transfer a file from EFS to host

11.2 Detailed Description of AT Commands for File Transmission

11.2.1 AT+CFTRANRX Transfer a file to EFS

This command is used to transfer a file to EFS. Support "C:".

AT+CFTRANRX Transfer a file to EFS	
Test Command AT+CFTRANRX=?	Response <CR><LF> +CFTRANRX: [{non-ascii}]"FILEPATH"<CR><LF> <CR><LF> OK<CR><LF>
Write Command AT+CFTRANRX=<filepath>,<len>[,<location>]	Response 1)If successfully: <CR><LF> ><CR><LF> <CR><LF> OK<CR><LF> 2)If failed: <CR><LF> ><CR><LF> <CR><LF> ERROR<CR><LF>

	3)If failed: <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<filepath>	The path of the file on EFS
<len>	The length of the file data to send. Because of the system resources, The length could not set too large. The actual size could not ensure. Usually it is safer to set a smaller size.
<location>	The position offset from the start of the file.

Examples

```
AT+CFTRANRX="c:/t1.txt",10
>

OK
AT+CFTRANRX="C:/ t2.txt",10,10
>

OK
```

NOTE

- 1.The <filepath> must be a full path with the directory path, make sure that the file name does not exist under the path.
- 2.If sending file fails, increase the delay time between each 256 byte reach to 50ms, and then try to send file again.
- 3.SIM76XX Series do not support Non-ASCII characters in file path.

11.2.2 AT+CFTRANTX Transfer a file from EFS to host

This command is used to transfer a file from EFS to host.

AT+CFTRANTX Transfer a file from EFS to host

Test Command AT+CFTRANTX=?	Response <CR><LF> +CFTRANTX: [{non-ascii}]"FILEPATH"<CR><LF> <CR><LF> OK<CR><LF>
Write Command AT+CFTRANTX=<filepath>[,<location>][,<size>][,<transMode>]	Response 1)If successfully: <CR><LF> [+CFTRANTX: DATA,<len><CR><LF> ... +CFTRANTX: DATA,<len>]<CR><LF> +CFTRANTX: 0<CR><LF> <CR><LF> OK<CR><LF> 2)If <transMode> is 1 : <CR><LF> >...<CR><LF> OK<CR><LF> 3)If failed: <CR><LF> ERROR<CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<filepath>	The path of the file on EFS
<len>	The length of the following file data to output.
<location>	The beginning of the file data to output.
<size>	The length of the file data to output.
<transMode>	Whether there is no urc in data output 0 normal mode 1 data output directly without urc.

Examples

```
AT+CFTRANTX="c:/t1.txt"
+CFTRANTX: DATA, 11
Testcontent
```

+CFTRANTX: 0

OK

AT+CFTRANTX="d:/MyDir/t1.txt"

+CFTRANTX: DATA, 11

Testcontent

+CFTRANTX: 0

OK

AT+CFTRANTX="d:/MyDir/t1.txt",1,4

+CFTRANTX: DATA, 4

estc

+CFTRANTX: 0

OK

NOTE

The <filepath> must be a full path with the directory path.

If not set the size, it means range from location to the end of the file.

If the (size + location) larger than the file size, it means range from location to the end of the file.

12 AT Commands for Internet Service

12.1 Overview of AT Commands for Internet Service

Command	Description
AT+CHTPSERV	Set HTP server information
AT+CHTUPDATE	Updating date time using HTP protocol
AT+CHTPCFG	Configure the HTP Context
AT+CNTP	Update system time
AT+CNTPCFG	Configure the NTP Context

12.2 Detailed Description of AT Commands for Internet Service

12.2.1 AT+CHTPSERV Set HTP server information

This command is used to add or delete HTP server information. There are maximum 16 HTP servers.

AT+CHTPSERV Set HTP server information	
Test Command AT+CHTPSERV=?	Response <CR><LF> +CHTPSERV: "ADD","HOST",(1-65535),(0-1)[,"PROXY",(1-65535)]<CR><LF> +CHTPSERV: "DEL",(0-15)<CR><LF> <CR><LF> OK<CR><LF>
Read Command AT+CHTPSERV?	Response 1) <CR><LF> OK<CR><LF> 2) <CR><LF> +CHTPSERV:

	<pre> <index>,<host>,<port>,<http_version>[,<proxy>,<proxy_port>]< CR><LF> ... +CHTSPERV: <index>,<host>,<port>,<http_version> [,<proxy>,<proxy_port>]<CR><LF> <CR><LF> OK<CR><LF> </pre>
Write Command	Response
AT+CHTSPERV=<cmd>,<host_or_idx>[,<port>,<http_version>[,<proxy>,<proxy_port>]]	<pre> 1)If successfully: <CR><LF> OK<CR><LF> 2)If failed: <CR><LF> ERROR<CR><LF> </pre>
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<cmd>	This command to operate the HTP server list. "ADD" add a HTP server item to the list "DEL" delete a HTP server item from the list
<host_or_idx>	If the <cmd> is "ADD", this field is the same as <host>, length is 1-255; If the <cmd> is "DEL", this field is the index of the HTP server item to be deleted from the list.
<host>	The HTP server address, length is 1-255.
<port>	The HTP server port, the range is (1-65535).
<http_version>	The HTTP version of the HTP server: 0 HTTP 1.0 1 HTTP 1.1
<proxy>	The proxy address, length is 1-255.
<proxy_port>	The port of the proxy, the range is (1-65535).
<index>	The HTP server index.

Examples

```

AT+CHTSPERV="ADD","www.google.com",80,1
OK

```

12.2.2 AT+CHTUPDATE Updating date time using HTP protocol

This command is used to updating date time using HTP protocol.

AT+CHTUPDATE Updating date time using HTP protocol

Test Command AT+CHTUPDATE=?	Response <CR><LF> OK <CR><LF>
Read Command AT+CHTUPDATE?	Response <CR><LF> +CHTUPDATE: <status> <CR><LF> <CR><LF> OK <CR><LF>
Execute Command AT+CHTUPDATE	Response 1)If successfully: <CR><LF> OK <CR><LF> <CR><LF> +CHTUPDATE: <err> <CR><LF> 2)If failed: <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<status>	The status of HTP module: Updating HTP module is synchronizing date time NULL HTP module is idle now
<err>	The result of the HTP updating

Examples

AT+CHTUPDATE

OK

+CHTUPDATE: 0

12.2.3 AT+CHTPCFG Configure the HTP Context

AT+CHTPCFG is used to configure the HTP context.

AT+CHTPCFG Configure the HTP Context

Test Command AT+CHTPCFG=?	Response <CR><LF> OK <CR><LF>
Write Command AT+CHTPCFG="CID",[,<cid>]	Response 1)If the parameter is correct, response: <CR><LF> OK <CR><LF> 2)When the <cid> is default:(It is cid of first link) <CR><LF> +CHTPCFG: "CID",<cid> <CR><LF> <CR><LF> OK <CR><LF> 3) <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	
Max Response Time	
Reference	

Defined Values

<cid>	A numeric parameter which specifies a particular PDP context. The range is 1-n. The maximum value n is related to the pdp command of the modem. If no <cid> is specified. The default value is 1.
-------	---

Examples

```
AT+CHTPCFG=?
OK
AT+CHTPCFG="CID"
+CHTPCFG: "CID",1

OK
AT+CHTPCFG="CID",3
OK
```

12.2.4 AT+CNTP Update system time

This command is used to update system time with NTP server.

AT+CNTP Update system time	
Test Command AT+CNTP=?	Response <CR><LF> +CNTP: "HOST",(-96~96)<CR><LF> <CR><LF> OK<CR><LF>
Read Command AT+CNTP?	Response <CR><LF> +CNTP: <host>,<timezone><CR><LF> <CR><LF> OK<CR><LF>
Write Command AT+CNTP=<host>[,<timezon e>]	Response 1)If successfully: <CR><LF> OK<CR><LF> 2)If failed: <CR><LF> ERROR<CR><LF>
Execute Command AT+CNTP	Response 1)If successfully: <CR><LF> OK<CR><LF> <CR><LF> +CNTP: <err_code><CR><LF> 2)If failed: <CR><LF> ERROR<CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<host>	NTP server address, length is 1-255.
<timezone>	Local time zone,the range is (-96 to 96), default value is 32.

Examples

AT+CNTTP="120.25.115.20",32

OK

AT+CNTTP

OK

+CNTTP: 0

12.2.5 AT+CNTPCFG Configure the NTP Context

AT+CNTPCFG is used to configure the NTP context.

AT+CNTPCFG Configure the NTP Context

Test Command

AT+CNTPCFG=?

Response

<CR><LF>

OK<CR><LF>

Response

1)If the parameter is correct, response:

<CR><LF>

OK<CR><LF>

2)When the <cid> is default:(It is cid of first link)

<CR><LF>

+CNTPCFG: "CID",<cid><CR><LF>

<CR><LF>

OK<CR><LF>

3)

<CR><LF>

ERROR<CR><LF>

Write Command

AT+CNTPCFG="CID",<cid>

Parameter Saving Mode

Max Response Time

Reference

Defined Values

<cid>

A numeric parameter which specifies a particular PDP context. The range is 1-n. The maximum value n is related to the pdp command of the modem. If no <cid> is specified. The default value is 1.

Examples

AT+CNTPCFG=?

```
OK
AT+CNTPCFG="CID"
+CHTPCFG: "CID",1

OK
AT+CNTPCFG="CID",3
OK
```

12.3 Command Result Codes

12.3.1 Description of <err> of HTP

<err>	Description
0	Operation succeeded
1	Unknown error
2	Wrong parameter
3	Wrong date and time calculated
4	Network error

12.3.2 Description of <err> of NTP

<err>	Description
0	Operation succeeded
1	Unknown error
2	Wrong parameter
3	Wrong date and time calculated
4	Network error
5	Time zone error
6	Time out error

13 AT Commands for TCP/IP

13.1 Overview of AT Commands for TCP/IP

Command	Description
AT+NETOPEN	Start Socket Service
AT+NETCLOSE	Stop Socket Service
AT+CIOPEN	Establish Connection in Multi-Socket Mode
AT+CIPSEND	Send data through TCP or UDP Connection
AT+CIPRXGET	Set the Mode to Retrieve Data
AT+CIPCLOSE	Close TCP or UDP Socket
AT+IPADDR	Inquire Socket PDP address
AT+CIPHEAD	Add an IP Header When Receiving Data
AT+CIPSRIP	Show Remote IP Address and Port
AT+CIPMODE	Set TCP/IP Application Mode
AT+CIPTIMEOUT	Set TCP/IP Timeout Value
AT+CIPCCFG	Configure Parameters of Socket
AT+CIPCFG	Configure the TCP/IP Context
AT+SERVERSTART	Startup TCP Sever
AT+SERVERSTOP	Stop TCP Sever
AT+CIPACK	Query TCP Connection Data Transmitting Status
AT+CDNSGIP	Query the IP Address of Given Domain Name
AT+CSOCKSETPN	Set active PDP context's profile
AT+CTCPKA	Configure TCP heartbeat
AT+CDNSCFG	Configure Domain Name Server

13.2 Detailed Description of AT Commands for TCP/IP

13.2.1 AT+NETOPEN Start Socket Service

AT+NETOPEN is used to start service by activating PDP context. You must execute AT+NETOPEN before

any other TCP/UDP related operations.

AT+NETOPEN Start Socket Service

Read Command AT+NETOPEN?	Response <CR><LF> +NETOPEN: <net_state><CR><LF> <CR><LF> OK<CR><LF>
Execute Command AT+NETOPEN	Response 1)If the PDP context has not been activated or the network closed abnormally, response: <CR><LF> OK<CR><LF> <CR><LF> +NETOPEN: <err><CR><LF> 2)When the PDP context has been activated successfully, if you execute AT+NETOPEN again, response: <CR><LF> +IP ERROR: Network is already opened<CR><LF> <CR><LF> ERROR<CR><LF> 3)other: <CR><LF> ERROR<CR><LF>
Write Command AT+NETOPEN=[<cid>]	Response 1)If the PDP context has not been activated or the network closed abnormally, response: <CR><LF> OK<CR><LF> <CR><LF> +NETOPEN: <err>,<cid><CR><LF> 2)When the PDP context has been activated successfully, if you execute AT+NETOPEN again, response: <CR><LF> +IP ERROR: Network is already opened<CR><LF> <CR><LF> ERROR<CR><LF> 3)other: <CR><LF> ERROR<CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	Range: 3000ms-120000ms default: 120000ms (it can be set by AT+CIPTIMEOUT)
Reference	3GPP TS 27.005

Defined Values

<net_state>	Integer type, indicates the state of PDP context activation. 0 network close (deactivated) 1 network open(activated)
<err>	Integer type, the result of operation. 0 is success, other value is failure, please refer to Chapter 13.3.2 for details
<cid>	A numeric parameter which specifies a particular PDP context. The range is 1-n. The maximum value n is related to the pdp command of the modem. If no <cid> is specified. The default value is 1.

Examples

AT+NETOPEN?

+NETOPEN: 1

OK

AT+NETOPEN

OK

+NETOPEN: 0

AT+NETOPEN=2

OK

+NETOPEN: 0,2

13.2.2 AT+NETCLOSE Stop Socket Service

AT+NETCLOSE is used to stop service by deactivating PDP context. It can also close all the opened socket connections when you didn't close these connections by AT+CIPCLOSE.

AT+NETCLOSE Stop Socket Service

Test Command AT+NETCLOSE=?	Response <CR><LF> OK <CR><LF>
Execute Command AT+NETCLOSE	Response 1)If the PDP context has been activated, response: <CR><LF>

OK<CR><LF>

<CR><LF>

+NETCLOSE: <err><CR><LF>

2)If the PDP context has been activated and one connection is in non-transparent mode and transparent mode, response:

<CR><LF>

OK<CR><LF>

<CR><LF>

CLOSED<CR><LF>

<CR><LF>

+CIPCLOSE: <link_num>,<err><CR><LF>

<CR><LF>

+NETCLOSE: <err><CR><LF>

3)If the PDP context has been activated and one connection is in transparent mode when service type is TCP, response:

<CR><LF>

OK<CR><LF>

<CR><LF>

CLOSED<CR><LF>

<CR><LF>

+CIPCLOSE: <link_num>,<err><CR><LF>

<CR><LF>

+NETCLOSE: <err><CR><LF>

4)If the PDP context has been activated and one connection is in non-transparent mode when service type is UDP, response:

<CR><LF>

+CIPCLOSE: <link_num>,<err><CR><LF>

<CR><LF>

OK<CR><LF>

<CR><LF>

+NETCLOSE: <err><CR><LF>

5)If the PDP context has not been activated, response:

<CR><LF>

+NETCLOSE: <err><CR><LF>

<CR><LF>

ERROR<CR><LF>

6)Others:

<CR><LF>

ERROR<CR><LF>

Response

1)If the PDP context has been activated, response:

<CR><LF>

OK<CR><LF>

<CR><LF>

+NETCLOSE: <err>,<cid><CR><LF>

Write Command

AT+NETCLOSE=[<cid>]

2)If the PDP context has been activated and one connection is used the cid in non-transparent mode and transparent mode, response:

<CR><LF>

OK<CR><LF>

<CR><LF>

CLOSED<CR><LF>

<CR><LF>

+CIPCLOSE: <link_num>,<err><CR><LF>

<CR><LF>

+NETCLOSE: <err>,<cid><CR><LF>

3)If the PDP context has been activated and one connection is used the cid in transparent mode when service type is TCP, response:

<CR><LF>

OK<CR><LF>

<CR><LF>

CLOSED<CR><LF>

<CR><LF>

+CIPCLOSE: <link_num>,<err><CR><LF>

<CR><LF>

+NETCLOSE: <err>,<cid><CR><LF>

4)If the PDP context has been activated and one connection is used the cid in non-transparent mode when service type is UDP, response:

<CR><LF>

+CIPCLOSE: <link_num>,<err><CR><LF>

<CR><LF>

OK<CR><LF>

<CR><LF>

+NETCLOSE: <err>,<cid><CR><LF>

5)If the PDP context has not been activated, response:

<CR><LF>

+NETCLOSE: <err>,<cid><CR><LF>

<CR><LF>

ERROR<CR><LF>

6)Others:

<CR><LF>

ERROR<CR><LF>

Parameter Saving Mode

NO_SAVE

Max Response Time

Range: 3000ms-120000ms

default: 120000ms

(it can be set by AT+CIPTIMEOUT)

Reference

Defined Values

<err>	Integer type, the result of operation. 0 is success, other value is failure, please refer to Chapter 13.3.2 for details
<cid>	A numeric parameter which specifies a particular PDP context. The range is 1-n. The maximum value n is related to the pdp command of the modem. If no <cid> is specified. The default value is 1.

Examples

```
AT+NETCLOSE
OK

+NETCLOSE: 0
AT+NETCLOSE=2
OK

+NETCLOSE: 0,2
```

13.2.3 AT+CIOPEN Establish Connection in Multi-Socket Mode

You can use AT+CIOPEN to establish a connection with TCP server and UDP server, the maximum of the connections is 4.

AT+CIOPEN Establish Connection in Multi-Socket Mode

Test Command AT+CIOPEN=?	Response <CR><LF> +CIOPEN: (0-3),("TCP","UDP") <CR><LF> <CR><LF> OK <CR><LF>
Read Command AT+CIOPEN?	Response <CR><LF> +CIOPEN: <link_num>[,<type>,<serverIP>,<serverPort>,<index>]<CR><LF> +CIOPEN: <link_num>[,<type>,<serverIP>,<serverPort>,<index>]<CR><LF> [...] <CR><LF>

Write Command
TCP connection

AT+CIOPEN=<link_num>,"TCP",<serverIP>,<serverPort>[,<localPort>]

OK<CR><LF>

If a connection identified by <link_num> has not been established successfully, only +CIOPEN: <link_num> will be returned.

Response

1)if PDP context has been activated successfully, response:

<CR><LF>

OK<CR><LF>

<CR><LF>

+CIOPEN: <link_num>,<err><CR><LF>

2)when the <link_num> is greater than 3, response:

<CR><LF>

+IP ERROR: Invalid parameter<CR><LF>

<CR><LF>

ERROR<CR><LF>

3)If PDP context has not been activated, or the connection has been established, or parameter is incorrect, or when AT+CIPMODE=1 is set, the <link_num> is greater than 0, or other errors, response:

<CR><LF>

+CIOPEN: <link_num>,<err><CR><LF>

<CR><LF>

ERROR<CR><LF>

4)Transparent mode for TCP connection:

When you want to use transparent mode to transmit data, you should set AT+CIPMODE=1 before AT+NETOPEN. And if AT+CIPMODE=1 is set, the <link_num> is restricted to be only 0. if success

<CR><LF>

CONNECT [<text>]<CR><LF>

if failure

<CR><LF>

CONNECT FAIL<CR><LF>

5)Others:

<CR><LF>

ERROR<CR><LF>

1)If PDP context has been activated successfully, response:

<CR><LF>

+CIOPEN: <link_num>,0<CR><LF>

<CR><LF>

OK<CR><LF>

2)When the <link_num> is greater than 3, response:

<CR><LF>

+IP ERROR: Invalid parameter<CR><LF>

<CR><LF>

ERROR<CR><LF>

Write Command
UDP Connection

AT+CIOPEN=<link_num>,"UDP",,<localPort>

	If PDP context has not been activated, or the connection has been established, or parameter is incorrect, or other errors, response: <CR><LF> +CIOPEN: <link_num>,<err><CR><LF> <CR><LF> ERROR<CR><LF> 3)Others: <CR><LF> ERROR<CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	Range: 3000ms-120000ms default: 120000ms (it can be set by AT+CIPTIMEOUT)
Reference	

Defined Values

<link_num>	Integer type, identifies a connection. Range is 0-3. If AT+CIPMODE=1 is set, the <link_num> is restricted to be only 0.
<type>	String type, identifies the type of transmission protocol. TCP Transmission Control Protocol UDP User Datagram Protocol
<serverIP>	String type, identifies the IP address of server. The IP address format consists of 4 octets, separated by decimal point, like "AAA.BBB.CCC.DDD". Also the domain name is supported here.
<serverPort>	Integer type, identifies the port of TCP server, range is 0-65535. NOTE: When open port as TCP, the port must be the opened TCP port; When open port as UDP, the port may be any port.
<localPort>	Integer type, identifies the port of local socket, range is 0-65535.
<index>	Integer type, indicates whether the module is used as a client or server. When used as server, the range is 0-3,<index> is the server index to which the client is linked. -1 TCP client 0-1 TCP server index
<text>	String type, indicates CONNECT result code.
<err>	Integer type, the result of operation. 0 is success, other value is failure, please refer to Chapter 13.3.2 for details

Examples

AT+CIOPEN=?

+CIPOPEN: (0-3),("TCP","UDP")

OK

AT+CIPOPEN?

+CIPOPEN: 0

+CIPOPEN: 1,"TCP","183.230.174.137",6031,-1

+CIPOPEN: 2

+CIPOPEN: 3

OK

AT+CIPOPEN=0,"TCP","183.230.174.137",6031

OK

//TCP connection

+CIPOPEN: 0,0

AT+CIPOPEN=2,"UDP",,,6031

+CIPOPEN: 2,0

// UDP Connection

OK

13.2.4 AT+CIPSEND Send data through TCP or UDP Connection

AT+CIPSEND is used to send data to remote side. If service type is TCP, the data is firstly sent to the module's internal TCP/IP stack, and then sent to server by protocol stack. The <length> field may be empty. While it is empty, each <Ctrl+Z> character present in the data should be coded as <ETX><Ctrl+Z>. Each <ESC> character present in the data should be coded as <ETX><ESC>. Each <ETX> character will be coded as <ETX><ETX>. Single <Ctrl+Z> means end of the input data. Single <ESC> is used to cancel the sending.

<ETX> is 0x03, and <Ctrl+Z> is 0x1A,<ESC> is 0x1B.

AT+CIPSEND Send data through TCP or UDP Connection

Test Command AT+CIPSEND=?	Response <CR><LF> +CIPSEND: (0-3),(1-1500)<CR><LF> <CR><LF> OK<CR><LF>
Write Command If service type is "TCP", send data with changeable length AT+CIPSEND=<link_num>	Response 1)If the connection identified by <link_num> has been established successfully, response: <CR><LF> ><CR><LF>
Response ">", then type data to send, tap CTRL+Z to send data,	<input data><CR><LF> CTRL+Z<CR><LF>

tap ESC to cancel the operation

OK<CR><LF>

<CR><LF>

+CIPSEND:

<link_num>,<reqSendLength>,<cnfSendLength><CR><LF>

2)If <reqSendLength> is equal <cnfSendLength>, it means that the data has been sent to TCP/IP protocol stack successfully.

3)If the connection has not been established, abnormally closed, or parameter is incorrect, response:

<CR><LF>

+CIPERROR: <err><CR><LF>

<CR><LF>

ERROR<CR><LF>

4)Others:

<CR><LF>

ERROR<CR><LF>

Write Command

If service type is "TCP", send data with fixed length

AT+CIPSEND=<link_num>,<length>

Response

1)If the connection identified by <link_num> has been established successfully, response:

<CR><LF>

><CR><LF>

<input data with specified length><CR><LF>

OK<CR><LF>

<CR><LF>

+CIPSEND:

<link_num>,<reqSendLength>,<cnfSendLength><CR><LF>

2)If <reqSendLength> is equal <cnfSendLength>, it means that the data has been sent to TCP/IP protocol stack successfully.

3)If the connection has not been established, abnormally closed, or parameter is incorrect, response:

<CR><LF>

+CIPERROR: <err><CR><LF>

<CR><LF>

ERROR<CR><LF>

4)Others:

<CR><LF>

ERROR<CR><LF>

Write Command

If service type is "UDP", send data with changeable length

AT+CIPSEND=<link_num>,<serverIP>,<serverPort>

Response ">", then type data to send, tap CTRL+Z to send data, tap ESC to cancel the operation

Response

1)If the connection identified by <link_num> has been established successfully, response:

<CR><LF>

><CR><LF>

<input data><CR><LF>

CTRL+Z<CR><LF>

OK<CR><LF>

<CR><LF>

	+CIPSEND: <code><link_num>,<reqSendLength>,<cnfSendLength><CR><LF></code> 2)If the connection has not been established, abnormally closed, or parameter is incorrect, response: <code><CR><LF></code> +CIPERROR: <err><CR><LF> <code><CR><LF></code> ERROR<CR><LF> 3)Others: <code><CR><LF></code> ERROR<CR><LF>
Write Command If service type is "UDP", send data with fixed length AT+CIPSEND=<link_num>,<length>,<serverIP>,<serverPort> Response ">", type data until the data length is equal to <length>	Response 1)If the connection identified by <link_num> has been established successfully, response: <code><CR><LF></code> <code>><CR><LF></code> <input data with specified length><CR><LF> OK<CR><LF> <code><CR><LF></code> +CIPSEND: <code><link_num>,<reqSendLength>,<cnfSendLength><CR><LF></code> 2)If the connection has not been established, abnormally closed, or parameter is incorrect, response: <code><CR><LF></code> +CIPERROR: <err><CR><LF> <code><CR><LF></code> ERROR<CR><LF> 3)Others: <code><CR><LF></code> ERROR<CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	Range: 3000ms-120000ms default: 120000ms (it can be set by AT+CIPTIMEOUT)
Reference	

Defined Values

<link_num>	Integer type, identifies a connection. Range is 0-3.
<length>	Integer type, indicates the length of sending data, range is 1-1500.
<serverIP>	String type, identifies the IP address of server. The IP address format consists of 4 octets, separated by decimal point, like "AAA.BBB.CCC.DDD". Also the domain name is supported here.

<serverPort>	Integer type, identifies the port of TCP server, range is 0-65535. NOTE: When open port as TCP, the port must be the opened TCP port; When open port as UDP, the port may be any port. But, for Qualcomm, connecting the port 0 is regarded as an invalid operation.
<reqSendLength>	Integer type, the length of the data requested to be sent
<cnfSendLength>	Integer type, the length of the data confirmed to have been sent -1 the connection is disconnected. 0 own send buffer or other side's congestion window are full. Note: If the <cnfSendLength> is not equal to the <reqSendLength>, the socket then cannot be used further.
<err>	Integer type, the result of operation. 0 is success, other value is failure, please refer to Chapter 13.3.2 for details

Examples

AT+CIPSEND=?

+CIPSEND: (0-3),(1-1500)

OK

AT+CIPSEND=1,5

>

12345

OK

// If service type is "TCP", send data with fixed length

+CIPSEND: 1,5,5

AT+CIPSEND=3,5,"183.230.174.137",6031

>

12345

OK

// If service type is "UDP", send data with fixed length

+CIPSEND: 3,5,5

NOTE

If you use UDP to send more than 1400 bytes of data when the server does not receive data, this may be the reason for the carrier, in this case please send no more than 1400 bytes of data.

If you use TCP to send data, the instruction can be followed by a comma just like "AT+CIPSEND=0," or "AT+CIPSEND=0,10," without an error, but it doesn't make any sense

13.2.5 AT+CIPRXGET Set the Mode to Retrieve Data

If set <mode> to 1, after receiving data, the module will buffer it and report a URC as "+CIPRXGET: 1,<link_num>" to notify the host. Then host can retrieve data by AT+CIPRXGET.

If set <mode> to 0, the received data will be outputted to COM port directly by URC as "RCV FROM:<IP ADDRESS>:<PORT><CR><LF>+IPD(data length)<CR><LF><data>".

The default value of <mode> is 0.

AT+CIPRXGET Set the Mode to Retrieve Data

Test Command
AT+CIPRXGET=?

Response
<CR><LF>
+CIPRXGET: (0-4),(0-3),(1-1500)<CR><LF>
<CR><LF>
OK<CR><LF>

Read Command
AT+CIPRXGET?

Response
<CR><LF>
+CIPRXGET: <mode><CR><LF>
<CR><LF>
OK<CR><LF>

Write Command
AT+CIPRXGET=<mode>
In this case,<mode> can only be 0 or 1

Response
1)If the parameter is correct, response:
<CR><LF>
OK<CR><LF>
2)If the parameter is incorrect or other error, response:
<CR><LF>
+IP ERROR: <err_info><CR><LF>
<CR><LF>
ERROR<CR><LF>
3)Others:
<CR><LF>
ERROR<CR><LF>

Write Command
AT+CIPRXGET=2,<link_num>[,<len>]
Retrieve data in ACSII form

1)If <len> field is empty, the default value to read is 1500.
If the buffer is not empty, response:
<CR><LF>
+CIPRXGET:
<mode>,<link_num>,<read_len>,<rest_len><CR><LF>
<data>ACSII form<CR><LF>
<CR><LF>
OK<CR><LF>
2)If the buffer is empty, response:
<CR><LF>

	+IP ERROR: No data<CR><LF> <CR><LF> ERROR<CR><LF> 3)If the parameter is incorrect or other error, response: <CR><LF> +IP ERROR: <err_info><CR><LF> <CR><LF> ERROR<CR><LF> 4)Others: <CR><LF> ERROR<CR><LF>
Write Command AT+CIPRXGET=3,<link_num>[,<len>] Retrieve data in hex form	Response 1)If <length> field is empty, the default value to read is 750. If the buffer is not empty, response: <CR><LF> +CIPRXGET: <mode>,<link_num>,<read_len>,<rest_len> <data><CR><LF> hex form<CR><LF> <CR><LF> OK<CR><LF> 2)If the buffer is empty, response: <CR><LF> +IP ERROR: No data<CR><LF> <CR><LF> ERROR<CR><LF> 3)If the parameter is incorrect or other error, response: <CR><LF> +IP ERROR: <err_info><CR><LF> <CR><LF> ERROR<CR><LF> 4)Others: <CR><LF> ERROR<CR><LF>
Write Command AT+CIPRXGET=4,<link_num>	Response 1)If the parameter is correct, response: <CR><LF> +CIPRXGET: 4,<link_num>,<rest_len><CR><LF> <CR><LF> OK<CR><LF> 2)If the parameter is incorrect or other error, response: <CR><LF> +IP ERROR: <err_info><CR><LF> <CR><LF> ERROR<CR><LF>

	3)Others <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	8s
Reference	

Defined Values

<mode>	Integer type, sets the mode to retrieve data 0 set the way to get the network data automatically 1 set the way to get the network data manually 2 read data, the max read length is 1500 3 read data in HEX form, the max read length is 750 4 get the rest data length
<link_num>	Integer type, identifies a connection. Range is 0-3.
<len>	Integer type, the data length to be read. Not required, the default value is 1500 when <mode>=2, and 750 when <mode>=3.
<read_len>	Integer type, the length of data that has been read.
<rest_len>	Integer type, the length of data which has not been read in the buffer.
<err_info>	String type, displays the cause of occurring error, please refer to Chapter 13.3.1 for more details.

Examples

AT+CIPRXGET=?

+CIPRXGET: (0-4),(0-3),(1-1500)

OK

AT+CIPRXGET?

+CIPRXGET: 1

OK

AT+CIPRXGET=1

OK

AT+CIPRXGET=2,0

+CIPRXGET: 2,0,6,0

123456

OK

AT+CIPRXGET=3,0

+CIPRXGET: 3,0,6,0

313233343536

OK

AT+CIPRXGET=4,0

+CIPRXGET: 4,0,18

OK

NOTE

When data is received and reported, the maximum length of <data length> is 1500 each time.

13.2.6 AT+CIPCLOSE Close TCP or UDP Socket

AT+CIPCLOSE is used to close a TCP or UDP Socket

AT+CIPCLOSE Close TCP or UDP Socket

Test Command

AT+CIPCLOSE=?

Response

<CR><LF>

+CIPCLOSE: (0-3)<CR><LF>

<CR><LF>

OK<CR><LF>

Read Command

AT+CIPCLOSE?

Response

<CR><LF>

+CIPCLOSE:

<link0_state>,<link1_state>,<link2_state>,<link3_state><CR>

<LF>

<CR><LF>

OK<CR><LF>

Write Command

AT+CIPCLOSE=<link_num>

Response

1)If service type is TCP and the connection identified by <link_num> has been established, response

<CR><LF>

OK<CR><LF>

<CR><LF>

+CIPCLOSE: <link_num>,<err><CR><LF>

2)If service type is TCP and the access mode is transparent mode, response:

<CR><LF>

OK<CR><LF>

	<CR><LF> CLOSED<CR><LF> <CR><LF> +CIPCLOSE: <link_num>,<err><CR><LF> 3)If service type is UDP and the connection identified by <link_num> has been established and closed successfully, response: <CR><LF> +CIPCLOSE: <link_num>,0<CR><LF> <CR><LF> OK<CR><LF> 4)If service type is UDP and access mode is transparent mode, response: <CR><LF> CLOSED<CR><LF> <CR><LF> +CIPCLOSE: <link_num>,<err><CR><LF> <CR><LF> OK<CR><LF> 5)If the connection has not been established, abnormally closed, or parameter is incorrect, response: <CR><LF> +CIPCLOSE: <link_num>,<err><CR><LF> <CR><LF> ERROR<CR><LF> 6)Others: <CR><LF> ERROR<CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	Range: 3000ms-120000ms default: 120000ms (it can be set by AT+CIPTIMEOUT)
Reference	

Defined Values

<link_num>	Integer type, identifies a connection. Range is 0-3.
<linkX_state>	Integer type, indicates state of connection identified by <link_num>. Range is 0-1. 0 disconnected 1 connected
<err>	Integer type, the result of operation. 0 is success, other value is failure, please refer to Chapter 13.3.2 for details

Examples

AT+CIPCLOSE=?

+CIPCLOSE: (0-3)

OK

AT+CIPCLOSE?

+CIPCLOSE: 0,0,0,0

OK

AT+CIPCLOSE=0

OK

+CIPCLOSE: 0,0

13.2.7 AT+IPADDR Inquire Socket PDP address

AT+IPADDR is used to get active PDP address.

AT+IPADDR Inquire Socket PDP Address

Test Command

AT+IPADDR=?

Response

<CR><LF>

OK<CR><LF>

Execute Command

AT+IPADDR

Response

1)If PDP context has been activated successfully, response

<CR><LF>

+IPADDR: <ip_address><CR><LF>

<CR><LF>

OK<CR><LF>

2)

<CR><LF>

+IP ERROR: Network not opened<CR><LF>

<CR><LF>

ERROR<CR><LF>

Write Command

AT+IPADDR=[<cid>]

Response

1)If PDP context has been activated successfully, response

<CR><LF>

+IPADDR: <ip_address><CR><LF>

<CR><LF>

OK<CR><LF>

	2) <CR><LF> +IP ERROR: Network not opened <CR><LF> <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	default: 5000ms
Reference	-

Defined Values

<ip_address>	String type, identifies the IP address of current active socket PDP.
<cid>	A numeric parameter which specifies a particular PDP context. The range is 1-n. The maximum value n is related to the pdp command of the modem. If no <cid> is specified. The default value is 1.

Examples

AT+IPADDR

+IPADDR: 10.84.17.161

OK

AT+IPADDR=2

+IPADDR: 10.166.106.141

OK

13.2.8 AT+CIPHEAD Add an IP Header When Receiving Data

AT+CIPHEAD is used to add an IP header when receiving data.

AT+CIPHEAD Add an IP Header When Receiving Data

Test Command AT+CIPHEAD=?	Response <CR><LF> +CIPHEAD: (0-1) <CR><LF> <CR><LF> OK <CR><LF>
Read Command AT+CIPHEAD?	Response <CR><LF> +CIPHEAD: <mode> <CR><LF>

	<CR><LF> OK <CR><LF>
Write Command AT+CIPHEAD=<mode>	Response 1)If the parameter is correct, response: <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF>
Execute Command AT+CIPHEAD	Response Set default value:(<mode>=1) <CR><LF> OK <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	default: 5000ms
Reference	-

Defined Values

<mode>	Integer type, indicates whether adding an IP header or not when receiving data 0 not add IP header 1 add IP header, the format is "+IPD(data length)"
--------	---

Examples

AT+CIPHEAD=?
+CIPHEAD: (0-1)

OK
AT+CIPHEAD?
+CIPHEAD: 1

OK
AT+CIPHEAD=1
OK
AT+CIPHEAD
OK

13.2.9 AT+CIPSRIP Show Remote IP Address and Port

AT+CIPSRIP is used to set whether to display IP address and port of server when receiving data.

AT+CIPSRIP Show Remote IP Address and Port

Test Command AT+CIPSRIP=?	Response <CR><LF> +CIPSRIP: (0-1) <CR><LF> <CR><LF> OK <CR><LF>
Read Command AT+CIPSRIP?	Response <CR><LF> +CIPSRIP: <mode> <CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+CIPSRIP=<mode>	Response 1)If the parameter is correct, response: <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF>
Execute Command AT+CIPSRIP	Response Set default value:(<mode>=1) <CR><LF> OK <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	default: 5000ms
Reference	-

Defined Values

<mode>	Integer type, indicates whether to show IP address and port of server or not when receiving data. 0 not show 1 show, the format is as follows: "RCV FROM:<IP ADDRESS>:<PORT>"
--------	--

Examples

AT+CIPSRIP=?
+CIPSRIP: (0-1)

```
OK
AT+CIPSRIP?
+CIPSRIP: 1

OK
AT+CIPSRIP=0
OK
AT+CIPSRIP
OK
```

13.2.10 AT+CIPMODE Set TCP/IP Application Mode

AT+CIPMODE is used to select transparent mode(data mode) or non-transparent mode(command mode).The default mode is non-transparent mode.

AT+CIPMODE Set TCP/IP Application Mode

Test Command AT+CIPMODE=?	Response <CR><LF> +CIPMODE: (0-1)<CR><LF> <CR><LF> OK<CR><LF>
Read Command AT+CIPMODE?	Response <CR><LF> +CIPMODE: <mode><CR><LF> <CR><LF> OK<CR><LF>
Write Command AT+CIPMODE=<mode>	Response 1)If the parameter is correct, response: <CR><LF> OK<CR><LF> 2) <CR><LF> ERROR<CR><LF>
Execute Command AT+CIPMODE	Response 1)If Set default value:(<mode>=0) successfully: <CR><LF> OK<CR><LF> 2)If failed: <CR><LF> ERROR<CR><LF>
Parameter Saving Mode	NO_SAVE

Max Response Time	default: 5000ms
Reference	-

Defined Values

<mode>	Integer type, sets TCP/IP application mode
	0 Non transparent mode
	1 Transparent mode

Examples

```

AT+CIPMODE=?
+CIPMODE: (0-1)

OK
AT+CIPMODE?
+CIPMODE: 0

OK
AT+CIPMODE=1
OK
AT+CIPMODE
OK

```

NOTE

When you want to use transparent mode to transmit data, you should set AT+CIPMODE=1 before AT+NETOPEN.

13.2.11 AT+CIPTIMEOUT Set TCP/IP Timeout Value

AT+CIPTIMEOUT is used to set timeout value for AT+NETOPEN/AT+CIPOPEN/AT+CIPSEND.

AT+CIPTIMEOUT Set TCP/IP Timeout Value

Read Command	Response
AT+CIPTIMEOUT?	<CR><LF> +CIPTIMEOUT: <netopen_timeout>,<cipopen_timeout>,<cipsend_timeout><

	CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+CIPTIMEOUT=[<netopen_timeout>][,<cipopen_timeout>][,<cipsend_timeout>]]]	Response 1)If the parameter is correct, response: <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	default: 5000ms
Reference	-

Defined Values

<netopen_timeout>	Integer type, timeout value for AT+NETOPEN. default is120000ms. Range is 3000ms-120000ms.
<cipopen_timeout>	Integer type, timeout value for AT+CIPOPEN. default is120000ms. Range is 3000ms-120000ms.
<cipsend_timeout>	Integer type, timeout value for AT+CIPSEND. default is120000ms. Range is 3000ms-120000ms.

Examples

AT+CIPTIMEOUT?

+CIPTIMEOUT: 120000,120000,120000

OK

AT+CIPTIMEOUT=3000,3000,3000

OK

13.2.12 AT+CIPCCFG Configure Parameters of Socket

AT+CIPCCFG is used to configure parameters of socket.

AT+CIPCCFG Configure Parameters of Socket

Test Command AT+CIPCCFG=?	Response <CR><LF> +CIPCCFG:
-------------------------------------	--

	(0-10),(0-1000),(0),(0-1),(0-1),(0-1),(500-120000)<CR><LF> <CR><LF> OK <CR><LF>
Read Command AT+CIPCCFG?	Response <CR><LF> +CIPCCFG: <NmRetry>,<DelayTm>,<Ack>,<errMode>,<Header-Type>,<AsyncMode>,<TimeoutVal><CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+CIPCCFG=[<NmRetry>,[<DelayTm>,[<Ack>,[<errMode>,[<HeaderType>,[<AsyncMode>,[<TimeoutVal>]]]]]]]	Response 1)If the parameter is correct, response: <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF>
Execute Command AT+CIPCCFG	Response Set default value: <CR><LF> OK <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	default: 5000ms
Reference	-

Defined Values

<NmRetry>	Integer type, number of retransmission to be made for an IP packet. Range is 0-10. The default value is 10.
<DelayTm>	Integer type, number of milliseconds to delay to output data of Receiving. Range is 0-1000. The default value is 0.
<Ack>	Integer type, it can only be set to 0. It's used to be compatible with old TCP/IP command set.
<errMode>	Integer type, sets mode of reporting <err_info>, default value is 1. 0 error result code with numeric values 1 error result code with string values
<HeaderType>	Integer type, select which data header is used when receiving data, it only takes effect in multi-client mode. Default value is 0. 0 add data header, the format is "+IPD<data length>" 1 add data header, the format is "+RECEIVE,<link num>,<data length>"
<AsyncMode>	Integer type, range is 0-1. Default value is 0. It's used to be compatible with old TCP/IP command set.
<TimeoutVal>	Integer type, set the minimum retransmission timeout value for

TCP connection. Range is 500ms-120000ms. Default is 500ms.

Examples

```
AT+CIPCCFG=?
+CIPCCFG: (0-10),(0-1000),(0),(0-1),(0-1),(0-1),(500-120000)

OK
AT+CIPCCFG?
+CIPCCFG: 10,0,0,1,0,0,500

OK
AT+CIPCCFG=2
OK
AT+CIPCCFG
OK
```

13.2.13 AT+CIPCFG Configure the TCP/IP Context

AT+CIPCFG is used to configure the TCP/IP context.

