

3GPP TSG CN Plenary Meeting #18
4th – 6th December 2002 New Orleans, USA.

NP-020593

Source: TSG CN WG4
Title: Corrections on IP-based Multimedia Services Sh-interface
Agenda item: 8.1
Document for: APPROVAL

Spec	CR	Rev	Doc-2nd-Level	Phase	Subject	Cat	Ver_C
29.328	008	2	N4-021282	Rel-5	Clarification on update of repository data	F	5.1.0
29.328	009	1	N4-021520	Rel-5	Removing the DDF dependencies from Sh interface	F	5.1.0

CR-Form-v7

CHANGE REQUEST

⌘ **29.328 CR 008** ⌘ rev **1** ⌘ Current version: **5.1.0** ⌘

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

Title:	⌘ Clarification on update of repository data		
Source:	⌘ CN4		
Work item code:	⌘ IMS-CCR	Date:	⌘ 26/09/2002
Category:	⌘ F	Release:	⌘ Rel-5
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)	2 (GSM Phase 2)	
	A (corresponds to a correction in an earlier release)	R96 (Release 1996)	
	B (addition of feature),	R97 (Release 1997)	
	C (functional modification of feature)	R98 (Release 1998)	
	D (editorial modification)	R99 (Release 1999)	
	Detailed explanations of the above categories can be found in 3GPP TR 21.900 .		Rel-4 (Release 4)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

Reason for change:	⌘ To clarify the detailed behavior of the HSS when repository data are added, modified or removed by the Application Server
Summary of change:	⌘ The HSS shall add, modify or remove repository data, based on the data already stored and on the data received. Modify table D.2 to show that ServiceData may be absent to indicate removal.
Consequences if not approved:	⌘ It is not clear how the Application Server can remove repository data from the HSS. This may lead to interoperability problems.

Clauses affected:	⌘ 6.1.2.1, Annex D										
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;">X</td> </tr> </table>	Y	N		X		X		X	Other core specifications	⌘
Y	N										
	X										
	X										
	X										
		Test specifications									
		O&M Specifications									
Other comments:	⌘										

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at <http://www.3gpp.org/specs/CR.htm>. 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.

6.1.2 Data Update (Sh-Update)

This procedure is used by an AS to update data in the HSS. Tables 6.1.2.1 and 6.1.2.2 detail the involved information elements.

Table 6.1.2.1: Sh-Update

Information element name	Mapping to Diameter AVP	Cat.	Description
User Identity (See 7.1)	User-Identity	M	IMS public identity of the user which data is updated.
Updated data (See 7.6)	User-Data	M	Updated data.
Application Server Identity	Origin-Host	M	IE that identifies the AS originator of the request and that is used, together with the user identity and Data-Reference, as key to identify the updated filter criteria.

Table 6.1.2.2: Sh-Update Resp

Information element name	Mapping to Diameter AVP	Cat.	Description
Data update result (See 7.5)	Result-Code	M	Result of the update of data in the HSS.

6.1.2.1 Detailed behaviour

Upon reception of the Sh-Update request, the HSS may check that the user for whom data is asked [to be updated](#) exists in [the](#) HSS. The HSS shall check that the AS sending the request (identified by the Origin-Host AVP) has Sh-Update permission in the AS Permissions List (See 6.2).

The keys to determine the updated data are part of the information element User-Data (See Annex X). When data [in the](#) repository is updated ([i.e. added, modified or removed](#)) Service-Indication is also [sent as](#) part of the information element User-Data. [The HSS shall check whether repository data identified by the Service-Indication is already stored against the user and whether Service-Data is received.](#)

- [If so, the stored data is replaced with the received data.](#)
- [If repository data identified by the Service-Indication is stored against the user and Service-Data is not received, the stored data is removed from the repository.](#)
- [If repository data identified by the Service-Indication is not stored against the user and Service-Data is received, the received data is added to the repository.](#)
- [If repository data identified by the Service-Indication is not stored against the user and Service-Data is not received, the repository data is not updated.](#)

When initial filter criteria are updated the Origin-Host AVP identifies the AS that initiates the request.

***** Next modification *****

Annex D (normative): XML schema for the Sh interface user profile

The file ShDataType.xsd, attached to this specification, contains the XML schema for the Sh interface user profile. Such XML schema details all the data types on which XML documents containing Sh profile information shall be based. The XML schema file is intended to be used by an XML parser.

Tables D.1 and D.2 describe the data types and the dependencies among them that configure the XML schema.

Table D.1: XML schema for Sh interface: simple data types

Data type	Tag	Base type	Comments
tPriority	Priority	integer	>= 0
tGroupID	Group	integer	>= 0
tDefaultHandling	DefaultHandling	enumerated	Possible values: 0 (SESSION_CONTINUED) 1 (SESSION_TERMINATED)
tDirectionOfRequest	SessionCase	enumerated	Possible values: 0 (ORIGINATING_SESSION) 1 TERMINATING_SESSION 2 (TERMINATING_UNREGISTERED)
tIMSUserState	IMSUserState	Enumerated	Possible values: 0 (NOT_REGISTERED) 1 (REGISTERED) 2 (REGISTERED_UNREG_SERVICES) 3 (AUTHENTICATION_PENDING)
tLocationNumber	LocationNumber	string	Length >=2 and <=10
tGeographicalInformation	GeographicalInformation	string	Length = 8. Syntax defined in 3GPP TS 23.032.
tGeodeticInformation	GeodeticInformation	string	Length = 10. Syntax defined in ITU-T Q.703.
tAgeOfLocationInformation	AgeOfLocationInformation	integer	>=0, <=32767
tMSISDN	MSISDN	string	Syntax described in 3GPP TS 23.003.
tSIP_URL	PublicIdentity	anyURI	Syntax described in RFC 3261
tTEL_URL	PublicIdentity	anyURI	Syntax described in RFC 2806
tIMSPublicIdentity	IMSPublicIdentity	(union)	Union of tSIP_URL and tTEL_URL
tServiceInfo	ServiceInfo	string	
tString	Method, Header, Content, Line	string	
tBool	ConditionTypeCNF, ConditionNegated	enumerated	Possible values: 0 (FALSE)

Error! No text of specified style in document.

6

Error! No text of specified style in document.

			1 (TRUE)
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Table D.2: XML schema for Sh interface: complex data types

Data type	Tag	Compound of		
		Tag	Type	Cardinality
tSh-Data	Sh-Data	PublicIdentifiers	tPublicIdentity	0 to 1
		RepositoryData	tTransparentData	0 to 1
		Sh-IMS-Data	tShIMSData	0 to 1
		LocationInformation	tLocationInformation	0 to 1
tTransparentData	RepositoryData	ServiceIndication	string	1
		ServiceData	string	0 to 1
tShIMSData	Sh-IMS-Data	SCSCFName	tSIP_URL	0 to 1
		InitialFilterCriteria	tInitialFilterCriteria	0 to 10
		IMSUserState	tIMSUserState	0 to 1
tLocationInformation	LocationInformation	AgeOfLocationInformation	tAgeOfLocationInformation	0 to 1
		GeographicalInformation	tGeographicalInformation	0 to 1
		GeodeticInformation	tGeodeticInformation	0 to 1
tPublicIdentity	PublicIdentity	IMSPublicIdentity	tIMSPublicIdentity	0 to 20
		MSISDN	tMSISDN	0 to 20
		InitialFilterCriteria	tInitialFilterCriteria	1 to 10
tInitialFilterCriteria	InitialFilterCriteria	Priority	tPriority	1
		TriggerPoint	tTrigger	0 to 1
		ApplicationServer	tApplicationServer	1
tTrigger	Trigger	SPI	tSiPoint	0 to 25
		ConditionTypeCNF	tBool	1
tSiPoint	SPI	ConditionNegated	tBool	0 to 1

