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1 Introduction

1.1 Scope

The present document describes the AT Command Set about Internet Service on the SIMCom Module.

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 References

The present document is based on the following standards:

- [1] ETSI GSM 01.04: Abbreviations and acronyms.
- [2] 3GPP TS 27.007: AT command set for User Equipment (UE).

1.3 Terms and Abbreviations

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

- AT ATtention; the two-character abbreviation is used to start a command line to be sent from TE/DTE to TA/DCE
- EDGE Enhanced Data GSM Environment
- EGPRS Enhanced General Packet Radio Service
- FTP File Transfer Protocol
- GPRS General Packet Radio Service
- GSM Global System for Mobile communications
- HTTP Hyper Text Transfer Protocol
- HSDPA High Speed Downlink Packet Access
- HSUPA High Speed Uplink Packet Access
- PIN Personal Identification Number
- POP3 Post Office Protocol Version 3
- POP3 client An client that can receive e-mail from POP3 server over TCP session
- RTC Real Time Clock
- SIM Subscriber Identity Module
- SMTP Simple Mail Transfer Protocol

- SMTP client An client that can transfer text-based e-mail to SMTP server over TCP session
- TA Terminal Adaptor; e.g. a data card (equal to DCE)
- TE Terminal Equipment; e.g. a computer (equal to DTE)
- UMTS Universal Mobile Telecommunications System
- URC Unsolicited Result Code
- USIM Universal Subscriber Identity Module
- WCDMA Wideband Code Division Multiple Access

1.4 Definitions and conventions

1. 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 defined subparameter value is the recommended default setting or factory setting.

2. Document conventions:

- ◆ Display the examples of AT commands with *Italic* format.
- ◆ Not display *blank-line* between command line and responses or inside the responses.
- ◆ 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.

3. Special marks for commands or parameters:

- SIM PIN** – Is the command PIN protected?
 - YES – AT command can be used only when SIM PIN is READY.
 - NO – AT command can be used when SIM card is absent or SIM PIN validation is pending.
- References** – Where is the derivation of command?
 - 3GPP TS 27.007 – 3GPP Technical Specification 127 007.
 - V.25ter – ITU-T Recommendation V.25ter.
 - Vendor – The command is supported by SIMCom.

2 AT Interface Synopsis

2.1 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.

2.2 AT command syntax

The prefix “AT” or “at” (no case sensitive) 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 example, “OK” is appeared. This advice avoids too many AT commands are issued at a time without waiting for a response for each command.

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>”, “<x>” is the command name, and “<n>” is/are the parameter(s) for the basic command, and optional. An example 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 Command

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 Command

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

Table 2-1: Types of Extended Command

Command Type	Syntax	Comments
Test Command	AT+<NAME>=?	Test the existence of the command; give some information about the command subparameters.

Read Command	AT+<NAME>?	Check the current values of subparameters.
Write Command	AT+<NAME>=<...>	Set user-definable subparameter values.
Execution Command	AT+<NAME>	Read non-variable subparameters determined by internal processes.

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

2.3 Information responses

If the commands included in the command line are supported by the Module and the subparameters are correct if presented, some information responses will be retrieved by from the Module. Otherwise, the Module will report “ERROR” or “+CME ERROR” or “+CMS ERROR” to Customer Application.

Information responses start and end with <CR><LF>, i.e. the format of information responses is “<CR><LF><response><CR><LF>”. Inside information responses, there may be one or more <CR><LF>. Throughout this document, only the responses are presented, and <CR><LF> are intentionally omitted.

3 Simple Mail Transfer Protocol Service

Simple Mail Transfer Protocol (SMTP) is an internet standard for electronic mail (e-mail) transmission across Internet Protocol (IP) networks, and it is a text-based protocol.

To sending an e-mail successfully, TE must set some mandatory parameters for the SMTP client correctly, such as SMTP server address, sender and recipient address. After the process of sending an e-mail is started, SMTP Client will initiates a Transmission Control Protocol (TCP) session with the SMTP server to send e-mail header and body. In addition, attachments selected from file system can be sent along with an e-mail message, total size up to 10MB or maximal number up to 10.

Unsolicited Result Code (URC) “+SMTP: SUCCESS” is present from SMTP client to indicate that sending an e-mail is successful, and the TCP session for SMTP service is closed. If sending an e-mail is unsuccessful, other URCs will be returned to TE.

