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Core Network and Interoperability Testing (INT);
Diameter Conformance testing for S6a interface;
(3GPP Release 10);
Part 1: Protocol Implementation
Conformance Statement (PICS)

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Contents

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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 1 of a multi-part deliverable covering the test specifications for the Diameter protocol on the S6a interface, as identified below:

Part 1: "Protocol Implementation Conformance Statement (PICS)";

Part 2: "Test Suite Structure (TSS) and Test Purposes (TP)";

Part 3: "Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma specification".

Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**may not**", "**need**", "**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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Introduction

To evaluate protocol conformance of a particular implementation, it is necessary to have a statement of which capabilities and options have been implemented for a telecommunication specification. Such a statement is called a Protocol Implementation Conformance Statement (PICS).

1 Scope

The present document provides the Protocol Implementation Conformance Statement (PICS) proforma for the test specifications for the Diameter protocol on the S6a interface as specified in TS 129 272 [1] in compliance with the relevant requirements and in accordance with the relevant guidance given in ISO/IEC 9646-7 [3] and ETS 300 406 [4].

The supplier of a protocol implementation which is claimed to conform to TS 129 272 [1] is required to complete a copy of the PICS proforma provided in annex A of the present document and is required to provide the information necessary to identify both the supplier and the implementation.

2 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 reference document (including any amendments) applies.

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

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

2.1 Normative references

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

[1] ETSI TS 129 272 (V10.8.0): "Universal Mobile Telecommunications System (UMTS); LTE; Evolved Packet System (EPS); Mobility Management Entity (MME) and Serving GPRS Support Node (SGSN) related interfaces based on Diameter protocol (3GPP TS 29.272 version 10.8.0 Release 10)".

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

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

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

2.2 Informative references

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] ETSI TR 121 905 (V10.3.0): "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; Vocabulary for 3GPP Specifications (3GPP TR 21.905 version 10.3.0 Release 10)".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in TS 129 272 [1] and the following apply:

PICS proforma: document, in the form of a questionnaire, designed by the protocol specifier or conformance test suite specifier, which, when completed for an OSI implementation or system, becomes the PICS

NOTE: See ISO/IEC 9646-1 [2].

Protocol Implementation Conformance Statement (PICS): statement made by the supplier of an Open Systems Interconnection (OSI) implementation or system, stating which capabilities have been implemented for a given OSI protocol

NOTE: See ISO/IEC 9646-1 [2].

static conformance review: review of the extent to which the static conformance requirements are met by the IUT, accomplished by comparing the PICS with the static conformance requirements expressed in the relevant standard(s)

NOTE: See ISO/IEC 9646-1 [2].

3.2 Abbreviations

For the purposes of the present document, the abbreviations given in TS 129 272 [1] and TR 121 905 [i.1] apply.

4 Conformance

A PICS proforma which conforms to this PICS proforma specification shall be technically equivalent to annex A, and shall preserve the numbering and ordering of the items in annex A.

A PICS which conforms to this PICS proforma specification shall:

a) describe an implementation which claims to conform to TS 129 272 [1];

b) be a conforming ICS proforma which has been completed in accordance with the instructions for completion given in clause A.1;

c) include the information necessary to uniquely identify both the supplier and the implementation.

Annex A (normative): PICS proforma

A.1 Guidance for completing the ICS proforma

A.1.1 Purposes and structure

The purpose of this PICS proforma is to provide a mechanism whereby a supplier of an implementation of the requirements defined in relevant specifications may provide information about the implementation in a standardized manner.

The PICS proforma is subdivided into clauses for the following categories of information:

- instructions for completing the PICS proforma;
- identification of the implementation;
- identification of the protocol;
- PICS proforma tables (for example: Major capabilities, etc.).

A.1.2 Abbreviations and conventions

This annex does not reflect dynamic conformance requirements but static ones. In particular, a condition for support of a PDU parameter does not reflect requirements about the syntax of the PDU (i.e. the presence of a parameter) but the capability of the implementation to support the parameter.

In the sending direction, the support of a parameter means that the implementation is able to send this parameter (but it does not mean that the implementation always sends it).

In the receiving direction, it means that the implementation supports the whole semantic of the parameter that is described in the related protocol specification.

As a consequence, PDU parameter tables in this annex are not the same as the tables describing the syntax of a PDU in the reference specification.

The PICS proforma contained in this annex is comprised of information in tabular form in accordance with the guidelines presented in ISO/IEC 9646-7 [3].

Item column

The item column contains a number which identifies the item in the table.

Item description column

The item description column describes in free text each respective item (e.g. parameters, timers, etc.). It implicitly means "is <item description> supported by the implementation?".

Reference column

The reference column makes reference to TS 129 272 [1], except where explicitly stated otherwise.

Status column

The various status used in this annex are in accordance with the rules in table A.1.

