

Aspen SIM800 Library Documentation

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(<https://github.com/aspenforest>)

The SIM800 models which this library should work with are documented in the official AT command manual. SIM800L has been tested to work with this library.

All public methods accessible to the user are separated into helper methods and AT methods. Each must be called on the single SIM800 class object instance named "SIM". Example: SIM.test();

Helper methods are used to either modify the input/output to/from the SIM800L chip, or to directly communicate with it.

All AT methods require at most two args, which can be either an enum called CmdType (CT) with valid values of TEST, GET, SET, EXE, and/or a parameter char[]. Some AT methods take no args, or no CT, or no char[], or two char[]. The user is responsible for providing correct format and values for the char[] parameter(s).

The user should consult with the official AT command manual to determine what CmdTypes and what char[] parameter options are available for each AT command.

The core source files are internally very well commented and users are encouraged to read them to gain a complete understanding of this library.

It's recommended to read the comments in the following order: SIM800.h, SIM800.cpp, simserial.h, simserial.cpp, strfn.h, strfn.cpp, debug.h, debug.cpp.

Helper methods overview	
void begin (unsigned long)	void setSlicePoint (uint32_t)
void write (char[])	void directSerialMonitor ()
void print (char[])	void cmdBenchmark (bool)
void available ()	bool reply (char[])
void setTimeout (uint16_t)	bool isError ()
void resetTimeout ()	char[] getBuffer ()
uint16_t getTimeout ()	void clearBuffer ()
void detectEndStr (bool)	void formatReply (bool)
void overrideTimeout (uint16_t)	

Nº	AT method	Args	AT command	Ofc man
<i>calls.h</i>				
1.	test	-	AT	-
2.	repeatLastCmd	-	A/	28
3.	answerCall	-	ATA	28
4.	originCall	[]	ATD	29
5.	redialLastAddr	-	ATDL	34
6.	setCmdEcho	[]	ATE	35
7.	endCall	-	ATH	35
8.	getDeviceID	-	ATI	35
9.	monSpeakerVol	[]	ATL	36
10.	monSpeakerMode	[]	ATM	36
11.	toCmdMode	-	+++	36
12.	toDataMode	-	AT0	37
13.	pulseDialing	-	ATP	37
14.	setResultMode	[]	ATQ	38
15.	autoAnswerAfter	CT, []	ATS0	38
16.	cmdlnEndChar	-	ATS3	39
17.	cmdlnFormatChar	-	ATS4	39
18.	cmdlnEditChar	-	ATS5	40
19.	blindDialPause	CT, []	ATS6	41
20.	connWaitTime	CT, []	ATS7	41
21.	commaWaitTime	CT, []	ATS8	42
22.	carrierLostDelay	CT, []	ATS10	42
23.	toneDialing	-	ATT	43
24.	setResponseFormat	[]	ATV	43
25.	setCallMonitor	[]	ATX	44
26.	userReset	-	ATZ	45
27.	setDcdMode	[]	AT&C	45
28.	setDtrMode	[]	AT&D	46
29.	factoryReset	-	AT&F	46

Nº	AT method	Args	AT command	Ofc man
<i>calls.h</i>				
30.	getActiveCfg	-	AT&V	47
31.	saveActiveCfg	-	AT&W	47
32.	getGsmSupport	-	AT+GCAP	49
33.	getMakerID	TEST, EXE	AT+GMI	49
34.	getDeviceModelID	TEST, EXE	AT+GMM	50
35.	getSoftwareID	TEST, EXE	AT+GMR	50
36.	getGOI	TEST, EXE	AT+GOI	51
37.	getIMEI	TEST, EXE	AT+GSN	51
38.	serialFraming	CT, []	AT+ICF	52
39.	serialFlowCtrl	CT, []	AT+IFC	53
40.	serialBauds	CT, []	AT+IPR	54
41.	endCallOnly	-	AT+HVOIC	55
<i>sms.h</i>				
42.	smsDel	CT, []	AT+CMGD	112
43.	smsFormat	CT, []	AT+CMGF	113
44.	smsList	CT, []	AT+CMGL	114
45.	smsRead	CT, []	AT+CMGR	117
46.	smsSend	[], []	AT+CMGS	120
47.	smsWriteToStore	[], []	AT+CMGW	121
48.	smsSendFromStore	CT, []	AT+CMSS	123
49.	smsNotifyNew	CT, []	AT+CNMI	124
50.	smsStorage	CT, []	AT+CPMS	126
51.	smsRestoreCfg	CT, []	AT+CRES	127
52.	smsSaveCfg	CT, []	AT+CSAS	128
53.	smsCenterAddress	CT, []	AT+CSCA	129
54.	smsCellCast	CT, []	AT+CSCB	130
55.	smsGetParams	CT, []	AT+CSDH	131
56.	smsSetParams	CT, []	AT+CSMP	132
57.	smsService	CT, []	AT+CSMS	133

