Source: **TSG SA WG2**
Title: **CRs on 23.240 (GUP Stage 2)**
Agenda Item: **7.2.3**

The following Change Requests (CRs) have been approved by TSG SA WG2 and are requested to be approved by TSG SA plenary #23.
Note: the source of all these CRs is now S2, even if the name of the originating company(ies) is still reflected on the cover page of all the attached CRs.

Tdoc #	Title	Spec	CR #	cat	Version in	REL	WI	S2 meeting	Clauses affected
S2-040790	Adding a listing function	23.240	**006r4**	B	6.2.0	6	GUP	S2 #38	4.3, 4.3.X (new subclause), 4.4, 4.4.X (new subclause)
S2-040853	Rg reference point alignment with Liberty ID-WSF	23.240	**013r2**	F	6.2.0	6	GUP	S2 #38	2, 4.2.4
S2-040268	Generalizing the subscriber identity term to resource identity	23.240	**014**	F	6.2.0	6	GUP	S2 #37	4.3, 4.3.1, 4.3.2, 4.3.3, 4.3.4, 4.3.5, 4.4, 4.4.1, 4.4.2, 4.4.3, 4.4.4, 4.4.5
S2-040409	Authorization enhancements	23.240	**015r1**	C	6.2.0	6	GUP	S2 #37	4.1.4, 4.2.1.4, 4.2.2, 4.2.3
S2-040270	Authorization model alignment with GUP Information Model	23.240	**016**	C	6.2.0	6	GUP	S2 #37	5

3GPP TSG-SA2 Meeting #38
Atlanta, USA, 16 – 20 February 2004

Tdoc ⌘S2-040790

CR-Form-v7

CHANGE REQUEST

⌘ **23.240** **CR** **006** ⌘**rev** **4** ⌘ Current version: **6.2.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network **X**

Title:	⌘	Adding a listing function
Source:	⌘	SA2 (Nokia)
Work item code:	⌘	GUP
Date:	⌘	11/02/2004
Category:	⌘	**B**
Release:	⌘	Rel-6

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	A listing procedure is required in GUP. Otherwise there is no standard way to get to know which profiles or components exist in GUP Data Repositories. The listing procedure is needed in order to handle large number of items. This function is needed especially by the subscription management systems that apply GUP.
Summary of change:	⌘	A list procedure with general requirements is introduced for Rg and Rp reference points.
Consequences if not approved:	⌘	Additional functions beyond GUP have to be implemented in proprietary ways to examine the GUP Data Repositories' contents.

Clauses affected:	⌘	4.3, 4.3.X (new subclause), 4.4, 4.4.X (new subclause)

Other specs affected:	⌘	Y	N		⌘	
		X		Other core specifications	⌘	29.240
			X	Test specifications		
			X	O&M Specifications		

Other comments:	⌘	

How to create CRs using this form:
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Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be

downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

First modified section

4.3 Rg reference point procedures

This subclause defines the procedures applied in the Rg reference point between the applications and the GUP Server. This reference point supports also third party profile access. Rg can be used e.g. to create the whole user profile or some components in it, to read any piece of data in the profile or to modify those. There are means to authorise all requests and protect the user's privacy in all operations. Rg is applied to control the data stored in the different GUP components as per users.

There are the following procedures:

- Create
- Delete
- Modify
- List
- Query
- Subscribe
- Unsubscribe
- Notify

Instead of proxying the requests (or handling them by itself) the GUP Server may also apply the redirect mode of operation for applications that support redirect mode, which implies that the GUP Server responds to the request with the redirection information such as redirection address and authorisation assertions. Redirection can be made with Create, Delete, Modify, Query and Subscribe procedures.

4.3.1 Create procedure

Create procedure is used by the application to create a new user profile or new components to an existing profile. The procedure is always related to a single subscriber identity which is given in the request. Additionally the Create procedure shall carry the component types and the data to be created to each component. At least one component shall be provided. Creation of the first component implies profile creation. The component type identifies what data are concerned i.e. not just the data typing. It is presumed that the profile data structure is already known by the both parties. No new type of data can be defined by this procedure, only the data contents are provided. Furthermore the application shall provide the necessary data for authentication and authorization of this create function (e.g. credentials, assertions and identifications).

The outcome of the procedure shall be provided in a separate response message. If the requestor data indicated that the application is able to receive redirect instructions, the GUP server may decide to return redirect instructions based on policies set by the operator in the GUP server. After this response the procedure is terminated without any other specified results or retained information in the GUP Server.

Table 4.1: Request data of Create procedure

Parameter	Description	Use
Subscriber Identity	Specifies the user identity with its type (e.g. SIP URI public ID).	Mandatory
Component data	Specifies which components are addressed and provides the data for those. There may be several Component data elements corresponding to several created components. At least one element must be present. See the table below for the more detailed contents.	Mandatory
Requestor data	Specifies the data related to the requestor. These data may be used as input in the authentication and authorization process. E.g. end user and application identification, credentials or privacy policy information.	Optional

Table 4.2: Contents of Component data parameter

Parameter	Description	Use
Component type	Specifies the type of the created component. The Component type identifies the applied component data definitions.	Mandatory
Data	Specifies the GUP component data according to the specified Component type.	Mandatory

Table 4.3: Response data of Create procedure

Parameter	Description	Use
Redirection data	Specifies the redirection instructions and assertions.	Optional
Status	Indicates whether: 1. The procedure was carried out successfully, 2. The request was redirected, or 3. A failure was detected. For the proxy mode 1 or 3 can be indicated. For the redirect mode 2 or 3 can be indicated. The possible failure is described in sufficient detail.	Mandatory (like the response itself)

4.3.2 Delete procedure

Delete procedure is used by the application to remove a profile or selected GUP components from the repository. The attached subscriber identity and the component type are specified. If no component type is provided, the whole user profile identified by the Subscriber identity will be deleted. The application shall provide the necessary data for authentication and authorization purposes (e.g. credentials, assertions and identifications).

The outcome of the procedure shall be provided in a separate response message. If the requestor data indicated that the application is able to receive redirect instructions, the GUP server may decide to return redirect instructions based on policies set by the operator in the GUP server. After this response the procedure is terminated without any other specified results or retained information in the GUP Server.

