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(U)SIM API for Java™ Card
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Foreword

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- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
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In the present document, modal verbs have the following meanings:

- shall** indicates a mandatory requirement to do something
- shall not** indicates an interdiction (prohibition) to do something

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- should** indicates a recommendation to do something
- should not** indicates a recommendation not to do something
- may** indicates permission to do something
- need not** indicates permission not to do something

The construction "may not" is ambiguous and is not used in normative elements. The unambiguous constructions "might not" or "shall not" are used instead, depending upon the meaning intended.

- can** indicates that something is possible
- cannot** indicates that something is impossible

The constructions "can" and "cannot" are not substitutes for "may" and "need not".

- will** indicates that something is certain or expected to happen as a result of action taken by an agency the behaviour of which is outside the scope of the present document
- will not** indicates that something is certain or expected not to happen as a result of action taken by an agency the behaviour of which is outside the scope of the present document
- might** indicates a likelihood that something will happen as a result of action taken by some agency the behaviour of which is outside the scope of the present document

might not indicates a likelihood that something will not happen as a result of action taken by some agency the behaviour of which is outside the scope of the present document

In addition:

is (or any other verb in the indicative mood) indicates a statement of fact

is not (or any other negative verb in the indicative mood) indicates a statement of fact

The constructions "is" and "is not" do not indicate requirements.

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1 Scope

The present document defines the (U)SIM Application Programming Interface extending the "UICC API for Java Card™" [2].

This API allows to develop a (U)SAT application running together with a (U)SIM application and using 3GPP network features.

The present document includes information applicable to 3GPP network operators, service providers, server – (U)SIM – database manufacturers.

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, edition number, version number, etc.) 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] ETSI TS 101 220: "Integrated Circuit Cards (ICC); ETSI numbering system for telecommunication; Application providers (AID)".
- [2] ETSI TS 102 241 V18.0.0: "UICC API for Java Card™"
- [3] 3GPP TS 31.102: "Characteristics of the USIM Application".
- [4] 3GPP TS 51.011 Release 4: "Specification of the Subscriber Identity Module- Mobile Equipment (SIM – ME) interface".
- [5] 3GPP TS 23.041: "Technical realization of Cell Broadcast Service (CBS)".
- [6] 3GPP TS 31.101: "UICC-terminal interface; Physical and logical characteristics".
- [7] 3GPP TS 31.111: "USIM Application Toolkit (USAT)".
- [8] 3GPP TS 51.014 Release 4: "Specification of the SIM Application Toolkit for the Subscriber Identity Module – Mobile Equipment (SIM – ME) interface".
- [9] 3GPP TS 31.115: "Secured packet structure for the (U)SIM Toolkit applications".
- [10] 3GPP TS 23.040: "Technical realization of the Short Message Service (SMS)".
- [11] Void.
- [12] Void.
- [13] Void.
- [14] 3GPP TS 23.032: "Universal Geographical Area Description (GAD)".
- [15] IEC 61162-1: "Maritime navigation and radio communication equipment and systems – Digital interfaces".
- [16] 3GPP TS 23.003: "Numbering, Addressing and Identification".
- [17] 3GPP TS 31.103: "Characteristics of the IP Multimedia Services Identity Module (ISIM) application".

[18] 3GPP TS 33.220: "Generic Authentication Architecture (GAA);Generic Bootstrapping

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions defined in ETSI TS 102 241 [2] apply.

(U)SAT Framework : (U)SAT extension of the CAT Runtime Environment.

3.2 Abbreviations

For the purposes of the present document, the abbreviations defined in ETSI TS 102 241 [2] apply.

4 Description

4.0 Overview

This API is an extension to the ETSI TS 102 241 [2] "UICC API for Java Card™" and requires the implementation of this specification.

The classes and interfaces described in this specification inherit functionality from the classes and interfaces specified in the "UICC API for Java Card™".

The (U)SAT Framework described in this specification is an extension of the CAT Runtime Environment defined in ETSI TS 102 241 [2].

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4.1 (U)SIM Java Card™ Architecture

The overall architecture of the (U)SIM API is based on the "UICC API for Java Card™" defined in ETSI TS 102 241 [2].

