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Part 6: UPT subscriptions, service profiles and information model**

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Foreword

This ETSI Technical Report (ETR) has been produced by the Network Aspects (NA) Technical Committee of the European Telecommunications Standards Institute (ETSI).

ETRs are informative documents resulting from ETSI studies which are not appropriate for European Telecommunication Standard (ETS) or Interim European Telecommunication Standard (I-ETS) status. An ETR may be used to publish material which is either of an informative nature, relating to the use or the application of ETSs or I-ETSs, or which is immature and not yet suitable for formal adoption as an ETS or an I-ETS.

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1 Scope

This ETSI Technical Report (ETR) describes the Universal Personal Telecommunication (UPT) subscription and the service profile, its structure, the information contained, the operations allowed on it and the possible restrictions for the involved parties in the access. Furthermore, the UPT information model is presented informally. This information model is split into entities, each entity modelling one of the aspects of the UPT service; also the attributes attached to each of the entities are described.

2 References

This ETR incorporates by dated and undated reference, provisions from other publications. These references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this ETR only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

- [1] ETR 055-7: "Universal Personal Telecommunication (UPT); The service concept; Part 7: User procedures and user states".
- [2] ETR 055-4: "Universal Personal Telecommunication (UPT); The service concept; Part 4: Service requirements on security mechanisms".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of this ETR, the following definitions apply:

Universal Personal Telecommunication (UPT) user: A user who has been authorized to use UPT facilities by a UPT subscriber. A UPT user is associated with a unique UPT number.

UPT service profile: The UPT service profile is a record containing all the information related to the UPT user and the personal rules for handling his mobility, in order to make available to him the UPT service.

In fact, the key object of UPT is to increase the user mobility across any networks; focusing on this purpose, the service profile becomes an efficient way to support the user mobility: it contains a lot of information related to the user's location and to the dynamic management of the calls; it is then important to allow both a user-friendly access and operation on the service profile.

The possibility to access the service profile has great implications on the security aspects, because the access procedure should be protected from disallowed accesses or user's mistakes.

The following assumptions are required:

- the possibility of access to the service profile information has to be subscribed with the service provider;
- each user can have access only to his data, and can modify only the data allowed.

Furthermore, each UPT service provider can decide which parameters the UPT user/subscribers are allowed to modify: so the categorization provided in this recommendation can be changed by the service provider, which should have the flexibility to decide the exact way to include a given parameter into the service profile.

UPT subscriber: A person or legal entity with a contractual relationship with a UPT service provider.

UPT subscription: In order to have available the UPT service, the UPT subscriber has to subscribe to it with the service provider; the UPT subscription is independent from any other bearer or supplementary service subscription.

Furthermore, in order to make any modification to the service profiles associated to the subscription, the UPT subscriber has to subscribe with the service provider the possibility of access to his own data; the kind of access restrictions for the UPT users is decided at subscription time between the service provider and the UPT subscriber.

NOTE: A subscriber profile can be used for administrative purposes which is not described in this ETR.

3.2 Abbreviations

For the purposes of this ETR, the following abbreviations apply:

UPT	Universal Personal Telecommunication
PIN	Personal Identification Number
PUI	Personal User Identity
SPIN	Special Personal Identification Number
PSTN	Public Switched Telephone Network
ISDN	Integrated Services Digital Network
ARA	Access Registration Address

4 UPT subscriptions and services profiles

4.1 Definitions

4.1.1 UPT Subscription

In order to have available the UPT service, the UPT subscriber has to subscribe to it with the service provider; the UPT subscription is independent from any other bearer or supplementary service subscription.

Furthermore, in order to make any modification to the service profiles associated to the subscription, the UPT subscriber has to subscribe with the service provider the possibility of access to his own data: the kind of access restrictions for the UPT users is decided at subscription time between the service provider and the UPT subscriber.

NOTE: A subscriber profile can be used for administrative purposes which is not described in this ETR.

4.1.2 UPT Service Profile

The UPT service profile is a record containing all the information related to the UPT user and the personal rules for handling his mobility, in order to make available to him the UPT service.

In fact, the key object of the Universal Personal Telecommunication is to increase the user mobility across any networks; focusing on this purpose, the service profile becomes an efficient way to support the user mobility: it contains a lot of information related to the user's location and to the dynamic management of the calls; it is then important to allow both a user-friendly access and operation on the service profile.

The possibility to access the service profile has great implications on the security aspects, because the access procedure should be protected from disallowed accesses or user's mistakes.

