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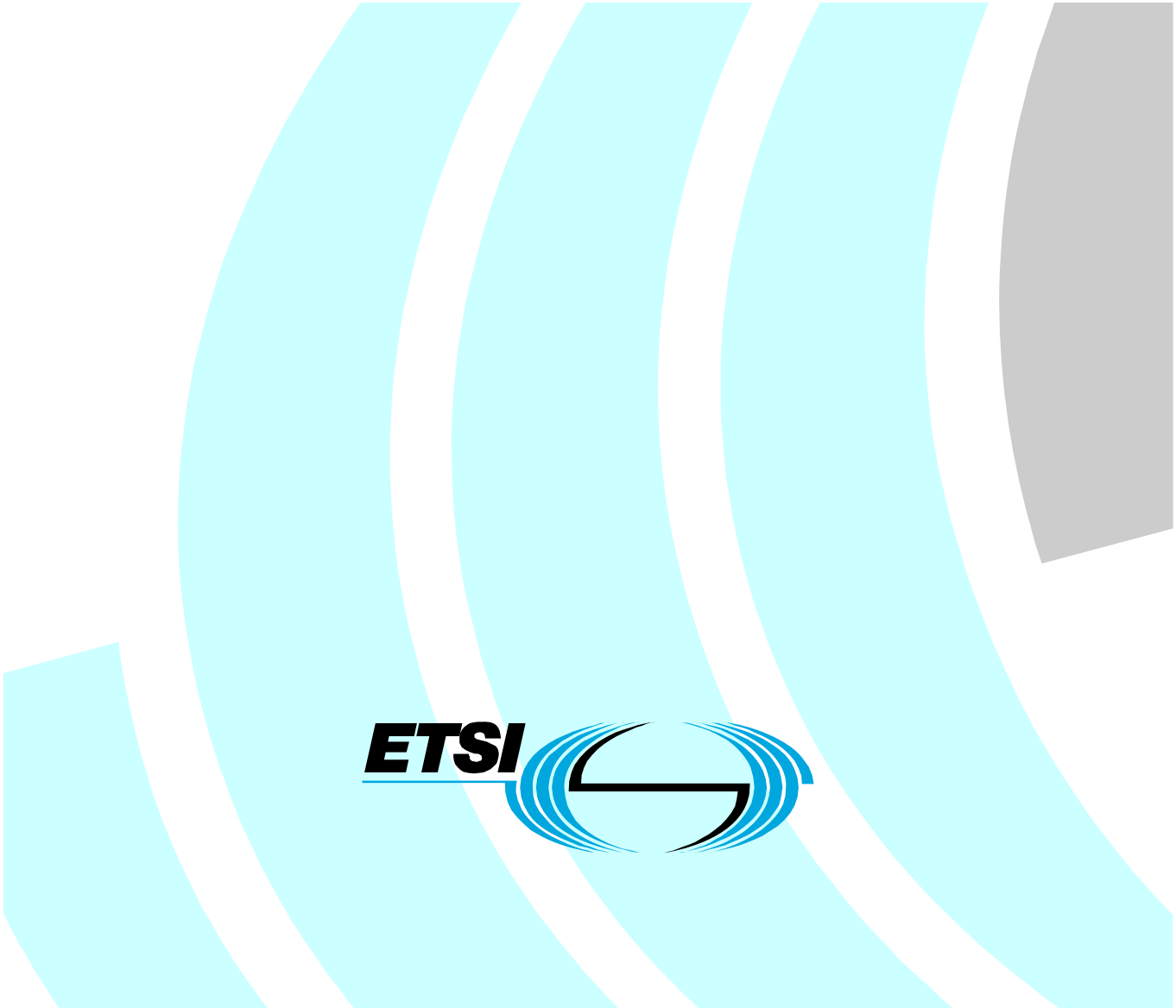
ETSI Standard

Human Factors (HF); Personalization and User Profile Management; User Profile Preferences and Information



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Contents

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Foreword

This ETSI Standard (ES) has been produced by ETSI Technical Committee Human Factors (HF), and is now submitted for the ETSI standards Membership Approval Procedure.

Introduction

The present document specifies information and preferences, which are choices made by the user, that will result in driving the behaviour of the system, and builds on the user profile concept described in EG 202 325 [i.1]. The concept of a user profile usually refers to a set of preferences, information and rules that are used by a device or service to deliver a customized version of capabilities to the user. In practice, most devices and services contain profiles specific to that product and unrelated to any other. This requires that, on change of service or device, the user has to re-educate themselves in how to personalize their services or devices and re-enter their information and preferences. This will result in variable success rate and user satisfaction.

There will be a number of user characteristics and preferences that will apply independently of any particular product (e.g. a user's preferred language or their need for enlarged text). A key objective is that users should not be required to provide this information more times than is necessary. Users move from one situation to another throughout the day (e.g. at home, driving, working). In each of these situations, users may have different needs for how they would like their ICT resources arranged. At present, an increasing number of products provide the user with ways of tailoring their preferences to these different situations. Users should be able to specify their context dependent needs in ways that require the minimum need to understand the individual products. In addition, personalization and user profile management holds the promise of improving the uptake of new technologies and allowing greater access to their benefits.

Any information/preference can be used as needed by the service/device, regardless of in which clause it appears. Further details on the organization of the information in the tables specifying the information and preferences in the tables are given in informative annex A.

The Design for All approach has been adopted in the present document. It means that accessibility is considered as something that can benefit people whether or not they have disabilities. Annex B provides a selection of preferences, referring to the various clauses which can be useful for people with disabilities.

The URI root is upm-ns, identified by xmlns:upm-ns=http://www.etsi.org/upm.

Additional namespaces are:

- xmlns:profile-management-ns=http://www.etsi.org/upm/profile-management;
- xmlns:personal-information-ns=http://www.etsi.org/upm/personal-information;
- xmlns:connectivity-preferences-ns=http://www.etsi.org/upm/connectivity-preferences;
- xmlns:interaction- preferences-ns=http://www.etsi.org/upm/interaction- preferences;
- xmlns:notifications-ns=http://www.etsi.org/upm/interaction-preferences/notifications;
- xmlns:communication-handling-ns=http://www.etsi.org/upm/communication-handling;
- xmlns:consume-content-ns=http://www.etsi.org/upm/consume-content;
- xmlns:way-finding-ns=http://www.etsi.org/upm/way-finding.

1 Scope

The present document specifies a set of user profile preference and information settings for deployment in ICT services and devices for use by ICT users and suppliers.

The present document specifies:

- objects including settings, values and operations;
- a rule definition language for defining functionality such as automatic modification of profiles.

Profile solutions within the scope of the present document are:

- those provided for the primary benefit of the end-user;
- those which the end-user has rights to manage the profile contents;
- those where the end-user has the right to have a dialogue with the information owning stakeholder.

Intended readers of the present document are user profile providers, operators, service developers, service providers, device manufacturers, standards developers.

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.
- Non-specific reference may be made only to a complete document or a part thereof and only in the following cases:
  - if it is accepted that it will be possible to use all future changes of the referenced document for the purposes of the referring document;
  - for informative references.

Referenced documents which are not found to be publicly available in the expected location might be found at http://docbox.etsi.org/Reference.

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

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 102 747: "Human Factors (HF); Personalization and User Profile Management; Architectural Framework".

[2] ETSI TS 102 334-3: "Network Address Book on fixed network; Part 3: vCard 2.1 profile for contact exchange by SMS/EMS for fixed network".

[3] Cascading Style Sheets Level 2 Revision 1 (CSS 2.1) Specification.

NOTE: See http://www.w3.org/TR/CSS2/.

[4] XML Schema Part 2: Datatypes Second Edition (October 2004).

NOTE: See http://www.w3.org/TR/xmlschema-2/.

[5] PICSRules 1.1 - W3C Recommendation.

NOTE: See: http://www.w3.org/TR/REC-PICSRules.

[6] ISO 639-3: "Codes for the representation of names of languages - Part 3: Alpha-3 code for comprehensive coverage of languages.

[7] ISO 8601: "Data elements and interchange formats - Information interchange - Representation of dates and times".

[8] ISO 4217 (2008): "Codes for the representation of currencies and funds".

[9] ISO/IEC 24751-2 (2008): "Information technology - Individualized adaptability and accessibility in e-learning, education and training - Part 2: "Access for all" personal needs and preferences for digital delivery".

[10] IANA - MIME Media Types.

NOTE: See: http://www.iana.org/assignments/media-types.

[11] IETF RFC 4482 (2006): "CIPID Contact Information for the Presence Information Data Format".

NOTE: See: http://www.ietf.org/rfc/rfc4482.txt.

[12] IETF RFC 4589 (2006): "Location Types Registry".

NOTE: See: http://tools.ietf.org/html/rfc4589#page-3.

[13] IETF RFC 4119 (2005): "A Presence-based GEOPRIV Location Object Format".

NOTE: See: http://www.ietf.org/rfc/rfc4119.txt.

[14] IETF RFC 5545: "Internet Calendaring and Scheduling Core Object Specification (iCalendar)".

NOTE: See: http://tools.ietf.org/html/rfc5545.

[15] IETF RFC 3863: "Presence Information Data Format (PIDF)".

NOTE: See: http://www.apps.ietf.org/rfc/rfc3863.html.

[16] IPTC Subject Reference System Guidelines (2003).

NOTE: See: http://www.iptc.org/std/NewsCodes/0.0/documentation/SRS-doc-Guidelines_3.pdf.

[17] Doc 9674 - AN/946 - World Geodetic System - 1984 (WGS-84) implementation manual.

NOTE: See: http://www.dqts.net/files/wgsman24.pdf.

[18] vCard: The Electronic Business Card, Version 2.1.

NOTE: See: http://www.imc.org/pdi/vcard-21.txt.

[19] RFC 4480: "RPID: Rich Presence Extensions to the Presence Information Data Format (PIDF)".

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.

[i.1] ETSI EG 202 325: "Human Factors (HF); User Profile Management".

[i.2] ETSI EG 202 116: "Human Factors (HF); Guidelines for ICT products and services; "Design for All".

[i.3] ETSI EG 284 004: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Incorporating Universal Communications Identifier (UCI) support into the specification of Next Generation Networks (NGN)".

3 Definitions and abbreviations

3.1 Definitions

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

accessibility: ensuring that all sectors of the community have equal access to communications and online information

active profile, active user profile: set of all active profile components related to a user

address book: entity that contains a number of records describing contacts of the user

administrator: person who defines profiles with settings and rules

NOTE: also known as profile administrator.

context: any information that can be used to characterize the state of entities that are considered relevant to the interaction between a user and an application, network function, service or device

creation template: template where modifications made to the template will not affect any information, preferences and rules in profiles that were previously created from that template

design for all: design of products to be usable by all people, to the greatest extent possible, without the need for specialized adaptation

live template: template where modifications made to the template will affect all information, preferences and rules in profiles that were previously created from that template

normal profile: user view of information, preferences and rules that are always active in the profile when no specific situation is applicable

object: profile data with attributes, values and operations that the user can refer to when defining their profile

profile: total set of user related information, preferences, rules and settings which affects the way in which a user experiences terminals, devices and services

NOTE: The use of the word profile in the present document implies user profile unless otherwise stated.

profile data: set of user related information, preferences and rules which can be stored in a profile

profile tool: tool that enables a user to view and modify information in profiles

profile provider: entity (e.g. company such as a service provider, organisation such as a special interest or affinity organization) that provide profiles and associated services

rule: statement that can be interpreted by the UPM system to produce or limit an action

situation: state that the user has identified as being of significance

situation profile: user view of user related information, preferences and rules which affects the way in which a user experiences devices and services in a specific situation

template: set of rules and settings provided by an entity as a starting point for users for the creation of their profiles

usability: extent to which a product can be used by specific users to achieve specific goals with effectiveness, efficiency and satisfaction in a specified context of use

user: person using ICT services

user profile: See "profile".

3.2 Abbreviations

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

ACR	Anonymous Communication Rejection
CNAP	Calling Name Presentation
CNAR	Calling Name Restriction
COLR	COnnected Line identification Restriction
CSS	Cascading Style Sheets
GPS	Global Positioning System
ICT	Information and Communications Technologies
IMS	IP Multimedia Subsystem
IP	Internet Protocol
ISDN	Integrated Services Digital Network
OIR	Originating Identification Restriction
PSTN	Public Switched Telephone Network
SMS	Short Message Service
TIR	Terminating Identification Restriction
UCI	Universal Communications Identifier
UID	Unique ID
UPM	User Profile Management
URI	Uniform Resource Identifier
URL	Uniform Resource Locator
XML	Extensible Markup Language

4 Overview of personalization and profile management

4.1 Organization of the profile content

In general, a profile contains:

- Information: data about or related to the user (e.g. name, address).
- Preferences: choices made by the user about a given parameter that will define or modify the system behaviour. More complex preferences can be expressed in the form of rules (see below).

NOTE: When something is considered essential to the user, it would be more appropriate if a preference is instead called a "need" (e.g. a blind user sets the modality to "sound"). However, for simplification, in the present document the word "preference" is used.

- Rules: statements that can be automatically interpreted in order to define or modify the system behaviour.

More specifically, the profile is organized into several blocks. The major organisational units of the profile are:

- Personal information: data about or related to the user (e.g. name, address, location).

- Human centred preferences: These are the overall preferences that might apply across the user's usage of a wide variety of different devices and services.

  As these preferences are not mapped precisely to specific features of services and devices, they may be presented in ways that must be interpreted before they can be used as the definition for a precise setting for a service or device feature.

- Service/device category related information and preferences: The information and preferences in this clause are related to service categories (e.g. Communications services), further sub-categories of the service category (e.g. Realtime communication), and specific services/devices.

Information and preferences need to be associated with a scope, which includes:

- (groups of) services;
- (groups of) devices;
- (groups of) people (e.g. entries in an address book).

A scope may be very narrow (e.g. one specific service) or very broad (e.g. preferred language for all my services).

The values of the profile information and preferences in the profile will be either:

- directly set by the user;
- read from other profile information (e.g. from devices or services);
- set as the result of a rule that is contained in the user's profile.

4.2 Semantic interoperability

User descriptions of information and preferences can differ significantly between different services and devices and even between different contexts of use within the same service/device. However, the formal object descriptions will need to conform to standardized naming conventions, to enable profiles to be migrated between UPM systems.

