

3GPP TS 11.14 V8.18.0 (2007-06)

Technical Specification

3rd Generation Partnership Project; Specification of the SIM Application Toolkit for the Subscriber Identity Module - Mobile Equipment (SIM - ME) interface (Release 1999)



The present document has been developed within the 3rd Generation Partnership Project (3GPPTM) and may be further elaborated for the purposes of 3GPP. The present document has not been subject to any approval process by the 3GPP Organisational Partners and shall not be implemented. This Specification is provided for future development work within 3GPP only. The Organisational Partners accept no liability for any use of this Specification. Specifications and reports for implementation of the 3GPPTM system should be obtained via the 3GPP Organisational Partners' Publications Offices.

Keywords

GSM, SIM, card, terminal

3GPP

Postal address

3GPP support office address

650 Route des Lucioles - Sophia Antipolis
Valbonne - FRANCE
Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Internet

<http://www.3gpp.org>

Copyright Notification

No part may be reproduced except as authorized by written permission.
The copyright and the foregoing restriction extend to reproduction in all media.

© 2007, 3GPP Organizational Partners (ARIB, ATIS, CCSA, ETSI, TTA, TTC).
All rights reserved.

Contents

Foreword.....	11
1 Scope.....	12
2 References.....	12
3 Definitions, abbreviations and symbols	15
3.1 Definitions	15
3.2 Abbreviations.....	16
3.3 Symbols	17
4 Overview of SIM Application Toolkit	17
4.1 Profile Download.....	18
4.2 Proactive SIM	18
4.3 Data download to SIM.....	18
4.4 Menu selection.....	18
4.5 Call control by SIM	19
4.6 MO Short Message control by SIM	19
4.7 Event download	19
4.8 Security	19
4.9 Multiple card.....	19
4.10 Timer Expiration.....	19
4.11 Bearer Independent Protocol.....	19
5 Profile download	20
5.1 Procedure	20
5.2 Structure and coding of TERMINAL PROFILE	20
5.3 Definition of display parameters in Profile download	25
5.3.1 Number of characters supported down the ME display	26
5.3.2 Number of characters supported across the ME display	26
5.3.3 Display can be resized.....	26
5.3.4 Text Wrapping	26
5.3.5 Text Scrolling.....	26
5.3.6 Width reduction when in a menu	26
6 Proactive SIM.....	27
6.1 Introduction.....	27
6.2 Identification of proactive SIMs and of ME support	29
6.3 General procedure.....	29
6.4 Proactive SIM commands and procedures.....	30
6.4.1 DISPLAY TEXT.....	30

6.4.2	GET INKEY.....	32
6.4.3	GET INPUT	33
6.4.4	MORE TIME	34
6.4.5	PLAY TONE.....	34
6.4.6	POLL INTERVAL.....	35
6.4.7	REFRESH	35
6.4.7.1	EF _{IMSI} changing procedure	36
6.4.8	SET UP MENU.....	37
6.4.9	SELECT ITEM	38
6.4.10	SEND SHORT MESSAGE.....	38
6.4.11	SEND SS.....	40
6.4.12	SEND USSD	41
6.4.13	SET UP CALL	42
6.4.14	POLLING OFF	44
6.4.15	PROVIDE LOCAL INFORMATION	44
6.4.16	SET UP EVENT LIST	45
6.4.17	PERFORM CARD APDU	45
6.4.18	POWER OFF CARD	46
6.4.19	POWER ON CARD	47
6.4.20	GET READER STATUS	47
6.4.21	TIMER MANAGEMENT.....	47
6.4.22	SET UP IDLE MODE TEXT.....	48
6.4.23	RUN AT COMMAND	49
6.4.24	SEND DTMF	49
6.4.25	LANGUAGE NOTIFICATION.....	50
6.4.26	LAUNCH BROWSER.....	50
6.4.27	OPEN CHANNEL	51
6.4.27.1	OPEN CHANNEL for CSD	51
6.4.27.2	OPEN CHANNEL related to GPRS	53
6.4.27.3	OPEN CHANNEL related to Default (network) Bearer.....	55
6.4.28	CLOSE CHANNEL	55
6.4.29	RECEIVE DATA.....	56
6.4.30	SEND DATA	57
6.4.31	GET CHANNEL STATUS.....	58
6.5	Common elements in proactive SIM commands	58
6.5.1	Command number.....	58
6.5.2	Device identities.....	59
6.5.3	Alpha identifier	59
6.5.4	Icon identifiers	59
6.6	Structure of proactive SIM commands	59
6.6.1	DISPLAY TEXT.....	60
6.6.2	GET INKEY.....	60
6.6.3	GET INPUT	61

