TECHNICAL REPORT

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# Intelligent transport systems — Using web services (machine-machine delivery) for ITS service delivery —

## Part 3: Quality of service

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# Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 204, *Intelligent transport systems*.

A list of all parts in the ISO 24097 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.


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# Introduction

In order to provide high quality ITS services, various types of service coordination are indispensable, e.g. coordination between financial industries in an Electronic Fee Collections service. Service systems are constructed in a heterogeneous platform, e.g. hardware, OS, middleware, and/or application development language. Web services are technologies for heterogeneous distributed systems coordination.

To provide web services in an agile and interoperable manner, the use of standard based metadata was proposed in ISO 24097-1. Web service (WS) metadata is a formal description of a web service. It is expressed by: ***Interface metadata*** and ***QoS (Quality of Service) metadata***. WS metadata is a technical contract between a web service provider and its consumers, so both sides are aware of this interface. This provides the base of interoperability between a service provider's program and a service consumer's program. Because metadata is based on standards, software tools can support the WS lifecycle through design to servicing and upgrading.

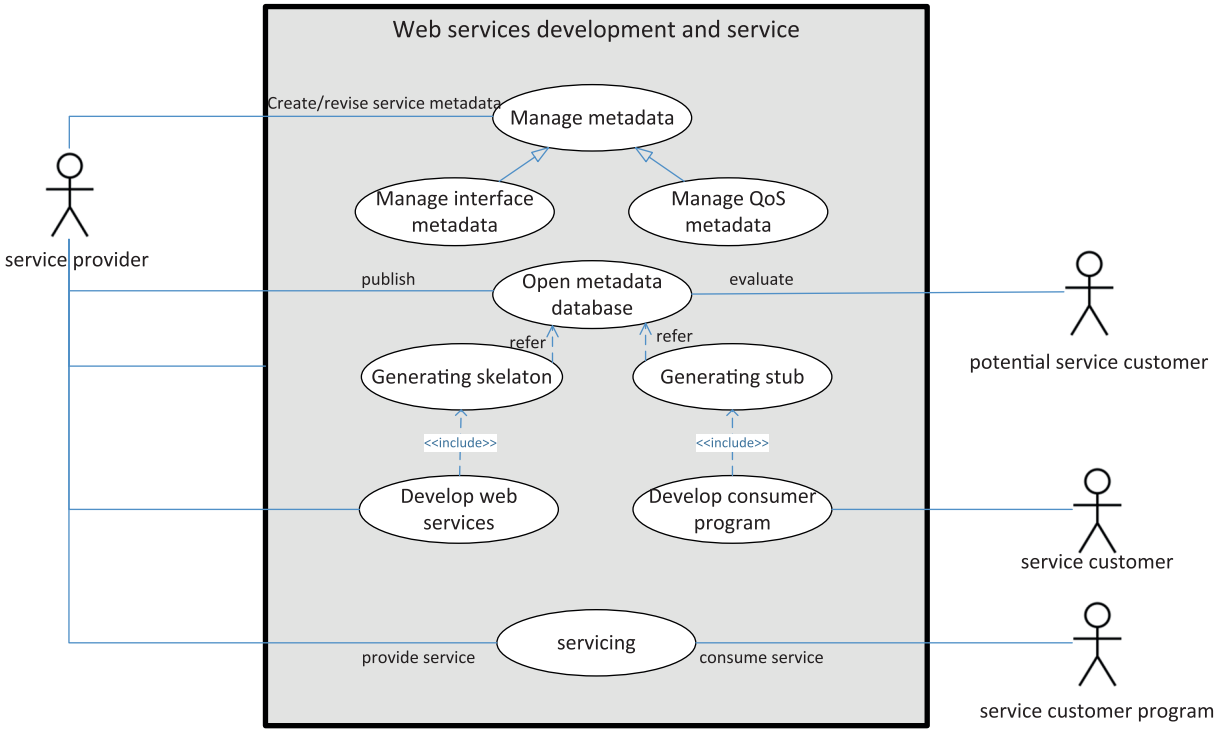


**Figure 1 — ITS WS metadata use case**

The ***interface metadata*** standard is the WSDL. This topic was covered in ISO/TR 24097-2.

***QoS metadata*** is a combination of domain specific requirements and constraints such as security, reliable messaging, message addressing, and SOAP message transmission optimization.

This document focuses on these QoS topics.

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# Intelligent transport systems — Using web services (machine-machine delivery) for ITS service delivery —

# Part 3: Quality of service

## 1 Scope

This document aims to promote ITS web services interoperability. Historically, web services interoperability evolved through activities shown in Figure 2. Applying the first two steps properly is the key to interoperability.

