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Core Network and Interoperability Testing (INT);
Diameter Conformance testing for the Sh/Dh interfaces;
(3GPP™ Release 15);
Part 2: Test Suite Structure (TSS) and Test Purposes (TP)

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ETSI

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
Association à but non lucratif enregistrée à la
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Foreword

This Technical Specification (TS) has been produced by ETSI Technical Committee Core Network and Interoperability Testing (INT).

The present document is part 2 of a multi-part deliverable. Full details of the entire series can be found in part 1 [3].

Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the ETSI Drafting Rules (Verbal forms for the expression of provisions).

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1 Scope

The present document provides the Test Suite Structure (TSS) and Test Purposes (TP) for the test specifications for the Diameter protocol on the Sh/Dh interfaces as specified in ETSI TS 129 328 [1] and ETSI TS 129 329 [2] in compliance with the relevant requirements and in accordance with the relevant guidance given in ISO/IEC 9646-7 [i.2] and ETSI ETS 300 406 [i.3].

2 References

2.1 Normative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found at https://docbox.etsi.org/Reference/.

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The following referenced documents are necessary for the application of the present document.

[1] ETSI TS 129 328 (V15.8.0): "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; 5G; IP Multimedia (IM) Subsystem Sh interface; Signalling flows and message contents (3GPP TS 29.328 version 15.8.0 Release 15)".

[2] ETSI TS 129 329 (V15.2.0): "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Sh interface based on the Diameter protocol; Protocol details (3GPP TS 29.329 version 15.2.0 Release 15)".

[3] ETSI TS 103 571-1: "Core Network and Interoperability Testing (INT); Diameter Conformance testing for the Sh/Dh interfaces; (3GPPTM Release 15); Part 1: Protocol Implementation Conformance Statement (PICS)".

[4] Void.

[5] Void.

[6] Void.

[7] IETF RFC 6733: "Diameter Base Protocol".

2.2 Informative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

[i.1] ISO/IEC 9646-1: "Information technology -- Open Systems Interconnection -- Conformance testing methodology and framework -- Part 1: General concepts".

[i.2] ISO/IEC 9646-7: "Information technology -- Open Systems Interconnection -- Conformance testing methodology and framework -- Part 7: Implementation Conformance Statements".

[i.3] ETSI ETS 300 406: "Methods for testing and Specification (MTS); Protocol and profile conformance testing specifications; Standardization methodology".

3 Definition of terms, symbols and abbreviations

3.1 Terms

For the purposes of the present document, the terms given in ETSI TS 129 328 [1], ETSI TS 129 329 [2] and the following apply:

Abstract Test Method (ATM): Refer to ISO/IEC 9646-1 [i.1].

Abstract Test Suite (ATS): Refer to ISO/IEC 9646-1 [i.1].

Implementation Under Test (IUT): Refer to ISO/IEC 9646-1 [i.1].

Test Purpose (TP): Refer to ISO/IEC 9646-1 [i.1].

3.2 Symbols

Void.

3.3 Abbreviations

For the purposes of the present document, the abbreviations given in ETSI TS 129 328 [1], ETSI TS 129 329 [2] and the following apply:

TP	Test Purpose
TSS	Test Suite Structure

4 Test configurations

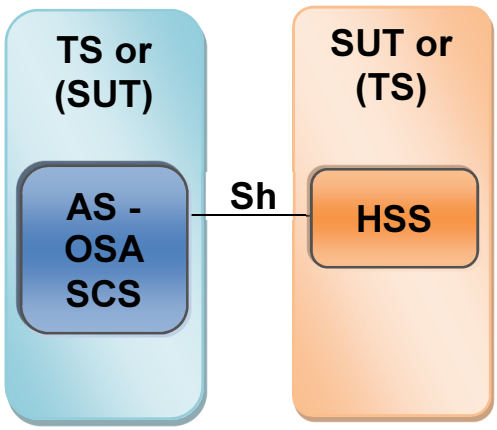
4.1 Introduction

Test purposes of the present document address the IMS functional entities that are accessible via the following standardized diameter interfaces: Sh and Dh.

NOTE: In a real operating network the different Diameter nodes would not connect directly to each other. The connection is usually proxied through one or more Diameter Agents. In the following test architecture figures the Diameter Agent is not explicitly depicted as it is seen as a transparent message handler for conformance testing purposes.

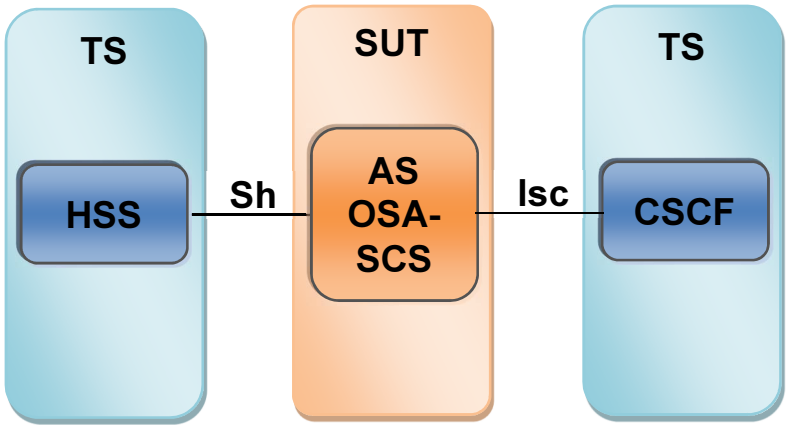
4.2 Test configurations using the Sh interface

The Sh interface is located between an AS or OSA SCS and the HSS.



NOTE: Sh interface (DIAMETER protocol) is located between an HSS and AS or between an HSS and OSA SCS.

Figure 1: Test configuration CF_1Sh



NOTE: Within figure 2 CSCF represents S-CSCF component. Isc interface (SIP protocol) is located between a AS and S-CSCF. Sh interface (DIAMETER protocol) is located between an HSS and as or between an HSS and OSA_SCS.

Figure 2: Test configuration CF_1Sh1Isc

4.3 Test configurations using the Dh interface

The Dh interface is located between an AS or OSA SCS and the SLF.

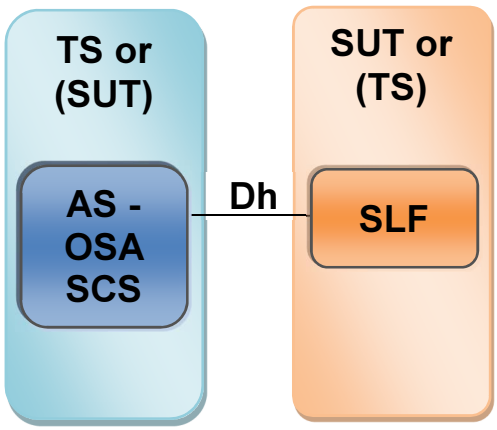
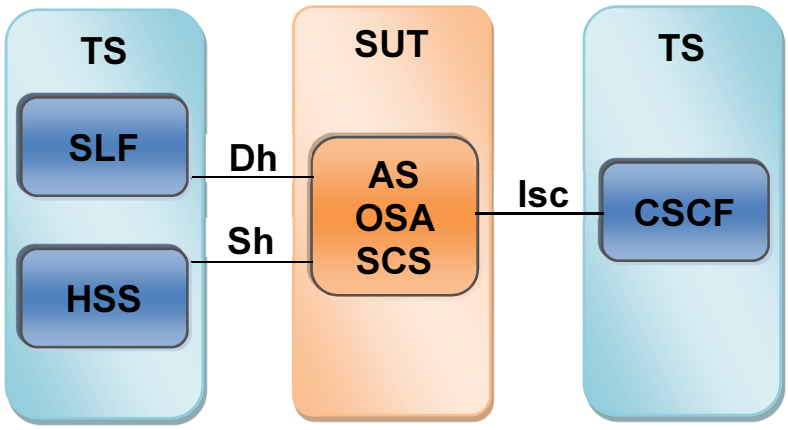


Figure 3: Test configuration CF_1Dh



NOTE: Within figure 4 CSCF represents S-CSCF component. Isc interface (SIP protocol) is located between an AS and S-CSCF. The Sh interface (DIAMETER protocol) is located between an HSS and AS or between an HSS and OSA-SCS. The Dh interface (DIAMETER protocol) is located between an SLF and AS or between an SLF and OSA-SCS.

Figure 4: Test configuration CF_1Dh1Sh or CF_1Dh1Sh1Isc

5 Test Suite Structure (TSS) and Test Purposes (TP)

5.1 Test Suite Structure

5.1.1 TP naming convention

TPs are numbered, starting at 01, within each group. Groups are organized according to the TSS.

Table 1: TP identifier naming convention scheme

Identifier: **<TP>_<iut>_<scope>_<nn>**			
<tp>	=	Test Purpose:	fixed to "TP"
<interface>		Interface:	SH or DH
<iut>	=	type of IUT:	AS, OSA SCS, HSS or SLF
<scope>	=	group	MS Message Syntax
			UD User Data
			PU Profile Update
			SN Subscription to Notification
			PN Push Notification
<nn>	=	sequential number	(01 to 99)

5.1.2 Test strategy

As the base standards in ETSI TS 129 328 [1] and ETSI TS 129 329 [2] contain no explicit requirements for testing, the TPs were generated as a result of an analysis of the base standard and the PICS specification ETSI TS 103 571-1 [3].

5.1.3 TP structure

Each TP has been written in a manner which is consistent with all other TPs. The intention of this is to make the TPs more readable and checkable. A particular structure has been used which is illustrated in table 2. Table 2 should be read in conjunction with any TP, i.e. please use a TP as an example to facilitate the full comprehension of table 2.