Table 4.4: Request data of Delete procedure

Parameter	Description	Use
Subscriber identity	Specifies the user identity with its type (e.g. SIP URI public ID).	Mandatory
Component types	Specifies the types of the components.	Optional
Requestor data	Specifies the data related to the requestor. These data may be used as input in the authentication and authorization process. E.g. end user and application identification, credentials or privacy policy information.	Optional

Table 4.5: Response data of Delete procedure

Parameter	Description	Use
Redirection data	Specifies the redirection instructions and assertions.	Optional
Status	Indicates whether: 1. The procedure was carried out successfully, 2. The request was redirected, or 3. A failure was detected. For the proxy mode 1 or 3 can be indicated. For the redirect mode 2 or 3 can be indicated. The possible failure is described in sufficient detail.	Mandatory (like the response itself)

4.3.X List procedure

List procedure is used by the application to list the existing profile items in the various GUP Data Repositories, and it is needed to handle large number of items. Different search criteria may be given as input. Only the references (i.e. resource identities and component types) are returned by the procedure. The listing may optionally operate sequentially, and then only a selected number of items is returned in one listing. The application shall provide the necessary data for authentication and authorization purposes (e.g. credentials, assertions and identifications).

The outcome of the procedure shall be provided in a separate response message.

Table 4.X: Request data of List procedure

Parameter	Description	Use
Search criteria	Specifies which profiles are to be listed. The criteria may include at least resource identity (or part of it) and/or component type.	Mandatory
Requestor data	Specifies the data related to the requestor. These data may be used as input in the authentication and authorization process. E.g. end user and application identification, credentials or privacy policy information.	Optional

Table 4.V: Response data of List procedure

Parameter	Description	Use
Listing data	Provides the listed data (several elements). See the table below for the contents of a single element.	Mandatory
End indication	Indicates that the end of list has been reached.	Optional
Status	Indicates whether: 1. The procedure was carried out successfully, 2. The request was redirected, or 3. A failure was detected. For the proxy mode 1 or 3 can be indicated. For the redirect mode 2 or 3 can be indicated. The possible failure is described in sufficient detail.	Mandatory

Table 4.W: Contents of Listing data parameter

Parameter	Description	Use
Resource identity	Specifies the resource identity with its type (e.g. SIP URI public ID).	Mandatory
Component types	Specifies the component types which are linked to the Resource identity and match with the search criteria.	Mandatory

4.3.3 Modify procedure

End of first modified section

Second modified section

4.4 Rp reference point procedures

This subclause defines the procedures applied in the Rp reference point. The application or GUP server acts as the active requestor towards the Repository Access Function (RAF) entities e.g. to read or modify the data. It is assumed that the both ends share initially the same data structure definitions. Rp is applied to control the data stored in the different user profile components as per users. To address the data the user identity or the component identification is given accompanied with the lower level data reference when required.

There are the following procedures:

- Create Component
- Delete Component
- Modify Data
- List Data
- Read Data
- Subscribe To Data
- Unsubscribe To Data
- Notify Data
- Define Data

Editor's note: How the existing profile components are included in the Generic User Profile is FFS.

4.4.1 Create Component procedure

Create Component procedure is used by the application to add a new profile component in the contacted repository. The attached user identity and the created component type are specified along with the created data. The component type identifies what data are concerned i.e. not just the data typing. It is presumed that the profile data structure is already known by the both parties. No new type of data can be defined by this procedure, only the data contents are provided. The requestor shall provide the necessary data for authorization purposes (e.g. assertions and identifications).

This procedure is synchronous in nature but it is also possible to define a separate response message.

Table 4.19: Request data of Create Component procedure

Parameter	Description	Use
Subscriber Identity	Specifies the user identity with its type (e.g. SIP URI public ID).	Mandatory
Component type	Specifies the type of the created component. This is needed because several types may be supported by one RAF. The Component type identifies the applied component data definitions.	Mandatory
Requestor data	Specifies the data related to the requestor. These data may be used as input in the authorization process. E.g. end user and application identification. See subclause 4.4.9.	Optional
Component data	Specifies the profile component data according to the specified Component type.	Mandatory

Table 4.20: Response data of Create Component procedure

Parameter	Description	Use
Status	Indicates whether the procedure was carried out succesfully or whether some failure was detected. The possible errors are described in sufficient detail.	Mandatory (like the response itself)

4.4.2 Delete Component procedure

Delete Component procedure is used by the application to remove a profile component from the contacted repository. The attached user identity and the component type is specified. The requestor shall provide the necessary data for authorization purposes (e.g. assertions and identifications).

This procedure is synchronous in nature but it is also possible to define a separate response message.

Table 4.21: Request data of Delete Component procedure

Parameter	Description	Use
Subscriber identity	Specifies the user identity with its type (e.g. SIP URI public ID).	Mandatory
Component type	Specifies the type of the component.	Mandatory
Requestor data	Specifies the data related to the requestor. These data may be used as input in the authorization process. E.g. end user and application identification. See subclause 4.4.9.	Optional

Table 4.22: Response data of Delete Component procedure

Parameter	Description	Use
Status	Indicates whether the procedure was carried out successfully or whether some failure was detected. The possible errors are described in sufficient detail.	Mandatory (like the response itself)

4.4.X List Data procedure

List Data procedure is used by the application to list the existing profile items in the various GUP Data Repositories, and it is needed to handle large number of items. Different search criteria may be given as input. Only the references (i.e. resource identities and component types) are returned by the procedure. The listing may optionally operate sequentially, and then only a selected number of items is returned in one listing. The application shall provide the necessary data for authentication and authorization purposes (e.g. credentials, assertions and identifications).

The outcome of the procedure shall be provided in a separate response message.

