

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

NP-020592

Source: TSG CN WG4
Title: Corrections on Error handling in HSS; IMS Sh-interface
Agenda item: 8.1
Document for: APPROVAL

Spec	CR	Rev	Doc-2nd-Level	Phase	Subject	Cat	Ver_C
29.328	013	2	N4-021553	Rel-5	Error handling in HSS when being updated with too much data	F	5.1.0
29.328	007		N4-021164	Rel-5	Removal of upper bounds in Sh i/f user profile and correction of mistake in XML schema documentation	F	5.1.0
29.329	006		N4-021450	Rel-5	Error handling in HSS when being updated with too much data	F	5.1.0

CR-Form-v7

CHANGE REQUEST

29.328 CR 013 # rev **2** # 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:	# Error handling in HSS when being updated with too much data		
Source:	# CN4		
Work item code:	# IMS-CCR	Date:	# 12/11/2002
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:	# During the discussion of N4-021164 on removal of uppers bounds in Sh interface user profile, the comment was given that we should define the error handling for the case where the HSS receives too much user data.
Summary of change:	# New error code by which the HSS indicates to an AS that the size of the data being pushed by the AS is higher than the HSS can accept.
Consequences if not approved:	# There is no way to know when the HSS was no able to deal with an excess of user data.

Clauses affected:	# 6.1.2.1								
Other specs affected:	<table style="display: inline-table; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; padding: 2px;">Y</td> <td style="border: 1px solid black; padding: 2px;">N</td> </tr> <tr> <td style="border: 1px solid black; padding: 2px;">X</td> <td style="border: 1px solid black; padding: 2px;"></td> </tr> <tr> <td style="border: 1px solid black; padding: 2px;"></td> <td style="border: 1px solid black; padding: 2px;">X</td> </tr> <tr> <td style="border: 1px solid black; padding: 2px;"></td> <td style="border: 1px solid black; padding: 2px;">X</td> </tr> </table> Other core specifications # 29.328-007, 29.329-006 Test specifications O&M Specifications	Y	N	X			X		X
Y	N								
X									
	X								
	X								
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.

Beginning of modified section

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 exists in 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~~E). When data repository is updated Service-Indication is also part of the information element User-Data. When initial filter criteria are updated the Origin-Host AVP identifies the AS that initiates the request.

If the HSS receives more user data than it is prepared to accept, it shall return result code DIAMETER_ERROR_TOO_MUCH_DATA and discard the data received from the AS.

End of modified section

CHANGE REQUEST

⌘ **29.328 CR 007** ⌘ rev **-** ⌘ 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:	⌘	Removal of upper bounds in Sh i/f user profile and correction of mistake in XML schema documentation	
Source:	⌘	CN4	
Work item code:	⌘	IMS-CCR	Date: ⌘ 16/09/2002
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:	⌘	Following CN1's advice in N1-021832, there is no need to include either a maximum or minimum number of parameters in the specifications. The interoperability problems that we claimed when introducing these upper bounds are not such. In table D.2, the definition of datatype tPublicIdentity contains by mistake InitialFilterCriteria. Essential correction.	
Summary of change:	⌘	Deletion of upper bounds of parameters on the Sh interface user profile definition. Deletion of patterns from the definitions of SIP URL and TEL URL. Deletion of InitialFilterCriteria from the definition of datatype tPublicIdentity.	
Consequences if not approved:	⌘	The artificial upper bounds introduced may limit the development of services.	

Clauses affected:	⌘	Annex D, attached XML schema									
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;">X</td> <td style="text-align: center;"> </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> Other core specifications Test specifications O&M Specifications	Y	N	X			X		X	⌘ 29.329-013, 29.328-006
Y	N										
X											
	X										
	X										

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.

