

ETSI TS 132 182 V15.0.0 (2018-07)



**Universal Mobile Telecommunications System (UMTS);
LTE;
Telecommunication management;
User Data Convergence (UDC);
Common baseline information model (CBIM)
(3GPP TS 32.182 version 15.0.0 Release 15)**



Reference

RTS/TSGS-0532182vf00

Keywords

LTE,UMTS

ETSI

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
Sous-Préfecture de Grasse (06) N° 7803/88

Important notice

The present document can be downloaded from:

<http://www.etsi.org/standards-search>

The present document may be made available in electronic versions and/or in print. The content of any electronic and/or print versions of the present document shall not be modified without the prior written authorization of ETSI. In case of any existing or perceived difference in contents between such versions and/or in print, the only prevailing document is the print of the Portable Document Format (PDF) version kept on a specific network drive within ETSI Secretariat.

Users of the present document should be aware that the document may be subject to revision or change of status.

Information on the current status of this and other ETSI documents is available at

<https://portal.etsi.org/TB/ETSIDeliverableStatus.aspx>

If you find errors in the present document, please send your comment to one of the following services:

<https://portal.etsi.org/People/CommiteeSupportStaff.aspx>

Copyright Notification

No part may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm except as authorized by written permission of ETSI.

The content of the PDF version shall not be modified without the written authorization of ETSI.

The copyright and the foregoing restriction extend to reproduction in all media.

© ETSI 2018.

All rights reserved.

DECT™, **PLUGTESTS™**, **UMTS™** and the ETSI logo are trademarks of ETSI registered for the benefit of its Members.

3GPP™ and **LTE™** are trademarks of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners.

oneM2M logo is protected for the benefit of its Members.

GSM® and the GSM logo are trademarks registered and owned by the GSM Association.

Intellectual Property Rights

Essential patents

IPRs essential or potentially essential to normative deliverables may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: *"Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards"*, which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (<https://ipr.etsi.org/>).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

Trademarks

The present document may include trademarks and/or tradenames which are asserted and/or registered by their owners. ETSI claims no ownership of these except for any which are indicated as being the property of ETSI, and conveys no right to use or reproduce any trademark and/or tradename. Mention of those trademarks in the present document does not constitute an endorsement by ETSI of products, services or organizations associated with those trademarks.

Foreword

This Technical Specification (TS) has been produced by ETSI 3rd Generation Partnership Project (3GPP).

The present document may refer to technical specifications or reports using their 3GPP identities, UMTS identities or GSM identities. These should be interpreted as being references to the corresponding ETSI deliverables.

The cross reference between GSM, UMTS, 3GPP and ETSI identities can be found under <http://webapp.etsi.org/key/queryform.asp>.

Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the [ETSI Drafting Rules](#) (Verbal forms for the expression of provisions).

"**must**" and "**must not**" are **NOT** allowed in ETSI deliverables except when used in direct citation.

Contents

Intellectual Property Rights	2
Foreword.....	2
Modal verbs terminology.....	2
Foreword.....	5
Introduction	5
1 Scope	6
2 References	6
3 Definitions and abbreviations.....	6
3.1 Definitions	6
3.2 Abbreviations	7
4 Modelling Approach.....	8
5 Information Object Classes	8
5.1 Imported Information Entities and Local Labels	8
5.2 Class Diagram	8
5.2.1 Attributes and relationships	8
5.2.2 Inheritance	9
5.3 Information Object Class Definitions.....	10
5.3.1 EndUser	10
5.3.1.1 Definition	10
5.3.2 Identifier	10
5.3.2.1 Definition	10
5.3.3 UdcServiceProfile.....	10
5.3.3.1 Definition	10
5.3.4 EndDevice.....	10
5.3.4.1 Definition	10
5.3.5 UdcCsServiceProfile.....	10
5.3.5.1 Definition	10
5.3.6 UdcGprsServiceProfile	10
5.3.6.1 Definition	10
5.3.7 UdcEpsServiceProfile.....	11
5.3.7.1 Definition	11
5.3.8 UdcImsServiceProfile.....	11
5.3.8.1 Definition	11
5.3.9 MSISDN.....	11
5.3.9.1 Definition	11
5.3.10 IMSI.....	11
5.3.10.1 Definition	11
5.3.11 IMPI.....	11
5.3.11.1 Definition	11
5.3.12 IMPU.....	11
5.3.12.1 Definition	11
5.3.13 E164.....	12
5.3.13.1 Definition	12
5.3.14 NAI	12
5.3.14.1 Definition	12
5.3.15 TelURI.....	12
5.3.15.1 Definition	12
5.3.16 SIPURI.....	12
5.3.16.1 Definition	12
5.3.17 UdcEndUserGroup	12
5.3.17.1 Definition	12
5.3.18 UdcSubscription	12