Table 2: Structure of a single TP

TP part	Text	Example
Header	**<Identifier>**	see table 6.2.3
	<clause number in base ETSI TS 129 328 [1]>	**clause 6.2.3**
	<PICS reference>	**A.2/3**
Summary	Short free text description of the test objective	Verify that the IUT can successfully process all mandatory AVPs in a UD-Request received due to User-Identity.
Configuration	One of the test configurations as described in clauses 4.2 and 4.3	CF_1Sh
Initial condition (optional)	Free text description of the condition that the IUT has reached before the test purpose applies	The IUT has received AF provisions information about the AF signalling flows between UE and AF
Start point	Ensure that the IUT in the	
	<state> see IETF RFC 6733 [7], clause 5.6	Open state
	and/or further actions before stimulus if the action is sending/receiving see below for message structure	having sent an PU-Request
Stimulus	<**trigger**>, see below for message structure	on receipt of a Capabilities-Exchange-Request (see note 2)
	or <goal>	to require PCC supervision
Reaction	<**action**>	sends, saves, does, etc.
	if the action is sending see below for message structure <next action>, etc.	
Message structure	<message type>	Capabilities-Exchange-Answer, etc. (see note 2)
	a) containing a(n) <avp name> AVP b) indicating <coding of the field> and back to a) or b) (see note 3)	Vendor-Id, etc.

NOTE 1: Text in italics will not appear in TPs and text between <> is filled in for each TP and may differ from one TP to the next.

NOTE 2: All messages are considered as "valid and compatible" unless otherwise specified in the test purpose. This includes the presence of all mandatory AVPs as specified in IETF RFC 6733 [7] and in ETSI TS 129 329 [2], clauses 6.1.1, 6.1.2, 6.3.1 and 6.3.3.

NOTE 3: An AVP can be embedded into another AVP. This is expressed by indentations, e.g. if Message1 contains AVP1 and AVP2 where AVP1 has AVP3 embedded this will be expressed like this:

```
sends/receives Message 1
    containing AVP1
        containing AVP3
            indicating ...
    containing AVP2
        indicating ...
```

5.2 Test Purposes

5.2.1 PICS references

All PICS items referred to in this clause are as specified in ETSI TS 103 571-1 [3] unless indicated otherwise by another numbered reference. PICS items are only meant for test selection, therefore only PICS items with status optional or conditional are explicitly mentioned.

5.2.2 Sh interface

5.2.2.1 HSS Role

5.2.2.1.1 Test selection

The IUT takes the role of the HSS; PICS A.2/3 and applicable test configuration is CF_1Sh if not specified differently in the TP.

HSS shall be provisioned for all specified tests.

5.2.2.1.2 Message Syntax

TP_SH_HSS_MS_01	**Standards Reference:** **Clause 6 paragraph 2**	**PICS item:**
Summary:	Verify that the IUT sends the appropriate Result-Code AVP when the mandatory User-Identity AVP is absent.	
Test purpose:	Ensure that the IUT **on receipt of a UD-Request** containing a Session-ID AVP containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing a Destination-Realm AVP **not** containing a User-Identity AVP containing a Data-Reference AVP **sends a UD-Answer** containing a Session-ID AVP containing a Result-Code AVP indicating DIAMETER_MISSING_AVP containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing a Failed AVP indicating missing Information Element.	
Comments:		

5.2.2.1.3 User Data

TP_SH_HSS_UD_01	Standards Reference: Clauses 6.1.1 and 6.1.1.1/last paragraph and Table 6.1.1.1 and Table 6.1.1.2	PICS item:
Summary:	Verify that the IUT successfully processes all mandatory AVPs in a UD-Request if requested data exists or if there are valid empty data elements and returns a UD-Answer containing the Result-Code AVP with DIAMETER_SUCCESS.	
Test purpose:	Ensure that the IUT **on receipt of a UD-Request** containing a Session-ID AVP containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing a Destination-Realm AVP containing a User-Identity AVP containing a Data-Reference AVP indicating variant value from Table 3 (NOTE) **sends a UD-Answer** containing a Session-ID AVP containing a Result-Code AVP indicating DIAMETER_SUCCESS containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP.	
Comments:		
NOTE: Use only variants where no additional optional AVPs need to be included.		

TP_SH_HSS_UD_02	Standards Reference: Clause 6.1.1.1 (Item 1)	PICS item:
Summary:	Verify that the IUT checks in the AS permission list if the requested user data is allowed to be read and if one or more Data Reference in the request are not allowed the IUT returns a UD-Answer with appropriate experimental result code.	
Test purpose:	Ensure that the IUT **on receipt of a UD-Request** containing a Session-ID AVP containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing a Destination-Realm AVP containing a User-Identity AVP containing a Data-Reference AVP indicating UE reachability for IP (25) **sends a UD-Answer** containing a Session-ID AVP containing an Experimental-Result AVP indicating DIAMETER_ERROR_USER_DATA_CANNOT_BE_READ containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP.	
Comments:		

TP_SH_HSS_UD_03	Standards Reference: Clause 6.1.1.1 (Item 2)	PICS item:
Summary:	Verify that the IUT checks if the User Identity for which data is asked does not exist and the IUT returns the UD-Answer with the appropriate experimental result code.	
Test purpose:	Ensure that the IUT **on receipt of a UD-Request** containing a Session-ID AVP containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing a Destination-Realm AVP containing a User-Identity AVP indicating not existing user containing a Data-Reference AVP indicating variant value from Table 3 (NOTE) **sends a UD-Answer** containing a Session-ID AVP containing an Experimental-Result AVP indicating DIAMETER_ERROR_USER_UNKNOWN containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP.	
Comments:		
NOTE: Use only variants where no additional optional AVPs need to be included.		

TP_SH_HSS_UD_04	Standards Reference: Clause 6.1.1.1 (Item 2a)	PICS item:
Summary:	Verify that the IUT checks the Private Identity and if it does not correspond to the IMPU/MSISDN then the IUT returns a UD-Answer with the appropriate experimental result code.	
Test purpose:	Ensure that the IUT **on receipt of a UD-Request** containing a Session-ID AVP containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing a Destination-Realm AVP containing a User-Identity AVP indicating not related Private Identity containing a Data-Reference AVP indicating variant value from Table 3 (NOTE) **sends a UD-Answer** containing a Session-ID AVP containing an Experimental-Result AVP indicating DIAMETER_ERROR_IDENTITIES_DONT_MATCH containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP.	
Comments:		
NOTE: Use only variants where no additional optional AVPs need to be included.		

TP_SH_HSS_UD_05	Standards Reference: Clause 6.1.1.1 (Item 3) and Table 7.6.1	PICS item:
Summary:	Verify that the IUT checks the type of User Identity and if it does not apply according to the Table 7.6.1 due to the Data-Reference indicated in the request the IUT, returns a UD-Answer with the appropriate experimental result code.	
Test purpose:	Ensure that the IUT **on receipt of a UD-Request** containing a Session-ID AVP containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing a Destination-Realm AVP containing a User-Identity AVP indicating MSISDN containing a Data-Reference AVP indicating PSIActivation (18) containing a Service-Indication AVP **sends a UD-Answer** containing a Session-ID AVP containing an Experimental-Result AVP indicating DIAMETER_ERROR_OPERATION_NOT_ALLOWED containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP.	
Comments:		

TP_SH_HSS_UD_06	Standards Reference: Clause 6.1.1.1 (Item 3a)	PICS item:
Summary:	Verify that the IUT, when the data-reference is IPAddressSecureBindingInformation (22) and the User Identity is an IMS Public User Identity that is shared between multiple Private User Identities, returns a UD-Answer with the appropriate experimental result code.	
Test purpose:	Ensure that the IUT **on receipt of a UD-Request** containing a Session-ID AVP containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing a Destination-Realm AVP containing a User-Identity AVP indicating IMS Public User Identity containing a Data-Reference AVP indicating IPAddressSecurityBindingInformation (22) **sends a UD-Answer** containing a Session-ID AVP containing an Experimental-Result AVP indicating DIAMETER_ERROR_OPERATION_NOT_ALLOWED containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP.	
Comments:		

TP_SH_HSS_UD_07	Standards Reference: Clause 6.1.1.1 (Item 4)	PICS item:
Summary:	Verify that the IUT checks whether or not the data that is requested to be downloaded by the AS is currently being updated by another entity. If the HSS is not able to delay the Sh-Pull-Resp message e.g. due to timeout the IUT returns a UD-Answer with the appropriate experimental result code.	
Test purpose:	Ensure that the IUT **on receipt of a UD-Request** containing a Session-ID AVP containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing a Destination-Realm AVP containing a User-Identity AVP containing a Data-Reference AVP **sends a UD-Answer** containing a Session-ID AVP containing an Experimental-Result AVP indicating DIAMETER_USER_DATA_NOT_AVAILABLE containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP.	
Comments:		

TP_SH_HSS_UD_08	Standards Reference: Clause 6.1.1.1 (Item 4a)	PICS item:
Summary:	Verify that the IUT in case that T-ADS Information is requested provides the most recent IMS Voice over PS Sessions support indication.	
Test purpose:	Ensure that the IUT **on receipt of a UD-Request** containing a Session-ID AVP containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing a Destination-Realm AVP containing a User-Identity AVP indicating IMS Public User Identity containing a Data-Reference AVP indicating TADSinformation (26) **sends a UD-Answer** containing a Session-ID AVP containing a Result-Code AVP indicating DIAMETER_SUCCESS containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing an User-Data AVP containing Sh-Data element containing Sh-DataExtension containing Sh-DataExtension2 containing Sh-DataExtension3 indicating TADS information.	
Comments:		