AT+CIPCCFG Configure Parameters of Socket

Test Command AT+CIPCFG=?	Response <CR><LF> OK <CR><LF>
Read Command AT+CIPCFG?	Response <CR><LF> +CIPCFG: "transwaittm",<tranwaittime> <CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+CIPCFG="transwaittm",<transwaittime>	Response 1)If the parameter is correct, response: <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF>
Write Command AT+CIPCFG="CID",<cid>	Response 1)If the parameter is correct, response: <CR><LF> OK <CR><LF>

	2)When the <cid> is default:(It is cid of first link) <CR><LF> +CIPCFG: "CID",<cid><CR><LF> <CR><LF> OK<CR><LF> 3) <CR><LF> ERROR<CR><LF>
Write Command AT+CIPCFG="SCID",<link_num>,<cid>]	Response 1)If the parameter is correct, response: <CR><LF> OK<CR><LF> 2)When the <link_num> and <cid> are default: <CR><LF> +CIPCFG: "SCID",<link_num>,<cid><CR><LF> ... <CR><LF> OK<CR><LF> 3)When the <cid> is default: <CR><LF> +CIPCFG: "SCID",<link_num>,<cid><CR><LF> <CR><LF> OK<CR><LF> 4) <CR><LF> ERROR<CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	default: 5000ms
Reference	-

Defined Values

<transwaittime>	Set the transparent transmission timeout waiting time, integer type. Range 5-1000ms, default value is 10ms.
<cid>	A numeric parameter which specifies a particular PDP context. The range is 1-n. The maximum value n is related to the pdp command of the modem. If no <cid> is specified. The default value is 1.
<link_num>	Integer type, identifies a connection. Range is 0-3. If AT+CIPMODE=1 is set, the <link_num> is restricted to be only 0.

Examples

AT+CIPCFG=?

OK

AT+CIPCFG?

+CIPCFG: "transwaittm",10

OK

AT+CIPCFG="CID"

+CIPCFG: "CID",1

OK

AT+CIPCFG="CID",3

OK

AT+CIPCFG="SCID"

+CIPCFG: "SCID",0,3

+CIPCFG: "SCID",1,3

+CIPCFG: "SCID",2,3

+CIPCFG: "SCID",3,3

OK

AT+CIPCFG="SCID",1

+CIPCFG: "SCID",1,3

OK

AT+CIPCFG="SCID",2,1

OK

13.2.14 AT+SERVERSTART Startup TCP Sever

AT+SERVERSTART is used to startup a TCP server, and the server can receive the request of TCP client. After the command executes successfully, an unsolicited result code is returned when a client tries to connect with module and module accepts request. The unsolicited result code is+CLIENT: <link_num>,<server_index>,<client_IP>:<port>.

AT+SERVERSTART Startup TCP Sever

Test Command

AT+SERVERSTART=?

Response

<CR><LF>

+SERVERSTART: (10000-10015),(0-1)<CR><LF>

<CR><LF>

OK<CR><LF>

Read Command

AT+SERVERSTART?

Response

1)If the PDP context has not been activated successfully, response:

	<CR><LF> +CIPERROR: <err><CR><LF> <CR><LF> ERROR<CR><LF> 2)If there exists opened server, response: <CR><LF> [+SERVERSTART: <server_index>,<port> ...]<CR><LF> <CR><LF> OK<CR><LF> 3)Others: <CR><LF> ERROR<CR><LF>
Write Command AT+SERVERSTART=<port>,<server_index>[,<backlog>]	Response 1)If there is no error, response: <CR><LF> OK<CR><LF> 2)If the PDP context has not been activated, or the server identified by <server_index> has been opened, or the parameter is not correct, or other errors, response: <CR><LF> +CIPERROR: <err><CR><LF> <CR><LF> ERROR<CR><LF> 3)Others: <CR><LF> ERROR<CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	default: 5000ms
Reference	-

Defined Values

<port>	Integer type, identifies the listening port of module when used as a TCP server. Range is 10000-10015.
<server_index>	Integer type, the TCP server index, range is 0-1.
<backlog>	Integer type, the maximum connections can be queued in listening queue. Range is 1-3. Default is 3.

Examples

AT+SERVERSTART=?
+SERVERSTART: (10000-10015),(0-1)

```
OK
AT+SERVERSTART?
OK
AT+SERVERSTART=10000,0
OK
```

13.2.15 AT+SERVERSTOP Stop TCP Sever

AT+SERVERSTOP is used to stop TCP server. Before stopping a TCP server, all sockets <server_index> of which equals to the closing TCP server index must be closed first.

AT+SERVERSTOP Stop TCP Sever

Write Command

```
AT+SERVERSTOP=<server_index>
ex>
```

Response

1)If there exists open connection with the server identified by <server_index>, or the server identified by <server_index> has not been opened, or the parameter is incorrect, response:

```
<CR><LF>
```

```
+SERVERSTOP: <server_index>,<err><CR><LF>
```

```
<CR><LF>
```

```
ERROR<CR><LF>
```

2)If the server socket is closed immediately, response:

```
<CR><LF>
```

```
+SERVERSTOP: <server_index>,0<CR><LF>
```

```
<CR><LF>
```

```
OK<CR><LF>
```

(In general, the result is shown as below.)

3)If the server socket starts to close, response:

```
<CR><LF>
```

```
OK<CR><LF>
```

```
<CR><LF>
```

```
+SERVERSTOP: <server_index>,<err><CR><LF>
```

4)Others:

```
<CR><LF>
```

```
ERROR<CR><LF>
```

Parameter Saving Mode

NO_SAVE

Max Response Time

default: 5000ms

Reference

-

Defined Values

<server_index>	Integer type, the TCP server index, range is 0-1.
<err>	Integer type, the result of operation. 0 is success, other value is failure, please refer to Chapter 13.3.2 for details

Examples

```

AT+SERVERSTOP=0
OK

+SERVERSTOP: 0,0

```

13.2.16 AT+CIPACK Query TCP Connection Data Transmitting Status

AT+CIPACK is used to query TCP connection data transmitting status.

AT+CIPACK Query Connection Data Transmitting State	
Test Command AT+CIPACK=?	Response <CR><LF> +CIPACK: (range of supported <link_num>s)<CR><LF> <CR><LF> OK<CR><LF>
Write Command AT+CIPACK=<link_num>	Response 1)If the PDP context has not been activated, or the connection identified by <link_num> has not been established, abnormally closed, or the parameter is incorrect, or other errors, response: <CR><LF> +IP ERROR: <err_info><CR><LF> <CR><LF> ERROR<CR><LF> 2)If the connection has been established, and the service type is "TCP", response: <CR><LF> +CIPACK: <sent_data_size>,<ack_data_size>,<recv_data_size><CR><LF> <CR><LF> OK<CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	default: 5000ms
Reference	-

Defined Values

<link_num>	Integer type, identifies a connection. Range is 0-3.
<sent_data_size>	Integer type, the total length of sent data
<ack_data_size>	Reserve
<recv_data_size>	Integer type, the total length of received data
<err>	Integer type, the result of operation. 0 is success, other value is failure, please refer to Chapter 13.3.2 for details
<err_info>	String type, displays the cause of occurring error, please refer to Chapter 3 for details.

Examples

AT+CIPACK=?

+CIPACK: (0-3)

OK

AT+CIPACK=0

+CIPACK: 10,10,5

OK

13.2.17 AT+CDNSGIP Query the IP Address of Given Domain Name

AT+CDNSGIP is used to query the IP address of given domain name.

AT+CDNSGIP Query the IP Address of Given Domain Name

Test Command

AT+CDNSGIP=?

Response

<CR><LF>

OK<CR><LF>

Write Command

AT+CDNSGIP=<domain name>

Response

1)If the given domain name has related IP, response:

<CR><LF>

+CDNSGIP: 1,<domain name>,<IP address><CR><LF>

+CDNSGIP: 2,<domain name>,<IP address><CR><LF>

[...]

<CR><LF>

OK<CR><LF>

2)If the given name has no related IP, response:

<CR><LF>

+CDNSGIP: 0,<dns error code><CR><LF>

	<CR><LF> ERROR <CR><LF> 3)Others: <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	default: 6s
Reference	-

Defined Values

<domain name>	String type (string should be included in quotation marks), indicates the domain name. The maximum length of domain name is 254. Valid characters allowed in the domain name area include a-z, A-Z, 0-9, "-" (hyphen)and ".". A domain name is made up of one label name or more label names separated by "." (eg: AT+CDNSGIP="aa.bb.cc"). For label names separated by ".", length of each label must be no more than 63 characters. The beginning character of the domain name and of labels should be an alphanumeric character.
<IP address>	String type, indicates the IP address corresponding to the domain name.
<dns error code>	Integer type, indicates the error code. 10 DNS GENERAL ERROR

Examples

```

AT+CDNSGIP=?
OK
AT+CDNSGIP="www.baidu.com"
+CDNSGIP: 1,"www.baidu.com","61.135.169.121"
OK

```

13.2.18 AT+CSOCKSETPN Set active PDP context's profile

This command sets default active PDP context's profile number and type. When we activate PDP by using AT+NETOPEN command, we need use the default profile number and type.,and the context of this profile is set by AT+CGDCONT command.

AT+CSOCKSETPN Set active PDP context's profile

Test Command AT+CSOCKSETPN=?	Response <CR><LF> +CSOCKSETPN: 1-n,(1,6) <CR><LF> <CR><LF> OK <CR><LF>
Read Command AT+CSOCKSETPN?	Response <CR><LF> +CSOCKSETPN: <cid>,<ip_family> <CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+CSOCKSETPN=<cid>[,<ip_family>]	Response 1)If the parameter is correct, response: <CR><LF> OK <CR><LF> 2)If the parameter is wrong,or NETOPEN is already active, response: <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	default: 5000ms
Reference	-

Defined Values

<cid>	A numeric parameter which specifies a particular PDP context. The range is 1-n. The maximum value n is related to the pdp command of the modem. If no <cid> is specified. The default value is 1.
<ip_family>	Packet Data Protocol type 1 IPV4 6 IPV6

Examples

AT+CSOCKSETPN=?
+CSOCKSETPN: 1-n,(1,6)

OK
AT+CSOCKSETPN?
+CSOCKSETPN: 1,1
+CSOCKSETPN: 2,1
+CSOCKSETPN: 3,1

OK

AT+CSOCKSETPN=1,6

OK

13.2.19 AT+CTCPKA Configure TCP heartbeat

This command is used to set TCP heartbeat parameters. Set this up after we activate PDP by using AT+NETOPEN command.

AT+CTCPKA Configure TCP heartbeat

Test Command AT+CTCPKA=?	Response <CR><LF> OK <CR><LF>
Read Command AT+CTCPKA?	Response <CR><LF> +CTCPKA: <keepalive>,<keepidle>,<keepcount>,<keepinterval> <CR><LF> > <CR><LF> OK <CR><LF>
Write Command AT+CTCPKA=<keepalive>,<keepidle>,<keepcount>,<keepinterval>	Response 1)If successfully: <CR><LF> OK <CR><LF> 2)If failed: <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	default: 5000ms
Reference	-

Defined Values

<keepalive >	Set TCP keepalive option. 0 Disable TCP keep alive mechanism 1 Enable TCP keep alive mechanism
<keepidle>	The unit is minute. If there is no data interaction within this period, the probe is performed. (1-120)
<keepcount>	Number of probe retries. If all times out, the connection is considered Invalid.(1-10)
<keepinterval>	The unit is minute. Interval for sending probe packets during probe.

Examples

AT+CTCPKA=1,2,5,1

OK

AT+CTCPKA?

+CTCPKA: 1,2,5,1

OK

13.2.20 AT+CDNSCFG Configure Domain Name Server

This command is used to configure Domain Name Server.

AT+CDNSCFG Configure Domain Name Server

Test Command AT+CDNSCFG=?	Response <CR><LF> +CDNSCFG: ("Primary DNS"),("Secondary DNS"),type<CR><LF> <CR><LF> OK <CR><LF>
Read Command AT+CDNSCFG?	Response <CR><LF> Primary IPv4 DNS: <pri_dns>,Secondary IPv4 DNS: <pri_dns><CR><LF> Primary IPv6 DNS: <pri_dns>,Secondary IPv6 DNS: <pri_dns><CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+CDNSCFG=<pri_dns>[,<sec_dns>][,<type>]	Response 1)If successfully: <CR><LF> OK <CR><LF> 2)If failed: <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	default: 5000ms
Reference	-

Defined Values

<pri_dns>	A string parameter which indicates the IP address of the primary domain name server.
<sec_dns>	A string parameter which indicates the IP address of the secondary domain name server.
<type>	0 Set the server for the ipv4 network 1 Set the server for the ipv6 network

Examples

AT+CDNSCFG?
 Primary IPv4 DNS: 183.230.126.224,Secondary IPv4
 DNS: 183.230.126.225
 OK
AT+CDNSCFG=183.230.126.224,183.230.126.225,0
 OK

NOTE

This platform does not support IPv6 by default. If you want to set the IPv6 DNS server, first use AT+CFUN=0 to shut down, then use AT+CGDCONT to set the APN of IPV4V6, and then use AT+CFUN=1 to start up.

13.3 Command Result Codes

13.3.1 Description of <err_info>

The fourth parameter <errMode> of AT+CIPCCFG (TODO) is used to determine how <err_info> is displayed.

If <errMode> is set to 0, the <err_info> is displayed with numeric value.

If <errMode> is set to 1, the <err_info> is displayed with string value.

The default is displayed with string value.

Numeric Value	String Value
0	Connection time out
1	Bind port failed
2	Port overflow
3	Create socket failed
4	Network is already opened

5	Network is already closed
6	No clients connected
7	No active client
8	Network not opened
9	Client index overflow
10	Connection is already created
11	Connection is not created
12	Invalid parameter
13	Operation not supported
14	DNS query failed
15	TCP busy
16	Net close failed for socket opened
17	Sending time out
18	Sending failure for network error
19	Open failure for network error
20	Server is already listening
21	Operation failed
22	No data

13.3.2 Description of <err>

<err>	Description of <err>
0	operation succeeded
1	Network failure
2	Network not opened
3	Wrong parameter
4	Operation not supported
5	Failed to create socket
6	Failed to bind socket
7	TCP server is already listening
8	Busy
9	Sockets opened
10	Timeout
11	DNS parse failed for AT+CIPOPEN
12	Unknown error

13.4 Unsolicited Result Codes

URC	Description
+CIEVENT: NETWORK CLOSED UNEXPECTEDLY[,<cid>]	Network is closed for network error(Out of service, etc). When this event happens, user's application needs to check and close all opened sockets, and then uses AT+NETCLOSE to release the network library if AT+NETOPEN? shows the network library is still opened. When the AT+NETOPEN=<cid> command is used to activate a network, the URC carries the cid parameter, and each cid link reports an independent URC.
+IPCLOSE: <client_index>,<close_reason>	Socket is closed passively. <client_index> is the link number. <close_reason>: 0 Closed by local, active 1 Closed by remote, passive 2 Closed for sending timeout or DTR off
+CLIENT: <link_num>,<server_index>,<client_IP>:<port>	TCP server accepted a new socket client, the index is<link_num>, the TCP server index is <server_index>. The peer IP address is <client_IP>, the peer port is <port>.

14 AT Commands for HTTP(S)

14.1 Overview of AT Commands for HTTP(S)

Command	Description
AT+HTTPINIT	Start HTTP service
AT+HTTPTERM	Stop HTTP Service
AT+HTTPPARA	Set HTTP Parameters value
AT+HTTPDATA	Input HTTP Data
AT+HTTPACTION	HTTP Method Action
AT+HTTPACTIONEX	Send entity data directly to the network
AT+HTTPHEAD	Read the HTTP Header Information of Server Response
AT+HTTPREAD	Read the response information of HTTP Server
AT+HTTPPOSTFILE	Send HTTP Request to HTTP server by File
AT+HTTPREADFILE	Receive HTTP Response Content to a file

14.2 Detailed Description of AT Commands for HTTP(S)

14.2.1 AT+HTTPINIT Start HTTP Service

The AT+HTTPINIT command activates the HTTP service by initiating the PDP context. It is essential to execute AT+HTTPINIT before performing any other HTTP-related operations.

AT+HTTPINIT Start HTTP Service	
Test Command AT+HTTPINIT=?	Response <CR><LF> +HTTPINIT: (1-n)<CR><LF> <CR><LF> OK<CR><LF>
Execute Command AT+HTTPINIT	Response <CR><LF> OK/ERROR<CR><LF>

Write Command AT+HTTPINIT=<cid>	Response <CR><LF> OK/ERROR <CR><LF> <CR><LF> +HTTPINIT: <err>,<cid> <CR><LF>
Parameter Saving Mode	-
Max Response Time	120000ms
Reference	-

Defined Values

<cid>	A numeric parameter which specifies a particular PDP context. The range is 1-n. The maximum value n is related to the pdp command of the modem.
<err>	The type of error. Please refer to the end of this chapter.

Examples

AT+HTTPINIT
OK

14.2.2 AT+HTTPTERM Stop HTTP Service

AT+HTTPTERM is used to stop HTTP service.

AT+HTTPTERM Stop HTTP Service

Test Command AT+HTTPTERM=?	Response <CR><LF> +HTTPTERM: (1-n) <CR><LF> <CR><LF> OK <CR><LF>
Execute Command AT+HTTPTERM	Response <CR><LF> OK/ERROR <CR><LF>
Write Command AT+HTTPTERM=<cid>	Response <CR><LF> OK/ERROR <CR><LF> <CR><LF>

	+HTTPTERM: <err>,<cid><CR><LF>
Parameter Saving Mode	-
Max Response Time	120000ms
Reference	-

Defined Values

<cid>	A numeric parameter which specifies a particular PDP context. The range is 1-n. The maximum value n is related to the pdp command of the modem.
<err>	The type of error. Please refer to the end of this chapter.

Examples

AT+HTTPTERM

OK

14.2.3 AT+HTTPPARA Set HTTP Parameters value

AT+HTTPPARA is utilized for configuring HTTP parameter values. When aiming to access an HTTP server, one should input a in the format of http://server'/path':tcpport'. Additionally, for accessing HTTPS servers, one should use the format of https://server'/path':tcpport'.

AT+HTTPPARA Set HTTP Parameters value

Test Command AT+HTTPPARA=?	Response <CR><LF> OK <CR><LF>
Write Command AT+HTTPPARA=<CMD>[,<arg1>[,<arg2>]]	Response 1) <CR><LF> OK/ERROR <CR><LF> 2) Prompt for input data. <CR><LF> ><CR><LF>
Parameter Saving Mode	-
Max Response Time	120000ms
Reference	-

Defined Values

<CMD>	parameter	explain
1. If the values of each optional parameter are left blank, the default values are used. 2. The "CMD" field is case-insensitive.		
URL	*Resource URI*	
	<arg1:url/len>	String type, too long url need to be passed in using data mode. Support HTTP and HTTPS. Support domain name and IP address two modes, the port number can be omitted. The default http port number is 80 and the default https port number is 443.
	[arg2:mode]	Value type, url passing mode: 0: Pass in the url using arg1 1: Edit mode passes the url, arg1 is the length of the data
CONNECTTO	*Timeout period for connecting to the server.*	
	[arg1: conn_timeout]	Value type, range 20-120 seconds. Default: 120 seconds.
RCVTO	*Timeout period for receiving network data*	
	[arg1:rcv_timeout]	Value type, range 2-120 seconds. Default: 20 seconds.
CONTENT	*Set the "Content-Type" parameter of the HTTP header*	
	[arg1:content_type]	String type, The maximum length is 256 bytes.
ACCEPT	*Set the "Accept-type" parameter of the HTTP header*	
	[arg1:accept_type]	String type, The maximum length is 256 bytes.
SSLCFG	*Set the SSL channel number for HTTPS*	
	[arg1:sslcfg_id]	Value type, depending on the SSL module. Default is 0.
USERDATA	*Append user-defined HTTP header properties*	
	[arg1:user_data]	String type, The maximum length of a single header is 256 bytes,

		maximum of 10 headers can be configured.
HEADMODE	* Set the CMD + HTTPHEAD method for reading data * [arg1:headmode]	0: SYNC mode 1: ASYNC mode
READMODE	* Set the behavior of the +HTTPREAD CMD on cached data* [arg1:readmode]	Value type: 0: The cache is cleared immediately after data is read 1: After reading the data, the cache is not cleared and can be read repeatedly. (READMODE: 1 is not supported. See NOTE for details)
WINDOW-SIZE	*Set the forwarding cache size for +HTTPACTIONEX* [arg1:size]	Value type, cache size . The range is 256 – 2147483647 (0x7fffffff). Default is 1024. (The maximum supported size is for reference only. The actual maximum supported size depends on the module resources.)
DOMAIN	*Set IPV4/6* [arg1:type]	Value type, Type of IP: 0: Automatic, IPV4 is preferred 1: IPV4 2: IPV6

NOTE

1. When you want to use content-type multipart/form-data to transfer data, you should set AT+HTTPPARA="CONTENT","multipart/form-data". And we will construct boundary header.
2. For compatibility with previous commands, READMODE can be set to 1, but it is not supported. This is because when receiving large amounts of data and if data needs to be repeatedly read, the system has to cache the data to the file system. Frequent writing to flash memory can potentially damage the flash. Therefore, if data needs to be repeatedly read, please use AT+HTTPREADFILE=<filename>[,<path>] to proactively write the data to the file system and use file

system commands to read it.

Examples

```
AT+HTTTPARA="URL","http://www.baidu.com"
OK
```

14.2.4 AT+HTTPDATA Input HTTP Data

When sending an HTTP/HTTPS POST request, using AT+HTTPDATA to input the data to be posted.

AT+HTTPDATA Input HTTP Data

Test Command AT+HTTPDATA=?	Response <CR><LF> OK <CR><LF>
Write Command AT+HTTPDATA=<size>[,<time>]	Response 1) <CR><LF> OK/ERROR <CR><LF> 2) Prompt for input data. <CR><LF> DOWNLOAD <CR><LF>
Parameter Saving Mode	
Max Response Time	
Reference	

Defined Values

<size>	Value type, size in bytes of the data to post. Range is 1-150K(bytes).
<time>	Value type, maximum time in seconds to input data. Range is 10-65535(0xffff) seconds. Default is 120s.

Examples

```
AT+HTTPDATA=18,1000
DOWNLOAD
Message=helloworld
OK
```

14.2.5 AT+HTTPACTION HTTP Method Action

The command AT+HTTPACTION is utilized for executing HTTP methods. It can be employed to send GET/POST requests to HTTP/HTTPS servers.

AT+HTTPACTION HTTP Method Action	
Test Command AT+HTTPACTION=?	Response <CR><LF> +HTTPACTION: (0-4) <CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+HTTPACTION=<method>	Response <CR><LF> OK/ERROR <CR><LF>
URC	<CR><LF> +HTTPACTION: <method>,<err/status>,<datalen/recvtype> <CR><LF>
Parameter Saving Mode	-
Max Response Time	120000ms
Reference	-

Defined Values

<method>	Value type, HTTP method specification: 0: GET 1: POST 2: HEAD 3: DELETE 4: PUT
<err/status>	Please refer to the end of this chapter.
<datalen/recvtype>	Value/String type, indicating the size of body normally. If transfer-encoding is chunked, it will output "chunk". But if the module could not cache all head data, it will output "continue". In this situation, it is needed to read head first, and then module will cache remaining data and output URC again to indicate the size of body. note: remaining data will be dropped in sync mode.

Examples

AT+HTTPACTION=?

+HTTPACTION: (0-4)

OK

AT+HTTPACTION=0

OK

+HTTPACTION: 0,200,104220

14.2.6 AT+HTTPACTIONEX Send Entity Data Directly to The Network **(This command is currently not supported)**

This instruction is the combination of +HTTPDATA and +HTTPACTION instruction, the entity data is directly sent to the network, the module does not do advance caching. This command is not supported for current version.

AT+HTTPACTIONEX Send Entity Data Directly to The Network

Test Command AT+HTTPACTIONEX=?	Response <CR><LF> OK <CR><LF>
Write Command AT+HTTPACTIONEX=<size>,[time],[t-size],[method],[URL],[mode]	Response 1) <CR><LF> OK/ERROR <CR><LF> 2) Prompt for input data. <CR><LF> DOWNLOAD <CR><LF>
URC	1) <CR><LF> +HTTPACTIONEX: <method>,<err/status>,<datalen/recvtype> <CR><LF> 2) Prompting the remaining space in the forwarding cache during the pass-through process <CR><LF> +HTTPACTIONEX: window,<w-size> <CR><LF>
Parameter Saving Mode	-
Max Response Time	120000ms
Reference	-

Defined Values

<size>	Value type, the size of the entered data. (The size entered for multiple times must add up to t-size before the socket is actively closed. Otherwise, the socket is not closed)
<time>	Value type, maximum time in seconds to input data. Range is 10-65535(0xffff) seconds, default is 20 seconds.
<t-size>	Value type, total data size. In chunked mode, indicates the total size of a chunk. (If data is entered multiple times, enter t-size only for the first time. The parameter is ignored in subsequent operations)
<method>	HTTP method specification: (If data is entered multiple times, enter method only for the first time. The parameter is ignored in subsequent operations) 0: GET 1: POST 2: HEAD 3: DELETE 4: PUT
<URL>	String type, too long url need to be passed in using +HTTTPARA. Support HTTP and HTTPS. Support domain name and IP address two modes, the port number can be omitted. The default http port number is 80 and the default https port number is 443.
<mode>	Value type, Mode of message. 0: normal mode. The header is automatically generated. The user passes the body. 1: bypass mode. The user passes the header and body, ignoring the header information set by +HTTTPARA.
<datalen/recvtype>	Value/String type, with firmware at current version, it indicates the size of body. On some occasions, it can be a string regarding some other information about the operation.
<err/status>	Please refer to the end of this chapter.
<w-size>	Value type, The remaining size of the forwarding cache.

Examples

NULL

14.2.7 AT+HTTPHEAD Read the HTTP Header Information of Server Response

AT+HTTPHEAD is used to read the HTTP header information of server response when module receives the response data from server.

AT+HTTPHEAD Read the HTTP Header Information of Server Response

Test Command AT+HTTPHEAD=?	Response <CR><LF> OK <CR><LF>
Execute Command AT+HTTPHEAD	Response 1) <CR><LF> OK/ERROR <CR><LF> 2) <CR><LF> +HTTPHEAD: <data_len> <CR><LF> <data> <CR><LF> <CR><LF> OK <CR><LF>
URC	1) <CR><LF> +HTTPHEAD: <err>,<data_len> <CR><LF> <data> <CR><LF> 2) <CR><LF> +HTTPHEAD: 0,0 <CR><LF>
Parameter Saving Mode	-
Max Response Time	120000ms
Reference	-

Defined Values

<data_len>	The length of HTTP header. 0 indicates that the output is complete. (In cases where the cache can be fully stored as all header data, the read instruction returns all header data at once. If the header data is larger than the cache, the read command will return the header data several times.)
<data>	The header information of HTTP response.
<err>	The type of error. Please refer to the end of this chapter.

Examples

AT+HTTPHEAD
+HTTPHEAD: 653

```
HTTP/1.1 200 OK
Content-Type: text/html
Connection: keep-alive
X-Cache: MISS from
PDcache-04:opinion.people.com.cn
Date: Tue, 24 Mar 2020 03:12:09 GMT
Powered-By-ChinaCache: HIT from
CNC-WB-b-D24
Powered-By-ChinaCache: HIT from
CNC-WV-b-D1C
ETag: W/"5b7379f5-57e9"
x-cc-via: CNC-WB-b-D24[H,1],
CNC-WV-b-D1C[H,62]
d-cc-upstream: CNC-WV-b-D1C
CACHE: TCP_HIT
Vary: Accept-Encoding
Last-Modified: Wed, 15 Aug 2018 00:55:17 GMT
Expires: Tue, 24 Mar 2020 03:17:09 GMT
x-cc-req-id:
f4b9e1793697d1ef2950f530aeec4519
Content-Length: 22505
Age: 0
Accept-Ranges: bytes
Server: nginx
X-Frame-Options: ALLOW-FROM .*
CC_CACHE: TCP_REFRESH_HIT

OK
```

14.2.8 AT+HTTPREAD Read the response information of HTTP Server

After sending HTTP(S)GET/POST requests, you can retrieve HTTP(S)response information from HTTP(S)server via UART/USB port by AT+HTTPREAD. When the <datalen> of "+HTTPACTION: <method>,<err/status>,<datalen>" is not equal to 0, You can execute AT+HTTPREAD=[<offset>],<size> to read out data to port. If parameter <size> is set greater than the size of data saved in buffer, all data in cache will output to port.

AT+HTTPREAD Read the response information of HTTP Server

Test Command	Response
AT+HTTPREAD=?	<CR><LF> OK <CR><LF>
Read Command	Response

AT+HTTPREAD?	1) <CR><LF> +HTTPREAD: LEN,<len> <CR><LF> <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF>
Write Command AT+HTTPREAD=[<offset>],<size>	Response <CR><LF> OK/ERROR <CR><LF>
URC	1) <CR><LF> +HTTPREAD: <data_len> <CR><LF> <data><CR><LF> 2) <CR><LF> +HTTPREAD: 0 <CR><LF>
Parameter Saving Mode	-
Max Response Time	120000ms
Reference	-

Defined Values

<offset>	Value type, data read offset, in bytes. The offset data portion will be directly discarded.
<size>	Value type, the length of data to read, in bytes.
<data_len>	Value type, the actual length of read data, in bytes.
<data>	Response content from HTTP server.
<len>	Total size of data saved in buffer, in bytes.

Examples

AT+HTTPREAD?

+HTTPREAD: LEN,22505

OK

AT+HTTPREAD=0,500

OK

+HTTPREAD: 500

\0\0\0\0\0\0\0\0\0\0\0\0<!DOCTYPE html

PUBLIC "-//W3C//DTD XHTML 1.0

Transitional//EN"

"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">

<html xmlns="http://www.w3.org/1999/xhtml">

<head>

<meta http-equiv="content-type"

content="text/html; charset=GB2312"/>

<meta http-equiv="Content-Language"

content="utf-8" />

<meta content="all" name="robots" />

<title>人民日报钟声:牢记历史是为了更好开创未来

--观点--人民网 </title>

<meta name="keywords" content="" />

<meta name="description" content=" 日方

应在正确对待历史?

+HTTPREAD: 0

NOTE

When the total size of the data from server is bigger than that and 'READMODE' is 0, you should read the data quickly, or you will fail to read it.

14.2.9 AT+HTTPPOSTFILE Send HTTP Request to HTTP(S)server by File

It is possible to send an HTTP request in a file using the AT+HTTPPOSTFILE command. Prior to executing the AT+HTTPPOSTFILE command, the URL must be set via AT+HTTPPPARA. The parameter can be utilized to specify the file directory. Upon receiving a response from the HTTP server, the modem will report the following Unsolicited Result Code (URC):

+HTTPPOSTFILE: <method>,<err/status>,<len>

AT+HTTPPOSTFILE Send HTTP Request to HTTP(S)server by File

Test Command

AT+HTTPPOSTFILE=?

Response

<CR><LF>

+HTTPPOSTFILE: <filename>[, (1-2)][, (0-4)][, (0-1)]<CR><LF>

<CR><LF>

OK<CR><LF>

Write Command

AT+HTTPPOSTFILE=<filename>

[,<path>,<method>,<send_he

Response

<CR><LF>

OK/ERROR<CR><LF>

der>]]]	
URC	<CR><LF> +HTTPPOSTFILE: <method>,<err/status>,<datalen/recvtype><CR><LF>
Parameter Saving Mode	
Max Response Time	
Reference	

Defined Values

<filename>	String type, filename. Unit: byte. For details about the maximum length, see the file system description.
<path>	The directory where the sent file saved. Numeric type, range is 1-2: 1 C:/ (local storage) 2 D:/ (SD card) (Some modules are supported "D:/")
<method>	HTTP method specification: 0: GET 1: POST 2: HEAD 3: DELETE 4: PUT If this value is not provided, it is same to the value described in the post file.
<send_header>	Send file as HTTP header and Body or Only as Body. Numeric type, the range is 0-1: 0: Send file as HTTP header and body 1: Send file as Body
<err/status>	Please refer to the end of this chapter.
<datalen/recvtype>	Value/String type, indicating the size of body normally. If transfer-encoding is chunked, it will output "chunk". But if the module could not cache all head data, it will output "continue". In this situation, it is needed to read head first, and then module will cache remaining data and output URC again to indicate the size of body. note: remaining data will be dropped in sync mode..

Examples

AT+HTTPPOSTFILE=?
+HTTPPOSTFILE:
<filename>[, (1-2)[, (0-4)[, (0-1)]]]

OK

AT+HTTPPOSTFILE="getbaidu.txt",1

OK

+HTTPPOSTFILE: 1,200,14615

AT+HTTPPOSTFILE="getbaidu.txt",1,1,1

OK

+HTTPPOSTFILE: 1,200,14615

14.2.10 AT+HTTPREADFILE Receive HTTP Response Content to a file

After executing AT+HTTPACTION/AT+HTTPPOSTFILE command, you can receive the HTTP server response content to a file via AT+HTTPREADFILE.

Before AT+HTTPREADFILE executed, "+HTTPACTION: <method>,<err/status>,<datalen/recvtype>" or "+HTTPPOSTFILE: <method>,<err/status>,<len>" must be received. The parameter <path> can be used to set the directory where to save the file. If omit parameter <path>, the file will be saved to local storage.

AT+HTTPREADFILE Receive HTTP Response Content to a File

Test Command AT+HTTPREADFILE=?	Response <CR><LF> +HTTPREADFILE: <filename>[(1-2)] <CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+HTTPREADFILE=<filename>[(1-2)]	Response <CR><LF> OK/ERROR <CR><LF>
URC	<CR><LF> +HTTPREADFILE: <err> <CR><LF>
Parameter Saving Mode	
Max Response Time	
Reference	

Defined Values

<filename>	String type, filename. Unit: byte. For details about the maximum length, see the file system description.
<path>	The directory where the read file saved. Numeric type, range is 1-2. 1: C:/(local storage) 2: D:/(SD card)

	100: FOTA (Save to FOTA partition)
<err>	The type of error. Please refer to the end of this chapter.

Examples

AT+HTTPREADFILE=?

+HTTPREADFILE: <filename>[, (1-2)]

OK

AT+HTTPREADFILE="readbaidu.dat"

OK

+HTTPREADFILE: 0

14.3 Command Result Codes

14.3.1 Description of <status>

<status>	Description
100	Continue
101	Switching Protocols
200	OK
201	Created
202	Accepted
203	Non-Authoritative Information
204	No Content
205	Reset Content
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 Timeout
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 timeout
505	HTTP Version not supported
600	Not HTTP PDU
601	Network Error
602	No memory
603	DNS Error
604	Stack Busy

14.3.2 Description of <err>

<err>	Meaning
0	Success
701	Alert state
702	Unknown error
703	Busy
704	Connection closed error
705	Timeout
706	Receive/send socket data failed

707	File not exists or other memory error
708	Invalid parameter
709	Network error
710	start a new ssl session failed
711	Wrong state
712	Failed to create socket
713	Get DNS failed
714	Connect socket failed
715	Handshake failed
716	Close socket failed
717	No network error
718	Send data timeout
719	CA missed

14.4 Unsolicited Result Codes

URC	Description
+HTTP_PEER_CLOSED	It's a notification message. When received, it means the connection has been closed by server.
+HTTP_NONET_EVENT[,cid]	It's a notification message. When received, it means now the network is unavailable. If using AT+HTTPINIT=<cid>to start HTTP, the URC carries the cid parameter

15 AT Commands for FTP(S)

15.1 Overview of AT Commands for FTP(S)

Command	Description
AT+CFTPSSTART	Start FTP(S) service
AT+CFTPSSSTOP	Stop FTP(S) service
AT+CFTPSSLCFG	Set the SSL context id for FTPS session
AT+CFTPSSINGLEIP	Set FTP(S) data socket address type
AT+CFTPSTYPE	Set the transfer type on FTP(S) server
AT+CFTPSMODE	Set Active or Passive FTP(S) Mode
AT+CFTPSLOGIN	Log in to a FTP(S) server
AT+CFTPSLOGOUT	Log out of the FTP(S) server
AT+CFTPSCWD	Change the current directory on FTP(S) server
AT+CFTPSPWD	Get the current directory on FTP(S) server
AT+CFTPSMKD	Create a new directory on FTP(S) server
AT+CFTP SRMD	Delete a directory on FTP(S) server
AT+CFTP SLIST	List the items in the directory on FTP(S) server
AT+CFTPSSIZE	Get the file size on FTP(S) server
AT+CFTPSDELE	Delete a file on FTP(S) server
AT+CFTPSGET	Transfer data from a file on FTP(S) server to module's serial port
AT+CFTPSPUT	Transfer data from module's serial port to a file on FTP(S) server
AT+CFTPSGETFILE	Download a file from FTP(S) server to module's file system
AT+CFTPSPUTFILE	Upload a file from module's file system to FTP(S) server
AT+CFTPSCFG	Set optional configuration for FTP(S)

15.2 Detailed Description of AT Commands for FTP(S)

15.2.1 AT+CFTPSSTART Start FTP(S) service

AT+CFTPSSTART is used to initiate the FTP(S) service by activating the PDP context. It is necessary to

execute AT+CFTPSSTART before performing any other FTP-related operations.

AT+CFTPSSTART Start FTP(S) service

Test Command AT+CFTPSSTART=?	Response <CR><LF> +CFTPSSTART: (1-n)<CR><LF> <CR><LF> OK<CR><LF>
Execute Command AT+CFTPSSTART	Response <CR><LF> OK/ERROR<CR><LF> <CR><LF> +CFTPSSTART: <err><CR><LF>
Write Command AT+CFTPSSTART=<cid>	Response <CR><LF> OK/ERROR<CR><LF> <CR><LF> +CFTPSSTART: <err>,<cid><CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	5000ms
Reference	

Defined Values

<err>	The result of start FTP(S) service, 0 is success, others are failure. Please refer to err list.
<cid>	A numeric parameter which specifies a particular PDP context. The range is 1-n. The maximum value n is related to the pdp command of the modem.

Examples

```

AT+CFTPSSTART
OK

+CFTPSSTART: 0
AT+CFTPSSTART=3
OK

+CFTPSSTART: 0,3
AT+CFTPSSTART=?
+CFTPSSTART: (1-n)

```

OK

15.2.2 AT+CFTPSSTOP Stop FTP(S) Service

AT+CFTPSSTOP is utilized to halt the FTP(S) service by deactivating the PDP context. This command should be used when FTP services are no longer required.

AT+CFTPSSTOP Stop FTP(S) Service

Test Command AT+CFTPSSTOP=?	Response <CR><LF> +CFTPSSTOP: (1-n) <CR><LF> <CR><LF> OK<CR><LF>
Execute Command AT+CFTPSSTOP	Response <CR><LF> OK/ERROR<CR><LF> <CR><LF> +CFTPSSTOP: <err><CR><LF>
Write Command AT+CFTPSSTOP=<cid>	Response <CR><LF> OK/ERROR<CR><LF> <CR><LF> +CFTPSSTOP: <err>,<cid><CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	5000ms
Reference	

Defined Values

<err>	The result of stop FTP(S) service, 0 is success, others are failure. Please refer to err list.
<cid>	A numeric parameter which specifies a particular PDP context. The range is 1-n. The maximum value n is related to the pdp command of the modem.

Examples

AT+CFTPSSTOP
OK

```
+CFTPSSTOP: 0
AT+CFTPSSTOP=3
OK

+CFTPSSTOP: 0,3
AT+CFTPSSTOP=?
+CFTPSSTOP: (1-n)

OK
```

15.2.3 AT+CFTPSSSLCFG Set the SSL context id for FTP(S) session

This command is used to establish the SSL context ID for the FTP(S) session. This instruction must be called after CFTPSSTART and before CFTPSLOGIN

AT+CFTPSSSLCFG Set the SSL context id for FTP(S) session

Test Command AT+CFTPSSSLCFG=?	Response <CR><LF> +CFTPSSSLCFG: (0,1),(0-9) <CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+CFTPSSSLCFG=<session_id>,<ssl_id>	Response <CR><LF> OK/ERROR <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	5000ms
Reference	

Defined Values

<session_id>	Numeric type; 0: for control session. 1: for data session.
<ssl_id>	Numeric type; SSL context ID within 0-9.

Examples

```
AT+CFTPSSSLCFG=?
+CFTPSSSLCFG: (0,1),(0-9)
```

OK

AT+CFTPSSSLCFG=0,1

OK

15.2.4 AT+CFTPSSINGLEIP Set FTP(S) data socket address type

This command is used to set IP address type of FTP(S) server's data socket. For some FTP(S) servers, it is needed to execute "AT+CFTPSSINGLEIP=1". Please make sure to execute AT+CFTPSSINGLEIP before executing AT+CFTPSLOGIN.

AT+CFTPSSINGLEIP Set FTP(S) data socket address type

Test Command AT+CFTPSSINGLEIP=?	Response <CR><LF> +CFTPSSINGLEIP: (0,1) <CR><LF> <CR><LF> OK <CR><LF>
Read Command AT+CFTPSSINGLEIP?	Response <CR><LF> +CFTPSSINGLEIP: <singleip> <CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+CFTPSSINGLEIP=<singleip> >	Response <CR><LF> OK/ERROR <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	5000ms
Reference	

Defined Values

<singleip>	The FTP(S) data socket IP address type: 0: decided by PORT response from FTP(S) server 1: the same as the control socket.
------------	---

Examples

AT+CFTPSSINGLEIP=?
+CFTPSSINGLEIP: (0,1)

OK

AT+CFTPSSINGLEIP?

+CFTPSSINGLEIP: 0

OK

AT+CFTPSSINGLEIP=0

OK

15.2.5 AT+CFTPSTYPE Set the transfer type on FTP(S) server

This command is utilized to configure the transfer type of the FTP(S) server. +CFTPSTYPE can be used either before or after logging into the FTP(S) server.

