



# Simple SOAP Binding Profile Version 1.0

## Working Group Draft

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## Abstract

This document defines the WS-I Simple SOAP Binding Profile 1.0, consisting of a set of non-proprietary Web services specifications, along with clarifications and amendments to those specifications which promote interoperability.

## Status of this Document

This document is a Working Group Draft; it has been accepted by the Working Group as reflecting the current state of discussions. It is a work in progress, and should not be considered authoritative or final; other documents may supersede this document.

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## 1. Introduction

This document defines the WS-I Simple SOAP Binding Profile 1.0 (hereafter, "Profile"), consisting of a set of non-proprietary Web services specifications, along with clarifications to and amplifications of those specifications which promote interoperability.

Section 1 introduces the Profile, and explains its relationships to other profiles.

Section 2, "Profile Conformance," explains what it means to be conformant to the Profile.

Each subsequent section addresses a component of the Profile, and consists of two parts; an overview detailing the component specifications and their extensibility points, followed by subsections that address individual parts of the component specifications. Note that there is no relationship between the section numbers in this document and those in the referenced specifications.

### 1.1 Relationships to Other Profiles

This Profile is derived from those Basic Profile 1.0 requirements related to the serialization of the envelope and its representation in the message, incorporating any errata to date. These requirements have been factored out of the Basic Profile 1.1 to enable other Profiles to be composable with it.

A combined claim of conformance to both the Basic Profile 1.1 and the Simple SOAP Binding Profile 1.0 should be equivalent to a claim of conformance to the Basic Profile 1.0.

### 1.2 Notational Conventions

The keywords "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in RFC2119.

Normative statements in the Profile (i.e., those impacting conformance, as outlined in "Profile Conformance") are presented in the following manner:

**Rnnnn** *Statement text here.*

where "nnnn" is replaced by the statement number. Each statement contains exactly one requirement level keyword (e.g., "MUST") and one conformance target keyword (e.g., "MESSAGE").

Some statements clarify the referenced specification(s), but do not place additional constraints upon implementations. For convenience, clarifications are annotated in the following manner: **c**

Some statements are derived from ongoing standardization work on the referenced specification(s). For convenience, such forward-derived statements are annotated in the following manner: **xxxx**, where "xxxx" is an identifier for the specification (e.g., "SOAP12" for SOAP Version 1.2). Note that because such work is not complete, the specification that the requirement is derived from may change; this information is included only as a convenience to implementers.

This specification uses a number of namespace prefixes throughout; their associated URIs are listed below. Note that the choice of any namespace prefix is arbitrary and not semantically significant.

- **soap** - "http://schemas.xmlsoap.org/soap/envelope/"
- **xsi** - "http://www.w3.org/2001/XMLSchema-instance"
- **xsd** - "http://www.w3.org/2001/XMLSchema"
- **soapenc** - "http://schemas.xmlsoap.org/soap/encoding/"
- **wSDL** - "http://schemas.xmlsoap.org/wSDL/"
- **soapbind** - "http://schemas.xmlsoap.org/wSDL/soap/"

## 2. Profile Conformance

**Editors' note:** Conformance Section TBD

## 3. Messaging

This section of the Profile incorporates the following specifications by reference, and defines extensibility points within them;

- [Simple Object Access Protocol \(SOAP\) 1.1](#)
- [Extensible Markup Language \(XML\) 1.0 \(Second Edition\)](#)
- [RFC2616: Hypertext Transfer Protocol -- HTTP/1.1](#)

## 3.1 Message Serialization

SOAP 1.1 defines an XML structure for transmitting messages, the envelope. The Profile mandates the use of that structure, and places the following constraints on its use:

### 3.1.1 XML Envelope Serialization

**R9700** A MESSAGE MUST serialize the envelope as the exclusive payload of the HTTP entity-body.

**R9701** A MESSAGE MUST serialize the envelope as XML 1.0.

**R9702** A MESSAGE MUST have a "Content-Type" HTTP header field.

**R9703** A MESSAGE's "Content-Type" HTTP header field MUST have a field-value whose media type is "text/xml".

### 3.1.2 Unicode BOMs

XML 1.0 allows UTF-8 encoding to include a BOM; therefore, receivers of envelopes must be prepared to accept them. The BOM is mandatory for XML encoded as UTF-16.

