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Web Services Service Interaction Profile

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As a part of Global's effort to support information sharing activities that span jurisdictional boundaries within and outside of criminal justice, the Justice Reference Architecture (JRA) has been rebranded to the Global Reference Architecture (GRA). This change will not introduce any significant technical modifications to the architecture but is rather intended to provide a more inclusive, service-oriented model that will meet the broader needs of justice, public safety, homeland security, health and human services, and additional stakeholders. The GRA, therefore, is designed to be an information sharing architecture that will meet the needs of government at all levels and fulfill the need for improved collaboration across communities.

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Although this document is the product of Global and its GISWG membership, it was primarily adapted from the technical reference architecture developed by the State of Washington, and sincere appreciation is expressed to Mr. Scott Came, State of Washington and SEARCH, The National Consortium for Justice Information and Statistics, for his guidance and leadership. In addition, parts of the architecture were derived from the Organization for the Advancement of Structured Information Standards (OASIS) Reference Model for Service-Oriented Architecture (SOA-RM) 1.0. Other major contributors deserving of recognition include the OASIS Court Filing Technical Committee, OASIS SOA Reference Model Technical Committee, Messaging Focus Group, and GISWG Service Implementation Committee.

For more information about the Global efforts, including the Global Reference Architecture initiative and corresponding deliverables, please refer to the Global Web site, http://it.ojp.gov/globaljra, for official announcements.

Document Conventions

In this document, use of a bold small-caps typeface, as in this **EXAMPLE**, indicates an important concept or a term defined either in the glossary or in the body of the text at the point where the term or concept is first used.

In this document, use of a bold caps typeface, as in this **[EXAMPLE]**, indicates an important resource document noted in the Reference Section of this document.

1. Introduction and Purpose

The purpose of this document is to establish a Web services service interaction profile (WS SIP) based on the Web services (WS) family of technology standards.

A **SERVICE INTERACTION PROFILE** (SIP) is a concept identified in the Global Reference Architecture **[GRA]**. This concept defines an approach to meeting the basic requirements necessary for interaction between **SERVICE CONSUMERS** and **SERVICES**. The approach utilizes a cohesive or natural grouping of technologies, standards, or techniques in meeting those basic interaction requirements. A profile establishes a basis for interoperability between service consumer systems and services that agree to utilize that profile for interaction.

A service interaction profile guides the definition of **SERVICE INTERFACES**. In an SOA environment, every service interface shared between two or more information systems should conform to exactly one service interaction profile. Service consumers that interact with an interface should likewise conform to that interface's profile.

The Web Services Service Interaction Profile discussed in this document is based on the Web services family of technology standards, defined as follows:

- The Web Services Interoperability (WS-I) Organization Basic Profile ([**WS-I BP**]), Version 1.1, and all standards that it references (dated April 10, 2006).
- The WS-I Attachments Profile ([**WS-I AP**]), Version 1.0, and all standards that it references.
- The WS-I Basic Security Profile ([**WS-I BSP**]), Version 1.0 (dated March 30, 2007), and all Token Profiles and related standards adopted by reference.
- Other standards explicitly identified in this document developed by the World Wide Web Consortium (W3C) or the Organization for the Advancement of Structured Information Standards (OASIS).
- If no standard is available from WS-I, W3C, or OASIS to meet an identified requirement, then specifications developed by and issued under the copyright of a group of two or more companies will be referenced.

1.1. Profile Selection Guidance

The following table provides guidance on the selection of service interaction profiles.

Select this profile…	If your technology stack for information sharing includes:
Reliable Secure Web Services SIP	SOAP, WS-I, WS-*, SAML 2.0, GFIPM,, WS-I Basic Profile 1.2 and (to the extent practical) the WS-I Reliable Secure Profile 1.0
Web Services SIP	SOAP, WS-I, WS-* and WS-I Basic Profile 1.1
ebXML Messaging SIP **[ebXMLSIP]**	ebXML technologies

1.2. Usage

This document is intended to serve as a guideline for exchanging information among consumer systems and provider systems by satisfying the service interaction requirements identified in the GRA Specification document **[GRA,** p. 29**]**. This profile does not guide interaction between humans and services, even though such interaction is within the scope of the OASIS Reference Model for Service-Oriented Architecture (SOA-RM), Version 1.0. However, in demonstrating satisfaction of the "Identity and Attribute Assertion Transmission" service interaction requirement, this profile defines how a consumer system should send identity and other information about a human to a service.