TP_SH_HSS_UD_09	Standards Reference: Clause 6.1.1.1 (Item 5) and Tables D.1 and D.2	PICS item: A.4/5
Summary:	Verify that the IUT includes the data pertinent to the requested Data Reference in the User-Data AVP according to Table 3.	
Test purpose:	Ensure that the IUT **on receipt of a UD-Request** containing a Session-ID AVP containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing a Destination-Realm AVP containing a Data-Reference AVP indicating variant value from Table 3 containing additional AVPs from Table 3 **sends a UD-Answer** containing a Session-ID AVP containing a Result-Code AVP indicating DIAMETER_SUCCESS containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing an User-Data AVP containing variant value from Table 3 **may** containing a Supported-Features AVP containing Vendor-Id AVP containing Feature-List-ID AVP containing Feature-List AVP indicating Notif-Eff bit set to 1.	
Comments:		

Table 3: Values for TP_SH_HSS_UD_09, TP_SH_HSS_UD_10 and TP_SH_HSS_UD_11

Test purpose variants	Data-Reference AVP values	Additional AVPs within UD-Request	User-Data AVP with datatype values
VA_01	RepositoryData (0)	User-Identity AVP - (IMS Public User Identity OR Public Service Identity) Service-Indication AVP	Sh-Data
VA_02	IMSPublicIdentity (10)	User-Identity AVP - (IMS Public User Identity OR Public Service Identity OR MSISDN)	Sh-Data
VA_03	IMSUserState (11)	User-Identity AVP - (IMS Public User Identity)	Sh-IMS-Data
VA_04	S-CSCFName (12)	User-Identity AVP - (IMS Public User Identity OR Public Service Identity)	Sh-IMS-Data
VA_05	InitialFilterCriteria (13)	User-Identity AVP - (IMS Public User Identity OR Public Service Identity) Server-Name AVP	Sh-IMS-Data
VA_06	LocationInformation (14)	User-Identity AVP - (IMS Public User Identity OR MSISDN) Requested-Domain AVP Current-Location AVP	Sh-Data
VA_07	UserState (15)	User-Identity AVP - (IMS Public User Identity OR MSISDN) Requested-Domain AVP	Sh-Data
VA_08	ChargingInformation (16)	User-Identity AVP - (IMS Public User Identity OR Public Service Identity OR MSISDN)	Sh-IMS-Data

Test purpose variants	Data-Reference AVP values	Additional AVPs within UD-Request	User-Data AVP with datatype values
VA_09	MSISDN (17)	User-Identity AVP - (IMS Public User Identity OR MSISDN)	Sh-Data
VA_10	PSIActivation (18)	User-Identity AVP - (IMS Public User Identity)	Sh-IMS-Data
VA_11	DSAI (19)	User-Identity AVP - (IMS Public User Identity OR Public Service Identity) Server-Name AVP DSAI-Tag AVP	Sh-IMS-Data
VA_12	ServiceLevelTraceInfo (21)	User-Identity AVP - (IMS Public User Identity OR MSISDN)	Sh-IMS-Data
VA_13	IPAddressSecureBindingInformation (22)	User-Identity AVP - (IMS Public User Identity)	Sh-IMS-Data
VA_14	ServicePriorityLevel (23)	User-Identity AVP - (IMS Public User Identity)	Sh-IMS-Data
VA_15	SMSRegistrationInfo (24)	User-Identity AVP - (IMS Public User Identity OR MSISDN)	Sh-IMS-Data
VA_16	UEReachabilityForIP (25)	User-Identity AVP - (IMS Public User Identity OR MSISDN)	Sh-IMS-Data
VA_17	TADSinformation (26)	User-Identity AVP - (IMS Public User Identity OR MSISDN)	Sh-Data
VA_18	STN-SR (27)	User-Identity AVP - (IMS Public User Identity OR MSISDN)	Sh-IMS-Data
VA_19	UE-SRVCC-Capability (28)	User-Identity AVP - (IMS Public User Identity OR MSISDN)	Sh-IMS-Data
VA_20	ExtendedPriority (29)	User-Identity AVP - (IMS Public User Identity)	Sh-IMS-Data
VA_21	CSRN (30)	User-Identity AVP - (IMS Public User Identity OR MSISDN)	Sh-IMS-Data
VA_22	ReferenceLocationInformation (31)	User-Identity AVP - (IMS Public User Identity)	Sh-IMS-Data
VA_23	IMSI (32)	User-Identity AVP - (IMS Public User Identity)	Sh-Data
VA_24	IMSPrivateUserIdentity (33)	User-Identity AVP - (IMS Public User Identity)	Sh-Data
NOTE: See Table 7.6.1 ETSI ETSI TS 129 329 [2] for more details.			

TP_SH_HSS_UD_10	Standards Reference: Clause 6.1.1.1 (Item 5 after note 4)	PICS item: NOT A.4/5
Summary:	Verify that the IUT does not include the User-Data AVP in a UD-Answer if both the AS and the IUT have determined via mutual feature evaluation not to support the Notif-Eff feature and in the case that requested data is not available to the HSS.	
Test purpose:	Ensure that the IUT **on receipt of a UD-Request** containing a Session-ID AVP containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing a Destination-Realm AVP containing a Data-Reference AVP indicating variant value from Table 3 containing additional AVPs from Table 3 **sends a UD-Answer** containing a Session-ID AVP containing a Result-Code AVP indicating DIAMETER_SUCCESS containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP **not** containing an User-Data AVP.	
Comments:		

TP_SH_HSS_UD_11	Standards Reference: Clause 6.1.1.1 (Item 5 after note 4)	PICS item: A.4/5
Summary:	Verify that the IUT does not include the User-Data AVP within a UD-Answer if both the AS and the HSS support the Notif-Eff feature and none of the requested data is available to the IUT.	
Test purpose:	Ensure that the IUT **on receipt of a UD-Request** containing a Session-ID AVP containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing a Destination-Realm AVP containing a Data-Reference AVP indicating variant value from Table 3 containing additional AVPs from Table 3 **sends a UD-Answer** containing a Session-ID AVP containing a Result-Code AVP indicating DIAMETER_SUCCESS containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP **not** containing an User-Data AVP.	
Comments:		

TP_SH_HSS_UD_12	Standards Reference: Clause 6.1.1.1 (1st dashed line in item 5)	PICS item: A.4/5
Summary:	Verify that the IUT sends a User Data AVP with RepositoryData element containing a Service Indication and a Sequence Number but not containing a ServiceData element when both the AS and the HSS support the Notif-Eff feature and repository data is not available to the HSS.	
Test purpose:	Ensure that the IUT **on receipt of a UD-Request** containing a Session-ID AVP containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing a Destination-Realm AVP containing a User-Identity AVP indicating IMS Public User Identity containing a Data-Reference AVP indicating RepositoryData (0) containing a Service-Indication AVP **sends a UD-Answer** containing a Session-ID AVP containing a Result-Code AVP indicating DIAMETER_SUCCESS containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing an User-Data AVP containing Sh-Data element containing RepositoryData element containing ServiceIndication element containing SequenceNumber element **not** containing ServiceData element.	
Comments:		

TP_SH_HSS_UD_13	Standards Reference: Clause 6.1.1.1 (2nd dashed line in item 5)	PICS item: A.4/5
Summary:	Verify that the IUT sends a User Data AVP with empty PublicIdentifiers element when both the AS and the HSS support the Notif-Eff feature and public identifiers are not available to the HSS.	
Test purpose:	Ensure that the IUT **on receipt of a UD-Request** containing a Session-ID AVP containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing a Destination-Realm AVP containing a User-Identity AVP indicating IMS Public User Identity containing a Data-Reference AVP indicating IMSPublicIdentity (10) **sends a UD-Answer** containing a Session-ID AVP containing a Result-Code AVP indicating DIAMETER_SUCCESS containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing an User-Data AVP containing Sh-Data element containing **empty** PublicIdentifiers element.	
Comments:		

TP_SH_HSS_UD_14	Standards Reference: Clause 6.1.1.1 (3rd dashed line in item 5)	PICS item: A.4/5
Summary:	Verify that the IUT sends a User Data AVP with empty CSLocationInformation and/or empty PSLocationInformation element when both the AS and the HSS support the Notif-Eff feature and location information is not available to the HSS.	
Test purpose:	Ensure that the IUT **on receipt of a UD-Request** containing a Session-ID AVP containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing a Destination-Realm AVP containing a User-Identity AVP indicating IMS Public User Identity containing a Data-Reference AVP indicating LocationInformation (14) containing a Requested-Domain AVP containing a Current-Location AVP **sends a UD-Answer** containing a Session-ID AVP containing a Result-Code AVP indicating DIAMETER_SUCCESS containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing an User-Data AVP containing Sh-Data element containing **empty** CSLocationInformation element **and/or** containing **empty** PSLocationInformation element.	
Comments:		

TP_SH_HSS_UD_15	Standards Reference: Clause 6.1.1.1 (4th dashed line in item 5)	PICS item: A.4/5
Summary:	Verify that the IUT sends a User Data AVP with missing CSUserState element when both the AS and the HSS support the Notif-Eff feature and CS-UserState is not available to the HSS.	
Test purpose:	Ensure that the IUT **on receipt of a UD-Request** containing a Session-ID AVP containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing a Destination-Realm AVP containing a User-Identity AVP indicating IMS Public User Identity containing a Data-Reference AVP indicating UserState (15) containing a Requested-Domain AVP **sends a UD-Answer** containing a Session-ID AVP containing a Result-Code AVP indicating DIAMETER_SUCCESS containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing an User-Data AVP containing Sh-Data element **not** containing CSUserState element.	
Comments:		