Nº	AT method	Args	AT command	Ofc man
<i>gprs.h</i>				
58.	gprsAttach	CT, []	AT+CGATT	208
59.	gprsDefineContext	CT, []	AT+CGDCONT	209
60.	gprsMinQuality	CT, []	AT+CGQMIN	210
61.	gprsReqQuality	CT, []	AT+CGQREQ	210
62.	gprsEnactContext	CT, []	AT+CGACT	213
63.	gprsDataState	CT, []	AT+CGDATA	214
64.	gprsAddress	CT, []	AT+CGPADDR	214
65.	gprsStationClass	CT, []	AT+CGCLASS	215
66.	gprsReportCtrl	CT, []	AT+CGEREP	216
67.	gprsRegStatus	CT, []	AT+CGREG	217
68.	gprsMsgService	CT, []	AT+CGSMS	218
<i>ip.h</i>				
69.	ipMultiConn	CT, []	AT+CIPMUX	221
70.	ipOpen	CT, []	AT+CIPSTART	221
71.	ipSend	CT, []	AT+CIPSEND	223
72.	ipQuicksend	CT, []	AT+CIPQSEND	225
73.	ipAck	CT, []	AT+CIPACK	226
74.	ipClose	CT, []	AT+CIPCLOSE	227
75.	ipDeactivate	TEST, EXE	AT+CIPSHUT	227
76.	ipPort	CT, []	AT+CLPORT	228
77.	ipAccess	CT, []	AT+CSTT	229
78.	ipBegin	TEST, EXE	AT+CIICR	230
79.	ipGetLocalAddr	TEST, EXE	AT+CIFSR	230
80.	ipStatus	CT, []	AT+CIPSTATUS	231
81.	ipDnsCfg	CT, []	AT+CDNSCFG	232
82.	ipGetNameAddr	CT, []	AT+CDNSGIP	233
83.	ipAddHead	CT, []	AT+CIPHEAD	234
84.	ipAutoSendTimer	CT, []	AT+CIPATS	234
85.	ipSendPrompt	CT, []	AT+CIPSPRT	235

Nº	AT method	Args	AT command	Ofc man
<i>ip.h</i>				
86.	ipServer	CT, []	AT+CIPSERVER	236
87.	ipConnMode	CT, []	AT+CIPCSGP	237
88.	ipShowRemoteID	CT, []	AT+CIPSRIP	238
89.	ipNetTiming	CT, []	AT+CIPDPDP	239
90.	ipAppMode	CT, []	AT+CIPMODE	239
91.	ipTransferCfg	CT, []	AT+CIPCCFG	240
92.	ipShowProtocol	CT, []	AT+CIPSHOWTP	241
93.	ipUdpMode	CT, []	AT+CIPUDPMODE	242
94.	ipManualData	CT, []	AT+CIPRXGET	243
95.	ipSaveCfg	GET, EXE	AT+CIPSCONT	245
96.	ipRemoteTimer	CT, []	AT+CIPRDTIMER	246
97.	ipMultiPdpCfg	CT, []	AT+CIPSGTXT	247
98.	ipKeepAlive	CT, []	AT+CIPTKA	248
99.	ipBearer	CT, []	AT+SAPBR	249
100.	ipPing	CT, []	AT+CIPPING	251
101.	ipEchoReply	CT, []	AT+CIPCTL	252
102.	ipFilter	CT, []	AT+CIPFLT	253
103.	ipAnswerPings	CT, []	AT+CIPBEIPING	254
104.	ipGsmLoc	CT, []	AT+CIPGSMLOC	288
<i>http.h</i>				
105.	httpInit	TEST, EXE	AT+HTTPINIT	256
106.	httpEnd	TEST, EXE	AT+HTTPTERM	257
107.	httpParams	CT, []	AT+HTTPPARA	257
108.	httpData	CT, []	AT+HTTPDATA	259
109.	httpAction	CT, []	AT+HTTPACTION	259
110.	httpRead	CT, []	AT+HTTPREAD	261
111.	httpSave	GET, EXE	AT+HTTPSCONT	262
112.	httpStatus	TEST, GET	AT+HTTPSTATUS	263
113.	httpHeader	TEST, EXE	AT+HTTPHEAD	264