AT+CFTPSTYPE Set the transfer type on FTP(S) server

Test Command AT+CFTPSTYPE=?	Response <CR><LF> +CFTPSTYPE: (A,I)<CR><LF> <CR><LF> OK<CR><LF>
Read Command AT+CFTPSTYPE?	Response <CR><LF> +CFTPSTYPE: <type><CR><LF> <CR><LF> OK<CR><LF>
Write Command AT+CFTPSTYPE=<type>	Response <CR><LF> OK/ERROR<CR><LF>
URC	<CR><LF> +CFTPSTYPE: <err><CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	5000ms
Reference	

Defined Values

<type>	The type of transferring: A: ASCII I: Binary
<err>	The result of setting type; 0 for success, others for failure. Please refer to err list.

Examples

AT+CFTPSTYPE=?

+CFTPSTYPE: (A,I)

OK

AT+CFTPSTYPE?

+CFTPSTYPE: I

OK

AT+CFTPSTYPE=A

OK

+CFTPSTYPE: 0

15.2.6 AT+CFTPSPMODE Set Active or Passive FTP(S) Mode

This command enables the configuration of the FTP(S) server's transfer mode, allowing for selection between "active mode" and "passive mode" for FTP(S) services.

AT+CFTPSPMODE Set Active or Passive FTP(S) Mode

Test Command AT+CFTPSPMODE=?	Response <CR><LF> +CFTPSPMODE: (0,1)<CR><LF> <CR><LF> OK<CR><LF>
Read Command AT+CFTPSPMODE?	Response <CR><LF> +CFTPSPMODE: <mode><CR><LF> <CR><LF> OK<CR><LF>
Write Command AT+CFTPSPMODE=<mode>	Response 1) <CR><LF> OK/ERROR<CR><LF> 2) <CR><LF> +CFTPSPMODE: <err><CR><LF> <CR><LF> ERROR<CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	9000ms

Reference

Defined Values

<mode>	Numeric type: 0 Active FTP mode 1 Passive FTP mode
<err>	Error code, Please refer to err list.

Examples

```
AT+CFTPSMODE=?
+CFTPSMODE: (0,1)
```

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

```
OK
```

15.2.7 AT+CFTPSLOGIN Log in to a FTP(S) server

AT+CFTPSLOGIN is used to log in to a FTP(S) server, you can log in to a FTP server by setting the parameter <server_type> to 0, an implicit FTPS server by setting <server_type> to 3 and an explicit FTPS server by setting <server_type> to 1 or 2. About <server_type>, please refer to Defined Values <server_type> for more details.

AT+CFTPSLOGIN Log in to a FTP(S) server

Test Command AT+CFTPSLOGIN=?	Response <CR><LF> +CFTPSLOGIN: "ADDRESS",(1-65535),"USERNAME","PASSWORD"[(0-3)]<C R><LF> <CR><LF> OK<CR><LF>
Read Command AT+CFTPSLOGIN?	Response 1) <CR><LF>

	+CFTPSLOGIN: <status><CR><LF> <CR><LF> OK<CR><LF> 2) <CR><LF> ERROR<CR><LF>
Write Command AT+CFTPSLOGIN=<host>,<port>,<username>,<password>[<server_type>]	Response <CR><LF> OK/ERROR<CR><LF>
URC	<CR><LF> +CFTPSLOGIN: <err><CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	5000ms
Reference	

Defined Values

<host>	Host address, string type, maximum length is 256.
<port>	The listening port for FTP(S) host server, the range is from 1 to 65535.
<username>	FTP(S) user name, string type, maximum length is 128.
<password>	The user password, string type, maximum length is 128.
<server_type>	FTP(S)server type, numeric, from 0-3, default is 3: 0: FTP server. 1: Explicit FTPS server with AUTH SSL. 2: Explicit FTPS server with AUTH TLS. 3: Implicit FTPS server.
<status>	Numeric values indicating the FTP login status: 0: Not logged in 1: Logged in
<err>	The result code of the FTP/FTPS login; 0 is success, and others are failure. Please refer to err list.

Examples

```

AT+CFTPSLOGIN=?
+CFTPSLOGIN:
"ADDRESS",(1-65535),"USERNAME","PASSWORD"[,(0-3)]

OK

```

AT+CFTPSLOGIN?

+CFTPSLOGIN: 0

OK

AT+CFTPSLOGIN="serveraddr",21,"username","password",0

OK

+CFTPSLOGIN: 0

15.2.8 AT+CFTPSLOGOUT Log out of the FTP(S) server

AT+CFTPSLOGOUT is utilized to log out from the FTP(S) server. Prior to executing the AT+CFTPSLOGOUT command, ensure that you have logged in to a FTP(S) server.

AT+CFTPSLOGOUT Log out of the FTP(S) server

Test Command AT+CFTPSLOGOUT=?	Response <CR><LF> OK <CR><LF>
Execute Command AT+CFTPSLOGOUT	Response <CR><LF> OK/ERROR <CR><LF>
URC	<CR><LF> +CFTPSLOGOUT: <err> <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	5000ms
Reference	

Defined Values

<err>	The result code of the FTP/FTPS logout; 0 is success and others are failure, please refer to err list.
--------------------	--

Examples

AT+CFTPSLOGOUT=?

OK

AT+CFTPSLOGOUT

OK

+CFTPSLOGOUT: 0

NOTE

When you want to stop the FTP(S) service, please use AT+CFTPSLOGOUT to log out of the FTP(S) server, then use AT+CFTPSSTOP to stop FTP. If you only use AT+CFTPSSTOP, ERROR will be reported.

15.2.9 AT+CFTPSCWD Change the current directory on FTP(S) server

This command is used to modify the current directory on the FTP(S) server. Prior to using AT+CFTPSCWD, please ensure that you have successfully logged in to the FTP(S) server.

AT+CFTPSCWD Change the current directory on FTP(S) server

Test Command AT+CFTPSCWD=?	Response <CR><LF> +CFTPSCWD: "DIR" <CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+CFTPSCWD=<dir>	Response <CR><LF> OK/ERROR <CR><LF>
URC	<CR><LF> +CFTPSCWD: <err> <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	5000ms
Reference	

Defined Values

<dir>	The directory to be changed. String type, maximum length is 256.
<err>	The result of create directory. 0 is success, others are failure. Please refer to err list.

Examples

AT+CFTPSCWD=?
+CFTPSCWD: "DIR"

```
OK
AT+CFTPSCWD="test"
OK

+CFTPSCWD: 0
```

15.2.10 AT+CFTPSPWD Get the current directory on FTP(S) server

This command is employed to retrieve the current path on the FTP(S) server. Prior to utilizing AT+CFTPSPWD, ensure that you have successfully logged in to the FTP(S) server.

AT+CFTPSPWD Get the current directory on FTP(S) server

Test Command AT+CFTPSPWD=?	Response <CR><LF> +CFTPSPWD: "DIR" <CR><LF> <CR><LF> OK <CR><LF>
Execute Command AT+CFTPSPWD	Response <CR><LF> OK/ERROR <CR><LF>
URC	1) If OK <CR><LF> +CFTPSPWD: <dir> <CR><LF> 2) If ERROR <CR><LF> +CFTPSPWD: <err> <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	5000ms
Reference	

Defined Values

<dir>	The directory to be got, string type, maximum length is 256.
<err>	The result of creating directory. 0 is success, others are failure. Please refer to err list.

Examples

AT+CFTPSPWD

OK

+CFTPSPWD: "/"

AT+CFTPSPWD=?

+CFTPSPWD: "DIR"

OK

15.2.11 AT+CFTPSPMKD Create a new directory on FTP(S) server

AT+CFTPSPMKD is employed to create a new directory on the FTP server. Prior to creating the directory, please ensure that you have successfully logged in to the FTP server.

AT+CFTPSPMKD Create a new directory on FTP(S) server

Test Command AT+CFTPSPMKD=?	Response <CR><LF> +CFTPSPMKD: "DIR" <CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+CFTPSPMKD=<dir>	Response <CR><LF> OK/ERROR <CR><LF>
URC	<CR><LF> +CFTPSPMKD: <err> <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	5000ms
Reference	

Defined Values

<dir>	The directory to be created. String type, maximum length is 256.
<err>	The result code of creating directory. 0 is success, others are failure. Please refer to err list.

Examples

AT+CFTPSPMKD=?

+CFTPSPMKD: "DIR"

OK

AT+CFTPSMKD="test"

OK

+CFTPSMKD: 0

15.2.12 AT+CFTPSRMD Delete a directory on FTP(S) server

The directive AT+CFTPSRMD is utilized for erasing a directory on the FTP(S) server. Prior to removing the directory, kindly ensure that you have successfully logged in to the FTP(S) server.

AT+CFTPSRMD Delete a directory on FTP(S) server

Test Command AT+CFTPSRMD=?	Response <CR><LF> +CFTPSRMD: "DIR" <CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+CFTPSRMD=<dir>	Response <CR><LF> OK/ERROR <CR><LF>
URC	<CR><LF> +CFTPSRMD: <err> <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	5000ms
Reference	

Defined Values

<dir>	The directory to be deleted. String type, maximum length is 256.
<err>	The result code of create directory. 0 is success, others are failure. Please refer to err list.

Examples

AT+CFTPSRMD=?

+CFTPSRMD: "DIR"

OK

AT+CFTPSRMD="test"

OK

+CFTPSRMD: 0

15.2.13 AT+CFTPSLIST List the items in the directory on FTP(S) server

This command is utilized to enumerate the directory entries under the specified directory on the FTP(S) server. Upon successfully listing the entries, the module will output the entries to the serial port. Kindly ensure that you have logged in to the FTP server successfully beforehand.

AT+CFTPSLIST List the items in the directory on FTP(S) server

Test Command AT+CFTPSLIST=?	Response <CR><LF> OK <CR><LF>
Write Command AT+CFTPSLIST=<dir>	Response <CR><LF> OK/ERROR <CR><LF>
URC	1) <CR><LF> +CFTPSLIST: DATA,<len> <CR><LF> <DATA> <CR><LF> 2) <CR><LF> +CFTPSLIST: <err> <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	5000ms
Reference	

Defined Values

<dir>	The directory to be created, string type, maximum length is 256.
<err>	The result code of create directory; 0 is success, others are failure, Please refer to err list.
<len>	All files and related information in the directory from the server.

Examples

AT+CFTPSLIST=""

OK

+CFTPSLIST: DATA,175

-rw-r--r-- 1 ftp ftp 121 Mar 11 16:24 124.txt

```
drwxr-xr-x 1 ftp ftp      0 Jan 13 2020
TEST113
drwxr-xr-x 1 ftp ftp      0 Jan 19 2020
TEST1155
```

+CFTPSSLIST: 0

15.2.14 AT+CFTPSSIZE Get the file size on FTP(S) server

The command is employed to retrieve the size of files on the FTP(S) server. Prior to executing AT+CFTPSSIZE, please ensure that you have logged into the FTP(S) server.

AT+CFTPSSIZE Get the file size on FTP(S) server

Test Command AT+CFTPSSIZE=?	Response <CR><LF> +CFTPSSIZE: "PATHNAME" <CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+CFTPSSIZE=<pathname>	Response <CR><LF> OK/ERROR <CR><LF>
URC	<CR><LF> +CFTPSSIZE: <err>,<filesize> <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	5000ms
Reference	

Defined Values

<pathname>	String type; the file path on FTP(S) server, max length is 256.
<filesize>	Numeric type; size of the remotely located file on FTP(S) server.
<err>	The result of getting file size; 0 for success; others for failure. Please refer to err list.

Examples

```
AT+CFTPSSIZE=?
+CFTPSSIZE: " PATHNAME"
```

OK

AT+CFTPSSIZE="test"

OK

+CFTPSSIZE: 0,3

15.2.15 AT+CFTPSSDELE Delete a file on FTP(S) server

The command is utilized for deleting files on the FTP(S) server. Prior to deleting any files, please ensure that you have successfully logged into the FTP(S) server.

AT+CFTPSSDELE Delete a file on FTP(S) server

Test Command AT+CFTPSSDELE=?	Response <CR><LF> +CFTPSSDELE: "PATHNAME"<CR><LF> <CR><LF> OK<CR><LF>
Write Command AT+CFTPSSDELE=<pathname>	Response <CR><LF> OK/EROR<CR><LF>
URC	<CR><LF> +CFTPSSDELE: <err><CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	5000ms
Reference	

Defined Values

<pathname>	The name of the file to be deleted. String type, the maximum length is 256.
<err>	The result of create directory. 0 is success, others are failure. Please refer to err list.

Examples

AT+CFTPSSDELE=?

+CFTPSSDELE: "PATHNAME "

OK

AT+CFTPSSDELE="testfile"

OK

+CFTPSDELE: 0

15.2.16 AT+CFTPSGET Transfer data from a file on FTP(S) server to module's serial port

Utilize this command to transfer data from files on the FTP(S) server to the module's serial port.

AT+CFTPSGET Transfer data from a file on FTP(S) server to module's serial port

Test Command AT+CFTPSGET=?	Response <CR><LF> +CFTPSGET: "PATHNAME"[,<offset>[,<size>]] <CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+CFTPSGET=<pathname>[,<offset>[,<size>]]	Response <CR><LF> OK/ERROR <CR><LF>
URC	1) <CR><LF> +CFTPSGET: DATA,<len> <CR><LF> <DATA> <CR><LF> 2) <CR><LF> +CFTPSGET: <err> <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	5000ms
Reference	

Defined Values

<pathname>	The remote file path. String type, maximum length is 256.
<offset>	The numerical value denotes the file offset, with a default setting of 0. It functions concurrently for both the server and local file systems, primarily utilized for file resumption. Contingent upon server-side support for this feature. The offset must be less than the actual file size.
<size>	The numerical value represents the expected size of the data to be downloaded, with a default setting of 0. 0 indicates the entire file. If the size is larger than the size of the file, the download ends after the entire file is downloaded.

<len>	The length of the data from the server.
<err>	The result of downloading file from FTP(s) server; 0 for success, others for failure. Please refer to err list.

Examples

AT+CFTPSGET=?

+CFTPSGET: "PATHNAME"[,<offset>[,<size>]]

OK

AT+CFTPSGET="test.txt"

OK

+CFTPSGET: DATA,3

321

+CFTPSGET: 0

15.2.17 AT+CFTPSPUT Transfer data from module's serial port to a file on FTP(S) server

Transfer data from the module's serial port to a file on the FTP(S) server. Please ensure successful authentication on the FTP(S) server.

AT+CFTPSPUT Transfer data from module's serial port to a file on FTP(S) server

Test Command AT+CFTPSPUT=?	Response <CR><LF> +CFTPSPUT: "PATHNAME"[,<data_len>[,<offset>]]<CR><LF> <CR><LF> OK<CR><LF>
Write Command AT+CFTPSPUT=<pathname>[,<data_len>[,<offset>]]	Response 1) Prompt for input data. <CR><LF> ><CR><LF> 2) <CR><LF> OK/ERROR<CR><LF>
URC	<CR><LF> +CFTPSPUT: <err><CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	600000ms

Reference

Defined Values

<pathname>	String type; the remote file path. Maximum length is 256.
<data_len>	Numeric type; the length of the data to send and the maximum is 2048. If parameter <data_len> equals to 0 or is omitted, each <Ctrl+Z> character presented in the data flow of serial port when downloading FTP data will be coded as <ETX><Ctrl+Z>. Each <ETX> character will be coded as <ETX><ETX>. Single <Ctrl+Z> means the end of the FTP data flow. <ETX> is 0x03, and <Ctrl+Z> is 0x1A.
<offset>	Indicates the file offset on the server. The server must support this function.
<err>	Result of sending a file to the FTP server; 0 for success, others for failure. Please refer to err list.

Examples

```

AT+CFTPSPUT=?
+CFTPSPUT:
"PATHNAME"[,<data_len>[,<offset>]]

OK
AT+CFTPSPUT="test.txt",4
>
data
OK

+CFTPSPUT: 0

```

15.2.18 AT+CFTPGETFILE Download a file from FTP(S) server to module's file system

Downloading files from the FTP(S) server to the module allows for specifying the parameter to determine the directory for storing the downloaded files. By default, the downloaded files are preserved in local storage. Prior to executing AT+CFTPGETFILE, ensure successful authentication with the FTP server.

AT+CFTPGETFILE Download a file from FTP(S) server to module's file system

Test Command	Response
AT+CFTPGETFILE=?	<CR><LF>

	+CFTPSGETFILE: "PATHNAME"[,<locdir>,<offset>,<size>]]] <CR><LF> <CR><LF> OK <CR><LF>
Write Command	Response
AT+CFTPSGETFILE=<pathname>,<locdir>,<offset>,<size>]]]	<CR><LF> OK/ERROR <CR><LF> <CR><LF>
URC	+CFTPSGETFILE: <err> <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	5000ms
Reference	

Defined Values

<pathname>	File path in the server, relative path, absolute path are supported.
<locdir>	The local file is stored in the root directory of the local disk. The file name is the same as that of the remote file; defaults to 1(local storage): 1: C:/(local storage) 2: D:/(sd card) 100 FOTA (Save to FOTA partition) (Some modules are supported "D:/")
<offset>	File offset, the default is 0. It applies to both server and local files and is mainly used for file transfer. The server must support this function, offset must be smaller than the actual file size. FOTA does not support this parameter.
<size>	The desired data size, default is 0. 0 indicates the entire file. If the size is larger than the size of the file, the download ends after the entire file is downloaded. FOTA does not support this parameter.
<err>	The result code of download file from FTP(s) server. 0 is success, others are failure. Please refer to err list.

Examples

```

AT+CFTPSGETFILE=?
+CFTPSGETFILE:
"PATHNAME"[,<locdir>,<offset>,<size>]]]

OK
  
```

AT+CFTPGETFILE="test.txt",1

OK

+CFTPGETFILE: 0

15.2.19 AT+CFTPSPUTFILE Upload a file from module's file system to FTP(S) server

This command is utilized to upload files from a module to an FTP(S) server. By specifying the parameter, you can designate the directory where the file will be uploaded. Prior to executing AT+CFTPSPUTFILE, ensure successful login to the FTP(S) server has been established.

AT+CFTPSPUTFILE Upload a file from module's file system to FTP(S) server

Test Command AT+CFTPSPUTFILE=?	Response <CR><LF> +CFTPSPUTFILE: "PATHNAME"[,<dir>[,<offset>]] <CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+CFTPSPUTFILE=<pathname>[,<dir>[,<offset>]]	Response <CR><LF> OK/ERROR <CR><LF>
URC	<CR><LF> +CFTPSPUTFILE: <err> <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	5000ms
Reference	

Defined Values

<pathname>	String type; the remote file path. Maximum length is 256.
<locdir>	The local file is stored in the root directory of the local disk. The file name is the same as that of the remote file; defaults to 1(local storage). 1: C:/(local storage) 2: D:/(sd card)
<offset>	File offset, the default is 0. It applies to both server and local files and is mainly used for file transfer. The server must support this function, offset must be smaller than the actual file size.
<err>	The result code of downloading file from FTP(s) server. 0 is success,

others are failure. Please refer to err list.

Examples

AT+CFTPSPUTFILE=?

+CFTPSPUTFILE: "PATHNAME"[,<dir>[,<offset>]]

OK

AT+CFTPSPUTFILE="test.txt",1

OK

+CFTPSPUTFILE: 0

15.2.20 AT+CFTPSCFG Set optional configuration for FTP(S) (This command is currently not supported)

This command is used to set optional Settings for FTP(S). This command is in synchronous mode.

AT+CFTPSCFG Set optional configuration for FTP(S)

Test Command

AT+CFTPSCFG=?

Response

<CR><LF>

+CFTPSCFG: <config>,<value><CR><LF>

<CR><LF>

OK<CR><LF>

Read Command

AT+CFTPSCFG=<CMD>[,<arg1>]

Response

<CR><LF>

+CFTPSCFG: <CMD>,<arg1>[,<arg2>]<CR><LF>

...

<CR><LF>

OK/ERROR<CR><LF>

Write Command

AT+CFTPSCFG=<CMD>,<arg1>[,<arg2>]

Response

<CR><LF>

+CFTPSCFG: <err><CR><LF>

<CR><LF>

OK/ERROR<CR><LF>

Parameter Saving Mode

NO_SAVE

Max Response Time

5000ms

Reference

Defined Values

<CMD> (If the values of all optional parameters are set to null, it signifies a query.)	parameter	explain
cache-size	*Set the cache size of +CFTPSPUT's AT data receiving cache*	
	[arg1:size]	Value type, range 0-∞, affected by actual heap, Default 2K.
SSLCFG	*Set the SSL channel number for FTPS*	
	<arg1:session_id>	Value type, Number of the link to be set: 0: control link 1: data link
	[arg2:ssl_idx]	Value type, SSL channel number (0-n) The maximum value depends on the SSL module.
	Set the IP address source used by the data link	
singleip	[arg1:switch]	Value type, IP address source: 0: Use the address delivered by the server. If the connection fails, use the address of the control link. 1: The address delivered by the server is not applicable.
	Sets the type of data transmission for the data link	
type	[arg1:type]	Character type, Data transmission type of the data link: A: ASCII I: Binary
	Set the data link connection mode	
mode	[arg1:mode]	Value type, Mode of connection: 0: active mode 1: passive mode
	Set IPV4/6	
domain	[arg1:type]	Type of IP: 0: Automatic, IPV4 is preferred 1: IPV4 2: IPV6

Examples

NULL

15.3 Command Result Codes

15.3.1 Description of <err>

<err>	Description
0	Success
1	SSL alert
2	Unknown error
3	Busy
4	Connection closed by server
5	Timeout
6	Transfer error
7	File not existing or any other memory errors
8	Invalid parameter
9	Operation rejected by server
10	Network error
11	State related error
12	Parsing server name error
13	Creating socket error
14	Connecting socket error
15	Closing socket error
16	SSL session closed
17	File error, file not existing or other errors.
421	Server responding connection timed out. After receiving error code 421, you need to execute AT+CFTPSLOGOUT to log out of the server then execute AT+CFTPSLOGIN again for further operations.

15.4 Unsolicited Result codes

Unsolicited codes	Description
-------------------	-------------

+CFTPSNOTIFY: PEER CLOSED	When client is disconnected passively, URC "+CFTPSNOTIFY: PEER CLOSED" will be reported, then user need to execute AT+CFTPSLOGOUT and log in again.
+CFTPSNOTIFY: FTPS DISCONNECT	During when FTP client and FTP server has made a connection, disconnecting will result in reporting the "+CFTPSNOTIFY: FTPS DISCONNECT" URC, then user need to execute AT+CFTPSTART and log in again.

15.5 Timeout processing

During the data processing, if the data mode/edit mode times out, the data channel will be closed directly and an error will be marked. The AT command will return an ERROR, and the data that has been input will be sent to the server in real-time. In general, the closing action will be recognized by the server as the end of file transmission and the file will be saved normally. The module end does not require any special treatment. In this case, the user can continue to perform breakpoint transmission based on the uploaded part of the file, or manually delete the problematic file.

During the data processing, if the command mode times out, the ongoing data processing will be interrupted and the AT command will return an ERROR. The FTP(S) protocol stack will enter the process of waiting for the server return code. Subsequent commands can only be executed after the server return code is received.

For other commands, if the timeout occurs, the AT command will return an ERROR. However, the FTP(S) protocol stack may still be executing the command internally. This is because after the client sends the command to the server, it needs to wait for the server's return code. This process is affected by the server and network quality and cannot be unilaterally terminated. In this case, subsequent AT commands must be executed only after the FTP(S) protocol stack is completely idle.

16 AT Commands for MQTT(S)

16.1 Overview of AT Commands for MQTT(S)

Command	Description
AT+CMQTTSTART	Start MQTT service
AT+CMQTTSTOP	Stop MQTT service
AT+CMQTTACCQ	Acquire a client
AT+CMQTTREL	Release a client
AT+CMQTTSSLCFG	Set the SSL context (only for SSL/TLS MQTT)
AT+CMQTTWILLTOPIC	Input the topic of will message
AT+CMQTTWILLMSG	Input the will message
AT+CMQTTWILL	Set up mqtt wills
AT+CMQTTCONNECT	Connect to MQTT server
AT+CMQTTDISC	Disconnect from server
AT+CMQTTTOPIC	Input the topic of publish message
AT+CMQTTPAYLOAD	Input the publish message
AT+CMQTTPUB	Publish a message to server
AT+CMQTTSUBTOPIC	Input the topic of subscribe message
AT+CMQTTSUB	Subscribe a message to server
AT+CMQTTUNSUBTOPIC	Input the topic of unsubscribe message
AT+CMQTTUNSUB	Unsubscribe a message to server
AT+CMQTTAUTH	Sent the MQTT authentication packet
AT+CMQTTCFG	Configure the MQTT Context
AT+CMQTTQUICKCONNECT	Quickly connect to the cloud platform with one click

16.2 Detailed Description of AT Commands for MQTT(S)

16.2.1 AT+CMQTTSTART Start MQTT service

AT+CMQTTSTART is used to initiate the MQTT service by activating the PDP context. It is necessary to

execute this command before performing any other MQTT-related operations.

AT+CMQTTSTART Start MQTT service

Test Command AT+CMQTTSTART=?	Response <CR><LF> +CMQTTSTART: (1-n) <CR><LF> <CR><LF> OK<CR><LF>
Execute Command AT+CMQTTSTART	Response <CR><LF> OK/ERROR<CR><LF> <CR><LF> +CMQTTSTART: <err><CR><LF>
Write Command AT+CMQTTSTART=<cid>	Response <CR><LF> OK/ERROR<CR><LF> <CR><LF> +CMQTTSTART: <err>,<cid><CR><LF>
Max Response Time	12000ms
Parameter Saving Mode	-
Reference	

Defined Values

<cid>	A numeric parameter which specifies a particular PDP context. The range is 1-n. The maximum value n is related to the pdp command of the modem.
<err>	The result code, please refer to Chapter 16.3.

Examples

AT+CMQTTSTART

OK

+CMQTTSTART: 0

NOTE

The command AT+CMQTTSTART is used to initiate the MQTT service by activating the PDP context. It is necessary to execute this command before performing any other MQTT-related operations.

16.2.2 AT+CMQTTSTOP Stop MQTT service

AT+CMQTTSTOP is used to stop MQTT service.

AT+CMQTTSTOP Stop MQTT service

Test Command AT+CMQTTSTOP=?	Response <CR><LF> +CMQTTSTOP: (1-n) <CR><LF> <CR><LF> OK<CR><LF>
Execute Command AT+CMQTTSTOP	Response <CR><LF> OK/ERROR<CR><LF>
Write Command AT+CMQTTSTOP=<cid>	Response <CR><LF> OK/ERROR<CR><LF> <CR><LF> +CMQTTSTOP: <err>,<cid><CR><LF>
Max Response Time	12000ms
Parameter Saving Mode	-
Reference	

Defined Values

<cid>	A numeric parameter which specifies a particular PDP context. The range is 1-n. The maximum value n is related to the pdp command of the modem.
<err>	The result code, please refer to chapter 16.3.

Examples

AT+CMQTTSTOP

OK

+CMQTTSTOP: 0

NOTE

The AT+CMQTTSTOP command is utilized to halt the MQTT service. It can be executed after the AT+CMQTTDISC and AT+CMQTTREL commands have been performed.

16.2.3 AT+CMQTTACCQ Acquire a client

AT+CMQTTACCQ is used to acquire a MQTT client. It must be called before all commands about MQTT connect and after AT+CMQTTSTART.

AT+CMQTTACCQ Acquire a client

Test Command AT+CMQTTACCQ=?	Response <CR><LF> +CMQTTACCQ: (0-n),(1-128)[,(0-1)] <CR><LF> <CR><LF> OK <CR><LF>
Read Command AT+CMQTTACCQ?	Response <CR><LF> +CMQTTACCQ: <idx>,<clientID>,<server_type> <CR><LF> ... <CR><LF> OK <CR><LF>
Write Command AT+CMQTTACCQ=<client_idx>,<clientID>[<server_type>][,<version>]	Response 1) <CR><LF> OK <CR><LF> 2) <CR><LF> +CMQTTACCQ: <idx>,<err> <CR><LF> <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<idx>	A numeric parameter that identifies a client. The range of permitted values is 0 to n.
<clientID>	The UTF-encoded string. It specifies a unique identifier for the client. The string length is from 1 to 128 bytes.

<server_type>	A numeric parameter that identifies the server type. The default value is 0: 0: MQTT server with TCP 1: MQTT server with SSL/TLS
<version>	Value type, protocol version (3-5) 3: MQTT 3.1 4: MQTT3.1.1 5: MQTT5.0
<err>	The result code, please refer to chapter 16.3.

Examples

```

AT+CMQTTACCQ=0,"a12mmmm",0
OK
AT+CMQTTACCQ?
+CMQTTACCQ: 0,"a12mmmm",0
+CMQTTACCQ: 1,"",0

OK
AT+CMQTTACCQ=?
+CMQTTACCQ: (0-n),(1-128)[,(0-1)]

OK

```

16.2.4 AT+CMQTTREL Release a client

AT+CMQTTREL is used to release a MQTT client. It must be called after AT+CMQTTDISC and before AT+CMQTTSTOP.

AT+CMQTTREL Release a client

Test Command AT+CMQTTREL=?	Response <CR><LF> +CMQTTREL: (0-n)<CR><LF> <CR><LF> OK<CR><LF>
Read Command AT+CMQTTREL?	Response <CR><LF> OK/ERROR<CR><LF>
Write Command AT+CMQTTREL=<idx>	Response 1) <CR><LF>

	OK <CR><LF> 2) <CR><LF> +CMQTTREL: <idx>,<err> <CR><LF> <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<idx>	A numeric parameter that identifies a client. The range of permitted values is 0 to n.
<err>	The result code, please refer to chapter 16.3.

Examples

AT+CMQTTREL=?
+CMQTTREL: (0-n)

OK

AT+CMQTTREL=0

OK

AT+CMQTTREL?

OK

16.2.5 AT+CMQTTSSLCFG Set the SSL context (only for SSL/TLS MQTT)

AT+CMQTTSSLCFG is used to set the SSL context which to be used in the SSL connection when it will connect to a SSL/TLS MQTT server. It must be called before AT+CMQTTCONNECT and after AT+CMQTTSTART. The setting will be cleared after AT+CMQTTCONNECT failed or AT+CMQTTDISC.

AT+CMQTTSSLCFG Set the SSL context (only for SSL/TLS MQTT)

Test Command	Response <CR><LF> +CMQTTSSLCFG: (0-n), (0-9) <CR><LF> <CR><LF> OK <CR><LF>
AT+CMQTTSSLCFG=?	

Read Command AT+CMQTTSSLCFG?	Response <CR><LF> +CMQTTSSLCFG: <idx>[,<ssl_idx>] <CR><LF> ... <CR><LF> OK <CR><LF>
Write Command AT+CMQTTSSLCFG=<idx>,<ssl_idx>	Response <CR><LF> OK/ERROR <CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	-

Defined Values

<idx>	A numeric parameter that identifies a client. The range of permitted values is 0 to n.
<ssl_idx>	Value type. The SSL context ID which will be used in the SSL connection. Refer to the <ssl_ctx_index> of AT+CSSLCFG.

Examples

AT+CMQTTSSLCFG?

+CMQTTSSLCFG: 0,0

+CMQTTSSLCFG: 1,0

OK

AT+CMQTTSSLCFG=?

+CMQTTSSLCFG: (0-n),(0-9)

OK

AT+CMQTTSSLCFG=0,1

OK

16.2.6 AT+CMQTTWILLTOPIC Input the topic of will message

AT+CMQTTWILLTOPIC is used to input the topic of will message.

AT+CMQTTWILLTOPIC Input the topic of will message

Test Command	Response
--------------	----------

AT+CMQTTWILLTOPIC=?	<CR><LF> +CMQTTWILLTOPIC: (0-n),(1-1024)[,topic]<CR><LF> <CR><LF> OK<CR><LF>
Write Command AT+CMQTTWILLTOPIC=<idx>[,<length>][,<checksum>][,<topic>]	Response 1) Prompt for input data. <CR><LF> ><CR><LF> 2) <CR><LF> OK <CR><LF> 3) <CR><LF> +CMQTTWILLTOPIC: <idx>,<err><CR><LF> <CR><LF> ERROR<CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<idx>	A numeric parameter that identifies a client. The range of permitted values is 0 to n.
<length>	The length of input topic. The will topic should be UTF-encoded string. The range is from 1 to 1024 bytes. If the topic parameter is not used, this parameter is required. If the topic parameter is used, it is invalid and can be filled or not. If this argument is omitted, the comma must be retained, that is, there must be two commas between the idx and topic arguments.
<checksum>	Reserved parameter
<topic>	String, CMD directly input the will subject. (The value must be a valid ASCII string)
<err>	The result code, please refer to chapter 16.3

Examples

AT+CMQTTWILLTOPIC=0,10

>

OK

16.2.7 AT+CMQTTWILLMSG Input the will message

AT+CMQTTWILLMSG is used to input the message body of will message.

AT+CMQTTWILLMSG Input the will message

Test Command AT+CMQTTWILLMSG=?	Response <CR><LF> +CMQTTWILLMSG: (0-n),(0-1024),(0-2)[,payload]<CR><LF> <CR><LF> OK<CR><LF>
Write Command AT+CMQTTWILLMSG=<idx>,[<length>],[<qos>],[<checksum>],[<retained>],[<payload>]	Response 1) Prompt for input data. <CR><LF> ><CR><LF> 2) <CR><LF> OK <CR><LF> 3) <CR><LF> +CMQTTWILLMSG: <idx>,<err><CR><LF> <CR><LF> ERROR<CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<idx>	A numeric parameter that identifies a client. The range of permitted values is 0 to n.
<length>	The length of input data. The will message should be UTF-encoded string. The range is from 0 to 1024 bytes. This parameter is required if the payload parameter is not used. If the payload parameter is used, it is invalid. This parameter can be filled or not. If this parameter is omitted, the comma must be retained, that is, there must be two commas between the idx and qos parameters.
<qos>	The publish message's qos. The range is from 0 to 2: 0: at most once 1: at least once 2: exactly once
<checksum>	Reserved parameter.
<retained>	Value, Whether to retain the will.

	0: Do not retain 1: Retain
<payload>	String, CMD directly input the will message. (The value must be a valid ASCII string)
<err>	The result code, please refer to chapter 16.3.

Examples

AT+CMQTTWILLMSG=0,6,1

>

OK

16.2.8 AT+CMQTTWILL Set up MQTT wills

AT+CMQTTCONNECT is used to set up MQTT wills. It is a combination of CMQTTWILLTOPIC and CMQTTWILLMSG.

AT+CMQTTWILL Set up MQTT wills

Test Command AT+CMQTTWILL=?	Response <CR><LF> +CMQTTWILL: (0-n),(0-1024),(0-2)[,payload] <CR><LF> <CR><LF> OK<CR><LF>
Write Command AT+CMQTTWILL=<idx>,<topic>[,<payload>][,<payload_len>],<qos>[,<retained>][,<topic_checksum>,<payload_checksum>]	Response 1) Prompt for input data. <CR><LF> ><CR><LF> 2) <CR><LF> OK <CR><LF> 3) <CR><LF> +CMQTTWILL: <idx>,<err><CR><LF> <CR><LF> ERROR<CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<idx>	A numeric parameter that identifies a client. The range of permitted values is 0 to n.
<topic>	String, CMD directly input the will subject. (The value must be a valid ASCII string)
<payload>	String, CMD directly input the will message. (The value must be a valid ASCII string)
<payload_len>	Value type, the length of the payload
<qos>	The publish message's qos. The range is from 0 to 2: 0: at most once 1: at least once 2: exactly once
<retained>	Value, Whether to retain the will. 0: Do not retain 1: Retain
<topic_checksum>	Reserved parameter.
<payload_checksum>	Reserved parameter.
<err>	The result code, please refer to chapter 16.3.

Examples

16.2.9 AT+CMQTTCONNECT Connect to MQTT server

AT+CMQTTCONNECT is used to connect to a MQTT server.

AT+CMQTTCONNECT Connect to MQTT server

Test Command AT+CMQTTCONNECT=?	Response <CR><LF> +CMQTTCONNECT: (0-n),(9-256),(1-64800),(0-1)[,<user_name>,<pass_word>]<CR><LF> <CR><LF> OK <CR><LF>
Read Command AT+CMQTTCONNECT?	Response <CR><LF> +CMQTTCONNECT: <idx>[,<server_addr>,<keepalive_time>,<clean_session>[,<user

	_name>[,<pass_word>]]<CR><LF> ... <CR><LF> OK <CR><LF>
Write Command	Response
AT+CMQTTCONNECT=<idx>,<server_addr>,<keepalive_time>,<clean_session>[,<user_name>[,<pass_word>]]	<CR><LF> OK/ERROR <CR><LF>
URC	1) Standard mode <CR><LF> +CMQTTCONNECT: <idx>,<err> <CR><LF> 2) Enhanced Mode <CR><LF> +CMQTTCONNECT: <idx>,<err>[,<result_code>,<SP>,<addition>] <CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<idx>	A numeric parameter that identifies a client. The range of permitted values is 0 to n.
<server_addr>	The string that described the server address and port. The range of the string length is 9 to 256 bytes. The string should be like this "tcp://116.247.119.165:5141". If the <server_addr> not include the port, the default port is 1883.
<keepalive_time>	The time interval between two messages received from a client. The client will send a keep-alive packet when there is no message sent to server after song long time. The range is from 1s to 64800s (18 hours).
<clean_session>	The clean session flag. The value range is from 0 to 1, and default value is 0. 0: the server must store the subscriptions of the client after it disconnected. This includes continuing to store QoS 1 and QoS 2 messages for the subscribed topics so that they can be delivered when the client reconnects. The server must also maintain the state of in-flight messages being delivered at the point the connection is lost. This information must be kept until the client reconnects. 1: the server must discard any previously maintained information about the client and treat the connection as "clean". The server

	must also discard any state when the client disconnects.
<user_name>	The user name identifies the name of the user which can be used for authentication when connecting to server. The string length is from 1 to 256 bytes.
<pass_word>	The password corresponding to the user which can be used for authentication when connecting to server. The string length is from 1 to 256 bytes.
<err>	The result code, please refer to chapter 16.3.
<result_code>	Cause code returned by the server. For details, see Cause Codes.
<SP>	Value type: Whether the server has historical sessions. 0: not exist 1: exist
<addition>	Value type, whether to carry additional reports. 0: No additional reports are carried 1: Carry additional report

Examples

```
AT+CMQTTCONNECT=0,"tcp://120.27.2.154:1883",20,1
OK
```

```
+CMQTTCONNECT: 0,0
AT+CMQTTCONNECT?
+CMQTTCONNECT: 0,"tcp://120.27.2.154:1883",20,1
+CMQTTCONNECT: 1
OK
```

NOTE

The AT+CMQTTCONNECT command is used to establish a connection with an MQTT server. If an SSL/TLS MQTT server is being connected to via AT+CMQTTCONNECT and an SSL context has not been set via AT+CMQTTSSLCFG prior to the connection attempt, then the SSL context used when connecting to the server will be the one associated with the <client_index> parameter (the first parameter of AT+CMQTTCONNECT).

16.2.10 AT+CMQTTDISC Disconnect from server

AT+CMQTTDISC is used to disconnect from the server.

AT+CMQTTDISC Disconnect from server

Test Command AT+CMQTTDISC=?	Response: <CR><LF> +CMQTTDISC: (0-n),(0-180) <CR><LF> <CR><LF> OK <CR><LF>
Read Command AT+CMQTTDISC?	Response: <CR><LF> +CMQTTDISC: <idx>,<disc_state> <CR><LF> ... <CR><LF> OK <CR><LF>
Write Command AT+CMQTTDISC=<idx>[,<timeout>]	Response <CR><LF> OK/ERROR <CR><LF>
URC	1) Standard mode <CR><LF> +CMQTTDISC: <idx>,<err> <CR><LF> 2) Enhanced Mode <CR><LF> +CMQTTDISC: <idx>,<err>,<addition> <CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<idx>	A numeric parameter that identifies a client. The range of permitted values is 0 to n.
<timeout>	The timeout value for disconnection. The unit is second. The range is 0s to 180s. The default value is 0s (not set the timeout value).
<disc_state>	Value type, Whether it is disconnected: 1: disconnection 0: connection
<err>	The result code, please refer to chapter 16.3.
<addition>	Value type, whether to carry additional reports 0: No additional reports are carried 1: Carry additional report

Examples

AT+CMQTTDISC=0,120

OK

+CMQTTDISC: 0,0

16.2.11 AT+CMQTTTOPIC Input the topic of publish message

AT+CMQTTTOPIC is used to input the topic of a publish message.

AT+CMQTTTOPIC Input the topic of publish message

Test Command AT+CMQTTTOPIC=?	Response <CR><LF> +CMQTTTOPIC: (0-n),(0-1024)[,topic]<CR><LF> <CR><LF> OK<CR><LF>
Write Command AT++CMQTTTOPIC=<idx>,<length>[,<checksum>[,<topic>]]	Response 1) Prompt for input data. <CR><LF> ><CR><LF>
URC	1) <CR><LF> OK <CR><LF> 2) <CR><LF> +CMQTTTOPIC: <idx>,<err><CR><LF> <CR><LF> ERROR<CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<idx>	A numeric parameter that identifies a client. The range of permitted values is 0 to n.
<length>	The length of input topic data. The publish message topic should be UTF-encoded string. The range is from 0 to 1024 bytes. This parameter is required if the topic parameter is not used. If the topic parameter is used, it is invalid and can be filled or not. If this argument is omitted, the comma must be retained, that is, there must be two commas between the idx and topic arguments.

<checksum>	Reserved parameter.
<topic>	String, CMD directly enter the topic. (The value must be a valid ASCII string)
<err>	The result code, please refer to chapter 16.3.

Examples

AT+CMQTTTOPIC=0,9

>

OK

NOTE

The topic will be clean after execute AT+CMQTTTTPUB.

16.2.12 AT+CMQTTPAYLOAD Input the publish message

AT+CMQTTPAYLOAD is used to input the message body of a publish message.