Sender/recipient address and e-mail subject are used to construct the e-mail’s header. In addition, data and time are also present in the e-mail’s header, which are gotten from the module. So it is recommended to set Real Time Clock (RTC) and time-zone for the module.

3.1 AT+SMTPSRV SMTP server address and port number

Description

The synchronous 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. If the process of sending an e-mail is ongoing, the command will return “ERROR” directly.

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.

NOTE After an e-mail is sent successfully or unsuccessfully, SMTP server address and port number won’t be cleared.

SIM PIN	References
YES	Vendor

Syntax

Test Command	Responses
AT+SMTPSRV=?	+SMTPSRV: (list of supported <port>s) OK
Read Command	Responses
AT+SMTPSRV?	+SMTPSRV: <server>, <port> OK
Write Command	Responses
AT+SMTPSRV=<server> [, <port>]	OK
Execution Command	Responses

AT+SMTPSRV	OK
------------	----

Defined values

<server>
SMTP server address, non empty string with double quotes, mandatory and ASCII text string up to 128 characters.
<port>
Port number of SMTP server in decimal format, from 1 to 65535, and default port is 25 for SMTP.

Examples

AT+SMTPSRV=" " ,25
OK
AT+SMTPSRV?
+SMTPSRV: " " , 25
OK
AT+SMTPSRV
OK
AT+SMTPSRV?
+SMTPSRV: "" , 25
OK

3.2 AT+SMTPAUTH SMTP server authentication

Description

The 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 user name and password correctly before sending an e-mail. If the process of sending an e-mail is ongoing, the command will return “ERROR” directly. Read command returns current SMTP server authentication control flag, if the flag is 0, both <user> and <pwd> are empty strings. Execution Command cancels SMTP server authentication and clear user name and password. **NOTE** After an e-mail is sent successfully or unsuccessfully, server authentication won't be cleared.

SIM PIN	References
YES	Vendor

Syntax

Test Command	Responses
AT+SMTPAUTH=?	+SMTPAUTH: (list of supported <flag>s)

	OK
Read Command	Responses
AT+SMTPAUTH?	+SMTPAUTH: <flag>, <user>, <pwd> OK
Write Command	Responses
AT+SMTPAUTH= <flag>[, <user>, <pwd>]	OK
Execution Command	Responses
AT+SMTPAUTH	OK

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>

User name to be used for SMTP authentication, non empty string with double quotes and up to 128 characters.

<pwd>

Password to be used for SMTP authentication, string with double quotes and up to 128 characters.

NOTE If <flag> is 0, <user> and <pwd> must be omitted (i.e. only <flag> is present).

Examples

AT+SMTPAUTH?

+SMTPAUTH: 0, "", ""

OK

AT+SMTPAUTH=1,"username","password"

OK

AT+SMTPAUTH?

+SMTPAUTH: 0, "username", "password"

OK

AT+SMTPAUTH

OK

AT+SMTPAUTH?

+SMTPAUTH: 0, "", ""

OK

3.3 AT+SMTPFROM Sender address and name

Description

The 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, and if the process of sending an e-mail is ongoing, the command will return "ERROR" directly.

Read command returns current sender's address and name.

Execution command will clear sender's address and name.

NOTE After an e-mail is sent successfully or unsuccessfully, sender address and name won't be cleared.

SIM PIN	References
YES	Vendor

Syntax

Test Command	Responses
AT+SMTPFROM=?	OK
Read Command	Responses
AT+SMTPFROM?	+SMTPFROM: <saddr>, <sname> OK
Write Command	Responses
AT+SMTPFROM= <saddr>[, <sname>]	OK
Execution Command	Responses
AT+SMTPFROM	OK

Defined values

<saddr>

E-mail sender address (MAIL FROM), non empty string with double quotes, mandatory and ASCII text up to 128 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 64 characters. <sname> will be present in the header of the e-mail sent by SMTP client in the field: "From: ".

Examples

AT+SMTPFROM="sende", "sendername"
OK
AT+SMTPFROM?
+SMTPFROM: "sende", "sendername"
OK
AT+SMTPFROM
OK
AT+SMTPFROM?

```
+SMTPFROM: "", ""
OK
```

3.4 AT+SMTPRCPT Recipient address and name (TO/CC/BCC)

Description

The 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. If the process of sending an e-mail is ongoing, the command will return “ERROR” directly.

Read command returns current recipient address/name and kind list.

Execution command will clear all recipient information.

