Web Services Standards

Interoperability Issues

Basic Profile
1.1 · WS-I
Final Specification

▲ **Basic Profile** – The Basic Profile provides implementation guidelines for how related set of non-proprietary Web Service specifications should be used together for best interoperability.

Attachments Profile
1.0 · WS-I
Final Specification

▲ **Attachments Profile** – The Attachment Profile 1.0 complements the Basic Profile 1.1 to add support for interoperable SOAP Messages with attachments-based Web Services.

Simple SOAP Binding Profile
1.0 · WS-I
Final Specification

▲ **Simple SOAP Binding Profile** – The Simple SOAP Binding Profile consists of those Basic Profile 1.0 requirements related to the serialization of the envelope and its representation in the message.

Basic Security Profile
WS-I
Working Group Draft

▲ **Basic Security Profile** provides guidance on the use of WS-Security and the User Name and X.509 security token formats.

REL Token Profile
WS-I
Working Group Draft

▲ **REL Token Profile** is the interoperability profile for the Rights Expression Language (REL) security token that is used with WS-Security.

SAML Token Profile
WS-I
Working Group Draft

▲ **SAML Token Profile** is the interoperability profile for the SAML security token that is used with WS-Security.

Conformance Claim Attachment Mechanism (CCAM)
1.0 · WS-I
Final Specification

▲ **Conformance Claim Attachment Mechanism (CCAM)** defines mechanisms that can be used to attach conformance claims to Web services artifacts.

Reliable Asynchronous Messaging Profile (RAMP)
1.0
IBM, Ford Motor Company

▲ **Reliable Asynchronous Messaging Profile (RAMP)** is a profile that enables, among other things, basic B2B integration scenarios using Web services technologies.

Business Process Specifications

Business Process Execution Language for Web Services
(BPEL4WS) · 1.1 · BEA Systems, IBM, Microsoft, SAP, Siebel Systems · OASIS-Standard

▶ **Business Process Execution Language for Web Services** (BPEL4WS) provides a language for the formal specification of business processes and business interaction protocols using Web Services.

Business Process Management Language
(BPML) · 1.0 · BPMI.org
Final Draft

▶ **Business Process Management Language** (BPML) provides a meta-language for expressing business processes and supporting entities.

WS-Choreography Model Overview
1.0 · W3C
Working Draft

▶ **WS-Choreography Model Overview** defines the format and structure of the (SOAP) messages that are exchanged, and the sequence and conditions in which the messages are exchanged.

Web Service Choreography Description Language
(CDL4WS) · 1.0 · W3C
Working Draft

▶ **Web Service Choreography Description Language** (CDL4WS) is to specify a declarative, XML based language that defines from a global viewpoint the common and complementary observable behaviour, where message exchanges occur, and when the jointly agreed ordering rules are satisfied.

Web Service Choreography Interface
(WSCI) · 1.0 · W3C
Sun Microsystems, SAP, BEA
Systems and Intalio · Note

▶ **Web Service Choreography Interface** (WSCI) describes how Web Service operations can be choreographed in the context of a message exchange in which the Web Service participates.

Management Specifications

Web Services Management Foundation
(WSMF-Foundation) · 2.0
Hewlett-Packard · Working Draft

▶ **Web Services Management Foundation** defines standard management interfaces for manageable resources as Web service operations, it describes how a manageable resource is discovered, how its management capabilities are described, how it is associated with other resources, and how to extend interfaces to address the management capabilities of resources in specific domains.

WS-Management
AMD, Dell, Intel, Microsoft and Sun Microsystems
Published Specification

▶ **WS-Management** describes a general SOAP-based protocol for managing systems such as PCs, servers, devices, Web services and other applications, and other manageable entities.

WS-Events
2.0 · Hewlett-Packard
Working Draft

▶ **WS-Events** defines the Web Services based event notification mechanism. This mechanism is used by WSMF-Foundation.

Management Using Web Services
(MUWS) · 1.0 · OASIS
OASIS-Standard

▶ **Management Using Web Services** (MUWS) defines how an IT resource connected to a network provides manageability interfaces such that the IT resource can be managed locally and from remote locations using Web services technologies.

Web Services Management
(WSMF-WSM) · 2.0
Hewlett-Packard
Working Draft

▶ **Web Services Management** (WSMF-WSM) is an application of the WSMF-Foundation specification for the management of Web Services.

Management Of Web Services
(MOWS) · 1.0 · OASIS
Committee Draft

▶ **Management Of Web Services** (MOWS) – The specification addresses management of the components that form the network, the Web Services endpoints, using Web Services protocols.

Metadata Specifications

WS-Policy
BEA Systems, IBM, Microsoft, SAP, Sonic Software and VeriSign
Public Draft

▶ **WS-Policy** describes the capabilities and constraints of the policies on intermediaries and endpoints (e.g. business rules, required security tokens, supported encryption algorithms, privacy rules).