		Group	tGroupID	1 to 25	
		Choice of	Method	tString	1
			SIPHeader	tHeader	1
			SessionCase	tDirectionOfRequest	1
			SessionDescription	tSessionDescription	1
tHeader	SIPHeader	Header	tString	1	
		Content	tString	0 to 1	
tSessionDescription	SessionDescription	Line	tString	1	
		Content	tString	0 to 1	
tApplicationServer	ApplicationServer	ServerName	tSIP_URL	1	
		DefaultHandling	tDefaultHandling	0 to 1	
		ServiceInfo	tServiceInfo	0 to 1	

CHANGE REQUEST

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Proposed change affects: UICC apps ME Radio Access Network Core Network

Title:	⌘ Removing the DDF dependencies from Sh interface		
Source:	⌘ CN4		
Work item code:	⌘ IMS-CCR	Date:	⌘ 13/11/2002
Category:	⌘ F	Release:	⌘ Rel-5
	Use <u>one</u> 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 <u>one</u> 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 current XML presentation used in Sh is based on the Data Description Framework (DDF) and it was selected mainly because of the synergy with the GUP. However the data description method of GUP is currently open in T2 GUP work group. There have been presented two alternatives: GUP DDF and GUP Schema mechanism (see for example TP-020239). Because the future of DDF is uncertain and no clear synergy reasons can be pointed out any longer, the dependencies on the DDF shall be avoided in the Sh specifications. The schema contains an error related to tBool.
Summary of change:	⌘ The DDF dependencies are proposed to be removed throughout the 29.328 and attached XML files. The error related to simple type tBool is corrected in the XML schema.
Consequences if not approved:	⌘ DDF dependencies remain in the Sh interface making the XML definitions more difficult to manage

Clauses affected:	⌘ Annex D, Annex E, ShDataTypes.xml and ShDataType.xsd						
Other specs affected:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table> Other core specifications	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	⌘	
Y	N						
<input type="checkbox"/>	<input checked="" type="checkbox"/>						
	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table> Test specifications	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	⌘	
Y	N						
<input type="checkbox"/>	<input checked="" type="checkbox"/>						
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Y	N						
<input type="checkbox"/>	<input checked="" type="checkbox"/>						
Other comments:	⌘ Similar changes are proposed to Cx interface in N4-021367 The agreed changes of CR007 to 29.328 (N4-021164) are incorporated to the ShDataType.xsd, which is proposed here.						

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tIMSUserState	IMSUserState	Enumerated	Possible values: 0 (NOT_REGISTERED) 1 (REGISTERED) 2 (REGISTERED_UNREG_SERVICES) 3 (AUTHENTICATION_PENDING)
tCSUserState	CSUserState	Enumerated	Possible values (as defined in 3GPP TS 23.078): 0 (CAMELBusy) 1 (NetworkDeterminedNotReachable) 2 (AssumedIdle) 3 (NotProvidedfromVLR)
tPSUserState	PSUserState	Enumerated	Possible values (as defined in 3GPP TS 23.078): 0 (Detached) 1 (AttachedNotReachableForPaging) 2 (AttachedReachableForPaging) 3 (ConnectedNotReachableForPaging) 4 (ConnectedReachableForPaging) 5 (NotProvidedFromSGSN)
tLocationNumber	LocationNumber	string	Syntax described in ITU-T Q.763 (base 64)

			encoded according to RFC 2045). Length ≥ 4 and ≤ 16 (multiples of 4).
tGlobalCellId	GlobalCellId	string	Syntax described in 3GPP TS 29.002 (base 64 encoded according to RFC 2045). Length = 12.
tServiceAreaId	ServiceAreaId	string	Syntax described in 3GPP TS 29.002 (base 64 encoded according to RFC 2045). Length = 12.
tLocationAreaId	LocationAreaId	string	Syntax described in 3GPP TS 29.002 (base 64 encoded according to RFC 2045). Length = 8.
tRoutingAreaId	RoutingAreaId	string	Syntax described in 3GPP TS 29.002 (base 64 encoded according to RFC 2045). Length = 8.
tGeographicalInformation	GeographicalInformation	string	Syntax described in 3GPP TS 29.002 (base 64 encoded according to RFC 2045). Length = 12.
tGeodeticInformation	GeodeticInformation	string	Syntax described in 3GPP TS 29.002 (base 64 encoded according to RFC 2045). Length = 16.
tAgeOfLocationInformation	AgeOfLocationInformation	integer	≥ 0 , ≤ 32767
tAddressString	AddressString	string	Syntax described in 3GPP TS 29.002 (base 64 encoded according to RFC 2045). Length ≥ 4 and ≤ 28 (multiples of 4).
tMSISDN	MSISDN	string	Syntax described in 3GPP TS 23.003.
tSIP_URL	PublicIdentity	anyURI	Syntax described in RFC 3261
tTEL_URL	PublicIdentity	anyURI	Syntax described in RFC 2806
tIMSPublicIdentity	IMSPublicIdentity	(union)	Union of tSIP_URL and tTEL_URL
tServiceInfo	ServiceInfo	string	
tString	Method, Header, Content, Line	string	
tBool	ConditionTypeCNF, ConditionNegated	enumerated <u>boolean</u>	Possible values: 0 (FALSE <u>false</u>)

			1 (TRUE <u>true</u>)
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		Sh-IMS-Data	tShIMSData	0 to 1
		LocationInformation	tLocationInformation	0 to 1
tTransparentData	RepositoryData	ServiceIndication	string	1
		ServiceData	string	1
tShIMSData	Sh-IMS-Data	SCSCFName	tSIP_URL	0 to 1
		InitialFilterCriteria	tInitialFilterCriteria	0 to 10
		IMSUserState	tIMSUserState	0 to 1
tCSLocationInformation	CSLocationInformation	LocationNumber	tLocationNumber	0 to 1
		CellGlobalId	tGlobalCellId	0 to 1
		ServiceAreaId	tServiceAreaId	0 to 1
		LocationAreaId	tLocationAreaId	0 to 1
		GeographicalInformation	tGeographicalInformation	0 to 1
		GeodeticInformation	tGeodeticInformation	0 to 1
		VLRNumber	tISDNAddress	0 to 1
		MSCNumber	tISDNAddress	0 to 1
		CurrentLocationRetrieved	tBool	0 to 1
		AgeOfLocationInformation	tAgeOfLocationInformation	0 to 1

tPSLocationInformation	PSLocationInformation	CellGlobalId	tGlobalCellId	0 to 1	
		ServiceAreaId	tServiceAreaId	0 to 1	
		LocationAreaId	tLocationAreaId	0 to 1	
		RoutingAreaId	tRoutingAreaId	0 to 1	
		GeographicalInformation	tGeographicalInformation	0 to 1	
		GeodeticInformation	tGeodeticInformation	0 to 1	
		SGSNNumber	tISDNAddress	0 to 1	
		CurrentLocationRetrieved	tBool	0 to 1	
		AgeOfLocationInformation	tAgeOfLocationInformation	0 to 1	
tPublicIdentity	PublicIdentity	IMSPublicIdentity	tIMSPublicIdentity	0 to 20	
		MSISDN	tMSISDN	0 to 20	
		InitialFilterCriteria	tInitialFilterCriteria	1 to 10	
tInitialFilterCriteria	InitialFilterCriteria	Priority	tPriority	1	
		TriggerPoint	tTrigger	0 to 1	
		ApplicationServer	tApplicationServer	1	
tTrigger	Trigger	SPI	tSiPoInt	0 to 25	
		ConditionTypeCNF	tBool	1	
tSiPoInt	SPI	ConditionNegated	tBool	0 to 1	
		Group	tGroupID	1 to 25	
		Ch	Method	tString	1
			SIPHeader	tHeader	1
			SessionCase	tDirectionOfRequest	1