The following assumptions are required:

- the possibility of access to the service profile information has to be subscribed with the service provider;
- each user can have access only to his data, and can modify only the data allowed.

Furthermore, each UPT service provider can decide which parameters the UPT user/subscribers are allowed to modify: so the categorization provided in this ETR can be changed by the service provider, which should have the flexibility to decide the exact way to include a given parameter into the service profile.

4.2 Access to the service profile

The information contained in the service profile may need to be modified following the user needs and his requests.

In order to modify the service profile or to make any other operation on it, it is necessary to have an access procedure, which may be different for the various parties invoking it.

4.2.1 Involved parties

The possibility to access to the service profile is available for the following categories of UPT users:

The **service provider** has a guaranteed access to all the information without any restrictions; the UPT subscriber has to agree with him, at the subscription time, which kind of access is permitted to himself and to the eventual UPT users associated. For any modification to the access modality agreed at the subscription, the subscriber has to contact the service provider.

The **UPT subscriber** can access only the information allowed by the service provider on subscription contract basis; furthermore, some information can only to be displayed to him and not modified (e.g. the UPT number). Anyway, he can ask to modify some parameters via administration procedure with the service provider.

NOTE: The subscriber is a local service provider matter. Consequently, it will not be seen, nor considered, in network interconnections.

The **UPT user** can access the service profile if this possibility has been given to him by the subscriber at the subscription time; however, the UPT user may have some restrictions in the access, fixed by the service subscriber (e.g. he could not modify the restrictions on permitted callers).

Each information item may have one of three degrees of access, corresponding to each level of access that is defined for the UPT service profile:

- 1) no access;
- 2) interrogation access (read only);
- 3) modification access (read and write).

4.2.2 Access procedure

The access procedure to the subscriber/user data has to be user-friendly and in the same time has to guarantee the security of communication.

The UPT service profile is accessed using the service profile management procedures described in ETR 055-7 [1].

4.2.3 Operations on the service profile

The following operations can be performed by the subscriber/user on his service data:

- service profile modification: this operation is made using the Profile Modification procedure and allows to change the variable information;
- service profile display: this operation is made using the Profile Interrogation procedure and allows the subscriber/user to obtain information on the current status of the service profile.

Furthermore, the system has to validate the service profile after any modification made by the subscriber/user.

4.3 Structure of the service profile

4.3.1 Fixed information

This subclause describes the fixed information from the user's point of view: it can be divided into information managed only by the service provider and information changeable by the subscriber. Information classification can depend on the service provider.

4.3.1.1 Information fixed at subscription time

This information is fixed at the subscription time and can be modified only by the service provider; it could however be displayed to the UPT users and subscribers, if agreed at the subscription time.

If changes are wanted by the UPT subscriber, administrative procedures should be used with the UPT service provider for agreement on a new UPT subscription.

Examples of fixed information are:

- service provider identity;
- UPT number;
- Personal User Identity (PUI);
- SPIN (Special PIN for unblocking; should be used only once and changed after use);
- Subscriber Identity;
- services provided by the service provider (access independent services);
- basic services subscribed (PSTN and ISDN);
- UPT supplementary services subscribed;
- charging reference location;
- maximum number of failed authentication attempts, before disabling access to the UPT service; this is ignored when strong authentication is used;
- types of authentication mechanisms subscribed to (weak and/or strong);
- authentication information (keys);
- security options subscribed (e.g. user event control, user identity confidentiality, called party specified secure answering of incoming UPT calls, intended recipient identity presentation; for more information see ETR 055-4 [2];
- charging options subscribed (e.g. credit limit checking);
- subscribed location restrictions (e.g. whether remote registration is limited to the list of terminal accesses subscribed, forbidden ARAs for incoming and outgoing calls);
- set of terminal accesses allowed for incall registrations (areas or accesses where you can register when getting to them);
- set of terminal accesses allowed for outcall registrations (areas or accesses where you can register when getting to them);
- set of terminal accesses allowed for allcall registrations (areas or accesses where you can register when getting to them);

- set of terminal accesses allowed for linked registrations (areas or accesses where you can register when getting to them);
- set of terminal accesses for remote incall registrations (areas or accesses where you can register in advance from another terminal; this might be a short list of ARAs);
- set of terminal accesses for remote outcall registrations (areas or accesses where you can register in advance from another terminal; this might be a short list of ARAs);
- set of terminal accesses for remote allcall registrations (areas or accesses where you can register in advance from another terminal; this might be a short list of ARAs);
- set of terminal accesses for remote linked registrations (areas or accesses where you can register in advance from another terminal; this might be a short list of ARAs);
- set of terminal accesses allowed from which interrogation of the service profile is allowed;
- set of terminal accesses allowed from which modification of the service profile is allowed. These restrictions are also applied to supplementary service activation/deactivation, PIN code change and PUI deblocking procedures;
- maximum number of outgoing follow-on calls allowed;
- maximum number of follow-on service feature requests allowed.