WS-PolicyAssertions
BEA Systems, IBM, Microsoft, SAP
Public Draft

▶ **WS-PolicyAssertions** provides an initial set of assertions to address some common needs of Web Services applications.

WS-PolicyAttachment
BEA Systems, IBM, Microsoft, SAP, Sonic Software and VeriSign
Released Draft

▶ **WS-PolicyAttachment** defines two general-purpose mechanisms for associating policies with the subjects to which they apply; the policies may be defined as part of existing metadata about the subject or the policies may be defined independently and associated through an external binding to the subject.

WS-Discovery
Microsoft, BEA Systems, Canon, Intel and webMethods
Draft

▶ **WS-Discovery** defines a multicast discovery protocol for dynamic discovery of services on ad-hoc and managed networks.

WS-MetadataExchange
BEA Systems, Computer Associates, IBM, Microsoft, SAP, Sun Microsystems, and webMethods
Public Draft

▶ **WS-MetadataExchange** enables a service to provide metadata to others through a Web services interface. Given only a reference to a Web service, an user can access a set of WSDL/SOAP operations to retrieve the metadata that describes the service.

Universal Description, Discovery and Integration
(UDDI) · v2 OASIS-Standard
Technical Committe

▶ **Universal Description, Discovery and Integration** is the definition of a set of services supporting the description and discovery of businesses, organizations, and other Web services providers, the Web services they make available, and the technical interfaces which may be used to access those services.

Web Service Description Language
WSDL · 2.0
W3C
Working Draft

Web Service Description Language (WSDL) is an XML-based language for describing Web services and how to access them. It specifies the location of the service and the operations (or methods) the service exposes.

Web Service Description Language
WSDL · 1.1
W3C
Note

Reliability Specifications

WS-ReliableMessaging
BEA Systems, IBM, Microsoft, and Tibco
Draft

▶ **WS-ReliableMessaging** describes a protocol that allows Web Services to communicate reliably in the presence of software component, system, or network failures. It defines a SOAP binding that is required for interoperability.

WS-Reliability
1.1
OASIS
OASIS-Standard

▶ **WS-Reliability** defines a SOAP-based protocol for exchanging SOAP messages with guaranteed delivery, no duplicates, and guaranteed message ordering. WS-Reliability is defined as SOAP header extensions and is independent of the underlying protocol.

Security Specifications

WS-Security
1.0
OASIS

▲ **WS-Security** describes enhancements to SOAP messaging to provide quality of protection through message integrity, message confidentiality, and single message authentication.

WS-Security: Username Token Profile
1.0 · OASIS
OASIS-Standard

▲ **WS-Security: Username Token Profile** describes how a Web Service consumer can supply a UsernameToken as a means of identifying the requestor by "username", and optionally using a password (or shared secret, etc.) to authenticate that identity to the Web Service producer.

WS-Security: SOAP Message Security
1.0
OASIS
OASIS-Standard

▲ **WS-Security: SOAP Message Security** describes enhancements to SOAP messaging to provide message integrity and confidentiality. Specifically, this specification provides support for multiple security token formats, trust domains, signature formats, and encryption technologies. The token formats and semantics for using these are defined in the associated profile documents.

WS-SecurityPolicy
1.0
IBM, Microsoft, RSA Security, VeriSign
Public Draft

▲ **WS-SecurityPolicy** defines how to describe policies related to various features defined in the WS-Security specification.

WS-Security: Kerberos Binding
1.0
OASIS
Working Draft

▲ **WS-Security: Kerberos Binding** defines how to encode Kerberos tickets and attach them to SOAP messages. As well, it specifies how to add signatures and encryption to the SOAP message, in accordance with WS-Security, which uses and references the Kerberos tokens.

WS-Trust
1.1 · BEA Systems, Computer Associates, IBM, Layer 7 Technologies, Microsoft, Netegrity, Oblix, OpenNetwork, Ping Identity Corporation, Reactivity, RSA Security, VeriSign and Westbridge Technology · Initial Draft

▲ **WS-Trust** describes a framework for trust models that enables Web Services to securely interoperate. It uses WS-Security base mechanisms and defines additional primitives and extensions for security token exchange to enable the issuance and dissemination of credentials within different trust domains.

WS-Security: SAML Token Profile
1.0
OASIS
OASIS-Standard

▲ **WS-Security: SAML Token Profile** defines the use of Security Assertion Markup Language (SAML) v1.1 assertions in the context of WSS: SOAP Message Security including for the purpose of securing SOAP messages and SOAP message exchanges.

WS-Federation
1.0
IBM, Microsoft, BEASystems, RSA Security, VeriSign · Initial Draft

▲ **WS-Federation** describes how to manage and broker the trust relationships in a heterogeneous federated environment including support for federated identities.