Nº	AT method	Args	AT command	Ofc man
<i>general.h</i>				
114.	callMeter	CT, []	AT+CACM	57
115.	callMeterMax	CT, []	AT+CAMM	58
116.	chargeAdvice	CT, []	AT+CAOC	59
117.	dataCallService	CT, []	AT+CBST	60
118.	callForward	CT, []	AT+CCFC	61
119.	callWait	CT, []	AT+CCWA	63
120.	errorReport	CT, []	AT+CEER	64
121.	reqMakerID	TEST, EXE	AT+CGMI	67
122.	reqDeviceModelID	TEST, EXE	AT+CGMM	67
123.	reqSoftwareID	TEST, EXE	AT+CGMR	68
124.	reqIMEI	TEST, EXE	AT+CGSN	68
125.	charset	CT, []	AT+CSCS	69
126.	addressType	CT, []	AT+CSTA	70
127.	callHold	CT, []	AT+CHLD	70
128.	reqIMSI	TEST, EXE	AT+CIMI	71
129.	activeCalls	CT, []	AT+CLCC	72
130.	facilityLock	CT, []	AT+CLCK	73
131.	showCallerID	CT, []	AT+CLIP	75
132.	hideSelfID	CT, []	AT+CLIR	76
133.	deviceError	CT, []	AT+CMEE	77
134.	callerID	CT, []	AT+COLP	78
135.	netOps	CT, []	AT+COPS	80
136.	activity	TEST, EXE	AT+CPAS	81
137.	pbFind	CT, []	AT+CPBF	82
138.	pbRead	CT, []	AT+CPBR	83
139.	pbStorage	CT, []	AT+CPBS	84
140.	pbWrite	CT, []	AT+CPBW	85
141.	pinCode	CT, []	AT+CPIN	86
142.	changePwd	CT, []	AT+CPWD	87

Nº	AT method	Args	AT command	Ofc man
<i>general.h</i>				
143.	serviceReport	CT, []	AT+CR	88
144.	ringCodeMode	CT, []	AT+CRC	89
145.	netReg	CT, []	AT+CREG	90
146.	radioLinkParams	CT, []	AT+CRLP	92
147.	simRawAccess	CT, []	AT+CRSM	92
148.	signalQuality	TEST, EXE	AT+CSQ	93
149.	dtmfDuration	CT, []	AT+VTD	94
150.	dtmfPlay	CT, []	AT+VTS	95
151.	muxControl	CT, []	AT+CMUX	96
152.	getSelfAddr	TEST, EXE	AT+CNUM	97
153.	prefOperators	CT, []	AT+CPOL	98
154.	listAllOperators	TEST, EXE	AT+COPN	99
155.	deviceMode	CT, []	AT+CFUN	100
156.	clock	CT, []	AT+CCLK	101
157.	simStrAccess	CT, []	AT+CSIM	101
158.	alertMode	CT, []	AT+CALM	102
159.	alertSound	CT, []	AT+CALS	103
160.	ringerVolume	CT, []	AT+CRSL	104
161.	loudSpeakerVol	CT, []	AT+CLVL	104
162.	mute	CT, []	AT+CMUT	105
163.	pricePerUnit	CT, []	AT+CPUC	106
164.	callMeterMaxEvent	CT, []	AT+CCWE	107
165.	battery	TEST, EXE	AT+CBC	108
166.	usd	CT, []	AT+CUSD	108
167.	ssn	CT, []	AT+CSSN	109
168.	dtmfDetect	CT, []	AT+DDET	333