NOTE 1: Keys should never be displayed to the user or the subscriber.

NOTE 2: Generally, the sets considered for linked and/or allcall registrations are the intersections of the sets considered for incall and outcall registrations.

4.3.1.2 Information changeable by the subscriber

This information can be modified only by the subscriber; it can however be displayed to the UPT users if agreed by the subscriber:

NOTE: The subscriber is a local service provider matter. Consequently, it will not be seen, nor considered, in network interconnections.

- charging options allowed;
- security options allowed;
- types of authentication mechanisms allowed;
- profile access parameters (read/write privilege) for the UPT user;
- maximum credit allowed to the user (cost-related or number of local/long distance calls, within the limits specified for the subscription);
- restrictions on roaming, if any;
- maximum number of terminal accesses for multiple registrations (incall registrations);
- maximum number of terminal accesses for multiple registrations (outcall registrations);
- maximum number of terminal accesses for multiple registrations (allcall registrations);
- maximum number of terminal accesses for multiple registrations (linked registrations);
- maximum number of terminal accesses for group registration for incoming calls;
- maximum number of terminal accesses for group registration for outgoing calls;

- allowed procedures (e.g. service profile procedures, charging options, authentication procedures) for the UPT user and further restrictions on the locations where those procedures can be performed (i.e. set of terminal accesses);
- allowed basic services;
- allowed supplementary services;
- activated location restrictions;
- data access parameters (read and write restrictions).

4.3.2 Variable information

The information described in the following is defined "variable" from the user's point of view; it can be changed using the service profile modification procedure or the personal mobility procedures only.

The variable information is divided into service related and mobility related information.

4.3.2.1 Service related information

The following parameters are changeable by the user or the subscriber:

4.3.2.1.1 Information modified by the Change PIN procedure only

- PIN.

4.3.2.1.2 Information modified by the Profile Modification procedure

- type of authentication mechanisms activated (weak and/or strong). If both weak and strong authentication mechanisms are allowed to a user, the service provider may elect to ignore this information and to impose the procedure used. This prevents the use of weak authentication when a safer method is available;
- customized announcements;
- type of charging options activated;
- type of security options activated;
- activation status for each UPT supplementary service;
- activation status of the secure answering service feature;
- activated charging options;
- security options activated;
- restrictions on permitted calling parties;
- preferred language for UPT specific announcements.

4.3.2.2 Mobility related information

The following parameters are changeable by the user or the subscriber, using the only service profile management procedures or personal mobility procedures, depending on the case.

4.3.2.2.1 Information modified by UPT service profile management procedures only

- default terminal accesses for incoming calls (one by basic service);
- default terminal accesses for outgoing calls;
- list of common terminal accesses for registration with abbreviated numbering;
- default duration for registration for incoming calls;
- default duration (or number of calls) for registration for outgoing calls;
- default duration for allcall registration;
- default duration for linked registration;
- information related to UPT supplementary services:
 - information related to Variable Routing supplementary services (not both routings in the same time):
 - routing on calling line identity;
 - routing on time dependency;
 - destination reached by UPT Call Forwarding on Busy;
 - destination reached by UPT Call Forwarding Unconditional;
 - destination reached by UPT Call Forwarding on No Answer;
 - destination reached by UPT Call Forwarding on Not Reachable;
- activation status of the authentication for outgoing calls when registered for outgoing calls;
- activated deregistration by override (whether or not any other UPT user should be allowed to deregister the UPT user for outgoing calls from a terminal access by override).

NOTE: It contains the translation between short numbers defined by the UPT user and Access Registration Addresses (ARAs).

4.3.2.2.2 Information modified by UPT personal mobility procedures only

- current terminal accesses for incoming calls (one by basic service);
- current terminal accesses for outgoing calls;
- duration of the incall registration;
- duration of the outcall registration;
- duration of the allcall registration;
- duration of the linked registration;
- linked-registered terminal address;
- necessity of UPT user identity authentication for answering incoming calls;
- number of terminal accesses for multiple registration used;
- list of terminal addresses to be used for paging, if required.

