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*Technical Specification*
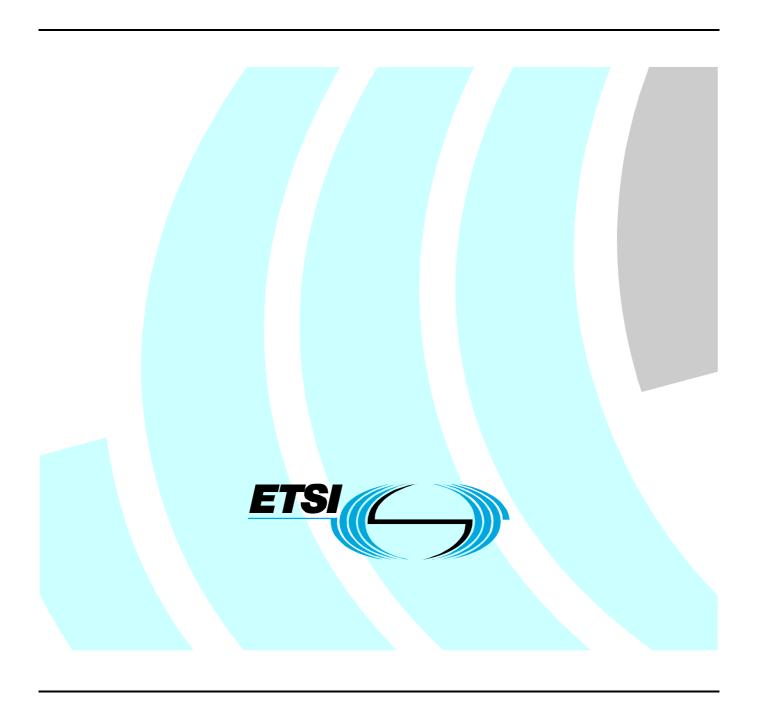
## Intelligent Transport Systems (ITS);
## Testing;
## Conformance test specifications for GeoNetworking
## Basic Transport Protocol (BTP);
## Part 1: Test requirements and Protocol Implementation
## Conformance Statement (PICS) proforma

Reference

DTS/ITS-0030011

Keywords

ITS, PICS, testing, transport

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# Contents

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# Foreword

This Technical Specification (TS) has been produced by ETSI Technical Committee Intelligent Transport System (ITS).

The present document is part 1 of a multi-part deliverable covering Conformance test specifications for Geonetworking Basic Transport Protocol (BTP) as identified below:

>   **Part 1:    "Test requirements and Protocol Implementation Conformance Statement (PICS) proforma";**

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

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

# 1        Scope

The present document provides the Protocol Implementation Conformance Statement (PICS) proforma for Conformance test specifications for Geonetworking Basic Transport Protocol as defined in TS 102 636-5-1 [1] in compliance with the relevant requirements and in accordance with the relevant guidance given in ISO/IEC 9646-7 [3].

The supplier of an implementation which is claimed to conform to TS 102 636-5-1 [1] is required to complete a copy of the PICS proforma provided in the annex A of the present document.

# 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 referenced 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.

## 2.1        Normative references

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

[1]        ETSI TS 102 636-5-1 (V1.1.1): "Intelligent Transport Systems (ITS); Vehicular Communications; GeoNetworking; Part 5: Transport Protocols; Sub-part 1: Basic Transport Protocol".

[2]        ISO/IEC 9646-1 (1994): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 1: General concepts".

[3]        ISO/IEC 9646-7 (1995): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 7: Implementation Conformance Statements".

## 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.

Not applicable.

# 3        Definitions and abbreviations

## 3.1        Definitions

For the purposes of the present document, the following terms and definitions apply:

-        terms given in TS 102 636-5-1 [1].

-        terms given in ISO/IEC 9646-1 [2] and in ISO/IEC 9646-7 [3].

In particular, the following terms given in ISO/IEC 9646-1 [2] apply:

**Implementation Conformance Statement (ICS):** statement made by the supplier of an implementation or system claimed to conform to a given specification, stating which capabilities have been implemented. The ICS can take several forms: protocol ICS, profile ICS, profile specific ICS, information object ICS, etc.

**ICS proforma:** document, in the form of a questionnaire, which when completed for an implementation or system becomes an ICS.

