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for telecommunication application providers
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1 Scope

The present document provides for the administration of shared name spaces in use by applications on the UICC including the managed allocation of identifiers from these name spaces.

2 References

2.1 Normative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

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The following referenced documents are necessary for the application of the present document.

[1] Void.

[2] Recommendation ITU-T E.164: "The international public telecommunication numbering plan".

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

[4] Recommendation ITU-T E.118: "The international telecommunication charge card".

[5] Void.

[6] 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)".

[7] ETSI TS 101 267: "Digital cellular telecommunications system (Phase 2+); Specification of the SIM Application Toolkit (SAT) for the Subscriber Identity Module - Mobile Equipment (SIM-ME) interface (3GPP TS 11.14)".

[8] ETSI TS 143 019: "Digital cellular telecommunications system (Phase 2+); Subscriber Identity Module Application Programming Interface (SIM API) for Java Card; Stage 2 (3GPP TS 43.019)".

[9] ETSI EN 300 812-3: "Terrestrial Trunked Radio (TETRA); Subscriber Identity Module to Mobile Equipment (SIM-ME) interface; Part 3: Integrated Circuit (IC); Physical, logical and TSIM application characteristics".

[10] ETSI TS 131 101: "Universal Mobile Telecommunications System (UMTS); LTE; UICC-terminal interface; Physical and logical characteristics (3GPP TS 31.101)".

[11] ETSI TS 131 102: "Universal Mobile Telecommunications System (UMTS); LTE; Characteristics of the Universal Subscriber Identity Module (USIM) application (3GPP TS 31.102)".

[12] ETSI TS 131 111: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Universal Subscriber Identity Module (USIM) Application Toolkit (USAT) (3GPP TS 31.111)".

[13] ETSI TS 131 114: "Universal Mobile Telecommunications System (UMTS); LTE; Universal Subscriber Identity Module Application Toolkit (USAT) interpreter protocol and administration (3GPP TS 31.114)".

[14] ETSI TS 131 103: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Characteristics of the IP Multimedia Services Identity Module (ISIM) application (3GPP TS 31.103)".

[15] ISO/IEC 8825-1: "Information technology - ASN.1 encoding rules: Specification of Basic Encoding Rules (BER), Canonical Encoding Rules (CER) and Distinguished Encoding Rules (DER)".

[16] ISO/IEC 7816-6: "Identification cards - Integrated circuit cards - Part 6: Interindustry data elements for interchange".

[17] ETSI TS 102 241: "Smart Cards; UICC Application Programming Interface (UICC API) for Java Card™ ".

[18] ETSI TS 131 130: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; (U)SIM Application Programming Interface (API); (U)SIM API for Java™ Card (3GPP TS 31.130)".

[19] ETSI TS 102 226: "Smart Cards; Remote APDU structure for UICC based applications".

[20] ETSI TS 131 116: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Remote APDU Structure for (U)SIM Toolkit applications (3GPP TS 31.116)".

[21] Void.

[22] ETSI TS 102 474: "Digital Video Broadcasting (DVB); IP Datacast over DVB-H: Service Purchase and Protection".

[23] Void.

[24] ETSI TS 131 133: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; IP Multimedia Services Identity Module (ISIM) Application Programming Interface (API); ISIM API for Java Card™ (3GPP TS 31.133)".

[25] OMA-TS-Smartcard-Web-Server-V1-0: "Smartcard-Web-Server".

NOTE: See http://www.openmobilealliance.org.

[26] ETSI TS 102 225: "Smart Cards; Secured packet structure for UICC based applications".

[27] ETSI TS 131 221: "Universal Mobile Telecommunications System (UMTS); LTE; Contact Manager Application Programming Interface (API); Contact Manager API for Java Card (3GPP TS 31.221)".

[28] 3GPP2 C.S0065-0: "cdma2000 Application on UICC for Spread Spectrum Systems".

NOTE: Available at https://www.3gpp2.org/Public_html/Specs/C.S0065-0%20v1.0_060630.pdf.

[29] Void.

[30] GlobalPlatform: "Card Remote Application Management over HTTP Card Specification v2.2 - Amendment B" v1.1.3.

NOTE: See http://www.globalplatform.org/.

[31] OMA-TS-BCAST-Services-V1-1: "Mobile Broadcast Services".

NOTE: See http://www.openmobilealliance.org.

[32] ETSI TS 102 921: "Machine-to-Machine communications (M2M); mIa, dIa and mId interfaces".

[33] ISO/IEC 7816-5:2004: "Identification cards - Integrated circuit cards - Part 5: Registration of application providers".

[34] ETSI TS 118 103: "oneM2M; Security solutions (oneM2M TS-0003)".