TP_SH_HSS_UD_16	**Standards Reference:** **Clause 6.1.1.1 (5th dashed line in item 5)**	**PICS item:** **A.4/5**
Summary:	Verify that the IUT sends a User Data AVP with missing PSUserState element when both the AS and the HSS support the Notif-Eff feature and PS-UserState is not available to the HSS.	
Test purpose:	Ensure that the IUT **on receipt of a UD-Request** containing a Session-ID AVP containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing a Destination-Realm AVP containing a User-Identity AVP indicating IMS Public User Identity containing a Data-Reference AVP indicating UserState (15) containing a Requested-Domain AVP **sends a UD-Answer** containing a Session-ID AVP containing a Result-Code AVP indicating DIAMETER_SUCCESS containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing an User-Data AVP containing Sh-Data element **not** containing PSUserState element.	
Comments:		

TP_SH_HSS_UD_17	**Standards Reference:** **Clause 6.1.1.1 (1st dashed line within 6th dashed line in item 5)**	**PICS item:** **A.4/5**
Summary:	Verify that the IUT sends a User Data AVP with empty SCSCFName element when both the AS and the HSS support the Notif-Eff feature and the S-CSCF name is not available to the HSS.	
Test purpose:	Ensure that the IUT **on receipt of a UD-Request** containing a Session-ID AVP containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing a Destination-Realm AVP containing a User-Identity AVP indicating IMS Public User Identity containing a Data-Reference AVP indicating S-CSCFName (12) **sends a UD-Answer** containing a Session-ID AVP containing a Result-Code AVP indicating DIAMETER_SUCCESS containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing an User-Data AVP containing Sh-Data element containing Sh-IMS-Data element containing empty SCSCFName element.	
Comments:		

TP_SH_HSS_UD_18	**Standards Reference:** **Clause 6.1.1.1 (2nd dashed line within 6th dashed line in item 5)**	**PICS item:** **A.4/5**
Summary:	Verify that the IUT sends a User Data AVP with empty IPv4Address element or IPv6Prefix element when both the AS and the HSS support the Notif-Eff feature and the IP address Security Binding Information is not available to the HSS.	
Test purpose:	Ensure that the IUT **on receipt of a UD-Request** containing a Session-ID AVP containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing a Destination-Realm AVP containing a User-Identity AVP indicating IMS Public User Identity containing a Data-Reference AVP indicating IPAddressSecureBindingInformation (22) **sends a UD-Answer** containing a Session-ID AVP containing a Result-Code AVP indicating DIAMETER_SUCCESS containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing an User-Data AVP containing Sh-Data element containing Sh-IMS-Data element containing Sh-IMS-DataExtension containing Sh-IMS-DataExtension2 containing Sh-IMS-DataExtension3 containing empty IPv4Address element **or** containing empty IPv6Prefix element.	
Comments:		

TP_SH_HSS_UD_19	**Standards Reference:** **Clause 6.1.1.1 (3rd dashed line within 6th dashed line in item 5)**	**PICS item:** **A.4/5**
Summary:	Verify that the IUT sends a User Data AVP with empty IFCs element when both the AS and the HSS support the Notif-Eff feature and iFCs for the user that are relevant for the AS are not available to the HSS.	
Test purpose:	Ensure that the IUT **on receipt of a UD-Request** containing a Session-ID AVP containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing a Destination-Realm AVP containing a User-Identity AVP indicating IMS Public User Identity containing a Data-Reference AVP indicating InitialFilterCriteria (13) containing a Server-Name AVP indicating SIP URL of the IUT **sends a UD-Answer** containing a Session-ID AVP containing a Result-Code AVP indicating DIAMETER_SUCCESS containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing an User-Data AVP containing Sh-Data element containing Sh-IMS-Data element containing empty IFCs element.	
Comments:		

TP_SH_HSS_UD_20	**Standards Reference:** **Clause 6.1.1.1 (4th dashed line within 6th dashed line in item 5)**	**PICS item:** **A.4/5**
Summary:	Verify that the IUT sends a User Data AVP with missing UE-SRVCC-Capability element when both the AS and the HSS support the Notif-Eff feature and the UE-SRVCC-Capability is not available to the HSS.	
Test purpose:	Ensure that the IUT **on receipt of a UD-Request** containing a Session-ID AVP containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing a Destination-Realm AVP containing a User-Identity AVP indicating IMS Public User Identity containing a Data-Reference AVP indicating UE-SRVCC-Capability (28) **sends a UD-Answer** containing a Session-ID AVP containing a Result-Code AVP indicating DIAMETER_SUCCESS containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing an User-Data AVP containing Sh-Data element containing Sh-IMS-Data element containing Sh-IMS-DataExtension containing Sh-IMS-DataExtension2 containing Sh-IMS-DataExtension3 containing Sh-IMS-DataExtension4 **not** containing UE-SRVCC-Capability element.	
Comments:		

TP_SH_HSS_UD_21	**Standards Reference:** **Clause 6.1.1.1 (5th dashed line within 6th dashed line in item 5)**	**PICS item:** **A.4/5**
Summary:	Verify that the IUT sends a User Data AVP with empty STN-SR element when both the AS and the HSS support the Notif-Eff feature and the STN-SR is not available to the HSS.	
Test purpose:	Ensure that the IUT **on receipt of a UD-Request** containing a Session-ID AVP containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing a Destination-Realm AVP containing a User-Identity AVP indicating IMS Public User Identity containing a Data-Reference AVP indicating STN-SR (27) **sends a UD-Answer** containing a Session-ID AVP containing a Result-Code AVP indicating DIAMETER_SUCCESS containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing an User-Data AVP containing Sh-Data element containing Sh-IMS-Data element containing Sh-IMS-DataExtension containing Sh-IMS-DataExtension2 containing Sh-IMS-DataExtension3 containing Sh-IMS-DataExtension4 containing empty STN-SR element.	
Comments:		

TP_SH_HSS_UD_22	**Standards Reference:** **Clause 6.1.1.1 (6th dashed line within 6th dashed line in item 5)**	**PICS item:** **A.4/5**
Summary:	Verify that the IUT sends a User Data AVP with an empty CSRN element when both the AS and the HSS support the Notif-Eff feature and the CSRN is not available to the HSS.	
Test purpose:	Ensure that the IUT **on receipt of a UD-Request** containing a Session-ID AVP containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing a Destination-Realm AVP containing a User-Identity AVP indicating IMS Public User Identity containing a Data-Reference AVP indicating CSRN (30) **sends a UD-Answer** containing a Session-ID AVP containing a Result-Code AVP indicating DIAMETER_SUCCESS containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing an User-Data AVP containing Sh-Data element containing Sh-IMS-Data element containing Sh-IMS-DataExtension containing Sh-IMS-DataExtension2 containing Sh-IMS-DataExtension3 containing Sh-IMS-DataExtension4 containing empty CSRN element.	
Comments:		

TP_SH_HSS_UD_23	Standards Reference: Clause 6.1.1.1 (7th dashed line within 6th dashed line in item 5)	PICS item: A.4/5
Summary:	Verify that the IUT sends a User Data AVP with an empty IMSI element when both the AS and the HSS support the Notif-Eff feature and the IMSI is not available to the HSS.	
Test purpose:	Ensure that the IUT **on receipt of a UD-Request** containing a Session-ID AVP containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing a Destination-Realm AVP containing a User-Identity AVP indicating IMS Public User Identity containing a Data-Reference AVP indicating IMSI (32) **sends a UD-Answer** containing a Session-ID AVP containing a Result-Code AVP indicating DIAMETER_SUCCESS containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing an User-Data AVP containing Sh-Data element containing Sh-DataExtension containing Sh-DataExtension2 containing Sh-DataExtension3 containing Sh-DataExtension4 containing Sh-Data-Extension5 containing empty IMSI element.	
Comments:		

TP_SH_HSS_UD_24	Standards Reference: Clause 6.1.1.1 (2nd paragraph after note 5)	PICS item:
Summary:	Verify that the IUT returns a UD-Answer with appropriate experimental result code in case of a database error.	
Test purpose:	Ensure that the IUT **on receipt of a UD-Request** containing a Session-ID AVP containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing a Destination-Realm AVP containing a User-Identity AVP containing a Data-Reference AVP **sends a UD-Answer** containing a Session-ID AVP containing a Result-Code AVP indicating DIAMETER_UNABLE_TO_COMPLY not containing an Experimental-Result AVP containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP.	
Comments:	Update of the data is in progress.	

5.2.2.1.4 Profile Update

TP_SH_HSS_PU_01	**Standards Reference: Clause 6.1.2 and 6.1.2.1/paragraph before note and Table 6.1.2.1 and Table 6.1.2.2**	**PICS item:**
Summary:	Verify that the IUT successfully processes all mandatory AVPs in a PU-Request when requested data exists or valid empty data elements are present and returns a PU-Answer containing a Result-Code AVP with DIAMETER_SUCCESS.	
Test purpose:	Ensure that the IUT **on receipt of a PU-Request** containing a Session-ID AVP containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing a Destination-Realm AVP containing a User-Identity AVP indicating IMS Public User Identity or MSISDN containing a Data-Reference AVP indicating allowed value containing a User-Data AVP **sends a PU-Answer** containing a Session-ID AVP containing a Result-Code AVP indicating DIAMETER_SUCCESS containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP.	
Comments:	Supported Data Reference values and User Data values should be selected according to Table 3.	

