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Smart Card Platform Requirements Stage 1
(Release 8)

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Introduction

The present document specifies the requirements for Release 7 onwards of the TC SCP.

1 Scope

The present document specifies the additional requirements for Release 7 onwards of the TC SCP with respect to earlier releases.

The present document covers all the Stage 1 requirements which are not covered by other TC SCP stage 1 documents.

2 References

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.
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2.1 Normative references

The following referenced documents are indispensable for the application of the present document. For dated references, only the edition cited applies. For non-specific references, the latest edition of the referenced document (including any amendments) applies.

[1] ETSI TS 102 221: "Smart Cards; UICC-Terminal interface; Physical and logical characteristics (Release 7)".

[2] ETSI TS 102 223: "Smart cards; Card Application Toolkit (CAT) (Release 6)".

[3] ETSI TS 122 038: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); USIM Application Toolkit (USAT/SAT); Service description; Stage 1 (3GPP TS 22.038 Release 7)".

[4] ETSI TS 151 011: "Digital cellular telecommunications system (Phase 2+); Specification of the Subscriber Identity Module - Mobile Equipment (SIM-ME) interface (3GPP TS 51.011)".

[5] ETSI TS 131 102: "Universal Mobile Telecommunications System (UMTS); Characteristics of the USIM application (3GPP TS 31.102 Release 6)".

[6] ISO/IEC 7816-4: "Identification cards - Integrated circuit cards - Part 4: Organization, security and commands for interchange".

[7] Trusted Computing Group (2003): "TPM Main - Part 1 Design Principles - Specification version 1.2".

NOTE: Available at https://www.trustedcomputinggroup.org/downloads/tpmwg-mainrev62_Part1_Design_Principles.pdf.

[8] ISO/IEC 14443: "Identification cards - Contactless integrated circuit(s) cards - Proximity cards".

[9] ISO/IEC 18092:"Information technology - Telecommunications and information exchange between systems - Near Field Communication - Interface and Protocol (NFCIP-1)".

[10] ISO/IEC 15693: "Identification cards - Contactless integrated circuit(s) cards - Vicinity cards".

2.2 Informative references

The following referenced documents are not essential to the use of the present document but they assist the user with regard to a particular subject area**.** For non-specific references, the latest version of the referenced document (including any amendments) applies.

Not applicable.

3 Definitions and abbreviations

3.1 Definitions

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For the purposes of the present document, the following terms and definitions apply:

central repository: a repository of registered applications residing in the UICC

CLF: ContactLess Front-end, circuitry in the terminal which:

- Handles the analog part of the contactless communication.
- May handle some layers of the contactless protocol.
- May exchange data with the terminal and the UICC.

CLFI (CLF Interface): physical interface between the UICC and the CLF

CLFIP (CLFI Protocol): communication protocol between the UICC and the CLF carried over the CLFI

HSP: high speed protocol running on top of the NUT interface

ME/TE owner: entity having the right to configure or administrate a CAD and/or remote terminal

terminal: entity with which the Smart Card can establish a secure channel

EXAMPLE 1: Card Acceptance Device such as a mobile handset i.e. in the case of a wired Smart Card to terminal (such as PDA or handset) communication.

EXAMPLE 2: A Remote Terminal is a terminal communicating to a CAD, which can access the UICC resources, for example a PC connect over a local link to handset.

NOTE: In the present document a distinction will be made between a CAD and a Remote Terminal only where applicable, in case this distinction is not relevant the generic term terminal will be used.

terminal end point: point for terminating the secure channel from the UICC point of view, which could be a Mobile Terminal or a Remote Terminal

EXAMPLE: A remote terminal can be a Set-top box, a PC, or even a Bluetooth earpiece connected to a Mobile Terminal.