		SessionDescription	tSessionDescription	1
tHeader	SIPHeader	Header	tString	1
		Content	tString	0 to 1
tSessionDescription	SessionDescription	Line	tString	1
		Content	tString	0 to 1
tApplicationServer	ApplicationServer	ServerName	tSIP_URL	1
		DefaultHandling	tDefaultHandling	0 to 1
		ServiceInfo	tServiceInfo	0 to 1

-----End of first modified section-----

-----Beginning of second modified section-----

Annex E (informative): XML document for the Sh interface user profile

The file ShDataType.xsd.xml, attached to this specification, contains the XML schema document with the data description for Sh interface, ~~compliant with the Data Description Framework.~~

-----End of second modified section-----

-----Beginning of changes to ShDataTypes.xml file-----

```

<?xml version="1.0" encoding="UTF-8"?>
<?xml-stylesheet type="text/xsl" href="DDF_Schemas\3GPPdatatype2Xsd.xsl"?>
<datatypes xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="DDF_Schemas\3GPPdatatype.xsd">
  <atomicType name="tSIP_URL">
    <!-- Syntax described in RFC 3261. -->
    <restriction base="anyURI">
      <pattern value="sip:([0-9a-zA-Z&#x2D;=\\+\\$,%_\\-\\.!*'\\(\\)]+)(:[0-9a-zA-Z&#x2D;=\\+\\$,%_\\-\\.!*'\\(\\)]+)?@?((([0-9a-zA-Z]+\\|?([0-9a-zA-Z]+\\|\\.))+[0-9a-zA-Z]+\\|\\.?)|((([0-9]{1,3})\\.){1,3}([0-9]{1,3})\\.?)|([0-9]{1,3})|([a-zA-Z]+=[a-zA-Z0-9\\|\\.]*))*/>
    </restriction>
  </atomicType>
  <atomicType name="tTEL_URL">
    <!-- Syntax described in RFC 2806. -->
    <restriction base="anyURI">
      <pattern value="tel:\\|\\|\\|\\|?([0-9A-Dpw\\|*#\\|\\.\\(\\)/]+)(:[a-zA-Z\\|]+=[0-9a-zA-Z\\|\\.]+)"/>
    </restriction>
  </atomicType>

```

```


</atomicType>
<atomicType name="tIMSPublicIdentity">
  <union>
    <member datatype="tSIP_URL"/>
    <member datatype="tTEL_URL"/>
  </union>
</atomicType>
<atomicType name="tServiceInfo">
  <!-- TBD -->
  <restriction base="string">
    <minLength value="0"/>
  </restriction>
</atomicType>
<atomicType name="tString">
  <restriction base="string">
    <minLength value="0"/>
  </restriction>
</atomicType>
<atomicType name="tMSISDN">
  <!-- Syntax described in 3GPP TS 23.003 -->
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    <minLength value="0"/>
  </restriction>
</atomicType>
<atomicType name="tIMSUserState">
  <restriction base="unsignedByte">
    <maxInclusive value="3"/>
    <enumeration value="0">
      <semantic>
        <label lang="en">NOT_REGISTERED</label>
        <definition lang="en">Not registered</definition>
      </semantic>
    </enumeration>
    <enumeration value="1">
      <semantic>
        <label lang="en">REGISTERED</label>
        <definition lang="en">Registered</definition>
      </semantic>
    </enumeration>
    <enumeration value="2">
      <semantic>
        <label lang="en">REGISTERED_UNREG_SERVICES</label>
        <definition lang="en">Registered, with services for
unregistered</definition>
      </semantic>
    </enumeration>
    <enumeration value="3">
      <semantic>
        <label lang="en">AUTHENTICATION_PENDING</label>
        <definition lang="en">Pending of authentication</definition>
      </semantic>
    </enumeration>
  </restriction>
</atomicType>
<atomicType name="tCSUserState">
  <restriction base="unsignedByte">
    <maxInclusive value="3"/>
    <enumeration value="0">
      <semantic>
        <label lang="en">CAMELBusy</label>
      </semantic>
    </enumeration>
    <enumeration value="1">


```

```

-----<semantic>
-----<label lang="en">NetworkDeterminedNotReachable</label>
-----</semantic>
-----</enumeration>
-----<enumeration value="2">
-----<semantic>
-----<label lang="en">AssumedIdle</label>
-----</semantic>
-----</enumeration>
-----<enumeration value="3">
-----<semantic>
-----<label lang="en">NotProvidedFromVLR</label>
-----</semantic>
-----</enumeration>
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-----<atomicType name="tPSUserState">
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-----<label lang="en">Detached </label>
-----</semantic>
-----</enumeration>
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-----<semantic>
-----<label lang="en">AttachedNotReachableForPaging</label>
-----</semantic>
-----</enumeration>
-----<enumeration value="2">
-----<semantic>
-----<label lang="en">AttachedReachableForPaging</label>
-----</semantic>
-----</enumeration>
-----<enumeration value="3">
-----<semantic>
-----<label lang="en">ConnectedNotReachableForPaging</label>
-----</semantic>
-----</enumeration>
-----<enumeration value="4">
-----<semantic>
-----<label lang="en">ConnectedReachableForPaging</label>
-----</semantic>
-----</enumeration>
-----<enumeration value="5">
-----<semantic>
-----<label lang="en">notProvidedFromSCSN</label>
-----</semantic>
-----</enumeration>
-----</restriction>
-----</atomicType>
-----<atomicType name="tLocationNumber">
-----<!-- Syntax described in ITU-T Q.763 (base 64 encoded according to RFC
2045) -->
-----<restriction base="string">
-----<minLength value="4"/>
-----<maxLength value="16"/>
-----</restriction>
-----</atomicType>
-----<atomicType name="tCellGlobalId">
-----<!-- Syntax described in 3GPP TS 29.002 (base 64 encoded according to RFC
2045) -->
-----<restriction base="string">

```

```


    <length value="12"/>
  </restriction>
</atomicType>
<atomicType name="tServiceAreaId">
  <!-- Syntax described in 3GPP TS 29.002 (base 64 encoded according to RFC
2045) -->
  <restriction base="string">
    <length value="12"/>
  </restriction>
</atomicType>
<atomicType name="tLocationAreaId">
  <!-- Syntax described in 3GPP TS 29.002 (base 64 encoded according to RFC
2045) -->
  <restriction base="string">
    <length value="8"/>
  </restriction>
</atomicType>
<atomicType name="tRoutingAreaId">
  <!-- Syntax described in 3GPP TS 29.002 (base 64 encoded according to RFC
2045) -->
  <restriction base="string">
    <length value="8"/>
  </restriction>
</atomicType>
<atomicType name="tGeographicalInformation">
  <!-- Syntax described in 3GPP TS 29.002 (base 64 encoded according to RFC
2045) -->
  <restriction base="string">
    <length value="12"/>
  </restriction>
</atomicType>
<atomicType name="tGeodeticInformation">
  <!-- Syntax described in 3GPP TS 29.002 (base 64 encoded according to RFC
2045) -->
  <restriction base="string">
    <length value="16"/>
  </restriction>
</atomicType>
<atomicType name="tAddressString">
  <!-- Syntax described in 3GPP TS 29.002 (base 64 encoded according to RFC
2045) -->
  <restriction base="string">
    <minLength value="4"/>
    <maxLength value="28"/>
  </restriction>
</atomicType>
<atomicType name="tSelectedLSAIdentity">
  <!-- Syntax described in 3GPP TS 23.003 -->
  <restriction base="string">
    <length value="4"/>
  </restriction>
</atomicType>
<atomicType name="tPriority">
  <restriction base="int">
    <minInclusive value="0"/>
  </restriction>
</atomicType>
<atomicType name="tGroupID">
  <restriction base="int">
    <minInclusive value="0"/>
  </restriction>
</atomicType>
<atomicType name="tID">