If data in profile components relating to a device or service have been specified by the user, then related profile fields for other devices or services can be directly populated by the same standardized data or data translated to produce the same effects. Whereas it is essential to have standardized descriptions of these objects in order that profiles can be migrated from one provider to another, this does not imply that users will need to understand these descriptions. In addition, it is possible for a service provider, a manufacturer or an operator to define profile data in addition to those specified in the present document for incorporation in a user profile.

4.3 Profiles and user views

4.3.1 Situations, context and the scope object

Users move between situations throughout the day (e.g. at home, driving, working). In each of these situations, users may have different needs for how they would like their ICT resources arranged. Wherever a user wishes to have different behaviour from their ICT it will first be necessary to identify criteria that uniquely define the situation. These criteria are captured as rules that defines when a Scope object is active (i.e. when it's isActive method evaluates to TRUE). Hence the user concept of a "situation" is represented in the system by a Scope object.

Clause 5.4.4 in TS 102 747 on " Personalization and User Profile Management: Architectural Framework" [1] shows very flexible ways in which the profile data is modified according to the context. However, users will be unable to understand all of the possible implications of the dependency of individual data items on context. For this reason, it is necessary to introduce the concept of User Views of the profile. Although it is possible to create any number of specialized views of the profile, two views that have been defined in EG 202 325 [i.1], and which are described to users as profiles, are the "Normal Profile" and the "Situation Profile". The view that is described as the "Normal Profile" shows all of the profile data that will be applied when no specific user-defined situation applies. This view can be achieved by creating a view of the profile that shows the values of profile data when no Scope object other than the "Normal" Scope object have been activated.

Whereas the "Normal Profile" view shows the values of the items in the user profile, it is useful to show the values of profile data that may need to be set to values relevant to a user-determined situation. There is therefore a need for another view which corresponds to the user concept "situation". Such a view is described in user terms in EG 202 325 [i.1] as the "Situation Profile". In this view the user can see the values assigned to profile data items that may need to have a special value set in that situation. The situation profile view will contain fewer profile data items than the "Normal Profile" view, as it will contain only those data items which are different in that specific situation (i.e. only profile data items associated with the Scope object that represents the user's "situation").

Profile providers may also offer other views of the profile to users. For example, users may wish to see all of their profile as it will be in a particular "situation", not just the standard view that shows those profile data items that are uniquely configured for the current situation.

Profile users should be allowed to view their profiles making use of these user views and, if they have administrator rights, should be allowed to modify the profile data that they see in these views. Modifications to profile data in a user view that shows a "Situation Profile" is a means to allow the modification of the Profile-Item-Attributes associated with that "situation" (i.e. associated with the Scope object that represents that "situation").

Conflicts may appear when two (or more) Scope objects are simultaneously activated, which would result in an attempt to set the same profile data to different values. To avoid this, the UPM system needs to determine which of these alternative values shall be applied. Therefore, priorities are assigned to "Situation Profiles" and/or profile data items. In the UPM system, the priorities are attributes of the Scope objects that are associated with "Situation Profiles" and individual profile data items. If there is an attempt to set two (or more) different values for an item of profile data, then the value of the profile data that is associated with the Scope object with highest priority is set. The mechanisms for handling conflicts and dealing with the situation when priorities still do not resolve a conflict are described in more detail in TS 102 747 [1]. Table 5.3.3 (Scope class) gives the specification of the priority attribute of the Scope object, and defines ranges of priorities to be assigned to different categories of Scope objects (determined by the scope-category attribute of the Scope object).

Profile provider support should assist users in defining priorities to avoid potential conflicts.

4.3.2 Avoiding conflicts by using templates

Potential conflicts (when two or more Scope objects, are trying to set the same data to different values), may be resolved by the use of a well designed set of pre-defined templates that assign priorities to preferences in a way that eliminates conflicts for most probable combinations of situations (Scope objects).

It would be expected that if profile providers assist users to create their profiles by means of a "creation wizard", the wizard would make use of such a coherent set of templates and would thus create an initial profile setup where conflicts are eliminated or confined to extremely unlikely combinations of situations.

4.4 Profile extensions

4.4.1 Additional standardized information and preferences

In addition to profile data items as defined and listed in the present document, it is expected that there will be a need for future additional standardized information and preferences, for which new versions of the present standard will be developed.

4.4.2 Proprietary profile extensions

In addition to profile data items as defined and listed in the present document, it is possible for service developers and device manufactures to include proprietary profile data items in the profile which shall be identifiable as proprietary (e.g. specify the company and/or product identifier for which the proprietary information and preferences are intended for). Proprietary profile extensions are outside the scope of the present document.

5 Profile management

5.1 Introduction

As profile portability (see [i.1]) is an important requirement, there is a need for standardized definitions, information and preferences in this area.

Create and manage a profile is the activity that allows the user to enter information and express preferences in the profile. In this Activity there are two main steps, each of them associated to information and preferences.

1) **Profile identification:** information about the profile and preferences about how to identify it.

2) **Profile management and use:** preferences about the expected behaviour of the system.

5.2 Model

The main system model is shown in figure 5.2.1.

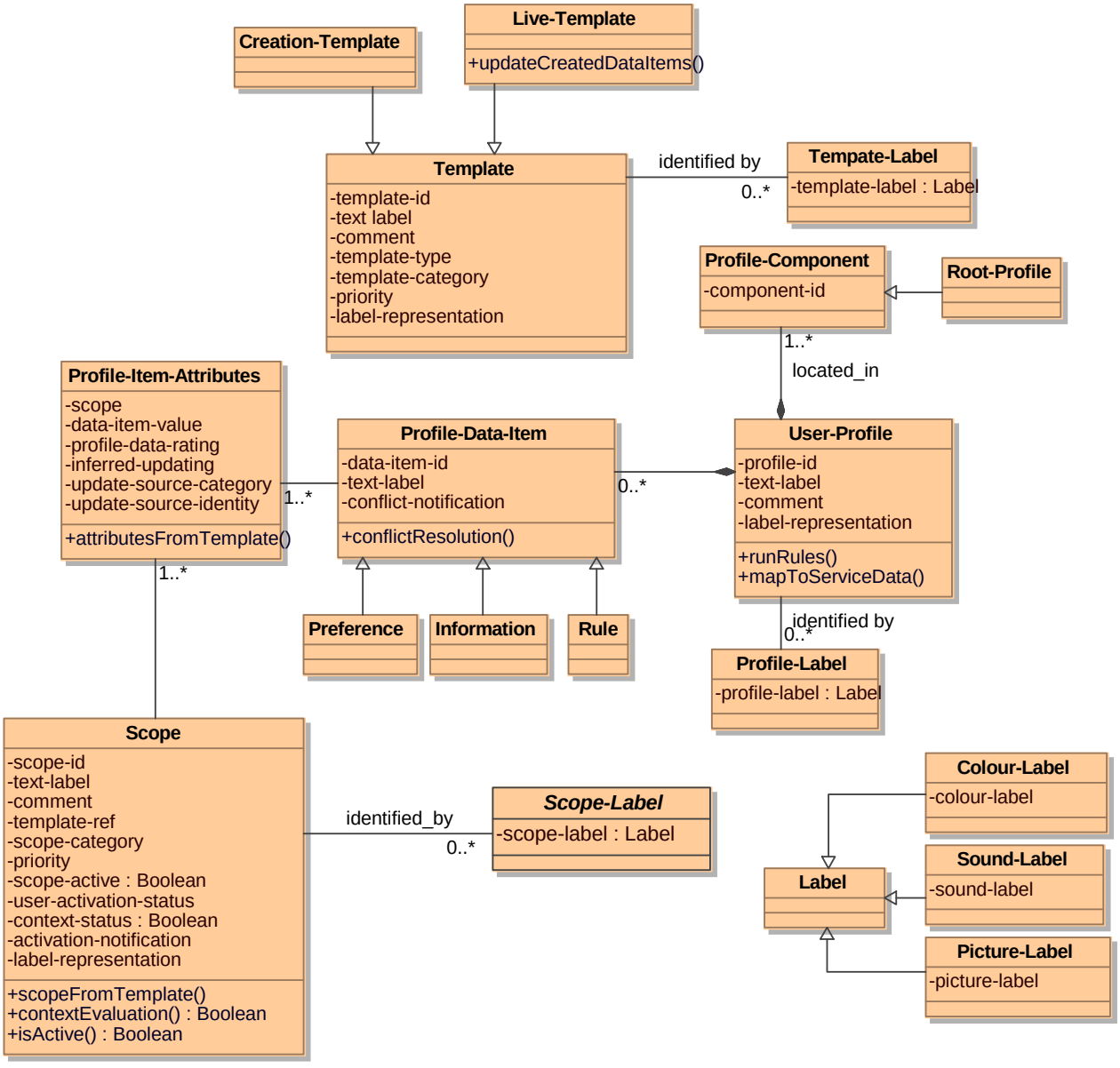

Figure 5.2.1: UPM system model

The object of central importance is the "User-Profile". The profile contains a number of "Profile-Data-Item" that can be either of type "Preference", "Information" or "Rule". The "User-Profile" defines the UPM user's specific personalization requirements at any time.

Another object of crucial importance is the Scope object. Each Scope object relates to a pre-defined state of the UPM system, including the state of external context information provided by the context watcher described in TS 102 747 [1]. When this pre-defined state of the system occurs, the scope-active attribute of the Scope object is set to "true".

Some of these Scope objects relate to states of the system that have significant meaning to the UPM user. Such states of the UPM system are described in user terms as "situations" and the Scope object becomes a link to the system behaviour behind the user's view of a "situation". Situations may be explicitly defined by UPM administrators or, more typically, they will be partially pre-defined in the form of Template objects.

Other Scope objects will pre-exist, or be created by the UPM system, in order to identify other states of the UPM system that are required to successfully achieve the behaviour desired by the UPM user. Those Scope objects that are not intended to be visible to users as "Situation Profiles" will have their scope-category attribute set to "system". A very important Scope is the "normal" Scope that is always active. UPM user's would experience this as the normal state of the UPM system and could be given a view of their profile in this state called a "Normal Profile".

Each Profile-Data-Item has a number of associated attributes, including the actual value of the data item. These attributes of a Profile-Data-Item are encapsulated as the attributes of the Profile-Item-Attributes object.

The required behaviour of the UPM system and the UPM user's devices and services may be different depending on the context, and in particular in different "situations". To achieve this objective, the values of any or all of the attributes represented in a Profile-Item-Attributes object may need to differ according to the current Scope. This required behaviour is achieved by allowing a separate Profile-Item-Attributes object to be defined for each Scope object, with the first attribute of the Profile-Item-Attributes object identifying the Scope with which the Profile-Item-Attributes object is associated (the scope attribute).

There will always be one Profile-Item-Attributes object that is associated with the "normal" Scope and defines the behaviour of the UPM system when no other "situations" occur (i.e. no other Scopes are active).

Rules, preferences and information data items will sometimes need to refer to entities such as devices, services and people (represented as address book entries). In addition it will also be necessary to refer to groups which may contain any of these other types of entity. Figure 5.2.2 shows how all of these objects (Address-Book-Entry, Device, Service, Group) can be generalized into the Addressable-Entity class.

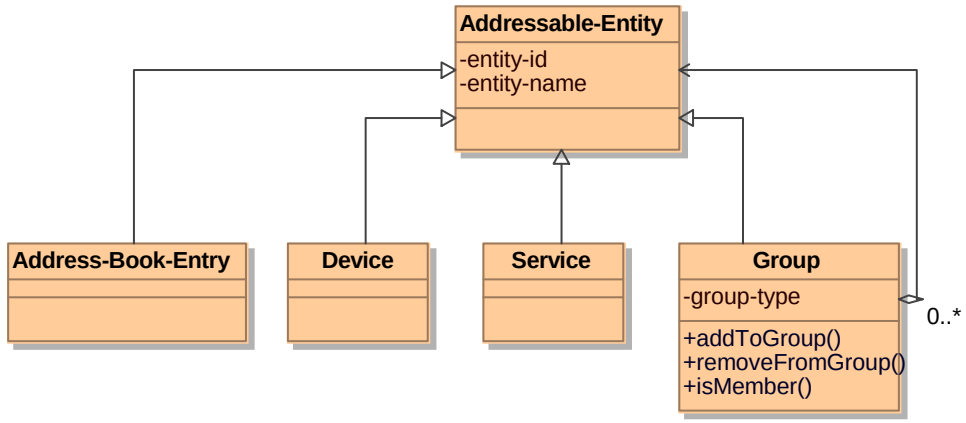

Figure 5.2.2: Addressable entity model

The model in figure 5.2.2 allows a range of different entities, including groups, to be referred to in rules, preferences and information.