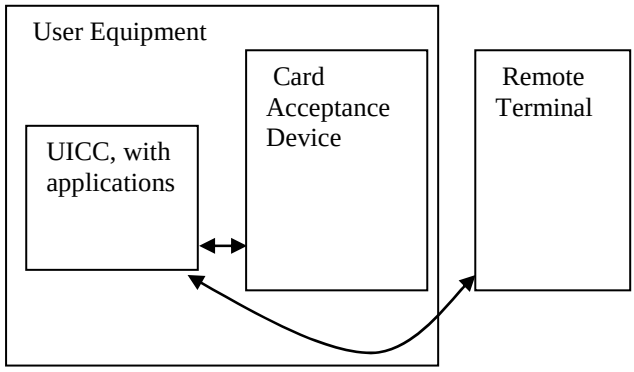

Figure 1: Possible secure channels with a UICC

third party application: an application developed and installed on the card by a player different from the card issuer

third party area: an area of the UICC (memory and resources) allocated to accommodate one (or several) third party application

third party policy: a set of policies which define some characteristics and restrictions for the third party applications allocated into the corresponding third party areas

trusted device: device which is not infected by malevolent code, whether because it is compliant to the requirements defined in TCG [7] or because the user/owner/administrator guarantees device integrity by giving verifiable evidence

NOTE: A more exact definition is out of scope of SCP.

UICC powering modes:

- Battery powered:
  - Mode where the UICC and the CLF are powered from the battery of the terminal.
- Not Battery powered:
  - Mode where the UICC and the CLF are not powered from the battery of the terminal.

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3.2 Abbreviations

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

ADF	Application Dedicated File
API	Application Program Interface
CAD	Card Acceptance Device
CAS	Conditional Access System
CAT	Card Application Toolkit
CAT-TP	Card Application Toolkit - Transport Protocol
CEK	Content Encryption Key
CPU	Central Processing Unit
DF	Dedicated File
DM	Device Management
DRM	Digital Rights Management
DRM_UA	Digital Rights Management User Agent
DVB	Digital Video Broadcasting
EAP	Extensible Authentication Protocol
EF	Elementary File

GPRS	General Packet Radio Service
HTTP	HyperText Transfer Protocol
HTTPS	Secure HyperText Transfer Protocol
IMS	IP Multimedia Services
IP	Internet Protocol
ISIM	IMS SIM
JSR	Java Specification Request
MBMS	Multimedia Broadcast/Multicast Service
ME	Mobile Equipment
MNO	Mobile Network Operator
MO	(Device) Management Object
MT	Mobile Termination
MVNO	Mobile Virtual Network Operator
NUT	New UICC-Terminal
OMA	Open Mobile Alliance
OTA	Over The Air
PDA	Personal Digital Assistance
PIN	Personal Identification Number
PKI	Public Key Infrastructure
POP	Post Office Protocol
POS	Point Of Sale
RFID	Radio Frequency Identification
RO	Rights Object
SC	Smart Card
SCWS	Smart Card Web Server
SMTP	Simple Mail Transfer Protocol
TCG	Trusted Computing Group
TLS	Transport Layer Security
TMP	Trusted Media Player
UA	(Digital Rights Management) User Agent
UE	User Equipment
UMTS	Universal Mobile Telecommunications System
URL	Uniform Resource Locator
USIM	Universal Subscriber Identity Module
USSM	UICC Security Service Module
WIM	Wireless Identity Module

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4 Requirements

The present document specifies:

- run time environment timing constraints;
- launch application command;
- mapped file support on the UICC;
- extension of logical channels;
- secure channel to secure local terminal interfaces;
- authenticate command longer than 255 bytes;
- CAT mechanisms to indicate the bearer connection status;
- New UICC-Terminal (NUT) interface;
- Smart Card Web Server running in UICC;
- API for applications registered to a Smart Card Web Server;
- specific UICC environmental conditions;

- introduction of high density memory technology in UICC;
- power supply indication mechanism;
- Internet Connectivity up to UICC applications;
- contactless UICC services;
- administration of the Smart Card Web Server;
- confidential application services.

4.1 Run time environment timing constraints

4.1.1 Abstract (informative)

SCP specifications up to Release 6 do not put any restrictions to the run time behaviour of Smart Card applications on the CAT layer and on the application layer. However, an example for a situation which requires a defined runtime behaviour of the UICC is given in a note in Release 6 of TS 102 223 [2]: The maximum work time of applications before sending a MORE TIME proactive command to the terminal should not exceed a certain amount of time. This remark is made in the context of the network authentication command and it is not normative. To avoid future problems due to this undefined behaviour, the requirements in this clause aim at providing the infrastructure needed to achieve standardized behaviour in situations like those described above from Release 7 onwards.