TP_SH_HSS_PU_02	Standards Reference: Clause 6.1.2.1 (Item 1)	PICS item:
Summary:	Verify that the IUT checks if the data is allowed to be modified and if not returns a PU-Answer with the appropriate experimental result code in case of incorrect User Data in PU-Request.	
Test purpose:	Ensure that the IUT **on receipt of a PU-Request** containing a Session-ID AVP containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing a Destination-Realm AVP containing a User-Identity AVP indicating IMS Public User Identity or MSISDN containing a Data-Reference AVP indicating TADSinformation (26) containing a User-Data AVP containing Sh-Data element containing Sh-IMS-Data element containing Sh-IMS-DataExtension containing Sh-IMS-DataExtension2 containing Sh-IMS-DataExtension3 containing Sh-IMS-DataExtension4 containing empty STN-SR element. **sends a PU-Answer** containing a Session-ID AVP containing an Experimental-Result AVP indicating DIAMETER_ERROR_USER_DATA_CANNOT_BE_MODIFIED containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP.	
Comments:		

TP_SH_HSS_PU_03	Standards Reference: Clause 6.1.2.1 (Item 2)	PICS item:
Summary:	Verify that the IUT, if the User Identity for which data is asked does not exist, returns a PU-Answer with the appropriate experimental result code.	
Test purpose:	Ensure that the IUT **on receipt of a PU-Request** containing a User-Identity AVP indicating not existing user containing a Data-Reference AVP containing a User-Data AVP **sends a PU-Answer** containing an Experimental-Result AVP indicating DIAMETER_ERROR_USER_UNKNOWN.	
Comments:	Supported Data Reference values and User Data values should be selected according to Table 3.	

TP_SH_HSS_PU_04	Standards Reference: Clause 6.1.2.1 (Item 2a)	PICS item:
Summary:	Verify that the IUT checks if Private Identity corresponds to IMPU/MSISDN and if not returns a PU-Answer with the appropriate experimental result code.	
Test purpose:	Ensure that the IUT **on receipt of a PU-Request** containing a User-Identity AVP indicating not related Private Identity containing a Data-Reference AVP containing a User-Data AVP **sends a PU-Answer** containing an Experimental-Result AVP indicating DIAMETER_ERROR_IDENTITIES_DONT_MATCH.	
Comments:	Supported Data Reference values and User Data values should be selected according to Table 3.	

TP_SH_HSS_PU_05	Standards Reference: Clause 6.1.2.1 (Item 3) and Table 7.6.1	PICS item:
Summary:	Verify that the IUT, if the type of User Identity does not apply according to Table 7.6.1 due to the Data-Reference indicated in the request, returns a PU-Answer with the appropriate experimental result code.	
Test purpose:	Ensure that the IUT **on receipt of a PU-Request** containing a User-Identity AVP indicating MSISDN containing a Data-Reference AVP indicating RepositoryData (0) containing a User-Data AVP containing Sh-Data element containing RepositoryData element containing ServiceIndication element containing SequenceNumber element **sends a PU-Answer** containing an Experimental-Result AVP indicating DIAMETER_ERROR_OPERATION_NOT_ALLOWED.	
Comments:		

TP_SH_HSS_PU_06	Standards Reference: Clause 6.1.2.1 (Item 4) and Table 7.6.1	PICS item:
Summary:	Verify that the IUT, if the Data-Reference is PSIActivation (18) and the type of User Identity contains a distinct Public Service Identity, returns a PU-Answer with the appropriate result code.	
Test purpose:	Ensure that the IUT **on receipt of a PU-Request** containing a User-Identity AVP indicating distinct Public Service Identity containing a Data-Reference AVP indicating PSIActivation (18) containing a User-Data AVP containing Sh-Data element containing Sh-IMS-Data element containing Sh-IMS-DataExtension element containing PSIActivation element **sends a PU-Answer** containing a Result-Code AVP indicating DIAMETER_SUCCESS.	
Comments:		

TP_SH_HSS_PU_07	Standards Reference: Clause 6.1.2.1 (Item 4) and Table 7.6.1	PICS item:
Summary:	Verify that the IUT, if the Data-Reference is PSIActivation (18) and the type of User Identity does not contain a distinct Public Service Identity, returns a PU-Answer with the appropriate experimental result code.	
Test purpose:	Ensure that the IUT **on receipt of a PU-Request** containing a User-Identity AVP indicating MSISDN containing a Data-Reference AVP indicating PSIActivation (18) containing a User-Data AVP containing Sh-Data element containing Sh-IMS-Data element containing Sh-IMS-DataExtension element containing PSIActivation element **sends a PU-Answer** containing an Experimental-Result AVP indicating DIAMETER_ERROR_OPERATION_NOT_ALLOWED.	
Comments:		

TP_SH_HSS_PU_08	Standards Reference: Clause 6.1.2.1 (Item 4a) and Table 7.6.1	PICS item:
Summary:	Verify that the IUT, if the Data-Reference is DSAI (19) for the Public Identity and there is an instance of DSAI matching the DSAI-Tag contained in the Sh-Update command, returns a PU-Answer with the appropriate result code.	
Test purpose:	Ensure that the IUT **on receipt of a PU-Request** containing a User-Identity AVP indicating Public Identity containing a Data-Reference AVP indicating DSAI (19) containing a User-Data AVP containing Sh-Data element containing Sh-IMS-Data element containing Sh-IMS-DataExtension element containing Sh-IMS-DataExtension2 element containing DSAI element containing DSAI-Tag element containing DSAI-Value element **sends a PU-Answer** containing a Result-Code AVP indicating DIAMETER_SUCCESS.	
Comments:		

TP_SH_HSS_PU_09	Standards Reference: Clause 6.1.2.1 (Item 4a) and Table 7.6.1	PICS item:
Summary:	Verify that the IUT, if the Data-Reference is DSAI (19) for the Public Identity and there is not an instance of DSAI matching the DSAI-Tag contained in the Sh-Update command, returns a PU-Answer with the appropriate experimental result code.	
Test purpose:	Ensure that the IUT **on receipt of a PU-Request** containing a User-Identity AVP indicating Public Identity containing a Data-Reference AVP indicating DSAI (19) containing a User-Data AVP containing Sh-Data element containing Sh-IMS-Data element containing Sh-IMS-DataExtension element containing Sh-IMS-DataExtension2 element containing DSAI element containing DSAI-Tag element containing DSAI-Value element **sends a PU-Answer** containing an Experimental-Result AVP indicating DIAMETER_ERROR_DSAI_NOT_AVAILABLE.	
Comments:		

TP_SH_HSS_PU_10	Standards Reference: Clause 6.1.2.1 (Item 4b) and Table 7.6.1	PICS item:
Summary:	Verify that the IUT, if the Data-Reference is SMSRegistrationInfo (24) for the IMS Public User Identity and the IP-SM-GW number element contained in the Sh-Update command is empty, returns a PU-Answer with the appropriate result code.	
Test purpose:	Ensure that the IUT **on receipt of a PU-Request** containing a User-Identity AVP indicating Public Identity containing a Data-Reference AVP indicating SMSRegistrationInfo (24) containing a User-Data AVP containing Sh-Data element containing Sh-IMS-Data element containing Sh-IMS-DataExtension element containing Sh-IMS-DataExtension2 element containing Sh-IMS-DataExtension3 element not containing SMSRegistrationInfo element **sends a PU-Answer** containing a Session-ID AVP containing a Result-Code AVP indicating DIAMETER_SUCCESS.	
Comments:		

TP_SH_HSS_PU_11	Standards Reference: Clause 6.1.2.1 (Item 4b) and Table 7.6.1	PICS item:
Summary:	Verify that the IUT, if the Data-Reference is SMSRegistrationInfo (24) for the MSISDN and the IP-SM-GW number element contained in the Sh-Update command is empty, returns a PU-Answer with the appropriate result code.	
Test purpose:	Ensure that the IUT **on receipt of a PU-Request** containing a User-Identity AVP indicating MSISDN containing a Data-Reference AVP indicating SMSRegistrationInfo (24) containing a User-Data AVP containing Sh-Data element containing Sh-IMS-Data element containing Sh-IMS-DataExtension element containing Sh-IMS-DataExtension2 element containing Sh-IMS-DataExtension3 element not containing SMSRegistrationInfo element **sends a PU-Answer** containing a Result-Code AVP indicating DIAMETER_SUCCESS.	
Comments:		

TP_SH_HSS_PU_12	Standards Reference: Clause 6.1.2.1 (Item 4d) and Table 7.6.1	PICS item:
Summary:	Verify that the IUT, if the Data-Reference is STN-SR (27) and the STN-SR is different from the one previously stored or provisioned, overwrites the STN-SR and returns a PU-Answer with the appropriate result code.	
Test purpose:	Ensure that the IUT **on receipt of a PU-Request** containing a User-Identity AVP indicating Public Identity containing a Data-Reference AVP indicating STN-SR (27) containing a User-Data AVP containing Sh-Data element containing Sh-IMS-Data element containing Sh-IMS-DataExtension element containing Sh-IMS-DataExtension2 element containing Sh-IMS-DataExtension3 element containing Sh-IMS-DataExtension4 element containing STN-SR element **sends a PU-Answer** containing a Result-Code AVP indicating DIAMETER_SUCCESS.	
Comments:		

TP_SH_HSS_PU_13	Standards Reference: Clause 6.1.2.1 (Item 4d) and Table 7.6.1	PICS item:
Summary:	Verify that the IUT, if the Data-Reference is STN-SR (27) and in IUT exists no stored STN-SR, returns a PU-Answer with the appropriate experimental result code.	
Test purpose:	Ensure that the IUT **on receipt of a PU-Request** containing a User-Identity AVP indicating Public Identity containing a Data-Reference AVP indicating STN-SR (27) containing a User-Data AVP containing Sh-Data element containing Sh-IMS-Data element containing Sh-IMS-DataExtension element containing Sh-IMS-DataExtension2 element containing Sh-IMS-DataExtension3 element containing Sh-IMS-DataExtension4 element containing STN-SR element **sends a PU-Answer** containing an Experimental-Result AVP indicating DIAMETER_ERROR_OPERATION_NOT_ALLOWED.	
Comments:		

TP_SH_HSS_PU_14	Standards Reference: Clause 6.1.2.1 (Item 5) and Table 7.6.1	PICS item:
Summary:	Verify that the IUT checks whether or not the data that is requested to be updated by the AS, as identified by the Service-Indication, is currently being updated by another entity. If there is an update of the data in progress the IUT returns a PU-Answer with the appropriate experimental result code.	
Test purpose:	Ensure that the IUT **on receipt of a PU-Request** containing a User-Identity AVP indicating Public Identity containing a Data-Reference AVP indicating RepositoryData (0) containing an User-Data AVP containing Sh-Data element containing RepositoryData element containing ServiceIndication element containing SequenceNumber element **sends a PU-Answer** containing an Experimental-Result AVP indicating DIAMETER_PRIOR_UPDATE_IN_PROGRESS.	
Comments:	Update of the data is in progress.	