Table 4.X: Request data of List Data procedure

Parameter	Description	Use
Search criteria	Specifies which profiles are to be listed. The criteria may include at least resource identity (or part of it) and/or component type.	Mandatory
Requestor data	Specifies the data related to the requestor. These data may be used as input in the authentication and authorization process. E.g. end user and application identification, credentials or privacy policy information.	Optional

Table 4.V: Response data of List Data procedure

Parameter	Description	Use
Listing data	Provides the listed data (several elements). See the table below for the contents of a single element.	Mandatory
End indication	Indicates that the end of list has been reached.	Optional
Status	Indicates whether the procedure was carried out succesfully or whether some failure was detected. The possible errors are described in sufficient detail.	Mandatory

Table 4.W: Contents of Listing data parameter

Parameter	Description	Use
Resource identity	Specifies the resource identity with its type (e.g. SIP URI public ID).	Mandatory
Component types	Specifies the component types which are linked to the resource identity and match with the search criteria.	Mandatory

4.4.3 Modify Data procedure

End of second modified section

3GPP TSG-SA2 Meeting #38
Atlanta, USA, 16 – 20 February 2004

Tdoc ⌘S2-040853

CR-Form-v7

CHANGE REQUEST

⌘ **23.240** **CR** **013** ⌘**rev** **2** ⌘ Current version: **6.2.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network **X**

Title:	⌘	Rg reference point alignment with Liberty ID-WSF
Source:	⌘	SA2 (Nokia, Ericsson)
Work item code:	⌘	GUP
Date:	⌘	18/02/2004
Category:	⌘	**F**
Release:	⌘	Rel-6

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	The name of the Liberty ID-WSF overview document has been changed and it needs to be reflected in the present specification.
Summary of change:	⌘	The Liberty ID-WSF overview document name and a minor spelling error in the Liberty DST specification name have been rectified.
Consequences if not approved:	⌘	The title of the Liberty ID-WSF overview document remains incorrect.

Clauses affected:	⌘	2, 4.2.4			
Other specs affected:	⌘	**Y** / **N**	Other core specifications	⌘	29.240, 23.241
		X /	Test specifications		
		/ **X**	O&M Specifications		
Other comments:	⌘				

How to create CRs using this form:
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1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

First modified section

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 22.240: "Stage 1 Service Requirement for the 3GPP Generic User Profile (GUP)".

[2] Liberty Discovery Service Specification, http://www.projectliberty.org/

[3] Liberty ID-WSF SOAP Binding Specification~~Liberty Identity Web Services Framework Primer~~, http://www.projectliberty.org/

[4] Liberty ID-WSF Data Services Template, http://www.projectliberty.org/

End of first modified section

Second modified section

4.2.4 Reference Points

Reference Points in the GUP Reference Architecture:

1. Reference point Rg
This reference point shall allow applications to create, read, modify and delete any user profile data using the harmonized access interface. The GUP Server locates the data repositories responsible of the storage of the requested profile component(s) and in case of proxy mode carries out the requested operation on the data. The reference point Rg shall support interworking to other mechanisms that support parts of the user profile outside the scope of 3GPP e.g. Liberty ID-WSF SOAP Binding Specification~~the Liberty Identity Web Services Framework Primer~~ [3] and Liberty ID-WSF Data Services Template [4].

In the redirect mode, the GUP Server returns the locations of the GUP Data Repositories and the application can then send the requested operations via reference point Rp directly to the corresponding GUP Data Repositories.

The reference point Rg carries user related data, and therefore shall be protected by security mechanisms.

2. Reference point Rp
This reference point shall allow the GUP Server or applications, excluding third party applications, to create, read, modify and delete user profile data using the harmonized access interface. Third party applications and third party GUP data repositories shall be connected to the GUP Server only using the Rg reference point.

The reference point Rp carries user related data, and therefore shall be protected by security mechanisms.

End of second modified section

3GPP TSG-SA2 Meeting #37
Innsbruck, Austria, 12 – 16 January 2004

Tdoc ⌘S2-040268

CR-Form-v7

CHANGE REQUEST

⌘ **23.240** **CR** **014** ⌘**rev** **-** ⌘ Current version: **6.2.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network **X**

Title:	⌘	Generalising the subscriber identity term to resource identity
Source:	⌘	SA2 (Nokia)
Work item code:	⌘	GUP
Date:	⌘	07/01/2004
Category:	⌘	**F**
Release:	⌘	Rel-6

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	It was agreed in SA2#36 (S2-034299) that there are also GUP Components that are not tied to any specific subscriber. The following text is provided in S2-034299: "*In addition to the component type the component identity contains either a subscriber identity or more generic identification*". This needs to be reflected in the procedure descriptions that currently state that the component is referenced by a subscriber identity.
Summary of change:	⌘	Instead of subscriber identity a resource identity term is used. The resource identity contents are shortly described in the beginning of Rg and Rp reference point procedure descriptions.
Consequences if not approved:	⌘	A too restricted term is used causing wrong perception of the functionality.

Clauses affected:	⌘	4.3, 4.3.1, 4.3.2, 4.3.3, 4.3.4, 4.3.5, 4.4, 4.4.1, 4.4.2, 4.4.3, 4.4.4, 4.4.5

Other specs affected:	⌘	Y	N		⌘	
		X		Other core specifications		29.240
			X	Test specifications		
			X	O&M Specifications		

Other comments:	⌘	

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2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

First modified section

4.3 Rg reference point procedures

This subclause defines the procedures applied in the Rg reference point between the applications and the GUP Server. This reference point supports also third party profile access. Rg can be used e.g. to create the whole user profile or some components in it, to read any piece of data in the profile or to modify those. There are means to authorise all requests and protect the user's privacy in all operations. Rg is applied to control the data stored in the different GUP components identified by a resource identity and the component type~~as per users~~. The resource identity contains either a subscriber identity or a generic component identification, which is given to components that are not bound to a single subscriber.

There are the following procedures:

- Create
- Delete
- Modify
- Query
- Subscribe
- Unsubscribe
- Notify

Instead of proxying the requests (or handling them by itself) the GUP Server may also apply the redirect mode of operation for applications that support redirect mode, which implies that the GUP Server responds to the request with the redirection information such as redirection address and authorisation assertions. Redirection can be made with Create, Delete, Modify, Query and Subscribe procedures.

4.3.1 Create procedure

Create procedure is used by the application to create a new user profile or new components to an existing profile. The procedure is always related to a single resource~~subscriber~~ identity, which is given in the request. Additionally the Create procedure shall carry the component types and the data to be created to each component. At least one component shall be provided. Creation of the first component implies profile creation. The component type identifies what data are concerned i.e. not just the data typing. It is presumed that the profile data structure is already known by the both parties. No new type of data can be defined by this procedure, only the data contents are provided. Furthermore the application shall provide the necessary data for authentication and authorization of this create function (e.g. credentials, assertions and identifications).

The outcome of the procedure shall be provided in a separate response message. If the requestor data indicated that the application is able to receive redirect instructions, the GUP server may decide to return redirect instructions based on policies set by the operator in the GUP server. After this response the procedure is terminated without any other specified results or retained information in the GUP Server.