AT+CMQTTPAYLOAD Input the publish message

Test Command AT+CMQTTPAYLOAD=?	Response <CR><LF> +CMQTTPAYLOAD: (0-n),(0-10240)[,payload]<CR><LF> <CR><LF> OK<CR><LF>
Write Command AT+CMQTTPAYLOAD=<idx>,[<length>][,<checksum>][,<payload>]	Response 1) Prompt for input data <CR><LF> ><CR><LF>
URC	1) <CR><LF> OK <CR><LF> 2) <CR><LF> +CMQTTPAYLOAD: <idx>,<err><CR><LF> <CR><LF> ERROR<CR><LF>
Parameter Saving Mode	-

Max Response Time	-
Reference	

Defined Values

<idx>	A numeric parameter that identifies a client. The range of permitted values is 0 to n.
<length>	The length of input message data. The publish message should be UTF-encoded string. The range is from 0 to 10240 bytes. This parameter is required if the payload parameter is not used. If the payload parameter is used, it is invalid. This parameter can be filled or not. If this argument is omitted, the comma must be reserved, that is, there must be two commas between the idx and payload arguments.
<checksum>	Reserved parameter.
<payload>	String, CMD directly input entity. (The value must be a valid ASCII string)
<err>	The result code, please refer to chapter 16.3.

Examples

```
AT+CMQTTPAYLOAD=0,6
```

```
>
```

```
OK
```

NOTE

The topic will be clean after execute AT+CMQTTTPUB.

16.2.13 AT+CMQTTTPUB Publish a message to server

AT+CMQTTTPUB is used to publish a message to MQTT server.

AT+CMQTTTPUB Publish a message to server

Test Command	Response
AT+CMQTTTPUB=?	<CR><LF> +CMQTTTPUB: (0-n),(0-2),(1-180),(0-1),(0-1)<CR><LF>

Write Command AT+CMQTTTTPUB=<idx>,<qos>,<timeout>[,<retained>[,<dup>]][,<topic>[,<payload>,<payload_len>]][,<topic_checksum>,<payload_checksum>]	<CR><LF> OK<CR><LF> Response 1) Standard mode <CR><LF> OK/ERROR<CR><LF> 2) Enhanced Mode <CR><LF> +CMQTTTTPUB: <err>,<uid><CR><LF> <CR><LF> OK/ERROR<CR><LF>
URC	1) Standard mode <CR><LF> +CMQTTTTPUB: <idx>,<err><CR><LF> 2) Enhanced Mode <CR><LF> +CMQTTTTPUB: <idx>,<err>[,<uid>,<result_code>,<addition>]<CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	-

Defined Values

<idx>	A numeric parameter that identifies a client. The range of permitted values is 0 to n.
<qos>	The publish message's qos. The range is from 0 to 2: 0: at most once 1: at least once 2: exactly once
<timeout>	The publishing timeout interval value. Since the client publish a message to server, it will report failed if the client receive no response from server after the timeout value seconds. The range is from 1s to 180s.
<retained>	The retain flag of the publish message. The value is 0 or 1. The default value is 0: 0: not reserved 1: Reserved, the server retains the last published state of the theme, and the client can receive push after it is published
<dup>	The dup flag to the message. The value is 0 or 1. The default value is 0. The flag is set when the client or server attempts to re-deliver a message.

<payload>	String, the payload of the message. payload_len is invalid when this parameter is passed
<payload_len>	Value, length of payload in data mode. This parameter takes effect only when payload is omitted
<topic_checksum>	Reserved parameter.
<payload_checksum>	Reserved parameter.
<err>	The result code, please refer to chapter 16.3.
<uid>	Unique identification.
<result_code>	Cause code returned by the server. For details, see Cause Codes.
<addition>	Value type, whether to carry additional reports. 0: No additional reports are carried 1: Carry additional report

Examples

```
AT+CMQTTPUB=0,1,60
```

```
OK
```

```
+CMQTTPUB: 0,0
```

NOTE

The topic and payload will be clean after execute AT+CMQTTPUB.

16.2.14 AT+CMQTTSUBTOPIC Input the topic of subscribe message

AT+CMQTTSUBTOPIC is used to input the topic of a subscribe message.

AT+CMQTTSUBTOPIC Subscribe a message to server

Test Command AT+CMQTTSUBTOPIC=?	Response <CR><LF> +CMQTTSUBTOPIC: (0-n),(0-1024),(0-2)[,topic]<CR><LF> <CR><LF> OK<CR><LF>
Write Command AT+CMQTTSUBTOPIC=<idx>,<length>,<qos>,<recvmode/checksum>,<topic>,<addition>	Response 1) Prompt for input data <CR><LF> ><CR><LF>

RAP>[,<NL>]	2) <CR><LF> OK<CR><LF> 3) <CR><LF> +CMQTTSUBTOPIC: <idx>,<err><CR><LF> <CR><LF> ERROR<CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	-

Defined Values

<idx>	A numeric parameter that identifies a client. The range of permitted values is 0 to n.
<length>	Value type, data mode When passed into the topic, specify the data length, (0-1024) bytes. If length equal to 0 or omitted, and topic omitted. Indicates that the cached topic is cleared. If the topic parameter is used, it is invalid and can be filled or not. If this parameter is omitted, the comma must be retained, that is, there must be two commas between the idx and qos parameters.
<qos>	The publish message's qos. The range is from 0 to 2: 0: at most once 1: at least once 2: exactly once
<recvmode>	Reserved parameter.
<checksum>	Reserved parameter.
<topic>	String, CMD directly enter the topic. (The value must be a valid ASCII string)
<RAP>	Value type, published reserved (0-1), only MQTT 5.0 is supported.
<NL>	Value type, non-local (0-1), only MQTT 5.0 is supported.
<err>	The result code, please refer to chapter 16.3.

Examples

AT+CMQTTSUBTOPIC=0,9,1

>

OK

NOTE

- 1.The topic will be clean after execute AT+CMQTTSUB.
- 2.Length=0 or omitted, and topic omitted. Indicates clearing cached themes.

16.2.15 AT+CMQTTSUB Subscribe a message to server

AT+CMQTTSUB is used to subscribe a message to MQTT server.

AT+CMQTTSUB Subscribe a message to server

Test Command AT+CMQTTSUB=?	Response <CR><LF> +CMQTTSUB: (0-n),(0-1024),(0-2),(0-1)[,topic]<CR><LF> <CR><LF> OK<CR><LF>
Read Command AT+CMQTTSUB?	Response 1) Standard mode <CR><LF> +CMQTTSUB:<CR><LF> [<topic><CR><LF>] [...] <CR><LF> OK<CR><LF> 2) Enhanced Mode <CR><LF> +CMQTTSUB:<CR><LF> [<idx>,<topic><CR><LF>] [...] <CR><LF> OK<CR><LF>
Write Command /*subscribe one or more topics which input by AT+CMQTTSUBTOPIC*/ AT+CMQTTSUB=<idx>[,<dup>]	Response 1) Standard mode <CR><LF> OK/ERROR<CR><LF> 2) Enhanced Mode <CR><LF> +CMQTTSUB: <err>,<uid><CR><LF> <CR><LF> OK/ERROR<CR><LF>
Write Command /*subscribe one topic*/ AT+CMQTTSUB=<idx>[,<length>],<qos>[,<dup>],<check>	Response 1) Prompt for input data <CR><LF> ><CR><LF>

ksum>][,topic][,<RAP>][,<NL>]	2) Standard mode <CR><LF> OK/ERROR <CR><LF> 3) Enhanced Mode <CR><LF> +CMQTTSUB: <err>,<uid> <CR><LF> <CR><LF> OK/ERROR <CR><LF>
URC	1) Standard mode <CR><LF> +CMQTTSUB: <idx>,<err> <CR><LF> 2) Enhanced Mode <CR><LF> +CMQTTSUB: <idx>,<err>[,<uid>,<addition>] <CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	-

Defined Values

<idx>	A numeric parameter that identifies a client. The range of permitted values is 0 to n.
<length>	Value type, data mode When passed into the topic, specify the data length, (0-1024) bytes. This parameter is required if the topic parameter is not used. If the topic parameter is used, it is invalid and can be filled or not. If this parameter is omitted, the comma must be retained, that is, there must be two commas between the idx and qos parameters.
<qos>	The publish message's qos. The range is from 0 to 2: 0: at most once 1: at least once 2: exactly once
<dup>	Value type, message dup flag. The range is from 0 to <u>1</u> . This flag is set when a server or client attempts to redeliver a message.
<topic>	String, CMD directly enter the topic. (The value must be a valid ASCII string)
<RAP>	Value type, published reserved (<u>0</u> -1), only MQTT 5.0 is supported.
<NL>	Value type, non-local (<u>0</u> -1), only MQTT 5.0 is supported.
<err>	The result code, please refer to chapter 16.3.
<uid>	Unique identification.
<addition>	Value type, whether to carry additional reports. <u>0</u> : No additional reports are carried

1: Carry additional report

Examples

AT+CMQTTSUB=0,9,1

>

OK

+CMQTTSUB: 0,0

AT+CMQTTSUB=0,1

OK

+CMQTTSUB: 0,0

NOTE

1. The topic will be clean after execute AT+CMQTTSUB.
2. When the topic is greater than or equal to 128 bytes, the module's local cache only retains the first 124 bits and uses "...\\0" Ending, The locally cached topic is only used for display during AT queries and has no other purpose, and cache up to 10 topics, with more than 10 topics covering the earliest cache in sequence.

16.2.16 AT+CMQTTUNSUBTOPIC Input the topic of unsubscribe message

AT+CMQTTUNSUBTOPIC is used to input the topic of a unsubscribe message.

AT+CMQTTUNSUBTOPIC Input the topic of unsubscribe message

Test Command AT+CMQTTUNSUBTOPIC=?	Response <CR><LF> +CMQTTUNSUBTOPIC: (0-n),(0-1024)[,topic]<CR><LF> <CR><LF> OK<CR><LF>
--	---

Write Command AT+CMQTTUNSUBTOPIC=<idx>,[<length>][,<checksum>][,<topic>]	Response 1) Prompt for input data <CR><LF> ><CR><LF> 2) <CR><LF> OK<CR><LF> 3) <CR><LF>
---	---

	+CMQTTUNSUBTOPIC: <idx>,<err><CR><LF> <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	-

Defined Values

<idx>	A numeric parameter that identifies a client. The range of permitted values is 0 to n.
<length>	Value type, data mode When passed into the topic, specify the data length, (0-1024) bytes. If length equal to 0 or omitted, and topic omitted. Indicates that the cached topic is cleared. If the topic parameter is used, it is invalid and can be filled or not. If this parameter is omitted, the comma must be retained, that is, there must be two commas between the idx and checksum parameters.
<checksum>	Reserved parameter.
<topic>	String, CMD directly enter the topic. (The value must be a valid ASCII string)
<err>	The result code, please refer to chapter 16.3.

Examples

AT+CMQTTUNSUBTOPIC=0,9

>

OK

NOTE

- 1.The topic will be clean after execute AT+CMQTTSUB.
- 2.Length=0 or omitted, and topic omitted. Indicates clearing cached themes.

16.2.17 AT+CMQTTUNSUB Unsubscribe a message to server

AT+CMQTTUNSUB is used to unsubscribe a message to MQTT server.

AT+CMQTTUNSUB Unsubscribe a message to server

Test Command AT+CMQTTUNSUB=?	Response <CR><LF> +CMQTTUNSUB: (0-n),(0-1024),(0-1)[,topic]<CR><LF> <CR><LF> OK<CR><LF>
Write Command /* unsubscribe one or more topics which input by AT+CMQTTUNSUBTOPIC*/ AT+CMQTTUNSUB=<idx>[,<dup>]	Response 1) Standard mode <CR><LF> OK/ERROR<CR><LF> 2) Enhanced Mode <CR><LF> +CMQTTUNSUB: <err>,<uid><CR><LF> <CR><LF> OK/ERROR<CR><LF>
Write Command /*unsubscribe one topic*/ AT+CMQTTUNSUB=<idx>,[<length>],[<dup>],[<checksum>],[<topic>]	Response 1) Prompt for input data <CR><LF> ><CR><LF> 2) Standard mode <CR><LF> OK/ERROR<CR><LF> 3) Enhanced Mode <CR><LF> +CMQTTUNSUB: <err>,<uid><CR><LF> <CR><LF> OK/ERROR<CR><LF>
URC	1) Standard mode <CR><LF> +CMQTTUNSUB: <idx>,<err><CR><LF> 2) Enhanced Mode <CR><LF> +CMQTTUNSUB: <idx>,<err>,[<uid>,<addition>]<CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	-

Defined Values

<idx>	A numeric parameter that identifies a client. The range of permitted values is 0 to n.
<length>	Value type, data mode When passed into the topic, specify the data length, (0-1024) bytes. This parameter is required if the topic parameter is not used.

	If the topic parameter is used, it is invalid and can be filled or not. If this argument is omitted, the comma must be retained, that is, there must be two commas between the idx and topic arguments.
<dup>	Value type, message dup flag, The range of permitted values is (0-1) This flag is set when a server or client attempts to redeliver a message.
<checksum>	Reserved parameter.
<topic>	String, CMD directly enter the topic. (The value must be a valid ASCII string)
<uid>	Unique identification.
<addition>	Value type, whether to carry additional reports. 0: No additional reports are carried 1: Carry additional report
<err>	The result code, please refer to chapter 16.3.

Examples

AT+CMQTTUNSUB=0,1

OK

+CMQTTUNSUB: 0,0

NOTE

The topic will be clean after execute AT+CMQTTUNSUB.

16.2.18 AT+CMQTTAUTH Sent the MQTT authentication packet

Send AUTH authentication packets.The authentication information is passed in through the command AT+CMQTTCFG=PROP.

AT+CMQTTAUTH Sent the MQTT authentication packet

Test Command

AT+CMQTTAUTH=?

Response

<CR><LF>

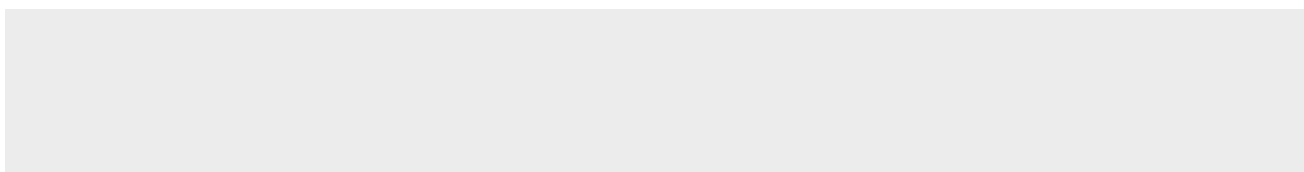
OK<CR><LF>

Write Command AT+CMQTTAUTH=<idx>,<rc> >	Response 1) <CR><LF> OK <CR><LF> 2) <CR><LF> +CMQTTAUTH: <err> <CR><LF> <CR><LF> ERROR <CR><LF>
URC	1) Send AUTH packet results locally <CR><LF> +CMQTTAUTH: <idx>,<err> <CR><LF> 1) The server delivers the AUTH package <CR><LF> +CMQTTTRXAUTH: <idx>,<rc>,<addition> <CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	-

Defined Values

<idx>	A numeric parameter that identifies a client. The range of permitted values is 0 to n.
<rc>	Value type, cause code 0(0x00): The authentication succeeds 24(0x18): The authentication continues 25(0x19): Re-authenticate
<err>	The result code, please refer to chapter 16.3.
<addition>	Value type, whether to carry additional reports. 0: No additional reports are carried 1: Carry additional report

Examples



16.2.19 AT+CMQTTCFG Configure the MQTT Context

AT+CMQTTCFG is used to configure the MQTT context. There are no special requirements for the timing of using the setting command, and specific parameters can be flexibly processed according to the situation. It is recommended to configure it before AT+CMQTTCONNECT and after AT+CMQTTACCQ. The setting will be cleared after AT+CMQTTREL.

AT+CMQTTCFG Configure the MQTT Context

Test Command AT+CMQTTCFG=?	Response <CR><LF> +CMQTTCFG: <CMD>[,<arg1>[,<arg2>[,<arg3>[,<arg4>[,<arg5>]]]]]<CR><LF> <CR><LF> OK<CR><LF>
Read Command AT+CMQTTCFG?	Response <CR><LF> +CMQTTCFG: <idx>[,<arg1>[,<arg2>[,<arg3>[,<arg4>[,<arg5>]]]]]<CR><LF> <CR><LF> OK<CR><LF>
Write Command AT+CMQTTCFG=<CMD>[,<arg1>[,<arg2>[,<arg3>[,<arg4>[,<arg5>]]]]]	Response 3) Prompt for input data <CR><LF> ><CR><LF> 2) Standard mode <CR><LF> OK/ERROR<CR><LF> 3) Enhanced Mode <CR><LF> +CMQTTCFG: <err><CR><LF> <CR><LF> OK/ERROR<CR><LF>
Write Command AT+CMQTTCFG=<CMD>,<arg1>	Response <CR><LF> +CMQTTCFG: <CMD>[,<arg1>[,<arg2>[,<arg3>[,<arg4>[,<arg5>]]]]]<CR><LF> ... <CR><LF> OK/ERROR<CR><LF>
Write Command AT+CMQTTCFG=PROP,<idx>,<package>	(Query properties (MQTT 5.0)) Response <CR><LF> +CMQTTCFG: <err>,<addition><CR><LF> <attribute list> <CR><LF> OK/ERROR<CR><LF>
Parameter Saving Mode	-

Max Response Time	-
Reference	-

Defined Values

<CMD>	parameter	explain
If the values of all optional parameters are set to null, it signifies a query.		
checkUTF8	* Set whether to check whether the input data is UTF8 encoding [arg1:idx]	Value type, client index number (0-n).
	[arg2: checkUTF8_flag]	Value type, check whether the input is UTF8 encoding (0-1): 0: not check 1: check
optimeout	*Set the timeout period for sending and receiving data* [arg1:idx]	Value type, client index number (0-n).
	[arg2: optimeout_val]	Value, timeout (20-120) seconds, default is 120.
version	*Set MQTT usage version* [arg1:idx]	Value type, client index number (0-n).
	[arg2:version]	Value type, protocol version (3-5): 3: MQTT 3.1 4: MQTT 3.1.1 5: MQTT 5.0
AUTORECONN	* Set whether to automatically reconnect the server after network disconnection* [arg1:idx]	Value type, client index number (0-n).
	[arg2:on-off]	Value type, switch: 0: Turn off automatic reconnection 1: Turn on automatic reconnection
	[arg3:interval]	Value type, Reconnection interval 5 to 600 seconds.
	[arg4:notify]	Value type, URC reconnection type, If the threshold is not reached, the reconnection fails.

		0: URC is reported if the reconnection succeeds or fails. 1: URC is reported if the reconnection fails. 2: URC is reported if the reconnection succeeds. 3 URC is not reported whether the reconnection succeeds or fails.
	[arg5:threshold]	The numerical value for the total time of reconnection attempts ranges from 5 to 600 minutes, default is 60 minutes. (When using auto reconnect, you must set the connect clean_session to 0)
CID	*Set up all sessions to use the same PDP for networking* [arg1:cid]	Value type, PDP channel number. The value ranges from 1 to 6.
SCID	*Set a single session to use a single PDP for networking* [arg1:idx] [arg2:cid]	Value type, client index number (0-n). Value type, PDP channel number. The value ranges from 1 to 6.
SSL	*Set SSL context* [arg1:idx] [arg2:ssl_idx]	Value type, client index number (0-n). Value type, SSL channel number (0-n) The maximum value depends on the SSL module.
DOMAIN	*Set IPV4/6* [arg1:idx] [arg2:type]	Value type, client index number (0-n). Type of IP: 0: Automatic, IPV4 is preferred 1: IPV4 2: IPV6
ENHANCED	*Enable MQTT enhancement mode* <arg1:idx>	Value type, client index number (0-n).

PROP

<arg2:mode>	Value type, mode. 0: standard mode 1: enhanced mode
Set properties (new in MQTT 5.0) Attributes can be set one at a time and cached in the heap. By default, properties are cleared as soon as they are sent to the network. If the device fails to be sent, it is reserved. Attributes can be retained through the retain flag. In this case, the property can only be cleared manually In any case, +CMQTTREL or +CMQTTSTOP will clear the cache. This setting should be used after +CMQTTACCQ and before sending data to the server.	
<arg1:idx>	Value type, client index number (0-n).
<arg2:package>	String type. The package name of the property needs to be set WILL: Will attribute CONNECT: Connect attribute DISCONN: Disconnect attribute PUBLISH: Publish attribute SUBSCRIBE: Subscribe attribute UNSUBSCRIBE: Unsubscribe attribute AUTH: Authentication attribute
<arg3:prop_id>	Value type, attribute ID
<arg4:length>	Value type, data mode Specifies the data length when passing property values. If does not use the value parameter, this parameter is required. If uses the value parameter, the parameter is invalid. In this case, the parameter can be filled or not. If this argument is omitted, the

	comma must be retained, that is, there must be two commas between prop and value arguments
<arg5:value>	String, CMD directly enter the topic. (The value must be a valid ASCII string)
<arg6:retain>	Value, whether to reserve the attribute. Each attribute independently sets the retention identifier. 0: not retained, and the cache is cleared immediately after the packet is successfully sent. 1: Retained. The cache needs to be cleared manually.
[arg7:length2]	Value type, data mode Specifies the data length when passing property values. If does not use the value2 parameter, this parameter is required. If uses the value2 parameter, the parameter is invalid. In this case, the parameter can be filled or not.
[arg8:value2]	String, CMD directly enter the topic. (The value must be a valid ASCII string)
NOTE: The length is set to 0 and no value is entered to clear the property. Query must enter idx and package, attribute list by additional report output. Length2 and value2 are used to input the second data of the string pair. They only take effect in the properties of the string pair, and other properties ignore this parameter directly. If both data	

	are input using data mode, then it is necessary to input two data in sequence according to the order of the parameter list before exiting the data mode, and there is no need for any delimiter between the two data.	
AT REPLY/URC	err	Value type, refer to the Error code section.
	Addition	Value type, whether to carry additional reports. 0: No additional reports are carried 1: Carry additional report

prop_id	Description	Data type	Support package type
0x01	Payload Format Indicator	single byte	PUBLISH, Will Properties
0x02	Message Expiry Indicator	Four-byte integer	PUBLISH, Will Properties
0x03	Content Type	UTF-8 Character string	PUBLISH, Will Properties
0x08	Response Topic	UTF-8 Character string	PUBLISH, Will Properties
0x09	Correlation Data	binary data	PUBLISH, Will Properties
0x0b	Subscription identifier	Variable length byte integer	PUBLISH, SUBSCRIBE
0x11	Session Expiry Interval	Four-byte integer	CONNECT, CONNACK, DISCONNECT
0x12	Request Problem Information	UTF-8 Character string	CONNACK
0x13	Server keep Alive	Double-byte integer	CONNACK
0x15	Authentication Method	UTF-8 Character string	CONNECT, CONNACK, AUTH
0x16	Authentication Data	binary data	CONNECT, CONNACK, AUTH
0x17	Request Problem Information	single byte	CONNECT
0x18	Will Delay Interval	Four-byte integer	Will Properties
0x1a	Response Information	UTF-8 Character string	CONNACK
0x1c	Server Reference	UTF-8 Character string	CONNACK, DISCONNECT
0x1f	Reason String	UTF-8 Character string	CONNACK, PUBACK, PUBREC, PUBREL, PUBCOMP, SUBACK, UNSUBACK, DISCONNECT, AUTH
0x21	Receive Maximum	Double-byte integer	CONNECT, CONNACK
0x22	Topic Alias Maximum	Double-byte integer	CONNECT, CONNACK
0x23	Topic Alias	Double-byte integer	PUBLISH
0x24	Maximum QoS	single byte	CONNACK

0x25	Retain Available	single byte	CONNACK
0x26	User Property	UTF-8 String pairs	CONNECT, CONNACK, PUBLISH, Will Properties, PUBACK, PUBREC, PUBREL, PUBCOMP, SUBSCRIBE, SUBACK, UNSUBSCRIBE, UNSUBACK, DISCONNECT, AUTH
0x27	Maximum Packet Size	Four-byte integer	CONNECT, CONNACK
0x28	Wildcard Subscription Availability	single byte	CONNACK
0x29	Subscription Identifier Availability	single byte	CONNACK
0x2a	Shared Subscription Availability	single byte	CONNACK

Examples

AT+CMQTTCFG?

+CMQTTCFG: 0,1,120

+CMQTTCFG: 1,1,120

OK

AT+CMQTTCFG="SCID"

+CMQTTCFG: "SCID",0,1

+CMQTTCFG: "SCID",1,2

OK

AT+CMQTTCFG="CID"

+CMQTTCFG: "CID",1

OK

NOTE

The setting will be cleared after AT+CMQTTREL.

16.2.20 AT+CMQTTQUICKCONNECT Quickly connect to the cloud platform with one click

The instruction directly uses the incoming parameters to log in to the cloud platform, automatically executes ACCQ and CONNECT actions, cannot manually call ACCQ and CONNECT instructions, and other instructions are the same as ordinary MQTT.

AT+ MQTTQUIKCONNECT Quickly connect to the cloud platform with one click

Test Command AT+CMQTTQUIKCONNECT=?	Response <CR><LF> OK <CR><LF>
Write Command AT+CMQTTQUIKCONNECT=<idx>,<PLT>,[<URL>],[arg1],[arg2],[arg3],[arg4]]]	Response <CR><LF> OK/ERROR <CR><LF>
URC	<CR><LF> +CMQTTQUIKCONNECT: <idx>,<err> <CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	-

Defined Values

<idx>	A numeric parameter that identifies a client. The range of permitted values is 0 to n.
<PLT>	String, Cloud platform name. <ALIAUTH> [阿里云一机一密] "iot-as-mqtt.cn-shanghai.aliyuncs.com:443" <ALIAUTH_DYNREG> [一型一密] "iot-as-mqtt.cn-shanghai.aliyuncs.com:443" <TENCENT> [腾讯云] "product_id.iotcloud.tencentdevices.com:1883" <ONENET> [移动云] "tcp://183.230.40.96:1883" <ONENET_STUDIO> [移动云下的 studio 平台] "tcp://218.201.45.7:1883" <WING> [电信云] "tcp://mqtt.ctwing.cn:1883" <DMP> [联通云] "tcp://dmp-mqtt.cuiot.cn:1883"
<URL>	If a non-standard domain name is used, enter this parameter.
<arg1>	
<arg2>	Authentication information required by PLT.
<arg3>	For details, see the APPNOTE about Cloud platform.
<arg4>	
<err>	The result code, please refer to chapter 16.3.

Examples

NULL

16.2.21 Additional Report

Need to enable Enhanced mode

Report format	Description
+ADDITION: MQTT,<flag>[,<arg1>,...,<argn><CRLF>]	Additional report (without raw data)
+ADDITION: MQTT,<flag>[,<arg1>,...,<argn><CRLF> <DATA>]<CRLF>	Additional report (with raw data)
+ADDITION: 0<CRLF>	Attach the report end identifier

flag	parameter	Description
PROP	>	Only support MQTT 5.0
	arg1	Attribute ID
	arg2	Attribute Value Data Length (bytes)
	arg3	Attribute Value Fragmentation progress
	DATA	Attribute value data
UID	arg1	unique identifier
RC	arg1	Cause code/Return code

16.3 Command Result Codes

16.3.1 Description of <err>

<err>	Description
0	operation succeeded
1	failed

2	bad UTF-8 string
3	sock connect fail
4	sock create fail
5	sock close fail
6	message receive fail
7	network open fail
8	network close fail
9	network not opened
10	client index error
11	no connection
12	invalid parameter
13	not supported operation
14	client is busy
15	require connection fail
16	sock sending fail
17	timeout
18	topic is empty
19	client is used
20	client not acquired
21	client not released
22	length out of range
23	network is opened
24	packet fail
25	DNS error
26	socket is closed by server
27	connection refused: unaccepted protocol version
28	connection refused: identifier rejected
29	connection refused: server unavailable
30	connection refused: bad user name or password
31	connection refused: not authorized
32	handshake fail
33	not set certificate
34	Open session failed
35	Disconnect from server failed

16.4 Command Cause Codes

16.4.1 result code (MQTT 5.0)

Value	Description	Support message type
0x00	Success	CONNACK, PUBACK, PUBREC, PUBREL, PUBCOMP, UNSUBACK, AUTH
0x00	Normal disconnection	DISCONNECT
0x00	Granted QoS 0	SUBACK
0x01	Granted QoS 1	SUBACK
0x02	Granted QoS 2	SUBACK
0x04	Disconnect with Will Message	DISCONNECT
0x10	No matching subscribers	PUBACK, PUBREC
0x11	No subscription existed	UNSUBACK
0x18	Continue authentication	AUTH
0x19	Re-authenticate	AUTH
0x80	Unspecified error	CONNACK, PUBACK, PUBREC, SUBACK, UNSUBACK, DISCONNECT
0x81	Malformed Packet	CONNACK, DISCONNECT
0x82	Protocol Error	CONNACK, DISCONNECT
0x83	Implementation specific error	CONNACK, PUBACK, PUBREC, SUBACK, UNSUBACK, DISCONNECT
0x84	Unsupported Protocol Version	CONNACK
0x85	Client Identifier not valid	CONNACK
0x86	Bad User Name or Password	CONNACK
0x87	Not authorized	CONNACK, PUBACK, PUBREC, SUBACK, UNSUBACK, DISCONNECT
0x88	Server unavailable	CONNACK
0x89	Server busy	CONNACK, DISCONNECT
0x8A	Banned	CONNACK
0x8B	Server shutting down	DISCONNECT
0x8C	Bad authentication method	CONNACK, DISCONNECT
0x8D	Keep Alive timeout	DISCONNECT
0x8E	Session taken over	DISCONNECT
0x8F	Topic Filter invalid	SUBACK, UNSUBACK, DISCONNECT
0x90	Topic Name invalid	CONNACK, PUBACK, PUBREC, DISCONNECT
0x91	Packet Identifier in use	PUBACK, PUBREC, SUBACK, UNSUBACK
0x92	Packet Identifier not found	PUBREL, PUBCOMP
0x93	Receive Maximum exceeded	DISCONNECT
0x94	Topic Alias invalid	DISCONNECT
0x95	Packet too large	CONNACK, DISCONNECT

0x96	Message rate too high	DISCONNECT
0x97	Quota exceeded	CONNACK, PUBACK, PUBREC, SUBACK, DISCONNECT
0x98	Administrative action	DISCONNECT
0x99	Payload format invalid	CONNACK, PUBACK, PUBREC, DISCONNECT
0x9A	Retain not supported	CONNACK, DISCONNECT
0x9B	QoS not supported	CONNACK, DISCONNECT
0x9C	Use another server	CONNACK, DISCONNECT
0x9D	Server moved	CONNACK, DISCONNECT
0x9E	Shared Subscriptions not supported	SUBACK, DISCONNECT
0x9F	Connection rate exceeded	CONNACK, DISCONNECT
0xA0	Maximum connect time	DISCONNECT
0xA1	Subscription Identifiers not supported	SUBACK, DISCONNECT
0xA2	Wildcard Subscriptions not supported	SUBACK, DISCONNECT

16.4.1 connect result code (MQTT 3.1.1/3.1)

Value	Description
0	Connection Accepted
1	Connection Refused, unacceptable protocol version
2	Normal UTF-8 string clientID, but Connection Refused, identifier rejected
3	Connection Refused, Server unavailable
4	Connection Refused, bad user name or password
5	Connection Refused, not authorized
6-255	Reserved

16.4.2 subscription code (MQTT 3.1.1/3.1)

Value	Description
0x00	Succeeded. QoS level 0 is granted
0x01	Succeeded. QoS level 1 is granted
0x02	Succeeded. QoS level 2 is granted
0x80	Subscription failure

16.5 Unsolicited Result Codes

16.5.1 The mqtt connection is passively disconnected

URC	Description
+CMQTTCONNLOST: <idx>,<cause>	When client disconnect passively, URC "+CMQTTCONNLOST" will be reported, then user need to connect MQTT server again.

16.5.2 No network

URC	Description
+CMQTTNONET[,<cid>]	When the network is become no network, the module will report this URC. If received this message, you should restart the MQTT service by AT+CMQTTSTART. If using AT+CMTTSTART=<cid> to start MQTT, URC carries the cid parameter. This URC will report multiple times when using multiple CID.

16.5.3 PUBLISH message report

URC	Description
1) Standard mode <CR><LF> +CMQTTRXSTART: <idx>,<topic_total_len>,<payload_total_len><CR><LF> 2) Enhanced Mode and only V5.0 is supported <CR><LF> +CMQTTRXSTART: <idx>,<topic_total_len>,<payload_total_len>,<addition><CR><LF>	If a client subscribes to one or more topics, any message published to those topics are sent by the server to the client. The following URC is used for transmitting the message published from server to client.
/*for long topic, split to multiple packets to report*/ <CR><LF> +CMQTTRXTOPIC: <idx>,<topic_len><CR><LF> <topic_data><CR><LF>	After the command "+CMQTTRXSTART" received, the module will report the second message to user.

	For long topic, it will be split to multiple packets to report and the command "+CMQTTRXTOPIC" will be send more than once with the rest of topic content. The sum of <sub_topic_len> is equal to <topic_total_len>.
/*for long payload, split to multiple packets to report*/ <CR><LF> +CMQTTRXPAYLOAD: <idx>,<payload_len><CR><LF> <payload_data><CR><LF>	After the command "+CMQTTRXTOPIC" received, the module will send third message to user. For long payload, the same as "+CMQTTRXTOPIC".
+CMQTTRXEND: <idx><CR><LF>	+CMQTTRXEND: <client_index> At last, the module will send fourth message to user and indicate the topic and payload have been transmitted completely.

Defined Values

<idx>	A numeric parameter that identifies a client. The range of permitted values is 0 to 1.
<cause>	The cause of disconnection. 1 Socket is closed passively. 2 Socket is reset. 3 Network is closed. 4 Protocol error. 5 Server timeout and no response. 99 Unknown error.
<topic_total_len>	Value type, total size of topic data.
<payload_total_len>	Value type, total load data size.
<addition>	Value type, with or without additional reporting.
<topic_len>	Value type, the size of a packet of subject data.
<topic_data>	UTF8 data, data of topic.
<payload_len>	Value type, payload data packet size.
<payload_data>	Binary data, payload data.

17 AT Commands for SSL

17.1 Overview of AT Commands for SSL

Command	Description
AT+CSSLCFG	Configure the SSL Context
AT+CCERTDOWN	Download certificate into the module
AT+CCERTLIST	List certificates
AT+CCERTDELETE	Delete certificates
AT+CCHSET	Configure the report mode of sending and receiving data
AT+CCHMODE	Configure the mode of sending and receiving data
AT+CCHSTART	Start SSL service
AT+CCHSTOP	Stop SSL service
AT+CCHADDR	Get the IPv4 address
AT+CCHSSLCFG	Set the SSL context
AT+CCHCFG	Configure the Client Context
AT+CCHOPEN	Connect to server
AT+CCHCLOSE	Disconnect from server
AT+CCHSEND	Send data to server
AT+CCHRECV	Read the cached data that received from the server
AT+CCERTMOVE	Move the cert from file system to cert content

17.2 Detailed Description of AT Commands for SSL

17.2.1 AT+CSSLCFG Configure the SSL Context

AT+CSSLCFG Configure the SSL Context	
Test Command AT+CSSLCFG=?	Response <CR><LF> +CSSLCFG: "sslversion",(0-9),(0-4)<CR><LF> +CSSLCFG: "authmode",(0-9),(0-3)<CR><LF>

	<pre> +CSSLCFG: "ignorelocaltime",(0-9),(0,1)<CR><LF> +CSSLCFG: "negotiatetime",(0-9),(10-300)<CR><LF> +CSSLCFG: "cacert",(0-9),(5-55)<CR><LF> +CSSLCFG: "clientcert",(0-9),(5-55)<CR><LF> +CSSLCFG: "clientkey",(0-9),(5-55)<CR><LF> +CSSLCFG: "password",(0-9),(5-55)<CR><LF> +CSSLCFG: "enableSNI",(0-9),(0,1)<CR><LF> +CSSLCFG: "ignorecertCN",(0-9),(0,1)<CR><LF> +CSSLCFG: "use_tickets",(0-9),(0,1)<CR><LF> +CSSLCFG: "ciphersuites",(0-9),(0x0000-0xffff)<CR><LF> +CSSLCFG: "disablerenegotiate",(0-9),(0,1)<CR><LF> +CSSLCFG: "pskid",(0-9),(0-128)<CR><LF> +CSSLCFG: "psk",(0-9),(0-32)<CR><LF> +CSSLCFG: "rsa_min_bitlen",(0-9),(0-4096)<CR><LF> <CR><LF> OK<CR><LF> </pre>
Read Command AT+CSSLCFG?	Response <pre> <CR><LF> +CSSLCFG: 0,<sslversion>,<authmode>,<ignoreltime>,<negotiatetime>,<ca_file>,<clientcert_file>,<clientkey_file>,<password_file>,<enableSNI>,<ignorecertCN>,<use_tickets>,<ciphersuites>,<disablerenegotiate_flag>,<pskid>,<psk>,<rsa_min_bitlen><CR><LF> ... +CSSLCFG: 9,<sslversion>,<authmode>,<ignoreltime>,<negotiatetime>,<ca_file>,<clientcert_file>,<clientkey_file>,<password_file>,<enableSNI>,<ignorecertCN>,<use_tickets>,<ciphersuites>,<disablerenegotiate_flag>,<pskid>,<psk>,<rsa_min_bitlen><CR><LF> <CR><LF> OK<CR><LF> </pre>
Write Command /*Query the configuration of the specified SSL context*/ AT+CSSLCFG=<ssl_ctx_index>	Response <pre> +CSSLCFG: <ssl_ctxindex>,<sslversion>,<authmode>,<ignoreltime>,<negotiatetime>,<ca_file>,<clientcert_file>,<clientkey_file>,<password_file>,<enableSNI>,<ignorecertCN>,<use_tickets>,<ciphersuites>,<disablerenegotiate_flag>,<pskid>,<psk>,<rsa_min_bitlen> <CR><LF> <CR><LF> OK<CR><LF> </pre>
Write Command /*Configure the version of the specified SSL context*/ AT+CSSLCFG="sslversion",<ssl_ctx_index>,<sslversion>	Response <pre> 1)If successfully: <CR><LF> OK<CR><LF> 2)If failed: </pre>

	<CR><LF> ERROR <CR><LF>
Write Command /*Configure the authentication mode of the specified SSL context*/ AT+CSSLCFG="authmode",<ssl_ctx_index>,<authmode>	Response 1)If successfully: <CR><LF> OK <CR><LF> 2)If failed: <CR><LF> ERROR <CR><LF>
Write Command /*Configure the ignore local time flag of the specified SSL context*/ AT+CSSLCFG="ignorelocaltime",<ssl_ctx_index>,<ignorelocaltime>	Response 1)If successfully: <CR><LF> OK <CR><LF> 2)If failed: <CR><LF> ERROR <CR><LF>
Write Command /*Configure the negotiate timeout value of the specified SSL context*/ AT+CSSLCFG="negotiatetime",<ssl_ctx_index>,<negotiatetime>	Response 1)If successfully: <CR><LF> OK <CR><LF> 2)If failed: <CR><LF> ERROR <CR><LF>
Write Command /*Configure the server root CA of the specified SSL context*/ AT+CSSLCFG="cacert",<ssl_ctx_index>,<ca_file>	Response 1)If successfully: <CR><LF> OK <CR><LF> 2)If failed: <CR><LF> ERROR <CR><LF>
Write Command /*Configure the client certificate of the specified SSL context*/ AT+CSSLCFG="clientcert",<ssl_ctx_index>,<clientcert_file>	Response 1)If successfully: <CR><LF> OK <CR><LF> 2)If failed: <CR><LF> ERROR <CR><LF>
Write Command /*Configure the client key of the specified SSL context*/ AT+CSSLCFG="clientkey",<ssl_ctx_index>,<clientkey_file>	Response 1)If successfully: <CR><LF> OK <CR><LF> 2)If failed: <CR><LF> ERROR <CR><LF>
Write Command	Response

/*Configure the password of the specified SSL context*/ AT+CSSLCFG="password",<ssl_ctx_index>,<password_file> >	1) If successfully: <CR><LF> OK<CR><LF> 2) If failed: <CR><LF> ERROR<CR><LF>
Write Command /*Configure the enableSNI flag of the specified SSL context */ AT+CSSLCFG="enableSNI",<ssl_ctx_index>,<enableSNI_flag> >	Response 1)If successfully: <CR><LF> OK<CR><LF> 2)If failed: <CR><LF> ERROR<CR><LF>
Write Command /*Configure the ignorecertCN of the specified SSL context*/ AT+CSSLCFG="ignorecertCN",<ssl_ctx_index>,<ignorecertCN_flag> >	Response 1) If successfully: <CR><LF> OK<CR><LF> 2) If failed: <CR><LF> ERROR<CR><LF>
Write Command /*Configure the use_tickets of the specified SSL context*/ AT+CSSLCFG="use_tickets",<ssl_ctx_index>,<use_tickets_flag> >	Response 1) If successfully: <CR><LF> OK<CR><LF> 2) If failed: <CR><LF> ERROR<CR><LF>
Write Command /*Configure the ciphersuite of the specified SSL context*/ AT+CSSLCFG="ciphersuites",<ssl_ctx_index>,<ciphersuite> s>	Response 1) If successfully: <CR><LF> OK<CR><LF> 2) If failed: <CR><LF> ERROR<CR><LF>
Write Command /*Configure the diasblerenegotiate_flag of the specified SSL context*/ AT+CSSLCFG="disablerenegotiate",<ssl_ctx_index>,<disablerenegotiate_flag> >	Response 1) If successfully: <CR><LF> OK<CR><LF> 2) If failed: <CR><LF> ERROR<CR><LF>
Write Command /*Configure the pskid of the specified SSL context*/ AT+CSSLCFG="pskid",<ssl_c >	Response 1) If successfully: <CR><LF> OK<CR><LF>

tx_index>,<pskid>	2) If failed: <CR><LF> ERROR <CR><LF>
Write Command /*Configure the psk of the specified SSL context*/ AT+CSSLCFG="psk",<ssl_ctx_index>,<psk>	Response 1) If successfully: <CR><LF> OK <CR><LF> 2) If failed: <CR><LF> ERROR <CR><LF>
Write Command /*Configure the rsa_min_bitlen of the specified SSL context*/ AT+CSSLCFG="rsa_min_bitlen",<ssl_ctx_index>,<rsa_min_bitlen>	Response 1) If successfully: <CR><LF> OK <CR><LF> 2) If failed: <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	-
Max Response Time	120000ms
Reference	-

Defined Values

<ssl_ctx_index>	The SSL context ID. The range is 0-9.
<sslversion>	The SSL version, the default value is 4. 0 SSL3.0 1 TLS1.0 2 TLS1.1 3 TLS1.2 4 All 5 TLS1.3 In versions that support TLS1.3, the range is 3-5, and the default is 4. The actual configurable range depends on the supported version. The configured version should be support by server. So you should use the default value if you are not sure that the version which the server supported.
<authmode>	The authentication mode, the default value is 0. 0 no authentication. 1 server authentication. It needs the root CA of the server. 2 server and client authentication. It needs the root CA of the server, the cert and key of the client.(If the server does not need to authenticate the client ,it is equivalent to value 1.)