This document may serve as a reference or starting point for implementers to use in defining their own Web Services Service Interaction Profiles. However, to remain valid and consistent with the GRA, an implementer may only further specify or constrain this profile and may not introduce techniques or mechanisms that conflict with this profile's guidance.

This document assumes that the reader is familiar with the GRA Specification and that the reader interprets this document as a service interaction profile defined in the context of that architecture.

1.3. Namespace References

This document associates the following namespace abbreviations and namespace identifiers:

- xsd: http://www.w3.org/2001/XMLSchema
- wsdl: http://schemas.xmlsoap.org/wsdl/

2. Conformance Requirements

This section describes what it means to "conform to" this service interaction profile.

2.1. Conformance Targets

A conformance target is any element or aspect of an information sharing architecture whose implementation or behavior is constrained by this service interaction profile. This profile places such constraints on concepts to ensure interoperable implementations of those concepts.

This profile identifies the following conformance targets, which are concepts from the **[GRA]**:

- **SERVICE INTERFACE**
- **SERVICE CONSUMER**
- **MESSAGE**

That is, this service interaction profile only addresses, specifies, or constrains these three conformance targets. Other elements of an information sharing architecture are not addressed, specified, or constrained by this profile.

To conform to this service interaction profile, an approach to integrating two or more information systems must:

- Identify and implement all of the conformance targets listed above in a way consistent with their definitions in the **[GRA]**.
- Meet all the requirements for each of the targets established in this service interaction profile.
- Conformance to this Service Interaction Profile does not require a service interface to implement every Service Interaction Requirement identified in this profile. If an interface needs one or more of the listed service interaction requirements, conformance to this profile requires that each requirement be met pursuant to the guidance specified here.

2.2. General Conformance Requirements (Normative)

A service interface conforms to this service interaction profile if:

- The interface's description meets all requirements of the *DESCRIPTION* conformance target in **[WS-I BP]**.

- The interface meets all requirements of the *INSTANCE* and *RECEIVER* conformance targets in **[WS-I BP]**.

A service consumer conforms to this service interaction profile if:

- The consumer meets all requirements of the *CONSUMER* and *SENDER* conformance targets in **[WS-I BP]**.

A **MESSAGE** conforms to this service interaction profile if:

- The message meets all requirements of the *MESSAGE* and *ENVELOPE* conformance targets in **[WS-I BP]**.

- The message conforms to the National Information Exchange Model (**[NIEM]** or other published standard **DOMAIN VOCABULARIES** in which the semantics of the service's information model match components in those vocabularies.

Note: LEXS offers great potential to simplify and standardize the content of the information model of services; as such, designers of MESSAGEs should consider using LEXS as a framework for structuring the information model.

2.3. Implementation Notes and Implications (Non-Normative)

Global intends to monitor progress on the World Wide Web Consortium (W3C) Message Transmission Optimization Mechanism (**[MTOM]**) and XML-Binary Optimized Packaging (**[XOP]**) standards, as well as emerging WS-I Basic Profile versions that reference these standards, to assess these standards' appropriateness for inclusion in this Web Services Service Interaction Profile. Implementers should be aware that not all product and infrastructure vendors are supporting WS-I Attachments Profile because of its reliance on the Multipurpose Internet Mail Extensions (MIME) standard for encoding attachments.

3. Service Interaction Requirements

This service interaction profile assumes that implementers will utilize Network and Transport Layer Security features of their data networks to provide confidentiality and message integrity between two communicating end points (including but not limited to HTTPS, firewalls, and virtual private networks **[VPNs]**).

Web Services Message Layer Security Standards and WS* standards are implemented by embedding XML metadata specific to each WS* standards in the SOAP Message Header blocks. The Service Interaction Requirements listed in this

profile are specific to SOAP messaging and the Application/Service level-specific requirements for reliability, authentication, non-repudiation, authorization, metadata discovery, etc.

Conformance to this Web Services Service Interaction Profile requires that if an approach to integrating two systems has any of the following requirements, each such requirement be implemented as indicated in each section below.