5.3 User-Profile object definitions and preferences

Table 5.3.1: User-Profile class

Field name	User-Profile class
profile id	**Description:** *profile id* is the unique identifier of the profile for use by the system. The *profile id* is automatically assigned by the system. **UID:** profile-management-ns:User-Profile/profile-id **Instances:** one **Type:** anyURI
comment	**Description:** The user can write a *comment* that can be useful later for understanding or remembering the use of the profile. **UID:** profile-management-ns:User-Profile/comment **Instances:** one **Type:** string
text label	**Description:** *text label* is used for presenting the name of the profile as a text label. **UID:** profile-management-ns:User-Profile/text-label **Instances:** one **Type:** string **Default value:** System generated default name
label representation	**Description:** *label representation* is used to specify in which form the profile is presented to the user. **UID:** profile-management-ns:User-Profile/label-representation **Instances:** unordered-list **Type:** enumeration **Value range:** text, colour, picture, sound **Default value:** text
User-Profile method: runRules()	**Description:** evaluates and acts on those Profile-Data-Items that contain rules. **UID:** profile-management-ns:User-Profile/runRules
User-Profile method: mapToServiceData()	**Description:** maps the values of profile data to user configuration data held by a service. Where the profile data is associated with the behaviour of specific service features, the mapping provides the service with the data that allows it to operate those service features using the service logic within the service. **UID:** profile-management-ns:User-Profile/ mapToServiceData

Table 5.3.2: Template class

Field name	Template class
template id	**Description:** *template id* is the unique identifier of the template for use by the system. **UID:** profile-management-ns:Template/template-id **Instances:** one **Type:** anyURI
text label	**Description:** *text label* is used for presenting the name of the template as a text label. **UID:** profile-management-ns:Template/text-label **Instances:** one **Type:** string **Default value:** System generated default name
comment	**Description:** The template provider can write a *comment* that can be useful later for understanding or remembering the use of profiles created using this template. **UID:** profile-management-ns:Template/comment **Instances:** one **Type:** string

Field name	Template class
template type	**Description:** *template type* records whether this template is an instance of sub-type Creation-Template or Live-Template. live template: template where modifications made to the template will affect all information, preferences and rules in profiles that were previously created from that template creation template: template where modifications made to the template will not affect any information, preferences and rules in profiles that were previously created from that template **UID:** profile-management-ns:Template/template-type **Instances:** one **Type:** enumeration **Value range:** creation-template, live-template **Default value:** creation-template
template category	**Description:** *template category* specifies the category of the template, which depends on its context of use. The values of priority are related to template- category. **UID:** profile-management-ns:Template/template-category **Instances:** one **Type:** enumeration **Value range:** eHealth, emergency, normal, ordinary-situation, system **Default value:** ordinary-situation **Technical specification:** *eHealth*: category of a scope used for eHealth purposes; *emergency*: category of a scope used for emergency situations; *normal*: category of a scope for use when no other category applies; *ordinary-situation*: category of a scope for multipurpose use, and not specifically for use for eHealth purposes or in emergency situations; *system*: category of scope not intended to be visible to users. This is used for all of the Scopes that the user does not designate as "situation profiles". This includes those associated with the results of conflict resolution, those associated with various communication states, or any other cases where the system needs to store profile items that are related to context or priority or both.
priority	**Description:** *priority* is used in the determination of the correct Profile-Item-Attributes instance to use to set the data-item-value of a Profile-Data-Item (when the scope-active attribute of two or more Scope objects referenced by a Profile-Data-Item are simultaneously TRUE). **UID:** profile-management-ns:Template/priority **Instances:** one **Type:** decimal **Value range:** 0..11 **Default value:** If Scope.scope-category is: *normal*: 0 *ordinary-situation*: 3 *eHealth*: 8 *emergency*: 11 **Technical specification:** The following value (ranges) apply, if Scope.scope-category is: *normal*: 0 *ordinary-situation*: 1..5 *eHealth*: 1..10 *emergency* : 11 Typically, integer values would be used for specifying priority values. However in order to increase the flexibility if the need occurs, decimal values may also be chosen.

Field name	Template class
label representation	**Description:** *label representation* is used to specify in which form the template is presented to the user. **UID:** profile-management-ns:Template/label-representation **Instances:** unordered-list **Type:** enumeration **Value range:** text, colour, picture, sound **Default value:** text

Table 5.3.3: Scope class

Field name	Scope class
scope id	**Description:** *scope id* is the unique identifier of the scope for use by the system. The *scope id* is automatically assigned by the system. **UID:** profile-management-ns:Scope/scope-id **Instances:** one **Type:** anyURI
text label	**Description:** *text label* is used for presenting the name of the scope as a text label. **UID:** profile-management-ns:Scope/text-label **Instances:** one **Type:** string **Default value:** the template name of the associated Template instance (from which the Scope instance was created. If there is no associated Template then the default value shall be "Profile" <n>, WHERE <n> <is incremented by the system>.
comment	**Description:** The user can write a *comment* that can be useful later for understanding or remembering the use of the "profile" (which is how users will view the profile data items associated to a scope object). **UID:** profile-management-ns:Scope/comment **Instances:** one **Type:** string
template ref	**Description:** *template ref* indicates the Template from which the Scope has been created. **UID:** profile-management-ns:Scope/template-ref **Instances:** one **Type:** anyURI **Technical specification:** It contains the template-id of the Template instance from which the Scope instance was created.
scope category	**Description:** *scope category* specifies the category of the scope, which depends on its context of use. The values of scope priority are related to *scope category.* **UID:** profile-management-ns:Scope/scope-category **Instances:** one **Type:** enumeration **Value range:** eHealth, emergency, normal, ordinary-situation, system **Default value:** ordinary **Technical specification:** *eHealth*: category of a scope used for eHealth purposes; *emergency*: category of a scope used for emergency situations; *normal*: category of a scope for use when no other category applies; *ordinary-situation*: category of a scope for multipurpose use, and not specifically for use for eHealth purposes or in emergency situations; *system*: category of scope not intended to be visible to users.

Field name	Scope class
priority	**Description:** *priority* is used in the determination of the correct Profile-Item-Attributes instance to use to set the data-item-value of a Profile-Data-Item (when the scope-validity of two or more Scope objects referenced by a Profile-Data-Item are simultaneously TRUE). **UID:** profile-management-ns:Scope/priority **Instances:** one **Type:** decimal **Value range:** 0..11 **Default value:** If Scope.scope-category is: *normal*: 0 *ordinary-situation*: 3 *eHealth*: 8 *emergency*: 11 **Technical specification:** The following value (ranges) apply, if Scope.scope-category is: *normal*: 0 *ordinary-situation*: 1..5 *eHealth*: 1..10 *emergency* : 11 Typically, integer values would be used for specifying priority values. However in order to increase the flexibility if the need occurs, decimal values may also be chosen.
scope active	**Description:** *scope active* is the value computed by the isActive method of the Scope object. It determines whether scope-active should be set to TRUE or FALSE depending on the values of both user-activation-status and context-status. **UID:** profile-management-ns:Scope/scope-active **Instances:** one **Type:** Boolean
user activation status	**Description:** *user activation status* is the current value of a user controllable setting that stores whether the user wishes scope-active to be set to TRUE, or FALSE, or to a value that is automatically calculated by the contextEvaluation method. This allows users to manually override the automatic operation of the UPM system when it does not deliver the user experience that they require. **UID:** profile-management-ns:Scope/user-activation-status **Instances:** one **Type:** enumeration **Value range:** manually-activated, manually-deactivated, auto **Default value:** auto
context status	**Description:** *context status* is the result of the contextEvaluation method. This method is a Boolean expression that determines whether the current context matches the conditions specified in the method (i.e. whether the situation, to which the Scope object relates, currently exists). **UID:** profile-management-ns:Scope/context-status **Instances:** one **Type:** Boolean
activation notification	**Description:** *activation notification* specifies the notification that will be used when the Scope is activated. **UID:** profile-management-ns:Scope/activation-notification **Instances:** one **Type:** Notification-Preference class
label representation	**Description:** *label representation* is used to specify in which form the situation profile associated with this scope is presented to the user. **UID:** profile-management-ns:Scope/label-representation **Instances:** unordered-list **Type:** enumeration **Value range:** text, colour, picture, sound **Default value:** text

Field name	Scope class
Scope method: scopeFromTemplate()	**Description:** assigns values to the attributes and methods of a newly instantiated scope object by copying the relevant data from a template and records the template-id of the template used in the template-ref attribute. **UID:** profile-management-ns:Scope/scopeFromTemplate
Scope method: isActive()	**Description:** WHEN (use-activation-status==manually-activated) OR (context-status==TRUE AND (use-activation-status NOT= manual-deactivation)) THEN scope-active := TRUE ELSE scope-active := FALSE. **UID:** profile-management-ns:Scope/ isActive
Scope method: contextEvaluation()	**Description:** a Boolean expression involving context data that evaluates that data to see whether they meet the requirements specified for the scope object and then sets the value of the context-status attribute. e.g. for a context object that represents an "At Home" situation, the context-evaluation expression could be: WHEN (location==GPS.pos.home) OR (WiFi_SSID==myHomeWiFi) THEN context-status := TRUE **UID:** profile-management-ns:Scope contextEvaluation

Table 5.3.4: Profile-Data-Item class

Field name	Profile-Data-Item class
item-id	**Description:** *item-id* is the identifier used to uniquely identify a data item. **UID:** profile-management-ns:Profile-Data-Item/item-id **Instances:** one **Type:** string
text label	**Description:** *text label* is used for presenting the name of the Profile-Data-Item as a text label. **UID:** profile-management-ns:Profile-Data-Item/text-label **Instances:** one **Type:** string **Default value:** System generated default name.
conflict notification	**Description:** *conflict notification* specifies the notification that will be used when a situation occurs that results in the logic of the UPM system requiring a profile data item to simultaneously set to two conflicting values. **UID:** profile-management-ns:Profile-Data-Item/conflict-notification **Instances:** one **Type:** Notification-Preference class **Default value:** device-service-default **Technical specification:** Notification-Preference.notification-delivery.default should be set to notification-immediately
Profile-Data-Item method: conflictResolution()	**Description:** This method should behave in the following way: For every Profile-Item-Attributes instance associated with this Profile-Data-Item: 1) Check which Profile-Item-Attributes instances have an associated Scope object with Scope.scope-active set to TRUE; 2) IF no Profile-Item-Attributes instances meets the criteria in step 1, then do nothing; 3) IF only one Profile-Item-Attributes instance meets the criteria in step 1, then set the values of the attributes of the Profile-Data-Item to the corresponding values of the attributes of the Profile-Item-Attributes instance; 4) IF multiple Profile-Item-Attributes instances meets the criteria in step 1, then set the values of the attributes of the Profile-Data-Item to the corresponding values of the attributes of the Profile-Item-Attributes instance associated with the Scope that has the highest value of the attribute Scope.priority; 5) IF in step 3 more than one Scope has the highest value of Scope.priority, then the profile provider shall implement a Special Resolution Policy that selects the Profile-Item-Attributes instance from which the values of the attributes of the Profile-Data-Item shall be obtained. The method of operation of the Special Resolution Policy is determined by the profile provider and may involve asking the user to chose their preferred value for some of the attributes. **UID:** profile-management-ns:Profile-Data-Item/conflictResolution

Table 5.3.5: Profile-Item-Attributes class

Field name	Profile-Item-Attributes class
scope	**Description:** *scope* specifies the Scope object with which this Profile-Data-Item-Attributes class is associated. **UID:** profile-management-ns:Profile-Item-Attributes/scope **Instances:** one **Type:** anyURI
data item value	**Description:** *data item value* is the value stored for the Profile-Data-Item. **UID:** profile-management-ns:Profile-Item-Attributes/data-item-value **Instances:** one **Type:** as defined in the present document for each specific data item **Value range:** as defined in the present document for each specific data item **Default value:** as defined in the present document for each specific data item **Technical specification:** as defined in the present document for each specific data item
profile data rating	**Description:** *profile data rating* is used for defining the importance (required, preferred, optionally use, prohibited) of a preference. **UID:** profile-management-ns:Profile-Item-Attributes/profile-data-rating **Reference to standard:** based on ISO 24751-2 [9] **Instances:** one **Type:** enumeration **Value range:** required, preferred, optional, prohibited **Default value:** preferred **Technical specification:** *required*: The person cannot use content or tools that do not provide this feature or allow this transformation; *preferred*: The person prefers content or tools that provide this feature or allow this transformation; *optional*: The person would use this setting if the content or tool they have selected for other reasons provides or allows it; *prohibited*: The person cannot use content or tools that include this feature or require this transformation; this feature should be turned off if possible, and content that includes this feature should not be offered.
inferred updating	**Description:** *inferred updating* concerns adaptive personalization. If inferred updating has the value *yes* or *confirmation*, then the system is enabled to update the profile automatically depending on factors such as the context, how the user is using devices and services. **UID:** profile-management-ns:Profile-Item-Attributes/inferred-updating **Instances:** one **Type:** enumeration **Value range:** yes, confirmation, no **Default value:** no **Technical specification:** *yes*: the situation profile will automatically be updated, whenever it is relevant; *no*: the system not make any inferred updating of the situation profile. *confirmation*: the system will ask the user if an inferred update will be done, and then the user can answer "yes" or "no".
update source category	**Description:** *update source category* specifies the category of the source of the profile data. Examples: if the user has entered the information, if a preference has been updated as a result of inferred personalization, if the health information is from an electronic health record or entered by a medical doctor. One example of use of update source type can be for assessing the likely accuracy of the data. **UID:** profile-management-ns:Profile-Item-Attributes/update-source-category **Instances:** one **Type:** enumeration **Value range:** myself, inferred-updating, employer, parent, ehr, health-professional, other **Default value:** myself

Field name	Profile-Item-Attributes class
update source identity	**Description:** *update source identity* specifies the identity of the source of the profile data. Examples: if the user has entered the information, if a preference has been updated as a result of inferred personalization, if the health information is from an electronic health record or entered by a medical doctor. One example of use of update source type can be for evaluating the validity of the data. **UID:** profile-management-ns:Profile-Item-Attributes/update-source-identity **Instances:** one **Type:** Addressable-Entity class

Table 5.3.6: Colour-Label class

Field name	Colour-Label class
colour label	**Description:** when the text-label attribute of the associated object is displayed to a user, the *colour label* attribute specifies the colour of the text. **UID:** profile-management-ns:Colour-Label/colour-label **Reference to standard:** W3C CSS [3] - color **Instances:** one **Default value:** device-service-default

Table 5.3.7: Picture-Label class

Field name	Picture-Label class
picture label	**Description:** *picture label* specifies a picture (or icon) that can be displayed together with, or instead of, the content of the text-label attribute of the associated object. This can be useful when a small screen is being used and for enhancing accessibility for those users where the use of pictures are easier than reading the text name. **UID:** profile-management-ns:Picture-Label/picture-label **Reference to standard:** MIME type image [10] **Instances:** one **Type:** MIME-type-image

Table 5.3.8: Sound-label class

Field name	Sound-Label class
sound label	**Description:** *sound label* specifies a sound that can be heard together with, or instead of, the content of the text-label attribute of the associated object. The user can record a sound or spoken word and associate it with the profile name. This can be useful when using spoken commands, when using a terminal without a screen or with a small screen and for blind or partially sighted people. **UID:** profile-management-ns:Sound-Label/sound-label **Reference to standard:** MIME type audio [10] **Instances:** one **Type:** MIME-type-audio

Table 5.3.9 specifies entities (such as service, device, address book entry, groups) that can be addressed when specifying profiles.