Table 4.1: Request data of Create procedure

Parameter	Description	Use
Resource~~Subscriber~~ Identity	Specifies the resource~~user~~ identity with its type (e.g. SIP URI public ID).	Mandatory
Component data	Specifies which components are addressed and provides the data for those. There may be several Component data elements corresponding to several created components. At least one element must be present. See the table below for the more detailed contents.	Mandatory
Requestor data	Specifies the data related to the requestor. These data may be used as input in the authentication and authorization process. E.g. end user and application identification, credentials or privacy policy information.	Optional

Table 4.2: Contents of Component data parameter

Parameter	Description	Use
Component type	Specifies the type of the created component. The Component type identifies the applied component data definitions.	Mandatory
Data	Specifies the GUP component data according to the specified Component type.	Mandatory

Table 4.3: Response data of Create procedure

Parameter	Description	Use
Redirection data	Specifies the redirection instructions and assertions.	Optional
Status	Indicates whether: 1. The procedure was carried out successfully, 2. The request was redirected, or 3. A failure was detected. For the proxy mode 1 or 3 can be indicated. For the redirect mode 2 or 3 can be indicated. The possible failure is described in sufficient detail.	Mandatory (like the response itself)

4.3.2 Delete procedure

Delete procedure is used by the application to remove a profile or selected GUP components from the repository. The attached resource~~subscriber~~ identity and the component type are specified. If no component type is provided, the whole user profile identified by the resource~~Subscriber~~ identity will be deleted. The application shall provide the necessary data for authentication and authorization purposes (e.g. credentials, assertions and identifications).

The outcome of the procedure shall be provided in a separate response message. If the requestor data indicated that the application is able to receive redirect instructions, the GUP server may decide to return redirect instructions based on policies set by the operator in the GUP server. After this response the procedure is terminated without any other specified results or retained information in the GUP Server.

Table 4.4: Request data of Delete procedure

Parameter	Description	Use
Resource~~Subscriber~~ identity	Specifies the resource~~user~~ identity with its type (e.g. SIP URI public ID).	Mandatory
Component types	Specifies the types of the components.	Optional
Requestor data	Specifies the data related to the requestor. These data may be used as input in the authentication and authorization process. E.g. end user and application identification, credentials or privacy policy information.	Optional

Table 4.5: Response data of Delete procedure

Parameter	Description	Use
Redirection data	Specifies the redirection instructions and assertions.	Optional
Status	Indicates whether: 1. The procedure was carried out successfully, 2. The request was redirected, or 3. A failure was detected. For the proxy mode 1 or 3 can be indicated. For the redirect mode 2 or 3 can be indicated. The possible failure is described in sufficient detail.	Mandatory (like the response itself)

4.3.3 Modify procedure

Modify procedure is used by the application to change the data in the GUP components. Also adding and deleting data is possible by Modify procedure, but it cannot create a new component. The modified data are identified by the resource~~user~~ identity and the data reference. The modification may concern the whole component or any lower level piece of data referenced in the procedure invocation. The contents for the entire referenced data shall be provided. Several individual changes to different components can be made with one procedure invocation. It must be noted that if modification of one component fails, the other changes cannot always be rolled back (implementation specific feature). However the response data shall specify which modifications were not accomplished. It is also possible to add more similar type of data elements to an existing array type of element. The requestor shall provide the necessary data for authentication and authorization purposes (e.g. credentials, assertions and identifications).

The outcome of the procedure shall be provided in a separate response message. If the requestor data indicated that the application is able to receive redirect instructions, the GUP server may decide to return redirect instructions based on policies set by the operator in the GUP server. After this response the procedure is terminated without any other specified results or retained information in the GUP Server.

Table 4.6: Request data of Modify procedure

Parameter	Description	Use
Resource~~Subscriber~~ identity	Specifies the resource~~user~~ identity with its type (e.g. SIP URI public ID).	Mandatory
Modification data	Specifies which data are addressed and how those are changed. There may be several Modification data items corresponding to several individual modifications. These modifications may concern the same or different components. See the table below for the contents of one modification.	Mandatory
Requestor data	Specifies the data related to the requestor. These data may be used as input in the authentication and authorization process. E.g. end user and application identification, credentials or privacy policy information.	Optional

Table 4.7: Contents of Modification data parameter

Parameter	Description	Use
Data reference	Specifies which data are modified or expanded. The reference identifies both the component type and the possible deeper level data reference. The reference must be unique in a way that it refers only to one data item.	Mandatory
New data	Specifies the data to be stored in the GUP component. It is expected that all the data elements in the referenced data structure are given.	Mandatory
Overwrite indication	Specifies if the data are added to the existing data or replaces those. Default action is "insert".	Optional

Table 4.8: Response data of Modify procedure

Parameter	Description	Use
Redirection data	Specifies the redirection instructions and assertions.	Optional
Status	Indicates whether: 1. The procedure was carried out successfully, 2. The request was redirected, or 3. A failure was detected. For the proxy mode 1 or 3 can be indicated. For the redirect mode 2 or 3 can be indicated. The possible failure is described in sufficient detail.	Mandatory (like the response itself)

4.3.4 Query procedure

Query procedure is used by the application to retrieve the data in the user profile or its specific components. The queried data are identified by the resource~~user~~ identity and the data reference. The data retrieval may concern the whole profile, component or any parts of a component as referenced in the invocation. The requestor shall provide the necessary data for authentication and authorization purposes (e.g. credentials, assertions and identifications).

The retrieved data shall be provided in a separate response message. If the requestor data indicated that the application is able to receive redirect instructions, the GUP server may decide to return redirect instructions based on policies set by the operator in the GUP server. After this response the procedure is terminated without any other specified results or retained information in the GUP Server.