Beginning of modified section

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

... [Text removed for clarity]

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	1
tShIMSData	Sh-IMS-Data	SCSCFName	tSIP_URL	0 to 1
		InitialFilterCriteria	tInitialFilterCriteria	0 to 1
		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 20n	
		MSISDN	tMSISDN	0 to 20n	
		InitialFilterCriteria	tInitialFilterCriteria	4 to 10	
tInitialFilterCriteria	InitialFilterCriteria	Priority	tPriority	1	
		TriggerPoint	tTrigger	0 to 1	
		ApplicationServer	tApplicationServer	1	
tTrigger	Trigger	SPI	tSiPoInt	0 to 25n	
		ConditionTypeCNF	tBool	1	
tSiPoInt	SPI	ConditionNegated	tBool	0 to 1	
		Group	tGroupID	1 to 25n	
		Ch	Method	tString	1
			SIPHeader	tHeader	1
			SessionCase	tDirectionOfRequest	1

		Session Description	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

NOTE: "n" shall be interpreted as non-bounded.

End of modified section

Beginning of changes in ShDataTypes.xml

```

<?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&#x21-7f;=\\+$,\\_\\.!~*'\\(\\)]+)(:[0-9a-zA-Z&#x21-7f;=\\+$,\\_\\.!~*'\\(\\)]+)?@((([0-9a-zA-Z]+)\\.([0-9a-zA-Z]+\\.?)|((([0-9]{1,3})\\.([0-9]{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 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>

```

```

    </restriction>
  </atomicType>
  <atomicType name="tMSISDN">
    <!--Syntax described in 3GPP TS 23.003-->
    <restriction base="string">
      <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>
    </restriction>
  </atomicType>

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```

<atomicType name="tPSUserState">
  <restriction base="unsignedByte">
    <maxInclusive value="5"/>
    <enumeration value="0">
      <semantic>
        <label lang="en">Detached </label>
      </semantic>
    </enumeration>
    <enumeration value="1">
      <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">notProvidedFromSGSN</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>

```

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</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>
<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"/>maxOccurs="unbounded"/>
    <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"/>maxOccurs="unbounded"/>
    <fieldVector name="MSISDN" datatype="tMSISDN" minOccurs="0"
maxOccurs="20"/>maxOccurs="unbounded"/>
  </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"/>maxOccurs="unbounded"/>
    <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"/>maxOccurs="unbounded"/>
    <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 in ShDataTypes.xml

Beginning of changes in ShDataType.xsd
--


```

<?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&#x2D;=\\+,$,\\_\\.!~*'\\(\\)]+)(:[0-9a-zA-Z&#x2D;=\\+,$,\\_\\.!~*'\\(\\)]+)?@?((([0-9a-zA-Z]+\\.[0-9a-zA-Z]+\\.?)|([0-9]{1,3}\\.[0-9]{1,3}\\.[0-9]{1,3}\\.[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:restriction>
  </xs:simpleType>

```

```

    <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 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" 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" 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" 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" 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" 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" 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" 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">
            <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:complexType>
        </xs:element>
    </xs:sequence>
</xs:complexType>

```

```

        <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" 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" minOccurs="0"
      maxOccurs="10">maxOccurs="unbounded">
      <xs:complexType>
        <xs:complexContent>
          <xs:extension base="tInitialFilterCriteria">
            <xs:attribute name="index" type="xs:int" use="required"/>
          </xs:extension>
        </xs:complexContent>
      </xs:complexType>
    </xs:element>
    <xs:element name="IMSUserState" minOccurs="0">
      <xs:complexType>
        <xs:simpleContent>
          <xs:extension base="tIMSUserState">
            <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="tCSLocationInformation">
  <xs:sequence>
    <xs:element name="LocationNumber" 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" 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" 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" 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" 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" 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" 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="MSCNumber" 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" 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" 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" 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" 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" 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="RoutingAreaId" minOccurs="0">
      <xs:complexType>
        <xs:simpleContent>
          <xs:extension base="tRoutingAreaId">
            <xs:attribute name="index" type="xs:int" use="required"/>
          </xs:extension>
        </xs:simpleContent>
      </xs:complexType>
    </xs:element>
    <xs:element name="GeographicalInformation" 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" 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="SGSNNumber" 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" 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" 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="tISDNAddress">
    <xs:sequence>
        <xs:element name="Address" 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" 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:sequence>
</xs:complexType>

```

```

    <xs:element name="MSISDN" 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">
      <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" 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">
      <xs:complexType>
        <xs:complexContent>
          <xs:extension base="tApplicationServer">
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          </xs:extension>
        </xs:complexContent>
      </xs:complexType>
    </xs:element>
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maxOccurs="unbounded"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="tTrigger">
  <xs:sequence>
    <xs:element name="SPI" 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">
      <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:sequence>
</xs:complexType>