5.3.18.1	Definition	12
5.4	Information Relationship Definitions	12
5.4.1	SubscriptionDeterminesSP	12
5.4.1.1	Definition	12
5.4.2	SPMayIncludeID	13
5.4.2.1	Definition	13
5.4.3	EUHasSP	13
5.4.3.1	Definition	13
5.4.4	IdentifierPairsIdentifier	13
5.4.4.1	Definition	13
5.4.5	EUIdentifiedByID	13
5.4.5.1	Definition	13
5.4.6	GroupMembership	13
5.4.6.1	Definition	13
5.4.7	TemporarilyPaired	13
5.4.7.1	Definition	13
5.4.8	CSSPcontainsMSISDN	13
5.4.8.1	Definition	13
5.4.9	GPRSSPcontainsMSISDN	14
5.4.9.1	Definition	14
5.4.10	EPSSPcontainsMSISDN	14
5.4.10.1	Definition	14
5.4.11	IMSSPcontainsIMPU	14
5.4.11.1	Definition	14
5.4.12	MSISDNPairsIMSI	14
5.4.12.1	Definition	14
5.4.13	IMPIDerivesFromIMSI	14
5.4.13.1	Definition	14
5.4.14	IMPUPairsOrDerivesFromIMPI	14
5.4.14.1	Definition	14
5.4.15	IMPUDerivesFromIMSI	14
5.4.15.1	Definition	14
5.4.16	MSISDNTakesFormatOfE164	15
5.4.16.1	Definition	15
5.4.17	IMPITakesFormatOfNAI	15
5.4.17.1	Definition	15
5.4.18	IMPUTakesFormatOfTelURI	15
5.4.18.1	Definition	15
5.4.19	IMPUTakesFormatOfSIPURI	15
5.4.19.1	Definition	15
5.4.20	TelURIDerivesFromE164	15
5.4.20.1	Definition	15
Annex A (informative): Change history		16
History		17

Foreword

This Technical Specification has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

- x the first digit:
 - 1 presented to TSG for information;
 - 2 presented to TSG for approval;
 - 3 or greater indicates TSG approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

Introduction

User Data Convergence (UDC) presents a layered architecture where user data is accessible at a logically unique repository called User Data Repository (UDR). One or more dataless applications access the user data that is stored in the UDR. In this context, applications can be front ends, for example an HSS-FE or an HLR-FE, or application servers. In order to support UDC, a Common Baseline Information Model is defined in this specification.

1 Scope

The present document specifies a Common Baseline Information Model for UDC [2]. This information model denotes an abstract, formal representation of entity types that are common to many applications using the UDR. CBIM describes the basic IOCs of UDC, their properties and their relationships. Detailed requirements for the specification of this Common Baseline Information Model are given in 3GPP TR 22.985 [2] and 3GPP TS 22.101 [3].

From the Common Baseline Information Model specialized information models and data models can be derived. All these derived models are out of the scope of this specification.