Table 4.9: Request data of Query procedure

Parameter	Description	Use
Resource~~Subscriber~~ identity	Specifies the resource~~user~~ identity with its type (e.g. SIP URI public ID).	Mandatory
Data references	Specifies which data are read. The data reference identifies the component type and the deeper level reference (if the whole component is not meant to be read). Multiple references may be given. It is also possible to refer to the profile root which implies that the whole profile data are queried.	Mandatory
Requestor data	Specifies the data related to the requestor. These data may be used as input in the authentication and authorization process. E.g. end user and application identification, credentials or privacy policy information.	Optional

Table 4.10: Response data of Query procedure

Parameter	Description	Use
Data	Contains the retrieved data as indicated by the Data references.	Mandatory
Redirection data	Specifies the redirection instructions and assertions.	Optional
Status	Indicates whether: 1. The procedure was carried out successfully, 2. The request was redirected, or 3. A failure was detected. For the proxy mode 1 or 3 can be indicated. For the redirect mode 2 or 3 can be indicated. The possible failure is described in sufficient detail.	Mandatory

4.3.5 Subscribe procedure

Subscribe procedure is used by the application to request notifications about changes in the GUP component data. The subscribed data are identified by the resource~~user~~ identity and the data reference. Furthermore the application can identify which elements are to be monitored for changes if it is not interested in all changes. Data synchronization can be performed by Subscribe and Notify procedures. The GUP Server returns the identification of the subscription request to provide means for the application to link the notifications of Notify procedure to the related subscribe requests. With

Subscribe procedure an application can also request a list of all its subscriptions to notifications from the GUP Server. The GUP Server shall provide all the application's subscriptions to notifications in the response message.

A filtering data parameter is defined to facilitate performance optimization. This may be left partly vendor/operator specific. The requestor shall provide the necessary data for authentication and authorization purposes (e.g. credentials, assertions and identifications).

The outcome of the procedure shall be provided in a separate response message. If the requestor data indicated that the application is able to receive redirect instructions, the GUP server may decide to return redirect instructions based on policies set by the operator in the GUP server. After this response the procedure is terminated without any other specified results or retained information in the GUP Server.

Table 4.11: Request data of Subscribe procedure

Parameter	Description	Use
Resource~~Subscriber~~ identity	Specifies the resource~~user~~ identity with its type (e.g. SIP URI public ID). This parameter may be absent only when List of subscriptions parameter is present, otherwise this parameter shall always be present.	Conditional
Notification Reference	Specifies the call-back address of the Requestor. The GUP server shall send the notifications to this address.	Mandatory
List of subscriptions	Indicates that the application requests the list of all its subscriptions from the GUP server.	Optional
Data references	Specifies which data are monitored for changes. The reference identifies both the component type and the possible deeper level data reference. Multiple references may be given. Any change within the referenced data structure causes a notification to be sent. If the parameter is absent, all modifications are notified.	Optional
Requestor data	Specifies the data related to the requestor. These data may be used as input in the authentication and authorization process. E.g. end user and application identification, credentials or privacy policy information.	Optional
Filter data	Specifies additional conditions for sending notifications to optimize the performance e.g. when immediate synchronization is not required. The parameter specifies also whether the initial data values are requested to be reported.	Optional

Table 4.12: Response data of Subscribe procedure

Parameter	Description	Use
Invoke identifications	Contains the invoke identification assigned by the GUP Server for this request. When the application has requested the list of all its subscriptions, this parameter will contain all the invoke identifications assigned by the GUP Server to the application.	Mandatory (unless the request is redirected or fails)
Redirection data	Specifies the redirection instructions and assertions.	Optional
Status	Indicates whether: 1. The procedure was carried out successfully, 2. The request was redirected, or 3. A failure was detected. For the proxy mode 1 or 3 can be indicated. For the redirect mode 2 or 3 can be indicated. The possible failure is described in sufficient detail.	Mandatory (like the response itself)

End of first modified section

Second modified section

4.4 Rp reference point procedures

This subclause defines the procedures applied in the Rp reference point. The application or GUP server acts as the active requestor towards the Repository Access Function (RAF) entities e.g. to read or modify the data. It is assumed that the both ends share initially the same data structure definitions. Rp is applied to control the data stored in the different user profile components identified by a resource identity and the component type~~as per users~~. The resource identity contains either a subscriber identity or a generic component identification which is given to components that are not bound to a single subscriber.~~To address the data the user identity or the component identification is given accompanied with the lower level data reference when required.~~

There are the following procedures:

- Create Component
- Delete Component
- Modify Data
- Read Data
- Subscribe To Data
- Unsubscribe To Data
- Notify Data
- Define Data

Editor's note: How the existing profile components are included in the Generic User Profile is FFS.

4.4.1 Create Component procedure

Create Component procedure is used by the application to add a new profile component in the contacted repository. The attached resource~~user~~ identity and the created component type are specified along with the created data. The component type identifies what data are concerned i.e. not just the data typing. It is presumed that the profile data structure is already known by the both parties. No new type of data can be defined by this procedure, only the data contents are provided. The requestor shall provide the necessary data for authorization purposes (e.g. assertions and identifications).

This procedure is synchronous in nature but it is also possible to define a separate response message.

Table 4.19: Request data of Create Component procedure

Parameter	Description	Use
Resource~~Subscriber~~ Identity	Specifies the resource~~user~~ identity with its type (e.g. SIP URI public ID).	Mandatory
Component type	Specifies the type of the created component. This is needed because several types may be supported by one RAF. The Component type identifies the applied component data definitions.	Mandatory
Requestor data	Specifies the data related to the requestor. These data may be used as input in the authorization process. E.g. end user and application identification. See subclause 4.4.9.	Optional
Component data	Specifies the profile component data according to the specified Component type.	Mandatory

Table 4.20: Response data of Create Component procedure

Parameter	Description	Use
Status	Indicates whether the procedure was carried out succesfully or whether some failure was detected. The possible errors are described in sufficient detail.	Mandatory (like the response itself)

4.4.2 Delete Component procedure

Delete Component procedure is used by the application to remove a profile component from the contacted repository. The attached resource~~user~~ identity and the component type is specified. The requestor shall provide the necessary data for authorization purposes (e.g. assertions and identifications).

This procedure is synchronous in nature but it is also possible to define a separate response message.

Table 4.21: Request data of Delete Component procedure

Parameter	Description	Use
Resource~~Subscriber~~ identity	Specifies the resource~~user~~ identity with its type (e.g. SIP URI public ID).	Mandatory
Component type	Specifies the type of the component.	Mandatory
Requestor data	Specifies the data related to the requestor. These data may be used as input in the authorization process. E.g. end user and application identification. See subclause 4.4.9.	Optional

Table 4.22: Response data of Delete Component procedure

Parameter	Description	Use
Status	Indicates whether the procedure was carried out successfully or whether some failure was detected. The possible errors are described in sufficient detail.	Mandatory (like the response itself)

4.4.3 Modify Data procedure

Modify Data procedure is used by the application to change the data in a profile component. The component is identified by the resource~~user~~ identity and the component type. The modification may concern the whole component or any lower level piece of data referenced in the procedure invocation. The contents for the entire referenced data shall be provided. Several individual changes to the component can be made with one procedure invocation. It is also possible to add more similar type of data elements to an existing array type of element. The requestor shall provide the necessary data for authorization purposes (e.g. assertions and identifications).