Table 5.3.9: Addressable-Entity class

Field name	Addressable-Entity class
entity id	**Description:** *entity ref* uniquely identifies and refers to the service, device, address book entries or a group ref. **UID:** profile-management-ns: Addressable-Entity/entity-id **Instances:** one **Type:** anyURI **Technical specification:** Value obtained from the service or device. The anyURI refers to services, devices, address book entries or a group ref.
entity name	**Description:** *entity name* is a user defined name of the service, device or address book entry. **UID:** profile-management-ns:Addressable-Entity/entity-name **Instances:** one **Type:** string **Default value:** device-service-default

Table 5.3.10: Group class

Field name	Group class
group type	**Description:** *group type* enables special types of groups to be identified. **UID:** profile-management-ns:Group/group-type **Instances:** one **Type:** enumeration **Value range:** unclassified, whitelist, blacklist **Default value:** unclassified
Group method: addToGroup()	**Description:** a method that controls the addition of new members to a Group object **UID:** profile-management-ns:Group/ addToGroup
Group method: removeFromGroup()	**Description:** a method that controls the removal of members from a Group object **UID:** profile-management-ns:Group/ removeFromGroup
Group method: isMember()	**Description:** a method that evaluates to TRUE if the supplied argument of the method is a member of the Group object. **UID:** profile-management-ns:Group/ isMember

5.4 Rule

5.4.1 Introduction rule grammar

Users often express conditional phrases in their everyday life. When doing so, they express rules (even if they do not call them rules) such as "WHEN it rains, THEN I bring the umbrella". This concept is also useful when defining profiles and the profile tool thus will require a rule editor.

Rules can be used for defining:

- profile activation criteria (for example WHEN my mobile phone is attached to the car handsfree THEN activate "Driving" profile);
- filtering criteria.

Table 5.4.1: Rule class

Field name	Rule class
rule id	**Description:** *rule id* is the unique identifier of the rule for use by the system. The *rule id* is automatically assigned by the system. **UID:** profile-management-ns:Rule/rule-id **Instances:** one **Type:** anyURI
rule statement	**Description:** *rule statement* specifies a statement that can be interpreted by the UPM system to produce or limit an action such as activating a situation profile. A *rule* can also be used to set a profile data item to a value based on a condition. **UID:** profile-management-ns:Rule/rule-statement **Instances:** unordered-list **Type:** string **Default value:** true **Technical specification:** the details of the technical specification are explained in this clause.

5.4.2 Conditions and actions

Rules consist of one or more conditions.

NOTE 1: A condition - which can be displayed in different ways, such as the word "WHEN", and in the user interface it could be presented as a graphic sign or position to the left.

NOTE 2: An action - which can also be displayed in different ways such as the word "THEN", and in the user interface it could be presented as a graphic sign or position to the right.

5.4.3 Flow of control statements

Both IF statements and WHEN statements are provided. The difference between an "IF statement" and a "WHEN statement" is when the statement is consumed. The "IF statement" is consumed as soon as it is run, whether the condition was evaluated to TRUE or FALSE. The "WHEN statement" is waiting for an event or a condition to become true.

NOTE 1: The "|" is used to show alternatives.

A rule is expressed as a WhenStatement:

WhenStatement→**WHEN** Expression **THEN** Statement

Statement→**IF** Expression **THEN** Statement

| **IF** Expression **THEN** Statement **ELSE** Statement
| id1 := value

Any number of Statements, separated by semicolon "**;**", can be included between **BEGIN** and **END**.

NOTE 2: Assignment is using "**:=**" and the equal sign is "==".

A condition is expressed as an Expression, which can be evaluated to **TRUE** or **FALSE**:

Expression→Expression **OR** Expression

| Expression **AND** Expression

| **NOT** Expression

| **(**Expression**)**

NOTE 3: In the frame above, "(Expression)" denotes that parenthesis can be used together with an expression. The parenthesises can be used in a flexible manner, simple or embedded.

A comparison is made using a relative operator called RelativeOperator. In the frame below, "id1" and "id2" is representing the two entities which will be compared.

Expression → id1 RelativeOperator id2

Expression→**TRUE**

Expression→**FALSE**

RelativeOperator→< | > | == | <= | >= | **<>**

The following meaning of the relative operators are used:

- < less than;
- > greater than;
- == equal;
- <= less than or equal;
- >= greater than or equal;
- <> different.

5.4.4 Statement delimiters

The statement delimiter is ";".

5.4.5 Addressing attributes and methods

Attributes can be addressed in an object oriented manner e.g. <Class name>.<Attribute name> (or just <attribute> if it is not part of a specific class). Methods can be addressed as <Class name>.<Method name> which can be followed by a parameter list within parenthesis e.g. <Class name>.<Method name>(<parameter list>). A parameter list can contain one or more parameters separated by commas.

5.5 Context

The context definitions in the following table "Location" are useful in rules.

Table 5.5.1: Location

Field name	Location
location type	**Description:** *location type* describes the type of place a person is currently at. **UID:** profile-management-ns:location-type **Reference to a standard:** RFC 4589 [12] - location types **Instances:** unordered-list **Technical specification:** RFC 4589 [12] lists location types and in addition to that value range, also other custom values are possible typically provided by service providers (e.g. restaurant chains).
place property	**Description:** *place property* describes properties of the place the person is currently at. **UID:** profile-management-ns:place-property **Reference to a standard:** RFC 4480 [19] - place-is Element **Instances:** unordered-list **Type:** enumeration **Value range:** exactly as in RFC 4480 [19] *for audio*: noisy, ok, quiet, unknown; *for video*: too-bright, ok, dark, unknown; *for text*: uncomfortable, inappropriate, ok, unknown. **Technical specification:** *audio*: noisy, ok, quiet, unknown; *video*: too-bright, ok, dark, unknown; *text*: uncomfortable, inappropriate, ok, unknown.
entity location geopriv	**Description:** *entity location geopriv* provides information about the location of a person or a device. **UID:** profile-management-ns:entity-location-geopriv **Reference to a standard:** RFC 4119 [13] - geopriv **Instances:** one
entity location gps	**Description:** *entity location gps* provides information about the location of a person or a device. **UID:** profile-management-ns:entity-location-gps **Reference to a standard:** GPS [17] **Instances:** one

6 Human centered information and preferences

6.1 Personal information

Personal information is about or related to the user such as the user's name and address. Such information can be useful in different situations when the user wish to provide information to various services (e.g. when booking a flight ticket online) or other people, without having to type it in each time. Several communication services use sub-groups of users' personal information, often provided to other people (under control of the user).

Much of the content of the personal information part of the profile is compatible with vCard 2.1 [18] to ensure that it can be most readily transported during communication sessions and interpreted by applications, services and devices at the remote end of a communication. In addition, the "profile" of the vCard 2.1 standard defined in TS 102 334-3 [2] is also reflected in the personal information part of the user profile.

Table 6.1.1: Personal information

Field name	Personal information
vCard version	**Description:** *vCard version* specifies the version of the vCard standard supported by the personal information listed in this table. **UID:** personal-information-ns:vcard-version **Instances:** one **Type:** string **Default value:** 2.1
last revision	**Description:** *last revision* specifies the date when the personal information was last updated. The last revision is a requirement of TS 102 334, for the passing of address book entries within an NGN. All information passed must have this parameter specified as it indicates the recency of the information. **UID:** personal-information-ns:last-revision **Reference to a standard:** TS 102 334-3 [2] - Last Revision REV **Instances:** one
name	**Description:** if the *name* type is present, then its value is a structured representation of the name of the person. **UID:** personal-information-ns:name **Reference to standard:** vCard [18] - N **Instances:** one **Default value:** anonymous **Technical specification:** The "name", "formatted name", "nickname", "display name" and "UCI label" attributes are interrelated and each has merits for different purposes. It is not expected that users will be asked to enter separate information for these fields. It is expected that profile providers will make a name information input mechanism available for users and that the user input will be processed and formatted appropriately for each of this set of attributes.
formatted name	**Description:** if the *formatted name* type is present, then its value is the displayable, presentation text associated with the source for the vCard. **UID:** personal-information-ns:formatted-name **Reference to standard:** vCard [18] - FN **Instances:** one **Default value:** anonymous **Technical specification:** The "name", "formatted name", "nickname", "display name" and "UCI label" attributes are interrelated and each has merits for different purposes. It is not expected that users will be asked to enter separate information for these fields. It is expected that profile providers will make a name information input mechanism available for users and that the user input will be processed and formatted appropriately for each of this set of attributes.
nickname	**Description:** *nickname* specifies a descriptive name given instead of or in addition to the one belonging to a person, place, or thing. It can also be used to specify a familiar form of a proper name specified by personal-information-ns:name or personal-information-ns:formatted-name. **UID:** personal-information-ns:nickname **Reference to a standard:** TS 102 334-3 [2] - X-ETSI-NICKNAME **Instances:** one **Default value:** anonymous **Technical specification:** The "name", "formatted name", "nickname", "display name" and "UCI label" attributes are interrelated and each has merits for different purposes. It is not expected that users will be asked to enter separate information for these fields. It is expected that profile providers will make a name information input mechanism available for users and that the user input will be processed and formatted appropriately for each of this set of attributes.

Field name	Personal information
display name	**Description:** *display name* specifies the alias name to be shown in the user interface. Also known as nickname. It may contain multiple display names, but only if they are labelled with different language' attributes (xml:lang). This allows, for example, a Korean-speaking person to display their name in different languages. **UID:** personal-information-ns:display-name **Reference to standard:** RFC 4482 [11] - display-name **Instances:** unordered-list **Technical specification:** The "name", "formatted name", "nickname", "display name" and "UCI label" attributes are interrelated and each has merits for different purposes. It is not expected that users will be asked to enter separate information for these fields. It is expected that profile providers will make a name information input mechanism available for users and that the user input will be processed and formatted appropriately for each of this set of attributes.
UCI label	**Description:** The label Universal Communications Identifier (*UCI*). **UID:** personal-information-ns:X-ETSI-UCI-label **Reference to a standard:** EG 284 004 [i.3] **Instances:** one **Type:** string **Technical specification:** This preference has been expressed in the form of a vCard 2.1 extension. The "name", "formatted name", "nickname", "display name" and "UCI label" attributes are interrelated and each has merits for different purposes. It is not expected that users will be asked to enter separate information for these fields. It is expected that profile providers will make a name information input mechanism available for users and that the user input will be processed and formatted appropriately for each of this set of attributes.
UCI additional data	**Description:** Universal Communications Identifier (*UCI*). **UID:** personal-information-ns:X-ETSI-UCI-AdditionalData **Reference to a standard:** EG 284 004 [i.3] **Instances:** unordered-list **Type:** string **Technical specification:** This preference has been expressed in the form of a vCard 2.1 extension. At a minimum, the authenticity element of UCI-AdditionalData should be supported. This indicates the authenticity of UCI-label. It has values: authentic, alias, anonymous.
telephone number	**Description:** *telephone number* value is specified in a canonical form in order to specify an unambiguous presentation of the globally unique telephone endpoint". **UID:** personal-information-ns:telephone number **Reference to a standard:** vCard [18] - TEL **Instances:** unordered-list
e-mail	**Description:** *e-mail* specifies the electronic mail address for communication with the object the vCard represents". **UID:** personal-information-ns:email **Reference to a standard:** vCard [18] - EMAIL **Instances:** unordered-list
URL	**Description:** *URL* specifies a resource (e.g. web page) that the user has specified. **UID:** personal-information-ns:URL **Reference to standard:** vCard [18] - URL **Instances:** unordered-list
photo	**Description:** *photo* specifies a URI pointing to an image (icon) representing the Person. **UID:** personal-information-ns:photo **Reference to a standard:** vCard [18] - PHOTO **Instances:** unordered-list
address	**Description:** *address* specifies the extended address of a postal address. **UID:** personal-information-ns:address **Reference to a standard:** vCard [18] - ADR **Instances:** unordered-list

Field name	Personal information
birthplace	**Description:** *birthplace* specifies the birthplace. **UID:** personal-information-ns:birthplace **Instances:** one **Type:** string
bday	**Description:** *bday* specifies the birthday. **UID:** personal-information-ns:bday **Reference to a standard:** vCard [18] - BDAY **Instances:** one
role	**Description:** *role* specifies the person's role. **UID:** personal-information-ns:role **Reference to a standard:** vCard [18] - ROLE **Instances:** unordered-list
org	**Description:** *org* specifies the organization (typically in which the person is working). **UID:** personal-information-ns:org **Reference to a standard:** vCard [18] - ORG **Instances:** unordered-list

6.2 Connectivity preferences

Table 6.2.1: Connectivity preferences

Field name	Connectivity preferences
prompt radio mode	**Description:** *prompt radio mode* specifies if the user will be prompted at startup, if the device's *radio mode* will be on or off. **UID:** connectivity-preferences-ns:prompt-radio-mode **Instances:** one **Type:** enumeration **Value range:** at-startup, no **Default value:** device-service-default **Technical specification:** *at-startup*: the user will be prompted at startup if the device's *radio mode* will be *on* or *off*; *no*: the user will not be prompted at startup if the device's radio mode will be on or off. **Related field:** *radio mode*
radio mode	**Description:** *radio mode* enabling/disabling radio transmission (radio mode *off* is usually called flight mode, used for example in air planes and in hospitals). **UID:** connectivity-preferences-ns:radio-mode **Instances:** one **Type:** enumeration **Value range:** on, off **Default value:** device-service-default **Technical specification:** *on*: the radio mode is enabled; *off*: the radio mode is disabled. **Related field:** *prompt radio mode*
bluetooth	**Description:** *bluetooth* enables/disables the Bluetooth connectivity. **UID:** connectivity-preferences-ns:bluetooth **Instances:** one **Type:** enumeration **Value range:** on, off **Default value:** device-service-default **Technical specification:** *on*: enables the Bluetooth connectivity; *off*: disables the Bluetooth connectivity.

Field name	Connectivity preferences
wifi	**Description:** *wifi* enables/disables the Wi-Fi connectivity **UID:** connectivity-preferences-ns:wifi **Instances:** one **Type:** enumeration **Value range:** on, off **Default value:** device-service-default **Technical specification:** *on*: enables the Wi-Fi connectivity; *off*. disables the Wi-Fi connectivity.

6.3 Interaction and user interfaces

6.3.1 General interaction preferences

The general interaction preferences in this clause are relevant for a range of features, services and devices.