3.1. Service Consumer Authentication

3.1.1. Statement of Requirement From GRA

The GRA requires that each service interaction profile define how information is provided with messages transmitted from service consumer to service to verify the identity of the consumer.

3.1.2. Conformance Targets (Normative)

Conformance with this service interaction profile requires that message(s) sent to the service interface by a service consumer assert the consumer's identity by including a security token that conforms to **[WS-I BSP]**.

If the chosen security token relies on a digital signature, then conformance with this service interaction profile requires that the **EXECUTION CONTEXT** supporting the service interaction include appropriate public key infrastructure (PKI).

3.1.3. Implementation Notes and Implications (Non-Normative)

None.

3.2. Service Consumer Authorization

3.2.1. Statement of Requirement From GRA

The GRA requires that each service interaction profile define how information is provided with messages transmitted from service consumer to service to document or assert the consumer's authorization to perform certain actions on and/or access certain information via the service.

3.2.2. Conformance Targets (Normative)

Conformance with this service interaction profile requires that message(s) sent to the service interface by a service consumer assert the consumer's authorization security token(s) to perform the requested action.

3.2.3. Implementation Notes and Implications (Non-Normative)

3.3. Identity and Attribute Assertion Transmission

None.

3.3.1. Statement of Requirement From GRA

The GRA requires that each service interaction profile define how information is provided with messages transmitted from service consumer to service to assert the validity of information about a human or machine, including its identity.

3.3.2. Conformance Targets (Normative)

Conformance with this Web Services Service Interaction Profile requires that message(s) sent to the service interface by a service consumer assert the consumer's authorization security token(s) to perform the requested action.

3.3.3. Implementation Notes and Implications (Non-Normative)

Implementers are strongly encouraged to use the Global Federated Identity and Privilege Management Metadata Specification ([GFIPM-MS]) version 2.0. GFIPM provides a broad range of user and entity attributes and a structured governance process to provide a level of trust with each assertion. Implementers should reflect on the guidance of the GFIPM specification and its identity and attribute message definitions.

3.4. Service Authentication

To implement GFIPM with Web Services, implementers should use the GRA Reliable Secure Web Services Service Interaction Profile.

3.4.1. Statement of Requirement From GRA

The GRA requires that each service interaction profile define how a service provides information to a consumer that demonstrates the service's identity to the consumer's satisfaction.

3.4.2. Conformance Targets (Normative)

Conformance with this service interaction profile requires that message(s) sent to the service interface by a **SERVICE PROVIDER** assert the provider's identity by including a security token that conforms to **[WS-I BSP]**.

If the chosen security token relies on a digital signature, then conformance with this service interaction profile requires that the execution context supporting the service interaction include appropriate public key infrastructure (PKI).

3.4.3. Implementation Notes and Implications (Non-Normative)

None.

3.5. Message Nonrepudiation

3.5.1. Statement of Requirement From GRA

The GRA requires that each service interaction profile define how information is provided in a message to allow the recipient to prove that a particular authorized sender in fact sent the message.

3.5.2. Conformance Targets (Normative)

Conformance with this Web Services Service Interaction Profile requires that the sender of the message:

- Include a creation timestamp in the manner prescribed in Section 10, "Security Timestamps," of **[WS-SECURITY]**.
- Create a digital signature of the creation timestamp and the part of the message requiring nonrepudiation (which may be the entire message). This signature must conform to the requirements of **[WS-I BSP]** Section 8, "XML-Signature."

Conformance with this service interaction profile requires that the execution context supporting the service interaction include appropriate PKI.

3.5.3. Implementation Notes and Implications (Non-Normative)

By itself, this method does not provide for absolute nonrepudiation. The business parties (e.g., agencies) involved in the service interaction should supplement the technical approach with a written agreement that establishes whether—and under what circumstances—they permit repudiation.

Note that **[WS-SECURITY]** provides an example of this technical approach in Section 11, "Extend Example."

3.6. Message Integrity

3.6.1. Statement of Requirement From GRA

The GRA requires that each service interaction profile define how information is provided in a message to allow the recipient to verify that the message has not changed since it left control of the sender.

3.6.2. Conformance Targets (Normative)

Conformance with this Web Services Service Interaction Profile requires that the sender of the message sign all or part of a message using **[XML SIGNATURE]**. The message must meet all requirements of **[WS-I BSP]** Section 8, "XML-Signature."