	3 client authentication and no server authentication. It needs the cert and key of the client. (If the server does not need to authenticate the client, it is equivalent to value 0.)
<ignoretime>	The flag to indicate how to deal with expired certificate, the default value is 1. 0 care about time check for certification. 1 ignore time check for certification When set the value to 0, it need to set the right current date and time by AT+CCLK when need SSL certification.
<negotiatetime>	The timeout value used in SSL negotiate stage. The range is 10-300 seconds. The default value is 300.
<ca_file>	The root CA file name of SSL context. The file name must have type like ".pem" or ".der". The length of filename is from 5 to 55 bytes. There are two ways to download certificate files to module: 1. By AT+CCERTDOWN. 2. By FTPS or HTTPS commands. Please refer to Chapter 16&17 of this document.
<clientcert_file>	The client cert file name of SSL context. The file name must have type like ".pem" or ".der". The length of filename is from 5 to 55 bytes. There are two ways to download certificate files to module: 1. By AT+CCERTDOWN. 2. By FTPS or HTTPS commands. Please refer to Chapter 16&17 of this document.
<clientkey_file>	The client key file name of SSL context. The file name must have type like ".pem" or ".der". The length of filename is from 5 to 55 bytes. There are two ways to download certificate files to module: 1. By AT+CCERTDOWN. 2. By FTPS or HTTPS commands. Please refer to Chapter 16&17 of this document.
<password_file>	The password file name of SSL context. The file name must have type like ".pem" or ".der". The length of filename is from 5 to 55 bytes. There are two ways to download certificate files to module: 1. By AT+CCERTDOWN. 2. By FTPS or HTTPS commands. Please refer to Chapter 16&17 of this document.
<enableSNI_flag>	The flag to indicate that enable the SNI flag or not, the default value is 0.

	0 not enable SNI. 1 enable SNI.
<ignorecertCN_flag>	The flag to indicate that enable the ignorecertCN flag or not, the default value is 0. 0 not enable ignorecertCN. 1 enable ignorecertCN.
<use_tickets_flag>	The flag to indicate that enable the use_tickets flag or not, the default value is 0. This flag only takes effect in the TLS 1.3 version and will not work in versions lower than TLS 1.3. 0 not enable use_tickets. 1 enable use_tickets.
<ciphersuites>	Numeric type, SSL ciphersuites Specify the TLS cipher suite code, whose hexadecimal code refers to the standard TLS definition. 0X002F TLS_RSA_WITH_AES_128_CBC_SHA 0XFFFF Support all
<disablerenegotiate_flag>	Whether to enable renegotiation. The value ranges from 0 to 1 0 Enable 1 Disable
<pskid>	String. The string parameter that identifies the pre-shared key, with a maximum length of 128 bytes.
<psk>	String. The string parameter that identifies the pre-shared key. Maximum length is 32 bytes.
<rsa_min_bitlen>	Minimum number of RSA key bits. The value ranges from 0 to 4096.

Examples

AT+CSSLCFG=?

```
+CSSLCFG: "sslversion",(0-9),(0-4)
+CSSLCFG: "authmode",(0-9),(0-3)
+CSSLCFG: "ignorelocaltime",(0-9),(0,1)
+CSSLCFG: "negotiatetime",(0-9),(10-300)
+CSSLCFG: "cacert",(0-9),(5-55)
+CSSLCFG: "clientcert",(0-9),(5-55)
+CSSLCFG: "clientkey",(0-9),(5-55)
+CSSLCFG: "password",(0-9),(5-55)
+CSSLCFG: "enableSNI",(0-9),(0,1)
+CSSLCFG: "ignorecertCN",(0-9),(0,1)
+CSSLCFG: "use_tickets",(0-9),(0,1)
+CSSLCFG: "ciphersuites",(0-9),(0x0000-0xffff)
+CSSLCFG: "disablerenegotiate",(0-9),(0,1)
+CSSLCFG: "pskid",(0-9),(0-128)
```

```
+CSSLCFG: "psk",(0-9),(0-32)
+CSSLCFG: "rsa_min_bitlen",(0-9),(0-4096)
```

OK

AT+CSSLCFG?

```
+CSSLCFG: 0,4,0,1,300,"","","","","0,0,0,0,1","",0
+CSSLCFG: 1,4,0,1,300,"","","","","0,0,0,0,1","",0
+CSSLCFG: 2,4,0,1,300,"","","","","0,0,0,0,1","",0
+CSSLCFG: 3,4,0,1,300,"","","","","0,0,0,0,1","",0
+CSSLCFG: 4,4,0,1,300,"","","","","0,0,0,0,1","",0
+CSSLCFG: 5,4,0,1,300,"","","","","0,0,0,0,1","",0
+CSSLCFG: 6,4,0,1,300,"","","","","0,0,0,0,1","",0
+CSSLCFG: 7,4,0,1,300,"","","","","0,0,0,0,1","",0
+CSSLCFG: 8,4,0,1,300,"","","","","0,0,0,0,1","",0
+CSSLCFG: 9,4,0,1,300,"","","","","0,0,0,0,1","",0
```

OK

AT+CSSLCFG="authmode",0,0

OK

AT+CSSLCFG=6

```
+CSSLCFG: 6,4,0,1,300,"","","","","0,0,0,0,1","",0
```

OK

NOTE

When validating a server certificate, ignore the "Hostname does not match certificate's Common Name (CN) field" error.

(In the case of self-signed certificates or in a development environment, there may be an issue where the CN field of the certificate does not match the hostname. In such situations, you can disable the validation of the certificate's CN field by setting the "ignorecertCN" field to 1, which will help avoid connection issues. However, please note that this action introduces certain security risks and should be used with caution.)

17.2.2 AT+CCERTDOWN Download certificate into the module

AT+CCERTDOWN Download certificate into the module

Test Command

AT+CCERTDOWN=?

Response

The SIM76XX is:

<CR><LF>

+CCERTDOWN: (5-55),(1-10240)<CR><LF>

<CR><LF>

	OK<CR><LF>
Write Command	Response
AT+CCERTDOWN=<filename>,<len>	1)If it can be download: <CR><LF> ><CR><LF> <input data here><CR><LF> <CR><LF> OK<CR><LF>
	2)If failed: <CR><LF> ERROR<CR><LF>
Parameter Saving Mode	-
Max Response Time	120000ms
Reference	-

Defined Values

<filename>	The name of the certificate/key file. The file name must have type like ".pem" or ".der". The length of filename is from 5 to 55 bytes.
<len>	The length of the file data to send. The range is from 1 to 10240 bytes. User should note than every packet data should be no larger than 3072 bytes.

Examples

```

AT+CCERTDOWN=?
+CCERTDOWN: (5-55),(1-10240)

OK
AT+CCERTDOWN="ls.pem",1970
>

OK

```

17.2.3 AT+CCERTLIST List certificates

AT+CCERTLIST List certificates	
Execute Command	Response
AT+CCERTLIST	<CR><LF>

	<pre>[+CCERTLIST: <file_name><CR><LF> [+CCERTLIST: <file_name>]<CR><LF> ...]<CR><LF> <CR><LF> OK<CR><LF></pre>
Parameter Saving Mode	-
Max Response Time	120000ms
Reference	-

Defined Values

<filename>	The certificate/key files which has been downloaded to the module.
------------	--

Examples

AT+CCERTLIST

+CCERTLIST: "ls.pem"

OK

17.2.4 AT+CCERTDELE Delete certificates

AT+CCERTDELE Delete certificates

Write Command AT+CCERTDELE=<filename>	Response 1) If remove the file successfully: <pre><CR><LF> OK<CR><LF></pre> 2) Else <pre><CR><LF> ERROR<CR><LF></pre>
Parameter Saving Mode	-
Max Response Time	120000ms
Reference	-

Defined Values

<filename>	The name of the certificate/key file. The file name must have type
------------	--

like ".pem" or ".der".
The length of filename is from 5 to 55 bytes.

Examples

```
AT+CCERTDELETE="ls.pem"
OK
```

17.2.5 AT+CCHSET Configure the report mode of sending and receiving data

AT+CCHSET is used to configure the mode of sending and receiving data. It must be called before AT+CCHSTART.

AT+CCHSET Configure the report mode of sending and receiving data

Test Command AT+CCHSET=?	Response <CR><LF> +CCHSET: (0,1),(0,1) <CR><LF> <CR><LF> OK <CR><LF>
Read Command AT+CCHSET?	Response <CR><LF> +CCHSET: <report_send_result>,<recv_mode> <CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+CCHSET=<report_send_result>[,<recv_mode>]	Response 1)If successfully: <CR><LF> OK <CR><LF> 2)If failed: <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	-
Max Response Time	120000ms
Reference	-

Defined Values

<report_send_result>	Whether to report result of CCHSEND, the default value is 0: 0 No. 1 Yes. Module will report +CCHSEND: <session_id>,<err> to MCU
-----------------------------------	--

	when complete sending data.
<recv_mode>	The receiving mode, the default value is 0: 0 Output the data to MCU whenever received data. 1 Module caches the received data and notifies MCU with +CCHEVENT: <session_id>, RECV EVENT. MCU can use AT+CCHRECV to receive the cached data (only in manual receiving mode).

Examples

AT+CCHSET=?

+CCHSET: (0,1),(0,1)

OK

AT+CCHSET?

+CCHSET: 0,0

OK

AT+CCHSET=1,1

OK

17.2.6 AT+CCHMODE Configure the mode of sending and receiving data

AT+CCHMODE is used to select transparent mode (data mode) or non-transparent mode (command mode). The default mode is non-transparent mode. This AT command must be called before calling AT+CCHSTART.

AT+CCHMODE Configure the mode of sending and receiving data

Test Command AT+CCHMODE=?	Response <CR><LF> +CCHMODE: (0,1)<CR><LF> <CR><LF> OK<CR><LF>
Read Command AT+CCHMODE?	Response <CR><LF> +CCHMODE: <mode><CR><LF> <CR><LF> OK<CR><LF>
Write Command AT+CCHMODE=<mode>	Response 1) If successfully: <CR><LF>

	OK <CR><LF> 2)If failed: <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	-
Max Response Time	120000ms
Reference	-

Defined Values

<mode>	The mode value: 0 Normal 1 Transparent mode
--------	---

Examples

```
AT+CCHMODE=?
+CCHMODE: (0,1)
```

```
OK
AT+CCHMODE?
+CCHMODE: 0
```

```
OK
AT+CCHMODE=1
OK
```

NOTE

There is only one session in the transparent mode, it's the first session.

17.2.7 AT+CCHSTART Start SSL service

AT+CCHSTART is used to start SSL service by activating PDP context. You must execute AT+CCHSTART before any other SSL related operations.

AT+CCHSTART Start SSL service

Execute Command AT+CCHSTART	Response 1)If start SSL service successfully: <CR><LF> OK<CR><LF> <CR><LF> +CCHSTART: 0<CR><LF> 2)If failed: <CR><LF> ERROR<CR><LF> 3)If failed: <CR><LF> ERROR<CR><LF> <CR><LF> +CCHSTART: <err><CR><LF>
Write Command AT+CCHSTART=[<cid>]	Response 1)If start SSL service successfully: <CR><LF> OK<CR><LF> <CR><LF> +CCHSTART: 0,<cid><CR><LF> 2)If failed: <CR><LF> ERROR<CR><LF> 3)If failed: <CR><LF> ERROR<CR><LF> <CR><LF> +CCHSTART: <err>,<cid><CR><LF>
Parameter Saving Mode	-
Max Response Time	120000ms
Reference	-

Defined Values

<err>	The result code, please refer to the end of this chapter
<cid>	A numeric parameter which specifies a particular PDP context. The range is 1-n. The maximum value n is related to the pdp command of the modem. If no <cid> is specified. The default value is 1.

Examples

AT+CCHSTART

OK

+CCHSTART: 0

AT+CCHSTART=2

OK

+CCHSTART: 0,2

17.2.8 AT+CCHSTOP Stop SSL service

AT+CCHSTOP is used to stop SSL service.

AT+CCHSTOP Stop SSL service

Execute Command

AT+CCHSTOP

Response

1)If stop SSL service successfully:

<CR><LF>

OK<CR><LF>

<CR><LF>

+CCHSTOP: 0<CR><LF>

2)If failed:

<CR><LF>

ERROR<CR><LF>

Write Command

AT+CCHSTOP=[<cid>]

Response

1)If stop SSL service successfully:

<CR><LF>

OK<CR><LF>

<CR><LF>

+CCHSTOP: 0,<cid><CR><LF>

2)If failed:

<CR><LF>

ERROR<CR><LF>

Parameter Saving Mode

-

Max Response Time

120000ms

Reference

-

Defined Values

<err>

The result code, please refer to the end of this chapter

<cid>	A numeric parameter which specifies a particular PDP context. The range is 1-n. The maximum value n is related to the pdp command of the modem. If no <cid> is specified. The default value is 1.
--------------------	---

Examples

AT+CCHSTOP

OK

+CCHSTOP: 0

AT+CCHSTOP=2

OK

+CCHSTOP: 0,2

17.2.9 AT+CCHADDR Get the IPv4 address

AT+CCHADDR is used to get the IPv4 address after calling AT+CCHSTART.

AT+CCHADDR Get the IPv4 address

Execute Command AT+CCHADDR	Response 1)if successfully, response <CR><LF> +CCHADDR: <ip_address><CR><LF> <CR><LF> OK<CR><LF> 2)if pdp has not been activated, response <CR><LF> ERROR<CR><LF>
	Response 1)If successfully, response <CR><LF> +CCHADDR: <ip_address><CR><LF> <CR><LF> OK<CR><LF> 2)If pdp has not been activated, response <CR><LF> ERROR<CR><LF>
Write Command AT+CCHADDR=[<cid>]	
Parameter Saving Mode	-
Max Response Time	12000ms

Reference

-

Defined Values

<ip address>	A string parameter that identifies the IPv4 address after PDP activated.
<cid>	A numeric parameter which specifies a particular PDP context. The range is 1-n. The maximum value n is related to the pdp command of the modem. If no <cid> is specified. The default value is 1.

Examples

AT+CCHADDR
+CCHADDR: 10.43.71.130

OK
AT+CCHADDR=3
+CCHADDR: 10.43.232.85

OK

17.2.10 AT+CCHSSLCFG Set the SSL context

AT+CCHSSLCFG is used to set the SSL context which to be used in the SSL connection. It must be called before AT+CCHOPEN and after AT+CCHSTART. The setting will be cleared after AT+CCHOPEN failed or AT+CCHCLOSE.

AT+CCHSSLCFG Set the SSL context

Test Command AT+CCHSSLCFG=?	Response <CR><LF> +CCHSSLCFG: (0,1),(0-9)<CR><LF> <CR><LF> OK<CR><LF>
Read Command AT+CCHSSLCFG?	Response <CR><LF> +CCHSSLCFG: <session_id>,<ssl_ctx_index><CR><LF> +CCHSSLCFG: <session_id>,<ssl_ctx_index><CR><LF> <CR><LF> OK<CR><LF>
Write Command	Response

AT+CCHSSLCFG=<session_id> ,<ssl_ctx_index>	1)If successfully: <CR><LF> OK<CR><LF> 2)If failed: <CR><LF> ERROR<CR><LF>
Parameter Saving Mode	-
Max Response Time	120000ms
Reference	-

Defined Values

<session_id>	The session_id to operate. It's from 0 to 1.
<ssl_ctx_index>	The SSL context ID which will be used in the SSL connection. Refer to the <ssl_ctx_index> of AT+CSSLCFG.

Examples

```
AT+CCHSSLCFG=?
+CCHSSLCFG: (0,1),(0-9)
```

OK

```
AT+CCHSSLCFG?
```

```
+CCHSSLCFG: 0,
```

```
+CCHSSLCFG: 1,
```

OK

```
AT+CCHSSLCFG=0,1
```

OK

NOTE

AT+CCHSSLCFG is used to set the SSL context which to be used in the SSL connection. It must be called before AT+CCHOPEN and after AT+CCHSTART. The setting will be cleared after AT+CCHOPEN failed or AT+CCHCLOSE

If you don't set the SSL context by this command before connecting to SSL/TLS server by AT+CCHOPEN, the CCHOPEN operation will use the SSL context as same as index <session_id> (the 1st parameter of AT+CCHOPEN)when connecting to the server.

17.2.11 AT+CCHCFG Configure the Client Context

AT+CCHCFG is used to set the client session context. It must be called before AT+CCHOPEN and after AT+CCHSTART. The setting will be cleared after AT+CCHOPEN failed or AT+CCHCLOSE.

AT+CCHCFG Configure the Client Context

Test Command AT+CCHCFG=?	Response <CR><LF> +CCHCFG: "sendtimeout",(0-1),(60-150)<CR><LF> +CCHCFG: "sslctx",(0-1),(0-9)<CR><LF> +CCHCFG: "CID",(1-n)<CR><LF> +CCHCFG: "SCID",(0-1),(1-n)<CR><LF> <CR><LF> OK<CR><LF>
Read Command AT+CCHCFG?	Response <CR><LF> +CCHCFG: 0,<sendtimeout_val>,<sslctx_index><CR><LF> +CCHCFG: 1,<sendtimeout_val>,<sslctx_index><CR><LF> <CR><LF> OK<CR><LF>
Write Command /*Configure the timeout value of the specified client when sending data*/ AT+CCHCFG="sendtimeout",<session_id>,<sendtimeout_val>	Response 1)If successfully: <CR><LF> OK<CR><LF> 2)If failed: <CR><LF> ERROR<CR><LF>
Write Command /*Configure the SSL context index, it's as same as AT+CCHSSLCFG*/ AT+CCHCFG="sslctx",<session_id>,<sslctx_index>	Response 1)If successfully: <CR><LF> OK<CR><LF> 2)If failed: <CR><LF> ERROR<CR><LF>
Write Command AT+CCHCFG="CID"[,<cid>]	Response 1)If successfully: <CR><LF> OK<CR><LF> 2)If the <cid> is default:(It is cid of first link) <CR><LF> +CCHCFG: "CID",<cid><CR><LF> <CR><LF> OK<CR><LF> 3)If failed:

Write Command AT+CCHCFG="SCID",<session_id>,<cid>]]	<CR><LF> ERROR<CR><LF> Response 1)If successfully: <CR><LF> OK<CR><LF> 2)If the <session_id> and <cid> are default: <CR><LF> +CCHCFG: "SCID",<session_id>,<cid><CR><LF> +CCHCFG: "SCID",<session_id>,<cid><CR><LF> <CR><LF> OK<CR><LF> 3)If the <cid> is default: <CR><LF> +CCHCFG: "SCID",<session_id>,<cid><CR><LF> <CR><LF> OK<CR><LF> 4)If failed: <CR><LF> ERROR<CR><LF>
Parameter Saving Mode	-
Max Response Time	120000ms
Reference	-

Defined Values

<session_id>	The session_id to operate. It's from 0 to 1.
<sendtimeout_val>	The timeout value used in sending data stage. The range is 60-150 seconds. The default value is 150.
<sslctx_index>	The SSL context ID which will be used in the SSL connection. Refer to the <ssl_ctx_index> of AT+CSSLCFG.
<cid>	A numeric parameter which specifies a particular PDP context. The range is 1-n. The maximum value n is related to the pdp command of the modem. If no <cid> is specified. The default value is 1.

Examples

AT+CCHCFG=?

+CCHCFG: "sendtimeout",(0-1),(60-150)

+CCHCFG: "sslctx",(0-1),(0-9)

+CCHCFG: "CID",(1-n)

+CCHCFG: "SCID",(0-1),(1-n)

OK

AT+CCHCFG?

+CCHCFG: 0,150,

+CCHCFG: 1,150,

OK

AT+CCHCFG="sendtimeout",0,120

OK

AT+CCHCFG="sslctx",0,3

OK

AT+CCHCFG="CID",2

OK

AT+CCHCFG="CID"

+CCHCFG: "CID",2

OK

AT+CCHCFG="SCID"

+CCHCFG: "SCID",0,2

+CCHCFG: "SCID",1,2

OK

AT+CCHCFG="SCID",1

+CCHCFG: "SCID",1,2

OK

17.2.12 AT+CCHOPEN Connect to server

AT+CCHOPEN is used to connect the server.

AT+CCHOPEN Connect to server

Test Command

AT+CCHOPEN=?

Response

<CR><LF>

+CCHOPEN:

(0,1),"ADDRESS",(1-65535)[,(1-2)[,(1-65535)]]<CR><LF>

<CR><LF>

OK<CR><LF>

Read Command

AT+CCHOPEN?

Response

If connect to a server, it will show the connected information.

Otherwise, the connected information is empty.

<CR><LF>

Write Command	+CCHOPEN: 0,<host>,<port>,<client_type>,<bind_port><CR><LF> +CCHOPEN: 1,<host>,<port>,<client_type>,<bind_port><CR><LF> <CR><LF> OK<CR><LF>
	Response 1)If connect successfully: <CR><LF> OK<CR><LF> <CR><LF> +CCHOPEN: <session_id>,0<CR><LF> 2)If connect successfully in transparent mode: <CR><LF> CONNECT [<text>]<CR><LF> 3)If failed: <CR><LF> OK<CR><LF> <CR><LF> +CCHOPEN: <session_id>,<err><CR><LF> 4)If failed: <CR><LF> ERROR<CR><LF> 5)If failed in transparent mode: <CR><LF> CONNECT FAIL<CR><LF>
Parameter Saving Mode	-
Max Response Time	120000ms
Reference	-

Defined Values

<session_id>	The session index to operate. It's from 0 to 1.
<host>	The server address, maximum length is 256 bytes.
<port>	The server port which to be connected, the range is from 1 to 65535.
<client_type>	The type of client, default value is 2: 1 TCP client. 2 SSL/TLS client.
<bind_port>	The local port for channel, the range is from 1 to 65535.
<text>	CONNECT result code string; the string formats please refer ATX command.
<err>	The result code: 0 is success. Other values are failure. Please refer to the end of this chapter.

Examples

AT+CCHOPEN=?

+CCHOPEN: (0,1),"ADDRESS", (1-65535)[, (1-2)[, (1-65535)]]

OK

AT+CCHOPEN=0,"183.230.174.137",6043,1

OK

+CCHOPEN: 0,0

AT+CCHOPEN?

+CCHOPEN: 0,"183.230.174.137",6043,1,

+CCHOPEN: 1,"",,,

OK

NOTE

If you don't set the SSL context by AT+CCHSSLCFG before connecting a SSL/TLS server by AT+CCHOPEN, it will use the <session_id> (the 1'st parameter of AT+CCHOPEN)SSL context when connecting to the server.

17.2.13 AT+CCHCLOSE Disconnect from server

AT+CCHCLOSE is used to disconnect from the server.

AT+CCHCLOSE Disconnect from server

Write Command

AT+CCHCLOSE=<session_id>

Response

1)If successfully:

<CR><LF>

OK<CR><LF>

<CR><LF>

+CCHCLOSE: <session_id>,0<CR><LF>

2)If successfully in transparent mode:

<CR><LF>

OK<CR><LF>

<CR><LF>

	CLOSED <CR><LF> 3)If failed: <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	-
Max Response Time	120000ms
Reference	-

Defined Values

<session_id>	The session index to operate. It's from 0 to 1.
<err>	The result code: 0 is success. Other values are failure. Please refer to the end of this chapter.

Examples

AT+CCHCLOSE=0

OK

+CCHCLOSE: 0,0

17.2.14 AT+CCHSEND Send data to server

AT+CCHSEND Send data to server

Test Command AT+CCHSEND=?	Response <CR><LF> +CCHSEND: (0,1),(1-2048) <CR><LF> <CR><LF> OK <CR><LF>
Read Command AT+CCHSEND?	Response <CR><LF> +CCHSEND: 0,<unsent_len_0>,1,<unsent_len_1> <CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+CCHSEND=<session_id>,<len>	Response 1)if parameter is right: <CR><LF> ><CR><LF> <input data here> <CR><LF>

	When the total size of the inputted data reaches <len>, TA will report the following code. Otherwise, the serial port will be blocked. <CR><LF> OK<CR><LF> 2)If parameter is wrong or other errors occur: <CR><LF> ERROR<CR><LF>
Parameter Saving Mode	-
Max Response Time	120000ms
Reference	-

Defined Values

<session_id>	The session_id to operate. It's from 0 to 1.
<len>	The length of data to send. Its range is from 1 to 2048 bytes.
<unsent_len_0>	The data of connection 0 cached in sending buffer which is waiting to be sent.
<unsent_len_1>	The data of connection 1 cached in sending buffer which is waiting to be sent.

Examples

AT+CCHSEND=?

+CCHSEND: (0,1),(1-2048)

OK

AT+CCHSEND?

+CCHSEND: 0,0,1,0

OK

AT+CCHSEND=0,121

> GET / HTTP/1.1

Host: www.baidu.com

User-Agent: MAUI http User Agent

Proxy-Connection: keep-alive

Content-Length: 0

OK

17.2.15 AT+CCHRECV Read the cached data that received from the server

AT+CCHRECV Read the cached data that received from the server

Read Command AT+CCHRECV?	Response <CR><LF> +CCHRECV: LEN,<cache_len_0>,<cache_len_1> <CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+CCHRECV=<session_id>[,<max_rcv_len>]	Response 1)if parameter is right and there are cached data: <CR><LF> OK <CR><LF> <CR><LF> [+CCHRECV: DATA,<session_id>,<len> <CR><LF> ... +CCHRECV: DATA,<session_id>,<len> <CR><LF> ...] +CCHRECV: <session_id>,<err> <CR><LF> 2)if parameter is not right or any other error occurs: <CR><LF> +CCHRECV: <session_id>,<err> <CR><LF> <CR><LF> ERROR <CR><LF> 3)others: <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	-
Max Response Time	120000ms
Reference	-

Defined Values

<session_id>	The session id to operate. It's from 0 to 1.
<max_rcv_len>	Maximum bytes of data to receive in the current AT+CCHRECV calling. The value ranges from 0 to 2048. 0 means it will receive all data from the current cache. The default value is 0 and it will receive all of RX data cached for session <session_id>. It will be not allowed when there is no data in the cache.
<cache_len_0>	The length of RX data cached for connection 0.
<cache_len_1>	The length of RX data cached for connection 1.
<len>	The length of data followed.
<err>	The result code: 0 is success. Other values are failure. Please

refer to the end of this chapter.

Examples

AT+CCHRECV?

+CCHRECV: LEN,3072,0

OK

AT+CCHRECV=0

OK

+CCHRECV: DATA,0,1024

HTTP/1.1 200 OK

Bdpagetype: 1

Bdqid: 0x9821f6dd000060aa

Cache-Control: private

Connection: keep-alive

Content-Type: text/html;charset=utf-8

Date: Tue, 24 Mar 2020 02:27:10 GMT

Expires: Tue, 24 Mar 2020 02:26:31 GMT

P3p: CP=" OTI DSP COR IVA OUR IND COM "

P3p: CP=" OTI DSP COR IVA OUR IND COM "

Server: BWS/1.1

Set-Cookie: BAIDUID=F0CD980BA0927350B147AB1064A3423D;FG=1; expires=Thu, 31-Dec-37 23:55:55 GMT; max-age=2147483647; path=/; domain=.baidu.com

Set-Cookie: BIDUPSID=F0CD980BA0927350B147AB1064A3423D; expires=Thu, 31-Dec-37 23:55:55 GMT; max-age=2147483647; path=/; domain=.baidu.com

Set-Cookie: PSTM=1585016830; expires=Thu, 31-Dec-37 23:55:55 GMT; max-age=2147483647; path=/; domain=.baidu.com

Set-Cookie: BAIDUID=F0CD980BA0927350739AA64356C3CB13;FG=1; max-age=31536000; expires=Wed, 24-Mar-21 02:27:10 GMT; domain=.baidu.com; path=/; version=1; comment=bd

Set-Cookie: BDSVRTM=0; path=/

Set-Cookie: BD_HOME=1; path=/

Set-Cookie: H_PS_PSSID=30972_1467_21116_30823; path=/; domain=.baidu.com

Traceid

+CCHRECV: DATA,0,1024

: 1585016830040414772210962314397044727978

Vary: Accept-Encoding

Vary: Accept-Encoding

X-Ua-Compatible: IE=Edge,chrome=1

Transfer-Encoding: chunked

b5e

```
<!DOCTYPE html><!--STATUS OK--><html><head><meta http-equiv="Content-Type"
content="text/html; charset=utf-8"><meta http-equiv="X-UA-Compatible"
content="IE=edge,chrome=1"><meta content="always" name="referrer"><meta
name="theme-color" content="#2932e1"><link rel="shortcut icon" href="/favicon.ico"
type="image/x-icon" /><link rel="search" type="application/opensearchdescription+xml"
href="/content-search.xml" title="鋼惧害鏌減儲" /><link rel="icon" sizes="any" mask
href="//www.baidu.com/img/baidu_85beaf5496f291521eb75ba38eacbd87.svg"><link
rel="dns-prefetch" href="//dss0.bdstatic.com"/><link rel="dns-prefetch"
href="//dss1.bdstatic.com"/><link rel="dns-prefetch" href="//ss1.bdstatic.com"/><link
rel="dns-prefetch" href="//sp0.baidu.com"/><link rel="dns-prefetch" href="//sp1.baidu.com"/><link
rel="dns-prefetch" href="//sp2.baidu.com"/><title>鋼惧害涓€涓?
+CCHRECV: DATA,0,1024
紆浣犺氨鑹ラ厖</title><style type="text/css" id="css_index"
index="index">body,html{height:100%}html{overflow-y:auto}body{font:12px
arial;background:#fff}body,form,li,p,ul{margin:0;padding:0;list-style:none}#fm,body,form{position:
relative}td{text-align:left}img{border:0}a{text-decoration:none}a:active{color:#f60}input{border:0;p
adding:0}.clearfix:after{content:'\20';display:block;height:0;clear:both}.clearfix{zoom:1}#wrapper{p
osition:relative;min-height:100%}#head{padding-bottom:100px;text-align:center;*z-index:1}#ftCon{
height:50px;position:absolute;text-align:left;width:100%;margin:0
auto;z-index:0;overflow:hidden}#ftConw{display:inline-block;text-align:left;margin-left:33px;line-he
ight:22px;position:relative;top:-2px;*float:right;*margin-left:0;*position:static}#ftConw,#ftConw
a{color:#999}#ftConw{text-align:center;margin-left:0}.bg{background-image:url(http://ss.bdimg.co
m/static/superman/img/icons-5859e577e2.png);background-repeat:no-repeat;_background-image:u
rl(http://ss.bdimg.com/static/superman/img/icon
+CCHRECV: 0,0

+CCHEVENT: 0,RECV EVENT
```

NOTE

If connection is closed by server, the cached data will not be cleaned.

17.2.16 AT+CCERTMOVE Move the cert from file system to cert content

AT+CCERTMOVE Move the cert from file system to cert content

Test Command	Response
AT+CCERTMOVE=?	<CR><LF>
	+CCERTMOVE: "FILENAME" <CR><LF>
	<CR><LF>

	OK<CR><LF>
	Response
	1)if parameter is right and the file need to move is exist: <CR><LF>
	OK<CR><LF>
Write Command	2)if parameter is not right or any other error occurs: <CR><LF>
AT+CCERTMOVE=<filename>	ERROR<CR><LF>
	3)others: <CR><LF>
	ERROR<CR><LF>
Parameter Saving Mode	-
Max Response Time	120000ms
Reference	-

Defined Values

<filename>	The filename exist in file system,can be found by AT+FSLS. The length of filename is from 5 to 55 bytes.
-------------------------	---

Examples

```
AT+CCERTMOVE="baidu.der"
OK
```

17.3 Command Result Codes

17.3.1 Description of <err>

Result codes	Description
0	Operation succeeded
1	Alerting state(reserved)
2	Unknown error
3	Busy
4	Peer closed
5	Operation timeout

6	Transfer failed
7	Memory error
8	Invalid parameter
9	Network error
10	Open session error
11	State error
12	Create socket error
13	Get DNS error
14	Connect socket error
15	Handshake error
16	Close socket error
17	Nonet
18	Send data timeout
19	Not set certificates

17.4 Unsolicited Result Codes

URC	Description
+CCHEVENT: <session_id>,RECV EVENT	In manual receiving mode, when new data of a connection arriving to the module, this unsolicited result code will be reported to MCU.
+CCH_RECV_CLOSED: <session_id>,<err>	When receive data occurred any error, this unsolicited result code will be reported to MCU.
+CCH_PEER_CLOSED: <session_id>	The connection is closed by the server.
+CCH: CCH STOP[,<cid>]	CCH stopped caused by network error.

18 AT Commands for FOTA

18.1 Overview of AT Command for FOTA

Command	Description
AT+CFOTA	Start FOTA Service
AT+LFOTA	Start Local FOTA Service

18.2 Detailed Description of AT Command for FOTA

18.2.1 AT+CFOTA Start FOTA service

AT+CFOTA Start FOTA Service	
Write Command AT+CFOTA=<channel>,<mode>,<destination_ip:port/url>,<username>,<password>	Response 1) <CR><LF> OK <CR><LF> <CR><LF> +CFOTA: <err> <CR><LF> 2) <CR><LF> +CFOTA: ERROR <CR><LF> 3) <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	-

Defined Values

<channel>	0–5 means the channel number
<mode>	0 FTP way 1 HTTP way
<destination_ip:port/url>	The remote site server's IP address or URL address. IP address should be in the format of the dotted decimal notation: http://XXX.XXX.XXX. URL address should be ASCII characters, the maximum of the length is 255 bytes. NOTE: If <port> are omitted, the default FTP port is 21 and the default HTTP port is 80. The URL must be preceded by "http" or "https."
<username>	The login user name, it should be ASCII characters, and the maximum of the length is 128 bytes.
<password>	The login password, it should be ASCII characters, and the maximum of the length is 128 bytes.

Examples

AT+CFOTA=0,1,"http://183.230.174.137:6022/bin/fbf_dfota.par",simcom,simcom

+CFOTA: FOTA,START

+CFOTA: DOWNLOADING:0

+CFOTA: DOWNLOADING:17

+CFOTA: DOWNLOADING:50

+CFOTA: DOWNLOADING:83

+CFOTA: DOWNLOADING:99

+CFOTA: DOWNLOADING:100

18.2.2 AT+LFOTA Start Local FOTA Service

AT+LFOTA Start Local FOTA Service

Test Command	Response
--------------	----------

AT+LFOTA=?

```
<CR><LF>
+LFOTA: (0-1),<File Size><CR><LF>
<CR><LF>
OK<CR><LF>
```

Write Command
AT+LFOTA=<ops>,<File Size>

```
Response
1)If successfully:
><CR><LF>
OK<CR><LF>
2)If failed:
><CR><LF>
ERROR<CR><LF>
3)If failed:
<CR><LF>
ERROR<CR><LF>
```

Parameter Saving Mode

-

Max Response Time

300000ms

Reference

-

Defined Values

<ops>

0 initial parameters
1 start transfer

<File Size>

The bytes of the file data to send.

Examples

AT+LFOTA=0,5358979

OK

AT+LFOTA=1,5358979

>

OK

18.3 Unsolicited Result Codes

URC

Description

+CFOTA: 100

FOTA COMPLETE, it will restart in 8s.

19 AT Commands for CTBURST

19.1 Overview of AT Commands for CTBURST

Command	Description
AT+CTBURST	The RF TX Burst Test

19.2 Detailed Description of AT Commands for CTBURST

19.2.1 AT+CTBURST The TX/RX Burst Test

AT+CTBURST The RF TX Burst Test	
Test Command AT+CTBURST=?	Response <CR><LF> +CTBURST: 0-2,1-74,3000-65535,0-30,0-5 <CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+CTBURST=<mode>[,<b and>,<channel>,<power>[,<bandwidth>]]	Response If mode is 0 <CR><LF> +CTBURST: TX/RX OFF <CR><LF> <CR><LF> OK <CR><LF> If mode is 1 <CR><LF> +CTBURST: TX ON <CR><LF> <CR><LF> OK <CR><LF> If mode is 2 For LTE <CR><LF> OK <CR><LF>

	<CR><LF> +CTBURST: RX <rss> <CR><LF> If wrong during the execution <CR><LF> ERROR <CR><LF> or If parameter out of range <CR><LF> +CME ERROR: <err> <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<mode>	Start/stop TX/RX the burst/waveform 0 – stop RF TX/RX 1 – start RF TX 2 – start RF RX (nonsupport)
<band>	The band of burst/waveform to be sent 1~74, in common use band numbers: 1/3/5/8/20/28
<channel>	Frequency, the range is different according to different band 3000~65535 unit: 100 KHZ
<power>	The power unit: 0.25 dBm, the value is different for different band
<bandwidth>	Rx band width:0~5. 0 1.4M 1 3M 2 5M 3 10M 4 15M 5 20M
<rss>	The Rx Power unit: dBm

Examples

```

AT+CFUN=0                                     // Minimum functionality
+SIMCARD: NOT AVAILABLE

OK
AT+CTBURST=0                                   //Close TX/RX CTBURST
+CTBURST: TX/RX OFF
  
```

OK

AT+CTBURST=1,1,19200,23

//Start RF TX Power of LTE BAND1 the arfcn is
1920 MHZ the power is 23 dBm

+CTBURST: TX ON

OK

AT+CTBURST=0

//Close TX/RX CTBURST

+CTBURST: TX/RX OFF

OK

AT+CTBURST=2,1,21100,0,0

//Start RF RX Power of LTE BAND1 the arfcn is
2110 MHZ, the bandwidth is 10M, rx power is -60
dBm

OK

+CTBURST: RX: -60

NOTE

When testing TX, it is recommended to use a bandwidth of 100KHz for testing.

20 AT Commands for WIFI

20.1 Overview of AT Commands for WIFI

Command	Description
AT+CWSTASCAN	Scan WIFI network
AT+CWSTASCANEX	Scan WIFI network extension command
AT+CWSTASCANSYN	Asynchronous control command of scan Wi-Fi network

20.2 Detailed Description of AT Commands for WIFI

20.2.1 AT+CWSTASCAN Scan WIFI network

AT+CWSTASCAN Scan WIFI network	
Test Command AT+CWSTASCAN=?	Response <CR><LF> +CWSTASCAN: (0-1) <CR><LF> <CR><LF> OK <CR><LF>
Read Command AT+CWSTASCAN?	Response <CR><LF> +CWSTASCAN: <flag_show_signal> <CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+CWSTASCAN=<flag_show_signal>	Response 1)if the mode is 0 or 1: <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF>
Execute Command AT+CWSTASCAN	Response <CR><LF>

	[+CWSTASCAN: <bssid>,<channel_num>,[signal]<CR><LF> [.....]] <CR><LF> OK<CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<flag_show_signal>	0 Don't show the signal level. 1 Show the signal level. It's the default value.
<bssid>	The MAC address of external wireless network.
<channel_num>	The channel number of external wireless network.
<signal>	The signal level of external wireless network.

Examples

AT+CWSTASCAN=?

+CWSTASCAN: (0-1)

OK

AT+CWSTASCAN=1

OK

AT+CWSTASCAN?

+CWSTASCAN: 1

OK

AT+CWSTASCAN

+CWSTASCAN:

50:FA:84:AF:C8:B9,11,-61

86:40:BB:00:2E:AD,11,-65

1C:15:1F:55:56:7A,1,-76

B0:D5:9D:AF:57:A1,6,-79

30:7B:AC:6C:F9:B0,1,-81

OK

20.2.2 AT+CWSTASCANEX Scan WIFI network extension command

AT+CWSTASCANEX Scan WIFI network extension command	
Test Command AT+CWSTASCANEX=?	Response <CR><LF> +CWSTASCANEX: (0-1),(1-3),(4-10),(1-255),(0-1) <CR><LF> <CR><LF> OK <CR><LF>
Read Command AT+CWSTASCANEX?	Response <CR><LF> +CWSTASCANEX: <flag_show_signal>,<scan_round_num>,<scan_max_bssid_num>,<scan_timeout>,<scan_priority><CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+CWSTASCANEX=<flag_show_signal>[,<scan_round_num>[,<scan_max_bssid_num>[,<scan_timeout>[,<scan_priority>]]]]	Response 1) <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF>
Execute Command AT+CWSTASCANEX	Response <CR><LF> [+CWSTASCANEX: <bssid>,<channel_num>,[signal] <CR><LF> [... ...]] <CR><LF> OK <CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<flag_show_signal>	0 Don't show the signal level. 1 Show the signal level. It's the default value.
<scan_round_num>	The range is 1-3, means the number of rounds of WIFI scan.
<scan_max_bssid_num>	The range is 4-10, maximum number of bssid per WIFI scan.
<scan_timeout>	The range is 1-255, timeout.

<scan_priority>	The range is 0-1, priority.
<bssid>	The MAC address of external wireless network.
<channel_num>	The channel number of external wireless network.
<signal>	The signal level of external wireless network.

Examples

AT+CWSTASCANEX=?

+CWSTASCANEX: (0-1),(1-3),(4-10),(1-255),(0-1)

OK

AT+CWSTASCANEX=1,3,4,25,0

OK

AT+CWSTASCANEX?