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] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".
- [2] 3GPP TR 22.985: "Service requirement for the User Data Convergence (UDC)".
- [3] 3GPP TS 22.101: "Service aspects; Service principles".
- [4] 3GPP TS 32.151: "Integration Reference Point (IRP) Information Service (IS) template (Release 8)".
- [5] 3GPP TS 32.152: "Integration Reference Point (IRP) Information Service (IS) Unified Modelling Language (UML) repertoire (Release 8)".
- [6] 3GPP TS 23.003: "Numbering, addressing and identification; (Release 8)".
- [7] 3GPP TS 23.228: "IP Multimedia Subsystem (IMS); Stage 2; (Release 8)".
- [8] ITU-T Recommendation E.164: "The International Public Telecommunication Numbering Plan".
- [9] IETF RFC 4282: "The Network Access Identifier".
- [10] IETF RFC 3966: "The tel URI for Telephone Numbers".
- [11] IETF RFC 3261: "SIP: Session Initiation Protocol".
- [12] 3GPP TS 32.181: "User Data Convergence; Framework for Model Handling and Management".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in TR 21.905 [1] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in TR 21.905 [1].

Common Baseline Information Model: an abstract, formal representation of entity types common to many applications using the UDR. CBIM describes the basic IOCs of UDC, their properties and their relationships, so that these IOCs constitute the baseline for any given application. Therefore, CBIM provides flexibility (in its data structure

and content), extensibility and multi-application approach. In particular, CBIM provides support for the concepts of Subscription, Service Profile, End User, Identifiers, End User Group, and End Device, among others. CBIM does not define the models that are associated with each application and that are under their responsibility.

3.2 Abbreviations

For the purposes of the present document, the abbreviations given in TR 21.905 [1] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in TR 21.905 [1].

CBIM	Common Baseline Information Model
UE	User Equipment
FE	Front End
IRP	Integration Reference Point
IMPI	IP Multimedia Private User Identity
IMPU	IP Multimedia Public User Identity
IMS	IP Multimedia Subsystem
IMSI	International Mobile Subscriber Identity
ISDN	Integrated Services Digital Network
IS	Information Service
ISIM	IM Services Identity Module
MSISDN	Mobile Subscriber ISDN Number
NAI	Network Access Identifier
UDC	User Data Convergence
UDR	User Data Repository
UML	Unified Modelling Language
URI	Uniform Resource Identifier

4 Modelling Approach

The CBIM is not an Integration Reference Point (IRP) as it is not used for a management interface; however this specification follows the IRP IS template specified in 3GPP TS 32.151 [4] and reuses the UML repertoire described in 3GPP TS 32.152 [5].

NOTE: The intention of CBIM is to provide the basic common IOCs of UDC, including their definitions and relationships. Attributes of the IOCs are not intended to be part of this specification.