Nº	AT method	Args	AT command	Ofc man
<i>simcom.h</i>				
169.	sideToneGain	CT, []	AT+SIDET	145
170.	powerOff	[]	AT+CPOWD	146
171.	pinCodeTriesLeft	-	AT+SPIC	146
172.	micGain	CT, []	AT+CMIC	146
173.	alarmTime	CT, []	AT+CALA	148
174.	delAlarm	CT, []	AT+CALD	149
175.	readAdc	TEST, GET	AT+CADC	149
176.	singleNumScheme	CT, []	AT+CSNS	150
177.	resetCellCast	-	AT+CDSCB	151
178.	cfgAltModeCalls	CT, []	AT+CMOD	151
179.	riPinUrc	CT, []	AT+CFGRI	151
180.	timeStamp	CT, []	AT+CLTS	152
181.	dtmfLocalTone	CT, []	AT+CLDTMF	154
182.	indicateCallEnd	CT, []	AT+CDRIND	155
183.	serviceProvider	-	AT+CSPN	156
184.	voiceMail	CT, []	AT+CCVM	156
185.	opBand	CT, []	AT+CBAND	157
186.	handsFree	CT, []	AT+CHF	158
187.	swapAudio	CT, []	AT+CHFA	159
188.	slowClock	CT, []	AT+CSCLK	160
189.	engMode	CT, []	AT+CENG	161
190.	smsZeroToSIM	CT, []	AT+SCLASS0	163
191.	simCardID	TEST, EXE	AT+CCID	164
192.	temperature	CT, []	AT+CMTE	164
193.	delAllMsg	CT, []	AT+CMGDA	165
194.	stkPlayTone	CT, []	AT+STTONE	166
195.	toneGen	CT, []	AT+SIMTONE	167
196.	alphaString	CT, []	AT+CCPD	168
197.	simGroupID	-	AT+CGID	168

Nº	AT method	Args	AT command	Ofc man
<i>simcom.h</i>				
198.	originCallState	CT, []	AT+MORING	169
199.	smsHexMode	CT, []	AT+CMGHEX	170
200.	smsDeviceCompat	CT, []	AT+CCODE	170
201.	cfgInitUrc	CT, []	AT+CIURC	171
202.	setSuperPwd	[]	AT+CPSPWD	172
203.	signalQualityURC	CT, []	AT+EXUNSOL	172
204.	gprsMultiClass	CT, []	AT+CGMSCCLASS	173
205.	getFlashMemType	-	AT+CDEVICE	174
206.	queryCallReady	TEST, GET	AT+CCALR	174
207.	getPII	-	AT+GSV	174
208.	gpioCtrl	CT, []	AT+SGPIO	175
209.	pwmGen	CT, []	AT+SPWM	176
210.	echoCtrl	CT, []	AT+ECHO	176
211.	autoAudioSwitch	CT, []	AT+CAAS	177
212.	voiceEncoderCtrl	CT, []	AT+SVR	178
213.	gsmBusy	CT, []	AT+GSMBUSY	179
214.	emergencyNumList	CT, []	AT+CEMNL	180
215.	arfcnLock	CT, []	AT*CELLLOCK	181
216.	netLightPeriod	CT, []	AT+SLEDS	182
217.	buzzerRingtone	CT, []	AT+CBUZZERRING	183
218.	micCtrl	CT, []	AT+CEXTERNTONE	183
219.	netLight	CT, []	AT+CNETLIGHT	184
220.	whiteList	CT, []	AT+CWHITELIST	185
221.	detectSimCard	CT, []	AT+CSDT	186
222.	simPresent	CT, []	AT+CSMINS	186
223.	gprsNetLight	CT, []	AT+CSGS	187
224.	micBias	CT, []	AT+CMICBIAS	188
225.	playAudioIntoCall	CT, []	AT+DTAM	189
226.	detectJamming	CT, []	AT+SJDR	189