TP_SH_HSS_PU_15	**Standards Reference: Clause 6.1.2.1 (1st dashed line in item 6) and Table 7.6.1**	**PICS item:**
Summary:	Verify that the IUT, if the repository data identified by the Service-Indication is stored and the Sequence_Number_in_Sh_Update is equal to 0. returns a PU-Answer with the appropriate experimental result code.	
Test purpose:	Ensure that the IUT **on receipt of a PU-Request** containing a User-Identity AVP indicating IMS Public User Identity containing a Data-Reference AVP indicating RepositoryData (0) containing an User-Data AVP containing Sh-Data element containing RepositoryData element containing ServiceIndication element containing SequenceNumber element indicating 0 **sends a PU-Answer** containing an Experimental-Result AVP indicating DIAMETER_ERROR_TRANSPARENT_DATA_OUT_OF_SYNC.	
Comments:		

TP_SH_HSS_PU_16	**Standards Reference: Clause 6.1.2.1 (1st dashed line in item 6) and Table 7.6.1**	**PICS item:**
Summary:	Verify that the IUT, if the repository data identified by the Service-Indication is stored and the Service Data element where the size of the data is greater than the HSS is prepared to accept, returns a PU-Answer with the appropriate experimental result code.	
Test purpose:	Ensure that the IUT **on receipt of a PU-Request** containing a User-Identity AVP indicating IMS Public User Identity containing a Data-Reference AVP indicating RepositoryData (0) containing an User-Data AVP containing Sh-Data element containing RepositoryData element containing ServiceIndication element containing SequenceNumber element containing ServiceData element indicating the size of the data greater than expected **sends a PU-Answer** containing an Experimental-Result AVP indicating DIAMETER_ERROR_TOO_MUCH_DATA.	
Comments:		

TP_SH_HSS_PU_17	**Standards Reference: Clause 6.1.2.1 (2nd dashed line in item 6) and Table 7.6.1**	**PICS item:**
Summary:	Verify that the IUT, if the repository data identified by the Service-Indication is not stored and the Sequence_Number_in_Sh_Update is not equal to 0, returns a PU-Answer with the appropriate experimental result code.	
Test purpose:	Ensure that the IUT **on receipt of a PU-Request** containing a User-Identity AVP indicating IMS Public User Identity containing a Data-Reference AVP indicating RepositoryData (0) containing an User-Data AVP containing Sh-Data element containing RepositoryData element containing ServiceIndication element containing SequenceNumber element indicating **not** 0 **sends a PU-Answer** containing an Experimental-Result AVP indicating DIAMETER_ERROR_TRANSPARENT_DATA_OUT_OF_SYNC.	
Comments:		

TP_SH_HSS_PU_18	**Standards Reference: Clause 6.1.2.1 (2nd dashed line in item 6) and Table 7.6.1**	**PICS item:**
Summary:	Verify that the IUT, if the repository data identified by the Service-Indication is not stored and the Service Data element is not present, returns a PU-Answer with the appropriate experimental result code.	
Test purpose:	Ensure that the IUT **on receipt of a PU-Request** containing a User-Identity AVP indicating IMS Public User Identity containing a Data-Reference AVP indicating RepositoryData (0) containing an User-Data AVP containing Sh-Data element containing RepositoryData element containing ServiceIndication element containing SequenceNumber element containing ServiceData element indicating empty value **sends a PU-Answer** containing an Experimental-Result AVP indicating DIAMETER_ERROR_OPERATION_NOT_ALLOWED.	
Comments:		

TP_SH_HSS_PU_19	Standards Reference: Clause 6.1.2.1 (2nd dashed line in item 6) and Table 7.6.1	PICS item:
Summary:	Verify that the IUT, if the repository data identified by the Service-Indication is not stored and the Service Data element is greater than the HSS is prepared to accept, returns a PU-Answer with the appropriate experimental result code.	
Test purpose:	Ensure that the IUT **on receipt of a PU-Request** containing a User-Identity AVP indicating IMS Public User Identity containing a Data-Reference AVP indicating RepositoryData (0) containing an User-Data AVP containing Sh-Data element containing RepositoryData element containing ServiceIndication element containing SequenceNumber element containing ServiceData element indicating greater value than expected **sends a PU-Answer** containing an Experimental-Result AVP indicating DIAMETER_ERROR_TOO_MUCH_DATA.	
Comments:		

TP_SH_HSS_PU_20	Standards Reference: Clause 6.1.2.1paragraph 39	PICS item:
Summary:	Verify that the IUT returns a PU-Answer with the appropriate experimental result code in case of a database error.	
Test purpose:	Ensure that the IUT **on receipt of a PU-Request** containing a Session-ID AVP containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing a Destination-Realm AVP containing a User-Identity AVP containing a Data-Reference AVP containing a User-Data AVP **sends a PU-Answer** containing a Result-Code AVP indicating DIAMETER_UNABLE_TO_COMPLY.	
Comments:	Update of the data is in progress.	

TP_SH_HSS_PU_21	**Standards Reference: Clause 6.1.2.1 paragraph 39 and (2nd dashed line in item 6) and Table 7.6.1**	**PICS item:**
Summary:	Verify that the IUT checks if there are several repository data identified and if the Service-Indication is not stored and the Service Data element is not present for one of them then, the IUT returns a PU-Answer with the appropriate experimental result code and the Repository_Data_ID AVP indicating the service indication and the sequence number of (one of) the repository data instances for which an error occurred.	
Test purpose:	Ensure that the IUT **on receipt of a PU-Request** containing a User-Identity AVP indicating IMS Public User Identity containing a Data-Reference AVP indicating RepositoryData (0) containing an User-Data AVP containing Sh-Data element containing RepositoryData element (0) containing ServiceIndication element containing SequenceNumber element containing ServiceData element indicating empty value containing RepositoryData element (1) containing ServiceIndication element containing SequenceNumber element **sends a PU-Answer** containing an Experimental-Result AVP indicating DIAMETER_ERROR_OPERATION_NOT_ALLOWED containing a Repository-Data-ID AVP containing a Service-Indication AVP containing a Sequence-Number AVP.	
Comments:		

5.2.2.1.5 Subscription to Notification

TP_SH_HSS_SN_01	**Standards Reference: Clause 6.1.3 and Table 6.1.3.1 and Table 6.1.3.2**	**PICS item:**
Summary:	Verify that the IUT processes an SN-Request and sends a corresponding SN-Answer.	
Test purpose:	Ensure that the IUT **on receipt of an SN-Request** containing a Session-ID AVP containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing a Destination-Realm AVP containing a User-Identity AVP indicating IMS Public User Identity or MSISDN containing a Subs-Req-Type AVP containing a Data-Reference AVP indicating allowed value **sends an SN-Answer** containing a Session-ID AVP containing a Result-Code AVP indicating DIAMETER_SUCCESS containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP.	
Comments:	Supported Data Reference values should be selected according to Table 3.	

TP_SH_HSS_SN_02	Standards Reference: Clause 6.1.3 (Item 1) and Tables 6.1.3.1 and 6.1.3.2.	PICS item:
Summary:	Verify that the IUT replies with an SN-Answer with the appropriate experimental result code when the AS does not have the Sh-Subs-Notif permission.	
Test purpose:	Ensure that the IUT **on receipt of an SN-Request** containing a Session-ID AVP containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing a Destination-Realm AVP containing a User-Identity AVP indicating IMS Public User Identity or MSISDN containing a Subs-Req-Type AVP containing a Data-Reference AVP indicating not allowed value **sends an SN-Answer** containing an Experimental-Result AVP indicating DIAMETER_ERROR_USER_DATA_CANNOT_BE_NOTIFIED.	
Comments:		

TP_SH_HSS_SN_03	Standards Reference: Clause 6.1.3 (Item 2)	PICS item:
Summary:	Verify that the IUT sends an SN-Answer with the appropriate experimental result code when a User Identity does not exist.	
Test purpose:	Ensure that the IUT **on receipt of an SN-Request** containing a User-Identity AVP indicating not existing user **sends an SN-Answer** containing an Experimental-Result AVP indicating DIAMETER_ERROR_USER_UNKNOWN.	
Comments:		

TP_SH_HSS_SN_04	Standards Reference: Clause 6.1.3 (Item 2a)	PICS item:
Summary:	Verify that the IUT, if the Private Identity does not correspond to an IMPU/MSISDN, returns an SN-Answer with the appropriate experimental result code.	
Test purpose:	Ensure that the IUT **on receipt of an SN-Request** containing a User-Identity AVP indicating not related Private Identity containing a User-Name AVP indicating Private Identity **sends an SN-Answer** containing an Experimental-Result AVP indicating DIAMETER_ERROR_IDENTITIES_DONT_MATCH.	
Comments:		

