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Remote APDU Structure for (U)SIM Toolkit applications
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650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
Association à but non lucratif enregistrée à la
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Contents

Foreword

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Introduction

The present document is the result of a split of TS 23.048 Release 5 between the generic part and the bearers specific application. The generic part has been transferred to SCP. The present document is the bearers specific part.

2019

Scope

The present document defines the remote management of files and applets on the SIM/USIM/ISIM.

It describes the APDU format for remote management.

Furthermore the document specifies:

- a set of commands coded according to this APDU structure and used in the remote file management on the SIM/USIM specified in TS 51.011 [1], TS 31.101 [2], TS 31.102 [3], TS 31.103 [6].
- a set of commands coded according to this APDU structure and used in the remote applet management on the SIM/USIM. This is based on ETSI TS 102 226 [4].

The remote APDU structure for SIM/USIM/ISIM applications shall comply with the one defined in ETSI TS 102 226 [4]. The present document only contains additional requirements or explicit limitations for SIM/USIM/ISIM applications.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication and/or edition number or version number) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TS 51.011 Release 4: “Specification of the Subscriber Identity Module – Mobile Equipment (SIM-ME) interface”.

[2] 3GPP TS 31.101: “UICC-Terminal Interface; Physical and Logical Characteristics”.

[3] 3GPP TS 31.102: “Characteristics of the USIM Application”.

[4] ETSI TS 102 226 V13.1.0: “Smart Cards; Remote APDU structure for UICC based applications”.

[5] ISO/IEC 7816-4: “Information technology – Identification cards – Integrated circuit cards, Part 4: Organization, security and commands for interchange”.

[6] 3GPP TS 31.103: “Characteristics of the IP Multimedia Services Identity Module (ISIM) application”.

[7] ETSI TS 102 483 V8.1.0: “Internet Protocol connectivity between UICC and terminal”

3 Definitions and abbreviations

For the purposes of the present document, the abbreviations, terms and definitions given in ETSI TS 102 226 [4] apply.

4 Remote APDU Format

4.1 Remote command coding

The SIM/USIM/ISIM Remote command coding shall comply with the Remote command coding of ETSI TS 102 226 [4].

4.2 Response coding

The SIM/USIM/ISIM Response coding shall comply with the Response coding of ETSI TS 102 226 [4], added features are defined below.

4.2.1 (U)SIM specific behaviour for Response Packets (Using SMS-PP)

If PoR is not requested, no data shall be returned by the (U)SIM's RE/RA and the (U)SIM's RE/RA shall indicate to the terminal to issue an RP-ACK.

If PoR is requested, data shall be returned by the (U)SIM's RE/RA. The (U)SIM's RE/RA shall indicate to the terminal to issue an RP-ACK.

The data returned by the (U)SIM is the complete Response Packet to be included in the User Data part of the SMS-DELIVER-REPORT.

Because the (U)SIM is unable to indicate to the Terminal that the TP-UDHI bit is to be set, the Sending Entity receiving the Response Packet shall expect the UDH structure in any event.

If a proof of Receipt is required by the sending entity, the Additional Response Data sent by the Remote Management Application shall be formatted according to ETSI TS 102 226 [4].

4.2.2 Void

5 Remote File Management (RFM)

When using remote APDUs to perform RFM over HTTPS, the HTTP header fields shall be set as specified in ETSI TS 102 226 [4]

5.1 SIM Remote File Management

Command and Response formats are defined in ETSI TS 102 226 [4]. Nevertheless, the list of commands defined in ETSI TS 102 226 [4] for Remote File Management does not apply for SIM application. All the SIM Remote File Management commands are defined below.

The standardised commands are listed in table 5.1. The commands are as defined in TS 51.011 [1], except that the SELECT command is extended from the one in TS 51.011 [1] to include "SELECT by path" as defined in ISO/IEC 7816-4 [6].

Table 5.1: SIM Remote File Management Commands

Operational command
SELECT
UPDATE BINARY
UPDATE RECORD
SEEK
INCREASE
VERIFY CHV
CHANGE CHV
DISABLE CHV
ENABLE CHV
UNBLOCK CHV
INVALIDATE
REHABILITATE
READ BINARY
READ RECORD

To retrieve the Response parameters/data of a case 4 command the GET RESPONSE command defined in TS 51.011 [1] shall be issued (Class Byte is 'A0').