Table 6.3.1.1: General interaction preferences

Field name	General interaction preferences
interaction timeout	**Description:** *interaction timeout* specifies the timeout (e.g. for filling in forms in web pages). A longer timeout would be useful for people with disabilities or for people with limited language skills of if it is very cold. **UID:** interaction-preferences-ns:interaction-timeout **Instances:** one **Type:** integer **Unit:** percentage **Default value:** device-service-default **Technical specification:** *interaction timeout* is expressed in percentage of the service's/device's default timeout. e.g. if timeout is 200 then the user has twice the default time for the service/device.

6.3.2 Interaction modality

Table 6.3.2.1: Input modality

Field name	Input modality
preferred input modality	**Description:** *preferred input modality* specifies the preferred channels of communication (e.g. suitable modality for a person with a disability or suitable modality depending on a situation such as when driving a car). **UID:** interaction-preferences-ns:preferred-input-modality **Instances:** unordered-list **Type:** enumeration **Value range:** visual, auditory, tactile-haptic **Default value:** device-service-default
unsuitable input modality	**Description:** *unsuitable input modality* specifies the unsuitable means of communication (e.g. unsuitable modality for a person with a disability or unsuitable modality depending on a situation such as when driving a car). **UID:** interaction-preferences-ns:unsuitable-input-modality **Instances:** unordered-list **Type:** enumeration **Value range:** visual, auditory, tactile-haptic

Table 6.3.2.2: Output modality

Field name	Output modality
preferred output modality	**Description:** *preferred output modality* specifies the preferred modality (e.g. unsuitable modality for a person with a disability or unsuitable modality depending on a situation such as when driving a car). **UID:** interaction-preferences-ns:preferred-output-modality **Instances:** unordered-list **Type:** enumeration **Value range:** visual, auditory, tactile-haptic **Default value:** device-service-default
unsuitable output modality	**Description:** *unsuitable output modality* specifies the unsuitable modality (e.g. unsuitable modality for a person with a disability or unsuitable modality depending on a situation such as when driving a car). **UID:** interaction-preferences-ns:unsuitable-output-modality **Instances:** unordered-list **Type:** enumeration **Value range:** visual, auditory, tactile-haptic

Table 6.3.2.3: Video preferences

Field name	Video preferences
video zoom	**Description:** *video zoom* specifies the preferred video appearance. **UID:** interaction-preferences-ns:video-zoom **Instances:** one **Type:** enumeration **Value range:** fullscreen, window **Default value:** device-service-default **Technical specification:** *fullscreen*: video is shown in fullscreen; *window*: video is shown in window.

6.3.3 Multicultural aspects

Table 6.3.3.1: Language and cultural preferences

Field name	Language and cultural preferences
input spoken language	**Description:** *input spoken language* specifies the output spoken language, including sign languages. **UID:** interaction-preferences-ns:input-spoken-language **Reference to standard:** based on ISO 639-3 [6] - Language code tables **Instances:** ordered-list **Type:** enumeration **Default value:** device-service-default
input written language	**Description:** *input written language* specifies the output written language. **UID:** interaction-preferences-ns:input-written-language **Reference to standard:** ISO 639-3 [6] - Language code tables **Instances:** ordered-list **Type:** enumeration **Default value:** device-service-default **Technical specification:** in order of preference

Field name	Language and cultural preferences
output spoken language	**Description:** *output spoken language* specifies the output spoken language, including sign languages. **UID:** interaction-preferences-ns:output-spoken-language **Reference to standard:** based on ISO 639-3 [6] - Language code tables **Instances:** ordered-list **Type:** enumeration **Default value:** device-service-default **Technical specification:** in order of preference
output written language	**Description:** *output written language* specifies the output written language. **UID:** interaction-preferences-ns:output-written-language **Reference to standard:** ISO 639-3 [6] - Language code tables **Instances:** ordered-list **Type:** enumeration **Default value:** device-service-default **Technical specification:** in order of preference
simple text	**Description:** *simple text* specifies if text should be simplified. Simplified text is easier to read and understand. This can be useful for people with limited language skills (e.g. depending on cognitive abilities, reading abilities or because it is a foreign language). **UID:** interaction-preferences-ns:simple-text **Instances:** one **Type:** enumeration **Value range:** on, off **Default value:** device-service-default **Technical specification:** *on*: simple text enabled; *off*: simple text disabled.
symbols	**Description:** *symbols* specifies if symbols (such as Bliss) should be used. **UID:** interaction-preferences-ns:symbols **Instances:** one **Type:** enumeration **Value range:** on, off **Default value:** device-service-default **Technical specification:** *on*: symbols are used; *off:* symbols are not used.
currency	**Description:** *currency* specifies which currency should be used for input/output. **UID:** interaction-preferences-ns:currency **Reference to standard:** ISO 4217 [8] - Currency and funds code list **Instances:** ordered-list **Type:** enumeration **Default value:** device-service-default
spelling and grammar checker	**Description:** *spelling and grammar checker* specifies if, when editing text, the tool for the automatic spelling and grammar checker should be activated. **UID:** interaction-preferences-ns:spelling-grammar-checker **Instances:** one **Type:** enumeration **Value range:** on, off **Default value:** device-service-default

6.3.4 Visual preferences

Table 6.3.4.1: Visual preferences

Field name	Visual preferences
brightness	**Description:** *brightness* specifies the intensity of the display light. **UID:** interaction-preferences-ns:brightness **Instances:** one **Type:** integer **Value range:** 0..100 **Unit:** percentage **Default value:** device-service-default **Technical specification:** the value is expressing percentage of maximum brightness.
content contrast	**Description:** *content contrast* specifies if the content should be displayed in normal contrast or high contrast (e.g. useful for people with visual impairments). **UID:** interaction-preferences-ns:content-contrast **Instances:** one **Type:** enumeration **Value range:** normal-contrast**,** high-contrast **Default value:** device-service-default
background colour	**Description:** *background colour* specifies the background colour of the display. **UID:** interaction-preferences-ns:background-colour **Reference to standard:** W3C CSS [3]- background-color **Instances:** one **Default value:** device-service-default
background image	**Description:** *background image* specifies the background image of the display. **UID:** interaction-preferences-ns:background-image **Reference to standard:** W3C CSS [3] - background-image **Instances:** one **Default value:** device-service-default
startup image	**Description:** *startup image* specifies the startup image of the display. **UID:** interaction-preferences-ns:startup-image **Reference to standard:** IANA MIME Media Types [10] - image **Instances:** one **Type:** MIME-type image **Default value:** device-service-default
screen saver usage	**Description:** *screen saver usage* specifies if a screen saver will be displayed. **UID:** interaction-preferences-ns:screen-saver-usage **Instances:** one **Type:** enumeration **Value range:** on, off **Default value:** device-service-default **Technical specification:** *on:* the screen saver will be displayed; *off:* the screen saver will not be displayed. **Related field:** *screen saver*
screen saver	**Description:** *screen saver* specifies the application that is used for displaying the screen saver. **UID:** interaction-preferences-ns:screen-saver **Reference to standard:** IANA MIME Media Types [10] - application **Instances:** one **Type:** MIME-type application **Default value:** device-service-default **Related field:** *screen saver usage*

Field name	Visual preferences
font family	**Description:** *font family* specifies the font type. **UID:** interaction-preferences-ns:font-family **Reference to standard:** W3C CSS [3] - font-family **Instances:** one **Default value:** device-service-default
font size	**Description:** *font size* specifies the size of the text. **UID:** interaction-preferences-ns:font-size **Reference to standard:** W3C CSS [3] - font-size **Instances:** one **Default value:** device-service-default
font colour	**Description:** *font colour* specifies the colour of the text. **UID:** interaction-preferences-ns:font-colour **Reference to standard:** W3C CSS [3] - color **Instances:** one **Default value:** device-service-default

6.3.5 Audio preferences

Table 6.3.5.1: Audio preferences

Field name	Audio preferences
microphone volume	**Description:** *microphone volume* specifies the microphone volume. **UID:** interaction-preferences-ns:microphone-volume **Reference to standard:** W3C CSS [3] - volume **Instances:** one **Default value:** device-service-default
output volume	**Description:** *output volume* specifies the output volume of the speaker. **UID:** interaction-preferences-ns:output-volume **Reference to standard:** W3C CSS [3] - volume **Instances:** one **Default value:** device-service-default

Table 6.3.5.2: Synthetic voice preferences

Field name	Synthetic voice preferences
speech rate	**Description:** *speech rate* specifies the speed at which a synthetic voice reads selected text. **UID:** interaction-preferences-ns:speech-rate **Reference to standard:** ISO 24751-2 [9] - reading rate **Instances:** one **Type:** integer **Value range:** 1..n **Unit:** minute **Default value:** device-service-default
pitch	**Description:** *pitch* is used to specify the pitch of the synthetic voice. **UID:** interaction-preferences-ns:pitch **Reference to standard:** based on ISO 24751-2 [9] - pitch **Instances:** one **Type:** decimal **Value range:** 0.0..1.0 **Default value:** device-service-default **Technical specification:** Use: 0.0 for "low"; 0.5 for "medium"; 1.0 for "high".

Table 6.3.5.3: Feedback

Field name	Feedback
key sound	**Description:** *key sound* specifies if a sound is heard when a key is pressed. **UID:** interaction-preferences-ns:key-sound **Instances:** one **Type:** enumeration **Value range:** on, off **Default value:** device-service-default
key sound media	**Description:** *key sound media* specifies which sound is heard when a key is pressed. **UID:** interaction-preferences-ns:key-sound-media **Reference to standard:** IANA MIME Media Types [10] - audio **Instances:** one **Type:** MIME type audio **Default value:** device-service-default
selection click sound	**Description:** *selection click sound* specifies if a sound is heard when a user interface component is selected. **UID:** interaction-preferences-ns:selection-click-sound **Instances:** one **Type:** enumeration **Value range:** on, off **Default value:** device-service-default **Related field:** selection click sound media
selection click sound media	**Description:** *selection click sound media* specifies which sound is heard when a user interface component is selected. **UID:** interaction-preferences-ns:selection-click-sound-media **Reference to standard:** IANA MIME Media Types [10] - audio **Instances:** one **Type:** MIME type audio **Default value:** device-service-default **Related field:** selection click sound

6.3.6 Tactile/haptic and device related preferences

Table 6.3.6.1: Pointers

Field name	Pointers
device handedness	**Description:** *device handedness* specifies if the device should be adapted for left or right handed users. **UID:** interaction-preferences-ns: device handedness **Reference to standard:** ISO 24751-2 [9] - device handedness **Instances:** one **Type:** enumeration **Value range:** left, right **Default value:** device-service-default
pointer size	**Description:** *pointer size* specifies if the pointer is normal, large or extra large, which can increase visibility of the pointer. **UID:** interaction-preferences-ns:pointer-size **Reference to standard:** based on ISO 24751-2 [9] - cursor size **Instances:** one **Type:** decimal **Value range:** 0.0..1.0 **Default value:** device-service-default **Technical specification:** use: 0.0 for "standard"; 0.5 for "large"; 1.0 for "extra large".
pointer trail	**Description:** *pointer trail* specifies if a pointer trail will be displayed when it moves. **UID:** interaction-preferences-ns:pointer-trail **Reference to standard:** ISO 24751-2 [9] - cursor trails **Instances:** one **Type:** decimal **Value range:** 0.0..1.0 **Default value:** device-service-default **Technical specification:** Use: 0.0 for "no trail"; 0.5 for "medium"; 1.0 for "longest".
pointer speed	**Description:** *pointer speed* specifies the speed of the pointer. **UID:** interaction-preferences-ns:pointer-speed **Reference to standard:** ISO 24751-2 [9] - cursor speed **Instances:** one **Type:** decimal **Value range:** 0.0..1.0 **Default value:** device-service-default **Technical specification:** Use: 0.0 "slow"; 0.5 for "medium"; 1.0 for "fast".

Field name	Pointers
pointer acceleration	**Description:** *pointer acceleration* specifies the acceleration of the pointer. **UID:** interaction-preferences-ns:pointer-acceleration **Reference to standard:** ISO 24751-2 [9] - cursor acceleration **Instances:** one **Type:** decimal **Value range:** 0.0..1.0 **Default value:** device-service-default **Technical specification:** Use: 0.0 for "slow"; 0.5 for "medium"; 1.0 for "fast".
pointer colour	**Description:** *pointer colour* specifies the colour of the pointer. **UID:** interaction-preferences-ns:pointer-colour **Reference to standard:** W3C CSS [3] - color **Instances:** one **Default value:** device-service-default
double-click speed	**Description:** *double-click speed* specifies the speed of the double-click. **UID:** interaction-preferences-ns:double-click-speed **Reference to standard:** based on ISO 24751-2 [9] - double-click speed **Instances:** one **Type:** decimal **Value range:** 0.0..n **Unit:** seconds **Default value:** device-service-default
point-and-dwell	**Description:** *point-and-dwell* enables a user to click by hovering the pointer over a specific point. **UID:** interaction-preferences-ns:point-and-dwell **Reference to standard:** based on ISO 24751-2 [9] - use dwell select **Instances:** one **Type:** enumeration **Value range:** on, off **Default value:** device-service-default **Technical specification:** *on*: it is enough to hold the pointer over a specific point which results in a click; *off*: a click can only be done if the users makes a physical click.
dwell time	**Description:** *dwell time* specifies the time before hovering the pointer results in a click. **UID:** interaction-preferences-ns:dwell-time **Reference to standard:** based on ISO 24751-2 [9] - dwell time **Instances:** one **Type:** decimal **Value range:** 0.0..1.0 **Unit:** seconds **Default value:** device-service-default

Table 6.3.6.2: Keys

Field name	Keys
sticky keys	**Description:** *sticky keys* specifies if commands can be given by simultaneously pressing two keys or by pressing the same keys in succession. **UID:** interaction-preferences-ns:sticky-keys **Reference to standard:** ISO 24751-2 [9] - sticky keys **Instances:** one **Type:** enumeration **Value range:** on, off **Default value:** device-service-default
repeat keys	**Description:** *repeat keys* specifies the time before a key is repeated after having been pushed. **UID:** interaction-preferences-ns:repeat-keys **Reference to standard:** ISO 24751-2 [9] - repeat keys **Instances:** one **Type:** decimal **Value range:** 0..n **Unit:** seconds **Default value:** device-service-default
slow keys interval	**Description:** *slow keys interval* specifies the duration of the keypress, after which the device/system accepts the command. **UID:** interaction-preferences-ns:slow-keys **Reference to standard:** based on ISO 24751-2 [9] - slow keys interval **Instances:** one **Type:** decimal **Value range:** 0.0..1.0 **Default value:** device-service-default **Technical specification:** use: 0.0 = "slow"; 0.5 = "medium"; 1.0 = "fast".
on-screen keyboard	**Description:** *on-screen keyboard* specifies if the on-screen keyboard should be turned on or off. **UID:** interaction-preferences-ns:on-screen-keyboard **Instances:** one **Type:** enumeration **Value range:** on, off **Default value:** device-service-default
debounce interval	**Description:** *debounce interval* specifies the time during which repeated key presses of the same key are ignored **UID:** interaction-preferences-ns:debounce-interval **Reference to standard:** based on ISO 24751-2 [9] - debounce interval **Instances:** one **Type:** decimal **Value range:** 0.0..5.0 **Unit:** seconds **Default value:** device-service-default