Conformance with this service interaction profile requires that the execution context supporting the service interaction include appropriate PKI.

3.6.3. Implementation Notes and Implications (Non-Normative)

None.

3.7. Message Confidentiality

3.7.1. Statement of Requirement From GRA

The GRA requires that each service interaction profile define how information is provided in a message to protect anyone except an authorized recipient from reading the message or parts of the message.

3.7.2. Conformance Targets (Normative)

Conformance with this Web Services Service Interaction Profile requires that the sender of the message encrypt all or part of a message using **[XML ENCRYPTION]** as further specified and constrained in **[WS-I BSP]**. The encryption must result from application of an encryption algorithm approved by **[FIPS 140-2]**.

Confidential elements or sections of a message must meet the requirements associated with ENCRYPTED_DATA in **[WS-I BSP]** Section 9, "XML Encryption."

Conformance with this service interaction profile requires that the execution context supporting the service interaction include appropriate PKI.

3.7.3. Implementation Notes and Implications (Non-Normative)

None.

3.8. Message Addressing

3.8.1. Statement of Requirement From GRA

The GRA requires that each service interaction profile define how information is provided in a message to indicate:

- Where a message originated.

- The ultimate destination of the message beyond physical endpoint.
- A specific recipient to whom the message should be delivered (this includes sophisticated metadata designed specifically to support routing).
- A specific address or entity to which reply messages (if any) should be sent.

3.8.2. Conformance Targets (Normative)

Conformance with this Web Services Service Interaction Profile requires that every message conform to the WS-Addressing 1.0 Core ([WS-ADDRESSING CORE]) and SOAP Binding ([WS-ADDRESSING SOAP BINDING]) specifications, as described in Section 8 of [WS-ADDRESSING SOAP BINDING]. Conformance of messages with the WS-Addressing 1.0 WSDL Binding ([WS-ADDRESSING WSDL BINDING]) is recommended but not required.

If the addressing requirements of a specific interaction are satisfied by the components within the XML namespace defined by the OASIS Emergency Management Technical Committee and whose identifier is urn:oasis:names:tc:emergency:EDXL:DE:1.0 (or later version), then conformance with this service interaction profile requires that:

1. The message include a SOAP header that conforms to [WS-ADDRESSING CORE] and identifies, with an endpoint reference, the logical or physical address of an intermediary service responsible for implementing the addressing requirements; and
2. The endpoint reference include, as a reference property, an XML structure conformant to and valid against the components in the namespace whose identifier is urn:oasis:names:tc:emergency:EDXL:DE:1.0.

In this section, the terms “endpoint reference” and “reference property” are to be interpreted as they are defined in [WS-ADDRESSING CORE].

3.8.3. Implementation Notes and Implications (Non-Normative)

Note that the EDXL Distribution Element is included in the current production release of NIEM, Version 1.0, as an external standard.

3.9. Reliability

3.9.1. Statement of Requirement From GRA

The GRA requires that each service interaction profile define how information is provided with messages to permit message senders to receive notification of the success or failure of message transmissions and to permit messages sent with specific sequence-related rules either to arrive as intended or fail as a group.

3.9.2. Conformance Targets (Normative)

Conformance with this Web Services Service Interaction Profile requires that message(s) contain SOAP headers that conform to the requirements of the OASIS WS-ReliableMessaging standard ([WS-RM]).

Conformance with this service interaction profile requires that the execution context supporting the interaction include components that implement the RM-Source and RM-Destination components defined in the [WS-RM] standard.

3.9.3. Implementation Notes and Implications (Non-Normative)

Global will continue monitoring the emerging WS-I Reliable Secure Profile ([WS-I RSP]) as to appropriateness for inclusion in this Web Services Service Interaction Profile.

3.10. Transaction Support

3.10.1. Statement of Requirement From GRA

The GRA requires that each service interaction profile define how information is provided with messages to permit a sequence of messages to be treated as an atomic transaction by the recipient.

3.10.2. Conformance Targets (Normative)

Conformance with this Web Services Service Interaction Profile requires that the following be true of the consumers, services, and messages involved in the interaction:

- The consumers and services must meet the behavioral requirements of "applications" and "participants" as defined in [WS-COORDINATION], [WS-ATOMIC TRANSACTION], and [WS-BUSINESS ACTIVITY], as appropriate per nature of the transaction requirements.