[35] OMA-TS-LightweightM2M-V1-0: "Lightweight Machine to Machine".

[36] ETSI TS 131 104: "Universal Mobile Telecommunications System (UMTS); LTE; Characteristics of the Hosting Party Subscription Identity Module (HPSIM) application (3GPP TS 31.104)".

[37] GlobalPlatform: "Global Platform Card, Confidential Card Content Management, Card Specification v2.3 - Amendment A", Version 1.1.

NOTE: See http://www.globalplatform.org/.

2.2 Informative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

- In the case of a reference to a TC SCP document, a non specific reference implicitly refers to the latest version of that document in the same Release as the present document.

NOTE: While any hyperlinks included in this clause were valid at the time of publication ETSI cannot guarantee their long term validity.

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

Not applicable.

3 Definition of terms, symbols and abbreviations

3.1 Terms

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

Application IDentifier (AID): data element, which identifies an application in a card

NOTE: An AID may contain a Registered application provider IDentifier (RID). If it contains either a RID or an issuer identification number, then this identification is unambiguous (see ISO/IEC 7816-4 [3]).

Application Provider (AP): entity, which provides those components of an application on a card, required to perform the respective application

NOTE: See ISO/IEC 7816-4 [3].

data object: structured data seen on an interface consisting of the concatenation of a mandatory tag field, a mandatory length field and an optional value field

tag: nominal datum that encodes the name of a data object

telecommunication IC card application: application described by an ETSI document

template: definition of a set of TLV data objects forming the value field of a constructed BER-TLV data object and a data object that realizes this definition

Toolkit Application Reference (TAR): data element, which identifies an application in the toolkit mechanisms (e.g. SMS Data Download)

3.2 Symbols

Void.

3.3 Abbreviations

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

AID	Application IDentifier
AP	Application Provider
APDU	Application Protocol Data Unit
API	Application Program Interface
AT	ATtention
BCD	Binary Coded Decimal
BER	Basic Encoding Rules
BSSID	Basic SSID
CBMS	Convergence of Broadcast and Mobile Services
CR	Comprehension Required
DECT	Digital Enhanced Cordless Telecommunications
DM	Device Management
DNS	Domain Name System
DTMF	Dual Tone Multi Frequency
GAD	Geographical Area Description
GSM	Global System for Mobile communication
GSMA	GSM Association
HESSID	Homogeneous Extended SSID
HPSIM	Hosting Party Subscription Identity Module
IC	Integrated Circuit(s)
ICC	Integrated Circuit Card
ID	IDentifier
IP	Internet Protocol
ISIM	IP Multimedia Services Identity Module
ISO	International Organization for Standardization
MAC	Medium Access Control
MMS	Multimedia Message Service
NMEA	National Maritime Electronic Association
PIX	Proprietary application Identifier eXtension
RFU	Reserved for Future Use
RID	Registered application provider IDentifier
RSP	Remote SIM Provisioning
SA	Security Association
SCP	Smart Card Platform
SIM	Subscriber Identity Module
SM	Session Management
SSID	Service Set Identifier
TAR	Toolkit Application Reference
TC	Technical Committee
TETRA	TErrestrial Trunked RAdio
TLV	Tag-Length-Value
TP	Transport Protocol
UPT	Universal Personal Telecommunications
URL	Uniform Resource Locator
USAT	USIM Application Toolkit
USIM	Universal Subscriber Identity Module
USSD	Unstructured Supplementary Services Data
UTRAN	Universal Terrestrial Radio Access Network

4 Structure of the Application IDentifier (AID)

4.0 Introduction

In accordance with ISO/IEC 7816-4 [3], the AID has the following structure.

<---------- Application IDentifier (AID) ---------->	
Registered application provider IDentifier (RID)	**Proprietary application Identifier eXtension (PIX)**
<---------- 5 bytes ----------->	**<---------- ≤ 11 bytes ----------->**

Figure 4.1: AID structure

The AID consists of a Registered application provider IDentifier (RID) of 5 bytes and a Proprietary application Identifier eXtension (PIX) of up to 11 bytes.

4.1 Registered application provider IDentifier (RID)

The RIDs dealt with in the present document, as registered by ISO/IEC according to ISO/IEC 7816-5 [33], are:

- 'A000000009' for ETSI;
- 'A000000087' for the 3GPP;
- 'A000000343' for the 3GPP2;
- 'A000000645' for the oneM2M.

The following RIDs are for informational purposes only. These RIDs and associated PIXs are maintained by the respective bodies:

- 'A000000412' for the OMA;
- 'A000000424' for the WiMAX Forum.