+CWSTASCANEX: 1,3,4,25,0

OK

AT+CWSTASCANEX

+CWSTASCANEX:

08:4F:0A:CA:45:80,6,-64

92:32:4B:9F:E2:EB,1,-66

08:4F:0A:CA:45:40,1,-79

1C:15:1F:FD:C7:6C,6,-83

OK

20.2.3 AT+CWSTASCANSYN Asynchronous control command of scan Wi-Fi network

AT+CWSTASCANSYN Asynchronous control command of scan Wi-Fi network

Test Command AT+CWSTASCANSYN=?	Response <CR><LF> +CWSTASCANSYN: (0-1)<CR><LF> <CR><LF> OK<CR><LF>
Read Command AT+CWSTASCANSYN?	Response <CR><LF>

Write Command AT+CWSTASCANSYN=<op>	+CWSTASCANSYN: <op><CR><LF> <CR><LF> OK<CR><LF>
	Response 1) If op==1 and parameter format is right, response 0 indicates the end of the scan response <CR><LF> OK<CR><LF> <CR><LF> [+CWSTASCANSYN: <mac_addr>,<channel_number>,<rsssi><CR><LF> ,[... ...]] <CR><LF> +CWSTASCANSYN: 0<CR><LF> 2) If op==0 and parameter format is right, <CR><LF> OK<CR><LF> 3) <CR><LF> ERROR<CR><LF>
	Parameter Saving Mode NO_SAVE
	Max Response Time 255s
Reference	

Defined Values

<op>	0 Stop scan Wi-Fi network.
	1 Start scan Wi-Fi network.
<mac_addr>	The MAC address of external wireless network.
<channel_number>	The channel number of external wireless network.
<rsssi>	The signal level of external wireless network.

Examples

```

AT+CWSTASCANSYN=?
+CWSTASCANSYN: (0-1)

OK
AT+CWSTASCANSYN?
+CWSTASCANSYN: 0

OK
AT+CWSTASCANSYN=1

```

OK

+CWSTASCANSYN: "08:4F:0A:CA:45:80",6,-64

+CWSTASCANSYN: "92:32:4B:9F:E2:EB",1,-66

+CWSTASCANSYN: "1C:15:1F:FD:C7:6C",6,-83

+CWSTASCANSYN: 0

AT+CWSTASCANSYN=0

OK

NOTE

The platform does not support actively ending scanning, and can only wait for the scanning to timeout or end.

21 AT Commands for GNSS

21.1 Overview of AT Commands for GNSS

NOTE

Commands related to GNSS are only used in the SIM76XX Series.

Command	Description
AT+CGNSSPWR	GNSS power control
AT+CGNSSTST	Send data received from UART3 to NMEA port
AT+CGPSCOLD	Cold start GPS
AT+CGPSWARM	Warm start GPS
AT+CGPSHOT	Hot start GPS
AT+CGNSSIPR	Configure the baud rate of UART and GPS module
AT+CGNSSMODE	Configure GNSS support mode
AT+CGNSSNMEA	Configure NMEA sentence type
AT+CGNSSNMEARATE	Set NMEA output rate
AT+CGNSSPORTSWITCH	Select the output port of data.
AT+CGNSSCMD	Send command to GNSS
AT+CGNSSRTC	Configure GNSS RTC mode
AT+CGNSSSLEEP	Set GNSS into Sleep
AT+CGNSSWAKEUP	Set GNSS Wakeup from Sleep
AT+CGNSSFITNESS	Set GNSS into fitness mode
AT+CGNSSGLP	Set GNSS into low-power GLP mode
AT+CGNSSFLP	Set GNSS into Periodic Power Saving Mode
AT+CGNSSALP	Set GNSS into The adaptive low power mode
AT+CGNSSFTM	Start GNSS test mode
AT+CGPSINFO	Get GPS fixed position information
AT+CGNSSINFO	Get GNSS fixed position information
AT+CGNSSPROD	Get the product information of GNSS
AT+CAGPS	Get AGPS data from the AGNSS server for assisted positioning
AT+CAGPSTOLOCAL	Get real-time AGPS QEPO data into the module
AT+CAGPSTOGPS	Send locally stored AGPS QEPO data to the GPS chip
AT+CAGPSCHK	Obtain AGPS QEPO data validity information in GPS chip

21.2 Detailed Description of AT Commands for GNSS

21.2.1 AT+CGNSSPWR GNSS power control

This command can control the GNSS module by pulling up/down the power pin.

AT+CGNSSPWR GNSS power control	
Test Command AT+CGNSSPWR=?	Response <CR><LF> +CGNSSPWR: <GNSS_Power_status><CR><LF> <CR><LF> OK<CR><LF>
Read Command AT+CGNSSPWR?	Response <CR><LF> +CGNSSPWR: <GNSS_Power_status><CR><LF> <CR><LF> OK<CR><LF>
Write Command AT+CGNSSPWR=<GNSS_Power_status>	Response 1)If successfully: <CR><LF> OK<CR><LF> 2)If failed: <CR><LF> ERROR<CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	10000ms
Reference	-

Defined Values

<GNSS_Power_status>	0	Close GNSS
	1	Active GNSS
The function will take effect immediately.		

Examples

```

AT+CGNSSPWR=?
+CGNSSPWR: (0,1)

OK
AT+CGNSSPWR?
```

+CGNSSPWR: 1

OK

AT+CGNSSPWR=1

OK

21.2.2 AT+CGNSSTST Send data received from UART3 to NMEA port

AT+CGNSSTST is used to print raw GPS data to the NMEA port.

AT+CGNSSTST Send data received from UART3 to NMEA port

Test Command AT+CGNSSTST=?	Response <CR><LF> +CGNSSTST: (0,1) <CR><LF> <CR><LF> OK <CR><LF>
Read Command AT+CGNSSTST?	Response 1)If successfully: <CR><LF> +CGNSSTST: <on/off> <CR><LF> <CR><LF> OK <CR><LF> 2)If failed: <CR><LF> ERROR <CR><LF>
Write Command AT+CGNSSTST=<on/off>	Response 1)If successfully: <CR><LF> OK <CR><LF> 2)If failed: <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	10000ms
Reference	-

Defined Values

<on/off>	0 Stop sending data received from UART3 to NMEA port.
	1 Start sending data received from UART3 to NMEA port.
	The function will take effect immediately.

If you want to get NMEA data by NMEA port, you should to execute AT+CGNSSTST=1 first.

Examples

AT+CGNSSTST=?

+CGNSSTST: (0,1)

OK

AT+CGNSSTST?

+CGNSSTST: 0

OK

AT+CGNSSTST=1

OK

21.2.3 AT+CGPSCOLD Cold start GPS

This command is valid after the GNSS power on!

AT+CGPSCOLD Cold start GPS

Execute Command

AT+CGPSCOLD

Response

1)If successfully:

<CR><LF>

OK<CR><LF>

2)If failed:

<CR><LF>

ERROR<CR><LF>

Parameter Saving Mode

NO_SAVE

Max Response Time

10000ms

Reference

-

Examples

AT+CGPSCOLD

OK

21.2.4 AT+CGPSWARM Warm start GPS

This command is valid after the GNSS power on!

AT+CGPSWARM Warm start GPS

Execute Command AT+CGPSWARM	Response
	1)If successfully: <CR><LF> OK <CR><LF>
	2)If failed: <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	10000ms
Reference	-

Examples

AT+CGPSWARM

OK

21.2.5 AT+CGPSHOT Hot start GPS

This command is valid after the GNSS power on!

AT+CGPSHOT Hot start GPS

Execute Command AT+CGPSHOT	Response
	1)If successfully: <CR><LF> OK <CR><LF>
	2)If failed: <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	10000ms
Reference	-

Examples

AT+CGPSHOT

OK

21.2.6 AT+CGNSSIPR Configure the baud rate of UART3 and GPS module

This command is valid after the GNSS power on!

AT+CGNSSIPR Configure the baud rate of UART3 and GPS module

Test Command AT+CGNSSIPR=?	Response <CR><LF> +CGNSSIPR: (list of supported <baud-rate>s)<CR><LF> <CR><LF> OK<CR><LF>
Read Command AT+CGNSSIPR?	Response <CR><LF> +CGNSSIPR: <baud-rate><CR><LF> <CR><LF> OK<CR><LF>
Write Command AT+CGNSSIPR=<baud-rate>	Response 1)If successfully: <CR><LF> OK<CR><LF> 2)If failed: <CR><LF> ERROR<CR><LF>
Execute Command AT+CGNSSIPR	Response Set default value <CR><LF> OK<CR><LF>
Parameter Saving Mode	SAVE
Max Response Time	10000ms
Reference	-

Defined Values

<baud-rate>	9600
	<u>115200</u>
	230400
	921600
	The function will take effect immediately.

Examples

```
AT+CGNSSIPR=?
+CGNSSIPR: (9600,115200,230400,921600)
```

```
OK
AT+CGNSSIPR?
+CGNSSIPR: 115200
```

```
OK
AT+CGNSSIPR=9600
OK
```

21.2.7 AT+CGNSSMODE Configure GNSS support mode

This command is valid after the GNSS power on!

AT+CGNSSMODE Configure GNSS support mode

Test Command AT+CGNSSMODE=?	Response <CR><LF> +CGNSSMODE: (list of supported <mode>s)<CR><LF> <CR><LF> OK<CR><LF>
Read Command AT+CGNSSMODE?	Response 1)If successfully: <CR><LF> +CGNSSMODE: <mode><CR><LF> <CR><LF> OK<CR><LF> 2)If failed: <CR><LF> ERROR<CR><LF>
Write Command AT+CGNSSMODE=<mode>	Response 1)If successfully: <CR><LF> OK<CR><LF> 2)If failed: <CR><LF> ERROR<CR><LF>

Execute Command AT+CGNSSMODE	Response Set default value 15 <CR><LF> OK <CR><LF>
Parameter Saving Mode	SAVE
Max Response Time	10000ms
Reference	-

Defined Values

<mode>	1 GPS 3 GPS + GLONASS 5 GPS + GALILEO 9 GPS + BDS 13 GPS + GALILEO + BDS <u>15</u> GPS + GLONASS + GALILEO + BDS The function will take effect immediately.
--------	---

Examples

AT+CGNSSMODE=?

+CGNSSMODE: (1,3,5,9,13,15)

OK

AT+CGNSSMODE?

+CGNSSMODE: 15

OK

AT+CGNSSMODE=1

OK

21.2.8 AT+CGNSSNMEA Configure NMEA sentence type

This command is valid after the GNSS power on!

AT+CGNSSNMEA Configure NMEA sentence type

Test Command AT+CGNSSNMEA=?	Response <CR><LF> +CGNSSNMEA: (0-1),(0-1),(0-1),(0-1),(0-1),(0-1),(0-1),(0-1),(0-1)<CR><LF>
---------------------------------------	---

Read Command AT+CGNSSNMEA?	<CR><LF> OK <CR><LF>
	Response 1)If successfully: <CR><LF> +CGNSSNMEA: 1,1,1,1,1,1,1,0,0,0 <CR><LF> <CR><LF> OK <CR><LF> 2)If failed: <CR><LF> ERROR <CR><LF>
Write Command AT+CGNSSNMEA=[nGGA,[nGLL,[nGSA,[nGSV,[nRMC,[nVTG,[nZDA,[nANT,[nDHV,[nLPS,[res1,[res2,[nUTC,[nGST]]]]]]]]]]]	Response 1)If successfully: <CR><LF> OK <CR><LF> 2)If failed: <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	SAVE
Max Response Time	10000ms
Reference	-

Defined Values

[nGGA,[nGLL,[nGSA,[nGSV,[nRMC,[nVTG,[nZDA,[nGRS,[nGST,[nGNS]]]]]]]]]	The range of n is 0-9. It means that the sentence is output every n times, 0 means no output, null means to save the original configuration. nGGA GGA output rate, default is 1 nGLL GLL output rate, default is 1 nGSA GSA output rate, default is 1 nGSV GSV output rate, default is 1 nRMC RMC output rate, default is 1 nVTG VTG output rate, default is 1 nZDA ZDA output rate, default is 1 nGRS GRS output rate, default is 0 nGST GST output rate, default is 0 nGNS GNS output rate, default is 0 The function will take effect immediately.
---	---

Examples

AT+CGNSSNMEA=?
+CGNSSNMEA: (0-1),(0-1),(0-1),(0-1),(0-1),(0-1),(0-1),(0-1),(0-1),(0-1)

OK

AT+CGNSSNMEA?

+CGNSSNMEA: 1,1,1,1,1,1,0,0,0

OK

AT+CGNSSNMEA=1,1,1,1,1,1,0,0,0

OK

21.2.9 AT+CGNSSNMEARATE Set NMEA output rate

This command is valid after the GNSS power on!

AT+CGNSSNMEARATE Set NMEA output rate

Test Command

AT+CGNSSNMEARATE=?

Response

<CR><LF>

+CGNSSNMEARATE: (1)<CR><LF>

<CR><LF>

OK<CR><LF>

Read Command

AT+CGNSSNMEARATE?

Response

1)If successfully:

<CR><LF>

+CGNSSNMEARATE: <rate><CR><LF>

<CR><LF>

OK<CR><LF>

2)If failed:

<CR><LF>

ERROR<CR><LF>

Write Command

AT+CGNSSNMEARATE=<rate>

Response

1)If successfully:

<CR><LF>

OK<CR><LF>

2)If failed:

<CR><LF>

ERROR<CR><LF>

Execute Command

AT+CGNSSNMEARATE

Response

Set default value 1

<CR><LF>

OK<CR><LF>

Parameter Saving Mode

NO_SAVE

Max Response Time

10000ms

Reference

-

Defined Values

<rate>

1 1Hz, one anchor point is output per second
The function will take effect immediately.

Examples

AT+CGNSSNMEARATE=?

+CGNSSNMEARATE: (1)

OK

AT+CGNSSNMEARATE?

+CGNSSNMEARATE: 1

OK

AT+CGNSSNMEARATE=1

OK

AT+CGNSSNMEARATE

OK

21.2.10 AT+CGNSSPORTSWITCH Select the output port of data.

This command is valid after the GNSS power on!

AT+CGNSSPORTSWITCH Select the output port of data

Test Command AT+CGNSSPORTSWITCH=?	Response <CR><LF> +CGNSSPORTSWITCH: (0,1),(0,1) <CR><LF> <CR><LF> OK <CR><LF>
Read Command AT+CGNSSPORTSWITCH?	Response 1)If successfully: <CR><LF> +CGNSSPORTSWITCH: <parse_data_port>,<nmea_data_port> <CR><LF> <CR><LF> OK <CR><LF> 2)If failed: <CR><LF> ERROR <CR><LF>
Write Command AT+CGNSSPORTSWITCH=<par	Response 1)If send OK:

<code>se_data_port>[,<nmea_data_port>]</code>	<code><CR><LF></code> OK <code><CR><LF></code> 2)If send false: <code><CR><LF></code> ERROR <code><CR><LF></code>
Parameter Saving Mode	NO_SAVE
Max Response Time	10000ms
Reference	-

Defined Values

<code><parse_data_port></code>	0 output the parsed data of NMEA to USB AT port. 1 output the parsed data of NMEA to UART port.
<code><nmea_data_port></code>	0 output raw NMEA data to USB NMEA port. 1 output raw NMEA data to UART port.

Examples

```

AT+CGNSSPORTSWITCH=?
+CGNSSPORTSWITCH: (0,1),(0,1)

OK
AT+CGNSSPORTSWITCH=0,1
OK

```

21.2.11 AT+CGNSSCMD Send command to GNSS

This command is valid after the GNSS power on!

AT+CGNSSCMD Send command to GNSS

Test Command <code>AT+CGNSSCMD=?</code>	Response <code><CR><LF></code> +CGNSSCMD: "CmdString" <code><CR><LF></code> <code><CR><LF></code> OK <code><CR><LF></code>
Write Command <code>AT+CGNSSCMD=<CmdString></code>	Response 1)If send OK: <code><CR><LF></code> OK <code><CR><LF></code> 2)If send false:

	<CR><LF> ERROR <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	10000ms
Reference	-

Defined Values

<CmdString>	Command string, max length of string is 63. For example: if you want to send "PAIR006" command to GNSS. You can use: AT+CGNSSCMD="PAIR006"
-------------	---

Examples

```
AT+CGNSSCMD=?
+CGNSSCMD: "CmdString"

OK
AT+CGNSSCMD="$PCAS02,1000*2E"
OK
```

21.2.12 AT+CGNSSRTC Configure GNSS RTC mode

This command is valid after the GNSS power on!

AT+CGNSSRTC Configure GNSS RTC mode

Test Command AT+CGNSSRTC=?	Response <CR><LF> +CGNSSRTC: (0,10-864000) <CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+CGNSSRTC=<RtcTime>	Response 1)If send OK: <CR><LF> OK <CR><LF> 2)If send false: <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	10000ms

Reference

-

Defined Values

<RtcTime>	0	Enter RTC mode and only use external wake-up.
	10-864000	Enter RTC mode and wake up regularly.

Examples

AT+CGNSSRTC=?

+CGNSSRTC: (0,10-864000)

OK

AT+CGNSSRTC=0

OK

21.2.13 AT+CGNSSSLEEP Set GNSS into Sleep

This command is valid after the GNSS power on!

AT+ CGNSSSLEEP Set GNSS into Sleep

Execute Command
AT+CGNSSSLEEP

Response
1)If successfully:
<CR><LF>
OK<CR><LF>
2)If failed:
<CR><LF>
ERROR<CR><LF>

Parameter Saving Mode NO_SAVE

Max Response Time 10000ms

Reference

-

Examples

AT+CGNSSSLEEP

OK

21.2.14 AT+CGNSSWAKEUP Set GNSS Wakeup form Sleep

This command is valid after the GNSS power on!

AT+CGNSSWAKEUP Set GNSS Wakeup form Sleep

Execute Command AT+CGNSSWAKEUP	Response 1)If successfully: <CR><LF> OK <CR><LF>
	2)If failed: <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	10000ms
Reference	-

Examples

AT+CGNSSWAKEUP

OK

21.2.15 AT+CGNSSFITNESS Set GNSS into fitness mode

This command is valid after the GNSS power on!

AT+ CGNSSFITNESS Set GNSS into fitness mode

Test Command AT+CGNSSFITNESS=?	Response <CR><LF> +CGNSSFITNESS: (0,1) <CR><LF> <CR><LF> OK <CR><LF>
Read Command AT+CGNSSFITNESS?	Response 1)If successfully: <CR><LF> +CGNSSFITNESS: <on/off> <CR><LF> <CR><LF> OK <CR><LF>
	2)If failed: <CR><LF> ERROR <CR><LF>

Write Command AT+CGNSSFITNESS=<on/off>	Response 1)If successfully: <CR><LF> OK <CR><LF> 2)If failed: <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	10000ms
Reference	-

Defined Values

<on/off>	<u>0</u> Set gnss into normal mode 1 Set gnss into fitness mode The function will take effect immediately.
----------	--

Examples

```
AT+CGNSSFITNESS=?
+CGNSSFITNESS: (0,1)
```

```
OK
AT+CGNSSFITNESS?
+CGNSSFITNESS: 1
```

```
OK
AT+CGNSSFITNESS=1
OK
```

21.2.16 AT+CGNSSGLP Set GNSS into low-power GLP mode

This command is valid after the GNSS power on!

AT+CGNSSGLP Set GNSS into low-power GLP mode

Test Command AT+CGNSSGLP=?	Response <CR><LF> +CGNSSGLP: (0,1) <CR><LF> <CR><LF>
--------------------------------------	--

Read Command AT+CGNSSGLP?	OK<CR><LF> Response 1)If successfully: <CR><LF> +CGNSSGLP: <on/off><CR><LF> <CR><LF> OK<CR><LF> 2)If failed: <CR><LF> ERROR<CR><LF>
Write Command AT+CGNSSGLP =<on/off>	Response 1)If successfully: <CR><LF> OK<CR><LF> 2)If failed: <CR><LF> ERROR<CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	10000ms
Reference	-

Defined Values

<on/off>	<u>0</u> Set GNSS quit low-power GLP mode
	1 Set GNSS into low-power GLP mode
	The function will take effect immediately.

Examples

AT+CGNSSGLP=?
+CGNSSGLP: (0,1)

OK
AT+CGNSSGLP?
+CGNSSGLP: 0

OK
AT+CGNSSGLP =1
OK

21.2.17 AT+CGNSSFLP Set GNSS into Periodic Power Saving Mode

This command is valid after the GNSS power on!

AT+CGNSSFLP Set GNSS into Periodic Power Saving Mode

Test Command AT+CGNSSFLP=?	Response <CR><LF> +CGNSSFLP: (0,1),(3-518400),(3-518400),(3-518400),(3-518400)<CR><LF> <CR><LF> OK <CR><LF>
Read Command AT+CGNSSFLP?	Response 1)If successfully: <CR><LF> +CGNSSFLP: <on/off>,<FirstRun>,<FirstSleep>,<SecondRun>,<SecondSleep><CR><LF> <CR><LF> OK <CR><LF> 2)If failed: <CR><LF> ERROR <CR><LF>
Write Command AT+CGNSSFLP=<on/off>,<FirstRun>,<FirstSleep>,<SecondRun>,<SecondSleep>	Response 1)If successfully: <CR><LF> OK <CR><LF> 2)If failed: <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	10000ms
Reference	-

Defined Values

<on/off>	0 Disable Periodic Power Saving Mode 1 Enable Periodic Power Saving Mode The function will take effect immediately.
<FirstRun>	Interval in seconds to exit the minimum power sleep mode and get a new position fix. [Range: 3~518400 s].Default is 21.
<FirstSleep>	Duration in seconds to get a fix (or attempt to get a fix) before switching from running mode back to a minimum power sleep mode. [Range: 3~518400 s].Default is 39.

<SecondRun>	GNSS system will use "second run time" instead of "run time" setting when there is no signal. [Range: 0 or 3~518400 s].Default is 48.
<SecondSleep>	GNSS system will use "second sleep time" instead of "sleep time" setting when there is no signal. [Range: 0 or 3~518400 s].Default is 72.

Examples

AT+CGNSSFLP=?

+CGNSSFLP: (0,1),(3-518400),(3-518400),(3-518400),(3-518400)

OK

AT+CGNSSFLP?

+CGNSSFLP: 0,0,0,0,0

OK

AT+CGNSSFLP=1,32,48,72,81

OK

21.2.18 AT+CGNSSALP Set GNSS into The adaptive low power mode

This command is valid after the GNSS power on!

AT+CGNSSALP Set GNSS into The adaptive low power mode

Test Command AT+CGNSSALP=?	Response <CR><LF> +CGNSSALP: (0,1,2)<CR><LF> <CR><LF> OK<CR><LF>
Read Command AT+CGNSSALP?	Response 1)If successfully: <CR><LF> +CGNSSALP: <mode><CR><LF> <CR><LF> OK<CR><LF> 2)If failed: <CR><LF> ERROR<CR><LF>
Write Command AT+CGNSSALP=<mode>	Response 1)If successfully:

	<CR><LF> OK <CR><LF> 2)If failed: <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	10000ms
Reference	-

Defined Values

<mode>	0 Disable both adaptive low-power power saving mode and adaptive low-power performance mode 1 Enable adaptive low-power power saving mode which might sacrifice GNSS performance in favor of a reduced power consumption. 2 Enable adaptive low-power performance mode which achieves relatively good performance while keeping the power consumption low. The function will take effect immediately.
--------	--

Examples

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

```
OK
AT+CGNSSALP?
+ CGNSSALP: 0
```

```
OK
AT+CGNSSALP=1
OK
```

21.2.19 AT+CGNSSFTM Start GNSS test mode

This command is valid after the GNSS power on!

AT+CGNSSFTM Start GPS test mode

Test Command AT+CGNSSFTM=?	Response <CR><LF> +CGNSSFTM: (0,1) <CR><LF> OK <CR><LF>
Read Command AT+CGNSSFTM?	Response 1)If successfully: <CR><LF> +CGNSSFTM: <on/off> <CR><LF> <CR><LF> OK <CR><LF> 2)If failed: <CR><LF> ERROR <CR><LF>
Write Command AT+CGNSSFTM=<on/off>	Response 1)If successfully: <CR><LF> OK <CR><LF> 2)If failed: <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	10000ms
Reference	-

Defined Values

<on/off>	<u>0</u> Close test mode 1 Start test mode The function will take effect immediately.
-----------------------	---

Examples

AT+CGNSSFTM?

+CGNSSFTM: 0

OK

AT+CGNSSFTM=1

OK

+GPGSV,10,36.3,12,33.5,14,26.5,15,27.0,18,30.6,20,29.4,21,14.9,24,32.8,25,30.6,31,29.1,32,27.0
+GBGSV,201,28.7,204,29.0,206,27.3,207,25.9,209,25.0,210,18.5

```
+GLGSV,78,20.6,66,25.6,77,21.6,79,21.9,67,26.2,
68,23.6
+GAGSV
```

21.2.20 AT+CGPSINFO Get GPS fixed position information

This command is valid after the GNSS power on!

AT+CGPSINFO Get GPS fixed position information

Test Command AT+CGPSINFO=?	Response <CR><LF> +CGPSINFO: (0-255)<CR><LF> <CR><LF> OK<CR><LF>
Read Command AT+CGPSINFO?	Response 1)If successfully: <CR><LF> +CGPSINFO: <time><CR><LF> <CR><LF> OK<CR><LF> 2)If failed: <CR><LF> ERROR<CR><LF>
Write Command AT+CGPSINFO=<time>	Response 1)If successfully: <CR><LF> OK<CR><LF> +CGPSINFO: [<lat>],[<N/S>],[<log>],[<E/W>],[<date>],[<UTC time>],[<alt>],[<speed>],[<course><CR><LF> 2)If <time>=0: <CR><LF> OK<CR><LF> 3)If failed: <CR><LF> ERROR<CR><LF>
Execute Command AT+CGPSINFO	Response <CR><LF> +CGPSINFO: [<lat>],[<N/S>],[<log>],[<E/W>],[<date>],[<UTC time>],[<alt>],[<speed>],[<course><CR><LF> <CR><LF> OK<CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	10000ms

Reference

-

Defined Values

<time>	The rang is 0-255, unit is second. after set <time> will report the GPS information every the seconds. The function will take effect immediately.
<lat>	Latitude of current position. Output format is ddmm.mmmmmm.
<N/S>	N/S Indicator, N=north or S=south.
<log>	Longitude of current position. Output format is dddmm.mmmmmm.
<E/W>	E/W Indicator, E=east or W=west.
<date>	Date. Output format is ddmmyy.
<UTC time>	UTC Time. Output format is hhmmss.ss.
<alt>	MSL Altitude. Unit is meters.
<speed>	Speed Over Ground. Unit is knots.
<course>	Course. Degrees.

Examples

AT+CGPSINFO=?

+CGPSINFO: (0-255)

OK

AT+CGPSINFO?

+CGPSINFO: 0

OK

AT+CGPSINFO

+CGPSINFO: 3113.343286,N,12121.234064,E,250311,072809.33,44.1,0.0,0

OK

21.2.21 AT+CGNSSINFO Get GNSS fixed position information

This command is valid after the GNSS power on!

AT+CGNSSINFO Get GNSS fixed position information

Test Command

AT+CGNSSINFO=?

Response

<CR><LF>

+CGNSSINFO: (0-255)<CR><LF>

Read Command AT+CGNSSINFO?	<CR><LF> OK<CR><LF> Response 1)If successfully: <CR><LF> +CGNSSINFO: <time><CR><LF> <CR><LF> OK<CR><LF> 2)If failed: <CR><LF> ERROR<CR><LF>
Write Command AT+CGNSSINFO=<time>	Response 1)If successfully: <CR><LF> OK<CR><LF> <CR><LF> +CGNSSINFO: [<mode>],[<GPS-SVs>],[<GLONASS-SVs>], [<GALILEO-SVs>],[<BEIDOU-SVs>], [<lat>],[<N/S>],[<log>],[<E/W>],[<date>],[<UTC-time>],[<alt>],[<speed>],[<course>],[<PDOP>],[<HDOP>],[<VDOP>],[<NoSV>]<CR><LF> 2)If <time>=0: <CR><LF> OK<CR><LF> 3)If failed: <CR><LF> ERROR<CR><LF>
Execute Command AT+CGNSSINFO	Response <CR><LF> +CGNSSINFO: [<mode>],[<GPS-SVs>],[<GLONASS-SVs>], [<GALILEO-SVs>],[<BEIDOU-SVs>], [<lat>],[<N/S>],[<log>],[<E/W>],[<date>],[<UTC-time>],[<alt>],[<speed>],[<course>],[<PDOP>],[<HDOP>],[<VDOP>],[<NoSV>]<CR><LF> <CR><LF> OK<CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	10000ms
Reference	-

Defined Values

<time>	The rang is 0-255, unit is second. after set <time> will report the GNSS information every the seconds.
--------	---

	The function will take effect immediately.
<mode>	Fix mode 2=2D fix 3=3D fix
<GPS-SVs>	GPS satellite visible numbers
<GLONASS-SVs>	GLONASS satellite visible numbers
<GALILEO -SVs>	GALILEO satellite visible numbers
<BEIDOU-SVs>	BEIDOU satellite visible numbers
<lat>	Latitude of current position. Output format is dd.dddddddd
<N/S>	N/S Indicator, N=north or S=south.
<log>	Longitude of current position. Output format is ddd.dddddddd
<E/W>	E/W Indicator, E=east or W=west.
<date>	Date. Output format is ddmmyy.
<UTC-time>	UTC Time. Output format is hhmmss.ss.
<alt>	MSL Altitude. Unit is meters.
<speed>	Speed Over Ground. Unit is knots.
<course>	Course. Degrees.
<PDOP>	Position Dilution Of Precision.
<HDOP>	Horizontal Dilution Of Precision.
<VDOP>	Vertical Dilution Of Precision.
<NoSV>	Number of satellites involved in positioning

Examples

AT+CGNSSINFO=?

+CGNSSINFO: (0-255)

OK

AT+CGNSSINFO?

+CGNSSINFO: 0

OK

AT+CGNSSINFO

+CGNSSINFO:

2,09,05,00,00,29.4218121,N,121.2648561,E,131117,091918.00,32.9,0.0,255.0,1.1,0.8,0.7,14

OK

AT+CGNSSINFO (if not fix, will report null)

+CGNSSINFO:,,,,,,,,,,,,,,,,,,,,,

OK

21.2.22 AT+CGNSSPROD Get the product information of GNSS

This command is valid after the GNSS power on!

AT+CGNSSPROD Get the product information of GNSS

Execute Command AT+CGNSSPROD	Response
	1)If successfully: <CR><LF> PRODUCT: < prodversion> <CR><LF> <CR><LF> OK <CR><LF>
	2)If the GNSS is power off: <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	10000ms
Reference	-
Defined Values	
<prodname>	The product information of GNSS
Examples	

AT+CGNSSPROD

PRODUCT: B01V01AG3352B

OK

21.2.23 AT+CAGPS Get AGPS data from the AGNSS server for assisted positioning

This command is valid after the GNSS power on!

AT+CAGPS Get AGPS data from the AGNSS server for assisted positioning

Execute Command AT+CAGPS	Response
	1)If successfully: <CR><LF> OK <CR><LF> <CR><LF> +CAGPS: success. <CR><LF>
	2)If failed: <CR><LF> ERROR <CR><LF>

	3)If failed: <CR><LF> OK <CR><LF> <CR><LF> +CAGPS: <error code>.<CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	9000ms
Reference	-

Defined Values

<error code>	101 open socket unsuccessfully. 102 get the AGNSS server unsuccessfully. 103 connect to AGNSS server unsuccessfully. 104 write information to socket unsuccessfully. 105 read AGPS data from socket unsuccessfully. 108 store local agpsdata unsuccessfully.
---------------------------	---

Examples

AT+CAGPS

OK

+AGPS: success.

21.2.24 AT+CAGPSTOLOCAL Get real-time AGPS QEPO data into the module

AT+CAGPSTOLOCAL Get real-time AGPS QEPO data into the module

Test Command AT+CAGPSTOLOCAL=?	Response <CR><LF> +CAGPSTOLOCAL: (0-3)<CR><LF> <CR><LF> OK <CR><LF>
Read Command AT+CAGPSTOLOCAL?	Response <CR><LF> +CAGPSTOLOCAL: <mode><CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+CAGPSTOLOCAL=<mode>	Response 1)If successfully: <CR><LF>

	OK <CR><LF> <CR><LF> +AGPS: success. <CR><LF> 2)If failed: <CR><LF> ERROR <CR><LF> 3)If failed: <CR><LF> +AGPS: <error code>. <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	9000ms
Reference	-

Defined Values

<mode>	Different ways to store AGPS data. 0 pull AGPS data from the server and inject it directly into the GPS chip 1 store AGPS data in RAM 2 store AGPS data in the FLASH NVM partition, with the file name simfile-agpsData.rtc 3 delete AGPS data stored in RAM and FLASH
--------	--

Examples

AT+CAGPSTOLOCAL=?

+CAGPSTOLOCAL: (0-3)

OK

AT+CAGPSTOLOCAL?

+CAGPSTOLOCAL: 0

OK

AT+CAGPSTOLOCAL=1

OK

+AGPS: success.

21.2.25 AT+CAGPSTOGPS Send locally stored AGPS QEPO data to the GPS chip

AT+CAGPSTOGPS Send locally stored AGPS QEPO data to the GPS chip

Write Command

Response

AT+CAGPSTOGPS=<mode>,[<auxiliary_time>],[<auxiliary_position>]

1)If successfully:
 <CR><LF>
OK<CR><LF>
 <CR><LF>
agpsendtoGnss: success<CR><LF>
 2)If failed:
 AIDTIME Incorrect format
 <CR><LF>
ERROR<CR><LF>
 3)If failed:
 AIDPOS Incorrect format
 <CR><LF>
ERROR<CR><LF>
 4)If failed:
 +CAGPSTOGPS:AIDTIME <auxiliary_time> is invalid
 <CR><LF>
ERROR<CR><LF>
 5)If failed:
 +CAGPSTOGPS: AIDPOS <auxiliary_position> is invalid
 <CR><LF>
ERROR<CR><LF>
 6)If failed:
 <CR><LF>
ERROR<CR><LF>

Parameter Saving Mode

NO_SAVE

Max Response Time

9000ms

Reference

-

Defined Values

<mode>

- 1 Sending AGPS stored in RAM to GPS chip.
- 2 Send AGPS stored in flash to GPS chip.

< auxiliary_time>

The input format is: year, month, day, hour, minute, second, milliseconds.
 For example: "2024,4,3,16,52,50,50"

< auxiliary_position>

Input format: latitude, longitude. Latitude units: ddmm.mmmmmm, longitude units: dddmm.mmmmmm,
 For example: "2929.461620, 10638.075350"

Examples

AT+CAGPSTOGPS=1,"2024,4,3,16,52,50,50","2929.461620,10638.075350"

OK

agpsendtoGnss: success

NOTE

- If you want the injected auxiliary time and auxiliary position to be effective for GPS accelerated positioning, the accuracy of the auxiliary time needs to be guaranteed to be within 1ms of the input error, and the accuracy of the auxiliary position needs to be valid within 5KM.
- If the auxiliary time and position entered is invalid it will have a negative effect and will make the positioning a little slower.
- Auxiliary time and auxiliary position are not entered, and being empty does not affect the injection of AGPS data into the GPS chip, but it will affect the positioning speed, so it is recommended to enter at least one of them.

21.2.26 AT+CAGPSCHK Obtain AGPS QEPO data validity information in GPS chip

This command is valid after the GNSS power on!

AT+CAGPSCHK Obtain AGPS QEPO data validity information in GPS chip

Execute Command AT+CAGPSCHK	Response 1)If successfully: <CR><LF> +CAGPSCHK: <GPSRS>,<GPSUS>,<BDSRS>,<BDSUS>,<GALRS>,<GALUS>,<GLORS>,<GLOUS><CR><LF> <CR><LF> OK <CR><LF> 2)If failed: <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	9000ms
Reference	-

Defined Values

<GPSRS>	Receiving status of GPS QEPO. As long as the received data is verified, the corresponding bit is set to 1. If the GPS system is disabled, the field is 0.
<GPSUS>	If the GPS QEPO is valid and can be used for positioning, the corresponding bit is set to 1. If the GPS system is not enabled, this field is 0.
<BDSRS>	Receiving status of BDS QEPO. As long as the received data is verified, the corresponding bit is set to 1. If the BDS system is

	disabled, the field is 0.
<BDSUS>	If the BDS QEPO is valid and can be used for positioning, the corresponding bit is set to 1. If the BDS system is not enabled, this field is 0.
<GALRS>	Receiving status of GAL QEPO. As long as the received data is verified, the corresponding bit is set to 1. If the GAL system is disabled, the field is 0.
<GALUS>	If the GAL QEPO is valid and can be used for positioning, the corresponding bit is set to 1. If the GAL system is not enabled, this field is 0.
<GLORS>	Receiving status of GLO QEPO. As long as the received data is verified, the corresponding bit is set to 1. If the GLO system is disabled, the field is 0.
<GLOUS>	If the GLO QEPO is valid and can be used for positioning, the corresponding bit is set to 1. If the GLO system is not enabled, this field is 0.

Examples

AT+CAGPSCHK

+CAGPSCHK: 0,0,0,0,0,0,0,0.

OK

22 AT Commands for SMTPS

22.1 Overview of AT Commands for SMTPS

Command	Description
AT+CSMTP SCFG	Configure the SMTP context
AT+CSMTP SSRV	Set SMTP server address and port number
AT+CSMTP SAUT H	SMTP server authentication
AT+CSMTP SFRO M	Sender address and name
AT+CSMTP SRCPT	Recipient address and name (TO/CC/BCC)
AT+CSMTP SSUB	E-mail subject
AT+CSMTP SBOD Y	E-mail body
AT+CSMTP SBCH	E-mail body character set
AT+CSMTP SFILE	Select attachment
AT+CSMTP SSEN D	Initiate session and send e-mail
AT+CSMTP SSTOP	Force to stop sending e-mail
AT+CSMTP SCLEA N	Clean mail content and setting

22.2 Detailed Description of AT Commands for SMTPS

Commands related to SMTPS are only used in the versions that support this feature.

22.2.1 AT+CSMTPSCFG Config the SMTP context

This command is used to select SMTP ssl context and pdp context. SMTP client will initiate session with the specified context to send an e-mail.

Execution command will set the ssl context and pdp context as default value.

AT+CSMTPSCFG Config the SMTP context

Test Command
AT+CSMTPSCFG=?

Response
<CR><LF>
OK<CR><LF>

Write Command
/* select the ssl context */
**AT+CSMTPSCFG="sslCtxId"
"",<sslCtxId>]**

Response
1)if the "sslCtxId" is default:
<CR><LF>
+CSMTPSCFG: "sslCtxId",<sslCtxId><CR><LF>
<CR><LF>
OK<CR><LF>
2) the "sslCtxId" is not default:
<CR><LF>
OK<CR><LF>
3) error
<CR><LF>
ERROR<CR><LF>

Write Command
/* select the pdp context */
**AT+CSMTPSCFG="pdpCtxId"
d",<pdpCtxId>]**

Response
1)the "pdpCtxId" is default:
<CR><LF>
+CSMTPSCFG: "pdpCtxId",<pdpCtxId><CR><LF>
<CR><LF>
OK<CR><LF>
2) the "pdpCtxId" is not default:
<CR><LF>
OK<CR><LF>
3) error
<CR><LF>
ERROR<CR><LF>

Write Command
/* select the cid context */
**AT+CSMTPSCFG="CID",<cid>
d>]**

Response
1) when the <cid> is not set:
<CR><LF>
+CSMTPSCFG: "CID",<cid><CR><LF>
<CR><LF>

Execute Command AT+CSMTPSCFG	OK <CR><LF>
	2) when the <cid> is set: <CR><LF>
	OK <CR><LF>
	or <CR><LF>
	ERROR <CR><LF>
	Response <CR><LF>
	OK <CR><LF>
	or <CR><LF>
Parameter Saving Mode	ERROR <CR><LF>
	-
	-
	-
Max Response Time	-
Reference	-

Defined Values

<sslCtxId>	SMTP SSL context id. the default is 0.
<pdpCtxId>	SMTP PDP context id. the default is 1.
<cid>	A numeric parameter which specifies a particular PDP context. The range is 1-n. The maximum value n is related to the pdp command of the modem. If <cid> is not set, query the current cid, and the default value is 1.

Example

```

AT+CSMTPSCFG="sslCtxId",0
OK
AT+CSMTPSCFG="sslCtxId"
+CSMTPSCFG: "sslCtxId",0

OK
AT+CSMTPSCFG="CID"
+CSMTPSCFG: "CID",1

OK
AT+CSMTPSCFG="CID",1
OK

```

22.2.2 AT+CSMTPSSRV Set SMTP server address and port number

This command is used to set SMTP server address and server's port number. SMTP client will initiate TCP session with the specified server to send an e-mail.

Read command returns current SMTP server address and port number.

Execution command will clear SMTP server address and set the port number as default value.

AT+CSMTPSSRV Set SMTP server address and port number

Test Command AT+CSMTPSSRV=?	Response <CR><LF> OK <CR><LF>
Read Command AT+CSMTPSSRV?	Response <CR><LF> +CSMTPSSRV: <server>,<port>,<server_type> <CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+CSMTPSSRV=<server>,<port>[,<server_type>]	Response <CR><LF> OK <CR><LF> or <CR><LF> ERROR <CR><LF>
Execute Command AT+CSMTPSSRV	Response <CR><LF> OK <CR><LF> or <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	-

Defined Values

<server>	SMTP server address, non-empty string with double quotes, mandatory and ASCII text string up to 127 characters.
<port>	Port number of SMTP server in decimal format, from 1 to 65535, and default port is 465 for SMTP.
<server_type>	The type of server: 1 – SMTP server. 2 – SMTPS server with SSL3.0/TLS1.0/TLS1.1/TLS1.2 supported 3 – SMTPS server with STARTTLS

Example

AT+CSMTPSSRV="smtp.server.com",425

OK

AT+CSMTPSSRV?

+CSMTPSSRV: "smtp.server.com",425,2

OK

AT+CSMTPSSRV

OK

AT+CSMTPSSRV?

+CSMTPSSRV: "",465,2

OK

22.2.3 AT+CSMTPSAUTH SMTP server authentication

This synchronous command is used to control SMTP authentication during connection with SMTP server. If SMTP server requires authentication while logging in the server, TE must set the authentication control flag and provide username and password correctly before sending an e-mail.

Read command returns current SMTP server authentication control flag, if the flag is 0, both <user> and <pwd> are empty strings.

Execution Command clears username and password.