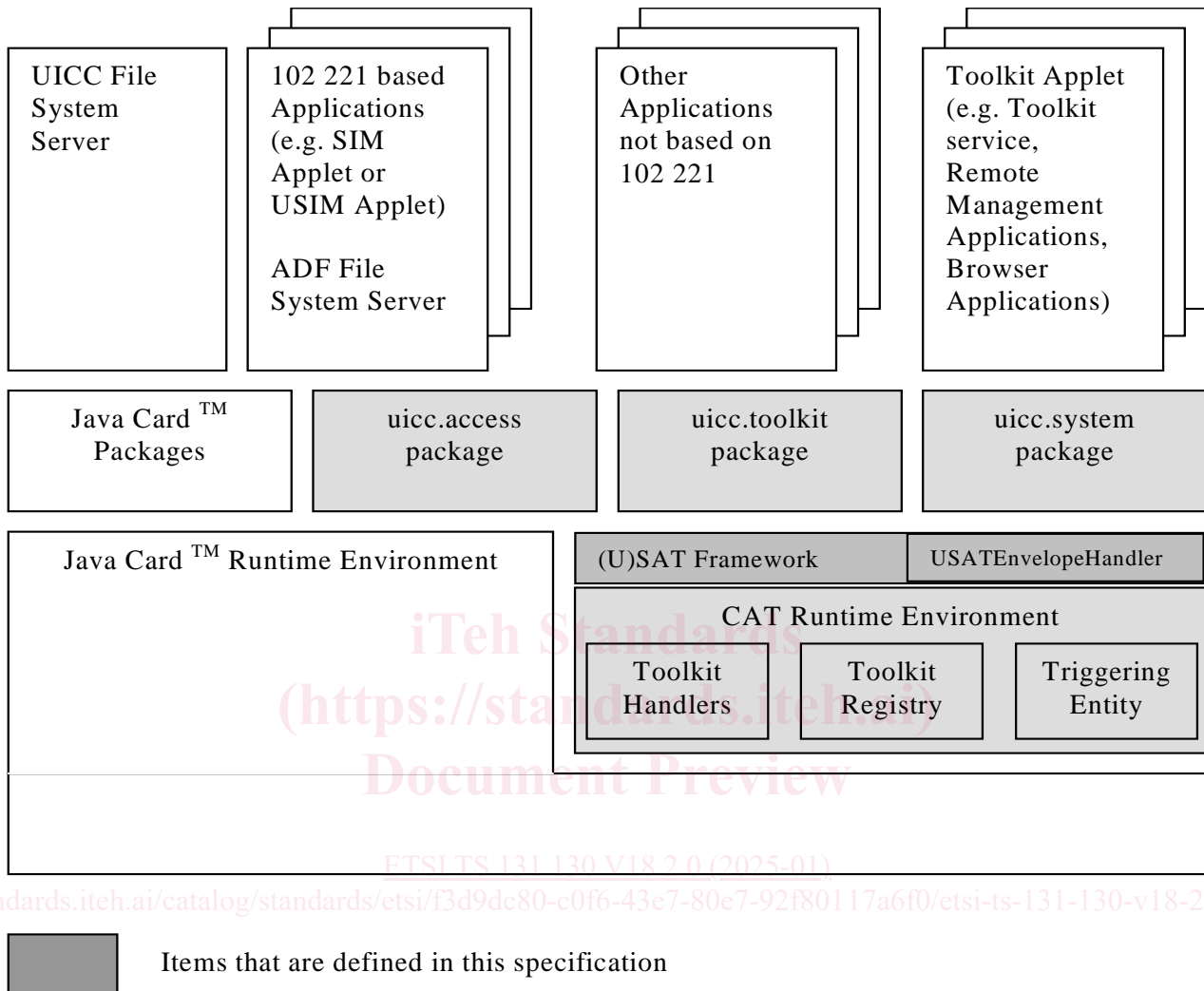


Figure 1: (U)SIM Java Card™ Architecture

5 File Access API

The (U)SIM file access API consists of the package *uicc.usim.access*. This package defines additional constants to those defined in the *uicc.access* package from ETSI TS 102 241 [2]. The access to the file system, defined in TS 51.011 [4] and TS 31.102 [3], is the one specified in ETSI TS 102 241 [2] via the UICC *FileView* Interface. When selecting a cyclic file the current record number is defined, this applies also to files located under DF_{GSM}.