```

```

<restriction base="int">
  <minInclusive value="0"/>
</restriction>
</atomicType>
<atomicType name="tDirectionOfRequest">
  <restriction base="unsignedByte">
    <maxInclusive value="3"/>
    <enumeration value="0">
      <semantic>
        <label lang="en">ORIGINATING_SESSION</label>
        <definition lang="en">Originating Session</definition>
      </semantic>
    </enumeration>
    <enumeration value="1">
      <semantic>
        <label lang="en">TERMINATING_SESSION</label>
        <definition lang="en">Terminating Session</definition>
      </semantic>
    </enumeration>
    <enumeration value="2">
      <semantic>
        <label lang="en">TERMINATING_UNREGISTERED</label>
        <definition lang="en">Terminating Session for unregistered
user</definition>
      </semantic>
    </enumeration>
  </restriction>
</atomicType>
<atomicType name="tDefaultHandling">
  <restriction base="unsignedByte">
    <maxInclusive value="1"/>
    <enumeration value="0">
      <semantic>
        <label lang="en">SESSION_CONTINUED</label>
        <definition lang="en">Session Continued</definition>
      </semantic>
    </enumeration>
    <enumeration value="1">
      <semantic>
        <label lang="en">SESSION_TERMINATED</label>
        <definition lang="en">Session Terminated</definition>
      </semantic>
    </enumeration>
  </restriction>
</atomicType>
<atomicType name="tAgeOfLocationInformation">
  <restriction base="int">
    <minInclusive value="0"/>
    <maxInclusive value="32767"/>
  </restriction>
</atomicType>
<atomicType name="tBool">
  <restriction base="boolean">
    <enumeration value="0">
      <semantic>
        <label lang="en">FALSE</label>
        <definition lang="en">False</definition>
      </semantic>
    </enumeration>
    <enumeration value="1">
      <semantic>
        <label lang="en">TRUE</label>
        <definition lang="en">True</definition>
      </semantic>
    </enumeration>
  </restriction>
</atomicType>

```

```


—————</semantic>
—————</enumeration>
—————</restriction>
—————</atomicType>
—————<recordType name="Sh-Data">
—————<fieldVector name="PublicIdentifiers" datatype="tPublicIdentity"
minOccurs="0" maxOccurs="1"/>
—————<fieldVector name="RepositoryData" datatype="tTransparentData"
minOccurs="0" maxOccurs="1"/>
—————<fieldVector name="Sh-IMS-Data" datatype="tShIMSData" minOccurs="0"
maxOccurs="1"/>
—————<fieldVector name="CSLocationInformation" datatype="tCSLocationInformation"
minOccurs="0" maxOccurs="1"/>
—————<fieldVector name="PSLocationInformation" datatype="tPSLocationInformation"
minOccurs="0" maxOccurs="1"/>
—————<fieldVector name="CSUserState" datatype="tCSUserState" minOccurs="0"
maxOccurs="1"/>
—————<fieldVector name="PSUserState" datatype="tPSUserState" minOccurs="0"
maxOccurs="1"/>
—————</recordType>
—————<recordType name="tTransparentData">
—————<fieldVector name="ServiceIndication" datatype="tString" minOccurs="1"
maxOccurs="1"/>
—————<fieldVector name="ServiceData" datatype="tString" minOccurs="1"
maxOccurs="1"/>
—————</recordType>
—————<recordType name="tShIMSData">
—————<fieldVector name="SCSCFName" datatype="tSIP_URL" minOccurs="0"
maxOccurs="1"/>
—————<fieldVector name="InitialFilterCriteria" datatype="tInitialFilterCriteria"
minOccurs="0" maxOccurs="10"/>
—————<fieldVector name="IMSUserState" datatype="tIMSUserState" minOccurs="0"
maxOccurs="1"/>
—————</recordType>
—————<recordType name="tCSLocationInformation">
—————<fieldVector name="LocationNumber" datatype="tLocationNumber" minOccurs="0"
maxOccurs="1"/>
—————<fieldVector name="CellGlobalId" datatype="tCellGlobalId" minOccurs="0"
maxOccurs="1"/>
—————<fieldVector name="ServiceAreaId" datatype="tServiceAreaId" minOccurs="0"
maxOccurs="1"/>
—————<fieldVector name="LocationAreaId" datatype="tLocationAreaId" minOccurs="0"
maxOccurs="1"/>
—————<fieldVector name="GeographicalInformation"
datatype="tGeographicalInformation" minOccurs="0" maxOccurs="1"/>
—————<fieldVector name="GeodeticInformation" datatype="tGeodeticInformation"
minOccurs="0" maxOccurs="1"/>
—————<fieldVector name="VLRNumber" datatype="tISDNAddress" minOccurs="0"
maxOccurs="1"/>
—————<fieldVector name="MSCNumber" datatype="tISDNAddress" minOccurs="0"
maxOccurs="1"/>
—————<fieldVector name="CurrentLocationRetrieved" datatype="tBool" minOccurs="0"
maxOccurs="1"/>
—————<fieldVector name="AgeOfLocationInformation"
datatype="tAgeOfLocationInformation" minOccurs="0" maxOccurs="1"/>
—————</recordType>
—————<recordType name="tPSLocationInformation">
—————<fieldVector name="CellGlobalId" datatype="tCellGlobalId" minOccurs="0"
maxOccurs="1"/>
—————<fieldVector name="ServiceAreaId" datatype="tServiceAreaId" minOccurs="0"
maxOccurs="1"/>
—————<fieldVector name="LocationAreaId" datatype="tLocationAreaId" minOccurs="0"
maxOccurs="1"/>


```

```


——<fieldVector name="RoutingAreaId" datatype="tRoutingAreaId" minOccurs="0"
maxOccurs="1"/>
——<fieldVector name="GeographicalInformation"
datatype="tGeographicalInformation" minOccurs="0" maxOccurs="1"/>
——<fieldVector name="GeodeticInformation" datatype="tGeodeticInformation"
minOccurs="0" maxOccurs="1"/>
——<fieldVector name="SGSNNumber" datatype="tISDNAddress" minOccurs="0"
maxOccurs="1"/>
——<fieldVector name="CurrentLocationRetrieved" datatype="tBool" minOccurs="0"
maxOccurs="1"/>
——<fieldVector name="AgeOfLocationInformation"
datatype="tAgeOfLocationInformation" minOccurs="0" maxOccurs="1"/>
——</recordType>
——<recordType name="tISDNAddress">
——<fieldVector name="Address" datatype="tAddressString" minOccurs="1"
maxOccurs="9"/>
——</recordType>
——<recordType name="tPublicIdentity">
——<fieldVector name="IMSPublicIdentity" datatype="tIMSPublicIdentity"
minOccurs="0" maxOccurs="20"/>
——<fieldVector name="MSISDN" datatype="tMSISDN" minOccurs="0"
maxOccurs="20"/>
——</recordType>
——<recordType name="tInitialFilterCriteria">
——<fieldVector name="Priority" datatype="tPriority" minOccurs="1"
maxOccurs="1"/>
——<fieldVector name="TriggerPoint" datatype="tTrigger" minOccurs="0"
maxOccurs="1"/>
——<fieldVector name="ApplicationServer" datatype="tApplicationServer"
minOccurs="1" maxOccurs="1"/>
——</recordType>
——<recordType name="tTrigger">
——<fieldVector name="SPI" datatype="tSiPoInt" minOccurs="0" maxOccurs="25"/>
——<fieldVector name="ConditionTypeCNF" datatype="tBool" minOccurs="1"
maxOccurs="1"/>
——</recordType>
——<recordType name="tSiPoInt">
——<fieldVector name="ConditionNegated" datatype="tBool" minOccurs="0"
maxOccurs="1"/>
——<fieldVector name="Group" datatype="tGroupID" minOccurs="1"
maxOccurs="25"/>
——<fieldVector name="Method" datatype="tString" minOccurs="1" maxOccurs="1"/>
——<fieldVector name="SIPHeader" datatype="tHeader" minOccurs="1"
maxOccurs="1"/>
——<fieldVector name="SessionCase" datatype="tDirectionOfRequest"
minOccurs="1" maxOccurs="1"/>
——<fieldVector name="SessionDescription" datatype="tSessionDescription"
minOccurs="1" maxOccurs="1"/>
——</recordType>
——<recordType name="tSessionDescription">
——<fieldVector name="Line" datatype="tString" minOccurs="1" maxOccurs="1"/>
——<fieldVector name="Content" datatype="tString" minOccurs="0"
maxOccurs="1"/>
——</recordType>
——<recordType name="tHeader">
——<fieldVector name="Header" datatype="tString" minOccurs="1" maxOccurs="1"/>
——<fieldVector name="Content" datatype="tString" minOccurs="0"
maxOccurs="1"/>
——</recordType>
——<recordType name="tApplicationServer">
——<fieldVector name="ServerName" datatype="tSIP_URL" minOccurs="1"
maxOccurs="1"/>