Table A.1: Key to status codes

Status code	Status name	Meaning
m	mandatory	The capability shall be supported. It is a static view of the fact that the conformance requirements related to the capability in the reference specification are mandatory requirements. This does not mean that a given behaviour shall always be observed (this would be a dynamic view), but that it shall be observed when the implementation is placed in conditions where the conformance requirements from the reference specification compel it to do so. For instance, if the support for a parameter in a sent PDU is mandatory, it does not mean that it shall always be present, but that it shall be present according to the description of the behaviour in the reference specification (dynamic conformance requirement).
o	optional	The capability may or may not be supported. It is an implementation choice.
n/a	not applicable	It is impossible to use the capability. No answer in the support column is required.
c.<integer>	conditional	The requirement on the capability ("m", "o", "n/a") depends on the support of other optional or conditional items. <integer> is the identifier of the conditional expression.
o.<integer>	qualified optional	For mutually exclusive or selectable options from a set. <integer> is the identifier of the group of options, and the logic of selection of the options.

Mnemonic column

The Mnemonic column contains mnemonic identifiers for each item.

Support column

The support column shall be filled in by the supplier of the implementation. The following common notations, defined in ISO/IEC 9646-7 [3], are used for the support column:

Y or y supported by the implementation

N or n not supported by the implementation

N/A, n/a or - no answer required (allowed only if the status is N/A, directly or after evaluation of a conditional status)

References to items

For each possible item answer (answer in the support column) within the PICS proforma there exists a unique reference, used, for example, in the conditional expressions. It is defined as the table identifier, followed by a solidus character "/", followed by the item number in the table.

EXAMPLE: A.5/4 is the reference to the answer of item 4 in table A.5.

A.1.3 Instructions for completing the PICS proforma

The supplier of the implementation may complete the PICS proforma in each of the spaces provided. More detailed instructions are given at the beginning of the different clauses of the PICS proforma.

A.2 Identification of the Network Equipment

Identification of the Network Equipment should be filled in so as to provide as much detail as possible regarding version numbers and configuration options.

The product supplier information and client information should both be filled in if they are different.

A person who can answer queries regarding information supplied in the PICS should be named as the contact person.

A.2.1 Date of the statement

.....

A.2.2 Network Equipment Under Test identification

Name:

.....

.....

Hardware configuration:

.....

.....

.....

Software configuration:

.....

.....

.....

A.2.3 Product supplier

Name:

.....

Address:

.....

.....

.....

Telephone number:

.....

Facsimile number:

.....

E-mail address:

.....

Additional information:

.....

.....

.....

A.2.4 Client

Name:

.....

Address:

.....

.....

.....

Telephone number:

.....

Facsimile number:

.....

E-mail address:

.....

Additional information:

.....

.....

.....

A.2.5 PICS contact person

Name:

.....

Telephone number:

.....

Facsimile number:

.....

E-mail address:

.....

Additional information:

.....

.....

A.3 Identification of the protocol

This PICS proforma applies to the following specification:

TS 129 272 [1]

A.4 Global statement of conformance

The implementation described in this PICS meets all the mandatory requirements of the referenced standard?

[ ] Yes

[ ] No

NOTE: Answering "No" to this question indicates non-conformance to the protocol specification. Non-supported mandatory capabilities are to be identified in the PICS, with an explanation of why the implementation is non-conforming. Explanations may be entered in the comments field at the bottom of each table or on attached pages.

In the tabulations which follow, all references are to TS 129 272 [1] unless another numbered reference is explicitly indicated.

A.5 PICS proforma tables

A.5.1 Roles

Table A.2: Roles

Item	Roles	Reference	Status	Support
1	MME	5.2.1.1.2, 5.2.1.2.2, 5.2.1.3.2, 5.2.2.1.2, 5.2.2.2.2, 5.2.3.1.2, 5.2.4.1.2, 5.2.5.1.2	o.1	
1.1	Combined MME/SGSN	5.2.1.1.2, 5.2.1.2.2, 5.2.1.3.2, 5.2.2.1.2, 5.2.3.1.2, 5.2.4.1.2	c.1	
1.2	Support of interworking with Gn/Gp-SGSNs?	5.2.1.1.2 ¶19, 5.2.2.1.2 ¶6	c.1	
2	HSS	5.2.1.1.3, 5.2.1.2.3, 5.2.1.3.3, 5.2.2.1.3, 5.2.2.2.3, 5.2.3.1.3, 5.2.4.1.3, 5.2.5.1.3	o.1	
o.1: At least one of these roles shall be supported. c.1 o, if A.2/1 is supported, else n/a				

A.5.2 System Capabilities for MME

Table A.3 provided in this clause need only to be completed for MME implementations, where item A.2/1 above is supported.