```

```

        </xs:simpleContent>
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    </xs:element>
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maxOccurs="unbounded" />
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  <xs:sequence>
    <xs:element name="ConditionNegated" minOccurs="0">
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          </xs:extension>
        </xs:simpleContent>
      </xs:complexType>
    </xs:element>
  </xs:choice>
  <xs:element name="Method">
    <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">
    <xs:complexType>
      <xs:complexContent>
        <xs:extension base="tHeader">
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        </xs:extension>
      </xs:complexContent>
    </xs:complexType>
  </xs:element>
  <xs:element name="SessionCase">
    <xs:complexType>
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        <xs:extension base="tDirectionOfRequest">
          <xs:attribute name="index" type="xs:int" use="required"/>
        </xs:extension>
      </xs:simpleContent>
    </xs:complexType>
  </xs:element>
  <xs:element name="SessionDescription">
    <xs:complexType>
      <xs:complexContent>
        <xs:extension base="tSessionDescription">
          <xs:attribute name="index" type="xs:int" use="required"/>
        </xs:extension>
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    </xs:complexType>
  </xs:element>

```

```

        </xs:element>
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maxOccurs="unbounded" />
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    <xs:sequence>
        <xs:element name="Line">
            <xs:complexType>
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                        <xs:attribute name="index" type="xs:int" use="required"/>
                    </xs:extension>
                </xs:simpleContent>
            </xs:complexType>
        </xs:element>
        <xs:element name="Content" minOccurs="0">
            <xs:complexType>
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                    <xs:extension base="tString">
                        <xs:attribute name="index" type="xs:int" use="required"/>
                    </xs:extension>
                </xs:simpleContent>
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        </xs:element>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="tHeader">
    <xs:sequence>
        <xs:element name="Header">
            <xs:complexType>
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                    </xs:extension>
                </xs:simpleContent>
            </xs:complexType>
        </xs:element>
        <xs:element name="Content" minOccurs="0">
            <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:sequence>
</xs:complexType>
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        <xs:element name="ServerName">
            <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" 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" 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 in ShDataType.xsd

CR-Form-v7

CHANGE REQUEST

29.329 CR 006 # rev - # 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:	# Error handling in HSS when being updated with too much data		
Source:	# CN4		
Work item code:	# IMS-CCR	Date:	# 31/10/2002
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:	# During the discussion of N4-021164 on removal of uppers bounds in Sh interface user profile, the comment was given that we should define the error handling for the case where the HSS receives too much user data.
Summary of change:	# Added error code DIAMETER_ERROR_TOO_MUCH_DATA.
Consequences if not approved:	# There is no way to know when the HSS was no able to deal with an excess of user data.

Clauses affected:	# New section 6.2.2.8										
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;">X</td> <td style="text-align: center;"></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	# 29.328-007, 29.328-013
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.

Beginning of new section

6.2.2 Permanent Failures

Errors that fall within the Permanent Failures category are used to inform the peer that the request failed, and should not be attempted again.

6.2.2.1 DIAMETER_ERROR_USER_DATA_NOT_RECOGNIZED (5100)

The data required, in the XLM schema, does not match that which is specified within the HSS.

6.2.2.2 DIAMETER_ERROR_OPERATION_NOT_ALLOWED (5101)

The requested operation is not allowed for the user

6.2.2.3 DIAMETER_ERROR_USER_DATA_CANNOT_BE_READ (5102)

The requested user data is not allowed to be read.

6.2.2.4 DIAMETER_ERROR_USER_DATA_CANNOT_BE_MODIFIED (5103)

The requested user data is not allowed to be modified

6.2.2.5 DIAMETER_ERROR_USER_DATA_CANNOT_BE_NOTIFIED (5104)

The requested user data is not allowed to be notified on changes

6.2.2.6 DIAMETER_ERROR_TOO_MUCH_DATA (5008)

The size of the data pushed to the receiving entity exceeds its capacity. This error code is defined in 3GPP TS 29.229 [6].

End of new section