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Electronic business eXtensible Markup Language (ebXML) —

Part 2: Applicability Statement (AS) profile of ebXML messaging service

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Contents

Foreword vi
Introduction vii
1 Scope 1
2 Normative references 2
3 Terms and definitions 4
4 AS4 conformance profiles for ISO 15000-1:2021 5
4.1 General 5
4.2 The AS4 ebHandler conformance profile 5
4.2.1 General 5
4.2.2 Feature set 5
4.2.3 WS-I conformance profiles 8
4.2.4 Processing mode parameters 8
4.3 The AS4 light client conformance profile 10
4.3.1 General 10
4.3.2 Feature set 11
4.3.3 WS-I conformance requirements 13
4.3.4 Processing mode parameters 13
4.4 The AS4 minimal client conformance profile 15
4.4.1 General 15
4.4.2 Feature set 15
4.4.3 WS-I conformance requirements 16
4.4.4 Processing mode parameters 18
4.5 Conformance profiles compatibility 19
5 AS4 additional features 21
5.1 General 21
5.2 Compression 21
5.3 Reception awareness features and duplicate detection 23
5.4 Alternative pull authorization 24
5.5 Semantics of receipt in AS4 24
5.6 Sub-channels for message pulling 25
5.7 Additional features errors 26
6 Complementary requirements for the AS4 multi-hop profile 27
6.1 General 27
6.2 Rationale and context 27

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6.3 General constraints ... 28
6.4 Processing mode parameter ... 29
6.5 AS4 endpoint requirements ... 29
7 AS4 usage profile of ISO 15000-1 ... 31
7.1 General ... 31
7.2 AS4 usage rules ... 31
7.2.1 Core components / modules to be used ... 31
7.2.2 Bundling rules ... 32
7.2.3 Security element ... 33
7.2.4 Signing messages ... 33
7.2.5 Signing SOAP with attachments messages ... 34
7.2.6 Encrypting messages ... 34
7.2.7 Encrypting SOAP with attachments messages ... 35
7.2.8 Generating receipts ... 35
7.2.9 MIME header and filename information ... 37
7.3 AS4 usage agreements ... 37
7.3.1 General ... 37
7.3.2 AS4 usage agreement parameters ... 37
7.3.3 Controlling content and sending of receipts ... 37
7.3.4 Error handling options ... 38
7.3.5 Securing the pull request ... 39
7.3.6 Reception awareness parameters ... 41
7.3.7 Default values of some P-Mode parameters ... 41
7.3.8 HTTP confidentiality and security ... 42
7.3.9 Deployment and processing requirements for CPAs ... 43
7.3.10 Message payload and flow profile ... 43
7.3.11 Additional deployment or operational requirements ... 44
8 Conformance statements ... 45
8.1 General ... 45
8.2 AS4 ebHandler conformance ... 45
8.3 AS4 light client conformance ... 45
8.4 AS4 minimal client conformance ... 46
8.5 AS4 minimal sender conformance ... 46
8.6 AS2/AS4 ebHandler conformance ... 46
8.7 AS4 multi-hop endpoint conformance ... 46

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Annex A (informative) Sample messages 47
Annex B (informative) Generating an AS4 receipt 52
Bibliography 55

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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 the OASIS ebXML Messaging Services Technical Committee (as “OASIS AS4 Profile of ebMS 3.0 Version 1.0”) and drafted in accordance with its editorial rules. It was assigned to Technical Committee ISO/TC 154, *Processes, data elements and documents in commerce, industry and administration* and adopted under the "fast-track procedure".

A list of all parts in the ISO 15000 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

Historically, the platform for mission-critical business-to-business (B2B) transactions has steadily moved from proprietary value-added networks (VANs) to Internet-based protocols free from the data transfer fees imposed by the VAN operators. This trend has been accelerated by lower costs and product ownership, a maturing of technology, internationalization, widespread interoperability, and marketplace momentum. The exchange of electronic data interchange (EDI) business documents over the Internet has substantially increased along with a growing presence of extensible markup language (XML) and other document types such as binary and text files.

The Internet messaging services standards that have emerged provide a variety of options for end users to consider when deciding which standard to adopt. These include pre-Internet protocols, the EDIINT series of IETF RFC 3355 AS1, IETF RFC 4130 AS2 and IETF RFC 4823 AS3, simple XML over hypertext transport protocol (HTTP), government specific frameworks, OASIS ebXML messaging (ebMS) 2.0, and web services variants. As Internet messaging services standards have matured, new standards are emerging that leverage prior B2B messaging services knowledge for applicability to web services messaging.

The emergence of the OASIS ebMS 3.0 Standard, now ISO 15000-1:2021, represents a leap forward in Web Services B2B messaging services by meeting the challenge of composing many web services standards into a single comprehensive specification for defining the secure and reliable exchange of documents using web services. ISO 15000-1:2021 composes the fundamental web services standards W3C SOAP 1.1, W3C SOAP 1.2, W3C SOAP with Attachments, OASIS WS-Security 1.0 and 1.1, W3C WS-Addressing, and the OASIS reliable messaging standards WS-Reliability 1.1 and WS-ReliableMessaging - currently at version 1.2, together with guidance for the packaging of messages and receipts along with definitions of messaging choreographies for orchestrating document exchanges.

