

I n t e r n a t i o n a l T e l e c o m m u n i c a t i o n U n i o n

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

X.783

(07/2014)

SERIES X: DATA NETWORKS, OPEN SYSTEM
COMMUNICATIONS AND SECURITY

OSI management – Management functions and ODMA
functions

**Guidelines for implementation conformance
statement proformas associated with web
services-based management systems**

Recommendation ITU-T X.783

ITU-T

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For further details, please refer to the list of ITU-T Recommendations.

Recommendation ITU-T X.783

Guidelines for implementation conformance statement proformas associated with web services-based management systems

Summary

Recommendation ITU-T X.783 provides guidelines for implementation conformance statement (ICS) proformas for web services-based interface systems. It provides an overview and constructions for the web service description language (WSDL), and provides several proformas (tables) for each WSDL component to be used in interfaces. Instructions on how to complete the columns in the conformance tables are also provided. Examples of web services interface ICSs are provided in appendices.

History

Edition	Recommendation	Approval	Study Group	Unique ID*
1.0	ITU-T X.783	2014-07-14	2	11.1002/1000/12203

* To access the Recommendation, type the URL <http://handle.itu.int/> in the address field of your web browser, followed by the Recommendation's unique ID. For example, <http://handle.itu.int/11.1002/1000/11830-en>.

FOREWORD

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The World Telecommunication Standardization Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

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As of the date of approval of this Recommendation, ITU had not received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementers are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database at <http://www.itu.int/ITU-T/ipr/>.

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Recommendation ITU-T X.783

Guidelines for implementation conformance statement proformas associated with web services-based management systems

1 Scope

This Recommendation provides guidelines for the web service description language (WSDL)-based interface implementation conformance statement (WIICS) proformas, and the specification of these proformas. The WIICS is a statement made by an implementer to claim conformance to a web services-based interface definition.

2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published. The reference to a document within this Recommendation does not give it, as a stand-alone document, the status of a Recommendation.

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|---------------|--|
| [ITU-T Q.818] | Recommendation ITU-T Q.818 (2012), <i>Web service-based management services</i> . |
| [ITU-T X.290] | Recommendation ITU-T X.290 (1995), <i>OSI conformance testing methodology and framework for protocol Recommendations for ITU-T applications – General concepts</i> . |
| [ITU-T X.291] | Recommendation ITU-T X.291 (1995), <i>OSI conformance testing methodology and framework for protocol Recommendations for ITU-T applications – Abstract test suite specification</i> . |
| [ITU-T X.296] | Recommendation ITU-T X.296 (1995), <i>OSI conformance testing methodology and framework for protocol Recommendations for ITU-T applications – Implementation conformance statements</i> . |
| [ITU-T X.724] | Recommendation ITU-T X.724 (1996), <i>Information technology – Open Systems Interconnection – Structure of management information: Requirements and guidelines for implementation conformance statement proformas associated with OSI management</i> . |
| [ITU-T X.782] | Recommendation ITU-T X.782 (2012), <i>Guidelines for defining web services for managed objects and management interfaces</i> . |
| [W3C WSDL] | W3C Recommendation (2001), <i>Web Services Description Language (WSDL) 1.1</i> . |
| [W3C XML] | W3C Recommendation (2000), <i>Extensible Markup Language (XML) 1.0 (Second Edition)</i> . |

3 Definitions

3.1 Terms defined elsewhere

This Recommendation uses the following terms defined elsewhere:

- 3.1.1 (ICS) item [ITU-T X.290]
- 3.1.2 (ICS) question [ITU-T X.290]
- 3.1.3 status (value) [ITU-T X.290]
- 3.1.4 (support) answer [ITU-T X.290]
- 3.1.5 test case [ITU-T X.290]

3.2 Terms defined in this Recommendation

None.

4 Abbreviations and acronyms

This Recommendation uses the following abbreviations and acronyms:

CORBA	Common Object Request Broker Architecture
HTTP	Hypertext Transport Protocol
ICS	Implementation Conformance Statement
IUT	Implementation Under Test
IXIT	Implementation Extra Information for Testing
RP	Reference Point
SOAP	Simple Object Access Protocol
tML	Telecommunications Markup Language
WIICS	WSDL-based Interface Implementation Conformance Statement
W3C	World Wide Web Consortia
WSDL	Web Service Description Language
WWW	World Wide Web
XML	Extensible Markup Language

5 Conventions

A few conventions are followed in this Recommendation to make the reader aware of the purpose of the text.

Examples of web service description language (WSDL) and extensible markup language (XML) are written in courier new typeface in this Recommendation:

```
<!-- Example XML schema -->
<xsd:complexType name="AType">
  <xsd:sequence>
    <xsd:element name="a" type="xsd:string"/>
    <xsd:element name="b" type="xsd:long"/>
  </xsd:sequence>
</xsd:complexType>
```

6 Basis of conformance test methodology for WSDL-based management system interface

6.1 Overview

Conformance relates an implementation to a standard. It states in which way systems, implemented with respect to a standard, can vary without errors occurring in their cooperation. If an implementation fulfils these requirements, it is conformant to the standard. The check of the statements is the conformance test. The starting point is the definition of conformance requirements in implementation independent interface specifications on the basis of identification of reference points (RPs). A management interface specification should define conformance RPs at which an implementation must be tested to check if it fulfils a set of conformance criteria. During the test, a number of stimuli and events are observed and evaluated at these conformance RPs. Management interface specifications should include conformance statements which identify conformance RPs at every interface of the specified implementations. Because, in general, the information flow between two system components is realized through several RPs, the conformance test has to take the following into consideration:

- a) the test of information flow at each RP;
- b) the test of consistency between the combinations.

Thus, a coordinated test, at all identified RPs is necessary.

6.2 Methodology of conformance test for web service-based interfaces

There are static and dynamic conformance test requirements:

- a) Static conformance test requirements state the functionality that is minimally necessary for conformance testing. The basis of the static conformance test is an implementation conformance statement (ICS) proforma where the functional limitations and possibilities of the standard are defined. It is a document in the form of a questionnaire that has to be completed by the implementer.
- b) Dynamic conformance test requirements specify the potential behaviours of an implementation visible at the identified RPs. The dynamic conformance test contains the realization of test cases in a testing system.

Test cases include concrete test cases and abstract test cases. The concrete test cases are derived from abstract test cases that are given or defined by the standard. A basic precondition for the derivation of the test cases is the definition of test purposes by the standard.

Before starting the test in a test laboratory, the steps below must be followed:

- a) The implementer has to complete the given ICS proforma. Information which makes the ICS proforma statements more precise or concerns the test realization is included in the implementation extra information for testing (IXIT).
- b) The so-called real (concrete) test cases should be derived from the abstract test cases of the standard, or they can be derived from the test purposes directly, where generic aspects (e.g. types) are realized depending on the individual implementation.

Figure 1 illustrates this approach.