NOTE After an e-mail is sent successfully, all recipients will be cleared, if unsuccessfully, they won't be cleared.

SIM PIN	References
YES	Vendor

Syntax

Test Command	Responses
AT+SMTPRCPT=?	+SMTPRCPT: (list of supported <kind>s), (list of supported <index>s) OK
Read Command	Responses
AT+SMTPRCPT?	[+SMTPRCPT: <kind>, <index>, <raddr>, <rname> [<CR><LF>...]] OK
Write Command	Responses
AT+SMTPRCPT= <kind>[, <index> [, <raddr>[, <rname>]]]	OK
Execution Command	Responses
AT+SMTPRCPT	OK

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 128 characters.
<rname>	Recipient name, string type with double quotes, and up to 64 characters.

Examples

AT+SMTPRCPT=0, 0, "rcptad", "rcptname_to"
OK
AT+SMTPRCPT?
+SMTPRCPT: 0, 0, "rcptad", "rcptname_to"
OK
AT+SMTPRCPT=1, 0, "rcptad", "rcptname_cc"
OK
AT+SMTPRCPT?
+SMTPRCPT: 0, 0, "rcptad", "rcptname_to"
+SMTPRCPT: 1, 0, "rcptad", "rcptname_cc"
OK

3.5 AT+SMTPSUB E-mail subject

Description

The synchronous command is used to set the subject of e-mail, which is used to construct e-mail header. If the process of sending an e-mail is ongoing, the command will return "ERROR" directly. Read command returns current e-mail subject.

Execution command will clear the subject.

NOTE After an e-mail is sent successfully, the subject will be cleared, if unsuccessfully, it won't be cleared.

SIM PIN	References
YES	Vendor

Syntax

Test Command	Responses
AT+SMTPSUB=?	OK
Read Command	Responses
AT+SMTPSUB?	+SMTPSUB: <subject> OK
Write Command	Responses

AT+SMTPSUB=<subject>	OK
Execution Command	Responses
AT+SMTPSUB	OK

Defined values

<subject>
E-mail subject, string with double quotes, and ASCII text up to 512 characters. <subject> will be present in the header of the E-mail sent by SMTP client in the field: “Subject: ”.

Examples

AT+SMTPSUB?
+SMTPSUB: ""
OK
AT+SMTPSUB="THIS IS A TEST MAIL"
OK
AT+SMTPSUB?
+SMTPSUB: "THIS IS A TEST MAIL"
OK

3.6 AT+SMTPBODY E-mail body

Description

The 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.

Execute command will switch the serial port from command mode to data mode, so TE can enter more ASCII text as e-mail body (up to 5120), and CTRL-Z (ESC) is used to finish (cancel) the input operation and switch the serial port back to command mode.

NOTE After an e-mail is sent successfully, the body will be cleared, if unsuccessfully, it won't be cleared.

SIM PIN	References
YES	Vendor

Syntax

Test Command	Responses
AT+SMTPBODY=?	OK
Read Command	Responses
AT+SMTPBODY?	+SMTPBODY: <body> OK

Write Command	Responses
AT+SMTPBODY=<body>	OK
Execution Command	Responses
AT+SMTPBODY	>>

Defined values

<body>
E-mail body, string with double quotes, and printable ASCII text up to 512 or 5120 characters.
NOTE In data mode, “BACKSPACE” can be used to cancel an ASCII character.

Examples

<i>AT+SMTPBODY="THIS IS A TEST MAIL FROM SIMCOM MODULE"</i>
<i>OK</i>
<i>AT+SMTPBODY?</i>
<i>+SMTPBODY: "THIS IS A TEST MAIL FROM SIMCOM MODULE"</i>
<i>OK</i>
<i>AT+SMTPBODY</i>
<i>>> This is a test mail.<CTRL-Z></i>
<i>OK</i>
<i>AT+SMTPBODY?</i>
<i>+SMTPBODY: "This is a test mail."</i>
<i>OK</i>
<i>AT+SMTPBODY</i>
<i>>> This is a test mail.<ESC></i>
<i>OK</i>
<i>AT+SMTPBODY?</i>
<i>+SMTPBODY: ""</i>
<i>OK</i>

3.7 AT+SMTPBCH E-mail body character set

Description

This synchronous command is used to set the body character set of e-mail. If the process of sending an e-mail is ongoing, the command will return “ERROR” directly.

Read command returns current e-mail body character set.

SIM PIN	References
YES	Vendor

Syntax

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