- Messages must include the appropriate Coordination Context SOAP header to identify the transactional activity, as defined in **[WS-COORDINATION]** and as further specified in **[WS-ATOMIC TRANSACTION]** to support synchronous short-duration transactions or **[WS-BUSINESS ACTIVITY]** to support asynchronous long-running transactions, as appropriate per nature of the transaction requirements.

The description of the service interface for each service involved in the interaction must conform to the policy assertion requirements identified in Section 5 of **[WS-ATOMIC TRANSACTION]** and Section 4 of **[WS-BUSINESS ACTIVITY]**, as appropriate per nature of the transaction requirements.

Conformance with this service interaction profile requires that the execution context supporting the interaction include components that implement the Activation and Registration services defined in **[WS-COORDINATION]**.

3.10.3. Implementation Notes and Implications (Non-Normative)

None.

3.11. Service Metadata Availability

3.11.1. Statement of Requirement From GRA

The GRA requires that each service interaction profile define how the service captures and makes available (via query) metadata about the service. Metadata is information that describes or categorizes the service and often assists consumers in interacting with the service in some way.

3.11.2. Conformance Targets (Normative)

Conformance to this Web Services Service Interaction Profile requires that service interfaces responding to requests for metadata about the interface and underlying service respond to a service consumer's Get Metadata Request message or Get Request message with a Get Metadata Response message or Get Response message, respectively, where these messages conform to the requirements of the WS-Metadata Exchange specification ([WS-METADATA EXCHANGE]).

3.11.3. Implementation Notes and Implications (Non-Normative)

WS-MetadataExchange is part of a group of W3C member submission standards, including WS-Transfer, that are being advanced as W3C standards by the W3C Web Services Resource Access Working Group. Global intends to monitor the progress of the Web Services Resource Access Working Group and consider the completed standards for later inclusion.

3.12. Interface Description Requirements

3.12.1. Statement of Requirement From GRA

This section demonstrates how this profile meets the Service Interaction Requirements identified in the **[GRA]**.

3.12.2. Conformance Targets (Normative)

Section 2.2 above indicates that a service interface conforms to this service interaction profile if its description meets all requirements of the description conformance target in **[WS-I BP]**. **[WS-I BP]** requires an interface's description to consist of a Web Services Description Language (WSDL) document that conforms to **[WSDL 1.1]**.

The WSDL document must include the following child elements of the wsdl:definitions element:

- At least one wsdl:message element for each message involved in the interaction with the service.
- Within the wsdl:portType and wsdl:binding elements, a wsdl:operation element corresponding to each action in the service's behavior model (as defined in the **[GRA]**).

The WSDL document should define types only through importing namespaces defined in external XML Schema. Specifically:

- The WSDL document's wsdl:types element should contain only a single child xsd:schema element.
- The single xsd:schema element should contain only xsd:import elements, each importing a namespace defined in an external schema.
- Each xsd:import element should contain exactly two attributes, namespace and schemaLocation, the value of which are non-null and non-empty.

3.12.3. Implementation Notes and Implications (Non-Normative)

These guidelines regarding definition of types outside a WSDL document are intended to improve reusability of message definitions across service interaction profiles and to separate the concerns of interface definition from message definition.

Note that many of the standards referenced by this profile require use of particular SOAP headers. The WSDL document that describes a service interface must describe these headers in conformance with the guidance of these standards.

4. Message Exchange Patterns

This section discusses how the message exchange patterns identified in the **[GRA]** are supported by this profile.

4.1. One-Way Pattern

This section discusses how the message exchange patterns (MEP) identified in the **[GRA, P. 21]** are supported by this profile.

The One-way message exchange pattern corresponds to a one-way operation as defined in **[WSDL 1.1]**. This service interaction profile supports this pattern by requiring that service consumers and service interfaces conform to **[WS-I BP]**. In particular, Section 4.7.9, "One-Way Operations," of **[WS-I BP]** requires that a service interface respond to a one-way operation by returning an HTTP response with an empty entity-body. Many composite asynchronous message exchange patterns can be derived from this primitive pattern.