5 Information Object Classes

5.1 Imported Information Entities and Local Labels

5.2 Class Diagram

5.2.1 Attributes and relationships

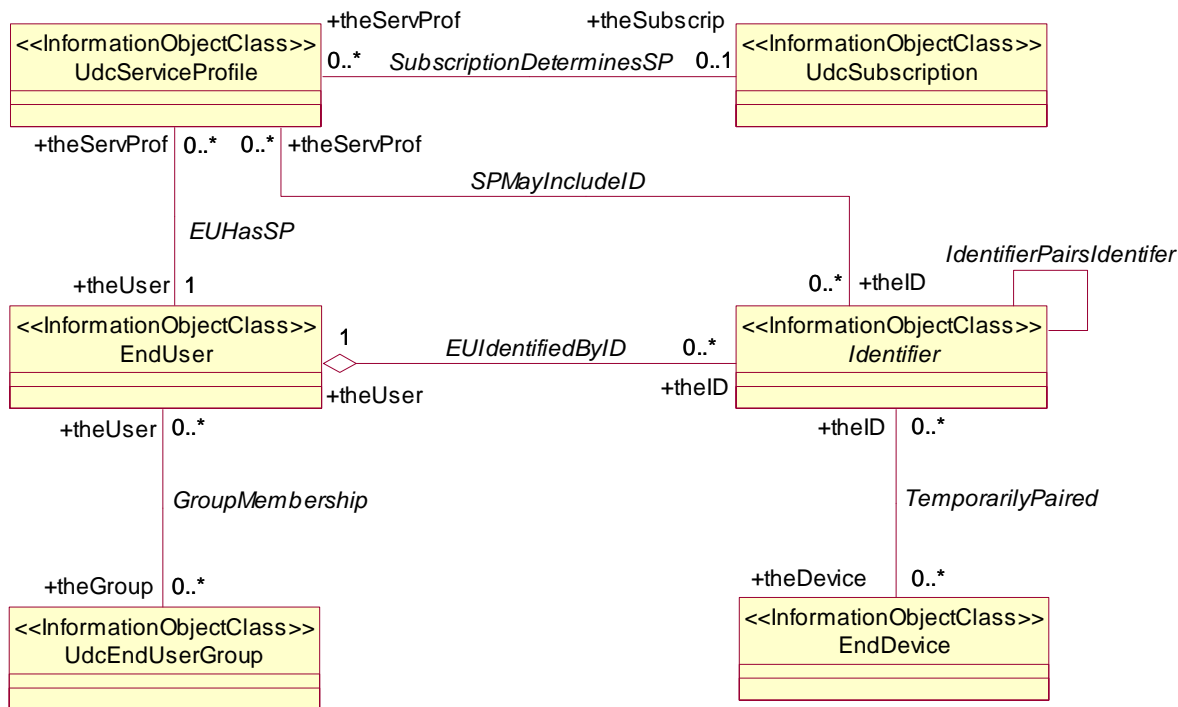


Figure 5.2.1-1: UDC CBIM Core View

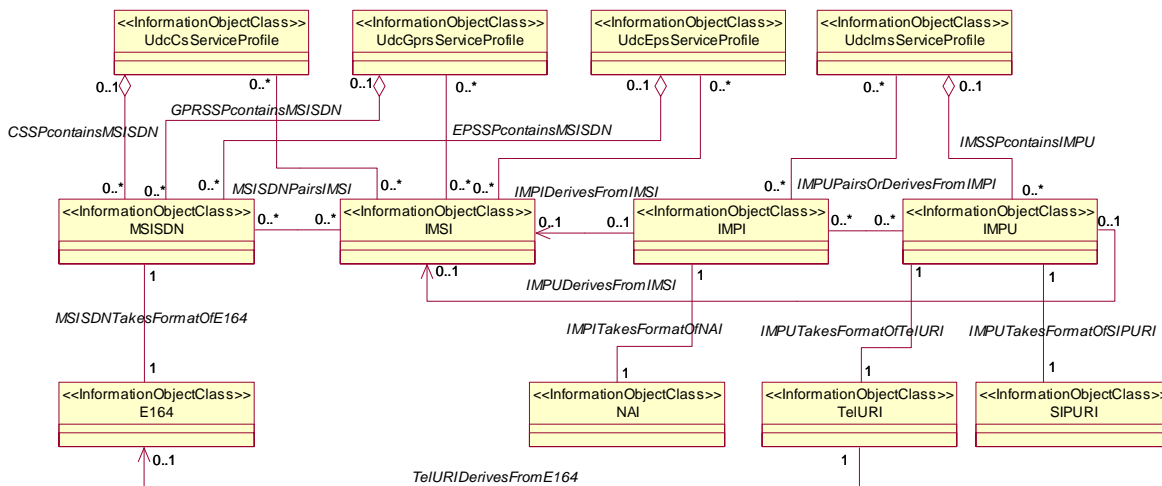


Figure 5.2.1-2: Identifiers

5.2.2 Inheritance

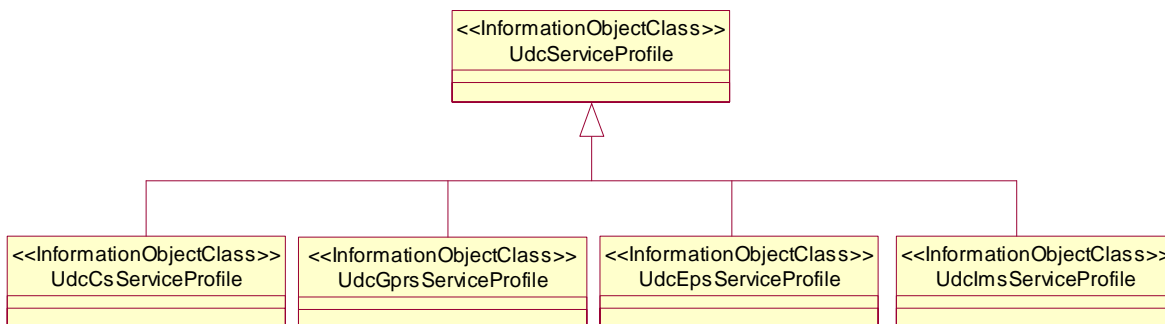


Figure 5.2.2-1: UdcServiceProfile inheritance

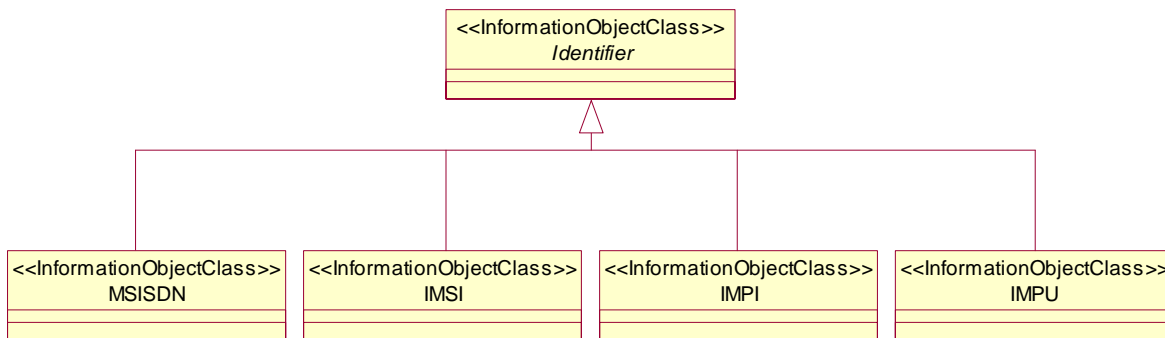


Figure 5.2.2-2: Identifier inheritance

5.3 Information Object Class Definitions

5.3.1 EndUser

5.3.1.1 Definition

In this context this object class represents an End User (as per 3GPP TS 21.905 [1]). This class represents the view that the telecommunication network has about the end user and contains the valid parameters that define the End User from UDC point of view. An `EndUser` object class has an End-User Identity attribute (EUI), which is described in 3GPP TS 21.905 [1].

5.3.2 Identifier

5.3.2.1 Definition

This abstract object class represents an end user identifier that is used within the network so that the different network functionalities can be used (mobility management, authentication, and service usage). This is an abstract IOC that can be inherited by the real identifier used in the network, like IMSI, MSISDN, IMPI, IMPU, etc.

NOTE: This object does not include identities that are not associated to a user, such as an IMEI, hostID, etc.

5.3.3 UdcServiceProfile

5.3.3.1 Definition

This object class represents the data characterizing a service assigned to an `EndUser`. It includes service preferences and settings chosen for an `EndUser`. The service profile contains the permanent and temporary data pertaining to an end user that is subscribed to a service. This IOC can be inherited by different service profiles, such as CS, GPRS, EPS, IMS service profiles and so on.

5.3.4 EndDevice

5.3.4.1 Definition

This object class represents a composite of hardware and software that implements service terminal functions and that the `EndUser` operates in order to get access to telecommunication services.

5.3.5 UdcCsServiceProfile

5.3.5.1 Definition

This object class represents the part of the `UdcServiceProfile` that contains data related to Circuit-Switched services. An example of further specialization of this object class, including attributes, is provided in 3GPP TS 32.181 [12].

5.3.6 UdcGprsServiceProfile

5.3.6.1 Definition

This object class represents the part of the `UdcServiceProfile` that contains data related to Packet-Switched services. An example of further specialization of this object class, including attributes, is provided in 3GPP TS 32.181 [12].