Like AS2, ISO 15000-1:2021 brings together many existing standards that govern the packaging, security, and transport of electronic data under the umbrella of a single specification document. While ISO 15000-1:2021 represents a leap forward in reducing the complexity of web services B2B messaging, the specification still contains numerous options and comprehensive alternatives for addressing a variety of scenarios for exchanging data over a web services platform.

In order to fully take advantage of the AS2 success story, this profile of ISO 15000-1:2021 has been developed. Using ISO 15000-1:2021 as a base, a subset of functionality has been defined along with implementation guidelines adopted based on the “just-enough” design principles and AS2 functional requirements to trim down ISO 15000-1:2021 into a more simplified and AS2-like specification for web services B2B messaging. The main benefits of AS4 compared to AS2 are:

- compatibility with web services standards;
- message pulling capability;
- a built-in receipt mechanism.

AS4 also provides a minimal client conformance profile that supports data exchanges that have lower-end requirements and do not require (the equivalent of) some of the more advanced capabilities of AS2 and ISO 15000-1:2021, such as support for multiple payloads, message receipts and signing or encryption of messages and receipts.

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Profiling ISO 15000-1:2021 means:

- defining a subset of ISO 15000-1:2021 options to be supported by the AS4 handler;
- deciding which types of message exchanges shall be supported, and how these exchanges should be conducted (level of security, binding to HTTP, etc.);
- deciding of AS4-specific message contents and practices (how to make use of the ebMS message header fields, in an AS4 context);
- deciding of some operational best practices, for the end-user.

The overall goal of a profile for a standard is to ensure interoperability by:

- establishing particular usage and practices of the standard within a community of users;
- defining the subset of features in this document that needs to be supported by an implementation.

Two kinds of profiles are usually considered when profiling an existing standard:

1. **Conformance profiles**. These define the different ways a product can conform to a standard, based on specific ways to implement this document. A conformance profile is usually associated with a specific conformance statement. Conformance profiles are of prime interest for product managers and developers: they define a precise subset of features to be supported.
2. **Usage profiles** (also called deployment profiles). These define how a standard should be used by a community of users, in order to ensure best compatibility with business practices and interoperability. Usage profiles are of prime interest for IT end-users: they define how to configure the use of a standard (and related product) as well as how to bind this document to business applications. A usage profile usually points at required or compatible conformance profile(s).

AS4 is defined as a combination of:

- three primary AS4 conformance profiles (see Clause 4) that define three subsets of ISO 15000-1:2021 features, at least one of which is to be supported by an AS4 implementation;
- a set of additional features (see Clause 5);
- an optional complementary conformance profile (see Clause 6) that specifies how to use AS4 endpoints with ISO 15000-1:2021 intermediaries. This is based on a simplified subset of the multi-hop messaging feature defined in the ebMS 3.0 Part 2, Advanced Features specification;
- an AS4 usage profile (see Clause 7) that defines how to use an AS4-compliant implementation in order to achieve similar functions as specified in AS2.

The three primary AS4 conformance profiles (CP) are the following:

(1) The **AS4 ebHandler CP**. This conformance profile supports both sending and receiving roles, and for each role both message pushing and message pulling;

(2) The **AS4 light client CP**. This conformance profile supports both sending and receiving roles, but only message pushing for sending and message pulling for receiving. In other words, it does not support incoming HTTP requests, and may have no fixed IP address.

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(3) The **AS4 minimal client CP**. Like the light client CP, this conformance profile does not support the push transport channel binding for the receiving role and therefore does not require HTTP server capabilities. As its name indicates, this CP omits all but a minimal set of features.

Compatible existing conformance profiles for ISO 15000-1:2021 are the following:

- Gateway RM V3 or Gateway RX V3: a message service handler (MSH) implementing any of these profiles will also be conforming to the AS4 ebHandler CP (the reverse is not true).

Full compliance to AS4 actually requires and/or authorizes a message handler to implement a few additional features beyond these conformance profiles, as described in clause 8. These additional features are described in Clause 5.

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Electronic business eXtensible Markup Language (ebXML) —

Part 2:
Applicability Statement (AS) profile of ebXML messaging service

1 Scope

This document describes the AS4 Profile, which provides a subset of the functionality of ISO 15000-1:2021, along with implementation guidelines based on the "just-enough" design principles and electronic data interchange functional requirements to trim down ISO 15000-1:2021 into a more simplified specification for web services business-to-business messaging.

It specifies:

- three conformance profiles of ISO 15000-1:2021 (see Clause 4);
- a number of AS4 additional features (see Clause 5);
- complementary requirements for the AS4 multi-hop profile (see Clause 6);
- AS4 usage profile of ISO 15000-1:2021 (see Clause 7);
- definitions of conformance (see Clause 8).

Annex A provides some sample messages to support implementation.

Annex B provides a sample XSLT stylesheet to generate an AS4 receipt.

This document is applicable to all types of organizations (e.g., commercial enterprises, government agencies, not-for-profit organizations) that exchange documents or data electronically using messaging.

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2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 15000-1:2021 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/

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