6.6.4	MORE TIME	61
6.6.5	PLAY TONE.....	62
6.6.6	POLL INTERVAL.....	62
6.6.7	SET-UP MENU	63
6.6.8	SELECT ITEM	64
6.6.9	SEND SHORT MESSAGE.....	65
6.6.10	SEND SS.....	65
6.6.11	SEND USSD	66
6.6.12	SET UP CALL	66
6.6.13	REFRESH	67
6.6.14	POLLING OFF	67
6.6.15	PROVIDE LOCAL INFORMATION	67
6.6.16	SET UP EVENT LIST	68
6.6.17	PERFORM CARD APDU	68
6.6.18	POWER OFF CARD	68
6.6.19	POWER ON CARD.....	68
6.6.20	GET READER STATUS	69
6.6.21	TIMER MANAGEMENT.....	69
6.6.22	SET UP IDLE MODE TEXT.....	70
6.6.23	RUN AT COMMAND.....	70
6.6.24	SEND DTMF COMMAND	70
6.6.25	LANGUAGE NOTIFICATION.....	71
6.6.26	LAUNCH BROWSER	71
6.6.27	OPEN CHANNEL	72
6.6.27.1	OPEN CHANNEL related to a CS bearer	72
6.6.27.2	OPEN CHANNEL related to GPRS	73
6.6.27.X	OPEN CHANNEL related to Default (network) Bearer.....	74
6.6.28	CLOSE CHANNEL	75
6.6.29	RECEIVE DATA	75
6.6.30	SEND DATA	76
6.6.31	GET CHANNEL STATUS	76
6.7	Command results	76
6.8	Structure of TERMINAL RESPONSE	78
6.9	Proactive SIM session and ME display interaction.....	83
6.10	Handling of unknown, unforeseen and erroneous messages.....	84
6.10.1	General	84
6.10.2	Message too short.....	84
6.10.3	Missing minimum information.....	84
6.10.4	Unknown Tag value	84
6.10.5	Unexpected Tag value	85
6.10.6	Length errors	85
6.10.7	Contents not understood.....	85
6.10.8	Extended length data objects	85

6.11	Proactive commands versus possible Terminal response	85
7	Data download to SIM	88
7.1	SMS-PP data download	88
7.1.1	Procedure	88
7.1.2	Structure of ENVELOPE (SMS-PP DOWNLOAD).....	89
7.2	Cell Broadcast data download	89
7.2.1	Procedure	89
7.2.2	Structure of ENVELOPE (CELL BROADCAST DOWNLOAD)	89
8	Menu Selection.....	90
8.1	Procedure	90
8.2	Structure of ENVELOPE (MENU SELECTION)	90
9	Call Control and MO SMS control by SIM	91
9.1	Call Control by SIM	91
9.1.1	Procedure for mobile originated calls.....	91
9.1.2	Procedure for Supplementary Services and USSD	92
9.1.3	Indication to be given to the user	93
9.1.4	Interaction with Fixed Dialling Number	94
9.1.5	Support of Barred Dialling Number (BDN) service.....	94
9.1.6	Structure of ENVELOPE (CALL CONTROL).....	95
9.2	MO Short Message Control by SIM	97
9.2.1	Description	97
9.2.2	Structure of ENVELOPE (MO SHORT MESSAGE CONTROL)	97
9.2.3	Indication to be given to the user	98
10	Timer Expiration	98
10.1	Description.....	98
10.2	Structure of ENVELOPE (TIMER EXPIRATION)	98
11	Event download.....	99
11.1	MT call event.....	99
11.1.1	Procedure	99
11.1.2	Structure of ENVELOPE (EVENT DOWNLOAD - MT call)	99
11.2	Call connected event.....	100
11.2.1	Procedure	100
11.2.2	Structure of ENVELOPE (EVENT DOWNLOAD - call connected)	100
11.3	Call disconnected event	101
11.3.1	Procedure	101
11.3.2	Structure of ENVELOPE (EVENT DOWNLOAD - Call disconnected).....	101
11.4	Location status event	102
11.4.1	Procedure	102
11.4.2	Structure of ENVELOPE (EVENT DOWNLOAD - Location status).....	102
11.5	User activity event	103