WS-Security: X.509 Certificate Token Profile
1.0 · OASIS
OASIS-Standard

▲ **WS-Security: X.509 Certificate Token Profile** describes the use of the X.509 authentication framework with the WS-Security: SOAP Message Security specification.

WS-SecureConversation
1.1 · BEA Systems, Computer Associates, IBM, Layer 7 Technologies, Microsoft, Netegrity, Oblix, OpenNetwork, Ping Identity Corporation, Reactivity, RSA Security, VeriSign and Westbridge Technology
Public Draft

▲ **WS-SecureConversation** specifies how to manage and authenticate message exchanges between parties including security context establishment and deriving session keys.

Transaction Specifications

WS-Business Activity
Microsoft, BEA Systems, IBM
Published

▶ **WS-Business Activity** defines protocols that enable existing business process and work flow systems to wrap their proprietary mechanisms and interoperate across trust boundaries and different vendor implementations.

WS-Atomic Transaction
Microsoft, BEA Systems, IBM
Published

▶ **WS-Atomic Transaction** defines protocols that enable existing transaction processing systems to leverage Web Services, in a manner that is specific to the particular transaction-processing. WS-AtomicTransaction is useful in environments where activities are short in duration and infrastructure services and where resources are locked as a result. This specification provides the definition of the atomic transaction coordination type that is used with the extensible coordination framework described in WS-Coordination. The specification defines three specific agreement coordination protocols for the atomic transaction coordination type: completion, volatile two-phase commit, and durable two-phase commit.

WS-Coordination
Microsoft, BEA Systems, IBM
Published

▶ **WS-Coordination** describes an extensible framework for providing protocols that coordinate the actions of distributed applications.

WS-Composite Application Framework
(WS-CAF) · 1.0
Arjuna Technologies, Fujitsu, IONA, Oracle and Sun Microsystems
Committee Draft

▶ **WS-Composite Application Framework** (WS-CAF) is a collection of three specifications aimed at solving problems that arise when multiple Web Services are used in combination. It proposes standard, interoperable mechanisms for managing shared context and ensuring business processes achieve predictable results and recovery from failure.

WS-Context
(WS-CTX) · 1.0
Committee Draft

▶ **WS-Context** (WS-CTX) is intended as a lightweight mechanism for allowing multiple Web Services to share a common context.

WS-Coordination Framework
(WS-CF) · 1.0 · OASIS
Committee Draft

▶ **WS-Coordination Framework** (WS-CF) allows the management and coordination in a Web Services interaction of a number of activities related to an overall application.

WS-Transaction Management
(WS-TXM) · 1.0 · OASIS
Committee Draft

▶ **WS-Transaction Management** (WS-TXM) defines a core infrastructure service consisting of a Transaction Service for Web Services.

Resource Specifications

Web Services Resource Framework
(WSRF)
OASIS

▶ **Web Services Resource Framework** (WSRF) defines a family of specifications for accessing stateful resources using Web services.

WS-BaseFaults
1.2
OASIS
Working Draft

▶ **WS-BaseFaults** (WSRF) defines a base set of information that may appear in fault messages. WS-BaseFaults defines an XML schema type for base faults, along with rules for how this base fault type is used and extended by Web services.

WS-ServiceGroup
(WSRF)
1.2
OASIS
Working Draft

▶ **WS-ServiceGroup** (WSRF) defines a means by which Web Services and WS-Resources can be aggregated or grouped together for a domain specific purpose.

WS-ResourceProperties
1.2
OASIS
Working Draft

▶ **WS-ResourceProperties** specifies the means by which the definition of the properties of a WS-Resource may be declared as part of the Web Service interface. The declaration of the WS-Resource's properties represents a projection of or a view on the WS-Resource's state.

WS-ResourceLifetime
1.2
OASIS
Working Draft

▶ **WS-ResourceLifetime** standardizes the terminology, concepts, message exchanges, WSDL and XML needed to monitor the lifetime of, and destroy WS-Resources. Additionally, it defines resource properties that may be used to inspect and monitor the lifetime of a WS-Resource.

WS-Transfer
BEA Systems, Computer Associates, Microsoft, Sonic Software and Systinet
Working Draft

▶ **WS-Transfer** describes a general SOAP-based protocol for accessing XML representations of Web service-based resources.

Resource Representation SOAP Header Block (RRSHB)
W3C
Recommendation

▶ **Resource Representation SOAP Header Block (RRSHB)** allows SOAP message recipients to access cached representations of resources.

Messaging Specifications

WS-Notification
1.2
OASIS
Working Draft

▶ **WS-Notification** is a family of related white papers and specifications that define a standard Web services approach to notification using a topic-based publish/subscribe pattern.