Nº	AT method	Args	AT command	Ofc man
<i>simcom.h</i>				
227.	pcmCfg	CT, []	AT+CPCMCFG	191
228.	pcmSyncParam	CT, []	AT+CPCMSYNC	192
229.	detectAntenna	CT, []	AT+CANT	193
230.	agcCfg	CT, []	AT+CAGCSET	194
231.	pcmSwitchSD	CT, []	AT+SD2PCM	194
232.	detectKeypad	CT, []	AT+SKPD	194
233.	toneStringGen	CT, []	AT+SIMTONEX	196
234.	roamingState	-	AT+CROAMING	197
235.	netScan	CT, []	AT+CNETSCAN	197
236.	dualSerialPort	CT, []	AT+CMNRP	198
237.	edgeCfg	CT, []	AT+CEGPRS	199
238.	gpioIndex	CT, []	AT+CGPIO	200
239.	playAudio	CT, []	AT+CMEDPLAY	201
240.	audioVolume	CT, []	AT+CMEDIAVOL	202
241.	atcmdSoundLevel	CT, []	AT+SNLEVEL	202
242.	chargeCtrl	CT, []	AT+ECHARGE	203
243.	simPollInterval	CT, []	AT+SIMTIMER	204
244.	enhanceSpeech	CT, []	AT+SPE	204
245.	getConcatMsgIndex	TEST, EXE	AT+CCONCINDEX	205
246.	sdModeSwitch	CT, []	AT+SDMODE	205
247.	smsResendCtrl	CT, []	AT+SRSP	206
248.	record	CT, []	AT+CREC	335
249.	recordToUart	CT, []	AT+CRECORD	338
250.	textToSpeech	CT, []	AT+CTTS	340
251.	textToSpeechCfg	CT, []	AT+CTTSPARAM	341
252.	textToSpeechRing	CT, []	AT+CTTSRING	342

Nº	AT method	Args	AT command	Ofc man
<i>ftp.h</i>				
253.	ftpPort	CT, []	AT+FTPPORT	266
254.	ftpMode	CT, []	AT+FTPMODE	266
255.	ftpDataType	CT, []	AT+FTPTYPE	267
256.	ftpPutMode	CT, []	AT+FTPPUTOPT	268
257.	ftpBearerID	CT, []	AT+FTPCID	268
258.	ftpResume	CT, []	AT+FTPREST	269
259.	ftpServerAddr	CT, []	AT+FTPSERV	269
260.	ftpUsername	CT, []	AT+FTPUN	270
261.	ftpPassword	CT, []	AT+FTPPW	271
262.	ftpDownName	CT, []	AT+FTPGETNAME	272
263.	ftpDownPath	CT, []	AT+FTPGETPATH	272
264.	ftpUpName	CT, []	AT+FTPPUTNAME	273
265.	ftpUpPath	CT, []	AT+FTPPUTPATH	273
266.	ftpGetFile	CT, []	AT+FTPGET	274
267.	ftpPutFile	CT, []	AT+FTPPUT	275
268.	ftpSaveCfg	GET, EXE	AT+FTPSCONT	276
269.	ftpDelFile	TEST, EXE	AT+FTPDELE	277
270.	ftpFileSize	TEST, EXE	AT+FTPSIZE	278
271.	ftpState	TEST, EXE	AT+FTPSTATE	279
272.	ftpExtPutfile	CT, []	AT+FTPEXTPUT	279
273.	ftpMakeDir	TEST, EXE	AT+FTPMKD	280
274.	ftpDelDir	TEST, EXE	AT+FTPRMD	281
275.	ftpListFiles	CT, []	AT+FTPLIST	281
276.	ftpGetToFS	CT, []	AT+FTPGETTOFS	282
277.	ftpPutFromFS	CT, []	AT+FTPPUTFRMFS	283
278.	ftpExtGetfile	CT, []	AT+FTPEXTGET	285
279.	ftpPutFromRAM	CT, []	AT+FTPFILEPUT	286
280.	ftpQuit	TEST, EXE	AT+FTPQUIT	287