11.5.1	Procedure	103
11.5.2	Structure of ENVELOPE (EVENT DOWNLOAD - User activity).....	103
11.6	Idle screen available event.....	104
11.6.1	Procedure	104
11.6.2	Structure of ENVELOPE (EVENT DOWNLOAD - Idle screen available)	104
11.7	Card reader status event.....	104
11.7.1	Procedure	104
11.7.2	Structure of ENVELOPE (EVENT DOWNLOAD - card reader status)	105
11.8	Language selection event.....	105
11.8.1	Procedure	105
11.8.2	Structure of ENVELOPE (language selection)	105
11.9	Browser Termination event.....	106
11.9.1	Procedure	106
11.9.2	Structure of ENVELOPE (browser termination).....	106
11.10	Data available event.....	106
11.10.1	Procedure	106
11.10.2	Structure of ENVELOPE (EVENT DOWNLOAD – Data available)	107
11.11	Channel status event	107
11.11.1	Procedure	107
11.11.2	Structure of ENVELOPE (EVENT DOWNLOAD – Channel status)	107
12	SIMPLE-TLV data objects.....	108
12.1	Address	108
12.2	Alpha identifier.....	109
12.3	Subaddress	109
12.4	Capability configuration parameters.....	109
12.5	Cell Broadcast Page	109
12.6	Command details	110
12.7	Device identities	113
12.8	Duration	113
12.9	Item.....	114
12.10	Item identifier	114
12.11	Response length	114
12.12	Result	114
12.12.1	Additional information for SEND SS	115
12.12.2	Additional information for ME problem	116
12.12.3	Additional information for network problem	116
12.12.4	Additional information for SS problem.....	116
12.12.5	Additional information for SMS problem	116
12.12.6	Not used	116
12.12.7	Additional information for USSD problem	116
12.12.8	Additional information for interaction with call control or MO SM control.....	117
12.12.9	Additional information for MultipleCard commands.....	117

12.12.10	Additional information for Launch Browser problem.....	117
12.12.11	Additional information for Bearer Independent Protocol.....	117
12.13	SMS TPDU.....	118
12.14	SS string.....	118
12.15	Text string.....	118
12.15.1	Coding of text in unpacked format.....	119
12.15.2	Coding of text in packed format.....	119
12.15.3	Coding of text in 16 bits UCS2 alphabet format.....	119
12.16	Tone.....	119
12.17	USSD string.....	120
12.18	File List.....	120
12.19	Location Information.....	120
12.20	IMEI.....	121
12.21	Help Request.....	121
12.22	Network Measurement Results.....	121
12.23	Default Text.....	121
12.24	Items Next Action Indicator.....	121
12.25	Event list.....	122
12.26	Cause.....	122
12.27	Location status.....	122
12.28	Transaction identifier.....	123
12.29	BCCH channel list.....	123
12.30	Call control requested action.....	124
12.31	Icon Identifier.....	124
12.32	Item Icon Identifier list.....	124
12.33	Card reader status.....	125
12.34	Card ATR.....	125
12.35	C-APDU.....	126
12.36	R-APDU.....	126
12.37	Timer identifier.....	127
12.38	Timer value.....	127
12.39	Date-Time and Time zone.....	127
12.40	AT Command.....	127
12.41	AT Response.....	128
12.42	BC Repeat indicator.....	128
12.43	Immediate response.....	128
12.44	DTMF string.....	129
12.45	Language.....	129
12.46	Timing Advance.....	129
12.47	Browser Identity.....	129
12.48	URL.....	130
12.49	Bearer.....	130
12.50	Provisioning File Reference.....	130

12.51	Browser Termination Cause	131
12.52	Bearer description	131
12.52.1	Bearer parameters for CSD	131
12.52.2	Bearer parameters for GPRS / packet service	131
12.52.3	Default bearer	132
12.53	Channel data	132
12.54	Channel data length	132
12.55	Buffer size	133
12.56	Channel status	133
12.57	Card reader identifier	133
12.58	Other Address	134
12.59	SIM/ME interface transport level	134
12.60	Void	134
12.61	Network Access Name	134
13	Tag values	135
13.1	BER-TLV tags in ME to SIM direction	135
13.2	BER-TLV tags in SIM TO ME direction	135
13.3	SIMPLE-TLV tags in both directions	135
13.4	Type of Command and Next Action Indicator	137

14	Allowed Type of command and Device identity combinations	138
15	Security requirements.....	139
Annex A (normative):	Support of SIM Application Toolkit by Mobile Equipment.....	140
Annex B (informative):	Example command sequences for proactive SIM.....	141
Annex C (informative):	Example of DISPLAY TEXT Proactive SIM Command	143
Annex D (normative):	Structure of SIM Application Toolkit communications.....	144
Annex E (informative):	ME display in proactive SIM session	145
Annex F (informative):	Help information feature processing.....	146
Annex G (informative):	Monitoring of events.....	147
Annex H (normative):	Support of Multiple Card Operation	148
Annex I (informative):	Multiple Card proactive command examples	149
Annex J (informative):	Bearer independent protocol proactive command examples	150
Annex K (informative):	WAP References	153
Annex L (informative):	Change history	154