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4.1.2 Background (informative)

4.1.2.1 Use case - Network authentication

An application may not block a UICC with a USIM application longer than a well defined period of time in order to be able to process network authentication commands within a time limit which is a network parameter (TS 102 223 [2]).

4.1.3 Requirements

Identifier	Requirement
REQ-7-01-01-01	The UICC shall provide a mechanism to assign a maximum work time to an application. The time value might be network specific.
REQ-7-01-01-02	The UICC shall not be blocked by an application for an amount of time exceeding the configured maximum work time.
REQ-7-01-01-03	In addition, the application itself shall be able to assign its own maximum work time value.
REQ-7-01-01-04	The application shall be suspended by the run time environment after the work time has expired and control shall be given back to run time environment.
REQ-7-01-01-05	The run time environment shall return control to the application if no other task with higher priority (e.g. network authentication) is pending.
REQ-7-01-01-06	The task switch procedure shall be transparent to the application.
REQ-7-01-01-07	Any security related to the tasks shall not be weakened by the task switch.

4.1.4 Interaction with existing features (informative)

(none).

4.2 Launch Application feature

4.2.1 Abstract (informative)

This feature enables the UICC to discover, launch and communicate with an application on a terminal using proactive commands.

4.2.2 Background (informative)

The present document presents a stage 1 requirement and high-level description for the Launch Application feature.

The requirements are based on an existing requirement in the 3GPP stage 1 specification for toolkit feature TS 122 038 [3].

As the applications to be launched are mainly independent of the air interface, it is appropriate to standardize this feature in TC-SCP rather in 3GPP. This will also make this feature available to other telecom standards.

Example of terminal applications for such a feature:

- E-mail:

  CAT can launch an e-mail client on the terminal, providing parameters such as POP server, SMTP server, login, password, etc.

- Network management optimization:

  CAT launches an application in the mobile that reports to the USIM; channels and application metrics, for network performance monitoring.

- Proactive synchronization:

  CAT application, triggered by suitable events, may command the start of a data synchronization process (e.g. for subscriber related parameters or ME configuration data) that may involve data entities in the UE and in a synchronization server.

- Streaming:

  CAT may launch a streaming client in the terminal to stream a video clip with the address (e.g. URL) provided by the CAT.

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4.2.3 Requirements

Identifier	Requirement
REQ-7-02-01-01	The CAT shall be able to start a terminal application, providing its name and initial parameters.
REQ-7-02-01-02	The terminal shall inform the card (e.g. through events) about the terminal applications that can be launched by the CAT, with the corresponding information on the needed parameters to launch each terminal application.
REQ-7-02-01-03	The informing of the card shall be done after each start of card session and as soon as possible after such an eligible application is added to, or removed from the terminal.
REQ-7-02-01-04	The user of the terminal shall be able to choose when he should be prompted for the issuance of the CAT LAUNCH APPLICATION command. The prompt possibilities shall be: • The user is prompted for each application to be launched. • The user is prompted for those applications only that the user has selected, the other applications are launched without being prompted. The user is never prompted, i.e. all the applications are always launched.
REQ-7-02-01-05	Once launched, the application may interact with the user or another application, as though the user launched the application.
REQ-7-02-01-06	If the handset is not able to launch the requested application, an error mechanism shall be specified to inform the CAT, which shall include a reason code and details as to whether the error is temporary or not.
REQ-7-02-01-07	Each application shall have a unique identifier or reference.
REQ-7-02-01-08	The format of the identifier shall be standardized.
REQ-7-02-01-09	There shall be the possibility to provide the application identifier in a standardized way (SCP decides for the identifier value), or in a proprietary way (application provider decides for the identifier value).
REQ-7-02-01-10	An application parameter shall be uniquely identified.
REQ-7-02-01-11	This requirement shall be implemented as a letter class feature.
REQ-7-02-01-12	The UICC shall have proactive mechanisms that allow it to communicate with an application it has launched.
REQ-7-02-01-13	Closing the communication with a launched application shall not automatically end the launched terminal application.