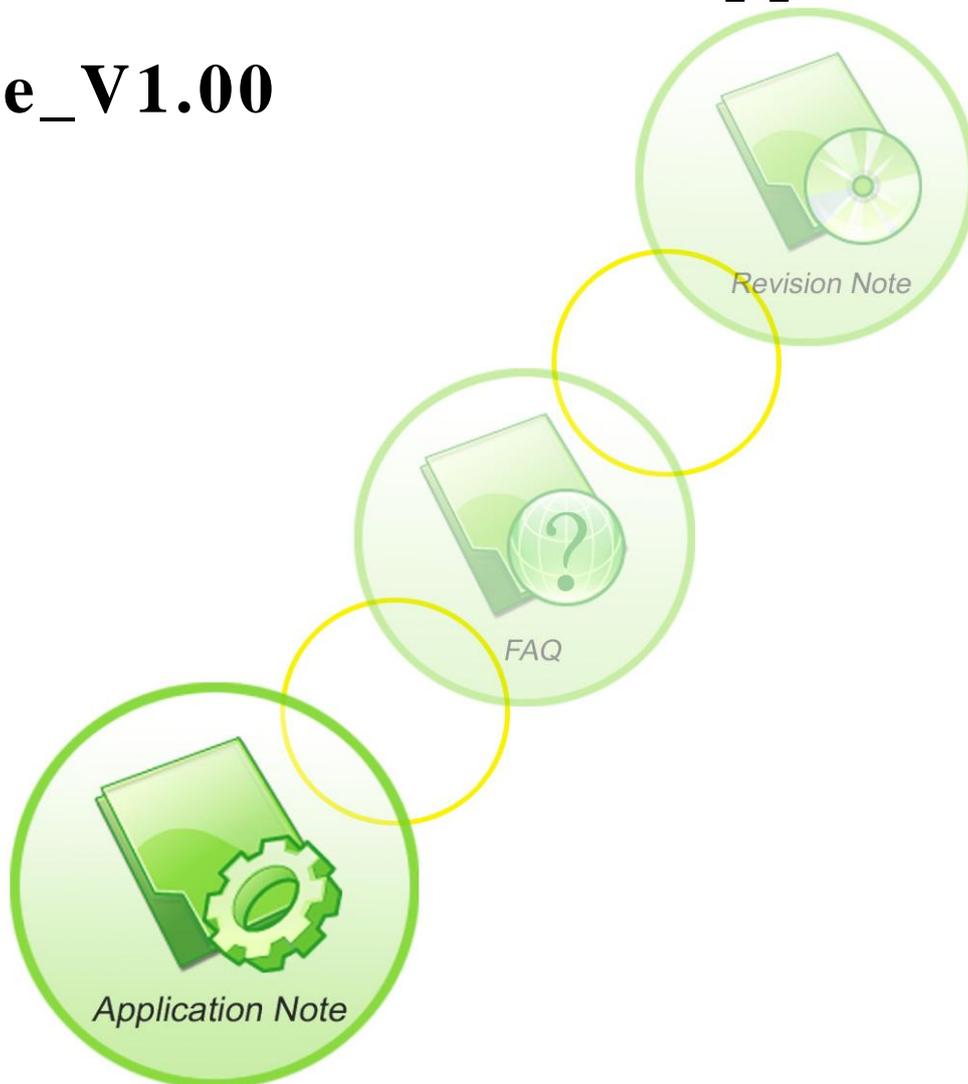




A company of SIM Tech

SIM7X00 Series_SAT_Application Note_V1.00



Document Title:	SIM7X00 Series_SAT_Application Note
Version:	1.00
Date:	2016-07-12
Status:	Release
Document ID:	SIM7X00 Series_SAT_Application Note_V1.00

General Notes

SIMCom offers this information as a service to its customers, to support application and engineering efforts that use the products designed by SIMCom. The information provided is based upon requirements specifically provided to SIMCom by the customers. SIMCom has not undertaken any independent search for additional relevant information, including any information that may be in the customer's possession. Furthermore, system validation of this product designed by SIMCom within a larger electronic system remains the responsibility of the customer or the customer's system integrator. All specifications supplied herein are subject to change.

Copyright

This document contains proprietary technical information which is the property of SIMCom Limited., copying of this document and giving it to others and the using or communication of the contents thereof, are forbidden without express authority. Offenders are liable to the payment of damages. All rights reserved in the event of grant of a patent or the registration of a utility model or design. All specification supplied herein are subject to change without notice at any time.

Copyright © Shanghai SIMCom Wireless Solutions Ltd. 2016

Version History

Date	Version	What is new	Author
2016-07-07	1.00	New version	Dongshan.liu

Scope

This document presents the AT command of SAT operation and application examples. This document can apply to SIM7X00 series modules, including SIM7600C, SIM7600CE, SIM7500A and SIM7500JE.