TP_SH_HSS_SN_05	Standards Reference: Clause 6.1.3 (Item 3) and Table 7.6.1	PICS item:
Summary:	Verify that the IUT, if the type of User Identity (i.e. IMS Public User Identity or Public Service Identity or MSISDN) does not apply according to Table 7.6.1 due to the Data-Reference indicated in the request, returns an SN-Answer with the appropriate experimental result code.	
Test purpose:	Ensure that the IUT **on receipt of an SN-Request** containing a User-Identity AVP indicating IMS Public User Identity or MSISDN containing a Data-Reference AVP indicating value due to Table 7.6.1 **sends an SN-Answer** containing an Experimental-Result AVP indicating DIAMETER_ERROR_OPERATION_NOT_ALLOWED.	
Comments:		

TP_SH_HSS_SN_06	Standards Reference: Clause 6.1.3 (Item 3a) and Table 7.6.1	PICS item:
Summary:	Verify that the IUT, if the Data-Reference is DSAI (19) for the Public Identity and there is no instance of DSAI matching the DSAI-Tag contained in the Sh-Subs-Notif command, returns an SN-Answer with the appropriate experimental result code.	
Test purpose:	Ensure that the IUT **on receipt of an SN-Request** containing a User-Identity AVP indicating Public Identity containing a Data-Reference AVP indicating DSAI (19) containing a DSAI-Tag AVP indicating not matching DSAI **sends an SN-Answer** containing an Experimental-Result AVP indicating DIAMETER_ERROR_DSAI_NOT_AVAILABLE.	
Comments:		

TP_SH_HSS_SN_07	Standards Reference: Clause 6.1.3 (Item 4) and Table 7.6.1	PICS item:
Summary:	Verify that the IUT, if the request contains an Expiry Time AVP and if the IUT normally includes Expiry Time in responses, sends no notification to the AS after the expiration time.	
Test purpose:	Ensure that the IUT **on receipt of an SN-Request** containing an Expiry-Time AVP **sends an SN-Answer** containing an Expiry-Time AVP indicating absolute expiration time.	
Comments:		

TP_SH_HSS_SN_08	Standards Reference: Clause 6.1.3 (Item 5) and Table 7.6.1	PICS item:
Summary:	Verify that the IUT, if the Data-Reference indicates RepositoryData in the request and the transparent data associated with the Service indication does not exist in the HSS, returns an SN-Answer with the appropriate experimental result code.	
Test purpose:	Ensure that the IUT **on receipt of an SN-Request** containing a User-Identity AVP indicating Public Identity containing a Data-Reference AVP indicating RepositoryData (0) containing a Service-Indication AVP indicating not existing data **sends an SN-Answer** containing a Session-ID AVP containing an Experimental-Result AVP indicating DIAMETER_ERROR_SUBS_DATA_ABSENT.	
Comments:		

TP_SH_HSS_SN_09	Standards Reference: Clause 6.1.3 (item 6)	PICS item:
Summary:	Verify that the IUT, if the Subscription request type information element indicates a request to subscribe, the IUT associates the AS Identity with the list of entities that need to be notified when the data identified by the request is modified and sets the Result-Code to DIAMETER_SUCCESS in the Sh-Subs-Notify response.	
Test purpose:	Ensure that the IUT **on receipt of an SN-Request** containing a Session-ID AVP containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing a Destination-Realm AVP containing a User-Identity AVP indicating IMS Public User Identity or MSISDN containing a Subs-Req-Type AVP indicating Subscribe (0) containing a Data-Reference AVP indicating allowed value **sends an SN-Answer** containing a Session-ID AVP containing a Result-Code AVP indicating DIAMETER_SUCCESS containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP.	
Comments:	Supported Data Reference values should be selected according to Table 3.	

TP_SH_HSS_SN_10	Standards Reference: Clause 6.1.3 (item 6)	PICS item:
Summary:	Verify that the IUT, if the Subscription request type information element indicates a request to unsubscribe, removes the association of the AS Identity with the same list and sets the Result-Code to DIAMETER_SUCCESS in the Sh-Subs-Notify response.	
Test purpose:	Ensure that the IUT **on receipt of an SN-Request** containing a Session-ID AVP containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing a Destination-Realm AVP containing a User-Identity AVP indicating IMS Public User Identity or MSISDN containing a Data-Reference AVP indicating allowed value containing a Subs-Req-Type AVP indicating Unsubscribe (1) **sends an SN-Answer** containing a Session-ID AVP containing a Result-Code AVP indicating DIAMETER_SUCCESS containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP.	
Comments:	Supported Data Reference values should be selected according to Table 3.	

TP_SH_HSS_SN_11	Standards Reference: Clause 6.1.3 (item 7)	PICS item: A.4/5
Summary:	Verify that the IUT supports the Notif-Eff feature and if multiple Data-Reference AVPs occur in the Sh-SubsNotif Request, each Data-Reference is treated as a request to establish a separate notification request. When multiple notification requests are requested, and all of them succeed, the IUT sets the Result-Code to DIAMETER_SUCCESS in the Sh-Subs-Notify response.	
Test purpose:	Ensure that the IUT **on receipt of an SN-Request** containing a User-Identity AVP indicating IMS Public User Identity or MSISDN containing a Data-Reference AVP indicating allowed value containing a Data-Reference AVP indicating allowed value1 containing a Data-Reference AVP indicating allowed value2 **sends an SN-Answer** containing a Session-ID AVP containing a Result-Code AVP indicating DIAMETER_SUCCESS containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP.	
Comments:	Supported Data Reference values should be selected according to Table 3.	

TP_SH_HSS_SN_12	Standards Reference: Clause 6.1.3 (item 7)	PICS item: A.4/5
Summary:	Verify that the IUT supports the Notif-Eff feature and if multiple Data-Reference AVPs occur in the Sh-SubsNotif Request, each Data-Reference is treated as a request to establish a separate notification request. When multiple notification requests are requested, and at least one of them is not succeed, the IUT sets the relevant Diameter error indication and comes back to the situation regarding to subscriptions as before the reception of the Sh-Subs-Notif Request	
Test purpose:	Ensure that the IUT **on receipt of an SN-Request** containing a User-Identity AVP indicating IMS Public User Identity or MSISDN containing a Data-Reference AVP indicating allowed value containing a Data-Reference AVP indicating allowed value containing a Data-Reference AVP indicating not allowed value1 **sends an SN-Answer** containing a Session-ID AVP containing an Experimental-Result AVP indicating appropriate result code containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP.	
Comments:	Supported Data Reference values should be selected according to Table 3.	

TP_SH_HSS_SN_13	Standards Reference: Clause 6.1.3 (item 8)	PICS item: A.4/5
Summary:	Verify that the IUT supports the Notif-Eff feature and if multiple Service-Indication AVPs occur in the Sh-SubsNotif Request, each Service-Indication is treated as a request to establish a separate notification request for change of Transparent data. When multiple notification requests are requested, and all of them succeed, the IUT sets the Result-Code to DIAMETER_SUCCESS in the Sh-Subs-Notify response.	
Test purpose:	Ensure that the IUT **on receipt of an SN-Request** containing a User-Identity AVP indicating IMS Public User Identity or MSISDN containing a Data-Reference AVP indicating allowed value containing a Service-Indication AVP indicating first service containing a Service-Indication AVP indicating second service **sends an SN-Answer** containing a Session-ID AVP containing a Result-Code AVP indicating DIAMETER_SUCCESS containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP.	
Comments:	Supported Data Reference values should be selected according to Table 3.	

5.2.2.1.6 Push Notification

TP_SH_HSS_PN_01	Standards Reference: Clause 6.1.4 and Table 6.1.4.1	PICS item:
Summary:	Verify that the IUT sends a PN-Request to indicate a Notification procedure.	
Test purpose:	Ensure that the IUT **to indicate a** Notification procedure **sends a PN-Request** containing a Session-ID AVP containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing a Destination-Realm AVP containing a User-Identity AVP containing a User-Data AVP.	
Comments:		

TP_SH_HSS_PN_02	Standards Reference: Clause 6.1.4.1 paragraph 1 and Table 6.1.4.1	PICS item:
Summary:	Verify that the IUT to update repository data sends a PN-Request with information element User-Data containing the Service-Indication and Sequence Number.	
Test purpose:	Ensure that the IUT **on receipt of an SN-Request** containing a User-Identity AVP indicating IMS Public User Identity or MSISDN containing a Data-Reference AVP indicating allowed value **sends an SN-Answer** containing a Result-Code AVP indicating DIAMETER_SUCCESS **sends a PN-Request** containing an User-Data AVP containing Sh-Data element containing RepositoryData element containing ServiceIndication element containing SequenceNumber element.	
Comments:		

5.2.2.2 AS and OSA SCS Role

5.2.2.2.1 Test selection

The IUT takes the role of the AS; PICS A.2/1 or of the OSA SCS; PICS A.2/2 and the applicable test configuration is CF_1Sh or CF_1Sh1Isc.