**Protocol ICS (PICS):** PICS for an implementation or system claimed to conform to a given protocol specification

## 3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

| | |
|---|---|
| ICS | Implementation Conformance Statement |
| ITS | Intelligent Transportation Systems |
| IUT | Implementation Under Test |
| PICS | Protocol Implementation Conformance Statement |
| SUT | System Under Test |

# 4 Conformance requirement concerning PICS

If it claims to conform to the present document, the actual PICS proforma to be filled in by a supplier shall be technically equivalent to the text of the PICS proforma given in annex A, and shall preserve the numbering/naming and ordering of the proforma items.

An ICS which conforms to the present document shall be a conforming PICS proforma completed in accordance with the instructions for completion given in clause A.1.

# Annex A (normative):
# BTP PICS Proforma

Notwithstanding the provisions of the copyright clause related to the text of the present document, ETSI grants that users of the present document may freely reproduce the BTP PICS proforma in this annex so that it can be used for its intended purposes and may further publish the completed BTP PICS.

# 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 TS 102 636-5-1 [1] may provide information about the implementation in a standardized manner.

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

- guidance for completing the ICS proforma;

- identification of the implementation;

- identification of the TS 102 636-5-1 [1];

- global statement of conformance;

- PICS proforma tables.

## A.1.2     Abbreviations and conventions

The ICS 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?".

Status column

The following notations, defined in ISO/IEC 9646-7 [3], are used for the status column:

m                   mandatory - the capability is required to be supported.

o                   optional - the capability may be supported or not.

n/a                 not applicable - in the given context, it is impossible to use the capability.

x                   prohibited (excluded) - there is a requirement not to use this capability in the given context.

o.i                 qualified optional - for mutually exclusive or selectable options from a set. "i" is an integer which
                    identifies an unique group of related optional items and the logic of their selection which is
                    defined immediately following the table.

ci                  conditional - the requirement on the capability ("m", "o", "x" or "n/a") depends on the support of
                    other optional or conditional items. "i" is an integer identifying an unique conditional status
                    expression which is defined immediately following the table.

i                   irrelevant (out-of-scope) - capability outside the scope of the reference specification. No answer is
                    requested from the supplier.

NOTE 1:   This use of "i" status is not to be confused with the suffix "i" to the "o" and "c" statuses above.

Reference column

The reference column indicates the clause numbers of the base standards which correspond to the PICS item of the
same row.

In the present PICS document and unless otherwise stated, clause numbers in the reference column are always referring
to TS 102 636-5-1 [1].

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).

NOTE 2:   As stated in ISO/IEC 9646-7 [3], support for a received PDU requires the ability to parse all valid
          parameters of that PDU. Supporting a PDU while having no ability to parse a valid parameter is
          non-conformant. Support for a parameter on a PDU means that the semantics of that parameter are
          supported.

Values allowed column

The values allowed column contains the type, the list, the range, or the length of values allowed. The following
notations are used:

-    range of values:        <min value> .. <max value>
     example:                5 .. 20

-    list of values:         <value1>, <value2>, ..., <valueN>
     example:                2 ,4 ,6 ,8 ,9
     example:                '1101'B, '1011'B, '1111'B
     example:                '0A'H, '34'H, '2F'H

- list of named values:      <name1>(<val1>), <name2>(<val2>), ..., <nameN>(<valN>)
  example:                          reject(1), accept(2)

- length:                             size (<min size> .. <max size>)
  example:                          size (1 .. 8)

**Values supported column**

The values supported column shall be filled in by the supplier of the implementation. In this column, the values or the ranges of values supported by the implementation shall be indicated.

**References to items**

For each possible item answer (answer in the support column) within the ICS proforma a unique reference exists, 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. If there is more than one support column in a table, the columns are discriminated by letters (a, b, etc.), respectively.

EXAMPLE 1:      A.5/4 is the reference to the answer of item 4 in table 5 of annex A.

EXAMPLE 2:      A.6/3b is the reference to the second answer (i.e. in the second support column) of item 3 in table 6 of annex A.

**Prerequisite line**

A prerequisite line takes the form: Prerequisite: <predicate>.

A prerequisite line after a clause or table title indicates that the whole clause or the whole table is not required to be completed if the predicate is FALSE.

# A.1.3    Instructions for completing the ICS proforma

The supplier of the implementation shall complete the ICS proforma in each of the spaces provided. In particular, an explicit answer shall be entered, in each of the support or supported column boxes provided, using the notation described in clause A.1.2.

If necessary, the supplier may provide additional comments in space at the bottom of the tables or separately.