```



```

-----<fieldVector name="DefaultHandling" datatype="tDefaultHandling"
minOccurs="0" maxOccurs="1"/>
-----<fieldVector name="ServiceInfo" datatype="tServiceInfo" minOccurs="0"
maxOccurs="1"/>
-----</recordType>
-----</datatypes>

```

-----End of changes to ShDataTypes.xml file-----

-----Beginning of changes to ShDataType.xsd file-----

```

<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
elementFormDefault="qualified" attributeFormDefault="unqualified">
  <xs:simpleType name="tSIP_URL" final="list restriction">
    <xs:restriction base="xs:anyURI"/>
-----<xs:pattern value="sip:([0-9a-zA-Z&=:\+\$,\\_\\.\!*\'\\(\)\]}+(:[0-9a-
zA-Z&=:\+\$,\\_\\.\!*\'\\(\)\]}+)?@)?((([0-9a-zA-Z]+\ ?[0-9a-zA-Z]+\ ?)+[0-
9a-zA-Z]+\ ?)|((([0-9]{1,3})\ ?)+[0-9]{1,3})\ ?))(:[0-9]+)?(;[a-zA-Z]+=[a-zA-
Z0-9\\_\\.\!*\'\\(\)\]}+)*"/>
    </xs:restriction>
  </xs:simpleType>
  <xs:simpleType name="tTEL_URL" final="list restriction">
    <xs:restriction base="xs:anyURI"/>
-----<xs:pattern value="tel:\\+\\+?([0-9A-Dpw\\*#\\_\\.\!*\'\\(\)\]}+)(;[a-zA-Z\\_
]+=[0-9a-zA-Z\\_\\.\!*\'\\(\)\]}+)" />
    </xs:restriction>
  </xs:simpleType>
  <xs:simpleType name="tIMSPublicIdentity" final="#all">
    <xs:union memberTypes="tSIP_URL tTEL_URL"/>
  </xs:simpleType>
  <xs:simpleType name="tServiceInfo" final="list restriction">
    <xs:restriction base="xs:string">
      <xs:minLength value="0"/>
    </xs:restriction>
  </xs:simpleType>
  <xs:simpleType name="tString" final="list restriction">
    <xs:restriction base="xs:string">
      <xs:minLength value="0"/>
    </xs:restriction>
  </xs:simpleType>
  <xs:simpleType name="tMSISDN" final="list restriction">
    <xs:restriction base="xs:string">
      <xs:minLength value="0"/>
    </xs:restriction>
  </xs:simpleType>
  <xs:simpleType name="tIMSUserState" final="list restriction">
    <xs:restriction base="xs:unsignedByte">
      <xs:maxInclusive value="3"/>
      <xs:enumeration value="0">
        <xs:annotation>
          <xs:documentation>
            <label xml:lang="en">NOT_REGISTERED</label>
            <definition xml:lang="en">Not registered</definition>
          </xs:documentation>
        </xs:annotation>
      </xs:enumeration>
      <xs:enumeration value="1">
```

```

    <xs:annotation>
      <xs:documentation>
        <label xml:lang="en">REGISTERED</label>
        <definition xml:lang="en">Registered</definition>
      </xs:documentation>
    </xs:annotation>
  </xs:enumeration>
  <xs:enumeration value="2">
    <xs:annotation>
      <xs:documentation>
        <label xml:lang="en">REGISTERED_UNREG_SERVICES</label>
        <definition xml:lang="en">Registered, with services for
unregistered</definition>
      </xs:documentation>
    </xs:annotation>
  </xs:enumeration>
  <xs:enumeration value="3">
    <xs:annotation>
      <xs:documentation>
        <label xml:lang="en">AUTHENTICATION_PENDING </label>
        <definition xml:lang="en">Pending of authentication</definition>
      </xs:documentation>
    </xs:annotation>
  </xs:enumeration>
</xs:restriction>
</xs:simpleType>
<xs:simpleType name="tCSUserState" final="list restriction">
  <xs:restriction base="xs:unsignedByte">
    <xs:maxInclusive value="3"/>
    <xs:enumeration value="0">
      <xs:annotation>
        <xs:documentation>
          <label xml:lang="en">CAMELBusy</label>
        </xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="1">
      <xs:annotation>
        <xs:documentation>
          <label xml:lang="en">NetworkDeterminedNotReachable</label>
        </xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="2">
      <xs:annotation>
        <xs:documentation>
          <label xml:lang="en">AssumedIdle</label>
        </xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="3">
      <xs:annotation>
        <xs:documentation>
          <label xml:lang="en">NotProvidedFromVLR</label>
        </xs:documentation>
      </xs:annotation>
    </xs:enumeration>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="tPSUserState" final="list restriction">
  <xs:restriction base="xs:unsignedByte">
    <xs:maxInclusive value="5"/>
    <xs:enumeration value="0">

```

```

    <xs:annotation>
      <xs:documentation>
        <label xml:lang="en">Detached </label>
      </xs:documentation>
    </xs:annotation>
  </xs:enumeration>
  <xs:enumeration value="1">
    <xs:annotation>
      <xs:documentation>
        <label xml:lang="en">AttachedNotReachableForPaging</label>
      </xs:documentation>
    </xs:annotation>
  </xs:enumeration>
  <xs:enumeration value="2">
    <xs:annotation>
      <xs:documentation>
        <label xml:lang="en">AttachedReachableForPaging</label>
      </xs:documentation>
    </xs:annotation>
  </xs:enumeration>
  <xs:enumeration value="3">
    <xs:annotation>
      <xs:documentation>
        <label xml:lang="en">ConnectedNotReachableForPaging</label>
      </xs:documentation>
    </xs:annotation>
  </xs:enumeration>
  <xs:enumeration value="4">
    <xs:annotation>
      <xs:documentation>
        <label xml:lang="en">ConnectedReachableForPaging</label>
      </xs:documentation>
    </xs:annotation>
  </xs:enumeration>
  <xs:enumeration value="5">
    <xs:annotation>
      <xs:documentation>
        <label xml:lang="en">notProvidedFromSGSN</label>
      </xs:documentation>
    </xs:annotation>
  </xs:enumeration>
</xs:restriction>
</xs:simpleType>
<xs:simpleType name="tLocationNumber" final="list restriction">
  <xs:restriction base="xs:string">
    <xs:minLength value="4"/>
    <xs:maxLength value="16"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="tCellGlobalId" final="list restriction">
  <xs:restriction base="xs:string">
    <xs:length value="12"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="tServiceAreaId" final="list restriction">
  <xs:restriction base="xs:string">
    <xs:length value="12"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="tLocationAreaId" final="list restriction">
  <xs:restriction base="xs:string">
    <xs:length value="8"/>
  </xs:restriction>
</xs:simpleType>