WS-Eventing
BEA Systems, Computer Associates, IBM, Microsoft, Sun Microsystems and TIBCO Software
Public Draft

▶ **WS-Eventing** defines a baseline set of operations that allow Web services to provide asynchronous notifications to interested parties.

WS-Topics
1.2
OASIS
Working Draft

▶ **WS-Topics** defines three topic expression dialects that can be used as subscription expressions in subscribe request messages and other parts of the WS-Notification system.

WS-BrokeredNotification
1.2
OASIS
Public Review Draft

▶ **WS-BrokeredNotification** defines the interface for the NotificationBroker. A NotificationBroker is an intermediary, which, among other things, allows publication of messages from entities that are not themselves service providers.

SOAP
1.2
W3C
Recommendation

SOAP Message Transmission Optimization Mechanism
1.0 · W3C

▶ **SOAP Message Transmission Optimization Mechanism** describes an abstract feature for optimizing the transmission and/or wire format of a SOAP message.

WS-Addressing
1.0
W3C
Candidate Recommendation

▶ **WS-Addressing** provides transport-neutral mechanisms to address Web services and messages. This specification defines XML elements to identify Web Service endpoints and to secure end-to-end endpoint identification in messages.

WS-BaseNotification
1.2
OASIS
Public Review Draft

▶ **WS-BaseNotification** standardizes the terminology, concepts, operations, WSDL and XML needed to express the basic roles involved in Web services publish and subscribe for notification message exchange.

WS-Enumeration
BEA Systems, Computer Associates, Microsoft, Sonic Software and Systinet
Public Draft

▶ **WS-Enumeration** describes a general SOAP-based protocol for enumerating a sequence of XML elements that is suitable for traversing logs, message queues, or other linear information models.

SOAP
1.1
W3C
Note

▶ **SOAP** is a lightweight, xml-based protocol for exchange of information in a decentralized, distributed environment.

XML Specifications

XML
1.1
W3C
Recommendation

▶ **XML** – Extensible Markup Language (XML) was created in October 1994 to lead the World Wide Web to its full potential by developing common protocols that promote its evolution and ensure its interoperability. W3C is designing the infrastructure, and defining the architecture and the core technologies for Web services. In January 2002, the Web Services Activity was launched, subsuming the XML Protocol Activity and extending its scope.

XML
1.0
W3C
Recommendation

Namespaces in XML
1.0
W3C
Recommendation

▶ **Namespaces in XML** provide a simple method for qualifying element and attribute names used in XML documents by associating them with namespaces identified by IRI references.

XML Information Set
1.1
W3C
Recommendation

▶ **XML Information Set** is an abstract data set to provide a consistent set of definitions for use in other specifications that need to refer to the information in a well-formed XML document.

XML Information Set
1.0
W3C
Recommendation

XML Schema
1.0
W3C
Recommendation

▶ **XML Schema** – XML Schema Definition Language is an XML language for describing and constraining the content of XML documents.

XML-binary Optimized Packaging (XOP)
1.0
W3C
Recommendation

▶ **XML-binary Optimized Packaging (XOP)** is a standard method for optimizing for including binary data, as in, along with an XML document in a package. As a result, applications need less space to store the data and less bandwidth to transmit it.

Dependencies

Messaging Specifications
WS-Notification, WS-BaseNotification, WS-Topics, WS-BrokeredNotification, WS-Adressing, WS-Eventing, WS-Enumeration

Metadata Specifications
WS-Policy, WS-PolicyAssertions, WS-PolicyAttachment, WS-Discovery, WS-MetadataExchange, Universal Description, Discovery and Integration, Web Service Description Language

Security Specifications
WS-Security: SOAP Message Security, WS-Security: Kerberos Binding, WS-Security: SAML Token Profile, WS-Security: X.509 Certificate Token Profile, WS-Security: Username Token Profile, WS-SecurityPolicy, WS-Trust, WS-Federation, WS-SecureConversation

Reliability Specifications
WS-ReliableMessaging, WS-Reliability

Resource Specifications
Web Service Resource Framework, WS-BaseFaults, WS-ServiceGroup, WS-ResourceProperties, WS-ResourceLifetime, WS-Transfer, Resource Representation SOAP Header Block (RRSHB)

Management Specifications
WS-Management, Management of Web Services, Management Using Web Services, WS-Events, Web Services Management, Web Services Management Foundation

Business Process Specifications
Business Process Execution Language for Web Services, Web Service Choreography Description Language, Web Service Choreography Interface, WS-Choreography Model Overview, Business Process Management Language

Transaction Specifications
WS-Business Activity, WS-Atomic Transaction, WS-Coordination, WS-Composite Application Framework, WS-Transaction Management, WS-Context, WS-Coordination Framework