AT+CSMTPSAUTH SMTP server authentication

Test Command AT+CSMTPSAUTH=?	Response <CR><LF> +CSMTPSAUTH: (list of supported <flag>s)<CR><LF> <CR><LF> OK<CR><LF>
Read Command AT+CSMTPSAUTH?	Response <CR><LF> +CSMTPSAUTH: <flag>,<user>,<pwd><CR><LF> <CR><LF> OK<CR><LF>
Write Command AT+CSMTPSAUTH= <flag>[,<user>,<pwd>]	Response <CR><LF> OK<CR><LF> or <CR><LF>

	ERROR <CR><LF>
Execute Command AT+CSMTPSAUTH	Response <CR><LF> OK <CR><LF> or <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	-

Defined Values

<flag>	SMTP server authentication control flag, integer type. 0 – SMTP server doesn't require authentication, factory value. 1 – SMTP server requires authentication.
<user>	Username to be used for SMTP authentication, non-empty string with double quotes and up to 127 characters.
<pwd>	Password to be used for SMTP authentication, string with double quotes and up to 127 characters. NOTE: If <flag> is 0, <user> and <pwd> must be omitted (i.e., only <flag> is present).

Example

AT+CSMTPSAUTH?

+CSMTPSAUTH: 0, "", ""

OK

AT+CSMTPSAUTH=1,"username","password"

"

OK

AT+CSMTPSAUTH?

+CSMTPSAUTH: 1, "username", "password"

OK

AT+CSMTPSAUTH

OK

AT+CSMTPSAUTH?

+CSMTPSAUTH: 0, "", ""

OK

22.2.4 AT+CSMTPSFROM Sender address and name

This synchronous command is used to set sender's address and name, which are used to construct e-mail header. The sender's address must be correct if the SMTP server requires.

Read command returns current sender's address and name.

Execution command will clear sender's address and name.

AT+CSMTPSFROM	Sender address and name
Test Command AT+CSMTPSFROM=?	Response <CR><LF> OK <CR><LF>
Read Command AT+CSMTPSFROM?	Response <CR><LF> +CSMTPSFROM: <saddr>,<sname> <CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+CSMTPSFROM= <saddr>[,<sname>]	Response <CR><LF> OK <CR><LF> or <CR><LF> ERROR <CR><LF>
Execute Command AT+CSMTPSFROM	Response <CR><LF> OK <CR><LF> or <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	-

Defined Values

<saddr>	E-mail sender address (MAIL FROM), non-empty string with double quotes, mandatory and ASCII text up to 127 characters. <saddr> will be present in the header of the e-mail sent by SMTP client in the field: "From: ".
<sname>	E-mail sender name, string with double quotes, and alphanumeric ASCII text up to 63 characters. <sname> will be present in the header of the e-mail sent by SMTP client in the field: "From: ".

Example

```

AT+CSMTPSFROM="senderaddress@server.
com","sendername"
OK
AT+CSMTPSFROM?
+CSMTPSFROM:
"senderaddress@server.com","sendername
"

OK
AT+CSMTPSFROM
OK
AT+CSMTPSFROM?
+CSMTPSFROM: "", ""

OK

```

22.2.5 AT+CSMTPSRCPT Recipient address and name (TO/CC/BCC)

This synchronous command is used to set recipient address/name and kind (TO/CC/BCC). If only the parameter of “kind” is present, the command will clear all recipients of this kind, and if only parameters of “kind” and “index” are present, the command will clear the specified recipient. Read command returns current recipient address/name and kind list. Execution Command will clear all recipient information.

AT+CSMTPSRCPT Recipient address and name (TO/CC/BCC)

Test Command AT+CSMTPSRCPT=?	Response <CR><LF> +CSMTPSRCPT: (list of supported <kind>s),(list of supported <index>s)<CR><LF> <CR><LF> OK<CR><LF>
Read Command AT+CSMTPSRCPT?	Response <CR><LF> [+CSMTPSRCPT: <kind>,<index>,<raddr>,<rname><CR><LF> [<CR><LF>...]] <CR><LF>

Write Command AT+CSMTPSRCPT=<kind>[,<index>[,<raddr>[,<rname>]]]	OK <CR><LF>
	or <CR><LF>
	OK <CR><LF>
Execute Command AT+CSMTPSRCPT	or <CR><LF>
	ERROR <CR><LF>
	Response <CR><LF>
Parameter Saving Mode	OK <CR><LF>
	or <CR><LF>
	ERROR <CR><LF>
Max Response Time	-
Reference	-

Defined Values

<kind>	Recipient kind, the kinds of TO and CC are used to construct e-mail header in the field: "To: " or "Cc: ". 0 – TO, normal recipient. 1 – CC, Carbon Copy recipient. 2 – BCC, Blind Carbon Copy recipient.
<index>	Index of the kind of recipient, decimal format, and from 0 to 4.
<raddr>	Recipient address, non-empty string with double quotes, and up to 127 characters.
<rname>	Recipient name, string type with double quotes, and up to 63 characters.

Example

```

AT+CSMTPSRCPT=0,0,"rcptaddress_to@server.com", "rcptname_to"
OK
AT+CSMTPSRCPT?
+CSMTPSRCPT:
0,0,"rcptaddress_to@server.com","rcptname_to"

OK
AT+CSMTPSRCPT=1,0,"rcptaddress_cc@server.com", "rcptname_cc"
OK
AT+CSMTPSRCPT?
+CSMTPSRCPT:
0,0,"rcptaddress_to@server.com","rcptname_to"
+CSMTPSRCPT:
1,0,"rcptaddress_cc@server.com","rcptname_cc"

OK

```

22.2.6 AT+CSMTPSSUB E-mail subject

This synchronous command is used to set the subject of e-mail, which is used to construct e-mail header. Read command returns current e-mail subject. Execution Command will clear the subject.

AT+CSMTPSSUB E-mail subject

Test Command AT+CSMTPSSUB=?	Response <CR><LF> OK <CR><LF>
Read Command AT+CSMTPSSUB?	Response <CR><LF> +SMTPSUB: <subject_len>,<subject_character><CR><LF> [<subject>]<CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+CSMTPSSUB=<subject_len>,<subject_character>	Response <CR><LF> ><CR><LF> <CR><LF> OK <CR><LF>

Execute Command AT+CSMTPSSUB	or <CR><LF> ERROR <CR><LF>
	Response <CR><LF> OK <CR><LF> or <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	-

Defined Values

<subject>	E-mail subject, string with double quotes, and ASCII text up to 511 characters. <subject> will be present in the header of the e-mail sent by SMTPS client in the field: "Subject: ". For write command, it can input any binary data.
<subject_len>	The length of subject content
<subject_character>	The character set of subjects. Default is utf-8.

Example

AT+CSMTPSSUB?

+CSMTPSSUB: 0,"UTF-8"

OK

AT+CSMTPSSUB=19, "utf-8"

>THIS IS A TEST MAIL

OK

AT+CSMTPSSUB?

+SMTPSSUB: 19,"utf-8"

THIS IS A TEST MAIL

OK

22.2.7 AT+CSMTPSBODY E-mail body

This command is used to set e-mail body, which will be sent to SMTP server with text format.
Read command returns current e-mail body. If the process of sending an e-mail is ongoing, the command will return "ERROR" directly. Execution Command clears email body.

AT+CSMTPSBODY	E-mail body
Test Command AT+CSMTPSBODY=?	Response <CR><LF> OK <CR><LF>
Read Command AT+CSMTPSBODY?	Response <CR><LF> +CSMTPSBODY: <body_len><CR><LF><CR><LF> [<body>]<CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+CSMTPSBODY=<body_len>	Response <CR><LF> ><CR><LF> <CR><LF> OK <CR><LF>
Execute Command AT+CSMTPSBODY	Response <CR><LF> OK <CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	-

Defined Values

<body>	E-mail body, up to 5120 characters.
<body_len>	The length of email body.

Example

```

AT+CSMTPSBODY=38
>THIS IS A TEST MAIL FROM SIMCOM
MODULE

OK
AT+CSMTPSBODY?
+CSMTPSBODY: 38
THIS IS A TEST MAIL FROM SIMCOM
MODULE
  
```

OK

22.2.8 AT+CSMTPSBCH E-mail body character set

This synchronous command is used to set the body character set of e-mail.
Read command returns current e-mail body character set.

AT+CSMTPSBCH E-mail body character set	
Test Command AT+CSMTPSBCH=?	Response <CR><LF> OK <CR><LF>
Read Command AT+CSMTPSBCH?	Response <CR><LF> +CSMTPSBCH: <charset> <CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+CSMTPSBCH=<charset> >	Response <CR><LF> OK <CR><LF> or <CR><LF> ERROR <CR><LF>
Execute Command AT+CSMTPSBCH	Response <CR><LF> OK <CR><LF> or <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	-

Defined Values

<charset>	E-mail body character, string with double quotes. By default, it is "utf-8". The maximum length is 19 bytes.
-----------	--

Example

AT+CSMTPSBCH=?

OK

AT+CSMTPSBCH="gb2312"

OK

AT+CSMTPSBCH?

+CSMTPSBCH: "gb2312"

OK

22.2.9 AT+CSMTPSFILE Select attachment

The synchronous command is used to select file as e-mail attachment.
Read command returns current all selected attachments with full path.
Execution Command will clear the selected attachments.

AT+CSMTPSFILE Select attachment	
Test Command AT+CSMTPSFILE=?	Response <CR><LF> +CSMTPSFILE: (list of supported <index>s)<CR><LF> <CR><LF> OK<CR><LF>
Read Command AT+CSMTPSFILE?	Response <CR><LF> [+CSMTPSFILE: <index>,<filename>,<filesize><CR><LF> [<CR><LF>...]] <CR><LF> OK<CR><LF>
Write Command AT+CSMTPSFILE=<index>[,<filename>]	Response <CR><LF> OK<CR><LF> or <CR><LF> [+CSMTPS: <err>]<CR><LF> <CR><LF> ERROR<CR><LF>
Execute Command AT+CSMTPSFILE	Response <CR><LF> OK<CR><LF>
Parameter Saving Mode	-

Max Response Time	-
Reference	-

Defined Values

<index>	Index for attachments, from 1 to 10. According to the sequence of <index>, SMTP client will encode and send all attachments.
<filename>	String type with double quotes, the name of a file which is under current directory (refer to file system commands). SMTP client doesn't allow two attachments with the same file name. (For write command, if the file name contains non-ASCII characters, this parameter should contain a prefix of {non-ascii}. Note: This is only for SD cards)
<filesize>	File size in decimal format. The total size of all attachments can't exceed 10MB.
<err>	The error information.

Example

```

AT+CSMTPSFILE=1,"E:/file1.txt"
OK
AT+CSMTPSFILE=1,{non-ascii}"E6B58BE8A
F95E99984E4BBB62E6A7067"
OK
AT+CSMTPSFILE?
+CSMTPSFILE: 1,"E:/file1.txt"

OK
AT+CSMTPSFILE=2,"U:/ file2.txt "
OK
AT+CSMTPSFILE?
+CSMTPSFILE: 1, "E:/file1.txt"
+CSMTPSFILE: 2, "U:/file2.txt"

OK

```

22.2.10 AT+CSMTPSEND Initiate session and send e-mail

This asynchronous command is used to initiate TCP/SSL session with SMTP server and send an e-mail after all mandatory parameters have been set correctly.

AT+CSMTPSEND Initiate session and send e-mail

Test Command
AT+CSMTPSEND=?

Response
<CR><LF>
OK<CR><LF>

Execute Command
AT+CSMTPSEND

Response
<CR><LF>
OK<CR><LF>
<CR><LF>
+CSMTPSEND: <err><CR><LF>
or
<CR><LF>
ERROR<CR><LF>
or
<CR><LF>
+CSMTPSEND: <err><CR><LF>
<CR><LF>
ERROR<CR><LF>

Parameter Saving Mode

-

Max Response Time

-

Reference

-

Defined Values

<err>

The error information. 0 indicates success. Other values indicate failure.

Example

AT+CSMTPSEND

OK

+CSMTPSEND: 0

22.2.11 AT+CSMTPSSTOP Force to stop sending e-mail

The synchronous command is used to force to stop sending e-mail and close the TCP/SSL session while sending an e-mail is ongoing. Otherwise, the command will return "ERROR" directly.

AT+CSMTPSSTOP Force to stop sending e-mail

Test Command AT+CSMTPSSTOP=?	Response <CR><LF> OK <CR><LF>
Execute Command AT+CSMTPSSTOP	Response <CR><LF> OK <CR><LF> or <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	-

Example

AT+CSMTPSSTOP

OK

22.2.12 AT+CSMTPSCLEAN Clean mail content and setting

The synchronous command is used to clean mail content and setting.

AT+CSMTPSCLEAN Clean mail content and setting

Execute Command AT+CSMTPSCLEAN	Response <CR><LF> OK <CR><LF> or <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	-

Example

AT+CSMTPSCLEAN

OK

22.3 Summary of result codes for SMTPS

Code of <err>	Meaning
0	SMTPS operation succeeded
600	Busy
601	Network error
602	Socket error
603	Over size
604	Duplicate file
605	Time out
606	Transfer failed
607	Memory error
608	Invalid parameter
609	EFS error
610	SMTP server error
611	Authentication failure
612	User cancel
655	Unknown error

23 AT Commands for WEBSOCKET

23.1 Overview of AT Commands for websocket

Command	Description
AT+WSSTART	Start websocket service
AT+WSSTOP	Stop websocket service
AT+WSLINK	Connect to websocket server
AT+WSUNLINK	Disconnect from server
AT+WSPUSH	Publish a message to server
AT+WSSETTINGS	Set websocket Parameters value

23.2 Detailed Description of AT Commands for websocket

Multiple websocket connections are now supported on SIM76XX Series (2364 baseline and later versions).

By default, we use two Websockets.

23.2.1 AT+WSSTART Start websocket service

Use AT+WSSTART to start the WebSocket service by activating the PDP context before any other WebSocket operations.

AT+WSSTART Start websocket service	
Execute Command AT+WSSTART	Response 1)If start websocket service successfully: <CR><LF> OK<CR><LF> <CR><LF> +WSSTART: 0<CR><LF> 2) If the WebSocket service has been successfully started and AT+WSSTART is executed again: <CR><LF> ERROR<CR><LF>
Parameter Saving Mode	-

Max Response Time	10000ms
Reference	

Examples

AT+WSSTART

OK

+WSSTART: 0

23.2.2 AT+WSSTOP Stop websocket service

AT+WSSTOP is used to stop websocket service.

AT+WSSTOP Stop websocket service

Execute Command AT+WSSTOP	Response 1)If stop websocket service successfully: <CR><LF> OK <CR><LF> <CR><LF> +WSSTOP: 0 <CR><LF> 2)If the WebSocket service has been successfully stopped and AT+WSSTOP is executed again, or if there is an open connection that exists: <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	-
Max Response Time	10000ms
Reference	

Examples

AT+WSSTOP

OK

+WSSTOP: 0

23.2.3 AT+WSLINK Connect to websocket server

AT+WSLINK is used to connect to websocket servers.

AT+WSLINK Connect to Websocket server	
Test Command AT+WSLINK=?	Response <CR><LF> +WSLINK: (0-1),(9-256),(60-180) <CR><LF> <CR><LF> OK <CR><LF>
Read Command AT+WSLINK?	Response 1)if connected: <CR><LF> +WSLINK: 0,<connect_status>[,<server_addr>,<server_port>,<server_path>] <CR><LF> +WSLINK: 1,<connect_status>[,<server_addr>,<server_port>,<server_path>] <CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+WSLINK=<link_num>,<server_addr>[,<time_out>]	Response 1)If successfully: <CR><LF> OK <CR><LF> <CR><LF> +WSLINK: <link_num>,0 <CR><LF> 2)If failed: <CR><LF> OK <CR><LF> <CR><LF> +WSLINK: <link_num>,<err> <CR><LF> 3)If failed: <CR><LF> +WSLINK: <link_num>,<err> <CR><LF> <CR><LF> ERROR <CR><LF> 4)If failed: <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<link_num>	The link number of websocket.It is from 0 to the max link number.
<connect_status>	This parameter has the following two values: 0 the current device is not connected. 1 the current device is connected.
<server_addr>	The string that described the server address and port. The range of the string length is 9 to 256 bytes. The string should be like this "ws://116.247.119.165:5141/test", must begin with "ws://". If the <server_addr> not include the port, the default port is 80.If the <server_addr> not include the path, the default path is /.
<server_port>	The websocketconnect port, the default port is 80.
<server_path>	The websocketconnect path, the default path is /.
<time_out>	The timeout value for connect. The unit is second. The range is 60s to 180s. The default value is 120s (not set the timeout value).
<err>	The result code: 0 is success. Other values are failure. Please refer to chapter 23.3.

Examples

```
AT+WSLINK=0,"ws://121.40.165.18:8800",120
```

```
OK
```

```
+WSLINK: 0,0
```

```
AT+WSLINK?
```

```
+WSLINK: 0,1," 121.40.165.18:8800",8800,"/"
```

```
+WSLINK: 1,0
```

```
OK
```

```
AT+WSLINK=?
```

```
+WSLINK: (0-1),(9-256),(60-180)
```

```
OK
```

23.2.4 AT+WSUNLINK Disconnect from server

AT+WSUNLINK is used to disconnect from the server.

AT+WSUNLINK Disconnect from server

Test Command AT+WSUNLINK=?	Response: <CR><LF> +WSUNLINK: (0-1,60-180) <CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+WSUNLINK=<link_num> ,<timeout>	Response 1)If disconnect successfully: <CR><LF> +WSUNLINK: <link_num>,0 <CR><LF> <CR><LF> OK <CR><LF> 2)If disconnect successfully: <CR><LF> OK <CR><LF> <CR><LF> +WSUNLINK: <link_num>,0 <CR><LF> 3)If failed: <CR><LF> OK <CR><LF> <CR><LF> +WSUNLINK: <link_num>,<err> <CR><LF> 4)If failed: <CR><LF> ERROR <CR><LF> 5)If failed: <CR><LF> +WSUNLINK: <link_num>,<err> <CR><LF> <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<link_num>	The link number of websocket.It is from 0 to the max link number.
<timeout>	The timeout value for disconnection. The unit is second. The range is 60s to 180s. The default value is 0s (not set the timeout value).
<err>	The result code: 0 is success. Other values are failure. Please refer to chapter 23.3.

Examples

AT+WSUNLINK=0,120

OK

+WSUNLINK: 0,0

AT+WSUNLINK=?

+WSUNLINK: (0-1,60-180)

OK

23.2.5 AT+WSPUSH Publish a message to server

AT+WSPUSH is used to publish a message to server.

AT+WSPUSH publish a message to server

Test Command

AT+WSPUSH=?

Response

<CR><LF>

+WSPUSH: (0-1),(1-1024),(0-1)<CR><LF>

<CR><LF>

OK<CR><LF>

Response

1)If successfully:

<CR><LF>

><CR><LF>

<input data here><CR><LF>

OK<CR><LF>

<CR><LF>

+WSPUSH: <link_num>,0,<dataLength><CR><LF>

2)If failed:

<CR><LF>

OK<CR><LF>

<CR><LF>

+WSPUSH: <link_num>,<err><CR><LF>

3)If failed:

<CR><LF>

+WSPUSH: <link_num>,<err><CR><LF>

<CR><LF>

ERROR<CR><LF>

4)If failed:

<CR><LF>

ERROR<CR><LF>

Write Command

AT+WSPUSH=<link_num>,<dataLength>,<datatype>

Parameter Saving Mode

-

Max Response Time

120000ms

Reference	-
-----------	---

Defined Values

<link_num>	The link number of websocket.It is from 0 to the max link number.
<dataLength>	The length of input topic data. The range is from 1 to 1024 bytes.
<datatype>	The publish message's type. The range is from 0 to 1. 0 text message 1 binary message
<err>	The result code: 0 is success. Other values are failure. Please refer to chapter 23.3.

Examples

```

AT+WSPUSH=0,10,1
>

OK

+WSPUSH: 0,0,10
AT+WSPUSH=?
+WSPUSH: (0-1),(1-1024),(0-1)

OK

```

23.2.6 AT+WSSETTINGS Set websocket Parameters value

AT+WSSETTINGS is used to set the values of WebSocket parameters. It can be used before connecting to the server to configure some parameters in the handshake request packet. It must be executed after AT+WSSTART.

AT+WSSETTINGS set websocket sarameters value	
Test Command AT+WSSETTINGS=?	Response <CR><LF> +WSSETTINGS: (0-1),"Sec-WebSocket-Protocol",<subprotocol><CR><LF> <CR><LF> OK<CR><LF>
Read Command AT+WSSETTINGS?	Response 1) If successfully:

Write Command AT+WSSETTINGS=<link_num>,"Sec-WebSocket-Protocol",<subprotocol>	<pre> <CR><LF> +WSSETTINGS: <link_num>,"Sec-WebSocket-Protocol",<subprotocol><CR><LF> > +WSSETTINGS: <link_num>,"Sec-WebSocket-Protocol",<subprotocol><CR><LF> > <CR><LF> OK<CR><LF> </pre>
	Response 1)If successfully: <pre> <CR><LF> +WSSETTINGS: <link_num>,"Sec-WebSocket-Protocol",<subprotocol><CR><LF> > <CR><LF> OK<CR><LF> </pre> 2)If failed or websocket ont started: <pre> <CR><LF> ERROR<CR><LF> </pre>
Parameter Saving Mode	-
Max Response Time	10000ms
Reference	-

Defined Values

<link_num>	The link number of websocket.It is from 0 to the max link number.
<subprotocol>	<subprotocol> is used to specify a specific protocol for the communication between the client and server, such as the MQTT or OCPP protocol. Multiple protocols can be specified, separated by commas. The value of <subprotocol> is NULL by default and it will be cleared after executing AT+WSSTART/AT+WSSTOP.

NOTE

The subprotocol of WebSocket is an optional mechanism used to define communication protocols between the client and server. It allows the client and server to agree on using a specific subprotocol for communication when establishing a WebSocket connection.

Subprotocols can be used to identify and support specific application scenarios, data formats, or communication requirements. It is important to note that the use of subprotocols is optional and not part of the WebSocket protocol itself. Clients and servers must adhere to relevant specifications when negotiating subprotocols and ensure that both parties support and understand the chosen subprotocol.

Examples

AT+WSSETTINGS=0,"Sec-WebSocket-Protocol",
ol","ocpp1.6"

+WSSETTINGS:

0,"Sec-WebSocket-Protocol","ocpp1.6"

OK

AT+WSSETTINGS=?

+WSSETTINGS:

(0-1),"Sec-WebSocket-Protocol",<subprotoco
l>

OK

AT+WSSETTINGS?

+WSSETTINGS:

0,"Sec-WebSocket-Protocol",""

+WSSETTINGS:

1,"Sec-WebSocket-Protocol",""

OK

23.3 Command Result Codes

23.3.1 Description of <err>

<err>	Description
0	operation succeeded
1	failed
2	Send handshake fail
3	parsehandshake fail
4	Read write socket fail
5	Connect to host fail
6	invalid parameter
7	Network have opened
8	Network no open

23.4 Unsolicited Result Codes

URC	Description
<code>+WSUNLINK: <link_num>,<err></code>	When client disconnect passively, URC "+WSDISC" will be reported, then user need to connect websocket server again.
<code>+WSRECEIVE: <link_num>,<dataLength> <data></code>	While client receive message,URC "+WSRECEIVE" will be reported.

24 AT Commands for MMS

24.1 Overview of AT Commands for MMS

Command	Description
AT+CMMS CURL	Set the URL of MMS center
AT+CMMS PROTO	Set the protocol parameters and MMS proxy address
AT+CMMS SEND CFG	Set the parameters for sending MMS
AT+CMMS EDIT	Enter or exit edit mode of mms
AT+CMMS DOWN	Download the file data or title from UART
AT+CMMS DELFILE	Delete a file within the editing MMS body
AT+CMMS SEND	Send MMS
AT+CMMS RECP	Add the recipients
AT+CMMS CC	Add the cc recipients
AT+CMMS BCC	Add the secret recipients
AT+CMMS DELRECP	Delete the recipients
AT+CMMS DELC C	Delete the cc recipients
AT+CMMS DELB CC	Delete the secret recipients
AT+CMMS	Save the selected MMS into a mailbox

SAVE	
AT+CMMS DELETE	Delete MMS in the mail box
AT+CMMS UA	Set the User-Agent of MMS packet
AT+CMMS PROFILE	Set the User-Agent profile of MMS packet
AT+CMMS CFG	Config the MMS context

24.2 Detailed Description of AT Commands for MMS

Commands related to MMS are only used in the versions that support this feature.

24.2.1 AT+CMMSURL Set the URL of MMS center

This command is used to set the URL of MMS center.

AT+CMMSURL Set the URL of MMS center

Test Command AT+CMMSURL=?	Response <CR><LF> +CMMSURL: "URL"<CR><LF> <CR><LF> OK<CR><LF>
Read Command AT+CMMSURL?	Response <CR><LF> +CMMSURL: "<mmscurl>"<CR><LF> <CR><LF> OK<CR><LF>
Write Command AT+CMMSURL="<mmscurl>"	Response <CR><LF> OK<CR><LF> or <CR><LF> ERROR<CR><LF> or <CR><LF> +CME ERROR: <err><CR><LF>
Parameter Saving Mode	-
Max Response Time	120000ms
Reference	

Defined Values

<mmscurl>	The URI of MMS center, not including http://.The max length of <mmscurl> is 40 bytes.
-----------	---

Example

```
AT+CMMSCURL="mmsc.monternet.com"
```

```
OK
```

```
AT+CMMSCURL?
```

```
+CMMSCURL: "mmsc.monternet.com"
```

```
OK
```

```
AT+CMMSCURL=?
```

```
+CMMSCURL: "URL"
```

```
OK
```

24.2.2 AT+CMMSPROTO Set the protocol parameters and MMS proxy address

This command is used to set the protocol parameters and MMS proxy address.

AT+CMMSPROTO Set the protocol parameters and MMS proxy address

Test Command AT+CMMSPROTO=?	Response <CR><LF> +CMMSPROTO: (0,1),"(0-255).(0-255).(0-255).(0-255)",(0-65535)<CR><LF> <CR><LF> OK <CR><LF>
Read Command AT+CMMSPROTO?	Response <CR><LF> +CMMSPROTO: <type>,<gateway>,<port> <CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+CMMSPROTO=<type>[,<gateway>,<port>]	Response <CR><LF> OK <CR><LF> or <CR><LF> ERROR <CR><LF> or <CR><LF>

+CME ERROR: <err><CR><LF>

Defined Values

<type>	The application protocol for MMS: 0 – WAP (not supported) <u>1</u> – HTTP
<gateway>	IP address of MMS proxy. If empty, it is set to 255.255.255.255.
<port>	Port of MMS proxy. If empty, it is set to 65535.

Example

```
AT+CMMSPROTO=1,"10.0.0.172",80
OK
AT+CMMSPROTO?
+CMMSPROTO: 1,"10.0.0.172",80

OK
AT+CMMSPROTO=?
+CMMSPROTO:
(0,1),"(0-255).(0-255).(0-255).(0-255)",(0-65535)
)

OK
```

24.2.3 AT+CMMSSENDCFG Set the parameters for sending MMS

This command is used to set the parameters for sending MMS.

AT+CMMSSENDCFG Set the parameters for sending MMS

Test Command AT+CMMSSENDCFG=?	Response <CR><LF> +CMMSSENDCFG: (0-6),(0-3),(0,1),(0,1),(0-2),(0-4)<CR><LF> <CR><LF> OK<CR><LF>
Read Command AT+CMMSSENDCFG?	Response <CR><LF> +CMMSSENDCFG: <valid>,<pri>,<sendrep>,<readrep>,<visible>,<class><CR><LF> <CR><LF> OK<CR><LF>

Write Command

AT+CMMSENDCFG=<valid>,<pri>,<sendrep>,<readrep>,<visible>,<class>

Response

<CR><LF>

OK<CR><LF>

or

<CR><LF>

ERROR<CR><LF>

or

<CR><LF>

+CME ERROR: <err><CR><LF>

Defined Values

<valid>

The valid time of the sent MMS:

0 – 1 hour.

1 – 12 hours.

2 – 24 hour.

3 – 2 days.

4 – 1 week.

5 – maximum.

6 – Not set (default).

<pri>

Priority:

0 – lowest.

1 – normal.

2 – highest.

3 – Not set (default)

<sendrep>

Whether need delivery report:

0 – No (default).

1 – Yes.

<readrep>

Whether need read report:

0 – No (default).

1 – Yes.

<visible>

Whether to show the address of the sender:

0 – hide the address of the sender.

1 – Show the address of the sender even if it is a secret address.

2 – Not set (default).

<class>

The class of MMS:

0 – personal.

1 – advertisement.

2 – informational.

3 – auto.

4 – Not set (default).

Example

AT+CMMSSENDCFG=6,3,1,1,2,4

OK

AT+CMMSSENDCFG?

+CMMSSENDCFG:6,3,1,1,2,4

OK

AT+CMMSSENDCFG=?

+CMMSSENDCFG:

(0-6),(0-3),(0,1),(0,1),(0-2),(0-4)

OK

24.2.4 AT+CMMSEDT Enter or exit edit mode of mms

This command is used to enter or exit edit mode of mms.

AT+CMMSEDT Enter or exit edit mode of mms

Test Command AT+CMMSEDT=?	Response <CR><LF> +CMMSEDT: (0,1)<CR><LF> <CR><LF> OK<CR><LF>
Read Command AT+CMMSEDT?	Response <CR><LF> +CMMSEDT: <mode><CR><LF> <CR><LF> OK<CR><LF>
Write Command AT+CMMSEDT=<mode>	Response <CR><LF> OK<CR><LF> or <CR><LF> ERROR<CR><LF> or <CR><LF> +CME ERROR: <err><CR><LF>

Defined Values

<mode>	Whether to allow edit MMS:
0	– No.
1	– Yes.

Example

AT+CMMSEdit=0

OK

AT+CMMSEdit?

+CMMSEdit: 0

OK

AT+CMMSEdit=?

+CMMSEdit: (0-1)

OK

24.2.5 AT+CMMSDOWN Download the file data or title from UART

This command is used to download file data to MMS body. When downloading a text file or title from UART, the text file or title must start with \xFF\xFE , \xFE\xFF or \xEF\xBB\xBF to indicate whether it is UCS2 little endian, UCS2 big endian or UTF-8 format. Without these OCTETS, the text file or title will be regarded as UTF-8 format.

AT+CMMSDOWN Download the file data or title from UART

Test Command AT+CMMSDOWN=?	Response <CR><LF> +CMMSDOWN: "PIC",(1-<MAX_PDU_SIZE>),"NAME"<CR><LF> +CMMSDOWN: "TEXT",(1-<MAX_PDU_SIZE>),"NAME"<CR><LF> +CMMSDOWN: "AUDIO",(1-<MAX_PDU_SIZE>),"NAME"<CR><LF> +CMMSDOWN: "VIDEO",(1-<MAX_PDU_SIZE>),"NAME"<CR><LF> +CMMSDOWN: "SDP",(1-<MAX_PDU_size>)<CR><LF> +CMMSDOWN: "TITLE",(1-40) <CR><LF> +CMMSDOWN: "ATTACH","FILENAME"<CR><LF> <CR><LF> OK<CR><LF>
Write Command AT+CMMSDOWN=<type>,<size>[,<name>] Or AT+CMMSDOWN="ATTACH",<filename> Or AT+CMMSDOWN="PIC",<filename>	Response <CR><LF> OK<CR><LF> or <CR><LF> ERROR<CR><LF> Or <CR><LF> ><CR><LF> <input data here><CR><LF> OK<CR><LF> or

<CR><LF>

+CME ERROR: <err><CR><LF>

Defined Values

<type>	The type of file to download: "PIC" – JPG/GIF/PNG/TIFF file. "TEXT" – plain text file. "AUDIO" – MIDI/WAV/AMR/MPEG file. (not supported) "VIDEO" – 3GPP/MP4 file. (not supported) "SDP" – application/sdp type (not supported) "FILE" – file in the UE. (not supported) "TITLE" – subject of the MMS. "ATTACH" – attach file in module
<size>	The size of file data needs to download through AT interface.
<name>	The name of the file to download. When <type> is "TITLE" or "SDP", this field is not needed. Otherwise, it cannot be omitted.
<filename>	The name of the file existing in the file system to download.
<max_pdu_size>	The maximum size of MMS PDU permitted.

Example

AT+CMMSDOWN=?

+CMMSDOWN:

"PIC",(1-<MAX_PDU_SIZE>),"NAME"

+CMMSDOWN:

"TEXT",(1-<MAX_PDU_SIZE>),"NAME"

+CMMSDOWN:

"AUDIO",(1-<MAX_PDU_SIZE>),"NAME"

+CMMSDOWN:

"VIDEO",(1-<MAX_PDU_SIZE>),"NAME"

+CMMSDOWN: "SDP",(1-<MAX_PDU_SIZE>)

+CMMSDOWN: "TITLE",(1-40)

+CMMSDOWN: "ATTACH","FILENAME"

OK

AT+CMMSDOWN="ATTACH","C:/OIP-C.jpg" // Effective when setting
AT+CMMSCFG="data_mode",0

OK

AT+CMMSDOWN="PIC",2960,"OIP-C.jpg" // Effective when setting
AT+CMMSCFG="data_mode",1

OK

NOTE

AT+CMMSDOWN="ATTACH",<filename> and AT+CMMSDOWN="PIC",<size>,<name> commands can be passed up to 5 files, out of range will report an error like +CMMSDOWN: 182, after using the AT+CMMSEDIT=1, initialization can be performed.

AT+CMMSDOWN="ATTACH","C:/OIP-C.jpg" this command is similar to the previous adding a text file, it means user wants to add a jpg file in directory C, which was transferred to the directory C through command AT+CFTRANRX="C:/OIP-C.jpg",2960.

24.2.6 AT+CMMSDELFILE Delete a file within the editing MMS body

This command is used to delete a file within the editing MMS body.

AT+CMMSDELFILE Delete a file within the editing MMS body

Test Command
AT+CMMSDELFILE=?

Response
<CR><LF>
OK<CR><LF>

Write Command
AT+CMMSDELFILE=<index>
>

Response
<CR><LF>
OK<CR><LF>
or
<CR><LF>
ERROR<CR><LF>
or
<CR><LF>
+CME ERROR: <err><CR><LF>

Defined Values

<index>	The index of the file to delete contains in the MMS body.
---------	---

Example

```
AT+CMMSDELFILE=2
OK
AT+CMMSDELFILE=?
OK
```

24.2.7 AT+CMMSSEND Send MMS

This command is used to send MMS. It can only be performed in edit mode of MMS.

AT+CMMSSEND Send MMS

Test Command AT+CMMSSEND=?	Response <CR><LF> +CMMSSEND: "ADDRESS"<CR><LF> <CR><LF> OK<CR><LF>
--------------------------------------	--

/* Available only if AT+CMMSCFG="data_mode" ,0*/ Write Command AT+CMMSSEND=<address>	Response <CR><LF> OK<CR><LF> <CR><LF> +CMMSSEND: 0<CR><LF> or <CR><LF> ERROR<CR><LF> or <CR><LF> +CME ERROR: <err><CR><LF> or <CR><LF> OK<CR><LF> <CR><LF> +CMMSSEND : <err><CR><LF>
---	---

Execute Command AT+CMMSSEND	Response <CR><LF> OK<CR><LF> <CR><LF> +CMMSSEND: 0<CR><LF> or if set AT+CMMSCFG="data_mode",1 <CR><LF> ><CR><LF> <input data here><CR><LF> OK<CR><LF> <CR><LF> +CMMSSEND: 0<CR><LF> or <CR><LF> ERROR<CR><LF> or <CR><LF> +CME ERROR: <err><CR><LF> or <CR><LF>
---------------------------------------	---

```
OK<CR><LF>
<CR><LF>
+CMMSSEND : <err><CR><LF>
```

Defined Values

<address>	Mobile phone number or email address. As mobile phone number, the max length is 40; As email address, the max length is 60;
<gateway>	IP address of MMS proxy. If empty, it is set to 255.255.255.255.
<port>	Port of MMS proxy. If empty, it is set to 65535.

Example

```
AT+CMMSSEND=?
+CMMSSEND: "ADDRESS"

OK
AT+CMMSSEND="13613623116"           // Effective when setting
                                     AT+CMMSCFG="data_mode",0
OK

+CMMSSEND: 0
AT+CMMSSEND                         // Effective when setting
                                     AT+CMMSCFG="data_mode",0
OK

+CMMSSEND: 0
AT+CMMSSEND                         // Effective when setting
                                     AT+CMMSCFG="data_mode",1
>
<input data here>
OK

+CMMSSEND: 0
```

24.2.8 AT+CMMSRECP Add the recipients

This command is used to add the recipients.

AT+CMMSRECP Add the recipients	
Test Command	Response
AT+CMMSRECP=?	<CR><LF> +CMMSRECP: "ADDRESS"<CR><LF>

Read Command AT+CMMSRECP?	<CR><LF> OK <CR><LF>
	Response <CR><LF> +CMMSRECP: <CR><LF> (list of <addr>s)<CR><LF> <CR><LF> OK <CR><LF> or <CR><LF> ERROR <CR><LF> or <CR><LF> +CME ERROR: <err><CR><LF>
Write Command AT+CMMSRECP=<addr>	Response <CR><LF> OK <CR><LF> or <CR><LF> ERROR <CR><LF> or <CR><LF> +CME ERROR: <err><CR><LF>

Defined Values

<addr>	Mobile phone number or email address. As mobile phone number, the max length is 40; As email address, the max length is 60;
--------	---

Example

```

AT+CMMSRECP=?
+CMMSRECP: "ADDRESS"

OK
AT+CMMSRECP?
+CMMSRECP:
"15813862534"

OK
AT+CMMSRECP="13818362596"
OK

```

24.2.9 AT+CMMSCC Add the cc recipients

This command is used to add the cc recipients.

AT+CMMSCC Add the cc recipients

Test Command AT+CMMSCC=?	Response <CR><LF> +CMMSCC: "ADDRESS" <CR><LF> <CR><LF> OK <CR><LF>
Read Command AT+CMMSCC?	Response <CR><LF> +CMMSCC: <CR><LF> (list of <addr>s)<CR><LF> <CR><LF> OK <CR><LF> or <CR><LF> ERROR <CR><LF> or <CR><LF> +CME ERROR: <err> <CR><LF>
Write Command AT+CMMSCC=<addr>	Response <CR><LF> OK <CR><LF> or <CR><LF> ERROR <CR><LF> or <CR><LF> +CME ERROR: <err> <CR><LF>

Defined Values

<addr>	Mobile phone number or email address。 As mobile phone number, the max length is 40; As email address, the max length is 60;
--------	---

Example

AT+CMMSCC=? +CMMSCC: "ADDRESS" OK
--

AT+CMMSCC?

+CMMSCC:

"t1@test.com"

OK

AT+CMMSCC="13818362596"

OK

24.2.10 AT+CMMSBCC Add the secret recipients

This command is used to add the secret recipients.

AT+CMMSBCC Add the secret recipients

Test Command

AT+CMMSBCC=?

Response

<CR><LF>

+CMMSBCC: "ADDRESS"<CR><LF>

<CR><LF>

OK<CR><LF>

Read Command

AT+CMMSBCC?

Response

<CR><LF>

+CMMSBCC: <CR><LF>

(list of <addr>s)<CR><LF>

<CR><LF>

OK<CR><LF>

or

<CR><LF>

ERROR<CR><LF>

or

<CR><LF>

+CME ERROR: <err><CR><LF>

Write Command

AT+CMMSBCC=<addr>

Response

<CR><LF>

OK<CR><LF>

or

<CR><LF>

ERROR<CR><LF>

or

<CR><LF>

+CME ERROR: <err><CR><LF>

Defined Values

<addr>

Mobile phone number or email address.

As mobile phone number, the max length is 40;

As email address, the max length is 60;

Example

```
AT+CMMSBCC=?
+CMMSBCC: "ADDRESS"

OK
AT+CMMSBCC?
+CMMSBCC:
"t1@test.com"

OK
AT+CMMSBCC="13818362596"
OK
```

24.2.11 AT+CMMSDELRECP Delete the recipients

This command is used to delete the recipients. The execution command is used to delete all the recipients.

AT+CMMSDELRECP Delete the recipients

Test Command AT+CMMSDELRECP=?	Response <CR><LF> +CMMSDELRECP: "ADDRESS" <CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+CMMSDELRECP=<addr>	Response <CR><LF> OK <CR><LF> or <CR><LF> ERROR <CR><LF> or <CR><LF> +CME ERROR: <err> <CR><LF>
Execute Command AT+CMMSDELRECP	Response <CR><LF> OK <CR><LF> or <CR><LF> ERROR <CR><LF> or <CR><LF> +CME ERROR: <err> <CR><LF>

Defined Values

<addr>	Mobile phone number or email address. As mobile phone number, the max length is 40; As email address, the max length is 60;
--------	--

Example

```

AT+CMMSDELRECP=?
+CMMSDELRECP: "ADDRESS"

OK
AT+CMMSDELRECP
OK
AT+CMMSDELRECP="13818362596"
OK

```

24.2.12 AT+CMMSDELCC Delete the cc recipients

This command is used to delete the cc recipients. The execution command is used to delete all the cc recipients.

AT+CMMSDELCC Delete the cc recipients

Test Command AT+CMMSDELCC=?	Response <CR><LF> +CMMSDELCC: "ADDRESS"<CR><LF> <CR><LF> OK<CR><LF>
Write Command AT+CMMSDELCC=<addr>	Response <CR><LF> OK<CR><LF> or <CR><LF> ERROR<CR><LF> or <CR><LF> +CME ERROR: <err><CR><LF>
Execute Command AT+CMMSDELCC	Response <CR><LF> OK<CR><LF> or <CR><LF> ERROR<CR><LF>

or
<CR><LF>
+CME ERROR: <err><CR><LF>

Defined Values

<addr>	Mobile phone number or email address. As mobile phone number, the max length is 40; As email address, the max length is 60;
--------	---

Example

```
AT+CMMSDELCC=?
+CMMMSDELCC: "ADDRESS"

OK
AT+CMMSDELCC
OK
AT+CMMSDELCC ="13818362596"
OK
```

24.2.13 AT+CMMSDELBCC Delete the secret recipients

This command is used to delete the secret recipients. The Execution Command is used to delete all the secret recipients.