More detailed instructions are given at the beginning of the different clauses of the ICS proforma.

# A.2    Identification of the implementation

Identification of the Implementation Under Test (IUT) and the system in which it resides (the System Under Test (SUT)) 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 ICS should be named as the contact person.

# A.2.1    Date of the statement

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## A.2.2    Implementation Under Test (IUT) identification

IUT name:

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IUT version:

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## A.2.3    System Under Test (SUT) identification

SUT name:

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Hardware configuration:

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Operating system:

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## A.2.4    Product supplier

Name:

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Address:

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Telephone number:

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Facsimile number:

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E-mail address:

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Additional information:

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## A.2.5    Client (if different from product supplier)

Name:

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Address:

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Telephone number:

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Facsimile number:

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E-mail address:

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Additional information:

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## A.2.6    ICS contact person

(A person to contact if there are any queries concerning the content of the ICS)

Name:

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Telephone number:

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Facsimile number:

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E-mail address:

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Additional information:

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# A.3 Identification of the protocol

This ICS proforma applies to the following standard:

TS 102 636-5-1 [1]: "Intelligent Transport Systems (ITS); Vehicular Communications; GeoNetworking; Part 5: Transport Protocols; Sub-part 1: Basic Transport Protocol".

# A.4 Global statement of conformance

Are all mandatory capabilities implemented? (Yes/No)          .....................

NOTE: Answering "No" to this question indicates non-conformance to the GEONET standard specification. Non-supported mandatory capabilities are to be identified in the ICS, with an explanation of why the implementation is non-conforming, on pages attached to the ICS proforma.

# A.5 Tables

## A.5.1 ITS Station type

The supplier of the implementation shall state the support of type of the implementation according to the following station type, in table A.1.

**Table A.1: ITS Station type**

| Item | Type | Reference | Status | Support |
|------|------|-----------|--------|---------|
| 1 | Road side ITS station | 6.1 | o.101 | |
| 2 | Vehicle ITS station | 6.1 | o.101 | |
| o.101: | It is mandatory to support one of these type. | | | |

## A.5.2 Packet Structure

The supplier of the implementation shall state the support of type of the implementation according to the following packet structure.

**Table A.2: BTP Packet Structure**

| Item | Type | Reference | Status | Support |
|------|------|-----------|--------|---------|
| 1 | BTP Header | 6 | m | |
| 2 | Payload | 6 | o | |

## A.5.3 BTP Header

The supplier of the implementation shall state the support of type of the implementation according to the following BTP Header.

**Table A.3: BTP Header**

| Prerequisite: A.2/1 | | | | |
|------|------|-----------|--------|---------|
| **Item** | **Type** | **Reference** | **Status** | **Support** |
| 1 | BTP-A for interactive packet transport | 7.1 | m | |
| 2 | BTP-B for non-interactive packet transport | 7.1 | m | |

### A.5.3.1    BTP-A Header

The supplier of the implementation shall state the support of type of the implementation according to the following BTP-A Header.

**Table A.4: BTP-A Header**

| Item | Type | Reference | Status | Support |
|------|------|-----------|--------|---------|
| Prerequisite: A.3/1 | | | | |
| 1 | Destination port | 7.2.2 | m | |
| 2 | Source port | 7.2.2 | m | |

### A.5.3.2    BTP-B Header

The supplier of the implementation shall state the support of type of the implementation according to the following BTP-B Header.

**Table A.5: BTP-B Header**

| Item | Type | Reference | Status | Support |
|------|------|-----------|--------|---------|
| Prerequisite: A.3/2 | | | | |
| 1 | Destination port | 7.3.2 | m | |
| 2 | Destination port info | 7.3.2 | m | |

## A.5.4    Protocol Operation

The supplier of the implementation shall state the support of type of the implementation according to the following protocol operation.

**Table A.6: Protocol Operation**

| Item | Type | Reference | Status | Support |
|------|------|-----------|--------|---------|
| 1 | Transmission of BTP-PDU (BTP-Data.request) | 8.2 | m | |
| 2 | Reception of BTP-PDU (BTP-Data.indication) | 8.3 | m | |

# Annex B (informative):
# Bibliography

ETSI ETS 300 406 (1995): "Methods for testing and Specification (MTS); Protocol and profile conformance testing specifications; Standardization methodology".

"GeoNet STREP N 216269 - D2.2 Final GeoNet Specification".

# History

| Document history | | |
|---|---|---|
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