Table 6.3.6.3: Braille

Field name	Braille
braille dot pressure	**Description:** *braille dot* pressure specifies the resistance pressure of braille display pins. **UID:** interaction-preferences-ns:braille-dot-pressure **Reference to standard:** based on ISO 24751-2 [9] - braille dot pressure **Instances:** one **Type:** decimal **Value range:** 0.0..1.0 **Default value:** device-service-default **Technical specification:** use: 0.0 for low; 0.5 for medium; 1.0 for high.
braille status cell	**Description:** *braille status cell* specifies the location of the braille status cell. **UID:** interaction-preferences-ns:braille-status-cell. **Reference to standard:** ISO 24751-2 [9] - braille status cell **Instances:** one **Type:** enumeration **Value range:** off, left, right **Default value:** device-service-default
braille grade	**Description:** *braille grade* specifies the need to use contracted form, or not. **UID:** interaction-preferences-ns:braille-grade. **Reference to standard:** ISO 24751-2 [9] - braille grade **Instances:** one **Type:** enumeration **Value range:** uncontracted, contracted **Default value:** device-service-default

Table 6.3.6.4: Scan switch

Field name	Scan switch
scan speed	**Description:** *scan speed* specifies the time before the scan moves on to the next item. **UID:** interaction-preferences-ns:scan-speed **Reference to standard:** based on ISO 24751-2 [9] - scan speed **Instances:** one **Type:** decimal **Value range:** 0.0..n **Unit:** seconds **Default value:** device-service-default **Technical specification:** must be higher than *scan switch delay.* **Related field:** *scan switch delay*
scan switch delay	**Description:** *scan switch delay* specifies the time before a switch press is detected. **UID:** interaction-preferences-ns:scan-switch-delay **Reference to standard:** based on ISO 24751-2 [9] - scan switch delay **Instances:** one **Type:** decimal **Value range:** 0.0..n **Unit:** seconds **Default value:** device-service-default **Technical specification:** must be lower than *scan speed* **Related field:** *scan speed*

Field name	Scan switch
automatic scan initial delay	**Description:** *automatic scan initial delay* specifies the time after a scan command was received until the new scan is started. **UID:** interaction-preferences-ns:automatic-scan-initial-delay **Reference to standard:** based on ISO 24751-2 [9] - automatic scan initial delay **Instances:** one **Type:** decimal **Value range:** 0.0..n **Unit:** seconds **Default value:** device-service-default
automatic scan repeat	**Description:** *automatic scan repeat* specifies the number of times a scan should be repeated if no selection is made. **UID:** interaction-preferences-ns:automatic-scan-repeat **Reference to standard:** ISO 24751-2 [9] - automatic scan repeat **Instances:** one **Type:** integer **Value range:** 0..6 **Default value:** device-service-default **Technical specification:** Use 6 for continuous scanning

6.3.7 Date and time preferences

Table 6.3.7.1: Date and time preferences

Field name	Date and time preferences
date format	**Description:** *date format* specifies the preferred date format. **UID:** interaction-preferences-ns:date-format **Reference to standard:** ISO 8601 [7] - dates **Instances:** one **Type:** string **Default value:** device-service-default
time zone	**Description:** *time zone* specifies the preferred time zone. **UID:** interaction-preferences-ns:time-zone **Reference to standard:** ISO 8601 [7] - local time, coordinated universal time **Instances:** one **Type:** string **Default value:** device-service-default **Technical specification:** GMT + value Basic format: ±hhmm (example +0100) ±hh (example +01) Extended format: ±hh:mm EXAMPLE +01:00
auto time zone	**Description:** *auto time zone* specifies if the zone will be changed automatically depending on the location of the user. **UID:** interaction-preferences-ns:auto-time-zone **Instances:** one **Type:** enumeration **Value range:** on, off **Default value:** device-service-default

Field name	Date and time preferences
automatic daylight saving	**Description:** *automatic daylight saving* specifies if the daylight saving time will be changed automatically depending on the location of the user (or rather of the service/device) and the date. **UID:** interaction-preferences-ns:automatic-daylight-saving **Instances:** one **Type:** enumeration **Value range:** on, off **Default value:** device-service-default

Table 6.3.7.2: Time alerts

Field name	Time alerts
alarm clock time	**Description:** *alarm clock time* specifies the date and/or time of when the alarm will go off. **UID:** interaction-preferences-ns:alarm-clock-time **Instances:** unordered-list **Reference to standard:** RFC 5545 [14]
alarm clock notification	**Description:** *alarm clock notification* specifies the alarm clock sound. **UID:** interaction-preferences-ns:alarm-clock-notification **Instances:** one **Type:** Notification-Preference class

6.3.8 Notifications and alerts

This clause describes the notification and alert in a service/device independent way. Any particular notifications are specified in service/devices and listed in other clauses in the present document.

Alert patterns can be:

- a pattern specified by the user;
- a pattern specified by third party.

Continuous alerts are used for something that the user needs to deal with (e.g. answer a call). Simple alerts are usually used when there is no need for an immediate user action (e.g. an incoming SMS).

A simple alert can be obtained by specifying a simple alert pattern (e.g. just one alert media, a simple alert pattern and set alert presentations to the value "1").

A continuous alert can be obtained by specifying a (possibly complex) alert pattern (which can include one or more alert medias) and using some of the fields in the tables in this clause. When number of repeats ("alert-presentations") equals -1, then the pattern repeats continuously (an infinite number of times).

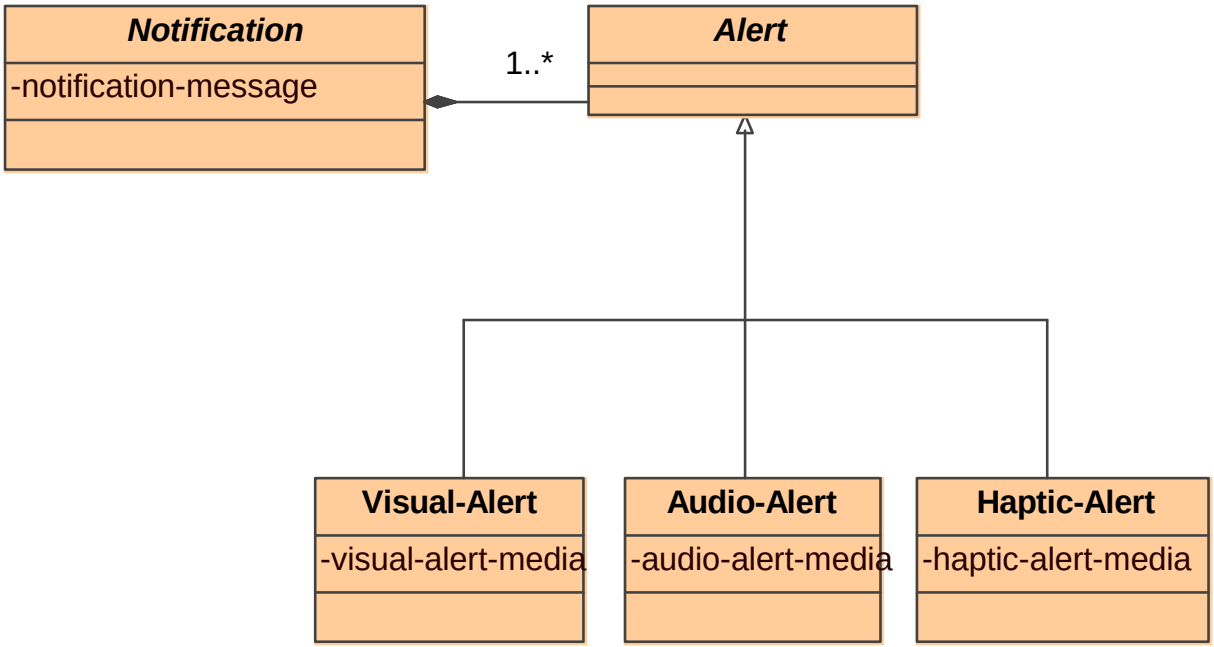

Figure 6.3.8.1: Alert package

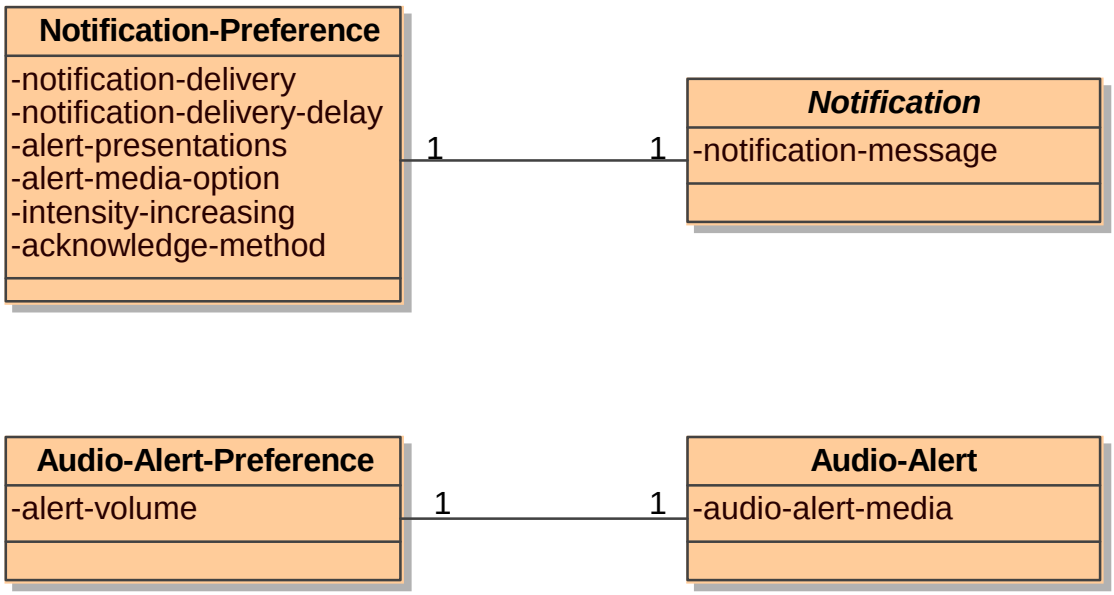

Figure 6.3.8.2: Notification preference package with relations to Notification and Audio-Alert in the alert package

Table 6.3.8.1: Notification-Preference class

Field name	Notification-Preference class
notification delivery	**Description:** *notification delivery* specifies if and how soon the alert will be delivered. **UID:** notifications-ns:Notification-Preference/notification-delivery **Instances:** one **Type:** enumeration **Value range:** never, notification-immediately, notification-later **Default value:** device-service-default **Related field:** *notification-later: notification-delivery-delay*
notification delivery delay	**Description:** *notification delivery delay* specifies the time to delay before delivering the alert. **UID:** notifications-ns:Notification-Preference/notification-delivery-delay **Instances:** one **Type:** integer **Value range:** 0..n **Unit:** seconds **Related field:** *notification-delivery*
alert presentations	**Description:** *alert presentations* specifies the number of times an alert is presented. **UID:** notifications-ns:/Notification-Preference/alert-presentations **Instances:** one **Type:** integer **Value range:** 1..n **Default value:** device-service-default **Technical specification:** the value -1 is reserved for endless repeat.
alert media option	**Description:** *alert media option* specifies which types of alert media options are associated with the notification. **UID:** notifications-ns:Notification-Preference/alert-media-option **Instances:** unordered-list **Type:** enumeration **Value range:** visual, audio, vibration **Default value:** device-service-default
intensity increasing	**Description:** *intensity increasing* specifies whether the intensity of an alert should be stable or if it starts from a low level and raises to the maximum intensity level of any form of alert. **UID:** notifications-ns:Notification-Preference/intensity-increasing **Instances:** one **Type:** enumeration **Value range:** on, off **Default value:** device-service-default
acknowledge method	**Description:** *acknowledge method* specifies how to acknowledge the notification. **UID:** notifications-ns:Notification-Preference/acknowledge-method **Instances:** one **Type:** enumeration **Value range:** any-button, specific-button, physical-operation, tactile-mode, voice-command, gesture **Default value:** device-service-default **Technical specification:** continuous alerts will continue until acknowledged by the user. The value *physical-operation* means that a "physical" user action (such as lifting the handset or when opening/or releasing from base) has been done. The result of acknowledging a notification is service/device dependent.

Table 6.3.8.2: Visual-Alert class

Field name	Visual-Alert class
visual alert media	**Description:** *visual alert media* specifies which media file is used in the visual alert. **UID:** notifications-ns:Visual-Alert/visual-alert-media **Reference to standard:** IANA MIME Media Types [10] - image; video **Instances:** one **Type1:** MIME type image **Type2:** MIME type video **Default value:** device-service-default

Table 6.3.8.3: Audio-Alert class

Field name	Audio-Alert class
audio alert media	**Description:** *audio alert media* specifies which media file is used in the audio alert. **UID:** notifications-ns:/Audio-Alert/audio-alert-media **Reference to standard:** IANA MIME Media Types [10] - audio **Instances:** one **Type:** MIME type audio **Default value:** device-service-default

Table 6.3.8.4: Haptic-Alert class

Field name	Haptic-Alert class
haptic alert media	**Description:** *haptic alert media* specifies which media file is used in the alert. **UID:** notifications-ns:Haptic-Alert/haptic-alert-media **Reference to standard:** IANA MIME Media Types [10] - application **Instances:** one **Type:** MIME type application **Default value:** device-service-default

Table 6.3.8.5: Notification class

Field name	Notification class
notification message	**Description:** *notification message* specifies a text message that will be displayed with the notification (e.g. a reminder text, or a link to the agenda where a text is specified). **UID:** notifications-ns:Notification/notification-message **Instances:** one **Type:** string

Table 6.3.8.6: Audio-Alert-Preference class

Field name	Audio-Alert-Preference class
alert volume	**Description:** *alert volume* specifies the volume of alerts. **UID:** notifications-ns:/Audio-Alert-Preference/alert-volume **Reference to standard:** W3C CSS [3] - volume **Instances:** one **Default value:** device-service-default

7 Service category related information and preferences

7.1 Mapping to and using service supplied features

Clauses 7.2 to 7.4 contain preferences that relate to user configurable functions provided by services within a number of categories. It is necessary for the user profile to hold profile data that can be applied across multiple services supplied by multiple providers using diverse technology platforms. The profile data correspond to the user configuration data that are typically associated with the user configurable features of a service.