```

```

</xs:simpleType>
<xs:simpleType name="tRoutingAreaId" final="list restriction">
  <xs:restriction base="xs:string">
    <xs:length value="8"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="tGeographicalInformation" final="list restriction">
  <xs:restriction base="xs:string">
    <xs:length value="12"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="tGeodeticInformation" final="list restriction">
  <xs:restriction base="xs:string">
    <xs:length value="16"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="tAddressString" final="list restriction">
  <xs:restriction base="xs:string">
    <xs:minLength value="4"/>
    <xs:maxLength value="28"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="tSelectedLSAIdentity" final="list restriction">
  <xs:restriction base="xs:string">
    <xs:length value="4"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="tPriority" final="list restriction">
  <xs:restriction base="xs:int">
    <xs:minInclusive value="0"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="tGroupID" final="list restriction">
  <xs:restriction base="xs:int">
    <xs:minInclusive value="0"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="tID" final="list restriction">
  <xs:restriction base="xs:int">
    <xs:minInclusive value="0"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="tDirectionOfRequest" final="list restriction">
  <xs:restriction base="xs:unsignedByte">
    <xs:maxInclusive value="3"/>
    <xs:enumeration value="0">
      <xs:annotation>
        <xs:documentation>
          <label xml:lang="en">ORIGINATING_SESSION</label>
          <definition xml:lang="en">Originating Session</definition>
        </xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="1">
      <xs:annotation>
        <xs:documentation>
          <label xml:lang="en">TERMINATING_SESSION</label>
          <definition xml:lang="en">Terminating Session</definition>
        </xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="2">
      <xs:annotation>

```

```

        <xs:documentation>
          <label xml:lang="en">TERMINATING_UNREGISTERED</label>
          <definition xml:lang="en">Terminating Session for unregistered
user</definition>
        </xs:documentation>
      </xs:annotation>
    </xs:enumeration>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="tDefaultHandling" final="list restriction">
  <xs:restriction base="xs:unsignedByte">
    <xs:maxInclusive value="1"/>
    <xs:enumeration value="0">
      <xs:annotation>
        <xs:documentation>
          <label xml:lang="en">SESSION_CONTINUED</label>
          <definition xml:lang="en">Session Continued</definition>
        </xs:documentation>
      </xs:annotation>
    </xs:enumeration>
    <xs:enumeration value="1">
      <xs:annotation>
        <xs:documentation>
          <label xml:lang="en">SESSION_TERMINATED</label>
          <definition xml:lang="en">Session Terminated</definition>
        </xs:documentation>
      </xs:annotation>
    </xs:enumeration>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="tAgeOfLocationInformation" final="list restriction">
  <xs:restriction base="xs:int">
    <xs:minInclusive value="0"/>
    <xs:maxInclusive value="32767"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="tBool" final="list restriction">
  <xs:restriction base="xs:boolean">
    <xs:enumeration value="0">
    <xs:annotation>
    <xs:documentation>
    <label xml:lang="en">FALSE</label>
    <definition xml:lang="en">False</definition>
    </xs:documentation>
    </xs:annotation>
  </xs:enumeration>
    <xs:enumeration value="1">
    <xs:annotation>
    <xs:documentation>
    <label xml:lang="en">TRUE</label>
    <definition xml:lang="en">True</definition>
    </xs:documentation>
    </xs:annotation>
  </xs:enumeration>
  </xs:restriction>
</xs:simpleType>
<xs:complexType name="tSh-Data">
  <xs:sequence>
    <xs:element name="PublicIdentifiers" type="tPublicIdentity"
minOccurs="0"/>
    <xs:complexType>
    <xs:complexContent>
    <xs:extension base="tPublicIdentity">

```

```

</xs:attribute name="index" type="xs:int" use="required"/>
</xs:extension>
</xs:complexContent>
</xs:complexType>
</xs:element>
<xs:element name="RepositoryData" type="tTransparentData" minOccurs="0"/>
</xs:complexType>
</xs:complexContent>
<xs:extension base="tTransparentData">
<xs:attribute name="index" type="xs:int" use="required"/>
</xs:extension>
</xs:complexContent>
</xs:complexType>
</xs:element>
<xs:element name="Sh-IMS-Data" type="tShIMSData" minOccurs="0"/>
</xs:complexType>
</xs:complexContent>
<xs:extension base="tShIMSData">
<xs:attribute name="index" type="xs:int" use="required"/>
</xs:extension>
</xs:complexContent>
</xs:complexType>
</xs:element>
<xs:element name="CSLocationInformation" type="tCSLocationInformation"
minOccurs="0"/>
</xs:complexType>
</xs:complexContent>
<xs:extension base="tCSLocationInformation">
<xs:attribute name="index" type="xs:int" use="required"/>
</xs:extension>
</xs:complexContent>
</xs:complexType>
</xs:element>
<xs:element name="PSLocationInformation" type="tPSLocationInformation"
minOccurs="0"/>
</xs:complexType>
</xs:complexContent>
<xs:extension base="tPSLocationInformation">
<xs:attribute name="index" type="xs:int" use="required"/>
</xs:extension>
</xs:complexContent>
</xs:complexType>
</xs:element>
<xs:element name="CSUserState" type="tCSUserState" minOccurs="0"/>
</xs:complexType>
</xs:simpleContent>
<xs:extension base="tCSUserState">
<xs:attribute name="index" type="xs:int" use="required"/>
</xs:extension>
</xs:simpleContent>
</xs:complexType>
</xs:element>
<xs:element name="PSUserState" type="tPSUserState" minOccurs="0"/>
</xs:complexType>
</xs:simpleContent>
<xs:extension base="tPSUserState">
<xs:attribute name="index" type="xs:int" use="required"/>
</xs:extension>
</xs:simpleContent>
</xs:complexType>
</xs:element>
<xs:any namespace="##Other" processContents="lax" minOccurs="0"
maxOccurs="unbounded"/>

```

```

    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="tTransparentData">
    <xs:sequence>
      <xs:element name="ServiceIndication" type="tString"/>
      <xs:complexType>
      <xs:simpleContent>
      <xs:extension base="tString">
      <xs:attribute name="index" type="xs:int" use="required"/>
      </xs:extension>
      </xs:simpleContent>
      </xs:complexType>
    </xs:element>
    <xs:element name="ServiceData">
      <xs:complexType>
        <xs:sequence>
          <xs:any namespace="##Other" processContents="lax" minOccurs="0"
maxOccurs="unbounded" />
          </xs:sequence>
          <xs:attribute name="index" type="xs:int" use="required"/>
        </xs:complexType>
      </xs:element>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="tShIMSData">
    <xs:sequence>
      <xs:element name="SCSCFName" type="tSIP_URL" minOccurs="0"/>
      <xs:complexType>
      <xs:simpleContent>
      <xs:extension base="tSIP_URL">
      <xs:attribute name="index" type="xs:int" use="required"/>
      </xs:extension>
      </xs:simpleContent>
      </xs:complexType>
    </xs:element>
    <xs:element name="InitialFilterCriteria" type="tInitialFilterCriteria"
minOccurs="0" maxOccurs="unbounded" maxOccurs="10"/>
    &del><xs:complexType>
    &del><xs:complexContent>
    &del><xs:extension base="tInitialFilterCriteria">
    &del><xs:attribute name="index" type="xs:int" use="required"/>
    &del></xs:extension>
    &del></xs:complexContent>
    &del></xs:complexType>
    </xs:element>
    <xs:element name="IMSUserState" type="tIMSUserState" minOccurs="0"/>
    &del><xs:complexType>
    &del><xs:simpleContent>
    &del><xs:extension base="tIMSUserState">
    &del><xs:attribute name="index" type="xs:int" use="required"/>
    &del></xs:extension>
    &del></xs:simpleContent>
    &del></xs:complexType>
    </xs:element>
    <xs:any namespace="##Other" processContents="lax" minOccurs="0"
maxOccurs="unbounded" />
  </xs:sequence>
</xs:complexType>
<xs:complexType name="tCSLocationInformation">
  <xs:sequence>
    <xs:element name="LocationNumber" type="tLocationNumber" minOccurs="0"/>
    <xs:complexType>
    <xs:simpleContent>