4.2. Request-Response Pattern

The request-response message exchange pattern corresponds to a request-response operation as defined in **[WSDL 1.1]**. This service interaction profile supports this pattern by requiring that service consumers and service interfaces conform to **[WS-I BP]**.

This MEP is synchronous and can be combined with fire-and-forget MEPs to form more sophisticated composite MEPs.

An asynchronous request-response pattern is supported through a composite MEP. It is implemented using two one-way fire-and-forget MEPs.

4.3. Faults

Faults should be specified in accordance with WS-BaseFaults [WS-BaseFaults].

4.4. Publish-Subscribe Pattern

The publish-subscribe message exchange pattern is an asynchronous MEP. Normally, the publisher and the subscriber are decoupled by an intermediary.

The publish-subscribe MEP could be constructed as a composite MEP by using primitive MEPs as defined in this document:

1. A subscriber sends a subscription message to the intermediary using the fire-and-forget primitive MEP.

2. A publisher sends an event message to the intermediary using the fire-and-forget primitive MEP.

3. There are two ways to deliver the event to the subscriber:

   a. The intermediary sends the event notification to the subscriber using the fire-and-forget primitive MEP, or

   b. The subscriber pulls event notification messages periodically from the intermediary using the request-response primitive MEP.

The publish-subscribe MEP is increasingly being used in a Web services context. An emerging family of standards, **[WS-NOTIFICATION]**, defines a standard-based Web services approach to notification USING a publish-subscribe message exchange pattern.

5. Message Definition Mechanisms

This section demonstrates how this profile supports the **MESSAGE DEFINITION MECHANISMS** identified in the **[GRA]**.

This service interaction profile requires that each message consist of one, but not both, of the following:

- A single SOAP message (defined as the message conformance target in **[WS-I BP]**) that meets all requirements of this profile.

- A SOAP message package (as defined in SOAP messages with attachments **[SwA]** and as constrained by **[WS-I AP]** and **[WSS SwA]**).

Note that **[WS-I BP]** and **[WS-I AP]** require that the single SOAP message (in the first case above) or the "root part" of the SOAP message package (in the second case) be a well-formed XML. This XML must be valid against an XML Schema (as defined in **[XML SCHEMA]**) that defines the message structure.

6. Requirements Conformance Targets Summary

This section provides a summary of the conformance targets for each requirement in tabular form.

Requirement	Specification
Service Consumer Authentication	✓ WS-I Basic Security Profile 1.0
Service Consumer Authorization	✓ WS-I Basic Security Profile 1.0
Requirement	**Specification**
Identity Attribute Assertion Transmission	✓ For GFIPM, use GRA Reliable Secure Web Services Service Interaction Profile
Service Authentication	✓ WS-I Basic Security Profile 1.0
Non-Repudiation	✓ Timestamp w/XML Signature
Reliability	✓ WS-ReliableMessaging 1.0
Message Integrity	✓ WS-I Basic Security Profile 1.0
Message Confidentiality	✓ WS-I Basic Security Profile 1.0 ✓ FIPS 140-2
Message Addressing	✓ WS-Addressing 1.0
Transaction Support	✓ WS-AtomicTransaction ✓ WS-BusinessActivity ✓ WS-Coordination
Service Metadata Availability	✓ WS-MetadataExchange
Interface Description	✓ WSDL 1.1
Message Exchange Patterns	✓ Request-Response, One-Way

Simple Message	✓ XML ✓ SOAP 1.1
Composite Message	✓ XML Infoset
Binary Data	✓ XML-Binary Optimized Packaging ✓ Message Transmission Optimization Package

7. Glossary

DOMAIN VOCABULARIES Includes canonical data models, data dictionaries, and markup languages that standardize the meaning and structure of information for a domain. Domain vocabularies can improve the interoperability between consumer and provider systems by providing a neutral, common basis for structuring and assigning semantic meaning to information exchanged as part of service interaction. Domain vocabularies can usually be extended to address information needs specific to the service interaction or to the business partners integrating their systems.

EXECUTION CONTEXT The set of technical and business elements that form a path between those with needs and those with capabilities and that permit service providers and consumers to interact.

MESSAGE The entire "package" of information sent between service consumer and service (or vice versa), including any logical partitioning of the message into segments or sections.