User configurable parameters are usually held as data stored within a service. The service also provides the logic that controls the operation of the service features. It is the responsibility of the UPM system to calculate suitable mappings between the profile data in the user's profile and the appropriate user configurable parameters of the service features. The UPM system is also responsible for ensuring that these mappings are realised by utilising the provided features of the service to ensure that the values of the user configurable data in the service correspond to the mapped values of profile data items in the user's profile. This behaviour is represented by the mapToServiceData method of the User-Profile object.

In order to ensure that the correct mappings are established between the user profile data and the user configurable feature data held within the service, it may be necessary to create Scope objects that map to the conditional behaviour inherent in certain service features (e.g. to the logic underlying supplementary services of communications services). However, the existence of such behaviourally oriented objects does not imply that the UPM system directly controls the behaviour. In particular, the UPM system shall not be used to directly control service behaviour in ways that are already handled by inbuilt service features (e.g. user profile data should not be combined with UPM processing to perform functions already handled by supplementary services provided by a telephony service provider).

7.2 Communication handling

7.2.1 User configurable communications service features

Providers of communications services typically offer a number of user configurable features that modify the way in which communications are handled (in telephony systems these are often referred to as "supplementary services"). Communication features can be divided into the following broad classes:

- identification related;
- communication offering;
- communication completion;
- communication restriction;
- multiparty communication.

There are a number of options within each of these classes of feature, and for each feature the service provider may provide a number of user configurable options. Services typically store these user configurable parameters within the service logic.

Other communications features (e.g. in relation to charging) are supported by some communication services, but the preferences related to these are not explicitly specified in the present document.

The present document provides preferences and information that map to the typical user configurable options provided for user configurable communication service features. A list of actual available features will be obtained from the relevant service by the UPM system (e.g. those supplementary services to which the user has subscribed). The UPM system will be responsible for mapping and synchronizing the preferences and information in the user profile to the user configurable parameters associated with the matching features provided by the communications services (this is represented by the mapToServiceData method of the User-Profile object). Some examples of such mappings are given in clauses 7.2.5 and 7.2.6. As stated in clause 7.1, the preferences in clause 7.2 shall not be used by the UPM system to directly control service behaviour in ways that are already handled by inbuilt service features (e.g. user profile data should not be combined with UPM processing to perform functions already handled by supplementary services provided by a telephony service provider).

In considering communications services and devices, additional specializations of the general model for addressable entities are used, and are shown in figure 7.2.1.1 (further details on Addressable-Entity can be found in clause 5).

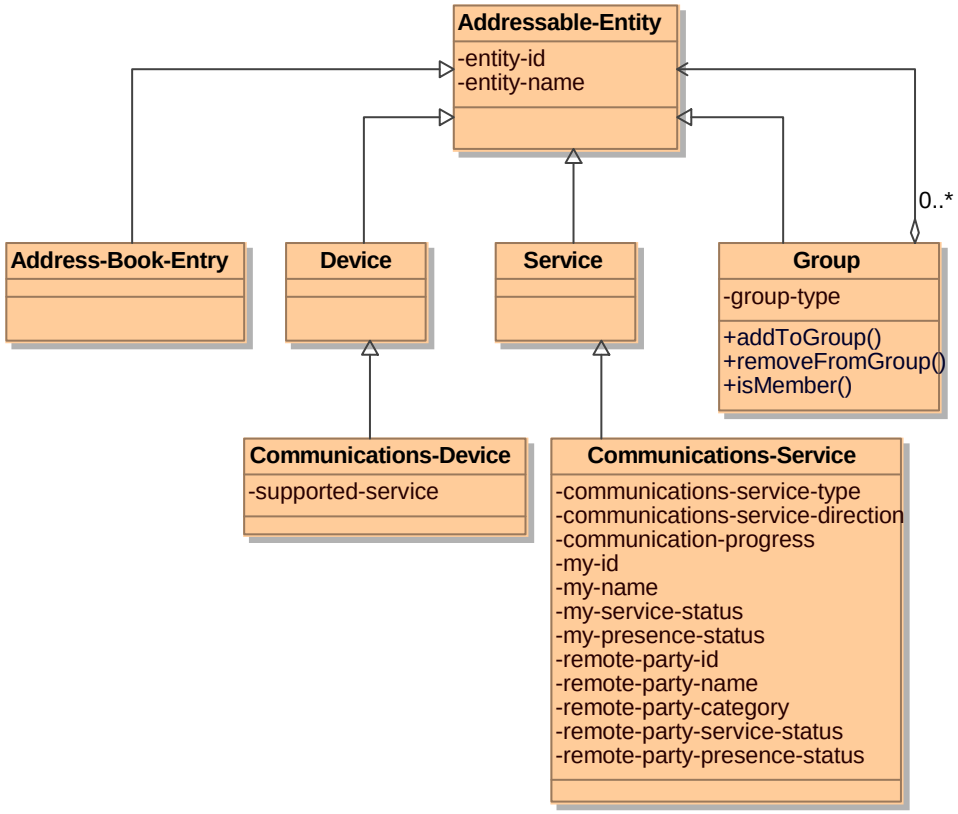

Figure 7.2.1.1: Communications entities model

The UPM system shall create and maintain models of communications service and devices according to the model specified in figure 7.2.1.1 and tables 7.2.2.1 and 7.2.3.1. It is the responsibility of the profile provider to create and maintain two-way mappings between the UPM model of the service or device and the actual service or device (represented by the mapToServiceData method of the User-Profile object). This mapping shall map the generic descriptions of services, service features and devices in the present document to the specific services, service features and devices associated with the user. Typically, these mappings will be created the first time that the UPM system is configured to work with a service or device. The mapping shall be dynamic and shall hold mappings between static features of the service or device and shall also maintain information on the current status of ongoing communication sessions.

7.2.2 Communications-Service class

Table 5.3.9 provides the specification for the entity-id and entity-name attributes of the Communication-Service class shown in table 7.2.2.1.

Table 7.2.2.1: Communications-Service class

Field name	Communications-Service class
communications service type	**Description:** *communications service type* identifies the types of communications service to which the Scope object relates. **UID:** communication-handling-ns:Communications-Service/communications-service-type **Instances:** unordered-list **Type:** enumeration **Value range:** realtime-communication, non-realtime-communication, UCI, voice, video, text, total-conversation, PSTN-ISDN

Field name	Communications-Service class
communications service direction	**Description:** *communications service direction* identifies whether the communication is incoming (from a remote party) or outgoing (to a remote party). **UID:** communication-handling-ns:Communications-Service/communications-service-direction **Instances:** one **Type:** enumeration **Value range:** incoming, outgoing
communication progress	**Description:** *communication progress* holds information about the current phase of a communication. **UID:** communication-handling-ns:Communications-Service/communication-progress **Instances:** one **Type:** enumeration **Value range:** idle, offering, accepted, rejected, in-progress, terminated, sent, received
my id	**Description:** *my id* is the specific identifier being used by the profile user for the current communication session. **UID:** communication-handling-ns:Communications-Service/my-id **Instances:** one **Type:** string **Technical specification:** The identifier being used will be the one that is allocated to the user for use with specified service.
my name	**Description:** *my name* indicates the name that the profile user wishes to present to the remote party. **UID:** communication-handling-ns:Communications-Service/my-name **Instances:** one **Type:** string **Technical specification:** The value used will be constructed from the values taken from one or more of the preferences fields - "name", "formatted name", "nickname", "display name" and "UCI label" of the "Personal information" in table 6.1.1 (Personal information). The algorithm for determining how this information is best presented in usage will be service specific and determined by the profile provider.
my service status	**Description:** *my service status* specifies the service's assessment of the status of the profile user (of relevance for incoming communication services). **UID:** communication-handling-ns:Communications-Service/my-service-status **Instances:** one **Type:** enumeration **Value range:** service specific set of service status. **Technical specification:** For PSTN/ISDN services the values are: user busy, no reply, etc.
my presence status	**Description:** *my presence status* specifies under the presence basic status declared by the profile user. **UID:** communication-handling-ns:Communications-Service/my-presence-status **Reference to standard:** RFC 3863 [15] basic **Instances:** one **Type:** enumeration **Value range:** open, closed
remote party id	**Description:** *remote party id* is the communications identifier used by the remote party. **UID:** communication-handling-ns:Communications-Service/remote-party-id **Instances:** one **Type:** string
remote party name	**Description:** *remote party name* is the name that the remote party is presenting to the profile user. **UID:** communication-handling-ns:Communications-Service/remote-party-name **Instances:** one **Type:** string

Field name	Communications-Service class
remote party category	**Description:** *remote party category* specifies the categories to which the remote party belongs. **UID:** communication-handling-ns:Communications-Service/remote-party-category **Instances:** unordered-list **Type:** enumeration **Value range:** known, unknown, anybody, on-blacklist(x), not-on-blacklist(x), on-whitelist(x), not-on-whitelist(x), in-group(x), not-in-group (x) **Technical specification:** The context watcher determines which remote-party-category to assign by comparing the identity of the remote party with the profile user's address book, groups, blacklists and whitelists. "x" is the entity-id of a Group object, The context watcher shall use the group-type attribute of a Group object to determine whether the group to which the remote party belongs is a whitelist, blacklist, or unclassified group.
remote party service status	**Description:** *remote party service status* holds the status of the other party as declared by communication service. **UID:** communication-handling-ns:Communications-Service/remote-party-service-status **Instances:** one **Type:** enumeration **Value range:** service specific set of status values **Technical specification:** For PSTN/ISDN services the values are: unconditional, user-busy, no-reply, etc.
remote party presence status	**Description:** *remote party presence status* holds the presence basic status declared by the remote party. **UID:** communication-handling-ns:Communications-Service/remote-party-presence-status **Reference to standard:** RFC 3863 [15] - basic **Instances:** one **Type:** enumeration **Value range:** open, closed

7.2.3 Communication-Device class

Table 5.3.9 provides the specification for the entity-id and entity-name attributes of the Communication-Device class.

Table 7.2.3.1: Communications-Device class

Field name	Communications-Device class
supported service	**Description:** *supported service* identifies the communications services that the device is able to support. **UID:** communication-handling-ns:Communications-Device/supported-service **Instances:** one **Type:** enumeration **Value range:** realtime-communication, non-realtime-communication, UCI, voice, video, text, total-conversation, PSTN-ISDN **Technical specification:** Communication-device may represent a category of device or a specific device.

7.2.4 Communication specific profile data items

There are a number of communication related preferences, information and rules in a user profile that are used to ensure that communication services behave in the way the user requires. The values of this communication specific profile data can be made to vary according to the communication context by means of communication related Scope objects, as described in clause 7.2.5.

The first category of communications related profile data are those that appear as part of the Communications-Service object described in table 7.2.2.1. Specifically these are the two items that can be directly controlled by the user through their user profile:

- my name: communication-handling-ns:Communications-Service/my-name;
- my presence status: communication-handling-ns:Communications-Service/my-presence-status.

In addition to the above, the preferences in table 7.2.4.1 are also items of profile data that are specifically related to communications services.

Table 7.2.4.1: Communications service feature preferences

Field name	Communications service feature preferences
communications feature	**Description:** *communications feature* identifies the generic communications feature that is activated in the current context. **UID:** communication-handling-ns:communications-feature **Instances:** one **Type:** enumeration **Value range:** withhold-ID, present-name, withhold-name, forward-to (communication-target), deflect-to (communication-target), accept, reject **Technical specification:** The communication features are described in more detail immediately after this table.
communication target	**Description:** *communication target* specifies the entity to which the action of communication redirection related features are targeted. **UID:** communication-handling-ns:communication-target **Instances:** unordered-list **Type:** Addressable-Entity **Technical specification:** appropriate addressable item or items.
feature notification	**Description:** *feature notification specifies* how the user is notified that the feature has been invoked. **UID:** communication-handling-ns:feature-notification **Instances:** one **Type:** Notification-Preference class

The generic behaviours represented by the different values of the communications-feature preference (see table 7.2.4.1), are:

- withhold-ID: allows the user to withhold their communication identity (Communications-Service.my-id) from the remote party. This maps to the CLIR (PSTN/ISDN) or OIR (IMS) supplementary services for outgoing communications and to COLR or TIR for incoming communications.
- present-name: allows the user to present their name (Communications-Service.my-name) to the remote party. For PSTN/ISDN services, this feature is normally enabled by default if subscribed to the CNAP service. However in other cases this may be a user selectable feature.
- withhold-name: allows the user to withhold the presentation of their name (Communications-Service.my-name) to the remote party. For PSTN/ISDN services, this feature maps to the CNAR service.
- forward-to [target](communication-target): allows the user to automatically forward offered incoming communications to a target (communication-handling-ns:communication-target). This target may be another communication identifier, or it may be a specific device associated with the user's communication identifier.
- deflect-to (communication-target): allows the user to manually initiate a deflection of an offered incoming communications to a target (communication-handling-ns:communication-target) . This target may be another communication identifier, or it may be a specific device associated with the user's communication identifier.
- accept: allows the profile user to automatically accept all incoming or outgoing communications without confirming their wish to accept them.

7.2.5 Modelling conditional behaviour with Scope objects

One particularly powerful feature of the use of the UPM system to manage the user's preferences with regard to the behaviour of their communications services is that preferences can be flexibly defined to apply to:

- single services;
- services of a related type;
- single or multiple values of the profile user's status (e.g. marked as "do not disturb", busy, away);
- single or multiple values of the remote party's status (e.g. marked as "available", busy, not reachable);
- the current progress of the setup of a communication session (e.g. offering, in-progress);
- different specific devices;
- all devices that support specific classes of service;
- and all combinations of the above.