```

```

</xs:extension base="tLocationNumber">
  <xs:attribute name="index" type="xs:int" use="required"/>
</xs:extension>
</xs:simpleContent>
</xs:complexType>
</xs:element>
  <xs:choice>
    <xs:element name="CellGlobalId" type="tCellGlobalId" minOccurs="0"/>
    <xs:complexType>
      <xs:simpleContent>
        <xs:extension base="tCellGlobalId">
          <xs:attribute name="index" type="xs:int" use="required"/>
        </xs:extension>
      </xs:simpleContent>
    </xs:complexType>
  </xs:element>
    <xs:element name="ServiceAreaId" type="tServiceAreaId" minOccurs="0"/>
    <xs:complexType>
      <xs:simpleContent>
        <xs:extension base="tServiceAreaId">
          <xs:attribute name="index" type="xs:int" use="required"/>
        </xs:extension>
      </xs:simpleContent>
    </xs:complexType>
  </xs:element>
    <xs:element name="LocationAreaId" type="tLocationAreaId"
minOccurs="0"/>
    <xs:complexType>
      <xs:simpleContent>
        <xs:extension base="tLocationAreaId">
          <xs:attribute name="index" type="xs:int" use="required"/>
        </xs:extension>
      </xs:simpleContent>
    </xs:complexType>
  </xs:element>
</xs:choice>
  <xs:element name="GeographicalInformation"
type="tGeographicalInformation" minOccurs="0"/>
  <xs:complexType>
    <xs:simpleContent>
      <xs:extension base="tGeographicalInformation">
        <xs:attribute name="index" type="xs:int" use="required"/>
      </xs:extension>
    </xs:simpleContent>
  </xs:complexType>
</xs:element>
  <xs:element name="GeodeticInformation" type="tGeodeticInformation"
minOccurs="0"/>
  <xs:complexType>
    <xs:simpleContent>
      <xs:extension base="tGeodeticInformation">
        <xs:attribute name="index" type="xs:int" use="required"/>
      </xs:extension>
    </xs:simpleContent>
  </xs:complexType>
</xs:element>
  <xs:element name="VLRNumber" type="tISDNAddress" minOccurs="0"/>
  <xs:complexType>
    <xs:complexContent>
      <xs:extension base="tISDNAddress">
        <xs:attribute name="index" type="xs:int" use="required"/>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>

```



```

----- </xs:complexType>
----- </xs:element>
----- <xs:element name="MSCNumber" type="tISDNAddress" minOccurs="0"/>
----- <xs:complexType>
----- <xs:complexContent>
----- <xs:extension base="tISDNAddress">
----- <xs:attribute name="index" type="xs:int" use="required"/>
----- </xs:extension>
----- </xs:complexContent>
----- </xs:complexType>
----- </xs:element>
----- <xs:element name="CurrentLocationRetrieved" type="tBool" minOccurs="0"/>
----- <xs:complexType>
----- <xs:simpleContent>
----- <xs:extension base="tBool">
----- <xs:attribute name="index" type="xs:int" use="required"/>
----- </xs:extension>
----- </xs:simpleContent>
----- </xs:complexType>
----- </xs:element>
----- <xs:element name="AgeOfLocationInformation"
type="tAgeOfLocationInformation" minOccurs="0"/>
----- <xs:complexType>
----- <xs:simpleContent>
----- <xs:extension base="tAgeOfLocationInformation">
----- <xs:attribute name="index" type="xs:int" use="required"/>
----- </xs:extension>
----- </xs:simpleContent>
----- </xs:complexType>
----- </xs:element>
----- <xs:any namespace="##Other" processContents="lax" minOccurs="0"
maxOccurs="unbounded" />
----- </xs:sequence>
----- </xs:complexType>
----- <xs:complexType name="tPSLocationInformation">
----- <xs:sequence>
----- <xs:choice>
----- <xs:element name="CellGlobalId" type="tCellGlobalId" minOccurs="0"/>
----- <xs:complexType>
----- <xs:simpleContent>
----- <xs:extension base="tCellGlobalId">
----- <xs:attribute name="index" type="xs:int" use="required"/>
----- </xs:extension>
----- </xs:simpleContent>
----- </xs:complexType>
----- </xs:element>
----- <xs:element name="ServiceAreaId" type="tServiceAreaId" minOccurs="0"/>
----- <xs:complexType>
----- <xs:simpleContent>
----- <xs:extension base="tServiceAreaId">
----- <xs:attribute name="index" type="xs:int" use="required"/>
----- </xs:extension>
----- </xs:simpleContent>
----- </xs:complexType>
----- </xs:element>
----- <xs:element name="LocationAreaId" type="tLocationAreaId"
minOccurs="0"/>
----- <xs:complexType>
----- <xs:simpleContent>
----- <xs:extension base="tLocationAreaId">
----- <xs:attribute name="index" type="xs:int" use="required"/>
----- </xs:extension>
----- </xs:simpleContent>
----- </xs:complexType>

```

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</xs:complexType>
</xs:element>
</xs:choice>
<xs:element name="RoutingAreaId" type="tRoutingAreaId" minOccurs="0"/>
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<xs:extension base="tRoutingAreaId">
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</xs:extension>
</xs:simpleContent>
</xs:complexType>
</xs:element>
<xs:element name="GeographicalInformation"
type="tGeographicalInformation" minOccurs="0"/>
<xs:complexType>
<xs:simpleContent>
<xs:extension base="tGeographicalInformation">
<xs:attribute name="index" type="xs:int" use="required"/>
</xs:extension>
</xs:simpleContent>
</xs:complexType>
</xs:element>
<xs:element name="GeodeticInformation" type="tGeodeticInformation"
minOccurs="0"/>
<xs:complexType>
<xs:simpleContent>
<xs:extension base="tGeodeticInformation">
<xs:attribute name="index" type="xs:int" use="required"/>
</xs:extension>
</xs:simpleContent>
</xs:complexType>
</xs:element>
<xs:element name="SGSNumber" type="tISDNAddress" minOccurs="0"/>
<xs:complexType>
<xs:complexContent>
<xs:extension base="tISDNAddress">
<xs:attribute name="index" type="xs:int" use="required"/>
</xs:extension>
</xs:complexContent>
</xs:complexType>
</xs:element>
<xs:element name="CurrentLocationRetrieved" type="tBool" minOccurs="0"/>
<xs:complexType>
<xs:simpleContent>
<xs:extension base="tBool">
<xs:attribute name="index" type="xs:int" use="required"/>
</xs:extension>
</xs:simpleContent>
</xs:complexType>
</xs:element>
<xs:element name="AgeOfLocationInformation"
type="tAgeOfLocationInformation" minOccurs="0"/>
<xs:complexType>
<xs:simpleContent>
<xs:extension base="tAgeOfLocationInformation">
<xs:attribute name="index" type="xs:int" use="required"/>
</xs:extension>
</xs:simpleContent>
</xs:complexType>
</xs:element>
<xs:any namespace="##Other" processContents="lax" minOccurs="0"
maxOccurs="unbounded"/>
</xs:sequence>

```

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</xs:complexType>
<xs:complexType name="tISDNAddress">
  <xs:sequence>
    <xs:element name="Address" type="tAddressString" maxOccurs="9"/>
    <xs:complexType>
    <xs:simpleContent>
    <xs:extension base="tAddressString">
    <xs:attribute name="index" type="xs:int" use="required"/>
    </xs:extension>
    </xs:simpleContent>
    </xs:complexType>
    </xs:element>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="tPublicIdentity">
  <xs:sequence>
    <xs:element name="IMSPublicIdentity" type="tIMSPublicIdentity"
minOccurs="0" maxOccurs="20" maxOccurs="unbounded"/>
    <xs:complexType>
    <xs:simpleContent>
    <xs:extension base="tIMSPublicIdentity">
    <xs:attribute name="index" type="xs:int" use="required"/>
    </xs:extension>
    </xs:simpleContent>
    </xs:complexType>
    </xs:element>
    <xs:element name="MSISDN" type="tMSISDN" minOccurs="0" maxOccurs="20"
maxOccurs="unbounded" />
    <xs:complexType>
    <xs:simpleContent>
    <xs:extension base="tMSISDN">
    <xs:attribute name="index" type="xs:int" use="required"/>
    </xs:extension>
    </xs:simpleContent>
    </xs:complexType>
    </xs:element>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="tInitialFilterCriteria">
  <xs:sequence>
    <xs:element name="Priority" type="tPriority"/>
    <xs:complexType>
    <xs:simpleContent>
    <xs:extension base="tPriority">
    <xs:attribute name="index" type="xs:int" use="required"/>
    </xs:extension>
    </xs:simpleContent>
    </xs:complexType>
    </xs:element>
    <xs:element name="TriggerPoint" type="tTrigger" minOccurs="0"/>
    <xs:complexType>
    <xs:complexContent>
    <xs:extension base="tTrigger">
    <xs:attribute name="index" type="xs:int" use="required"/>
    </xs:extension>
    </xs:complexContent>
    </xs:complexType>
    </xs:element>
    <xs:element name="ApplicationServer" type="tApplicationServer"/>
    <xs:complexType>
    <xs:complexContent>
    <xs:extension base="tApplicationServer">
    <xs:attribute name="index" type="xs:int" use="required"/>