Nº	AT method	Args	AT command	Ofc man
<i>email.h</i>				
281.	mailBearerID	CT, []	AT+EMAILCID	291
282.	mailTimeout	CT, []	AT+EMAILTO	291
283.	smtpServer	CT, []	AT+SMTPSRV	292
284.	smtpAuth	CT, []	AT+SMTPAUTH	293
285.	smtpFrom	CT, []	AT+SMTPFROM	294
286.	smtpTo	CT, []	AT+SMTPRCPT	295
287.	smtpSubject	CT, []	AT+SMTPSUB	296
288.	smtpBody	CT, []	AT+SMTPBODY	296
289.	smtpFile	CT, []	AT+SMTPFILE	297
290.	smtpSend	TEST, EXE	AT+SMTPSEND	298
291.	smtpFilesend	CT, []	AT+SMTPFT	299
292.	smtpCharset	CT, []	AT+SMTPCS	300
293.	popCfg	CT, []	AT+POP3SRV	301
294.	popLogin	TEST, EXE	AT+POP3IN	302
295.	popInbox	TEST, EXE	AT+POP3NUM	302
296.	popMailSize	CT, []	AT+POP3LIST	303
297.	popMailUID	CT, []	AT+POP3UIDL	304
298.	popMultiGet	CT, []	AT+POP3CMD	305
299.	popMultiRead	CT, []	AT+POP3READ	307
300.	popMarkDel	CT, []	AT+POP3DEL	308
301.	popUnmarkDel	TEST, EXE	AT+POP3RSET	309
302.	popLogout	TEST, EXE	AT+POP3OUT	310

Nº	AT method	Args	AT command	Ofc man
<i>mms.h</i>				
303.	mmsCenterUrl	CT, []	AT+CMMSCURL	312
304.	mmsProxy	CT, []	AT+CMMSPROTO	312
305.	mmsNetwork	CT, []	AT+CMMSCID	313
306.	mmsCfgSend	CT, []	AT+CMMSENDCFG	314
307.	mmsEdit	CT, []	AT+CMMSEEDIT	315
308.	mmsDownFile	CT, []	AT+CMMSDOWN	316
309.	mmsDelFile	CT, []	AT+CMMSDELFIL	317
310.	mmsSend	CT, []	AT+CMMSSEND	318
311.	mmsAddRecp	CT, []	AT+CMMSRECP	319
312.	mmsAddCopyRecp	CT, []	AT+CMMSCC	319
313.	mmsAddCopyRecp	CT, []	AT+CMMSBCC	320
314.	mmsDelRecp	CT, []	AT+CMMSDELRECP	321
315.	mmsDelCopyRecp	CT, []	AT+CMMSDELCC	321
316.	mmsDelBccRecp	CT, []	AT+CMMSDELBCC	322
317.	mmsGet	CT, []	AT+CMMSRECV	323
318.	mmsDetails	TEST, GET, EXE	AT+CMMSVIEW	324
319.	mmsRead	CT, []	AT+CMMSREAD	325
320.	mmsReadPush	CT, []	AT+CMMSRDPUSH	325
321.	mmsUserAgent	CT, []	AT+CMMSUA	327
322.	mmsUserProfile	CT, []	AT+CMMSPROFILE	328
323.	mmsTimeout	CT, []	AT+CMMSTIMEOUT	328
324.	mmsStatus	TEST, GET	AT+CMMSSTATUS	329
325.	mmsBegin	TEST, EXE	AT+CMMSINIT	330
326.	mmsEnd	TEST, EXE	AT+CMMSTERM	330
327.	mmsSaveCfg	TEST, GET, EXE	AT+CMMSSCONT	331

Nº	AT method	Args	AT command	Ofc man
<i>stk.h</i>				
328.	stkReply	CT, []	AT+STKTRS	135
329.	stkEnvelope	CT, []	AT+STKENVS	136
330.	stkCallSetup	CT, []	AT+STKCALL	137
331.	stkSms	CT, []	AT+STKSMS	138
332.	stkSetupSS	CT, []	AT+STKSS	138
333.	stkSetupUSSD	CT, []	AT+STKUSSD	139
334.	stkSendDTMF	CT, []	AT+STKDTMF	139
335.	stkMenu	CT, []	AT+STKMENU	141
336.	stkSetURC	CT, []	AT+STKPCIS	141