This procedure is synchronous in nature but it is also possible to define a separate response message.

Table 4.23: Request data of Modify Data procedure

Parameter	Description	Use
Resource~~Subscriber~~ identity	Specifies the resource~~user~~ identity with its type (e.g. SIP URI public ID).	Mandatory
Component type	Specifies the type of the component.	Mandatory
Modified data	Specifies which data are addressed and how those are changed. There may be several modified data items corresponding to several individual modifications. See the table below for the contents of one modification.	Mandatory
Requestor data	Specifies the data related to the requestor. These data may be used as input in the authorization process. E.g. end user and application identification. See subclause 4.4.9.	Optional

Table 4.24: Contents of Modified data parameter

Parameter	Description	Use
Data reference	Specifies which data are modified or expanded. The reference may indicate the whole component or any deeper level piece of data. The reference must be unique in a way that it refers only to one data item.	Mandatory
New data	Specifies the data to be stored in the profile component. It is expected that all the data elements in the referenced data structure are given.	Mandatory
Overwrite indication	Specifies if the data are added to the existing data or replaces those. Default action is "insert".	Optional

Table 4.25: Response data of Modify Data procedure

Parameter	Description	Use
Status	Indicates whether the procedure was carried out successfully or whether some failure was detected. The possible errors are described in sufficient detail.	Mandatory (like the response itself)

4.4.4 Read Data procedure

Read Data procedure is used by the application to retrieve the data in a profile component. The component is identified by the resource~~user~~ identity and the component type. The data retrieval may concern the whole component or any parts of it as referenced in the invocation. The requestor shall provide the necessary data for authorization purposes (e.g. assertions and identifications).

Table 4.26: Request data of Read Data procedure

Parameter	Description	Use
Resource~~Subscriber~~ identity	Specifies the resource~~user~~ identity with its type (e.g. SIP URI public ID).	Mandatory
Component type	Specifies the type of the component.	Mandatory
Data references	Specifies which data are read. The data reference may point to a piece of data on any level in the data structure (also to the whole component). Multiple references may be given.	Mandatory
Requestor data	Specifies the data related to the requestor. These data may be used as input in the authorization process. E.g. end user and application identification. See subclause 4.4.9.	Optional

Table 4.27: Response data of Read Data procedure

Parameter	Description	Use
Data	Contains the retrieved data as indicated by the Data references. All the data under the referenced one are returned. Multiple packets of data are given if so requested.	Mandatory
Status	Indicates whether the procedure was carried out succesfully or whether some failure was detected. The possible errors are described in sufficient detail.	Mandatory (like the response itself)

This procedure is synchronous in nature but it is also possible to define a separate response message.

4.4.5 Subscribe To Data procedure

Subscribe To Data procedure is used by the application to request notifications about changes in the profile component data. The component is identified by the resource~~user~~ identity and the component type. Furthermore the application can identify which elements are to be monitored for changes if it is not interested in all changes. Data synchronization can

be performed by Subscribe To Data and Notify Data procedures. The RAF returns the identification of the subscription request to provide means for the application to link the notifications of Notify Data procedure to the related subscribe requests. With Subscribe To Data procedure an application can also request a list of all its subscriptions to notifications from the RAF. The RAF shall provide all the application's subscriptions to notifications in the response message.

A filtering data parameter is defined to facilitate performance optimization. This may be left partly vendor/operator specific. The requestor shall provide the necessary data for authorization purposes (e.g. assertions and identifications).

Table 4.28: Request data of Subscribe To Data procedure

Parameter	Description	Use
Resource~~Subscriber~~ identity	Specifies the resource~~user~~ identity with its type (e.g. SIP URI public ID). This parameter may be absent only when List of subscriptions parameter is present, otherwise this parameter shall always be present.	Conditional
Notification Reference	Specifies the call-back address of the Requestor. The RAF shall send the notifications to this address.	Mandatory
List of subscriptions	Indicates that the application requests the list of all its subscriptions from the RAF.	Optional
Component type	Specifies the type of the component.	Mandatory
Data references	Specifies which data are monitored for changes. Multiple references may be given. Any change within the referenced data structure causes a notification to be sent. If the parameter is absent, all modifications are notified.	Optional
Requestor data	Specifies the data related to the requestor. These data may be used as input in the authorization process. E.g. end user and application identification. See subclause 4.4.9.	Optional
Filter data	Specifies additional conditions for sending notifications to optimize the performance e.g. when immediate synchronization is not required. The parameter specifies also whether the initial data values are requested to be reported.	Optional

Table 4.29: Response data of Subscribe To Data procedure

Parameter	Description	Use
Invoke identifications	Contains the invoke identification assigned by the RAF for this request. When the application has requested the list of all its subscriptions, this parameter will contain all the invoke identifications assigned by the RAF to the application.	Mandatory
Status	Indicates whether the procedure was carried out successfully or whether some failure was detected. The possible errors are described in sufficient detail.	Mandatory (like the response itself)

End of second modified section

3GPP TSG-SA2 Meeting #37
Innsbruck, Austria, 12 – 16 January 2004

Tdoc ⌘S2-040409

CR-Form-v7

CHANGE REQUEST

⌘ **23.240** **CR** **015** ⌘**rev** **1** ⌘ Current version: **6.2.0** ⌘

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Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network **X**

Title:	⌘	Authorization enhancements
Source:	⌘	Nokia
Work item code:	⌘	GUP
Date:	⌘	14/01/2004
Category:	⌘	**C**
Release:	⌘	Rel-6

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	The purpose of the CR is to clarify the roles of different GUP functional entities regarding the authorization. Additionally, the TS does not currently specify anything for the management of the authorization data. Also the part, which has been said to be "FFS" in the subclause 4.1.4. (Authorization of profile access) is clarified.
Summary of change:	⌘	Authorization functions and the roles of entities in it are further described. It is stated that also the management of the authorization data is supported by GUP.
Consequences if not approved:	⌘	The FFS of the subclause 4.1.4 remains to be unspecified. Role and responsibilities of RAF regarding the authorization is left unspecified. It will be unclear how the authorization data is managed in GUP.