Contents

Version History.....	2
Scope.....	2
Contents	3
1 Introduction	4
1.1 Overview	4
1.2 References	4
1.3 Terms and Abbreviations	4
2 Command Example	5
2.1 Initialization	5
2.2 Command Description	5
2.3 Decoded Format Command Example	6
2.3.1 Display Text	6
2.3.2 Get Inkey	6
2.3.3 Get Input.....	6
2.3.4 Set Up Menu.....	7
2.3.5 Select Item.....	7
2.4 PDU Format Command Example	8
2.4.1 Send Envelope command	8
2.4.2 Select Item.....	8
2.5 Android PDU format Command Example	9
2.5.1 Android RIL Request or UNSOL Report of SAT	9
Contact us	11

1 Introduction

1.1 Overview

This document introduces STK application using STK AT interface. This is a compact application note, for detailed STK command interfaces, please refer to ATC document.

1.2 References

The present document is based on the following documents:

SIM7X00 Series_AT Command Manual.

1.3 Terms and Abbreviations

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

- SAT SIM Application Toolkit
- 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
- URC Unsolicited Result Code
- UMTS Universal Mobile Telecommunications System
- USIM Universal Subscriber Identity Module
- WCDMA Wideband Code Division Multiple Access
- ANDROID Android platform
- RIL Radio Interface Layer

2 Command Example

2.1 Initialization

Before SAT session, following AT sequence in the list is recommended.

It is strongly recommended that the response timer value be modified to allow the required response data.

NOTE: The application must input correct SIM PIN if required. Otherwise the STK cannot be used.

2.2 Command Description

AT+STIN?	SAT Indication	Every time the SIM Application issues a Proactive Command, via the ME, the TA will receive an indication. This indicates the type of Proactive Command issued. AT+STGI must then be used by the TA to request the parameters of the Proactive Command from the ME. Upon receiving the +STGI response from the ME, the TA must send AT+STGR to confirm the execution of the Proactive Command and provide any required user response, e.g. a selected menu item.
AT+STGI?	Get SAT information	Regularly this command is used upon receipt of an URC " +STIN " to request the parameters of the Proactive Command. Then the TA is expected to acknowledge the AT+STGI response with AT+STGR to confirm that the Proactive Command has been executed. AT+STGR will also provide any user information, e.g. a selected menu item. The Proactive Command type value specifies to which " +STIN " the command is related.
AT+STGR	SAT respond	The TA is expected to acknowledge the AT+STGI response with AT+STGR to confirm that the Proactive Command has been executed. AT+STGR will also provide any user information, e.g. a selected menu item. Module will report URC for next command automatically after AT+STGR executed.
AT+STKFMT	STK format	Decoded format or PDU format are supported, but only one can be used after power up.
AT+STSM	Setup menu info	To acquire the setup main menu info, PDU format only
AT+STENV	Envelope command	Send envelope request to UIM chosen from main menu. PDU format only.

2.3 Decoded Format Command Example

2.3.1 Display Text

Output from phone	Response from accessory	Note
Query current command:		
AT+STIN?	+STIN: 21 OK	
View the detail of current command:		
AT+STGI=21	+STGI:21,0,0,10," 00540065007300740021" OK	Text display in UCS2.
Execute command:		
AT+STGR=21	OK +STIN: 25 (example)	

2.3.2 Get Inkey

Input command	Response	Note
Query current command:		
AT+STIN?	+STIN: 22 OK	
View the detail of current command:		
AT+STGI=22	+STGI:22,1,0,12,"0069006E007000750074003A" " OK	Response will indicate the format input information.
Input information:		
AT+STGR=22,"Y"	OK +STIN: 24 (example)	Refer to the response of AT+STGI=22, confirm the input format.

2.3.3 Get Input

Input command	Response	Note
Query current command:		
AT+STIN?	+STIN: 23 OK	
View the detail of current command:		
AT+STGI=23	+STGI:23,3,70,1,0,1,12,"0069006E007000750074003A" OK	Response will indicate the format and min/max length of the

AT+STGI=23	+STGI:23,2,20,1,0,1,12,"0069006E007000750074003A" OK	input information.
Input information:		
<i>If <rsp_format> is UCS2:</i> AT+STGR=23,"597D"	OK +STIN: 24 (example)	Refer to the response of AT+STGI=23, confirm the input format and min/max length.
<i>If <rsp_format> is numer only:</i> AT+STGR=23,"88884444" "	OK +STIN: 24 (example)	

2.3.4 Set Up Menu

Input command	Response	Note
Query current command:		
AT+STIN?	+STIN: 25 OK	
View the detail of current command:		
AT+STGI=25	+STGI:25,0,0,8,"004D0065006E0075",4 +STGI:25,1,12,"004D0065006E007500200031" +STGI:25,2,12,"004D0065006E007500200032" +STGI:25,3,12,"004D0065006E007500200033" +STGI:25,4,12,"004D0065006E007500200034" OK	Menu text display as UCS2. The first line is menu title. Others are menu items.
Select a submenu:		
AT+STGR=25,1	OK +STIN: 24	After a submenu is selected, return +STIN: 24 usually. Then it should display the submenu information.