5.3.7 UdcEpsServiceProfile

5.3.7.1 Definition

This object class represents the part of the `UdcServiceProfile` that contains data related to the Evolved Packet System services. An example of further specialization of this object class, including attributes, is provided in 3GPP TS 32.181 [12].

5.3.8 UdcImsServiceProfile

5.3.8.1 Definition

This object class represents the part of the `UdcServiceProfile` that contains data related to IMS services. An example of further specialization of this object class, including attributes, is provided in 3GPP TS 32.181 [12].

5.3.9 MSISDN

5.3.9.1 Definition

In this context this object class represents a Mobile Subscriber Integrated Services Digital Network Number (as per 3GPP TS 23.003 [6]). An MSISDN is allocated from an E.164 numbering plan.

5.3.10 IMSI

5.3.10.1 Definition

In this context this object class represents an International Mobile Subscriber Identity (as per 3GPP TS 23.003 [6]).

5.3.11 IMP I

5.3.11.1 Definition

In this context this object class represents an IMS Private User Identity (as per 3GPP TS 23.228 [7]). The Private User Identity takes the form of a Network Access Identifier (NAI), which is defined in IETF RFC 4282 [9]. It is possible for a representation of the IMSI to be contained within the NAI for the private user identity.

5.3.12 IMPU

5.3.12.1 Definition

In this context this object class represents an IMS Public User Identity (as per 3GPP TS 23.228 [7]). An IMPU takes the form of either a SIP URI (see IETF RFC 3261 [11]) or a Tel URI (see IETF RFC 3966 [10]). For UEs that are not equipped with an ISIM application, it is possible to derive a temporary IMPU from the IMSI (see 3GPP TS 23.003 [6] for details).

5.3.13 E164

5.3.13.1 Definition

This object class represents a telephone number crafted according to ITU-T Recommendation E.164 [8].

5.3.14 NAI

5.3.14.1 Definition

This object class represents a Network Access Identifier (as per IETF RFC 4282 [9]).

5.3.15 TelURI

5.3.15.1 Definition

This object class represents a telephone URI (as per IETF RFC 3966 [10]).

5.3.16 SIPURI

5.3.16.1 Definition

This object class represents a SIP URI (as per IETF RFC 3261 [11]).

5.3.17 UdcEndUserGroup

5.3.17.1 Definition

This IOC represents a grouping of several End Users by the operator. The IOC includes information that describes the grouping and criteria for membership.

Examples of `UdcEndUserGroup` may include the following: Closed User Group, VPN, and market segments.

5.3.18 UdcSubscription

5.3.18.1 Definition

This IOC represents common data shared by a group of `UdcServiceProfile` instances. This IOC exists due to the relationship of a subscriber to the service provider. The end user can be attached to different UDC subscriptions through UDC Service Profiles for different service usage (e.g. for a private and a professional service usage).

Editor's Note: The relationship between Identifier and `UdcSubscription` is left for further study.

5.4 Information Relationship Definitions

5.4.1 SubscriptionDeterminesSP

5.4.1.1 Definition

This represents the association established between `UdcSubscription` and `UdcServiceProfile` due to common data shared by a group of `UdcServiceProfile` instances.

5.4.2 SPMayIncludeID

5.4.2.1 Definition

This represents the association established between `Identifier` and `UdcServiceProfile`.

5.4.3 EUHasSP

5.4.3.1 Definition

This represents the association established between `UdcServiceProfile` and `EndUser` due to the fact that any end user who is receiving a service has a service profile associated to it.

5.4.4 IdentifierPairsIdentifier

5.4.4.1 Definition

This represents the relation established by instances of `Identifier` with other instances of `Identifier`. For example, one instance of `Identifier` can be an `IMPU` IOC, and the other an `IMPI` IOC. The relation of both is generically described by this relationship.

5.4.5 EUIdentifiedByID

5.4.5.1 Definition

This represents an instance of `EndUser` that aggregates instances of `Identifier`.

5.4.6 GroupMembership

5.4.6.1 Definition

This represents the association established between `EndUser` and `UdcEndUserGroup` determined due to the operator selecting instances of `EndUser` belonging to `UdcEndUserGroup`.

