

ENSURING SECURE AND INTEROPERABLE WEB SERVICES

The fulfillment of Web services' business promise depends on the secure interoperability of deployed Web services. To that end, the Web Services Interoperability Organization (WS-I) has produced the Basic Security Profile, supporting tools and materials to assist developers in creating secure Web services that interoperate. A WS-I profile is a set of implementation guidelines to ensure the interoperability of Web services created according to a designated set of specifications and standards.

Basic Security Profile 1.0

The Basic Security Profile is an interoperability profile that addresses transport security, SOAP messaging security and other security considerations. It is intended to compose with other WS-I profiles, such as the WS-I Basic Profile. The Basic Security Profile references existing specifications and standards, including the OASIS Web Services Security: SOAP Message Security 1.0 specification, and provides clarifications and guidance designed to promote interoperability of Web services created according to those specifications.

The Basic Security Profile focuses on the interoperability characteristics of two main technologies: HTTP over TLS and Web Services Security: SOAP Message Security. HTTP over TLS is a point-to-point technology that protects the confidentiality of all information that flows over an HTTP connection. Web Services Security: SOAP Message Security provides security protection for SOAP messages that applies even when a message passes through several intermediate waypoints, allowing differing levels of protection for selected portions of a message. The Basic Security Profile also describes a way to apply OASIS Web Services Security: SOAP Message Security to SOAP attachments that conform to the WS-I Attachments Profile 1.0.

The Basic Security Profile incorporates several token profiles, including Web Services Security: Username Token Profile 1.0, Web Services Security: X.509 Token Profile 1.0, Web Services Security: REL Token Profile 1.0, Web Services Security: Kerberos Token Profile 1.1, Web Services Security: SAML Token Profile 1.0 and Web Services Security: SOAP Messages with Attachments Profile 1.1.

Profiled Specifications

With the intent to promote interoperability, the Basic Security Profile provides constraints and clarifications to the following Web services security specifications and standards:

- HTTP over TLS
- Internet X.509 Public Key Infrastructure Certificate and CRL Profile



WEB SERVICES
INTEROPERABILITY
ORGANIZATION

FOR MORE INFORMATION

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- SSL Protocol Version 3.0
- TLS Protocol Version 1.0
- Web Services Security: SOAP Message Security 1.0
- Web Services Security: REL Token Profile 1.0
- Web Services Security: SAML Token Profile 1.0
- Web Services Security: SOAP Messages with Attachments (SwA) Profile 1.1
- Web Services Security: Kerberos Token Profile 1.1
- Web Services Security: Username Token Profile
- Web Services Security: X.509 Token Profile 1.0
- XML Encryption Syntax and Processing
- XML Signature Syntax and Processing

Security Scenarios

To further aid developers, WS-I has published a document entitled "Security Challenges, Threats and Countermeasures," <http://www.ws-i.org/Profiles/BasicSecurity/SecurityChallenges-1.0-errata-2006-08-14.html>, which addresses security concerns particular to interoperable Web services and provides illustrative usage scenarios and solutions. Topics covered include:

- Challenges, describing representative security challenges, including ensuring data integrity, data confidentiality and message uniqueness;
- Threats, outlining 10 threats posed by these challenges, such as message alteration, falsified messages, message replay and denial of service attacks;
- Countermeasures, recommending how technologies like HTTPS and OASIS Web Services Security: SOAP Message Security can be used to counter some of these threats; and
- Usage Scenarios and Solutions, describing how these technologies can be used with the Message Exchange Patterns (MEPs) that have been used in WS-I deliverables, such as the WS-I Sample Application for the Basic Profile 1.0 and the Interoperability Demonstration for Basic Security Profile 1.0. During the interoperability demonstration, WS-I Basic Secure Profile 1.0 (BSP1.0) achieves interoperability for WS-Security 1.0 and the supporting WS-Security Token profiles. The demonstration also shows how BSP1.0 composes with the WS-I Basic Profile 1.1 (SOAP, WSDL, UDDI) when developing and deploying secure Web services.

About WS-I

WS-I (www.ws-i.org) is an open industry organization chartered to establish Best Practices for Web services interoperability, for selected groups of Web services standards, across platforms, operating systems and programming languages.

WS-I comprises a diverse community of Web services leaders from a wide range of companies and standards development organizations (SDOs). WS-I committees and working groups create Profiles and supporting Testing Tools based on Best Practices for selected sets of Web services standards. The Profiles and Testing Tools are available for use by the Web Services community to aid in developing and deploying interoperable Web services.