MESSAGE DEFINITION MECHANISM Establishes a standard way of defining the structure and contents of a message; for example, GJXDM- or NIEM-conformant schema sets. Note that since a message includes the concept of an "attachment," the message definition mechanism must identify how different sections

	of a message (for example, the main section and any "attachment" sections) are separated and identified and how attachment sections are structured and formatted.
SERVICE	The means by which the needs of a consumer are brought together with the capabilities of a provider. A service is the way in which one partner gains access to a capability offered by another partner.
SERVICE CONSUMER	An entity that seeks to satisfy a particular need through the use capabilities offered by means of a service.
SERVICE INTERACTION PROFILE	A family of standards or other technologies or techniques that together demonstrate implementation or satisfaction of all the requirements of interaction with a service. See "Service Interaction Profile" section of **[GRA]** for details.
SERVICE INTERFACE	The means by which the underlying capabilities of a service are accessed. A service interface is the means for interacting with a service. It includes the specific protocols, commands, and information exchange by which actions are initiated on the service. A service interface is what a system designer or implementer (programmer) uses to design or build executable software that interacts with the service.
SERVICE PROVIDER	An entity (person or organization) that offers the use of capabilities by means of a service.

8. References

These references use the following acronyms to represent standards organizations.

- FIPS: Federal Information Processing Standards
- IETF: Internet Engineering Task Force
- NIST: National Institute of Standards and Technology

- OASIS: Organization for the Advancement of Structured Information Standards
- W3C: World Wide Web Consortium
- WS-I: Web Services Interoperability Organization

ebXMLSIP GISWG. The GRA ebXML Messaging Service Interaction Profile Version 1.1, April 2011. http://it.ojp.gov/globaljra

FIPS 140-2 NIST May 2001, Security Requirements for Cryptographic Modules, http://csrc.nist.gov/publications/fips/

GFIPM-MS Global Security Working Group (GSWG) Global Federated Identity and Privilege Management (GFIPM) Metadata Specification, Version 2.0, September 15, 2010, http://it.ojp.gov/gfipm

GJXDM Global Justice XML Data Model, http://it.ojp.gov/default.aspx?area=nationalInitiatives&page=1013

GRA Global Infrastructure/Standards Working Group (GISWG) Global Reference Architecture (GRA) Specification, Version 1.8, April 2011, http://it.ojp.gov/globaljra

MTOM SOAP Message Transmission Optimization Mechanism (MTOM), W3C Recommendation, January 25, 2005, http://www.w3.org/TR/2005/REC-soap12-mtom-20050125/

NIEM National Information Exchange Model, http://www.niem.gov/library.php

SAML OASIS Security Assertion Markup Language, Version 2.0 specification set, OASIS standard—Errata composite, February 12, 2007, http://saml.xml.org/saml-specifications

SwA	W3C SOAP Messages With Attachments, W3C Note, December 11, 2000, http://www.w3.org/TR/SOAP-attachments
WS Notification	OASIS Web Services Notification, http://www.oasis-open.org/committees/tc_home.php?wg_abbrev=wsn
WS-Addressing Core	W3C Web Services Addressing 1.0—Core, W3C Recommendation, May 9, 2006, http://www.w3.org/TR/2006/REC-ws-addr-core-20060509/
WS-Addressing SOAP Binding	W3C Web Services Addressing 1.0—SOAP Binding, W3C Recommendation, May 9, 2006, http://www.w3.org/TR/2006/REC-ws-addr-soap-20060509/
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9. Document History

Date	Version	Editor	Change
August 4, 2006	0.5	Scott Came	The initial document is based on the Web Services Service Interaction Profile from the state of Washington.
August 1, 2007	1.0	Monique LaBare	Reference to WS-I BP, Version 1.1, and other edits based on SIC discussion.
October 31, 2008	Draft 1.2	Monique LaBare	Revised to WS-RM 1.0 and GFIPM update.
March 2009	1.2	Monique LaBare	
April 2011	1.3	Bob Slaski, James Dyche, Matt Moyer, John Ruegg	Removed reference to GFIPM. Consolidated the discussion on Transport Level Security into the lead-in paragraph under the section Service Interaction Requirements. Also clarified that all SIP guidelines are specific to SOAP WS* standards.
		James Douglas	Updated 2.2, message conformance paragraph.
April 2011	1.3		Changed JRA to GRA.

Editors

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