5.2.2.2.2 Message Syntax

TP_SH_AS_MS_01	Standards Reference: Clause 6 paragraph 2	PICS item:
Summary:	Verify that the IUT sends the appropriate Result-Code AVP when a mandatory Information Element is absent.	
Test purpose:	Ensure that the IUT **on receipt of a PN-Request** containing a Session-ID AVP containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing a Destination-Host AVP containing a Destination-Realm AVP **not** containing a User-Identity AVP containing a User-Data AVP **sends a PN-Answer** containing a Session-ID AVP containing a Result-Code AVP indicating DIAMETER_MISSING_AVP containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing a Failed AVP indicating missing Information Element.	
Comments:		

5.2.2.2.3 User Data

TP_SH_AS_UD_01	Standards Reference: Clause 6.1.1 and Table 6.1.1.1	PICS item:
Summary:	Verify that the IUT sends a UD-Request with user data for a specified user.	
Test purpose:	Ensure that the IUT **to indicate** a user data handling procedure **sends a UD-Request** containing a Session-ID AVP containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing a Destination-Realm AVP containing a User-Identity AVP containing a Data-Reference AVP.	
Comments:		

TP_SH_AS_UD_02	Standards Reference: Clause 6.1.1.1 paragraph 3	PICS item:
Summary:	Verify that the IUT to indicate repository data sends a UD-Request with a Service-Indication AVP.	
Test purpose:	Ensure that the IUT **to indicate** repository data within user data handling procedure **sends a UD-Request** containing a Session-ID AVP containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing a Destination-Realm AVP containing a User-Identity AVP containing a Data-Reference AVP indicating RepositoryData (0) containing a Service-Indication AVP.	
Comments:		

TP_SH_AS_UD_03	Standards Reference: Clause 6.1.1.1 paragraph 3	PICS item:
Summary:	Verify that the IUT to indicate initial filter criteria sends a UD-Request with a Server-Name AVP with SIP URL.	
Test purpose:	Ensure that the IUT **to indicate** initial filter criteria within user data handling procedure **sends a UD-Request** containing a Session-ID AVP containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing a Destination-Realm AVP containing a User-Identity AVP containing a Data-Reference AVP indicating InitialFilterCriteria (13) containing a Server-Name AVP indicating SIP URL of the IUT.	
Comments:		

TP_SH_AS_UD_04	Standards Reference: Clause 6.1.1.1 paragraph 3	PICS item:
Summary:	Verify that the IUT to indicate DSAI sends a UD-Request with a DSAI-Tag AVP.	
Test purpose:	Ensure that the IUT **to indicate** DSAI within user data handling procedure **sends a UD-Request** containing a Session-ID AVP containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing a Destination-Realm AVP containing a User-Identity AVP containing a Data-Reference AVP indicating DSAI (19) containing a DSAI-Tag AVP.	
Comments:		

5.2.2.2.4 Profile Update

TP_SH_AS_PU_01	Standards Reference: Clause 6.1.2 and Table 6.1.2.1	PICS item:
Summary:	Verify that the IUT sends a PU-Request to update transparent data.	
Test purpose:	Ensure that the IUT **to indicate** a user data update procedure **sends a PU-Request** containing a Session-ID AVP containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing a Destination-Realm AVP containing a User-Identity AVP containing a Data-Reference AVP containing a User-Data AVP.	
Comments:		

5.2.2.2.5 Subscription to Notification

TP_SH_AS_SN_01	Standards Reference: Clause 6.1.3 and Table 6.1.3.1	PICS item:
Summary:	Verify that the IUT sends a SN-Request to subscribe to Notification.	
Test purpose:	Ensure that the IUT **to indicate** to subscribe to Notification **sends an SN-Request** containing a Session-ID AVP containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing a Destination-Realm AVP containing a User-Identity AVP containing a Subs-Req-Type AVP containing a Data-Reference AVP.	
Comments:		

5.2.2.2.6 Push Notification

TP_SH_AS_PN_01	Standards Reference: Clause 6.1.4 and Table 6.1.4.1 and Table 6.1.4.2	PICS item:
Summary:	Verify that the IUT processes a PN-Request and sends the corresponding PN-Answer.	
Test purpose:	Ensure that the IUT **on receipt of a PN-Request** containing a Session-ID AVP containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing a Destination-Realm AVP containing a User-Identity AVP containing a User-Data AVP **sends a PN-Answer** containing a Session-ID AVP containing a Result-Code AVP indicating DIAMETER_SUCCESS containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP.	
Comments:		

5.2.3 Dh interface

5.2.3.1 SLF Role

5.2.3.1.1 Test selection

The IUT takes the role of the SLF; PICS A.2/4 and the applicable test configuration is CF_1Dh.

5.2.3.1.2 User Data

TP_DH_SLF_UD_01	Standards Reference: Clause 6.1.1 and Tables 6.1.1.1 and 6.1.1.2 and ETSI TS 129 329 [2], clauses 6.1.1 and 6.1.2	PICS item:
Summary:	Verify that the IUT processes a UD-Request and sends the corresponding UD-Answer.	
Test purpose:	Ensure that the IUT **on receipt of a UD-Request** containing a Session-ID AVP containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing a Destination-Realm AVP containing a User-Identity AVP containing a Data-Reference AVP **sends a UD-Answer** containing a Session-ID AVP containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing an Redirect-Host AVP indicating the HSS identity to be used **not** containing an Experimental-Result AVP containing a Result-Code AVP indicating DIAMETER_REDIRECT_INDICATION (3006).	
Comments:		

5.2.3.1.3 Profile Update

TP_DH_SLF_PU_01	**Standards Reference: Clause 6.1.2 and Tables 6.1.2.1 and 6.1.2.2 and ETSI TS 129 329 [2], clauses 6.1.3 and 6.1.4**	**PICS item:**
Summary:	Verify that the IUT processes a PU-Request and sends the corresponding PU-Answer.	
Test purpose:	Ensure that the IUT **on receipt of a PU-Request** containing a Session-ID AVP containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing a Destination-Realm AVP containing a User-Identity AVP containing a Data-Reference AVP containing a User-Data AVP **sends a PU-Answer** containing a Session-ID AVP containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing an Redirect-Host AVP indicating the HSS identity to be used **not** containing an Experimental-Result AVP containing a Result-Code AVP indicating DIAMETER_REDIRECT_INDICATION (3006).	
Comments:		

5.2.3.1.4 Subscription to Notification

TP_DH_SLF_SN_01	**Standards Reference: Clause 6.1.3 and Tables 6.1.3.1 and 6.1.3.2 and ETSI TS 129 329 [2], clauses 6.1.5 and 6.1.6**	**PICS item:**
Summary:	Verify that the IUT processes an SN-Request and sends the corresponding SN-Answer.	
Test purpose:	Ensure that the IUT **on receipt of a SN-Request** containing a Session-ID AVP containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing a Destination-Realm AVP containing a User-Identity AVP containing a Subs-Req-Type AVP containing a Data-Reference AVP **sends a SN-Answer** containing a Session-ID AVP containing a Vendor-Specific-Application-Id AVP containing an Auth-Session-State AVP containing an Origin-Host AVP containing an Origin-Realm AVP containing an Redirect-Host AVP indicating the HSS identity to be used **not** containing an Experimental-Result AVP containing a Result-Code AVP indicating DIAMETER_REDIRECT_INDICATION (3006).	
Comments:		

5.2.3.2 AS and OSA SCS Role

5.2.3.2.1 Test selection

The IUT takes the role of the AS; PICS A.2/1 or of the OSA SCS; PICS A.2/2. The applicable test configuration is CF_1Dh1Sh or CF_1Dh1Sh1Isc. The AS or OSA SCS shall be configured with the address/name of the SLF.

5.2.3.2.2 User Data

TP_DH_AS_UD_01	**Standards Reference: Table 6.1.1.1 and ETSI TS 129 329 [2], clause 6.1.1**	**PICS item:**
Summary:	Verify that the IUT for user data handling procedure sends a UD-Request to the SLF and after reception of a UD-Answer forwards the UD-Request to the HSS.	
Test purpose:	Ensure that the IUT **to indicate** a user data handling procedure **sends a UD-Request** to the **SLF** **on receipt of a UD-Answer** from the **SLF** containing a Redirect-Host AVP indicating the HSS identity to be used **not** containing an Experimental-Result AVP containing a Result-Code AVP indicating DIAMETER_REDIRECT_INDICATION (3006) **sends** a **UD-Request** to the **HSS** containing a Destination-Host AVP containing a Destination-Realm AVP.	
Comments:		

5.2.3.2.3 Profile Update

TP_DH_AS_PU_01	**Standards Reference: Table 6.1.2.1 and ETSI TS 129 329 [2], clause 6.1.3**	**PICS item:**
Summary:	Verify that the IUT for user data update procedure sends a PU-Request to the SLF and after reception of a PU-Answer forwards the PU-Request to the HSS.	
Test purpose:	Ensure that the IUT **to indicate** a user data update procedure **sends a PU-Request** to the **SLF** **on receipt of a PU-Answer** from the **SLF** containing a Redirect-Host AVP indicating the HSS identity to be used **not** containing an Experimental-Result AVP containing a Result-Code AVP indicating DIAMETER_REDIRECT_INDICATION (3006) **sends a PU-Request** to the **HSS** containing a Destination-Host AVP containing a Destination-Realm AVP.	
Comments:		

5.2.3.2.4 Subscription to Notification

TP_DH_AS_SN_01	**Standards Reference:** **Table 6.1.3 and ETSI TS 129 329 [2], clause 6.1.5**	**PICS item:**
Summary:	Verify that the IUT for user data update procedure sends an SN-Request to the SLF and after reception of an SN-Answer forwards the SN-Request to the HSS.	
Test purpose:	Ensure that the IUT **to indicate** a subscription to notification procedure **sends a SN-Request** to the **SLF** **on receipt of a SN-Answer** from the **SLF** containing a Redirect-Host AVP indicating the HSS identity to be used **not** containing an Experimental-Result AVP containing a Result-Code AVP indicating DIAMETER_REDIRECT_INDICATION (3006) **sends a SN-Request** to the **HSS** containing a Destination-Host AVP containing a Destination-Realm AVP.	
Comments:		

History

Document history		
V1.1.1	April 2019	Publication
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