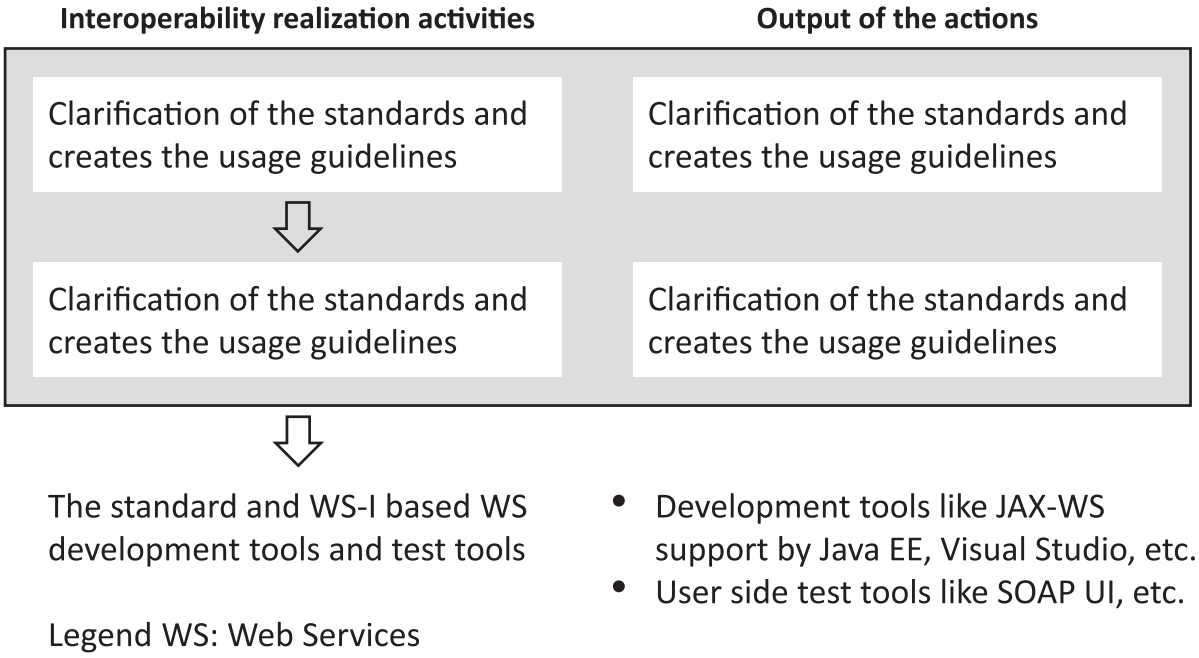


**Figure 2 — Evolution of web services developing circumstances**

This document focuses on the following topics:

— WS-policy language;

— domain specific policy metadata:

  — WS-Aaddressing policy metadata;

  — WS-ReliableMessaging policy metadata;

  — WS-Security Policy metadata;

  — SOAP Message transmission optimization Policy;

  — other policies.

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## 2 Normative references

There are no normative references in this document.

## 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

**3.1**
**claim**
declaration made by an entity

EXAMPLE Name, identity, key, group, privilege, capability.

**3.2**
**claim confirmation**
process of verifying that a claim applies to an entity

**3.3**
**domain**
specific area to which policy applies

EXAMPLE Security or message transmission reliability.

**3.4**
**endpoint**
combination of a binding and a network address

**3.5**
**IDE**
software that provides comprehensive facilities for application (including web services) development

**3.6**
**initiator**
<WS-SecurityPolicy> role sending the initial message in a message exchange

**3.7**
**instance document**
XML document that conforms to a schema

EXAMPLE If the schema is WSDL, the XML document is an WSDL instance document.

**3.8**
**metadata**
data describing an instance of WS behaviour consisting of interface metadata (WSDL description) and QoS metadata

**3.9**
**policy assertion**
<WS-Policy> requirement, capability or other property of a web service

**3.10**
**policy subject**
<WS-Policy>entity with which a policy assertion can be associated

EXAMPLE Endpoint, message, resource, operation.


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**3.11**
**recipient**
<WS-SecurityPolicy> role that processes the initial message in a message exchange

**3.12**
**security binding**
<WS-SecurityPolicy> set of properties that provide enough information to secure a given message exchange

**3.13**
**security binding assertion**
<WS-SecurityPolicy> policy assertion that identifies the type of security binding being used to secure an exchange of messages

**3.14**
**security binding property**
<WS-SecurityPolicy> aspect of securing an exchange of messages

**3.15**
**security token**
**token**
<WS-SecurityPolicy> collection of (one or more) claims

**3.16**
**supporting token**
<WS-SecurityPolicy> security token used to provide additional claims

**3.17**
**token assertion**
<WS-SecurityPolicy> description of a token requirement

Note 1 to entry: Token assertions defined within a security binding are used to satisfy protection requirements.

**3.18**
**web service policy language**
**WS-Policy**
<WS-SecurityPolicy> language that is used to expresses domain specific policy and/or an instance of a web service requirement and policy attachment to relevant WSDL constructs

## 4 Abbreviated terms

| | |
|---|---|
| BP | (WS-I) Basic Profile |
| BPEL | Business Process Execution Language |
| ENISA | European Union Agency for Network and Information Security Agency |
| EPR | End Point Reference |
| HTTP | Hypertext Transfer Protocol |
| JAX-WS | Java API for XML Web Services |
| JSR | Java Service Request |
| IDE | Integrated Development Environment |
| MAP | Message Addressing Property |
| MTOM | SOAP Message Transmission Optimization Mechanism |

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