6 (U)SAT Framework

6.0 Overview

The (U)SIM toolkit API consists of the *uicc.usim.toolkit* package for toolkit features defined in TS 31.111 [7] and TS 51.014 [8], and is based on the *uicc.toolkit* package defined in ETSI TS 102 241 [2].

6.1 Applet triggering

See ETSI TS 102 241 [2].

6.1.1 Exception Handling

The following clause describes the handling of exceptions by the (U)SAT Framework in addition to the behaviour defined in ETSI TS 102 241 [2] for the CAT Runtime Environment.

If an Applet triggered by `EVENT_FORMATTED_SMS_PP_ENV` event throws an `ISOException` with the reason code (0x6FXX), it shall be sent to the terminal.

Other Exceptions shall not be propagated to the terminal.

6.2 Definition of Events

The following events can trigger a Toolkit Applet in addition to the events defined in ETSI TS 102 241 [2], all short values are reserved in ETSI TS 102 241 [2]:

Table 1: (U)SAT event list

Event Name	Reserved short value
<code>EVENT_FORMATTED_SMS_PP_ENV</code>	2
<code>EVENT_FORMATTED_SMS_PP_UPD</code>	3
<code>EVENT_UNFORMATTED_SMS_PP_ENV</code>	4
<code>EVENT_UNFORMATTED_SMS_PP_UPD</code>	5
<code>EVENT_UNFORMATTED_SMS_CB</code>	6
<code>EVENT_MO_SHORT_MESSAGE_CONTROL_BY_NAA</code>	10
<code>EVENT_FORMATTED_SMS_CB</code>	24
<code>EVENT_EVENT_DOWNLOAD_IWLAN_ACCESS_STATUS</code>	30
<code>EVENT_EVENT_DOWNLOAD_NETWORK_REJECTION</code>	31
<code>EVENT_EVENT_DOWNLOAD_CSG_CELL_SELECTION</code>	33
<code>EVENT_EVENT_DOWNLOAD_DATA_CONNECTION_STATUS_CHANGE</code>	37
Reserved for 3GPP (for future usage)	113
Reserved for 3GPP (for future usage)	114
Reserved for 3GPP (for future usage)	115
Reserved for 3GPP (for future usage)	116
<code>EVENT_EVENT_DOWNLOAD_SLICES_STATUS_CHANGE</code>	117
<code>EVENT_EVENT_DOWNLOAD_CAG_CELL_SELECTION</code>	118
<code>EVENT_EVENT_DOWNLOAD_IMS_REGISTRATION</code>	119
<code>EVENT_EVENT_DOWNLOAD_INCOMING_IMS_DATA</code>	120
<code>EVENT_FORMATTED_USSD</code>	121
<code>EVENT_UNFORMATTED_USSD</code>	122

EVENT_FORMATTED_SMS_PP_ENV, EVENT_UNFORMATTED_SMS_PP_ENV, EVENT_FORMATTED_SMS_PP_UPD, EVENT_UNFORMATTED_SMS_PP_UPD

There are two ways for a card to receive a Short Message Point to Point: via an `ENVELOPE(SMS-PP DOWNLOAD)` APDU as defined in TS 31.111 [7] and TS 51.014 [8] or an `UPDATE RECORD EFSMS` APDU as defined in TS 31.102 [3] and TS 51.011 [4]. The `EFSMS` can be either located under the `DFTelecom` or under any ADF as defined in TS 31.102 [3] and TS 51.011 [4].

The received Short Message may be:

- formatted according to TS 31.115 [9] or an other protocol to identify explicitly the toolkit applet for which the message is sent;
- unformatted (e.g. a toolkit applet specific protocol) then the (U)SAT Framework will pass this data to all registered toolkit applets.