Table A.3: System Capabilities for MME

Item	Does the IUT support ...	Reference	Status	Support
1	location management procedures?	5.2.1.1.2	m	
1.1	the inclusion of the SGSN number within the ULR message?	5.2.1.1.2 ¶7	c.2	
1.2	the inclusion of dynamic APN and PGW ID data in the list of Active-APN AVPs after a Reset procedure?	5.2.1.1.2 ¶9	o	
1.3.1	permission for SIPTO for an APN with missing SIPTO-Permission information in the case of non-roaming subscribers?	5.2.1.1.2 ¶21	o	
1.3.2	permission for SIPTO for an APN with missing SIPTO-Permission information in the case of roaming subscribers?	5.2.1.1.2 ¶23	o	
1.4.1	permission for use of LIPA for non-roaming subscribers?	5.2.1.1.2 ¶25	o	
1.4.2	permission for use of LIPA for roaming subscribers when the VPLMN-LIPA-Allowed AVP indicates that the UE is allowed to use LIPA in the VPLMN?	5.2.1.1.2 ¶26	o	
2	cancel location procedures?	5.2.1.2.2	m	
3	purge UE procedures?	5.2.1.3.2	m	
3.1	partial purging of a UE in only one serving node?	5.2.1.3.2 ¶3	c.3	
4	subscriber data handling procedures?	5.2.2.1.2	m	
5	delete subscriber data procedures?	5.2.2.2.2	m	
5.1	deactivation of EPS bearers for which the EPS Subscription Data has been deleted?	5.2.2.2.2 ¶7	o	
6	authentication procedures?	5.2.3.1.2	m	
6.1	Emergency services for users in limited service state?	5.2.3.1.2 ¶2	o	
6.2	inclusion of both the Requested-EUTRAN-Authentication-Info AVP and the Requested-UTRAN-GERAN-Authentication-Info AVP in the AIR request?	5.2.3.1.2 ¶8	c.2	
7	fault recovery procedures?	5.2.4.1.2	m	
8	notification procedures?	5.2.5.1.2	m	
c.2	o, if A.2/1.1 is supported, else n/a			
c.3	o, if A.2/1.1 and A4/13 is supported, else n/a			

A.5.3 Supported Features for MME

Table A.4 provided in this clause need only to be completed for MME implementations, where item A.2/1 above is supported.

Table A.4: Supported Features for MME

Item	Does the IUT support the feature ...	Reference	Status	Support
1	Operator Determined Barring of all Packet Oriented Services?	Table 7.3.10/1 item 0		
2	Operator Determined Barring of Packet Oriented Services from access points that are within the HPLMN whilst the subscriber is roaming in a VPLMN?	Table 7.3.10/1 item 1	o	
3	Operator Determined Barring of Packet Oriented Services from access points that are within the roamed to VPLMN?	Table 7.3.10/1 item 2	o	
4	Regional Subscription?	Table 7.3.10/1 item 9	o	
5	Trace Function?	Table 7.3.10/1 item 10	o	
6	All Mobile Originating Location Request Classes?	Table 7.3.10/1 item 17	o	
7	Allow an MS to request its own location?	Table 7.3.10/1 item18	o	
8	Allow an MS to perform self location without interaction with the PLMN?	Table 7.3.10/1 item19	o	
9	Allow an MS to request transfer of its location to another LCS client?	Table 7.3.10/1 item 20	o	
10	UE Reachability Notification?	Table 7.3.10/1 item 26	o	
11	Terminating Access Domain Selection Data Retrieval?	Table 7.3.10/1 item 27	o	
12	State/Location Information Retrieval?	Table 7.3.10/1 item 28	o	
13	Partial Purge from a Combined MME/SGSN?	Table 7.3.10/1 item 29	c.4	
c.4	o, if A.2/1.1 is supported, else n/a			

A.5.4 System Capabilities for HSS

Table A.5 provided in this clause need only to be completed for HSS implementations, where item A.2/2 above is supported.

Table A.5: System Capabilities for HSS

Item	Does the IUT support ...	Reference	Status	Support
1	location management procedures?	5.2.1.1.3	m	
1.1	addition of Error Diagnostic information to the DIAMETER_ERROR_UNKNOWN_EPS_SUBSCRIPTION Result Code?	5.2.1.1.3 ¶5	o	
1.2	addition of Error Diagnostic information to the DIAMETER_ERROR_ROAMING_NOT_ALLOWED Result Code?	5.2.1.1.3 ¶7	o	
1.3	dropping of the 15th digit in IMEI AVPs received in ULR messages?	5.2.1.1.3 ¶10	o	
2	cancel location procedures?	5.2.1.2.3	m	
3	purge UE procedures?	5.2.1.3.3	m	
3.1	partial purge feature?	5.2.1.3.3 ¶4, ¶5	o	
4	subscriber data handling procedures?	5.2.2.1.3	m	
5	delete subscriber data procedures?	5.2.2.2.3	m	
6	authentication procedures?	5.2.3.1.3	m	
6.1	addition of Error Diagnostic information to the DIAMETER_ERROR_UNKNOWN_EPS_SUBSCRIPTION Result Code?	5.2.3.1.3 ¶4	o	
6.2	processing and acting upon the Immediate Response Preferred parameter received in an AIR message?	5.2.3.1.3 ¶10	o	
7	fault recovery procedures?	5.2.4.1.3	m	
7.1	inclusion of only a subset of subscribers in the User-Id AVP in the RSR message?	5.2.4.1.3 ¶2		
8	notification procedures?	5.2.5.1.3	m	

History

Document history		
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