Clauses affected:	⌘	4.1.4, 4.2.1.4, 4.2.2, 4.2.3

		Y	N			
Other specs affected:	⌘	X		Other core specifications	⌘	29.240, 23.241
			X	Test specifications		
			X	O&M Specifications		

Other comments:	⌘	

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2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

First modified section

4.1.4 Authorization of profile access

A GUP functionality exists that is responsible to authorise applications to access GUP data based on User specific or common privacy rules. All attempts to access the GUP data are to be authorized according to the defined policies which shall include the requestor~~'s identity~~ information, the requested data, the target subscriber and the performed operation, or some of those.

The GUP data structures need to satisfy the requirement to provide the authorization information on the different levels: profile, component or data element. In addition to the generic authorization data, additional service specific data may be defined (e.g. for LCS). The same applies for the authorization decision logic. ~~How the generic decision logic is defined and provided is FFS.~~The execution of the authorization logic leads to a decision whether a requestor is allowed to make the request at all, and additionally to which part of data the requestor has the appropriate access rights with regard to the nature of the request.

GUP provides mechanisms for the different GUP entities for managing the authorization data.

Both HPLMN based applications and non-HPLMN based applications are expected to send requests to the GUP Server. The GUP server shall have functionality to apply different authorization criteria, policy control and load control to HPLMN and non-HPLMN applications. Policy control and load control are out of the scope of the present document.

End of first modified section

Second modified section

4.2.1.4 Authorization of profile request

The GUP Server shall take care of the authorization of the access to the user profile data. The authorization itself may be handled by a separate entity in the network, or alternatively by the RAF or GUP Data Repository. The authorization shall be based on the requestor information, the requested data, the target subscriber and the performed operation, or some of them. The authorization rules of the requested data shall be defined at least in the GUP Component level in GUP Server. (Note that the authorization may be based on also on finer granularity of the data content.) It shall be possible to manage the authorization data via the Rg and Rp reference points.

4.2.1.5 Synchronization of profile components

In proxy mode, the GUP Server shall convey the data synchronization requests from the applications to the RAFs in the same way as the other profile requests. Also the related change notifications from the RAFs are passed on to the requesting application. This requires that some kind of book keeping about the synchronization requests implemented. In redirect mode the GUP server shall redirect the Application to the RAFs in the same way as the other profile requests.

The GUP Server may store a copy of the actual data from the GUP Data Repository, but it is up to the local policy of the GUP Server.

4.2.1.6 Additional functionality

The GUP Server may take part in the charging of the data management operations concerning the profile.

The GUP Server may take part in the rate and/or size limiting of the data operations towards the profile.

The GUP Server may utilise a discovery service to register its contact reference information.

4.2.2 Repository Access Function (RAF)

The Repository Access Function (RAF) realizes the harmonized access interface. It hides the implementation details of the data repositories from the GUP infrastructure. The RAF performs protocol and data transformation where needed.

The protocol between the RAF and the GUP data repository is out of the standardization scope. It is recommended that the protocol used should support GUP requirements.

The RAF may take part in the authorization of access to such GUP information, which are under the control of the RAF. In addition, the authorization data may be managed via the Rp reference point.

4.2.3 GUP Data Repository

Each GUP Data Repository stores the primary master copy of one or several profile components. The RAF provides for the standardized access to the GUP Data Repository. The storage formats or the interface between the RAF and GUP Data Repository are not specified by GUP. It is presumed that the RAF and the GUP Data Repository are usually co-located in the same network element.

The GUP Data Repository may contain also the authorization data depending on the authorization model and architecture.

End of second modified section

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Innsbruck, Austria, 12 – 16 January 2004

Tdoc ⌘S2-040270

CR-Form-v7

CHANGE REQUEST

⌘ **23.240** **CR** **016** ⌘**rev** **-** ⌘ Current version: **6.2.0** ⌘

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Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network **X**

Title:	⌘	Authorization model alignment with GUP Information Model
Source:	⌘	SA2 (Nokia)
Work item code:	⌘	GUP
Date:	⌘	07/01/2004
Category:	⌘	**C**
Release:	⌘	Rel-6

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	The purpose of the CR is to clarify the relation between the GUP authorisation and GUP Information Model, and thus resolve the authorisation related editor's note in the clause 5 “GUP Information Model”.
Summary of change:	⌘	The CR proposes a separate GUP Component to be defined for the authorisation. This allows the same capabilities to be used for managing the authorisation data as for other user related data. The Authorisation Component may be either subscriber specific or common to several users and/or elements of the GUP Information Model (as also other GUP Components). The common component may be used, e.g., for defining default authorisation settings or setting the same authorisation rules to a group of users or a certain Component Type.
Consequences if not approved:	⌘	The GUP Information Model is not complete until the authorisation aspects have been considered.

Clauses affected:	⌘	5			
Other specs affected:	⌘	**Y** / **N**		⌘	
		X /	Other core specifications		29.240, 23.241
		/ **X**	Test specifications		
		/ **X**	O&M Specifications		
Other comments:	⌘				

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3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

5 GUP information model

A Generic User Profile consists of a number of independent GUP Components. However, a GUP Component may contain (i.e. reference) other GUP components e.g. to enable reuse of data.

The GUP Component has a unique identity within the Generic User Profile. In addition to the component type the component identity contains either a subscriber identity or more generic identification depending on which kind of component is in question. A GUP Component can be retrieved through one RAF, and it may consist of a number of GUP Components, Data Element Groups and/or Data Elements.

A GUP Component contains zero or more Data Element Groups. The Data Element Group contains indivisible Data Elements and/or Data Element Groups. The nested Data Elements Groups allow deeper hierarchical structures. The Data Element Group in the lowest hierarchical level contains one or more Data Elements. The Data Element Groups inside a GUP Component may be of the same or different types.

Alternatively the GUP Component may contain zero or more Data Elements without the Data Element Groups. A GUP component shall have at least one Data Element Group or Data Element.

A Composite Datatype is used to define the structure of the whole GUP Component. The structure includes definition about what kind of Data Element Groups and/or which Data Elements belong to the defined GUP Component as well as the data types and valid values of the data.

The UML Class Diagram below illustrates the basic concepts of the GUP Information Model.