```

```

----- </xs:extension>
----- </xs:complexContent>
----- </xs:complexType>
----- </xs:element>
    <xs:any namespace="##Other" processContents="lax" minOccurs="0"
maxOccurs="unbounded" />
  </xs:sequence>
</xs:complexType>
<xs:complexType name="tTrigger">
  <xs:sequence>
    <xs:element name="SPI" type="tSiPoInt" minOccurs="0" maxOccurs="25"
maxOccurs="unbounded" />
----- <xs:complexType>
----- <xs:complexContent>
----- <xs:extension base="tSiPoInt">
----- <xs:attribute name="index" type="xs:int" use="required"/>
----- </xs:extension>
----- </xs:complexContent>
----- </xs:complexType>
----- </xs:element>
    <xs:element name="ConditionTypeCNF" type="tBool" />
----- <xs:complexType>
----- <xs:simpleContent>
----- <xs:extension base="tBool">
----- <xs:attribute name="index" type="xs:int" use="required"/>
----- </xs:extension>
----- </xs:simpleContent>
----- </xs:complexType>
----- </xs:element>
    <xs:any namespace="##Other" processContents="lax" minOccurs="0"
maxOccurs="unbounded" />
  </xs:sequence>
</xs:complexType>
<xs:complexType name="tSiPoInt">
  <xs:sequence>
    <xs:element name="ConditionNegated" type="tBool" minOccurs="0" />
----- <xs:complexType>
----- <xs:simpleContent>
----- <xs:extension base="tBool">
----- <xs:attribute name="index" type="xs:int" use="required"/>
----- </xs:extension>
----- </xs:simpleContent>
----- </xs:complexType>
----- </xs:element>
    <xs:element name="Group" type="tGroupID"
maxOccurs="unbounded" /maxOccurs="25">
----- <xs:complexType>
----- <xs:simpleContent>
----- <xs:extension base="tGroupID">
----- <xs:attribute name="index" type="xs:int" use="required"/>
----- </xs:extension>
----- </xs:simpleContent>
----- </xs:complexType>
----- </xs:element>
    <xs:choice>
      <xs:element name="Method" type="tString" />
----- <xs:complexType>
----- <xs:simpleContent>
----- <xs:extension base="tString">
----- <xs:attribute name="index" type="xs:int" use="required"/>
----- </xs:extension>
----- </xs:simpleContent>
----- </xs:complexType>

```

```


</xs:element>
  <xs:element name="SIPHeader" type="tHeader"/>
</del>
<del>
  <xs:complexType>
    <xs:complexContent>
      <xs:extension base="tHeader">
        <xs:attribute name="index" type="xs:int" use="required"/>
      </xs:extension>
    </xs:complexContent>
  </del>
</del>
</del>
  <xs:element name="SessionCase" type="tDirectionOfRequest"/>
<del>
  <xs:complexType>
    <xs:simpleContent>
      <xs:extension base="tDirectionOfRequest">
        <xs:attribute name="index" type="xs:int" use="required"/>
      </xs:extension>
    </del>
</del>
</del>
  <xs:element name="SessionDescription" type="tSessionDescription"/>
<del>
  <xs:complexType>
    <xs:complexContent>
      <xs:extension base="tSessionDescription">
        <xs:attribute name="index" type="xs:int" use="required"/>
      </del>
</del>
</del>
</del>
  </del>
  <xs:choice>
    <xs:any namespace="##Other" processContents="lax" minOccurs="0"
maxOccurs="unbounded" />
  </del>
</del>
</del>
  <xs:complexType name="tSessionDescription">
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      <xs:sequence>
        <del>
          <xs:element name="Line" type="tString"/>
<del>
          <xs:complexType>
            <del>
              <xs:simpleContent>
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                  <xs:extension base="tString">
                    <del>
                      <xs:attribute name="index" type="xs:int" use="required"/>
                    </del>
                  </del>
                </del>
              </del>
            </del>
          </del>
        </del>
        <del>
          <xs:element name="Content" type="tString" minOccurs="0"/>
<del>
          <xs:complexType>
            <del>
              <xs:simpleContent>
                <del>
                  <xs:extension base="tString">
                    <del>
                      <xs:attribute name="index" type="xs:int" use="required"/>
                    </del>
                  </del>
                </del>
              </del>
            </del>
          </del>
        </del>
      </del>
    </del>
  </del>
  <del>
    <xs:complexType name="tHeader">
      <del>
        <xs:sequence>
          <del>
            <xs:element name="Header" type="tString"/>
<del>
            <xs:complexType>
              <del>
                <xs:simpleContent>
                  <del>
                    <xs:extension base="tString">
                      <del>
                        <xs:attribute name="index" type="xs:int" use="required"/>
                      </del>
                    </del>
                  </del>
                </del>
              </del>
            </del>
          </del>
        </del>
      </del>
    </del>
  </del>

```

```


</xs:simpleContent>
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<xs:element name="Content" type="tString" minOccurs="0"/>
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<xs:simpleContent>
<xs:extension base="tString">
<xs:attribute name="index" type="xs:int" use="required"/>
</xs:extension>
</xs:simpleContent>
</xs:complexType>
</xs:element>
</xs:sequence>
</xs:complexType>
<xs:complexType name="tApplicationServer">
<xs:sequence>
<xs:element name="ServerName" type="tSIP_URL"/>
<xs:complexType>
<xs:simpleContent>
<xs:extension base="tSIP_URL">
<xs:attribute name="index" type="xs:int" use="required"/>
</xs:extension>
</xs:simpleContent>
</xs:complexType>
</xs:element>
<xs:element name="DefaultHandling" type="tDefaultHandling"
minOccurs="0"/>
<xs:complexType>
<xs:simpleContent>
<xs:extension base="tDefaultHandling">
<xs:attribute name="index" type="xs:int" use="required"/>
</xs:extension>
</xs:simpleContent>
</xs:complexType>
</xs:element>
<xs:element name="ServiceInfo" type="tServiceInfo" minOccurs="0"/>
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<xs:simpleContent>
<xs:extension base="tServiceInfo">
<xs:attribute name="index" type="xs:int" use="required"/>
</xs:extension>
</xs:simpleContent>
</xs:complexType>
</xs:element>
<xs:any namespace="##Other" processContents="lax" minOccurs="0"
maxOccurs="unbounded"/>
</xs:sequence>
</xs:complexType>
<xs:element name="Sh-Data" type="tSh-Data"/>
</xs:schema>


```

-----End of changes to ShDataType.xsd file-----