2.3.5 Select Item

Input command	Response	Note
Query current command:		
AT+STIN?	+STIN: 24 OK	
View the detail of current command:		
AT+STGI=24	+STGI:24,0,0,0,0,"00",5 +STGI:24,1,12,"004900740065006D00200031" +STGI:24,2,12,"004900740065006D00200032" +STGI:24,3,12,"004900740065006D00200033"	Items text display as UCS2. The first line is menu title. Title may be "00", it means no item

	+STGI:24,4,12,"004900740065006D00200034" +STGI:24,5,12,"004900740065006D00200035" OK	title. Others are sub-items.
Select a sub-item:		
AT+STGR=24,1	OK +STIN: 23 (example)	After selected an item, different SIM/USIM cards will report different +STIN: command.

2.4 PDU Format Command Example

2.4.1 Send Envelope command

Query Setup Menu List:		
AT+STSM?	+STSM:25,0,120,120,"D07681030125008202818285078065B052BF529B8F0A018070ED70B963A883508F06028070AB94C38F0A03806D41884C77ED4FE18F0A048081EA52A9670D52A18F0A0580624B673A97F34E508F0606808D854FE18F0A07805A314E50753162118F0A0880767E53D8751F6D3B8F0A09806D596C5F98919053" OK	Setup main menu info got first before envelope command sent.
Send Envelope command:		
AT+STENV=25,"D30782020181900101"	OK	Send the envelope command to modem
Proactive Command Select a sub-item Reported:		
	+STIN: 24	

2.4.2 Select Item

Proactive Command Select a sub-item Reported:		
	+STIN: 24	Proactive command reported
AT+STGI=24	+STGI:24,0,48,48,"D02E81030124008202818285098070ED70B963A883508F0A018053057F574E078C618F0C02809177917777ED6D88606F" OK	Get the proactive command PDU info
Response Select a sub-item:		
AT+STGR=30,"810301240002028281830100900101"	OK	User sends the result of "select item" operation.
Session End		

	+STIN: 81	Modem indicate session end
--	-----------	----------------------------

2.5 Android PDU Format Command Example

2.5.1 Android RIL Request or UNSOL Report of SAT

Input command	Response	Note
Set SAT Command as RAW Type:		
AT+STKFM=1	OK	1 as RAW format, 0 as decoded format; need to reboot device after this command. This command should be set in the initiate function call.
Query Setup Menu List:		
AT+STSM?	+STSM:25,0,120,120,"D07681030125008202818285078065B052BF529B8F0A018070ED70B963A883508F06028070AB94C38F0A03806D41884C77ED4FE18F0A048081EA52A9670D52A18F0A0580624B673A97F34E508F0606808D854FE18F0A07805A314E50753162118F0A0880767E53D8751F6D3B8F0A09806D596C5F98919053" OK	RIL received the setup main menu from modem, then it query the pdu buffer of main menu and send it to android framework with RIL_UN SOL_STK_PRO ACTIVE_COMMAND .
Send Envelope command:		
AT+STENV=25,"D30782020181900101"	OK	Android framework issued the envelope command with pdu buffer to RIL as RIL_REQUEST_STK_SEND_ENVELOPE_COMMAND . RIL sends the pdu buffer to modem by this AT command.
Proactive Command Select a sub-item Reported:		
	+STIN: 24	
AT+STGI=24	+STGI:24,0,48,48,"D02E81030124008202818285098070ED70B963A883508F0A018053057F574E078C618F0C02809177917777ED6D88606F" OK	Modem response the envelope command with proactive command 24 – “select item”, RIL send this pdu buffer to android framework as RIL_UN SOL_STK_PRO ACTIVE_COMMAND

Response Select a sub-item:		
AT+STGR=30,"81030 124000202828183010 0900101"	OK	Android framework response the proactive command to RIL with RIL_REQUEST_STK_SE ND_TERMINAL_RESPO NSE , RIL send the response pdu buffer to modem
Session End		
	+STIN: 81	Modem indicated the session end, RIL send this event to android with RIL_UNSOL_STK_SES SION_END

SIMCOM CONFIDENTIAL

Contact us

Shanghai SIMCom Wireless Solutions Ltd.

Add: Building A, SIM Technology Building, No.633, Jinzhong Road, Changning District
200335

Tel: 86-21-32523300

Fax: 86-21-32523020

Email: simcom@sim.com

Website: www.simcomm2m.com

SIMCOM CONFIDENTIAL FILE