4.2 Proprietary application Identifier eXtension (PIX)

The PIX is used at the discretion of ETSI and can contain between 7 bytes and 11 bytes of information. The PIX is coded in hexadecimal. Hexadecimal digit 1 is the most significant digit.

Digits 1 to 4 **Application code**

Purpose: To be used for identification of the standardized ETSI or 3G card application (e.g. GSM, DECT, UPT, pre-paid application). Different versions of an application may have individual codings.

Management: Assigned by ETSI on request from the ETSI or 3G technical body responsible for the document in question.

Coding: Hexadecimal. The coding indicates the ETSI or 3G document that specifies the standardized ETSI or 3G card application and the PIX number.
The correspondence between digits 1 to 4 and the ETSI or 3G document in question can be seen in a list maintained by the ETSI Secretariat (see annex A). Escape value '0000' is reserved for use by the ETSI Secretariat for proprietary ETSI or 3G applications.

Digits 5 to 8 **Country code**

Purpose: To indicate the country of the application provider of the ETSI or 3G standardized application.

Coding: According to Recommendation ITU-T E.164 [2]. The coding is right justified and padded with 'F' on the left.

NOTE 1: List of actual country codes is published by ITU.

Digits 9 to 14 **Application provider code**

Purpose: Individual code for the application provider of the ETSI or 3G standardized application.

Coding: According to Recommendation ITU-T E.118 [4]. Hexadecimal. The coding is right justified and padded with 'F' on the left.

Digits 15 up to 22 **Application provider field Optional. Up to 8 digits**

Purpose: The use of this field is entirely up to the application provider. It may, for instance, be used to indicate "local" versions, revisions, etc. of the ETSI or 3G standardized application. According to ISO/IEC 7816-4 [3], if the AID is 16 bytes long, then the value 'FF' for the least significant byte (digits 21 and 22) is reserved for future use.

Management: Application provider.

Coding: Hexadecimal.

NOTE 2: Digits 1 to 14 are assigned and registered by the ETSI Secretariat upon request by the responsible ETSI technical body.

5 Use of the Application IDentifier (AID)

The use of the AID is specified in ISO/IEC 7816-4 [3].

6 Toolkit Application Reference (TAR)

The Toolkit Application Reference (TAR) is used to uniquely identify a second level application (e.g. Toolkit Application).

To be addressed, the Toolkit Application needs a first level application (e.g. GSM, USIM application) running.

A second level application may have several TAR values assigned.

The TAR values in the range '00 00 01' to 'AF FF FF' and 'C0 00 00' to 'FF FF FF' are under the responsibility of the first level application issuer.

The TAR values '00 00 00' and in the range 'B0 00 00' to 'BF FF FF' are reserved for allocation (by the ETSI Technical Body responsible for the present document) to generic second level application independent of the first level application issuer.

It is not mandatory for a second level application to have a TAR value assigned. If a TAR value is assigned to a second level application it is not mandatory for this value to be included in the AID. As a consequence, the AID coding of the second level application might not always comply with the present document (see annex B).

Annex D lists the TAR values or range and their associated applications and application categories.

Table 6.1: Void

7 Tag-Length-Value (TLV) data objects

7.1 TLV data object forms

7.1.0 Introduction

The encoding of data objects shall consist of three components that appear in the following order:

1) Tag (T).
2) Length (L).
3) Value (V).

The encoding of these components for each of the recognized forms of TLV is given in table 7.1.

Table 7.1

Name of TLV	Encoding of tag field	Encoding of length field	Encoding of value field
BER-TLV	See ISO/IEC 8825-1 [15]	See clause 7.1.2	See ISO/IEC 8825-1 [15]
COMPACT-TLV	See ISO/IEC 7816-4 [3]	See ISO/IEC 7816-4 [3]	See ISO/IEC 7816-4 [3]
COMPREHENSION-TLV	See clause 7.1.1	See clause 7.1.2	See ISO/IEC 7816-4 [3]

7.1.1 COMPREHENSION-TLV tag coding

7.1.1.0 Introduction

COMPREHENSION-TLV tags can be in one of two formats: single byte and three-byte format.

The value of the first byte identifies the format used.

Table 7.2

First byte value	Format
'00'	Not used
'01' to '7E'	Single byte
'7F'	Three-byte
'80'	Reserved for future use
'81' to 'FE'	Single byte
'FF'	Not used

The same value in the different formats represents the same data object.

Unless otherwise stated, for COMPREHENSION-TLV it is the responsibility of the UICC application and the terminal to decide the value of the Comprehension Required (CR) flag for each data object in a given command.

Handling of the CR flag is the responsibility of the receiving entity.

Table 7.3

CR	Value
Comprehension required	1
Comprehension not required	0