NOTE: Generally, the sets considered for linked and/or allcall registrations are the intersections of the sets considered for incall and outcall registrations.

4.3.3 UPT call events information

The following parameters are indirectly modified by the user or the subscriber when a call or procedure occurs:

- number of outgoing follow-on calls placed;
- number of follow-on service features requested;
- number of failed authentication attempts;
- user credit.

4.4 Allowed accesses

This subclause provides a global view of the parameters included in the service profile and accessible by the various entities; in table 1 all the parameters are reported, with the indication about an access being "write-only" (W), "read-only" (R) or "read and write" (R/W) (regardless of the means of access: data can be modified directly by the UPT user or through procedures and entities of the network. For example, "current terminal access" will be modified by a user registration without the UPT user explicitly asking for it). As explained in subclause 4.2.1, the service provider has an access to the information without any restriction and is not concerned by this table. However, it is bound by its contractual agreement with the subscriber and is submitted to the European laws on the protection of privacy.

Table 1: Allowed accesses

Attribute	Access by	
	Subscriber	User
<i>Information fixed at subscription time:</i>		
Authentication information	-	-
Basic services subscribed	R	R
Charging reference location	R	R
Charging services subscribed	R	R
List of allowed terminal accesses for registration	R	R
List of allowed terminal accesses for remote registration	R	R
List of allowed terminal accesses for service profile interrogation	R	R
List of allowed terminal accesses for service profile modification	R	R
maximum number of failed authentication attempts	R	R
maximum number of follow-on service feature requests	R	R
maximum number of outgoing follow-on calls	R	R
PUI	R	R
Security options subscribed	R	R
Service provider identity	R	R
Services provided by the service provider	R	R
SPIN	-	-
Subscribed authentication mechanisms	R	R
Subscribed location restrictions	R	R
Supplementary services subscribed	R	R
UPT number	R	R
(continued)		

Table 1 (concluded): Allowed accesses

Attribute	Access by	
	Subscriber	User
<i>Information changeable by the subscriber only:</i>		
Activated location restrictions	R/W	R
Allowed procedures and associated restrictions	R/W	R
Basic services allowed	R/W	R
Data access parameters	R/W	R
maximum credit allowed to the user	R/W	R
maximum number of terminal accesses for multiple registration	R/W	R
Restrictions on roaming	R/W	R
Security options allowed	R/W	R
Supplementary services allowed	R/W	R
Types of authentication mechanisms allowed	R/W	R
<i>Information changeable by the user or the subscriber:</i>		
Activated charging options	R/W	R/W
Activated deregistration by override	R/W	R/W
Activation status for each UPT supplementary service	R/W	R/W
Activation status of secure answering	R/W	R/W
Authentication for outgoing calls when registered	R/W	R/W
Current terminal accesses for incoming calls	R/W	R/W
Current terminal accesses for outgoing calls	R/W	R/W
Customized announcements	R/W	R/W
Default duration of incall registration	R/W	R/W
Default duration of outcall registration	R/W	R/W
Default duration of allcall registration	R/W	R/W
Default duration of linked registration	R/W	R/W
Durations of registrations	R/W	R/W
Information related to supplementary services	R/W	R/W
Linked-registered terminal address	R/W	R/W
List of common terminal accesses for registration with abbreviated numbering	R/W	R/W
List of terminal addresses to be used for paging	R/W	R/W
Number of terminal accesses for multiple registration used	R/W	R/W
PIN	-	W
Preferred language for UPT announcements	R/W	R/W
Restrictions on permitted calling parties	R/W	R/W
Routing table for variable default incall registration	R/W	R/W
Security options activated	R/W	R/W
Types of authentication mechanisms activated	R/W	R/W
UPT user identity authentication on incoming calls	R/W	R/W
<i>Information modified during UPT call events:</i>		
Number of failed authentication attempts	R	R
Number of follow-on service features requested	R	R
Number of outgoing follow-on calls placed	R	R
User credit	R	R

4.5 Interactions between items of information

- Finding the routing address: a UPT user may have several routing addresses (in different variables as default terminal address, current terminal address...). For a routing purpose, only one of these addresses should be used. The preferential address will be taken in the following priority order:
 - destination reached by UPT Call Forwarding on Unconditional;
 - current terminal address for registration;
 - variable routing addresses;
 - default terminal address.
- Time-dependent variable routing has priority on calling party-dependent variable routing.

5 UPT Information Model

5.1 General description

The UPT information model is presented informally, using a method loosely based on the Entity-Relationship methodology. The relationships between the entities of the model are represented by lines on the figure:

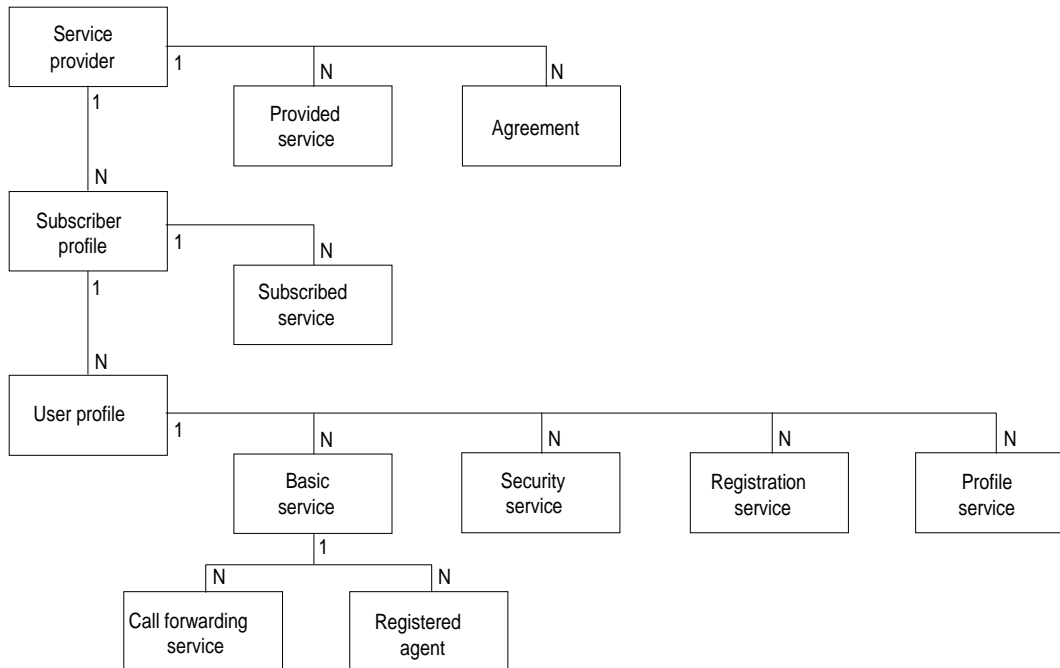


Figure 1: UPT information model

Information is attached to each entity of the model, in the form of attributes. These attributes are described in the next **subclauses** for each entity in the model. Entities have been grouped logically into three classes: service provider-related entities, subscriber-related entities and user-related entities.

Three actors require access to the subscriber and user-related entities of the model: the service provider, the subscriber and the user. Access rights to each entity and to each attribute within an entity are therefore defined. By definition, the service provider has all rights on all the information. The subscriber's and the user's rights to read and/or modify an attribute, however, depend on its nature and purpose and have to be specified for each attribute. In order to do this, an annotation of the following form is added to each attribute description: *Sub: R/W; User: R*, meaning that the subscriber may see the contents of the attribute and modify it, while the user may only see the contents of the attribute. If no annotation appears in the attribute definition, *Sub: R; User: R* is implied.

5.2 Service provider-related entities

Only the service provider has access to these entities.

5.2.1 Service provider

The **Service provider** entity is simply used as an anchor point for instances of the **Provided service** and **Agreement** entities. It has only one attribute attached to it:

- **service provider identity:** Identifier for the service provider. It will be extracted from the PUI and may include, for example, a country code and a network code.

5.2.2 Provided service

The **Provided service** entities describe the services offered by the service provider to its subscribers. One instance of this entity per provided service is attached to the **Service provider** entity. The attributes attached to it are:

- **service identity:** Identifier for the service. Services are grouped into classes, for the convenience of the implementation. Valid identifiers for each class are:
 - basic services:
 - ISDN Telephony;*
 - PSTN Telephony.*
 - registration services:
 - InCall Registration.*
 - profile services:
 - Profile Modification;*
 - Profile Interrogation.*
 - security services:
 - Weak Authentication;*
 - Strong Authentication.*
 - charging services:
 - Credit Limit Checking.*
 - call forwarding services:
 - Call Forwarding Unconditional;*
 - Call Forwarding On No Answer;*
 - Call Forwarding On Busy;*
 - Call Forwarding On Not Reachable;*
 - Variable Routing.*
- **locations:** List of locations where the service may be used. A location is expressed as either:
 - a country code;
 - a country code + an operator code;
 - a country code + an operator code + a local area code.

For most service types, those two attributes are enough to describe the service provided. For call forwarding services, however, an extra attribute is required to describe the provision parameters supported:

- **call forwarding parameters:** May allow either of the following three provision parameters:
 - **notify activation:** Indicates that the UPT user should be notified when the service is activated;
 - **notify forwarding:** Indicates that the forwarded to party should be notified that the incoming call has been forwarded;
 - **notify calling party:** Indicates that the calling party should be informed that a call forwarding takes place.

5.2.3 Agreement

The **Agreement** entities describe the services offered by the service provider to visiting users. One instance of this entity per provided service and per foreign service provider is attached to the **Service provider** entity. It has the same structure as the **Provided service** entity, with the addition of one attribute:

- **service provider identity:** Identifier for the home service provider of the visiting users.

5.3 Subscriber-related entities

The UPT subscription defines the nature of the contract binding the service provider to one of its customers. One UPT subscription may cover one or several UPT users. A service profile is attached to each of the users in the subscription (see the description of the user-related entities in the next **subclause**) and contains information specific to each user.

The information held in the subscriber-related entities is common to all users in the subscription and is fixed at subscription time. It may subsequently be modified only by a request to the service provider, using administrative procedures.

5.3.1 Subscriber profile

The **Subscriber profile** entity is simply used as an anchor point for instances of the **Subscribed service** entities. It has only one attribute attached to it:

- **subscriber identity:** Unique identifier for the UPT subscriber;
- **subscribed authentication procedures:** List of authentication procedures subscribed;
- **subscribed security options:** List of security options subscribed;
- **subscribed charging options:** List of charging options subscribed;
- **subscribed basic services:** List of basic services subscribed.

NOTE: A naming convention is introduced here. For several aspects of the service, there is a need to express three things : what has been subscribed by the subscriber, what is allowed to each user of the subscription (chosen among what has been subscribed), and what each user has activated (chosen among what is allowed to him). A three tier description of these aspects of the service is therefore adopted : a **Subscribed** ... attribute is associated to the **Subscription** entity, an **Allowed** ... attribute is associated to the subscriber-controlled part of the **User profile** entity, and an **Activated** ... attribute is associated to the user-controlled part of the **User profile** entity.

5.3.2 Subscribed service

The **Subscribed service** entities describe the services subscribed. One instance of this entity per subscribed service is attached to the **Subscriber profile** entity. It has the same structure as the **Provided service** entity (q.q.v.), with the following restrictions:

- **service identity:** Only services for which a corresponding **Provided service** entity exists in the subscriber's home service provider definition are allowed;
- **locations:** Only locations defined in the corresponding **Provided service** entity are allowed.

In addition, the following restrictions apply to call forwarding services:

- **call forwarding parameters:** Each of the three provision parameters (**Notify activation**, **Notify forwarding** and **Notify calling party**) may be specified only if it also specified in the corresponding **Provided service** entity.

5.4 User-related entities

The user-related entities define the service information attached to one of the users in a subscription. This information may differ from one user to another, in the same subscription.

5.4.1 User profile

The **User profile** entity is mainly used as an anchor point for instances of the service entities described in the remainder of this subclause.

- **personal user identity:** Unique identifier for the UPT user;
- **UPT number:** Diallable number through which the user may be reached;
- **allowed charging services** (Sub: R/W; User: R): Selected from the list held in the **Subscribed charging options** attribute of the **Subscriber profile** entity;
- **activated charging service** (Sub: R; User: R/W): Selected from the list held in the **Allowed charging options** attribute;
- **maximum number of terminal accesses:** Allowed for registration services;
- **default language** (Sub: R/W; User: R): Preferred language for UPT specific announcements;
- **activated language** (Sub: R; User: R/W): If set, overrides the preferred language selected by the subscriber in the **Default language** attribute.

5.4.2 Security service

The **Security service** entities describe the security services allowed by the subscriber to a given user. They also indicate the activation status of each security service.

- **service identity** (Sub: R/W; User: R): Only services for which a corresponding **Subscribed service** entity exists in the subscriber's definition are allowed;
- **activation status** (Sub: R; User: R/W): Indicates whether the service is active or not. Note that in the case where both weak and strong authentication procedures are allowed to a user, the service provider may elect to ignore this attribute and to impose the authentication method used. This prevents the use of weak authentication when a safer method is available;
- **locations** (Sub: R/W; User: R): Only locations defined in the corresponding **Subscribed service** entity are allowed.

When the **Service identity** attribute indicates *Weak Authentication*, the following attributes are also used:

- **PIN codes** (Sub: R/W; user: R/W): The secret code used by the user to prove his identity to the network and the longer secret code used for deblocking the user if too many failed attempts are made. Unlike other attributes, these ones may be queried only by the service provider, for security reasons. They may be changed by using the specific PIN change procedures;
- **maximum number of authentication failures**: before the PUI is blocked.

When the **Service identity** attribute indicates *Strong Authentication*, the following attribute is also used:

- **strong authentication key(s)** (Sub: ; user:): The strong authentication keys are for further study.

5.4.3 Registration service

The **Registration service** entities describe the registration services allowed by the subscriber to a given user. These services do not use an **Activation status** attribute to record their activation status; another entity, **Registered agent**, is used instead.

- **service identity** (Sub: R/W; User: R): Only services for which a corresponding **Subscribed service** entity exists in the subscriber's definition are allowed;
- **locations** (Sub: R/W; User: R): Only locations defined in the corresponding **Subscribed service** entity are allowed.

5.4.4 Profile service

The **Profile service** entities describe the profile interrogation and modification services allowed by the subscriber to a given user.

- **service identity** (Sub: R/W; User: R): Only services for which a corresponding **Subscribed service** entity exists in the subscriber's definition are allowed;
- **locations** (Sub: R/W; User: R): Only locations defined in the corresponding **Subscribed service** entity are allowed.

5.4.5 Basic service

The **Basic service** entities describe the basic services allowed by the subscriber to a given user.

- **service identity** (Sub: R/W; User: R): Only services for which a corresponding **Subscribed service** entity exists in the subscriber's definition are allowed;
- **locations** (Sub: R/W; User: R): Only locations defined in the corresponding **Subscribed service** entity are allowed.

5.4.6 Call forwarding service

The **Call forwarding service** entities describe the call forwarding services allowed by the subscriber to a given user.

- **service identity** (Sub: R/W; User: R): Only services for which a corresponding **Subscribed service** entity exists in the subscriber's definition are allowed;
- **locations** (Sub: R/W; User: R): Only locations defined in the corresponding **Subscribed service** entity are allowed;
- **allowed parameters** (Sub: R/W; User: R): Specifies which provision parameters (Notify activation, Notify forwarding and Notify calling party) are allowed to the user. A given parameter may be allowed only if it is also specified in the corresponding Subscribed service entity;
- **provision parameters** (Sub: R; User: R/W): Specifies the actual provision parameters chosen by the user. Each of the three provision parameters (**Notify activation**, **Notify forwarding** and **Notify calling party**) may be specified by the user only if it also specified in the **Allowed parameters** attribute;
- **activation status** (Sub: R; User: R/W): Indicates whether the service is active or not.

When the **Service identity** attribute indicates *Call Forwarding Unconditional*, *Call Forwarding On No Answer*, *Call Forwarding On Busy* or *Call Forwarding On Not Reachable*, the following attribute is also used:

- **call forwarding registration parameters** (Sub: R; User: R/W) contains:
 - **forwarded to number**;
 - **no reply condition timer**.

When the **Service identity** attribute indicates *Variable Routing*, the following attribute is also used:

- **variable routing registration parameters** (Sub: R; User: R/W): List of calling-party dependent or time-dependent variable routing elements:
 - calling-party dependent elements specify a calling party address, and the number to forward the call to when an incoming call is received from this calling party;
 - time-dependent elements specify a day of week, a time period and the number to forward the call to when an incoming call is received on this day and during this period.

5.4.7 Registered agent

These entities model the registration of a UPT user on a terminal access.

NOTE: Contrary to what is shown in the figure in subclause 5.1, only one registration for incoming calls per basic service is possible in UPT Phase 1.

- **access point identifier** (Sub: R; User: R/W): Address of the terminal access;
- **type of registration** Permitted value: *InCall*.

6 Information sorted by service feature

This clause presents the previous results in a different manner. It shows for each service feature which type of data is needed to perform it. A table gives all the service features that should be covered for UPT Service Set 1 (except third party protection mechanisms and supplementary services) and their associated data. Data in italic are optional ones.

Service feature	Information needed
User authentication	<ul style="list-style-type: none"> - Activated authentication mechanisms - Authentication information (keys) - Location restrictions - PIN - Preferred language for specific UPT announcements - PUI - Security options activated - Service provider identity - User identity - <i>Maximum number of failed authentication attempts</i> - <i>Number of failed authentication attempts</i>
Incall registration	<ul style="list-style-type: none"> - Allowed terminal accesses - Current terminal accesses - Default duration of the registration - Default terminal accesses - Location restrictions - Number of incoming calls allowed - UPT procedure type - <i>Access Registration Address(es)</i> - <i>Activated secure answering</i> - <i>Duration of the registration</i> - <i>Indication of group registration</i> - <i>Services to which the registration applies</i> - <i>Special conditions on registration (e.g. list of permitted callers)</i>
Incall deregistration	<ul style="list-style-type: none"> - UPT procedure type - <i>Access Registration Address</i> - <i>Services to which the deregistration applies</i>
Outgoing UPT call setup	<ul style="list-style-type: none"> - Allowed basic services - Allowed destinations - Called party address or short number code - Current terminal accesses - Location restrictions - UPT procedure type - <i>Activated supplementary services</i> - <i>Activation status of secure answering</i> - <i>Authentication when registered</i>
UPT registered outgoing call set up	<ul style="list-style-type: none"> - Allowed basic services - Allowed destinations - Called party address or short number code - Location restrictions - <i>Activated supplementary services</i> - <i>Activation status of secure answering</i> - <i>Outcall access code</i> - <i>PIN code</i>
Incall delivery	<ul style="list-style-type: none"> - Allowed basic services - Allowed calling parties - Current terminal accesses - UPT number - <i>Activated supplementary services</i> - <i>Activation status of secure answering</i> - <i>Terminal addresses for paging</i>

Service feature	Information needed
Outcall registration	<ul style="list-style-type: none"> - Allowed terminal accesses - Current terminal accesses - Default duration of the registration - Default terminal accesses - Location restrictions - UPT procedure type - <i>Access Registration Address(es)</i> - <i>Activated deregistration by override</i> - <i>Authentication when registered</i> - <i>Duration of the registration</i> - <i>Indication of group registration</i> - <i>Number of outgoing calls allowed</i> - <i>Services to which the registration applies</i>
Outcall deregistration	<ul style="list-style-type: none"> - UPT procedure type - <i>Access Registration Address</i> - <i>Indication of group deregistration</i> - <i>Services to which the deregistration applies</i>
Allcall registration	Same as incall plus outcall registration
Allcall deregistration	Same as incall plus outcall deregistration
Linked registration	Same as allcall registration plus <i>Linked-registered terminal address</i>
Linked deregistration	Same as allcall deregistration
Remote incall registration	Same as incall registration
Remote outcall registration	Same as outcall registration
Remote allcall registration	Same as allcall registration
Remote linked registration	Same as linked registration
Multiple terminal address registration	<ul style="list-style-type: none"> - Maximum number of terminal accesses for multiple registration - Number of terminal accesses for multiple registration used - Terminal addresses - UPT procedure type
Variable default incall registration	<ul style="list-style-type: none"> - Allowed terminal accesses - Default terminal accesses - Location restrictions - Routing information: <ul style="list-style-type: none"> - Routing by call originating area - Routing by calling line identity - Time dependent routing (by day of week, by month of year, by time of day, etc...) - Routing on "no answer" condition - Routing on "not reachable" - UPT procedure type
Outgoing call follow-on	<ul style="list-style-type: none"> - Maximum number of outgoing follow-on calls - Number of outgoing follow-on calls placed - UPT procedure type
Global follow-on	<ul style="list-style-type: none"> - Maximum number of follow-on service feature requests - Number of follow-on service features requested - UPT procedure type
Service profile interrogation	<ul style="list-style-type: none"> - Allowed terminal accesses - Data access parameters - Data requested by the user - Location restrictions - UPT procedure type
Service profile modification	<ul style="list-style-type: none"> - Allowed terminal accesses - Data access parameters - Data requested by the user - Location restrictions - UPT procedure type - <i>Information related to UPT supplementary services</i>
Change PIN	<ul style="list-style-type: none"> - New PIN - UPT procedure type

Service feature	Information needed
Call pick up	- Authentication information
Intended recipient identity presentation	- PUI - UPT number
UPT specific indications	- Activated form of information media - Preferred language for specific UPT announcements
UPT service assistance	None identified
Called party specified secure answering of incoming UPT calls	- Activation status of secure answering
UPT service provider authentication	- Keys ? - Service provider identity

The charging service features should be put apart from the other service features since they are used in parallel with them.

Specific service feature	Information needed
Charging	- Activated charging option - Charging reference location - Maximum user credit - User credit

History

Document history	
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