**R4001** A RECEIVER MUST accept envelopes that include the Unicode Byte Order Mark (BOM). c

### 3.1.3 XML Declarations

Presence or absence of an XML declaration does not affect interoperability. Certain implementations might always precede their XML serialization with the XML declaration.

**R1010** A RECEIVER MUST accept messages with envelopes that contain an XML Declaration. c

### 3.1.4 Character Encodings

The Profile requires XML processors to support the "UTF-8" and "UTF-16" character encodings, in order to aid interoperability.

As a consequence of this, in conjunction with SOAP 1.1's requirement to use the "text/xml" media type (which has a default character encoding of "us-ascii") on envelopes, the "charset" parameter must always be present on the envelope's content-type. A further consequence of this is that the encoding pseudo-attribute of XML declaration within the message is always ignored, in accordance with the requirements of both XML 1.0 and RFC3023, "XML Media Types".

**R1012** A MESSAGE MUST serialize the envelope using either UTF-8 or UTF-16 character encoding.

**R1018** A MESSAGE's "Content-Type" HTTP header field-value MUST indicate the correct character encoding, using the "charset" parameter. [c](#)

## 3.2 HTTP Behaviors

### 3.2.1 HTTP Client Error Status Codes

HTTP uses the 4xx series of status codes to indicate failure due to a client error. Although there are a number of situations that may result in one of these codes, the Profile highlights those when the payload of the HTTP request does not have the proper media type ("text/xml", as required by the SOAP/HTTP binding), and when the anticipated method ("POST") is not used.

**R1113** An INSTANCE SHOULD use a "400 Bad Request" HTTP status code, if a HTTP request message is malformed, or if an envelope is not well-formed XML 1.0.

**R1115** An INSTANCE SHOULD use a "415 Unsupported Media Type" HTTP status code if a HTTP request message's Content-Type header field-value has media type that is not "text/xml".

Note that these requirements do not force an instance to respond to requests. In some cases, such as Denial of Service attacks, an instance may choose to ignore requests.

## 4. Description

### 4.1 Bindings

#### 4.1.1 SOAP Binding Extensions

The Profile limits the choice of WSDL bindings to the well defined and most commonly used WSDL SOAP binding. WSDL 1.1 defined binding extensions for HTTP GET/POST and MIME, or any other attachments technology, are not permitted by the Profile.

**R2401** A `wSDL:binding` element in a DESCRIPTION MUST only use the WSDL SOAP Binding as defined in WSDL 1.1 Section 3.

**R9800** *In a DESCRIPTION WSDL binding extension elements and attributes which cause messages on the wire to be non-conformant to the Profile MUST NOT be used.*[c](#)

**R9801** *In a DESCRIPTION the WSDL MIME and HTTP GET/POST and DIME binding extensions MUST NOT appear in the SOAP binding.*[c](#)

Note that this places a requirement on the construction of conformant `wSDL:binding` elements. It does not place a requirement on descriptions as a whole; in particular, it does not preclude WSDL documents from containing non-conformant `wSDL:binding` elements.

## Appendix I: Referenced Specifications

The following specifications' requirements are incorporated into the Profile by reference, except where superseded by the Profile:

- [Simple Object Access Protocol \(SOAP\) 1.1](#)
- [Extensible Markup Language \(XML\) 1.0 \(Second Edition\)](#)
- [RFC2616: Hypertext Transfer Protocol -- HTTP/1.1](#)

## Appendix II: Extensibility Points

This section identifies extensibility points, as defined in "Scope of the Profile," for the Profile's component specifications.

These mechanisms are out of the scope of the Profile; their use may affect interoperability, and may require private agreement between the parties to a Web service.

## Appendix III: Acknowledgements

This Profile is the work of the WS-I Simple SOAP Binding Profile Working Group, whose members have included:

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