The GET RESPONSE and any case 2 command (i.e. READ BINARY, READ RECORD) shall only occur once in a command string and, if present, shall be the last command in the string. The Response Data shall be placed in the Additional Response Data element of the Response Packet.

5.2 USIM Remote File Management

USIM Remote File Management shall comply with ETSI TS 102 226 [4].

The standardised commands are listed in ETSI TS 102 226 [4].

5.3 UICC Shared File System Remote File Management

UICC Shared File System Remote File Management shall comply with ETSI TS 102 226 [4].

The standardised commands are listed in ETSI TS 102 226 [4].

5.4 ISIM Remote File Management

ISIM Remote File Management shall comply with ETSI TS 102 226 [4].

The standardised commands are listed in ETSI TS 102 226 [4].

6 Remote Applet Management

SIM/USIM Remote Applet Management shall comply with ETSI TS 102 226 [4], added features are defined below.

When using remote APDUs to perform RAM over HTTPS, ETSI TS 102 226 [4] applies for the HTTP header fields values and the encoding of the body part.

6.1 SIM File System Access Domain Parameter

This parameter indicates the mechanism used to control the applet instance access to the SIM File System. It is a parameter of the INSTALL [for install] command described in ETSI TS 102 226 [4].

This parameter shall be used only if the "SIM File Access and Toolkit Application Specific Parameters" TLV object (Tag 'CA') is present.

Value	Name	Support	ADD length
'00'	See TS 102 226 [4]	-	-
'01'	SIM access mechanism	Optional	2
'02' to 'FF'	See TS 102 226 [4]	-	-

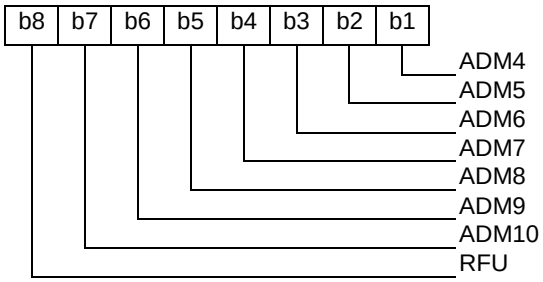
6.1.1 SIM Access Mechanism

This mechanism shall be used, if supported, by the framework if the Access Domain Parameter value is '01'. It shall use the Access Domain Data passed at applet instantiation to define the access conditions fulfilled while the toolkit applet is running.

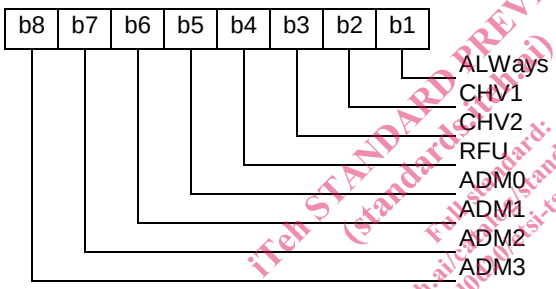
The APDU Access Domain Data is a bit map combination of the file access condition levels described in TS 51.011 [1]. When the bit is set the associated Access Condition is granted.

The APDU Access Domain Data is coded as follows:

Byte 1:



Byte 2:



EXAMPLE: Possible combinations of fulfilled Access Conditions are shown below:

ADD value	Applet access condition fulfilled
'00 00'	No access
'00 01'	ALWays
'00 02'	CHV1
'00 03'	ALWays and CHV1
'00 04'	CHV2
'00 05'	ALWays and CHV2
'00 06'	CHV1 and CHV2
:	:
'00 10'	ADM0
:	:
'00 20'	ADM1
:	:
'00 22'	ADM1 and CHV1
:	:
'01 00'	ADM4
:	:
'40 00'	ADM10
:	:
'41 37'	ADM10 and ADM4 and ADM1 and ADM0 and CHV2 and CHV1 and ALWays
:	: