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3GPP Joint Ad-Hoc on Generic User Profile 7

Cancun, Mexico

3-5 December 2001

**UP-010129**

**Title:** Release of In-Process Stage 1 Specification to SA1 for Review and Continuing Development  
**Source:** 3GPP Joint ad-hoc on Generic User Profile (GUP)  
**To:** SA1, SA1 GUP ad hoc  
**Cc:** SA2, SA3, SA4, SA5, T2, T3, CN4, CN5, T2 GUP ad hoc  
**Response to:** S1-011176 - Liaison Statement on 3GPP Generic User Profile Stage 1

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**Attachments:** UP-010086 [22.240, v0.3.0 Stage 1 specification]  
UP-010130 [22.240 Section 5 suggested revisions on High Level Requirements]  
UP-010132 [22.240 Section 4 suggested revisions on Requirements on Classification]  
UP-010137 [Discussion on the relationship to VHE]  
UP-010145 [Miscellaneous Issues for Resolution]  
UP-010051 [Harmonised description ~~(instead of Section 12)~~]  
UP-010055 [Management of Distributed User Profile defined by the IST Project VESPER]  
UP-010076 [New ~~S~~stage 1 ~~i~~introduction]  
UP-010078 [Cleaning up ~~of~~ the Introduction ~~of GUP Stage 1 chapter~~]  
UP-010079 [Cleaning up the ~~GUP an GUP component~~~~General~~ description of ~~the~~ GUP Stage 1 ~~(section 4.0)~~]  
UP-010080 [Cleaning up the ~~GUP and GUP components description of~~~~GUP an GUP component description of the~~ GUP Stage 1 ~~(section 4.2)~~]  
UP-010082 [Draft Stage1, Section 5 restructuring]  
UP-010083 [~~4.3 restructuring (based on 86)~~]~~Simplified restructuring of Section 4.3]~~

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**1. Overall Description:**

The GUP Joint ad hoc on Generic User Profile (GUP Joint ad hoc) would like to thank SA1 for its stated appreciation of the work performed by the GUP Joint ad hoc on the Generic User Profile Concept and Definitions, specifically with respect to the Stage 1 specification. The GUP Joint ad hoc is gratified that the SA1 group now wishes to forward the GUP Joint ad hoc's work on the Stage 1 specification and welcomes the opportunity to relinquish control of that specification to the SA1 group.

As requested by the SA1 group, the GUP Joint ad hoc has frozen the Stage 1 22.240 specification at the v0.3.0 revision level. The GUP Joint ad hoc, however, feels that it would be remiss in its obligations to provide as accurate a specification as possible to the SA1 group if the GUP Joint ad hoc did not note the issues and suggested corrections to the v0.3.0 version of the 22.240 specification that were open at time of freeze. To that end, please accept the following UP documents covering known issues and suggested corrections to the v0.3.0 22.240 specification that are specified in the Action section below.

Please note that several documents were postponed at the Stuttgart GUP Joint ad hoc meeting, and are attached here for your further attention.

Please note that the work on TS 23.241 (3GPP Generic User Profile - Data Description Framework) and TS 24.241 (3GPP Generic User Profile Common Objects) has moved to the T2 GUP ad hoc.

The GUP Joint ad hoc group looks forward to a continued collaboration with SA1 for the rapid completion of this joint effort. To that end, the GUP Joint ad hoc group will be available to participate in the SA1 GUP ad hoc during the SA1 ad hoc meeting in Phoenix during the week of 14-18 January, 2002.

## 2. Actions:

### To the SA1 and SA1 GUP ad hoc groups.

**ACTION:** Please review the attached documents for the potential inclusion in or modification of 22.240 Stage 1 v0.3.0 specification.

### To the SA2, SA3, SA4, SA5, T2, T3, CN4, CN5, T2 GUP ad hoc group.

**ACTION:** This is copied to the indicated groups to accommodate the list of groups copied in the original SA1 group liaison statement numbered S1-011176. No action is required since the documents included here are also reflected in the Status Update provided in UP-010128.

## 3. Date of Next GUP Joint ad hoc Meetings:

<b>S1 GUP (for reference)</b>	15-18 Jan 2002	Phoenix, AZ, USA
<b>T2 GUP #1 (for reference)</b>	05-07 Feb 2002	Sophia Antipolis
<b>GUP Joint #8</b>	07-08 Feb 2002	Sophia Antipolis

# 3GPP TS 22.XXX V0.3.0 (2001-10)

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*Technical Specification*

**3rd Generation Partnership Project;  
Technical Specification Group Services and System Aspects;  
Service aspects;  
Stage 1 Service Requirement for the  
3GPP Generic User Profile (GUP)  
(Release 5)**

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The present document has been developed within the 3<sup>rd</sup> Generation Partnership Project (3GPP™) and may be further elaborated for the purposes of 3GPP.

The present document has not been subject to any approval process by the 3GPP Organizational Partners and shall not be implemented. This Specification is provided for future development work within 3GPP only. The Organizational Partners accept no liability for any use of this Specification. Specifications and reports for implementation of the 3GPP™ system should be obtained via the 3GPP Organizational Partners' Publications Offices.

Keywords

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<User, Profile>

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# Foreword

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

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

Version x.y.z

where:

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

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# Introduction

The 3GPP Generic User Profile is the collection of data which is stored and managed by different entities such as the UE, the Home Environment, the Serving Network and Value Added Service Provider, which affects the way in which an individual user experiences services.

The objective of specifying the Generic User Profile is to provide a conceptual description to enable shared usage of the information content by the different entities. The specification of the GUP should also allow extensibility to cater to future developments.

The 3GPP Generic User Profile is composed of a number of User Profile components. An individual service may make use of a number of these components. The 3GPP Generic User Profile will be accessed by the user, used in capability negotiation, managed by terminal management servers, accessed by applications and used in other ways. The fact of having several domains within the 3GPP mobile system (e.g. Circuit-Switched, Packet-Switched, IP Multimedia Subsystem and the Service/Application domains) introduces a wide distribution of data associated with the user.

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# 1 Scope

The present document defines the stage one description to the 3GPP Generic User Profile (GUP). It specifies requirements to the 3GPP Generic User Profile, seen primarily from the user, home environment, serving network and service provider's points of view.

This TS includes information applicable to the home environment, device- and network manufacturers and service providers which are sufficient to provide complete support of services in 3GPP networks.

While the 3GPP Generic User Profile may contain components that are out of scope of 3GPP (e.g. for services offered by third parties) the requirements in this specification pertain only to those components that lie within the 3GPP system.

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## 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same release as the present document*.

- [1] 3GPP TS 21.905: 3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Vocabulary for 3GPP Specifications.
- [2] 3GPP TS 22.121: "3rd Generation Partnership Project; Technical Specification Group Services and System Aspects Service Aspects; The Virtual Home Environment".
- [3] 3GPP TS 22.097: "Multiple Subscriber Profile (MSP) Phase 1; Service description - Stage 1".
- [4] 3G TS 21.133: "3G Security; Security Threats and Requirements".

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## 3 Definitions, symbols and abbreviations

Here are only included definitions that are in addition to that in 21.905.

### 3.1 Definitions

**3GPP Generic User Profile:** The 3GPP Generic User Profile is the collection of data which is stored and managed by different entities such as the UE, the Home Environment, the Serving Network and Value Added Service Provider, which affects the way in which an individual user experiences services.

**Data Consumer:** A data consumer is an entity which uses data stored and controlled by another network entity.

**Data Source:** A data source is an entity which stores and controls data relevant for its operation.

**User Profile Component:** User Profile components are all the detailed data that specifies: General user and subscriber info, UE and application capabilities, subscriber settings, user preferences, user settings, identifiers, security policies and settings, etc. A user may have zero, one or more instances (specific values) of a specific User Profile component, which is defined here as a logical grouping of related data. An instance of a User Profile component includes identity, type, structure, access rights, storage locations, and ownership.

### 3.2 Abbreviations

Here are only included definitions that are in addition to that in 21.905. For the purposes of the present document, the following abbreviations apply:

GUP 3GPP Generic User Profile

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## 4 General description

The 3GPP Generic User Profile is the collection of data which is stored and managed by different entities such as the UE, the Home Environment, the Serving Network and Value Added Service Provider, which affects the way in which an individual user experiences services. The 3GPP Generic User Profile is composed of a number of User Profile components. An individual service may make use of a number of User Profile components (subset) from the 3GPP Generic User Profile.

### 4.1 3GPP Generic User Profile Concept

The advantage of specifying a Generic concept is that the user profile can easily be extended. All new data that will become part of the User Profile, and all new services that will be developed can use the already existing mechanism defined for the 3GPP Generic User Profile concept. Only some parts of the User related data are part of the 3GPP Generic User Profile, which can be classified in the following categories:

**[Editor's Note: possibly move following text to later section, or remove]**

**Part of 3GPP Generic User Profile:**

- Data that affects the way in which an individual user experiences services.
- Settings/Preferences. Configuration data, administration data, object identifiers.
- Capability descriptions.

**Examples of data categories that are not part of 3GPP Generic User Profile**

- Run Time Data. The data that is created during the initiation of the session, call or application execution and if they are only available during the lifetime of such session, call or application execution then they are considered as Run Time data.
- Historic/Statistic Data. User/system behaviour information (e.g. statistics on the usage preferred web pages; duration, number of call; error rate).

### 4.2 GUP and GUP components

**[Editor's note: Terminology to be revisited]**

**[Editor's note: possibly use diagram from 67 (Materna)]**

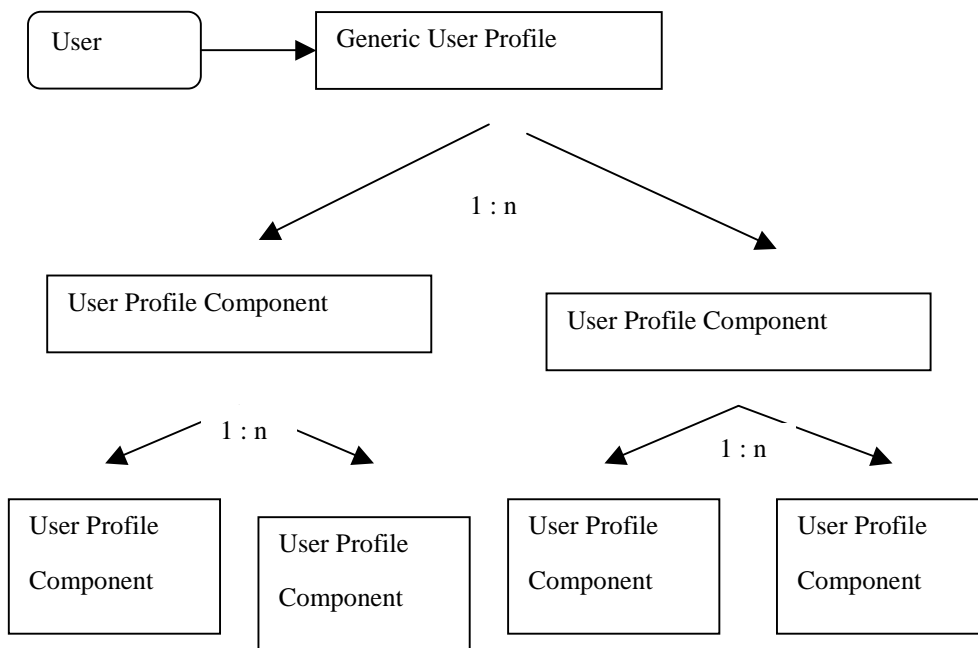
**[Editor's note: diagram to be revisited]**

A user has one single 3GPP Generic User Profile, and this Generic User Profile consists of User Profile components. A User Profile component is a logical grouping of related data.

Further elaboration on the User Profile Component content is needed and will be provided at further meetings.

A user may have one or more instances (specific values) of a specific User Profile component. An instance of a User Profile component is inherit from the Generic User Profile component. An instance of a User Profile component may be individually customised by the user.





A User Profile component may includes type, structure, access rights, storage locations, and ownership. There are 2 scenarios to consider for the instantiation of a User Profile component:

- An instance of a component is stored in one location, but might be copied to other locations for reasons such as efficiency.
- Several instances of a component exist with different content (e.g. a Qos instance relative to home use and travelling).

**[Editor’s note: Not agreed upon usage of ‘Service Customisation Sets]**

A particular set of User Profile Component Instances may be grouped into a “Service Customisation Set”. The user will experience service according to the currently active Service Customisation Set.

**[Editor’s Note: The following text needs to be considered in relationship to the previous text, which is almost a duplicate, except for diagram references]**

A user has one single 3GPP Generic User Profile, and this Generic User Profile consists of User Profile components.

A user may have zero, one, or more instances (specific values) of a specific User Profile component, which is defined here as a logical grouping of related data. An instance of a User Profile component includes identity, type, structure, access rights, storage locations, and ownership. There are 2 scenarios to consider for the instantiation of a User Profile component:

- An instance of a component is stored in one location, but might be copied to other locations for reasons such as efficiency. See diagram X.
- Several instances of a component exist with different content (e.g. a Qos instance relative to home use and travelling). See diagram Y **[Editor’s note: No diagram Y exists in this document]**

### 4.2.1 Logical versus physical GUP

It is important to distinguish between the logical and the physical view of the GUP.

The *logical* view of the GUP describes what components belong to the profile, including the component instances needed for different profile variants (Home, office..).

The *physical* view of the GUP describes how the different components are distributed over different storage nodes and the relation between them (e.g. distributed copies for efficiency reasons).

One logical view of GUP could have more than one implementation, that is, more than one physical view of GUP.

This stage 1 TS elaborates on the logical view.

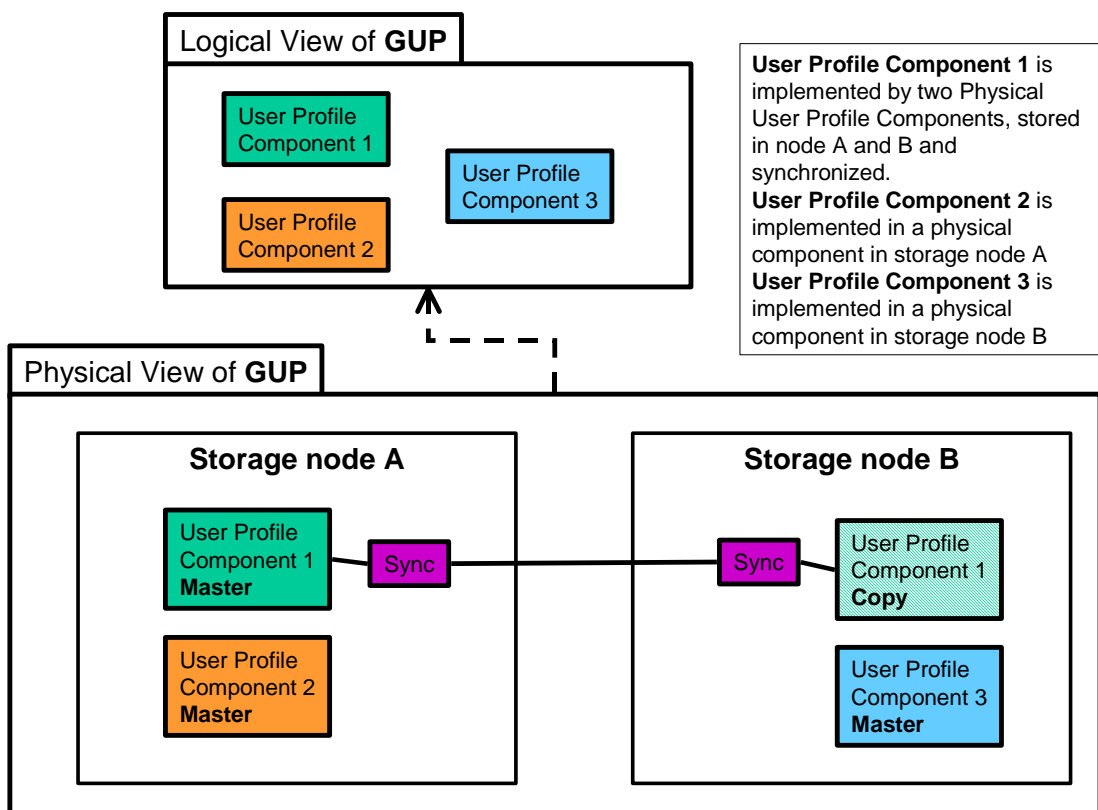


Figure X: GUP logical and physical view

## 4.2.2 Instances of the GUP components – Active sub-profiles

**[Editor’s note: Need to revisit terminology regarding sub-profiles and Service Customisation Sets and fit to following diagram]**

GUP consists of User Profile Components. The GUP could contain more than one instance of a specific User Profile Component, that is, all the possible values that a certain User Profile Component could have for different situations. Only one instance of this specific component is active in a specific situation, that is, when the GUP data is used/accessed, only a subset of all the component instances are relevant, i.e active. We denote this subset *Active sub-profile*.

An application accessing the GUP information will only access its active sub-profile. However, when managing the GUP, all different instances would be accessible.

GUP Components	GUP Component Instances, CI x	Sub-profiles that can be activated		
		Home	Meeting	Car
UPC Call Forward	CI 1: Status=on, Number= 9999	√		
	CI 2: Status=on, Number= 0111			√
	CI 3: Status=off, Number= Not def.		√	
UPC Ring Signal	CI 1: Ring= Mymelody	√		√
	CI 2: Ring= Silent		√	
UPC Subscription Identity	CI 1: IMSI= 123 45 6789	√	√	√

**[Editor’s note: Need to develop a generic version of the previous table]**

## 4.3 3GPP Generic User Profile Data Classification

**[Editor’s note: Need further discussion and verification of the following bullet points. Currently a lack of agreement on the definitions.]**

The purpose of this classification is to understand the 3GPP Generic User Profile from a contents perspective i.e. what is within the scope of the 3GPP Generic User Profile.

The data that constitutes the 3GPP Generic User Profile can be classified according to the following classification criteria. This section contains a non-exhaustive list of classification criteria: Information Characteristics, Storage location, and Ownership. For each criterion there are examples.

(a) Information Characteristics:  
*Txt?*

- **General Information**  
 This is information not controlling the behaviour of a function. Examples are
  - General User Information (Name, address, age, sex, ID)
  - Logical identifiers (e.g. logical name, personal number, e-mail address)
  - General Subscriber Information (Name, bill info, users)

- **Capability description**

describes the capacity of something. It is normally not configurable by the user. Capability information can be used to select the best content/information/function/strategy among a number of possible ones.

- Terminal Capabilities

As the number and variety of devices grows, there is a corresponding increase in the need to adopt the interaction depending on the capabilities of different devices. The terminal capabilities have to be described. Examples of terminal capabilities are: User interface capabilities, Communication capabilities, Synchronisation capabilities, MExE capabilities, WAP Browser capabilities.

- Subscribed Network capabilities

the variety of subscribed network capabilities will vary from user to user. There will be a need to describe the subscribed capabilities. Based on this information the subscriber will be allowed to gain access to the set of subscribed capabilities.

**[Editor's note: revisit the above definition "service provisioning data" in previous draft]**

- Serving Network Capability

the capabilities of the used network will vary between networks and even within a network. The mobile environment related capabilities could differ from place to place. There will be a need to describe the supported capabilities. Based on this information and information about subscribed capabilities, the user will be allowed to gain access to the set of subscribed and supported network capabilities.

- Subscribed Service Capabilities

These data that provisioned to a user or not.

- **User's Preferences**

These are wishes set by the user, and indicate a preference to use one particular type of content/information/function/strategy over another. A preference can be defined before you know which function will be using them. Examples are:

- User Interface preferences

- Browser appearance (User's preference for displaying frames)

- Preferred memory usage

**[Editor's note: Need to revisit Service Customisation terminology and its relationship to capability description - above]**

- **Service Customisation**

This is information used to customise one or more services/applications/functions according to the user.

Examples are:

- User interface (Ring volume, Vibrating alert, Ring signals, Melodies, Key sound)

- WAP Parameters (Bookmarks; Gateway: Internet account, Gateway IP address, User ID, Password, Data mode, Security, Show images, Response timer)

- User security policy (application download, ciphering, positioning)

- User Security data (Secret keys, user name)

- Authentication data (e.g. password, pin, voiceprint)

- Supplementary Services settings

- Redirection number (for call forwarding service)

- Screening lists (for outgoing and incoming call screening services)

- Quality of service associated to this particular service

(b) Storage location:

A general feature of the 3GPP Generic User Profile is that the different nodes are consumers for a certain subset of the data and are sources for another part. As a result, the parts of the 3GPP Generic User Profile are stored in different places. The same information can also be stored in many places.

- **Core Network**
  - Home network
  - Serving Network
- **User Equipment (UE)**
  - ME (MT and TE)
  - UICC
- **Application Valued Added Service Provider Equipment**

[Editor's note: Application Service Provider Equipment – need to clarify definition. For both ownership and storage location]

(c) Ownership:

The ownership of data is used in the access control. A node does not automatically own the data stored in it. A trusted node can store data own by many different owners.

- **User**
- **Subscriber**
- **Network operator**
- **Home Environment**
- **HE Value Added Service Provider**

[Editor's note: We need to revisit this bullet, regarding HE-VASP and VASP]

[Editor's note: Application Service Provider Equipment – need to clarify definition. For both ownership and storage location]

## 4.4 Data Consumers and Data Source Categories

[Editor's Note: Ericsson document 50 to be discussed, regarding 4.4]

A general feature of the user profile is that the different network entities are data consumers for a certain subset of the user profile and are data sources for another part. As a result, the user profile is a highly distributed data set across different network elements and administrative domains.

A categorization is proposed for the different data consumers/sources into different roles. Those roles can have very different characteristics and induce different requirements to the user profile management architecture.

**Core Network (CN)** [data source and consumer] elements are interacting on the base of a well-defined standardized data model with narrow focus. They are characterized by infrequent changes of the used data model, high throughput, and short response time. Communication and data exchange between CN-network elements is done via standardized protocol relationship with static data structures. *Changes of CN-functionality are assumed to be infrequent.*

**Operation and Maintenance (OAM)** [data consumer]: OAM activities related to user profile are provisioning and administration of subscriber data by the network operator. These activities are characterized by needs for high throughput and longer response time. In order to allow simple and centralized administration it should be transparent to the administrator where the different parts of the subscriber data are stored. As a result, this role needs a single system image on user profile, or, on functional terms, a common data access function.

**User Equipment: (UE)**: UE activities related to the user profile include indirect referencing on request from a Service Provider (client capability query), capability negotiation between UE and Service Provider, and User setting of her Preferences etc, via the MMI.

The other roles are represented by applications. Generally, every application splits into two parts: First, the part providing the actual service the user is subscribing for (e.g. service execution) and, second, the part which is used by the subscriber to change his personal service preferences (e.g. service customization):

**Real-Time Application**: This is the first part of an application using data with stronger requirements on response time (being the time where a data change becomes effective) but less requirements on throughput than core network elements. *Changes of behaviour, data model, or even existence of applications are assumed frequent.*

**Management-Application (subscriber self administration)**: The part of an application used for subscriber-specific service self-administration using data with weaker requirements on response time and on throughput.

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## 5 High level requirements

### 5.1 General User Requirements to support the User

**Requirement for personalisation of services:**

- The 3GPP Generic User Profile shall enable personalisation of a user's services.
- The User shall be able to define a Default User Profile to use that meets their minimal requirements in case the entire set of expected User Profile components are not available. In such a case, the Default User Profile shall be enabled. An example of this is when one or more data sources (e.g. servers), holding key User Profile components are not available. The User requires her User Profile to be available to provide the Data consumer (e.g. ISP) with the ability to perform content negotiation. Rather than experience no level of service personalisation, the user shall be provided with a Default User Profile, that meets their minimum expectations.

**Requirement for recovery of UE-based services:**

For services that have been provisioned to the user by the HE-Operator and/or HE-VASPs, the user shall have the possibility to:

- Recover the set of services she has downloaded to her UE in case of loss or damage. Recovery will be performed at the UE. This requirement applies only to those services, that were installed in the UE via 3GPP capabilities and only if the original service is still available and can still be downloaded.
- Recover persistent service customisation data which are stored in the UE if lost or damaged at the new UE. This requirement applies only to those persistent service customisation data , that were stored in the UE via 3GPP capabilities (e.g. MExE).
- Transfer persistent service customisation data which are stored in the UE to a different UE. This requirement applies only to those persistent service customisation data, that were stored in the UE via 3GPP capabilities (e.g. MExE).
- The GUP shall support a minimum set of capabilities to ensure interoperability between different networks independent of the access mode.

## 5.2 Management, Provisioning and Access

The 3GPP Generic User Profile may need to be accessed by:

- The network entities that perform call/session control
- The operator for OA&M administration
- Applications for operator specific services
- OSA to provide secure access mechanism for services

It shall be possible based on user privacy settings, to permit the secure authorised access by the network operator, HE-VASP and user to:

- create one or more User Profiles
- request information contained in a User Profile
- delete a User Profile
- modify a User Profile
- define the default User Profile
- define the criteria for automatically selecting User Profiles

## 5.3 Synchronization Aspects

The primary goal is to ensure that a single consistent user profile is used. For recovery purposes those parts of the User Profile, that are stored in the UE (ME and (U)SIM), shall have a backup copy in the Home Environment.

Mechanism(s) shall be standardised to support the mutual synchronization of the User Profile information stored in the ME, ((U)SIM), with information in the Home Environment. The HE shall be able to perform a synchronization of the user profile whenever it is deemed to be appropriate. The user shall be able to defer a user profile synchronization if he so wishes and schedule it for a later time. It shall be possible for the user to pre-define when synchronization of the User Profile should take place (e.g. when services data is modified).

## 5.4 MMI Aspects

The user shall be able to activate, deactivate, and customise components of her 3GPP Generic User Profile by action at the User Equipment.

## 5.5 UE requirements

Services may be provided to the user by applications that are executed in the UE. Within this specification only requirements on the GUP are stated for those applications in the UICC and the Mobile Equipment that function via 3GPP standardised mechanisms (e.g. SAT and MExE). Other applications in the UICC or applications in the TE are out of scope of this specification.

For services provided by the HE-Network or HE-VASP these applications shall be able to:

- Supply sufficient GUP data to the HE-network to allow re-installation of the application in case of a necessary recovery of the UE.

## 5.6 Home Environment requirements

This chapter specifies requirements on the HE-Network and HE-VASPs to enable the 3GPP Generic User Profile.

This specification does not address requirements for VASPs to enable the 3GPP Generic User Profile, which is outside of the scope of this specification. However, VASPs that wish to support the 3GPP Generic User Profile are referred to the requirements below.

### 5.6.1 Requirements of the HE-Network concerning management of and access to the GUP

The HE-Network shall be able to control and administer the following parts of the 3GPP Generic User Profile of her users:

- Network access and Mobility data.
- Service Provisioning data of services, which are either offered directly by the HE-Network or by a HE-VASP in collaboration with the HE-Operator.

Note: Optionally it shall be possible that Service Provisioning data of services, which are offered by a HE-VASP, are administered by that HE-VASP herself. In such a case the network has no responsibility to store provisioning data of the service and provisioning is not checked by the network but may be checked by mechanisms of the HE-VASP which are outside of standardisation.

- Service Customisation data of services, which are offered by the HE-Network herself.

The HE-Network shall be able to control and administer backup data for her users that are necessary for recovery of the UE-based parts of the 3GPP Generic User Profile. In particular the HE-Network shall be able to

- Start the recovery process.
- Notify – via a standardised mechanism – HE-VASP applications in the UE to initiate recovery of UE-based HE-VASP parts of the GUP.

A common access mechanism to all data sources of the HE-Network, that are within the 3GPP scope, shall be standardised. The HE-Network shall be able to grant access to some parts of the GUP, that are under HE-Network's control, according to the following principles:

- This access mechanism shall allow an application to create, modify and delete data of those parts of the GUP, for which the necessary access rights had been granted by the HE-Network.
- The access mechanism shall be extensible so that non standardised data sources and future 3GPP data sources are capable to implement this access mechanism. In particular the access mechanism shall be independent of the semantics of the GUP data.



- The access mechanism shall check access rights of an application before the application may access GUP data. These access rights shall be based on:
  - The identity of the user
  - The identity of the application
  - The part of the GUP that is accessed
  - The intended access method (create, modify, delete)
- The access mechanism shall also be useful for OAM purposes.

## 5.6.2 Requirements of HE-VASPs concerning management of and access to the GUP

For the users, to whom he provides services, and subject to access right restrictions set by the HE-Network the HE-VASP shall be able to access GUP data from the HE-Network via the common access mechanism.

Note: E.g. data like Service Provisioning data of services, that are offered by the HE-VASP will need to be accessed by the HE-VASP.

The HE-VASP shall be able to grant access to some parts of the GUP, that are under HE-VASP's control, via the common access mechanism.

## 5.7 Serving Network requirements

**[Editor's note: We still need to determine if this section is necessary. Section 5.6 may already contain the requirements]**

---

# 6 Security

Secure mechanisms shall be available for the transfer of User Profile data to, from or between authorised entities. Access to User Profile data shall only be permitted in an authorised and secure manner. The secure mechanisms to be applied shall be appropriate to the level of confidentiality of the data, the endpoints of the transfer and the routes that are available for the transfer of the data. The owner of the data, normally the body storing the master copy of the data, shall be responsible for applying the appropriate level of security to the transfer of the data.

The secure mechanisms available shall include the following:

- Before any user data transfer takes place, it shall be possible for the sender of the data to verify the identity of the recipient.
- It shall be possible for the recipient of data to identify the sender.
- It is permissible for either the sender or recipient of data to employ the services of a third party, known to, and trusted by, both in order to provide authentication of identity.
- The validity of an authentication of identity shall, if required, be subject to a maximum time limit.
- It shall be possible for the sender of data to render the data to be unreadable by any party not authorised to receive it.
- It shall be possible for the recipient of data to detect whether the sender has made any change to the data subsequent to its transmission.
- The security mechanisms shall provide verification that the data has been sent by the sender and received by the recipient (non-repudiation).

- It shall be possible for the sender and/or the recipient to create an audit log of all data transfer transactions of a specified type, provided that this requirement is made known before any transfer takes place.
- User profile data in general is proprietary data owned by some companies. These data may not be exposed to everyone and not for free. *Access control* to the data is required. This access control must also apply to data which is located at legacy systems, currently without own access control functionality.
- Correct setting of data values in the user profile may be critical for the integrity of certain network services. Therefore, *consistency checks* are needed to minimize the risk.
- Transaction security for the change of data should be available in order to ensure the consistent change of data at different locations.

---

## 7 Privacy

It shall be possible for the user to define privacy requirements for components of the 3GPP Generic User Profile to determine access rights. The privacy requirements shall fulfill local privacy regulations.

---

## 8 Charging

It shall be possible to support charging for the management, access and use of the 3GPP Generic User Profile. (e.g. for capability negotiation or remote diagnostic information gathering).

---

## 9 Roaming

The 3GPP Generic User Profile shall be available globally when roaming.

---

## 10 Robustness of Service

Where the full capabilities of the 3GPP Generic User Profile are not available because of failure of an entity or human error – the User shall experience a graceful degradation of service behaviour.

---

## 11 Administration

In the 3G networks it is expected that user profile data is not only distributed over different network elements but belongs to different administrative domains. These administrative domains may be closed against external access. However, in order to enable a seamless service experience for the user a controlled transparency to exchange user profile data is needed.

There exist two main cases to be addressed:

### 1. Domain borders in the home network:

Already in the network of the subscriber's home network operator there may exist different domains. Potential examples are application of 3<sup>rd</sup> party service providers which are loosely coupled with the network provider, e.g. their applications run under the brand of the network operator but their data are stored and maintained apart from the network operator's entities.

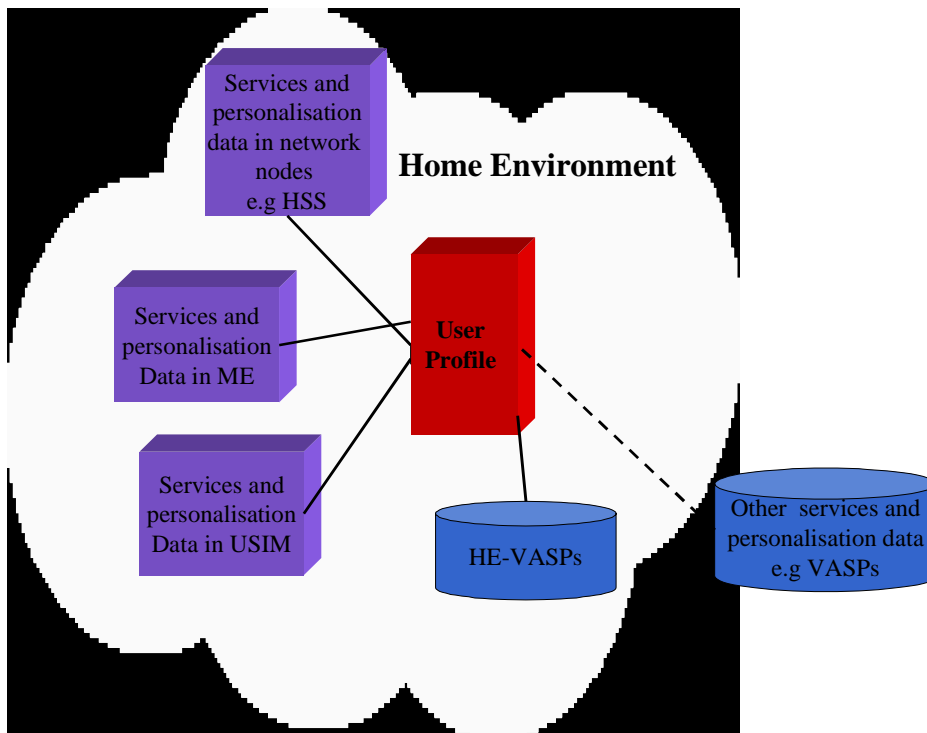
### 2. Domain borders between different network operators:

This is the well-known roaming scenario where a user is served by another network than his home one. Roaming is already addressed by mobile networks but in the case of 3G networks there is an important additional requirement: The assumed frequent changes of applications induces a need to handle frequent changes of data sources/consumers.

As a result, the user profile data access architecture shall enable the transparent and flexible usage of the user profile data. It shall provide transparent access to distributed data fulfilling the needs of the different roles described above. Furthermore, the architecture shall address the fact that parts of the user profile data are potentially located in different administrative domains. Possible means are negotiation capabilities and proxy functionality at the domain borders.

## Annex <A>: Example 3GPP Generic User Profile use cases

[Editor's Note: The following diagrams are for informative purposes. They present examples of the distributed locations of the User Profile components, location and related functions, as an aid for illustrating the listed use cases.]



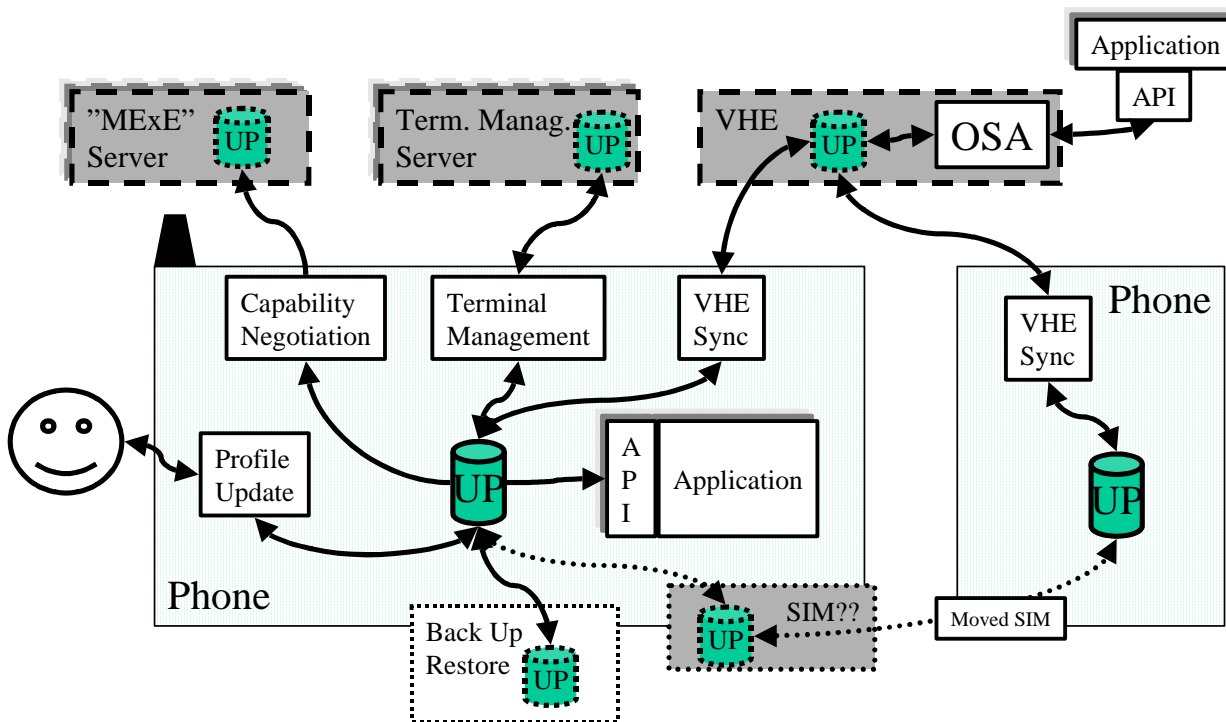
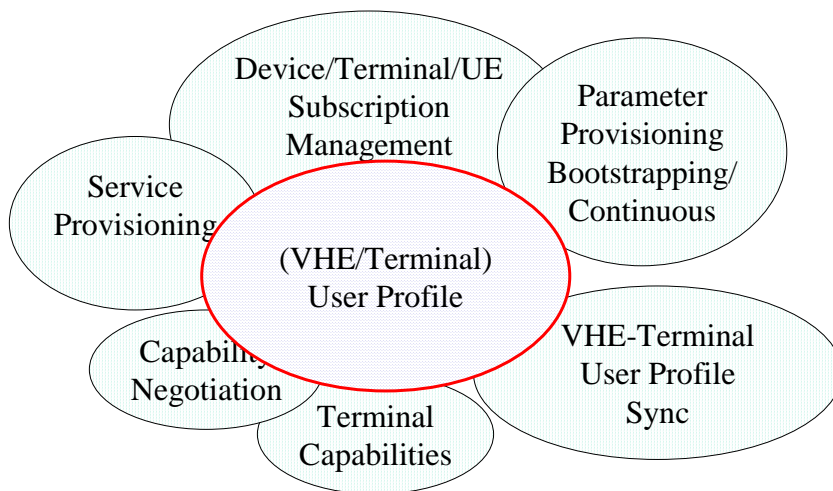


Figure x: Distributed View of the 3GPP Generic User Profile

## Some User Profile Related Functions



### 1. Setting up a Subscription.

- Precondition
  - A person has just purchased a new device, and requires subscription to be initiated in the shop.
- Actions
  - The user preferences for services are established.
  - Information about the terminal capabilities are received from the UE.
  - User Profile content is created for the Subscriber, and downloaded over the air, via local link or similar
- Post-condition
  - The user can leave the shop. Her phone/device is ready to use. Basic settings needed to start and run initial applications ready.

### 2. Initial Service Configuration (Bootstrap)

- Precondition
  - No settings made, user with a subscription
- Actions
  - Settings, partly based on user profile downloaded over the air, via local link or similar
  - The download initiated by the service provider, network operator, 3<sup>rd</sup> party or user
- User Data
  - Setting received could include basic connectivity configuration parameters and the user's security policy
- Post-condition
  - The user's phone/device ready to use. Basic settings needed to start and run initial applications ready

### 3. Backup / Restore of User Profile Components stored in the UE

- Precondition
  - The phone is configured, all the user preferences are set.
  - The settings include user profile parameters such as generic parameters, service personalisation parameters, user's security policy and other user preferences
- Actions
  - The user wishes to backup or restore the current version, or parts of the current user profile to the network, or to another UE.
  - The backup/restore is performed via local link or remotely towards the network
  - The backup/restore can be initiated by the user, the service provider, 3<sup>rd</sup> parties or the network operator
- User Profile Storage
  - Secure area of the (U)SIM or ME or retained in the network by the service provider. User private data is only stored in the network with the user permission.

#### 4. Content Negotiation

[Comment: add Push Stage 1 diagram for content negotiation]

- Precondition
  - The user has set her preferences in the UE
  - Terminal type capability information is stored in "internet"
- Actions
  - The user initiates request for content. The request contains:
    - User preference fetched from the UP
    - Reference to the capability information is stored in "inter net"
    - Deviating capability information
  - Returned content selected or tailored according to User preferences and capability information

#### 5. Application Access to User Profile Data using OSA (Pull Scenario)

- Precondition
  - The [OSA] application is registered with the OSA framework
  - The [OSA] application is authorised to access the user profile management Service Control Function and use methods which permit read/write data in user profiles
- Actions
  - The application uses OSA to read/write data in the user profile of the user
  - The network provides the requested data or modifies the data as requested
- Post-condition
  - Consistency of the user profile data

#### 6. Notification of user subscription to an HE-VASP application using OSA (Push Scenario)

- Precondition
  - The OSA application from the HE-VASP is registered with the OSA framework
  - The OSA application is authorized to receive subscription / unsubscription notifications
  - The OSA application has subscribed to the notification permitting to it to know when new users have subscribed to the service implemented by the OSA application
- Actions
  - A new user subscribes to the service implemented by the OSA application
  - The Home Environment notifies the OSA application about a new subscription and provides it with relevant information (e.g. identity of the user)
  - Possibly the OSA application provides the home environment with a link (e.g. URL) to a location where the user can customize the service

- Post-conditions
  - The OSA application can now have access to home environment -owned user profile information for this user, provided that it is granted the related access rights
  - The user can customize service data for the service implemented by the OSA application

### **7. Customization of service specific data for a VHE service provided by a HE-VASP**

- Preconditions
  - The user has a VHE subscription
  - The user is subscribed to the service provided by the HE-VASP
  - There is a link from the user Personal Service Environment (PSE) to the HE-VASP for service customization
  - The user has access to her PSE and has successfully been logged to it
- Actions
  - The user accesses her PSE and decides to customize the service provided by the HE-VASP
  - She transparently access a service customization interface provided by the HE-VASP (possibly via a hyperlink)
  - She defines/modifies service customization data, which are managed and stored by the HE-VASP
- Post-condition
  - Next time she uses the service, new customization data will be used

### **8. Terminal Management – Manual Helpdesk**

- Precondition
  - A user is complaining because her pocket web browser does not work. He calls the helpdesk
- Actions
  - The UE capabilities are established by the helpdesk person
  - A helpdesk person at an operator, service provider or enterprise verifies that the correct operating parameters are set on the device of a complaining user
- Post-condition
  - The user's is happy. The pocket web browser is running correctly

### **9. Terminal Management – Automated Self Fixing**

- Precondition
  - A software agent on the user's device identifies an error.
- Actions
  - It contacts the helpdesk software entity to fix the problem.
  - The UE capabilities are established by the automated self-fixing solution.



- The self-fixing solution correctly diagnoses the error and provisions a bug fix.
- Post-condition
  - The user's device software executes correctly (and is happy)

---

## Annex <B> (informative): Recommended User Profile content

- General Information
    - Not controlling functions.
    - General User Information (Name, address, age, sex, ID)
    - General Subscriber Information (Name, bill info, users)
  - Capability description
    - Describe capacity. Normally not settable.
    - Terminal capability
    - User interface capabilities
    - Communication capabilities
    - Synchronization capabilities
    - MExE capabilities
    - WAP Browser capabilities
  - User's preferences
    - User's "wishes". Sent to servers. Used for "content selection".
    - User interface preferences (language, event notifications..)
    - Browser appearance (User's preference for displaying frames)
    - Preferred memory usage
    - IPMM preferences
  - Parameters
    - User interface (Ring volume, Vibrating alert, Ring signals, Melodies, Key sound)
    - WAP Parameters (Bookmarks; Gateway: Internet account, Gateway IP address, User ID, Password, Datamode, Security, Show images, Response timer)
    - User security policy (application download, ciphering, positioning)
    - User Security data (Secret keys, user name)
    - Supplementary Services settings
    - IPMM settings (QoS profile, max nob sessions, roaming restrictions)
    - Identifiers/addresses/references (IMSI, IMEI, MSISDN...)
-



**3GPP Joint Ad-Hoc on Generic User Profile 7**  
**Cancun, Mexico**  
**3-5 December 2001**

*UP-010130*

**Agenda Item:** 9. Stage 1  
**Source:** 3GPP Joint Ad-Hoc on Generic User Profile  
**Title:** TS 22.240 section 5  
**Document for:** Input to SA1 Ad-Hoc on Generic User Profile

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This is a proposal for section 5 in TS 22.240 for version 0.2.0.

The current section 5 contains the main requirements on functions utilizing the Generic User Profile and not requirements on the Generic User Profile itself. This document is based on the document UP-010082 (Update of Stage 1 Section 5) from 3GPP Joint Ad-Hoc on Generic User Profile 4.

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## 5 High level requirements

This section outlines the high level requirements that should be supported by the 3GPP Generic User Profile and its parent Concept. These requirements are generic and independent of the UE, HE, visited network, or third party service provider.

### 5.1 Persistent user services personalization

The user (e.g., subscriber, operator) of the Generic User Profile shall be able to personalize the content of the profile. The Generic User Profile data contains the user's preferences and settings (e.g., language, network access parameters). The data can be stored in the home network (e.g., HSS), UE (e.g., PDA, UICC/USIM), home environment or third party service provider.

### 5.2 Backup and recovery of UE-based Generic User Profile data

The user of the Generic User Profile must be able to support the backing up and restoring of the profile's data content such that, should the user discover a specific problem, a recent functional copy may be restored through either manual involvement or automatic intervention.

### 5.3 Transfer of service customization/preference data between different UEs

The Generic User Profile shall support the ability to transfer GUP components between two UEs using a locally activated, local communication mechanism.

### 5.4 Creation of the Generic User Profile

The Generic User Profile Concept shall support the creation and initialization of Generic User Profiles associated with specific users and individual or group subscriptions. Some examples of these are:

1. A user's initial individual Generic User Profile content that relates to a specific user network subscription created by the service provider's subscription manager.

2. Group subscription profile allowing linking of multiple users' Generic User Profiles to a common managed group subscription profile. This profile consists of one or more Generic User Profiles related to the associated group's subscriptions. This managed group subscription profile may be controlled within or external to the network.

In some cases, there is a need for anonymous users such as those using subscriptions with fixed finite lifetimes (e.g., "Pre-paid" subscriptions). The introduction of the UICC/USIM allows for multiple network subscriptions to be used within a single UE.

## 5.5 Creation of the Services Generic User Profile (Service management)

The Generic User Profile Concept shall support the creation and initialization of Generic User Profiles associated with specific individual or group services. Some examples of these are:

1. A user-specific service profile created by the service provider's (e.g., a network operator, third party service provider) services manager or by the user to personalize the service for the user in question.
2. Group service profile allowing linking of multiple users' Generic User Profiles to a common managed group service profile. This profile consists of one or more Generic User Profiles related to the associated group's services. This managed group service profile may be controlled within or external to the network.

These examples could include basic connectivity configuration parameters and appropriate security policies, and do not preclude "Pre-paid" or other service offerings.

## 5.6 Capability and content negotiation

Capability and content negotiation represents the mechanism by which the application and services interact to inform each other of the specific mechanisms, capabilities, and functions which each is able to support. This mechanism should enable the user to request and get suitable content. It also should enable the UE to inform the serving network of its capabilities. The purpose of capability and content negotiation is to optimise the user experience according to the user's preferences and the capabilities of the UE and access and serving networks.

The Generic User Profile shall provide the mechanism(s) for interpreting the user preferences, describing the capabilities, and accessing the capability and user preferences information.

## 5.7 Capability discovery

Sets of service capabilities can be combined in arbitrary ways to deliver competitive end services to customers. Through the discovery mechanism, the user should be able to request information about the range of services available from the serving network to which the user is connected.

The Generic User Profile shall provide the mechanism(s) for describing the service capabilities and accessing the capability information.

## 5.8 Access control and ownership

The Generic User Profile Concept shall fulfil requirements related to security (e.g., access rights, privacy).

The ownership of the Generic User Profile data shall be used for access control. The UE, network, or other Generic User Profile data storage location does not automatically own the data stored within it. A storage location with access control can store data owned by many different owners (e.g., user, subscriber, network operator, home environment).

## 5.9 Applicability of the Generic User Profile Concept

The Generic User Profile Concept supports a set of capabilities to ensure that users are consistently presented with the same service experience, based on the selected preferences, irrespective of the network access method (i.e., wireline, wireless).

**3GPP Joint ad-hoc on Generic User Profile**  
**Cancun, Mexico**  
**3 – 5 December 2001**

**UP-010132**

**Source:** GUP ad-hoc

**Title:** Requirements on classification principles and architecture rules for the Generic User Profile Data

**Agenda item:**

**Document for:** Discussion and change to chapter 4 in stage1 V 0.3.0

---

This document adds the requirements on having a classification supporting the grouping of data in Generic User Profile Components, in order to define how to structure the data that does belong to the User Profile. The classification principles outlined in Stage 1 has to be elaborated and guidance how to group data in components and storage selection should be included in the Stage 2 specification.

We suggest the classification of the Generic User Profile Data spitted in two parts in order to:

1. Clarified what belongs to User Profile. This classification is already in the section “4.3 User Profile Data Classification” and has the main intention of understanding *which data is included* in the User Profile. This classification is informative.
2. With the new proposed classification how to structure the data that does belong to the Generic User Profile, the principles on how the data is structure shall be stated in a stage2 specification. These rules will be normative for all the 3GPP TSG WGs that define their User Profile Data.

---

## 4.x Classification supporting selection of Generic User Profile Components

The purposes of the classification of 3GPP Generic User Profile data is to support the grouping of data in Generic User Profile Components, the selection of the storage location(s) and the selection of synchronisation mechanism(s).

The classification in the section “4.3 User Profile Data Classification” has the main intention to help understand which data are included in the User Profile. This classification is informative.

The required classification in TS 23.240[xx], shall define how to structure the data that belongs to the Generic User Profile. These structuring rules will be normative for all the 3GPP TSG WGs that define their User Profile Components.

In TS 23.240[xx], the Stage 2 specification, the following shall be included:

- Classification of Generic User Profile Data,
- Guidance how to group data in components and
- Guidance how to select storage selection.

**3GPP Joint ad-hoc on Generic User Profile**  
**Cancun, Mexico**  
**3 – 5 December 2001**

**UP-010137**

**Source:** GUP ad-hoc

**Title:** Relationship between VHE and GUP

*The following text may be used as an input to the LS sent to SA1 (Christophe)*

The Generic User Profile and associated concepts are applicable to the Virtual Home Environment but are not limited to it. On the other hand, VHE requirements related to user profile may not be all included in GUP stage 1 specification.

It is therefore proposed that the GUP specifications avoid using VHE-specific terminology unless the intention is to explicitly refer to VHE. This may be the case when, for instance, a GUP stage 2 or stage 3 specification (TS 23.240, TS 23.241, TS 24.241) also takes into account VHE requirements (TS 22.121).

More especially, the terms “Home Environment”, “HE-VASP” and “VASP” should be avoided in GUP specifications. They may be replaced, e.g. by “Home Network” and “3<sup>rd</sup> Party Service Provider”, [where appropriate](#).

3GPP Joint Ad-Hoc on Generic User Profile 7  
Cancun, Mexico  
3-5 December 2001

**UP-010145**

**Title:** Miscellaneous Issues for Resolution  
**Source:** 3GPP Joint ad-hoc on Generic User Profile (GUP)  
**To:** SA1, SA1 GUP ad hoc  
**Cc:** none  
**Response to:** none  
**Contact Person:**  
**Name:** Rob Lockhart  
**Tel. Number:** +1.561.739.2650  
**E-mail Address:** rob.lockhart@motorola.com

**Attachments:** none

---

The following issues require resolution within the 22.240 v0.3.0 specification.

Editorial issues for resolution:

1. Section 4.2 of v0.3.0: The first diagram should have the box sizes adjusted and a figure title added.
2. Section 4.3 of v0.3.0: The bullet on "storage location" was agreed to be removed during the Stuttgart meeting but this did not occur. To reflect this decision, this bullet point has been included in 23.240 v0.3.0, the SA2 Stage 2 specification.
3. Section 4.4 of v0.3.0: This section was agreed to be removed during the Stuttgart meeting but this did not occur.
4. In the entire document, occurrences of "Profile" and "User Profile" and "UP" should be changed to "Generic User Profile" or GUP as appropriate.

Items for discussion and resolution:

1. Clarification of the terminology related to "serving", "visited", and "access" networks for appropriate updates, if needed.
2. Removal of the ambiguity in the term "node(s)" and exchange for the appropriate choice of location, element, or whatever else is appropriate. This is to reflect the inclusion of the UE.
3. Review of the usage of the VHE terminology to correctly reflect the issues discussed in Tdoc UP-010137.
4. Incorporation of the requirement for "consistent user service experience" into Sections 9 and 10, as appropriate.
5. In the entire document, occurrences of "terminal" should be replaced with terms according to the appropriate 3GPP definition and context, e.g. "UE".



**Source:** Ericsson  
**Title:** Harmonised description  
**Agenda item:**  
**Document for:** DISCUSSION & CHANGE OF STAGE 1 V 0.1.0

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## 12 Data Description Framework

The content of the current chapter is moved to an appendix (for Stage 2) and it is replaced by the text below.

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## 12 Standardisation of User Profile Components

The fact that there are several domains within the 3GPP mobile system (i.e. Circuit-Switched, Packet-Switched, IP Multimedia Subsystem and the Service/Application domains) introduces a wide distribution of data associated with the user. The specification of the user profile content will also be distributed over many 3GPP specifications. Already, several 3GPP WGs specify some parts of the 3GPP Generic User Profile in their own descriptive methods.

The data contained in the User Profile will be handled by different applications for different purposes. In the standardisation work the same data are sometimes described several times, one time for each usage. This leads to extra work and, eventually, an inconsistent description of data.

The means of the standardisation work to achieve better efficient is:

- The data in the 3GPP Generic User Profile must be described only once.
- One single data description method must be used.

### 12.1 Coordination to avoid multiple descriptions

The involvement of different 3GPP WGs in the specification of the details of the 3GPP Generic User Profile introduces the risk of overlapping of different specifications that can cause incompatibility between different components of the User Profile. Therefore, a strong co-ordination is required to avoid these situations.

The 3GPP WGs standardise the data that is related to each WG. In order to avoid multiple descriptions of data used by more than WG must be handled in cooperation, under the responsibility of one appointed group. Principles for this coordination have to be elaborated in a Stage 2 specification.

### 12.2 Data Description Framework

Already several description methods are used within the 3GPP specifications for capabilities of 3GPP Release 4 and earlier. Examples are ASN.1, textual, CC/PP – RDF, UML/IDL, XML schemas etc. This variety of description methods will increase the probability that inconsistency will occur. As the data contained in the 3GPP Generic User Profile will be handled by different applications and entities for different purposes, there is a risk that various description methods might lead to duplications and/or inconsistencies. Therefore, a single description method should be used for the 3GPP mobile systems specifications.

The Data Description Framework defines **the method** to describe the data in a 3GPP Generic User Profile. It defines **the structure** of the data description. The Data Description Framework also defines **a default representation** (or transport format) of Data Descriptions and the data in a User Profile.

The description of a 3GPP Generic User Profile is divided into description parts:

- Description parts can more easily be reused.
- The responsibility of defining description parts can be distributed between different technical groups.
- Different description parts can be handled in different ways.  
Some description parts are standardised and some description parts are late defined and/or just published (One example is manufacturer specific profile components. The big variations in the UEs only makes it possible to standardise a part of the terminal related GUPC. However, the way that the GUPCs are described is standardised.).

**Source:** SIEMENS AG<sup>1</sup>

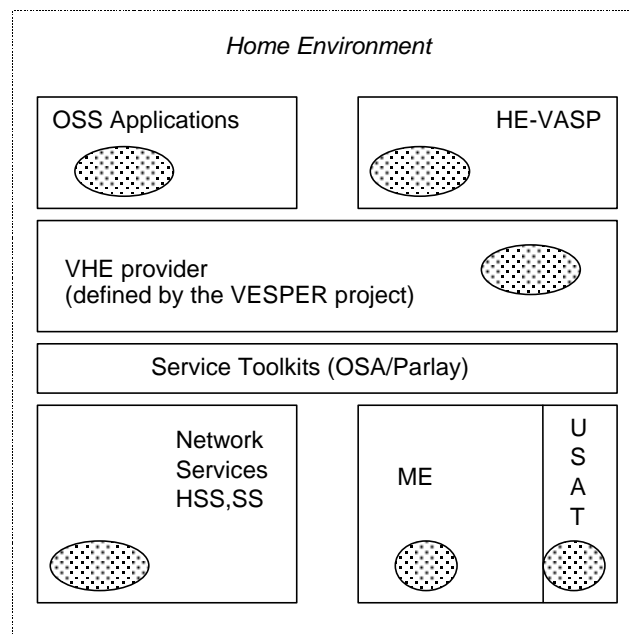
**Subject:** Management of Distributed User Profile defined by the IST Project VESPER

This paper is based on the framework of the project IST-1999-10825 VESPER, which is funded by the European Community. The Author would like to acknowledge the contributions of the partners from Intracom Hellenic Telecommunications and Electronics Industry S.A., National Technical University of Athens, Institut National de Recherche en Informatique et Automatique, IKV++ GmbH Informations und Kommunikationstechnologie, GMD - Forschungszentrum Informationstechnik GmbH, Fondazione Ugo Bordoni, Universita' Di Catania, Portugal Telecom Inovação, University of Surrey, Technical Research Centre of Finland and SIEMENS AG Österreich.

More information on the IST -10985 VESPER project could be found at <http://vesper.intranet.gr>

## 1. Distribution of User Profile Data

Figure 0-1: Data distribution in 3GPP shows the different storage capabilities for the User Profile. Circles represent profile or parts of profile storage capabilities.



**Figure 0-1: Data distribution in 3GPP**

This document studies hereafter the impact of Profile distribution. In particular it is assumed that both the VASP and the End-user always access to information stored within the profile. In addition, the profile model hierarchy defined in document UP –10022 is assumed, namely, User Profiles (UP), User Interface Profiles (UIP), User Service Profiles (USP), and Service Preference Profiles (SP).

*Tackling the management of distributed profiles implies that it must be possible, to*

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- *localise profiles,*
- *maintain a copy in the network,*
- *guarantee copies consistency according to the User preferences,*
- *download profiles on a crashed ME.*

### **1.1 Profile Copies, Request Decomposition and Global Schema**

Taking into consideration the 3GPP requirements whereby the Home Environment shall be able to “recover User Equipment resident User Profile information to protect against loss or damage of user equipment”, it could be assumed that a secured copy of all the End-user related profiles is maintained within the network. In this case, a request from either the VASP or the End-user may be processed directly on this Profile storage. However when such a request modifies, creates or deletes a Profile or part of it, the it is requested that all copies are maintain consistent with that version stored within the network.

Profiles or parts of profiles are located either in the Network or in the SIM card, since both can be considered as having secure storage capabilities. In this case, a request from either the VASP or the End-user to access a Profile needs first to be decomposed into sub-requests according to the Profile location.

Classically in Distributed database systems, decomposition uses a global schema that describes the data locations. Request decomposition has been and is still an important research area, in particular in terms of optimisation according to performances criteria.

### **1.2 Profiles Integrity**

Data in a database are subject to integrity constraints. This means that data are related to one another according to rules or assertions that are checked at relevant points of the processing during each request execution. For example a set of debit operation followed by a set of credit operations shall check that the debited total amount is equal to the total credited amount. Similarly there can be integrity rules on the profiles. For example, a Service Preference Profile shall not be deleted upon an End-user request in the scope of UP1 (User Profile 1) if this SP is part of other UPs as well. A more complex example is that modification of a SP associated with a UP shall respect the service properties range of values as registered by the Services associated to the UP and to the service profile.

All End-user and VASP requests have to be checked regarding defined integrity rules. It has to be noted that Integrity rules may be checked for each request, but integrity check may also make sense when applied to a whole set of operations only, for example, on a set of debit and credit operations. Similarly, adding an SP for a given a service to a UP containing already a SP for this service is allowed only if the existing SP is deleted.

This shows that the End-user and the VASP need to have the possibility to delineate the set of operations on which it shall be checked if the integrity of the profiles is respected.

### **1.3 Conflicting Profile related requests**

Different actors, like End-users, the administrators, the VASPs can simultaneously issue requests to access the profiles of a user. Any interleaving of these requests may lead to inconsistent results, therefore it is necessary to limit these kind of conflicts as much as possible. However, it can always happen that e.g. the administrator, possibly acting on the scope of the subscriber contract or on the scope of the VASP registration, modifies service properties while an End-user uses his service preferences related to these properties. In such a case the result may destroy the integrity rules of the profiles and provide unexpected results to both the administrator and the End-user.

In order to avoid such random behaviours, conflicting requests shall be serialised. This is typically provided by the use of a Concurrency control based on a locking policy. The locking policy is applied on the data access by the database. *Starting* a transaction on the database provides to the database the means to associate the requestor with an identifier and to lock the data he access. *Committing* the transaction enables the database to secure the modified data and to release all the locks set for this requestor. *Aborting* the transaction enables the database to forget all data modification and release all the locks set for this requestor. In the case where all data are centralised on a single database, the requestor invokes transaction `start` and `commit` or `abort` directly on the database. In the case where data are distributed, the commit or the abort have to apply securely to all database implied in the transaction. This is the case where a transaction service is necessary.

#### 1.4 Use of transaction service

The transaction service role is to offer to the requestor a coordinator object and a library that binds the requestor with the coordinator. The requestor invokes the `start`, `commit` or the `abort` on the library. The library forwards this request to the coordinator. The coordinator two-phase commit protocol coordinates in a fault tolerant manner either commitment or abort of the transaction on all database implied in the transaction.

Similarly the Transaction service offers a library to all servers that access the database. When a server access the database for the first time, it shall register the database to the coordinator of the transaction so that the coordinator knows this database and can later issue either a commit or an abort order to it. Thus a database that supports to be ordered by a transaction service coordinator has to offer a specific interface that can

- Receive a global transaction identifier, upon which it bases his locks;
- Receive commit and abort orders related to the global transaction identifier.

Such a interface , which is already standardised is the X/Open XA interface. Another standard interface, namely “JDBC standard extension”, encapsulates XA and is offered for java environments. The global transaction identifier is recognised by all database even though they internally map it on a proprietary identifier.

A last requirement on the use of a Transaction Service is that all calls on the server associated with a transaction contain the transaction context. The transaction context contains the reference of the Coordinator, and the transaction identifier. When a first call with a transaction context is received on the server, the Database is registered to the Coordinator, and is made working (lock setting) for that transaction. All this engineering is maintained transparent to the requestor application and to the server application.

This launching of the distributed profile management suggests many comments:

– *Synchronous/asynchronous updates*

Use of transaction may be mandatory if there is a requirement that the profile copies are maintained consistent all time. Transactions spanning all the copies are the only way to allow any actor to access any copy and be guaranteed that he access the latest version.

If it is not always necessary to maintain permanently consistent copies updates may be processed asynchronously, for example through a reliable Notification service or a messaging service. A mean must be determined which update type (synchronous or asynchronous) apply.

– *Performances and use of mobile agents*

The protocol used by the Transaction service, namely the two phase commit, is rather time consuming although all database process their exchanges with the transaction Coordinator in parallel. Since, on one hand, there is a potential need for downloading the transaction service library, for example in the terminal, for executing the transaction termination protocol (commit or abort), and, on the other hand, there is a limited number of servers (ME, USIM, VASP, VHE provider) which can be involved, a point of further investigation is to study the benefit that could be obtained if the Coordinator is made a migrating agent.

- *Impacts to OSA/Parlay profile APIs*

It is most likely that ME, USAT, networks and VASP will not provide direct access to their internal objects, but will externalise on the OSA interface an API adapted to personalisation. Operations on these APIs will be the sub requests invoked by the VHE server.

**Source:** Hutchison3G  
**Title:** New Stage 1 Introduction  
**Agenda item:**  
**Document for:** Improvement of the Stage 1 V 0.1.0

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## Introduction

This specification introduces the requirements and features of a 3GPP generic user profile. Although UMTS will provide a rich environment for service providers to create and deliver advanced communications and content based services, it will also introduce a range challenges. Difficulties will arise due to, for example the introduction of sophisticated user terminals with widely varying capabilities, hybrid combinations of mobile network domains, the advent of downloadable applications, and the desire of users to customise potentially complex services to individual preferences and needs.

To accommodate these needs it is seen as vital to standardise the mechanisms that will govern how services and user preferences will be configured and managed. Without standards, there will inevitably arise a wide range of diverse and proprietary methods and data formats to support service customisation and user preferences, leading to management complexity, difficulties in customer care, poor ease of use and increased costs.

The specification of a Generic User Profile will provide the description of data structures and methods that will allow

1. A way to express user preferences in a consistent manner,
2. Applications to share data without duplication,
3. Distributed storage of data,
4. Efficient replication of data between different storage locations
5. Effective management, control ownership and protection of data.
6. Extensibility to cater for future needs and the simple addition of new features.

The 3GPP Generic User Profile is the collection of data which is stored and managed by different entities such as the UE, the Home Environment, the Serving Network and Value Added Service Provider, which affects the way in which an individual user experiences services.

The objective of specifying the Generic User Profile is to provide a conceptual description to enable shared usage of the information content by the different entities. The specification of the GUP should also allow extensibility to cater to future developments.

The 3GPP Generic User Profile is composed of a number of User Profile components. An individual service may make use of a number of these components. The 3GPP Generic User Profile will be accessed by the user, used in capability negotiation, managed by terminal management servers, accessed by applications and used in other ways. The fact of having several domains within the 3GPP mobile system (e.g. Circuit Switched, Packet Switched, IP Multimedia Subsystem and the Service/Application domains) introduces a wide distribution of data associated with the user.

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**Title:** Clean up the Introduction of GUP stage 1  
**Source:** Siemens AG  
**Contact:** Manfred Leitgeb  
Email Address: manfred.leitgeb@siemens.at

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Proposal:  
The following chapter is proposed to be cleaned up:

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## Introduction

The 3GPP Generic User Profile is the collection of data which is ~~stored and~~ managed by different entities such as the UE, the Home Environment, the Serving Network and Value Added Service Provider, ~~which affects the way in which an individual user experiences services.~~

The objective of specifying the Generic User Profile is to provide a conceptual description to enable shared usage of the information content by the different entities. The specification of the GUP should also allow extensibility to cater to future developments.

The 3GPP Generic User Profile is composed of a number of User Profile components. An individual service may make use of a number of these components. The 3GPP Generic User Profile shall enable for repository data on behalf of services and applications belonging to a user. ~~will be accessed by the user, used in capability negotiation, managed by terminal management servers, accessed by applications and used in other ways.~~ The architectural concept of the 3GPP User Profile shall allow ~~The fact of having several domains within the 3GPP mobile system (e.g. Circuit-Switched, Packet-Switched, IP-Multimedia-Subsystem and the Service/Application domains) introduces~~ a wide distribution of data associated with the user.



**Title:** Clean up the General description of GUP stage 1  
**Source:** Siemens AG  
**Contact:** Manfred Leitgeb  
Email Address: manfred.leitgeb@siemens.at

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Proposal:  
The following chapter is proposed to be cleaned up:

---

## 4 General description

The 3GPP Generic User Profile is the collection of data which ~~is~~ [may be](#) stored and managed by different entities such as the UE, the Home Environment, the Serving Network and Value Added Service Provider, ~~which affects the way in which an individual user experiences services~~. The 3GPP Generic User Profile is composed of a number of User Profile components. An individual service may make use of a number of User Profile components (~~subset~~), from the 3GPP Generic User Profile.

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**Title:** Clean up the GUP and GUP components description of GUP stage 1  
**Source:** Siemens AG  
**Contact:** Manfred Leitgeb  
Email Address: manfred.leitgeb@siemens.at

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Proposal:  
The following chapter is proposed to be cleaned up:

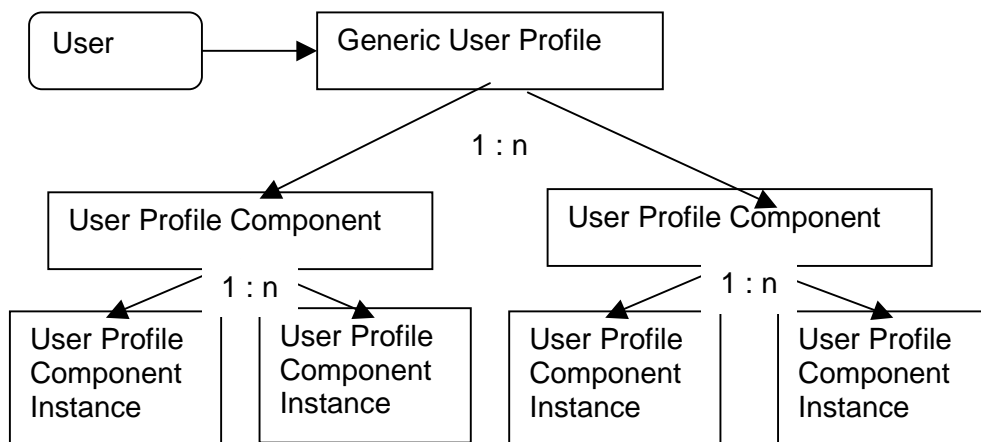
## 4.1 GUP and GUP components

**[Editor's note: Terminology to be revisited]**  
**[Editor's note: possibly use diagram from 67 (Materna)]**  
**[Editor's note: diagram to be revisited]**

A user has one single 3GPP Generic User Profile, and this Generic User Profile consists of User Profile components. A User Profile component is a logical grouping of related data.  
[Editor's Note:](#) Further elaboration on the User Profile Component content is needed and will be provided at further meetings.

**[Editor's Note: Decide upon zero, one or more in following paragraph]**

A user may have one or more instances (*specific values*) of a specific User Profile component. An instance of a User Profile component inherits from the Generic User Profile component. *An instance of a User Profile component may be individually customised by the user.*



[The User Profile Component as shown in the figure above may have various formats and types.](#) A User Profile component may include type, structure, access rights, storage locations, and ownership. There are 2 scenarios to consider for the instantiation of a User Profile component:

- An instance of a component is stored in one location, but might be copied to other locations for reasons such as efficiency.
- Several instances of a component exist with different content (e.g. a Qos instance relative to home use and travelling).

[Editor's note: Not agreed upon usage of 'Service Customisation Sets']

A particular set of User Profile Component Instances may be grouped into a "Service Customisation Set". The user will experience service according to the currently active Service Customisation Set.

~~[Editor's Note: The following text needs to be considered in relationship to the previous text, which is almost a duplicate, except for diagram references]~~

~~A user has one single 3GPP Generic User Profile, and this Generic User Profile consists of User Profile components.~~

~~A user may have zero, one, or more instances (specific values) of a specific User Profile component, which is defined here as a logical grouping of related data. An instance of a User Profile component includes identity, type, structure, access rights, storage locations, and ownership. There are 2 scenarios to consider for the instantiation of a User Profile component:~~

~~-An instance of a component is stored in one location, but might be copied to other locations for reasons such as efficiency. See diagram X.~~

~~-Several instances of a component exist with different content (e.g. a Qos instance relative to home use and travelling). See diagram Y——[Editor's note: No diagram Y exists in this document]~~

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## 5 High level requirements

This section outlines the high level requirements that should be supported by the 3GPP generic user profile

- 5.1 Persistent personalisation of a user's services.
- 5.2 Backup and recovery of UE-based user profile data
- 5.3 Transfer of service customisation/preference data between different user devices
- 5.4 Service initialisation and creation or subscription
- 5.5 Capability discovery/negotiation
- 5.6 Access control/ownership
- 5.7 Applicability regardless of access network

The GUP shall support a minimum set of capabilities to ensure that users are consistently presented with the same service preferences irrespective of the network access method. E.g. a users will see messaging preferences observed whether access is gained via fixed or wireless network.

**Source:** Orange

**Title:** Simplified restructuring of Section 4.3

**Agenda item:**

**Document for:** DISCUSSION & CHANGE OF STAGE 1 V 0.2.0

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This document contains a proposal for changes to the classification headings in section 4.3. The purpose of this proposal is so that readers can clearly see the GUP Data Classification expressed in terms of the User. The content examples of each classification is not important; the focus here is on seeing GUP classification relative to the user's needs.

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## 4.3 3GPP Generic User Profile Data Classification

The purpose of this classification is to understand the 3GPP Generic User Profile from a contents perspective i.e. what is within the scope of the 3GPP Generic User Profile, which parts of the GUP lie within the scope of 3GPP standardisation and which parts are out of scope.

The data that constitutes the 3GPP Generic User Profile can be classified according to the following classification criteria. This section contains a non-exhaustive list of classification criteria. The actual instances of the data may be visible or transparent to the user, and may be user controlled and/or HE-Network controlled. For each criterion there are examples.

### 1. **Who I am**

#### a. **General Information on the subscriber/user**

This is information concerning a subscriber/user but is not related to services or entities. Examples are

- Identities of the user in the network (e.g. IMSI, Private Network ID)
- Authentication data (e.g. password, pin, voiceprint)
- User Security data (Secret keys, user name)
- User security policy (application download, ciphering, positioning)
- User's Addresses (e.g. logical name, personal number, e-mail address)
- Additional Non-standardised Subscriber Information (Name, bill info, users)

**Examples:**

### 2. **What I have (which affects the behaviour of the services I receive, e.g. U.E.)**

#### a. **Capability description**

Describes the capabilities of entities related to a user. Capability information can be used to select the best content/information/function/strategy among a number of possible ones.

- Terminal Capabilities

As the number and variety of devices grows, there is a corresponding increase in the need to adopt the interaction depending on the capabilities of different devices. The terminal capabilities have to be described. Examples of terminal capabilities are: User interface capabilities, Communication capabilities, Synchronisation capabilities, MExE capabilities, WAP Browser capabilities.

**Examples:**

### 3. **How I require my services (which has an impact upon provisioning and personalisation)**

#### a. **User's Preferences, which are independent of particular services**

These are wishes set by the user, and indicate a preference to use one particular type of content/information/function/strategy over another. A preference can be defined before you know which function will be using them. Examples are:

- User Interface preferences (e.g. voice-only for blind users)

- Browser appearance (User's preference for displaying frames)
  - Preferred memory usage
- b. **Service Provisioning data of a user**  
These are data that determine, whether a particular service is provisioned to a user or not. Generally either the HE-Network or the Service Provider controls these data. Typically these Service provisioning data also include certain service settings, which are not under the control of the user. If a user tries to invoke a service the Provisioning data of this service need to be checked
- c. **Service Customisation**  
This is information used to customise one or more services/applications/functions according to the user. Service Customisation GUP data are specific to the affected services.

**Examples:**