This thus enables users to define preferences once and have them apply to multiple services or in multiple communication contexts. This is in contrast to the necessity in a non-UPM environment to directly interact with each service to assign the same preference (e.g. diverted-to number) to one or many supplementary services (e.g. to CFNR, CFB and CFU) within each service. This therefore can save the user a great deal of effort and difficulty in personally co-ordinating and executing a number of separate tasks in a diverse range of services, thus realising of the major objectives of the UPM system. However, it should be noted that the preferences in clause 7.2 shall not be used by the UPM system to directly control service behaviour in ways that are already handled by inbuilt service features (e.g. user profile data should not be combined with UPM processing to perform functions already handled by supplementary services provided by a telephony service provider).

To ensure that the appropriate values of profile data are used in particular communications contexts, it is necessary to define Scope objects associated with those communication contexts. These Scope objects then enable a suitable set of preferences, information and rules (in a Profile-Item-Attributes object) to be activated when the actual communication context matches that specified by such a Scope object. Hence, a Scope object that has conditional statements in its contextEvaluation method that evaluate to TRUE when there is an incoming communication where the identity of the remote party is withheld would be associated with those preferences that relate to such a situation e.g. the communication feature attribute in the Profile-Item-Attributes object associated with this Scope object would be set to "reject" if the intention was to specify the equivalent of the ACR supplementary service.

The scope of application of these communication oriented Scope objects is specified by communication oriented expressions in the Scope object's contextEvaluation method (in addition to any other expressions that relate to other conditions that narrow the scope of the Scope object). These communication oriented expressions help to define Scope objects that relate to factors such as the identity or status of either or both parties involved in a communications service (special features related to multi-party communications have not been defined for the present document), the direction of the communication, and the progress of the setting up of a communication session.

Any preferences, information and rules may be associated with a communication oriented Scope object (within its associated Profile-Item-Attributes object), but the examples in this clause highlight how communication oriented Scope objects can be used to capture and utilise the user's communication oriented preferences, information and rules.

It is very important to note that the preferences in clause 7.2 shall not be used by the UPM system to directly control service behaviour in ways that are already handled by inbuilt service features (e.g. user profile data should not be combined with UPM processing to perform functions already handled by supplementary services provided by a telephony service provider).

7.2.6 Examples of using Scope objects to enable the control of communications service features

The scope of communications service features may be defined by attributes in tables 5.3.9 (Addressable-Entity class), 7.2.2.1 (Communications-Service class) and 7.2.3.1 (Communications-Device class) and the attributes from clause 7.2.2. These attributes will appear in conditional statements within the contextEvaluation method of Scope objects associated with communications service features. For further information on rules, see clause 5.4.

The following are two examples that illustrate how the Communications-Service class attributes could be used to create an instance of Profile-Item-Attributes that is associated with different types of communications service cases.

EXAMPLE 1: If a contextEvaluation method of Scope objects associated with communications service feature contained a condition:

```
communications-service-direction == incoming AND communications-service-type ==
realtime-communication AND communications-service-type == voice
```

then the Profile-Data-Attributes associated with this Scope would be used for incoming communications on all real-time voice services to which the user is subscribed.

EXAMPLE 2: If the conditions was:

```
communications-service-direction == incoming AND entity-id == <the entity-id of
one of the user's subscribed mobile phone services>
```

then the Profile-Data-Attributes associated with this Scope would only be used for incoming communications on the specifically identified mobile phone service.

The Communications-Device class attributes can also be used to create an instance of Profile-Item-Attributes that only applies to devices that support communications with the specific devices, or with devices that support specific classes of services (e.g. all devices that support non-real-time text services).

Profile-Item-Attributes that are associated with Scope objects using Boolean expressions involving items from table 7.2.4.1 will only be relevant when the Boolean expression evaluates to TRUE.

The following are two examples of how communications service feature preferences could be used in Boolean expressions to ensure that an instance of Profile-Item-Attributes is only used when a communication session meets the conditions of the Boolean expression.

EXAMPLE 3: If a contextEvaluation method of Scope objects associated with a communications service feature contained a condition:

```
my-presence-status == open AND remote-party-category == not
blacklist2.isMember(remote-party-id)
```

then the Profile-Data-Attributes associated with this Scope would be used when the user's presence status is "open" (i.e. they have declared themselves willing to accept communications) and the person calling is not a member of a specific blacklist (e.g. a1).

EXAMPLE 4: If the conditions was:

```
my-presence-status == closed AND remote-party-id == <the identity of the profile
user's manager>
```

then the Profile-Data-Attributes associated with this Scope would apply if there was a communication from the profile user's manager when the profile user's presence status is set to "closed". Such a scope could be used to define the preferences appropriate for situations when profile users wish to receive communications from their manager even when they set their presence status to "closed" (e.g. the user chose a "Do not disturb" setting). If the priority of the Scope is set high, then it will override another Scope object that is associated with the user's normally preferred behaviour, which might be to reject communications when my-presence-status is set to "closed".

7.3 Consume content

7.3.1 Filtering content

Table 7.3.1.1: Filtering content

Field name	Filtering content
content subject	**Description:** *content subject* specifies the areas of interest. The standard referred to is dealing with news, but the same areas can be used to specify areas of interest, not just news. **UID:** consume-content-ns:content-subject **Refer to standards:** IPTC [16] **Instances:** unordered-list **Type:** string **Technical specification:** The value range supports custom values as defined in [16].
unsuitable content	**Description:** *unsuitable content* expresses the criteria for filtering out unsuitable content. **UID:** consume-content-ns:unsuitable-content **Refer to standards:** W3C PICSRules [5] **Instances:** one **Type:** anyURI **Default value:** device-service-default

7.3.2 Internet related preferences

The internet related preferences are aimed to allow all people consume content according with their needs.

Table 7.3.2.1: Internet related preferences

Field name	Internet related preferences
content presentation	**Description:** *content presentation* specifies in which form the content is presented. **UID:** consume-content-ns:content-presentation **Instances:** one **Type:** enumeration **Value range:** text, html, active-dynamic-content **Default value:** device-service-default **Technical specification:** *text*: the content is only shown in plain text *html*: the content is shown in html and plain text *active-dynamic-content*: the content is shown in active-dynamic-content, html and plain text.
accessible version	**Description:** *accessible version* specifies if the accessible version of the web site will be used or not. **UID:** consume-content-ns:accessible-version **Instances:** one **Type:** enumeration **Value range:** on, off **Default value:** device-service-default **Technical specification:** *on*: the accessible version of the web site will be used; *off*: the accessible version of the web site will not be used.

Field name	Internet related preferences
download images	**Description:** *download images* specifies if images should be automatically downloaded and displayed. **UID:** consume-content-ns:download-images **Instances:** one **Type:** enumeration **Value range:** yes, no **Default value:** device-service-default **Technical specification:** *yes*: images should be automatically downloaded and displayed; *no*: images should not be automatically downloaded and displayed.
pop-ups	**Description:** *pop-ups* specifies if pop-ups in web browsers should be allowed or blocked. **UID:** consume-content-ns:pop-ups **Instances:** one **Type:** enumeration **Default range:** allowed, blocked, exceptions **Default value:** device-service-default **Technical specification:** *allowed:* all popup windows are allowed; *blocked:* all popup windows are blocked; *exceptions*: popup windows are blocked except those specified in *pop-up exceptions*. **Related field:** *pop-up exceptions*
pop-up exceptions	**Description:** *pop-up exceptions* specifies for which web sites pop-ups in are allowed. **UID:** consume-content-ns:pop-up-exceptions **Instances:** unordered-list **Type:** anyURI **Default value:** device-service-default **Technical specification:** The anyURI is referring to a URL. **Related field:** *pop-ups*
tabbed browsing	**Description:** *tabbed browsing* specifies if load pages should be in the same window (and in multiple tabs) or in different windows. It can affect the accessibility for people with disabilities. **UID:** consume-content-ns:tabbed-browsing **Instances:** one **Type:** enumeration **default range:** yes, no **Default value:** device-service-default **Technical specification:** *yes*: new web-pages are loaded in the tabs; *no*: new web-pages are loaded in new windows.
start page	**Description:** *start page* specifies which web page will be the start page of the browser. **UID:** consume-content-ns:start-page **Instances:** one **Type:** anyURI **Default value:** device-service-default **Technical specification:** The anyURI is referring to a URL.
bookmarks	**Description:** *bookmarks* specifies where the bookmarks are stored. **UID:** consume-content-ns:bookmarks **Instances:** one **Type:** anyURI **Value range:** **Default value:** device-service-default **Technical specification:** The anyURI is referring to a URL.

7.4 Way-Finding and navigation preferences

Table 7.4.1: Consulting a map

Field name	Consulting a map
sharing position	**Description:** *sharing position* specifies whether the user's position can be viewed (e.g. on a map) by others. **UID:** way-finding-ns:sharing-position **Instances:** one **Type:** enumeration **Value range:** show, hide **Default value:** hide
map visualization	**Description:** *map visualization* specifies what kind of map the user prefers to have. **UID:** way-finding-ns:map-visualization **Instances:** one **Type:** enumeration **Value range:** satellite view, 2d-map, 3d-map, hybrid **Default value:** device-service-default
voice guide	**Description:** *voice guide* specifies if the voice guide should be activated or deactivated. **UID:** way-finding-ns:voice guide **Instances:** one **Type:** enumeration **Value range:** on, off **Default value:** device-service-default **Technical specification:** *on*: voice guide is activated; *off*: voice guide is deactivated.

Annex A (informative): Profile content specification

A.1 Structure of profile items

The profile item specification are presented in tables as described below.

Table A.1: <group of information and preferences>

Field name	Specifications *<name of table>*
<name>	**Description:** <free text description> **UID:** <unique ID> **Reference to standard:** < standard> "[n]" - <part of standard> **Instances:** <express the number of possible values which can be chosen by the user> **Type:** <type> **Value range:** <value range> **Unit:** (e.g. percentage, pixels) **Default value:** <default value(s)> **Technical specification:** <free text description providing further details and technical information>

NOTE 1: The display name in the user interface of the services and devices do not need to be the same as the <name> in the present document.

NOTE 2: The display name in the profile tool is recommended to be the same as, or similar to the <name> (or translation from English to any language) in the present document, in order to ensure that the user understands what information and preferences they have defined in their profile (also when changing profile provider and profile tool).

A.2 Description

Freetext description of the preference.

A.3 UID

Unique ID.

A.4 Reference to standards

Reference to standards. When there is a reference to standards, then some of the other fields might not be filled in.

A.5 Instances

Instances express the number of values which can be chosen by the user. Different services/devices may have different requirement on instances for a given setting related to that particular service/device. The instances given in the present document is an indication which is most relevant for the widest range of services/devices.

The values are: one, ordered-list, unordered-list. In an ordered-list, the first item has the highest significance (e.g. most preferred).

A.6 Type

Types are described in further detail in W3C XML Schema [4].

A.7 Value range

EXAMPLE: 1..10.

In practice, the user interface would probably express the standard in the human value range. The present document, does not provide the mappings between these values (e.g. low, medium, high) and technical values in this area as the human value range is a relative value range rather than a precise technical value, which also depends on the service/device.

A.8 Default value

Profile providers will provide a set of default values to help the user getting a good starting point when creating their profiles. The "default value" is a recommendation to profile providers for the value to set for a preference. However, profile providers may choose an alternative value. When the value "device-service-default" is specified, that means that the profile will not change the value in the service/device. A "device-service-default" is either representing the service/device default as a factory default, or the value that has been set by the user prior to the use of the user profile system.

A.9 Technical specification

Provides further details and technical information.

Annex B (informative): Preferences related to disabilities

The present annex presents the preferences relevant to people with disabilities. The selection of preferences based those parts of the annex B "Checklists for groups of disabled people" in EG 202 116 on "Guidelines for ICT products and services; "Design for All" [i.2], which are relevant for personalization.

B.1 People with visual impairments and blind people

Table B.1

Design for All Guidelines	UPM preferences
User input/output (annex B, clause 1.5, 1.6 in EG 202 116 [i.2])	(for both visually impaired and blind users) • preferred-input-modality • unsuitable-input-modality • preferred-output-modality • unsuitable-output-modality • key-sound • on-screen-keyboard (e.g. for visually impaired users it should be *on*, for blind people it should be *off*) • braille-grade • filter-keys • speech-rate • pitch • key-sound • key-sound-media • selection-click-sound • selection-click-sound-media • the notification preferences (for visually impaired users) • brightness • window-width • window-height • video-zoom (fullscreen) • orientation • background-colour • content-contrast • font-size • font-colour • pointer-size • pointer-trail • pointer-colour • the notification preferences
Conventional facilities, quick dialling (Annex B, clause 2.1 in EG 202 116 [i.2]) and voice commands	• voice-tag (address book) • voice-activation-of-communications • enable-voice-command

B.2 People with reduced movement capability, reduced muscular strength, tremor

Table B.2

Design for All Guidelines	UPM preferences
User input/output: motoric usability components (annex B, clause 1.4 in EG 202 116 [i.2])	• sticky-keys • filter-keys
User input/output: perceptual usability components (annex B, clause 1.5 in EG 202 116 [i.2])	• preferred-output-modality • unsuitable-output-modality
Conventional facilities, quick dialling (annex B, clause 2.1 in EG 202 116 [i.2]) and voice commands	• voice-tag (address book) • voice-activation-of-communications • enable-voice-command

B.3 People who are hard of hearing

Table B.3

Design for All Guidelines	UPM preferences
User input/output - perceptual usability components (annex B, clause 1.5 in EG 202 116 [i.2])	• microphone-volume • output-volume • video-fullscreen • the notification preferences

B.4 People with cognitive impairments and learning difficulties

Table B.4

Design for All Guidelines	UPM preferences
Conventional facilities, quick dialling (annex B, clause 2.1 in EG 202 116 [i.2]) and voice commands	• voice-tag (address book) • voice-activation-of-communications • enable-voice-command
User input/output - perceptual usability components (annex B, clause 1.5 in EG 202 116 [i.2])	• simple-text • symbols

History

Document history			
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