AT+CMMSDELBCC Delete the secret recipients

Test Command AT+CMMSDELBCC=?	Response <CR><LF> +CMMSDELBCC: "ADDRESS"<CR><LF> <CR><LF> OK<CR><LF>
Write Command AT+CMMSDELBCC=<addr>	Response <CR><LF> OK<CR><LF> or <CR><LF> ERROR<CR><LF> or <CR><LF> +CME ERROR: <err><CR><LF>
Execute Command	Response

AT+CMMSDELBCC

<CR><LF>
OK<CR><LF>
 or
 <CR><LF>
ERROR<CR><LF>
 or
 <CR><LF>
+CME ERROR: <err><CR><LF>

Defined Values

<addr>	Mobile phone number or email address. As mobile phone number, the max length is 40; As email address, the max length is 60;
--------	---

Example

```
AT+CMMSDELBCC=?
+CMMSSDELBC: "ADDRESS"

OK
AT+CMMSDELBCC
OK
AT+CMMSDELBCC="13818362596"
OK
```

24.2.14 AT+CMMSSAVE Save the selected MMS into a mailbox

This command is used to save the selected MMS into a mailbox.

AT+CMMSSAVE Save the selected MMS into a mailbox

Test Command AT+CMMSSAVE=?	Response <CR><LF> +CMMSSAVE: (0-1),(0-2) <CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+CMMSSAVE=<index>[,<mmstype>]	Response <CR><LF> +CMMSSAVE: <INDEX> <CR><LF> <CR><LF> OK <CR><LF> or

Execute Command AT+CMMSSAVE	<CR><LF> ERROR <CR><LF> or <CR><LF> +CME ERROR: <err> <CR><LF>
	Response <CR><LF> +CMMSSAVE: <INDEX> <CR><LF> <CR><LF> OK <CR><LF> or <CR><LF> ERROR <CR><LF> or <CR><LF> +CME ERROR: <err> <CR><LF>

Defined Values

<index>	The index of mail box is selected to save the MMS
<mmstype>	The status of MMS: 0 – Received MMS. 1 – Sent MMS. 2 – Unsent MMS.

Example

```
AT+CMMSSAVE=?
+CMMSSAVE: (0-1),(0-2)
```

```
OK
AT+CMMSSAVE
+CMMSSAVE: 0
```

```
OK
AT+CMMSSAVE=1
+CMMSSAVE: 1
```

```
OK
```

24.2.15 AT+CMMSDELETE Delete MMS in the mail box

This command is used to delete MMS in the mailbox. The execution command is used to delete all MMS in the mailbox.

AT+CMMSDELETE Delete MMS in the mail box

Test Command AT+CMMSDELETE=?	Response <CR><LF> +CMMSDELETE: (0-1) <CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+CMMSDELETE=<index>	Response <CR><LF> OK <CR><LF> or <CR><LF> ERROR <CR><LF> or <CR><LF> +CME ERROR: <err> <CR><LF>
Execute Command AT+CMMSDELETE	Response <CR><LF> OK <CR><LF> or <CR><LF> ERROR <CR><LF> or <CR><LF> +CME ERROR: <err> <CR><LF>

Defined Values

<index>	The index of the mail box, where is selected to save the MMS
<mmsNum>	The number of MMS saved in the mail box

Example

```

AT+CMMSDELETE=?
+CMMSDELETE: (0-1)

OK
AT+CMMSDELETE
OK
AT+CMMSDELETE=1

```

OK

24.2.16 AT+CMMSUA Set the User-Agent of MMS packet

This command is used to set the User-Agent of MMS packet.

AT+CMMSUA Set the User-Agent of MMS packet

Test Command AT+CMMSUA=?	Response <CR><LF> +CMMSUA: "UserAgent"<CR><LF> <CR><LF> OK<CR><LF>
Read Command AT+CMMSUA?	Response <CR><LF> +CMMSUA: "<useragent>"<CR><LF> <CR><LF> OK<CR><LF> or <CR><LF> ERROR<CR><LF> or <CR><LF> +CME ERROR: <err><CR><LF>
Write Command AT+CMMSUA="<useragent>"	Response <CR><LF> OK<CR><LF> or <CR><LF> ERROR<CR><LF> or <CR><LF> +CME ERROR: <err><CR><LF>

Defined Values

<useragent>	The User-Agent of MMS packet. The maximum length is 511 bytes.
-------------	--

Example

```
AT+CMMSUA="Test my UserAgent"
OK
AT+CMMSUA?
```

+CMMSUA: "Test my UserAgent"

OK

AT+CMMSUA=?

+CMMSUA: "UserAgent"

OK

24.2.17 AT+CMMSPROFILE Set the User-Agent profile of MMS packet

This command is used to set the User-Agent profile of MMS packet.

AT+CMMSPROFILE Set the User-Agent profile of MMS packet

Test Command AT+CMMSPROFILE=?	Response <CR><LF> +CMMSPROFILE: "UserAgentProfile"<CR><LF> <CR><LF> OK<CR><LF>
Read Command AT+CMMSPROFILE?	Response <CR><LF> +CMMSPROFILE: "<profile>"<CR><LF> <CR><LF> OK<CR><LF> or <CR><LF> ERROR<CR><LF> or <CR><LF> +CME ERROR: <err><CR><LF>
Write Command AT+CMMSPROFILE="<profile>"	Response <CR><LF> OK<CR><LF> or <CR><LF> ERROR<CR><LF> or <CR><LF> +CME ERROR: <err><CR><LF>

Defined Values

<profile>	The User-Agent profile of MMS packet. The maximum length is 511 bytes.
-----------	--

Example

```
AT+CMMSPROFILE="TestmyUserAgentprofil
e"
OK
AT+CMMSPROFILE?
+CMMSPROFILE: "TestmyUserAgentprofile"

OK
AT+CMMSPROFILE=?
+CMMSPROFILE: "UserAgentProfile"

OK
```

24.2.18 AT+CMMSCFG Config the MMS context

This command is used to set the MMS context.

AT+CMMSCFG Config the MMS context

Test Command AT+CMMSCFG=?	Response <CR><LF> +CMMSCFG: "data_mode",(0-1)<CR><LF> +CMMSCFG: "mmssend_timeout",(10000-600000)<CR><LF> <CR><LF> OK<CR><LF>
Read Command AT+CMMSCFG?	Response <CR><LF> +CMMSCFG: "data_mode",<mode><CR><LF> +CMMSCFG: "mmssend_timeout",<timeout><CR><LF> <CR><LF> OK<CR><LF> or <CR><LF> ERROR<CR><LF> or <CR><LF> +CME ERROR: <err><CR><LF>
Write Command AT+CMMSCFG="data_mode",<mode>	Response <CR><LF> OK<CR><LF> or <CR><LF>

	ERROR <CR><LF> or <CR><LF> +CME ERROR: <err> <CR><LF>
Write Command AT+CMMSCFG="mmssend_timeout",<timeout>	Response <CR><LF> OK <CR><LF> or <CR><LF> ERROR <CR><LF> or <CR><LF> +CME ERROR: <err> <CR><LF>
Write Command AT+CMMSCFG="CID",<cid>] >]	Response <CR><LF> OK <CR><LF> or when the <cid> is not set: <CR><LF> +CMMSCFG: "CID",<cid> <CR><LF> <CR><LF> OK <CR><LF> or <CR><LF> ERROR <CR><LF> or <CR><LF> +CME ERROR: <err> <CR><LF>

Defined Values

<mode>	A numeric parameter. The default value is 0. 0 Use download to import the files in the module, then send the files in the module to the server via the AT+CMMSSEND command 1 Do not download the file into the module, only the file name and size will be recorded. At this time, using the AT+CMMSSEND command will enter transparent mode, and the file can be directly sent to the server. After reaching the specified size, it will automatically exit transparent mode
<timeout>	A numeric parameter. The range is 10000ms-600000ms. set the timeout of AT+CMMSSEND command, the default value is 10000ms, which can be set according to the actual situation, the AT command can exit the transparent mode after the timeout.
<cid>	A numeric parameter which specifies a particular PDP context. The range is 1-n. The maximum value n is related to the pdp command of

the modem. If <cid> is not set, query the current cid, and the default value is 1.

Example

AT+ CMMSCFG=?

+CMMSCFG: "data_mode",(0-1)

+CMMSCFG:

"MMSSEND_TIMEOUT",(10000-600000)

OK

AT+CMMSCFG?

+CMMSCFG: "data_mode",0

+CMMSCFG: "mmssend_timeout",10000

OK

AT+CMMSCFG="data_mode",1

OK

AT+CMMSCFG="mmssend_timeout",120000

OK

AT+CMMSCFG?

+CMMSCFG: "data_mode",1

+CMMSCFG: "mmssend_timeout",120000

OK

AT+CMMSCFG="CID",2

OK

AT+CMMSCFG="CID"

+CMMSCFG: "CID",2

OK

24.3 Summary of result codes for MMS

24.3.1 Indication of Sending MMS

MMS Sending	Description
+CMMSSEND: <err>	This indication means the result of sending MMS. If successful, it reports +CMMSSEND: 0, or else, it report +CMMSSEND: <err>

24.3.2 Summary of CME ERROR Codes for MMS

Code of <err>	Meaning
201	Unknown error for mms
171	MMS task is busy now
172	The mms data is over size
173	The operation is over time
174	There is no mms receiver
175	The storage for address is full
176	Not find the address
177	Invalid parameter
178	Failed to read mms
179	There is not a mms push message (reserved)
180	Memory error
181	Invalid file format
182	The mms storage is full
183	The box is empty
184	Failed to save mms
185	Busy editing mms now
186	Not allowed to edit now
187	No content in the buffer
188	Failed to receive mms
189	Invalid mms pdu
190	Network error
191	Failed to read file in UE
192	Result none

25 AT Commands for ESIM LPA

25.1 Overview of AT Commands for LPA

Command	Description
AT+SESIM	Manage ESIM LPA

25.2 Detailed Description of AT Commands for ESIM

25.2.1 AT+SESIM Manage ESIM LPA

This command is used to operate eSIM that connects with module. These operations includes: Download profile, Enable profile, Disable profile, Delete profile, Get profile information, etc.

AT+SESIM Manage ESIM LPA	
Test Command AT+SESIM=?	Response <CR><LF> +SESIM: (1),("DOWNLOAD","ENABLE","DISABLE","DELETE","INFO","EID","RESET","NICKNAME","SMDP")<CR><LF> <CR><LF> OK <CR><LF>
Read Command AT+SESIM?	Response <CR><LF> OK <CR><LF>
Write Command AT+SESIM=<slot>,<operation>[...]	Detailed information, refer to the following chapters.
Parameter Saving Mode	NO_SAVE
Max Response Time	180S
Reference	

Defined Values

<slot>	Integer type. Indicates the slot number. AT+SMSIMCFG can switch it. 1 SIM slot 1
<operation>	String type. it defines some esim operations. "DOWNLOAD" Download profile "ENABLE" Enable profile "DISABLE" Disable profile "DELETE" Delete profile "INFO" Get profile detailed information "EID" Get EID "RESET" Memory reset "NICKNAME" Set and Get profile nickname "SMDP" Set and Get SM-DP+ address

Example

```
AT+SESIM=?
+SESIM:
(1),("DOWNLOAD","ENABLE","DISABLE","DELETE","INFO","EID","RESET","NICKNAME","SMDP")
```

OK

25.2.2 AT+SESIM=<slot>,"INFO" Get Profile Information

This command is used to get profile information. The profile information includes iccid, profile name, state and nickname etc.

AT+SESIM=<slot>,"INFO" Get Profile Information

Write Command AT+SESIM=<slot>,"INFO",<index>	Response <CR><LF> +SESIM: "INFO", <result_code>[[,<number>]] <CR><LF> +SESIM: <index>,<iccid>,<profile_name>,<state>,<class>,<spn>,<nickname>[...]]<CR><LF> <CR><LF> OK <CR><LF> or <CR><LF> ERROR <CR><LF> or <CR><LF> +CME ERROR: <err> <CR><LF>
--	---

Defined Values

<slot>	Integer type. Indicates the slot number. AT+SMSIMCFG can switch SIM slot. 1 SIM slot 1
<index>	Integer type. The profile index, it starts from 1. When <index> is 255, it shows all profiles information.
<result_code>	String type. The len is 6. It is composed of hexadecimal characters. 000000 it show that the operation is successful. more detailed information, refer to the result code section
<number>	Integer type. It prompts how many profile messages are displayed.
<iccid>	String type, Integrate circuit card identity, a standard ICCID is a 20-digit serial number of the SIM card.
<profile_name>	String type. The profile name.
<state>	Integer type. The profile state 00 disabled 01 enabled
<class>	Integer type. The profile class 00 test 01 provisioning 02 operational
<spn>	String type. service provider name.
<nickname>	String type. The profile nickname.

Example

```
AT+SESIM=1,"INFO",1
+SESIM: "INFO",000000,1
+SESIM:
1,898010290000000749541,SIMCOM_45406_00
1,0,2,SIMCOM,
```

OK

```
AT+SESIM=1,"INFO",255
+SESIM: "INFO",000000,2
+SESIM:
1,898010290000000749541,SIMCOM_45406_00
1,0,2,SIMCOM,
+SESIM:
2,898010290000000749533,SIMCOM_45406_00
1,1,2,SIMCOM,
```

OK

25.2.3 AT+SESIM=<slot>,"DOWNLOAD" Download Profile

This command is used to download a new profile from remote SM-DP+ server. After the downloading action is completed, urc will report.

AT+SESIM=<slot>,"DOWNLOAD" Download Profile

Write Command	Response
AT+SESIM=<slot>,"DOWNL OAD",<activation_code>[,< confirmation_code>]	<CR><LF> + SESIM: "DOWNLOAD",<result_code> <CR><LF> <CR><LF> OK <CR><LF> or <CR><LF> ERROR <CR><LF> or <CR><LF> +CME ERROR: <err> <CR><LF>

Defined Values

<slot>	Integer type. Indicates the slot number. AT+SMSIMCFG can switch it. 1 SIM slot 1
<activation_code>	String type. The activation code. The maximum length is 250. "USESMDP" Download profile with default SMDP+ address "USDSMDS" Download profile with SMDS address
<confirmation_code>	String type. The confirmation_code. The maximum length is 48.
<result_code>	String type. The len is 6. It is composed of hexadecimal characters. 000000 it show that the operation is successful. more detailed information, refer to the result code section

Example

```
AT+SESIM=1,"DOWNLOAD","1$thales1-livel
ab.prod.ondemandconnectivity.com$8BA5B
C8445411072ABC1645C069F5683263A62A8A
A16289D4702626E"
+SESIM: "DOWNLOAD",000000

OK
```

25.2.4 AT+SESIM=<slot>,"ENABLE" Enable Profile

This command is used to enable profile. The parameter iccid must provide.

AT+SESIM=<slot>,"ENABLE" Enable Profile

Write Command	Response
AT+SESIM=<slot>,"ENABLE",<iccid>	<CR><LF>
	+SESIM: "ENABLE",<result_code> <CR><LF>
	<CR><LF>
	OK <CR><LF>
	or
	<CR><LF>
	ERROR <CR><LF>
	or
	<CR><LF>
	+CME ERROR: <err> <CR><LF>

Defined Values

<slot>	Integer type. Indicates the slot number.AT+SMSIMCFG can switch it. 1 SIM slot 1
<iccid>	String type,Integrate circuit card identity, a standard ICCID is a 20-digit serial number of the SIM card.
<result_code>	String type.The len is 6.It is composed of hexadecimal characters. 000000 it show that the operation is successful. more detailed information, refer to the result code section

Example

```
AT+SESIM=1,"ENABLE","8901999000123457
5243"
+SESIM: "ENABLE",000000

OK
```

25.2.5 AT+SESIM=<slot>,"DISABLE" Disable Profile

This command is used to disable profile. The parameter iccid must provide.

AT+SESIM=<slot>,"DISABLE" Disable Profile

Write Command	Response
AT+SESIM=<slot>,"DISABL E",<iccid>	<CR><LF>
	+SESIM: "DISABLE",<result_code> <CR><LF>
	<CR><LF>
	OK <CR><LF>
	or
	<CR><LF>

ERROR<CR><LF>
or
<CR><LF>
+CME ERROR: <err><CR><LF>

Defined Values

<slot>	Integer type. Indicates the slot number. AT+SMSIMCFG can switch SIM slot. 1 SIM slot 1
<iccid>	String type, Integrate circuit card identity, a standard ICCID is a 20-digit serial number of the SIM card.
<result_code>	String type. The len is 6. It is composed of hexadecimal characters. 000000 it show that the operation is successful. more detailed information, refer to the result code section

Example

```
AT+SESIM=1,"DISABLE","8901999000123457
5300"
+SESIM: "DISABLE",000000
OK
```

25.2.6 AT+SESIM=<slot>,"DELETE" Delete Profile

This command is used to delete profile. The parameter iccid must provide.

AT+SESIM=<slot>,"DELETE" Delete Profile

Write Command AT+SESIM=<slot>,"DELETE <iccid>	Response <CR><LF> +SESIM: "DELETE",<result_code> <CR><LF> <CR><LF> OK <CR><LF> or <CR><LF> ERROR <CR><LF> or <CR><LF> +CME ERROR: <err> <CR><LF>
---	--

Defined Values

<slot>	Integer type. Indicates the slot number.AT+SMSIMCFG can switch SIM slot. 1 SIM slot 1
<iccid>	String type,Integrate circuit card identity, a standard ICCID is a 20-digit serial number of the SIM card.
<result_code>	String type.The len is 6.It is composed of hexadecimal characters. 000000 it show that the operation is successful. more detailed information, refer to the result code section

Example

```
AT+SESIM=1,"DELETE","8901999000123457
5110"
+SESIM: "DELETE",000000
OK
```

25.2.7 AT+SESIM=<slot>,"EID" Get EID

This command is used to get eid information.

AT+SESIM=<slot>,"EID" Get EID

Write Command AT+SESIM=<slot>,"EID"	Response <CR><LF> +SESIM: "EID",<result_code>[,<eid>] <CR><LF> <CR><LF> OK <CR><LF> or <CR><LF> ERROR <CR><LF> or <CR><LF> +CME ERROR: <err> <CR><LF>
---	---

Defined Values

<slot>	Integer type. Indicates the slot number.AT+SMSIMCFG can switch SIM slot. 1 SIM slot 1
<result_code>	String type.The len is 6.It is composed of hexadecimal characters. 000000 it show that the operation is successful. more detailed information, refer to the result code section
<eid>	String type. Electronic Identity.

Example

AT SESIM=1,"EID"

+SESIM: "EID",000000,
89049032000001000000171768637780

OK

25.2.8 AT+SESIM=<slot>,"SMDP" Config SM-DP+ Address

This command is used to config and query SM-DP+ address.If the parameter smdp_address does not provide,it will get SM-DP+ address.

AT+SESIM=<slot>,"SMDP" Config SM-DP+ Address

Write Command

**AT+SESIM=<slot>,"SMDP",
<smdp_address>]**

Response

<CR><LF>

+SESIM: "SMDP",<result_code>,<smdp_address>]<CR><LF>

<CR><LF>

OK<CR><LF>

or

<CR><LF>

ERROR<CR><LF>

or

<CR><LF>

+CME ERROR: <err><CR><LF>

Defined Values

<slot>

Integer type. Indicates the slot number.AT+SMSIMCFG can switch SIM slot.

1 SIM slot 1

<smdp_address>

String type.The SM-DP+ address.The maximum length is 127.

<result_code>

String type.The len is 6.It is composed of hexadecimal characters. 000000 it show that the operation is successful.

more detailed information, refer to the result code section

Example

AT+SESIM=1,"SMDP","ondemandconnectivity.com"

+SESIM: "SMDP",000000

OK

25.2.9 AT+SESIM=<slot>,"RESET" Reset Esim Memory

This command is used to reset esim memory

Note: The action is dangerous,it should execute with caution.

AT+SESIM=<slot>,"RESET" Reset Esim Memory

Write Command	Response
AT+SESIM=<slot>,"RESET"	<CR><LF> +SESIM: "RESET",<result_code> <CR><LF> <CR><LF> OK <CR><LF> or <CR><LF> ERROR <CR><LF> or <CR><LF> +CME ERROR: <err> <CR><LF>

Defined Values

<slot>	Integer type. Indicates the slot number.AT+SMSIMCFG can switch SIM slot. 1 SIM slot 1
<result_code>	String type.The len is 6.It is composed of hexadecimal characters. 000000 it show that the operation is successful. more detailed information, refer to the result code section

Example

```
AT+SESIM=1,"RESET"
+SESIM: "RESET",000000
OK
```

NOTE

The ESIM only support SIM slot 1, and only support device without GPS

26 AT Commands for PSM

26.1 Overview of AT Commands for PSM

Command	Description
AT+CPSMS	Power saving mode setting

26.2 Detailed Description of AT Commands for psm

26.2.1 AT+CPSMS Power saving mode setting

AT+CPSMS Power saving mode setting	
Test Command AT+CPSMS=?	Response <CR><LF> +CPSMS: (0-2)<CR><LF> <CR><LF> OK<CR><LF>
Read Command AT+CPSMS?	Response <CR><LF> +CPSMS: <mode>,[<Requested_Periodic-RAU>],[<Requested_GPRS-READY-timer>],[<Requested_Periodic-TAU>],[<Requested_Active-Time>]<CR><LF> <CR><LF> OK<CR><LF>
Write Command AT+CPSMS=<mode>,[<Requested_Periodic-RAU>],[<Requested_GPRS-READY-timer>],[<Requested_Periodic-TAU>],[<Requested_Active-Time>]]]]	Response 1) <CR><LF> OK<CR><LF> 2) <CR><LF> ERROR<CR><LF> or <CR><LF>

	+CME ERROR: <err><CR><LF>
Parameter Saving Mode	AUTO_SAVE
Max Response Time	5000ms
Reference	

Defined Values

<mode>	integer type. Indication to disable or enable the use of PSM in the UE 0 Disable the use of PSM 1 Enable the use of PSM 2 Disable the use of PSM and discard all parameters for PSM or, if available, reset to the manufacturer specific default values.
<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 Smanufacturer 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. "01000011" 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

Examples

AT+CPSMS=1,,"01101111","00001111"

OK

AT+CPSMS?

+CPSMS: 1,," 01101111","00001111"

OK

AT+CPSMS=?

+CPSMS: (0-2)

OK

27 AT Commands for eDRX

27.1 Overview of AT Commands for eDRX

Command	Description
AT+CEDRXS	DRX Setting
AT+CEDRXRDP	eDRX Read Dynamic Parameters

27.2 Detailed Description of AT Commands for eDRX

27.2.1 AT+CEDRXS DRX Setting

The set command controls the setting of the UE's eDRX parameters. It can be used to control whether the UE wants to apply eDRX or not, as well as the requested eDRX value for module.

A special form of the command can be given as AT+CEDRXS=3. In this form, eDRX is disabled and data for all parameters in AT+CEDRXS command are removed.

The set command also controls the presentation of an unsolicited result code +CEDRXP: <AcTtype>[,<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.

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.

AT+CEDRXS DRX Setting

Test Command AT+CEDRXS=?	Response <CR><LF> +CEDRXS: (list of supported <mode>s),(list of supported <AcT-type>s),(list of supported <Requested_eDRX_value>s)<CR><LF> <CR><LF> OK <CR><LF>
Read Command AT+CEDRXS?	Response <CR><LF> +CEDRXS: <AcT-type>,<Requested_eDRX_value><CR><LF> <CR><LF>

Write Command AT+CEDRXS=<mode>,<AcT-type>e[,<Requested_eDRX_value>]	OK<CR><LF>
	Response 1) <CR><LF> OK<CR><LF>
	2) <CR><LF> +CME ERROR: <err><CR><LF> or <CR><LF> ERROR<CR><LF>
	Parameter Saving Mode NO_SAVE
	Max Response Time 5000ms
Reference	

Defined Values

<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> takes effect for all specified values of <AcT-type>. 0 Disable the use of eDRx 1 Enable the use of eDRx 2 Enable the use of eDRX and enable the unsolicited result code: +CEDRXP: <AcT-type>[,<Requested_eDRX_value>[,<NW-provided_eDRX_value>[,<Paging_time_window>]]] 3 Disable the use of eDRX and discard all parameters for eDRX.
<AcT-type>	Integer type; indicates the type of access technology. 0 Access technology is not using eDRX. This parameter value is only used in the unsolicited result code. 4 E-UTRAN (WB-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.
<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.
<Paging_time_window >	string type; half a byte in a 4-bit-bit format. The paging time window refers to bit 8 to 5 of octet 3 of the Extended DRX parameters information element.

Examples

AT+CEDRXS?

+CEDRXS: 4,"0010"

OK

AT+CEDRXS=1,4,"0001"

OK

AT+CEDRXS=?

+CEDRXS: (0,1,2,3),(4),("0000"-"1111")

OK

27.2.2 AT+CEDRXRDP eDRX Read Dynamic Parameters

The Execution Command returns <AcT-type>, <Requested_eDRX_value>, <NW-provided_eDRX_value> and <Paging_time_window>. If eDRX is used for the cell that the UE is registered to. If the cell that the UE is registered to is not using eDRX, <AcT-type>=0 is returned.

AT+CEDRXRDP eDRX Read Dynamic Parameters

Test Command AT+CEDRXRDP=?	Response <CR><LF> OK <CR><LF>
Write Command AT+CEDRXRDP	Response <CR><LF> +CEDRXRDP: <AcT-type>[,<Requested_eDRX_value>[,<NW-provided_eDRX_value>[,<Paging_time_window>]]]<CR><LF> <CR><LF> OK <CR><LF>
Parameter Saving Mode	NO_SAVE
Max Response Time	5000ms
Reference	

Defined Values

<AcT-type>	integer type. indicates the type of access technology 0 Access technology is not using eDRX. 4 E-UTRAN (WB-S1 mode)
<Requested_eDRX_value>	String type; half a byte in a 4-bit format.
<NW-provided_eDRX_value>	String type; half a byte in a 4-bit format.
<Paging_time_window>	String type; half a byte in a 4-bit- format.

Examples

AT+CEDRXRDP

+CEDRXRDP: 0

OK
AT+CEDRXRDP=?
OK

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28 AT Commands for USBNET

28.1 Overview of AT Commands for USBNET

Command	Description
AT+DIALMODE	Config USBNET network
AT\$MYCONFIG	Config USBNET mode
AT+USBNETIP	Config USBNET ip

28.2 Detailed Description of AT Commands for USBNET

28.2.1 AT+DIALMODE Config USBNET network

AT+DIALMODE Config USBNET network

AT+DIALMODE Config USBNET network	
Test Command AT+DIALMODE=?	Response <CR><LF> +DIALMODE: (0-1) <CR><LF> <CR><LF> OK <CR><LF>
Read Command AT+DIALMODE?	Response <CR><LF> +DIALMODE: <mode> <CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+DIALMODE=<mode>	Response 1) <CR><LF> OK <CR><LF> 2) <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	AUTO_SAVE

Max Response Time	9000ms
Reference	

Defined Values

<mode>	The Auto Dial status Enable/Disable, the default value is 1. 0 –Enable USBNET network 1 –Disable USBNET network The function will take effect immediately.
---------------------	--

Examples

AT+DIALMODE=1	Disable USBNET network
OK	

28.2.2 AT\$MYCONFIG Set RNDIS/ECM Mode

AT\$MYCONFIG Set RNDIS/ECM Mode

AT\$MYCONFIG Set RNDIS/ECM Mode	
Test Command AT\$MYCONFIG=?	Response <CR><LF> \$MYCONFIG: "usbnetmode", (0-1), (0-1)<CR><LF> <CR><LF> OK<CR><LF>
Read Command AT\$MYCONFIG?	Response <CR><LF> \$MYCONFIG: "usbnetmode", <netmode>, <netport><CR><LF> <CR><LF> OK<CR><LF>
Write Command AT\$MYCONFIG="USBNETMODE", <netmode>, <netport>]	Response 1) <CR><LF> OK<CR><LF> 2) <CR><LF> ERROR<CR><LF>
Parameter Saving Mode	AUTO_SAVE
Max Response Time	9000ms
Reference	

Defined Values

<netmode>	The RNDIS/ECM mode, the default value is 0. 0 –RNDIS 1 –ECM
<netport>	The function will reset modem then take effect. The name of Netcard, the default value is 1 0 –ETH 1 –USB

NOTE

This command takes effect only after being restarted.

Examples

AT\$MYCONFIG="USBNETMODE",1,1

OK

Change to ECM

28.2.3 AT+USBNETIP Change RNDIS/ECM Private IP to Public IP

AT+USBNETIP Change RNDIS/ECM Private IP to Public IP

AT+USBNETIP Change RNDIS/ECM Private IP to Public IP

Test Command

AT+USBNETIP=?

Response

<CR><LF>

+USBNETIP: (0-1) [(0-255),(0-255)]<CR><LF>

<CR><LF>

OK<CR><LF>

Read Command

AT+USBNETIP?

Response

a)If successfully mode=0:

<CR><LF>

+USBNETIP: 0,<thirdipaddr>,<fouripaddr><CR><LF>

<CR><LF>

OK<CR><LF>

b)If successfully mode=1:

<CR><LF>

+USBNETIP: 1<CR><LF>

<CR><LF>

OK<CR><LF>

c)If failed:

<CR><LF>

	ERROR <CR><LF>
Write Command	Response
AT+USBNETIP=<mode>[,<thirdipaddr>[,<fouripaddr>]]	1) <CR><LF> OK <CR><LF>
	2) <CR><LF> +CME ERROR: Incorrect parameters <CR><LF>
Parameter Saving Mode	AUTO_SAVE
Max Response Time	9000ms
Reference	

Defined Values

<mode>	0 –Private Ip(default, 192.168.10.xxx etc.) 1 –Public Ip(the ip from the network)
<thirdipaddr>	Third digit of the Ipv 4 address
<fouripaddr>	Fourth digit of the Ipv 4 address

Examples

AT+USBNETIP=0,43,22	Change usbnet ip
OK	

29 AT Commands for LBS

29.1 Overview of AT Commands for LBS

Command	Description
AT+CLBS	Base station location
AT+CLBSCFG	Base station location config

29.2 Detailed Description of AT Commands for LBS

29.2.1 AT+CLBS Base station location

The write command is used to base station location.

AT+ CLBS Base station location	
Test Command AT+CLBS=?	Response 1) <CR><LF> +CLBS: (1,2,3,4,9),(1-15),(-180.000000-180.000000),(-90.000000-90.000000),(0-2)<CR><LF> <CR><LF> OK <CR><LF>
Write Command AT+CLBS=<type>[,<cid>[,<longitude>,<latitude>[,<lon_type>]]]	Response 1)type = 1,get latitude and longitude <CR><LF> OK <CR><LF> <CR><LF> +CLBS: <ret_code>[,<latitude>,<longitude>,<acc>]<CR><LF> 2)type = 2,get detail address <CR><LF> OK <CR><LF>

```

<CR><LF>
+CLBS: <ret_code>[,<detail_addr>]<CR><LF>

3)type = 3,get access times
<CR><LF>
OK<CR><LF>
<CR><LF>
+CLBS: <ret_code>[,<times>]<CR><LF>

4)type = 4,get latitude longitude and date time
<CR><LF>
OK<CR><LF>
<CR><LF>
+CLBS:
<ret_code>[,<latitude>,<longitude>,<acc>,<date>,<time>]<CR>
><LF>

5)type = 9, report positioning error
<CR><LF>
OK<CR><LF>
<CR><LF>
+CLBS: <ret_code><CR><LF>

6)
<CR><LF>
+CLBS: <ret_code><CR><LF>
<CR><LF>
ERROR<CR><LF>

```

Parameter Saving Mode	NO_SAVE
Maximum Response Time	9S
Reference	3GPP TS 27.007

Defined Values

<type>	A numeric parameter which specifies the location type. 1 use 3 cell's information 2 get detail address 3 get access times 4 get latitude longitude and date time 9 report positioning error
<cid>	A numeric parameter which specifies a particular PDP context definition (see AT+CGDCONT command). 1...15
<longitude>	Current longitude in degrees.
<latitude>	Current latitude in degrees.

<detail_addr>	Current detail address. It based the UCS2 coding. Each 4 characters in the URC is for one UCS2 character.
<acc>	Positioning accuracy.
<lon_type>	The type of longitude and latitude <u>0</u> the default value(in China, it is GCJ02 coordinate, out of China, it is WGS84 coordinate) 1 (reserve) 2 change GCJ02 to WGS84(it can be only used in China)
<times>	access service times.
<date>	service date(UTC, the format is YYYY/MM/DD).
<time>	service time(UTC, the format is HH:MM:SS).
<ret_code>	The result code. 0 Success 1 Parameter error returned by server. 2 Service out of time returned by server. 3 Location failed returned by server. 4 Query timeout returned by server. 5 Certification failed returned by server. 6 Server LBS error success. 7 Server LBS error failed. 80 Report LBS to server success 81 Report LBS to server parameter error 82 Report LBS to server failed 110 Other Error 8 LBS is busy. 9 Open network error. 10 Close network error. 11 Operation timeout. 12 DNS error. 13 Create socket error. 14 Connect socket error. 15 Close socket error. 16 Get cell info error. 17 Get IMEI error. 18 Send data error. 19 Receive data error. 20 NONET error. 21 Net not opened.

Examples

AT+CLBS=1
OK

//type = 1,get latitude and longitude

+CLBS: 0, 29.489428,106.638084, 550

AT+CLBS=2

// type = 2,get detail address

OK

+CLBS:

0,91cd5e865e02002053575cb8533a002073899

a6c8def002097608fd15de54e1a548c4fe1606f5

31690e875354fe178147a7696620028897f90e8

520696620029

AT+CLBS=3

// type = 3,get access times

OK

+CLBS: 0,0

AT+CLBS=4

// type = 4,get latitude longitude and date time

OK

+CLBS:

0,29.489428,106.638084,550,2020/06/17,09:34:

16

AT+CLBS=1,,,2

// change GCJ02 to WGS84(it can be only used in China)

OK

+CLBS: 0,29.492197,106.635101,550

29.2.2 AT+CLBSCFG Base station location config

The write command is used to base station location.

AT+ CLBSCFG Base station location config

Test Command

AT+CLBSCFG=?

Response

1)

<CR><LF>

+CLBSCFG: (0,1),(3,7),<ParamValue><CR><LF>

<CR><LF>

OK<CR><LF>

Write Command

AT+CLBSCFG=<mode>[,<type>
[,<ParamValue>]]

Response

1)mode = 0,get the value of ParamValue

<CR><LF>

+CLBSCFG: <mode>,<type>,<ParamValue><CR><LF>

<CR><LF>

OK<CR><LF>

	2)mode = 1,set the value of ParamValue <CR><LF> OK <CR><LF>
	3) <CR><LF> ERROR <CR><LF>
Parameter Saving Mode	NO_SAVE
Reference	

Defined Values

<mode>	0 get the value of ParamValue 1 set the value of ParamValue
<type>	3 set LBS service dns and port 7 set the flag to control use ipv4 or ipv6 to get longitude and latitude 0 use ipv4 1 use ipv6 default type is 0
<ParamValue>	The value of type specifies the value

Examples

```

AT+CLBSCFG=0,3                                     //mode=0 type =3, get lbs service dns and port
+CLBSCFG: 0,3,"lbs-simcom.com:3002"

OK
AT+CLBSCFG=1,3, lbs-simcom.com:3002                 //mode=1 type =3, set lbs service dns and port
OK
AT+CLBSCFG=0,7                                     //mode=0 type =7, get lbs use ip type
+CLBSCFG: 0,7,1

OK
AT+CLBSCFG=1,7,1                                   //mode=1 type =7, get lbs use ipv6 type
OK

```

30 Summary of ERROR Codes

30.1 Verbose Codes and Numeric Codes

Verbose result code	Numeric (V0 set)	Description
OK	0	Command executed, no errors, Wake up after reset
CONNECT	1	Link established
RING	2	Ring detected
NO CARRIER	3	Link not established or disconnected
ERROR	4	Invalid command or command line too long
NO DIALTONE	6	No dial tone, dialing impossible, wrong mode
BUSY	7	Remote station busy
NO ANSWER	8	Connection completion timeout

30.2 Response String of AT+CEER

Number	Response string
2	IMSI unknown in HLR
3	Illegal MS
5	IMEI not accepted
6	Illegal ME
7	GPRS services not allowed
8	GPRS & non GPRS services not allowed
9	MS identity cannot be derived
10	Implicitly detached
11	PLMN not allowed
12	Location Area not allowed
13	Roaming not allowed
14	GPRS services not allowed in PLMN
15	No Suitable Cells In Location Area
16	MSC temporarily not reachable
17	Network failure

20	MAC failure
21	Synch failure
22	Congestion
40	No PDP context activated
95	Semantically incorrect message
96	Invalid mandatory information
97	Message type non-existent
98	Message type not compatible with state
99	Information element non-existent
100	Conditional IE error
101	Message not compatible with state
111	Protocol error: unspecified

30.3 Summary of CME ERROR Codes

This result code is similar to the regular ERROR result code. The format of <err> can be either numeric or verbose string, by setting AT+CMEE command.

Defined Values

Code of <err>	Meaning
1	no connection to phone
2	phone-adaptor link reserved
3	operation not allowed
4	operation not supported
5	PH-SIM PIN required
6	PH-FSIM PIN required
7	PH-FSIM 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 str too long
25	invalid characters
26	dial str too long
27	invalid characters in dial str
30	no nw service
31	nw timeout
32	network not allowed - emergency call only
40	network personalization PIN required
41	network personalization PUK required
42	network subset personalization PIN required
43	network subset personalization PUK required
44	service provider personalization PIN required
45	service provider personalization PUK required
46	corporate personalization PIN required
47	corporate personalization PUK required
48	hidden key required
49	EAP method does not support
50	Incorrect parameters
51	command implemented but currently disabled
52	command aborted by user
53	not attached to network due to MT functionality restrictions
54	modem not allowed - MT restricted to emergency calls only
55	operation not allowed because of MT functionality restrictions
56	fixed dial number only allowed
57	temporarily out of service due to other MT usage
58	language/alphabet not supported
59	unexpected data value
60	system failure
61	data missing
62	call barred
63	message waiting indication subscription failure
100	unknown error
103	illegal MS
106	illegal ME
107	GPRS services not allowed
108	GPRS services and non GPRS services not allowed
111	PLMN not allowed

112	Location area not allowed
113	Roaming not allowed in this location area
114	GPRS services not allowed in this plmn
115	No suitable cells in location area
121	PTI mismatch
122	Congestion
126	Insufficient resources
127	Mission or unknown APN
128	Unknown pdp address or pdn type
129	User authentication failed
130	Activation rej by CGSN Serving GW or PDN GW
131	Request rej, unspecified
132	Service option not supported
133	requested service option not subscribed
134	service option temporarily out of order
135	PTI already in use
136	Regular deactivation
137	EPS QoS not accepted
140	Feature not supported
141	Semantic errors in the TFT operation
142	Syntactical errors in the TFT operation
143	Invalid EPS bearer identity
144	Semantic errors in packet filters
145	Syntactical errors in packet filters
146	PDP context without TFT already activated
148	unspecified GPRS error
149	PDP authentication failure
150	invalid mobile class
171	Last PDN disconnection not allowed
172	Semantically incorrect message
173	mandatory information element error
174	information element non exists or not implemented
175	Conditional ie error
176	Protocol error unspecified
177	Operator determined barring
178	max num of pdp contexts reached
179	Requested APN not supported in current rat and PLMN combination
180	Request rejected bearer control mode violation
181	Unsupported qci value
182	User data transmission via control plane is congested
184	Invalid PTI value

186	Message not compatible with protocol state
190	Network failure
191	Reactivation requested
192	PDN type IPv4 only allowed
193	PDN type IPv6 only allowed
194	Single address bearers only allowed
195	Collision with network initiated request
196	PDN type IPv4v6 only allowed
197	PDN type non-IP only allowed
198	Bearer handling not supported
199	APN restriction value incompatible with active PDP context
200	Multiple accesses to a PDN connection not allowed
201	ESM information not received
202	PDN connection does not exist
203	Multiple PDN connections for a given APN not allowed
208	Message type not compatible with protocol state
209	Information element non-existent or not implemented
301	Internal error base
302	UE busy
303	ue not power on
304	pdn not active
305	pdn not valid
306	pdn type invalid
307	pdn leak param
308	ue fail
309	pdn type and APN duplicate used
310	PAP and EITF not matched
311	SIM PIN disabled
312	SIM PIN already enabled
313	SIM PIN wrong format
512	Required parameter not configured
513	TUP not registered
514	AT internal error
515	CID is active
516	Incorrect state for command
517	CID is invalid
518	CID is not active
520	Deactivate the last active CID
521	CID is not defined
522	UART parity error
523	UART frame error

524	UE is in minimal function mode
525	AT command aborted: in processing
526	AT command aborted: error
527	Command interrupted
528	Configuration conflicts
529	During FOTA updating
530	Not the AT allocated socket
531	USIM PIN is blocked
532	USIM PUK is blocked
533	Not mipi module
534	File not found
535	conditions of use not satisfied
536	AT UART buffer error
537	Back off timer is running
538	CID defined counter value greater than ZERO
539	CID not defined
540	CID active counter value greater than ZERO

Examples

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

```
+CME ERROR: SIM failure
```

30.4 Summary of CMS ERROR Codes

Final result code +CMS ERROR: <err> indicates an error related to mobile equipment or network. The operation is similar to ERROR result code. None of the following commands in the same command line is executed. Neither ERROR nor OK result code shall be returned. ERROR is returned normally when error is related to syntax or invalid parameters. The format of <err> can be either numeric or verbose. This is set with command AT+CMEE.

Defined Values

Code of <err>	Meaning
300	ME failure
301	SMS service of ME reserved
302	operation not allowed

303	operation not supported
304	invalid PDU mode parameter
305	invalid text mode parameter
310	(U)SIM not inserted
311	(U)SIM PIN required
312	PH-(U)SIM PIN required
313	(U)SIM failure
314	(U)SIM busy
315	(U)SIM wrong
316	(U)SIM PUK required
317	(U)SIM PIN2 required
318	(U)SIM PUK2 required
320	memory failure
321	invalid memory index
322	memory full
330	SMSC address unknown
331	no network service
332	network timeout
340	no +CNMA acknowledgement expected
500	unknown error

Examples

```
AT+CMGS=02112345678
```

```
+CMS ERROR: 304
```