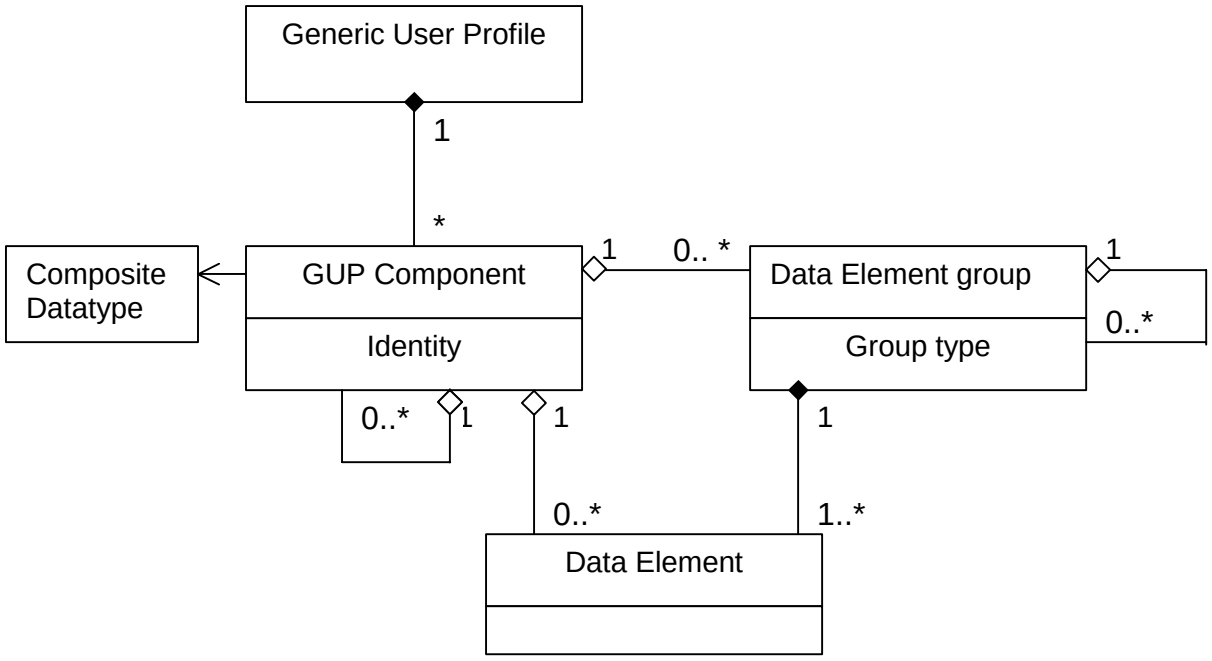

Figure 5.1: The basic concepts of GUP

~~Editor's note: Whether the authorization and privacy related enhancements have effect on the information model is FFS.~~

GUP defines an Authorisation Component, which is just like any other GUP Component. This implies that the same capabilities as for any GUP Component (e.g. identities and structure) are also applied to the Authorisation Component. The Authorisation Component is able to reference any element of the GUP Information Model and define the authorisation regarding those elements. The Authorisation Component may be either subscriber specific or common to several subscribers and/or elements of the GUP Information Model.

Note that any GUP Component may include additional data items, which are used (e.g. by RAF) for the authorisation purposes but those are seen as a part of the data specific to a certain GUP Component, and thus not a part of the generic authorisation specified by GUP.

Figure 5.2 presents an example structure of Generic User Profile with the terms used in the UML Class Diagram. Note that the data structure may be also deeper than shown in the example figure, e.g., the Data Element Groups might consist of nested Data Element Groups.

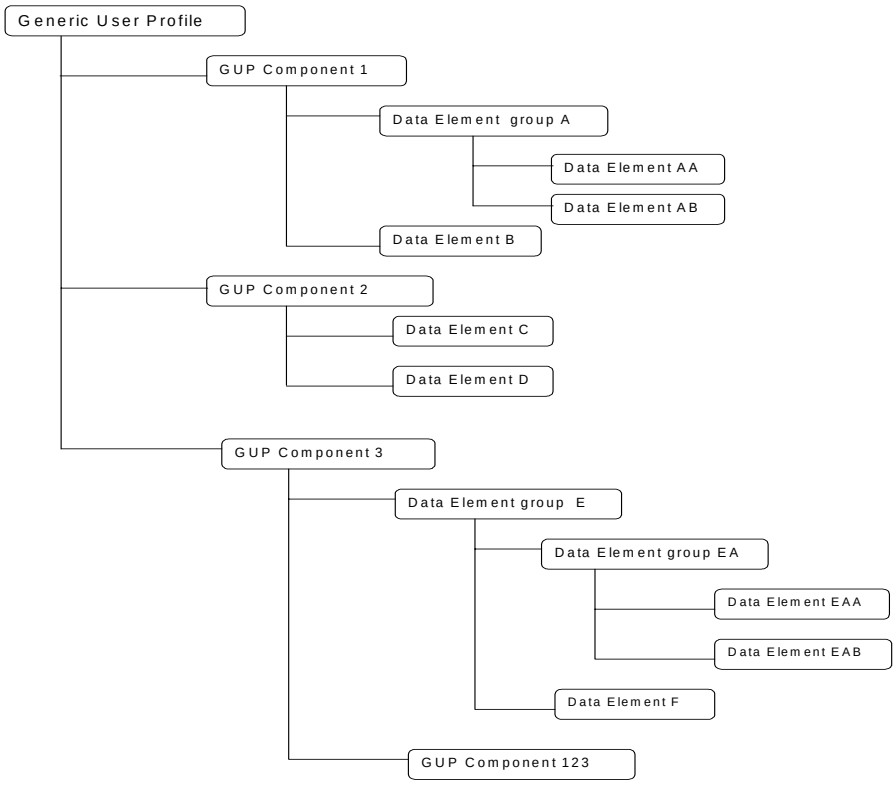

Figure 5.2: Example structure of GUP information

One purpose of the example structure is to clarify the intended relation between the UML Class Diagram and the hierarchical structure of GUP in terms of XML. Use of XML fulfils the requirements for the architectural structure of the GUP information model.

Each Generic User Profile consists of one or several GUP Components depending on the nature of the user related data. GUP Components are independent XML documents. The Generic User Profile is thus formed of a number of XML documents.

Each GUP Component consists of GUP Components, Data Elements and/or Data Element Groups as defined in the component specific definitions. In XML terms the Data Elements are XML elements. The Data Element Group is a structured XML element with an arbitrarily deep data structure.