5.4.7 TemporarilyPaired

5.4.7.1 Definition

This represents the temporarily association established between `EndDevice` and `Identifiers`, and vice versa. The relation is determined by an identifier (such as an `MSISDN` or an `IMPU`) being used from end devices, and from an end device being used by identifiers.

5.4.8 CSSPcontainsMSISDN

5.4.8.1 Definition

This represents an aggregation from `UdcCsServiceProfile` to `MSISDN`.

5.4.9 GPRSSPcontainsMSISDN

5.4.9.1 Definition

This represents an aggregation from `UdcGprsServiceProfile` to one or more instances of `MSISDN`.

5.4.10 EPSSPcontainsMSISDN

5.4.10.1 Definition

This represents an aggregation from `UdcEpsServiceProfile` to `MSISDN`.

5.4.11 IMSSPcontainsIMPU

5.4.11.1 Definition

This represents an aggregation from `UdcImsServiceProfile` to `IMPU`.

5.4.12 MSISDNPairsIMSI

5.4.12.1 Definition

This represents the association established between `MSISDN` and `IMSI`. This might be the case when an `MSISDN` uses `IMSI`s included in a SIM application for authentication purposes.

5.4.13 IMPIDerivesFromIMSI

5.4.13.1 Definition

This represents the association established when an `IMPI` is built from the contents of an `IMSI`. This might be the case when a UE that is accessing IMS services is not equipped with a `ISIM` application, but just a `USIM` application in the `UICC`. See details of the derivation process in 3GPP TS 23.003 [6].

5.4.14 IMPUPairsOrDerivesFromIMPI

5.4.14.1 Definition

This represents the association established when an `IMPU` is paired with an `IMPI`, where the `IMPI` is used for authentication purposes of that `IMPU`.

5.4.15 IMPUDerivesFromIMSI

5.4.15.1 Definition

This represents the association established when an `IMPU` is derived from an `IMSI`. This might be the case when a UE that is accessing IMS services is not equipped with an `ISIM` application, but a `USIM` application in the `UICC`. See details of the derivation process in 3GPP TS 23.003 [6].

5.4.16 MSISDNTakesFormatOfE164

5.4.16.1 Definition

This represents the association established when an MSISDN is created from an E.164 number.

5.4.17 IMPITakesFormatOfNAI

5.4.17.1 Definition

This represents the association established when the IMPI takes the format of a NAI. See details in 3GPP TS 23.003 [6].

5.4.18 IMPUTakesFormatOfTelURI

5.4.18.1 Definition

This represents the association established when an IMPU takes the format of a Tel URI. See details in 3GPP TS 23.003 [6].

5.4.19 IMPUTakesFormatOfSIPURI

5.4.19.1 Definition

This represents the association established when an IMPU takes the format of a SIP URI. See details in 3GPP TS 23.003 [6].

5.4.20 TelURIDerivesFromE164

5.4.20.1 Definition

This represents the association established when a Tel URI is derived from an E.164 number.

Annex A (informative): Change history

Change history							
Date	TSG #	TSG Doc.	CR	Rev	Subject/Comment	Old	New
2009-12	SA#46	SP-090727	--	--	Presentation to SA for information	---	1.0.0
2010-03	SA#47	SP-100067	--	--	Presentation to SA for Approval	1.0.0	2.0.0
2010-03	--	--	--	--	Publication of SA approved version	2.0.0	9.0.0
2011-03	-	-	-	-	Update to Rel-10 version (MCC)	9.0.0	10.0.0
2012-09	-	-	-	-	Update to Rel-11 version (MCC)	10.0.0	11.0.0
2014-10	-	-	-	-	Update to Rel-12 version (MCC)	11.0.0	12.0.0
2016-01	-	-	-	-	Update to Rel-13 version (MCC)	12.0.0	13.0.0
2017-03	-	-	-	-	Update to Rel-14 version (MCC)	13.0.0	14.0.0
2018-06	-	-	-	-	Update to Rel-15 version (MCC)	14.0.0	15.0.0

History

Document history		
V15.0.0	July 2018	Publication