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This document describes how to administer and secure Web services.
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Preface

This section describes the intended audience, how to use this guide, and provides information about documentation accessibility.

About this Guide

This guide describes the tasks required to secure and administer Web services, providing details describing how to:

- Deploy, configure, test, and monitor Web services.
- Enable, publish, and register Web services.
- Attach policies for security, messaging, addressing, and management of Web services, and analyzing policy usage.
- Create new policies and assertion templates, and manage and configure existing policies.
- Create custom assertions to meet the requirements of your application.
- Manage policy lifecycle to transition from a test to production environment.
- Manage your file-based and database stores in your development and production environments, respectively.
- Diagnose problems.

Audience

This guide is intended for:

- System and security administrators who administer Web services and manage security
- Application developers who are developing Web services and testing the security prior to deployment of the Web services
- Security architects who create security policies

How to Use This Guide

It is recommended that you review Oracle Fusion Middleware Introducing Web Services document to gain a better understanding of the two Web service stacks supported in Oracle Fusion Middleware 11g.

The document is organized as follows:
Part I, "Introduction" introduces you to the concepts and tasks required to secure and administer Web services, and describes a set of common use cases.

Chapter 4, “Examining the Rearchitecture of Oracle WSM in Oracle Fusion Middleware” discusses how the features of Oracle WSM have been rearchitected in Oracle Fusion Middleware 11g Release 1 (11.1.1). If you are an existing Oracle Web Services Manager 10g (Oracle WSM) customer, it is recommended that you review this chapter.

Part II, "Basic Administration" describes the basic administration tasks that you can perform, such as deploying and configuring Web services; managing and attaching, and configuring policies; testing and monitoring Web services, and more.

Part III, "Advanced Administration" describes the advanced administration tasks such as publishing and auditing Web services; migrating from a file-file-based store; creating custom assertions; managing policy lifecycle, diagnosing problems, interoperating with Oracle Fusion Middleware 11g, and more.

Part IV, "WebLogic Web Service Administration" describes how to secure and administer WebLogic (Java EE) Web services.

Part V, "Reference" provides reference information describing Web service security standards; predefined policy and assertion templates; and assertion schemas.

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Related Documents

For more information, see the following documents in the Oracle Fusion Middleware 11g Release 1 (11.1.1) documentation set:

- Oracle Fusion Middleware Introducing Web Services
- Oracle Fusion Middleware Concepts Guide for Oracle Infrastructure Web Services
- Introducing WebLogic Web Services for Oracle WebLogic Server
- Getting Started With JAX-WS Web Services for Oracle WebLogic Server
- Programming Advanced Features of JAX-WS Web Services for Oracle WebLogic Server
- Getting Started With JAX-RPC Web Services for Oracle WebLogic Server
- Programming Advanced Features of JAX-RPC Web Services for Oracle WebLogic Server
- Securing WebLogic Web Services for Oracle WebLogic Server
- WebLogic Web Services Reference for Oracle WebLogic Server
- Oracle Fusion Middleware Developer’s Guide for Oracle SOA Suite
- Oracle Fusion Middleware Fusion Developer’s Guide for Oracle Application Development Framework
- Oracle Fusion Middleware Developer’s Guide for Oracle WebCenter
- "Developing with Web Services" in the Oracle JDeveloper online help

See also the Oracle Web Services Manager Technology page at:

Conventions

The following text conventions are used in this document:

<table>
<thead>
<tr>
<th>Convention</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>boldface</strong></td>
<td>Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.</td>
</tr>
<tr>
<td><em>italic</em></td>
<td>Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.</td>
</tr>
<tr>
<td><code>monospace</code></td>
<td>Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.</td>
</tr>
</tbody>
</table>
What’s New

11g Release 1 (11.1.1) includes a complete redesign of Oracle Web Services Manager 10g and Web services security management. For more details about what has changed in Release 11g, see Chapter 4, "Examining the Rearchitecture of Oracle WSM in Oracle Fusion Middleware."

11g Release 1 Patch Set 2 (11.1.1.3) includes the following new features:

- Oracle WSM policy attachment to WebLogic JEE endpoints using Oracle Enterprise Manager Fusion Middleware Control
- Deployment descriptor migration for ADF Business Connect and WebCenter applications using the WebLogic Scripting Tool (WLST)
- Centralized policy management of Oracle WSM policies
- Advertise policies for WebLogic JAX-WS Web services secured with Oracle WSM security policies
- Web services atomic transaction support for SOA Web services and references and WebLogic JAX-WS Web services
- Ability to configure a policy store that is available on a remote application server. For more information, see "Using a Different Oracle WSM Policy Store" in "Developing with Web Services" in the JDeveloper Online Help.
- Shared policy store for Oracle Infrastructure Web services and WebLogic Web services. For information about managing policies in the shared policy store, see "Using Custom Web Service Policies" in "Developing with Web Services" in the JDeveloper Online Help.
- Ability to register Web service sources and to publish registered Web services to UDDI
- Support for the DB2 database in the MDS repository
- Ability to attach policies to Oracle Infrastructure Web Service providers
- Ability to view assertion details for a policy when attaching to an endpoint
- Ability to include a timestamp property for assertion templates that define Transport Security (SSL)
- Ability to manually configure WebLogic Web service repository retrieval properties in Oracle Enterprise Manager Fusion Middleware Control

11g Release 1 Patch Set 1 (11.1.1.2) includes the following new features:

- Enhanced administration and policy management for asynchronous Web services
- Ability to define policy alternatives (OR groups)
Service-side policy configuration overrides

Oracle WSM policy attachment using the WebLogic Scripting Tool (WLST)

Ability to upgrade the Oracle WSM policies in the Metadata Services (MDS) repository using WLST commands

Service identity certification extension for Web services that implement a message-protection policy. The Web service’s public certificate is published in the WSDL, and it is no longer necessary for the Web service client to store the Web service’s public certificate in its domain-level keystore.

Enhanced support for permission-based authorization using the oracle.wsm.security.WSFunctionPermission permission check class. In this release, the resource target of the WSFunctionPermission is enhanced to include the actual Web service operation name.

Ability to browse WSIL documents and import UDDI v3 registries using Fusion Middleware Control, and register services accordingly

Compliance with WSI-Basic Security Profile

Support for testing RESTful Web services in Fusion Middleware Control Test Web Service page

Support for Microsoft SQL Server in the MDS repository

Ability to use the same MDS repository to manage policies across multiple domains. In previous releases, an MDS repository could only be used by a single domain.

New document, Oracle Fusion Middleware Interoperability Guide for Oracle Web Services Manager, that contains the interoperability content previously provided in this document

Interoperability is certified between Oracle Web Services Manager and Axis 1.4 and WSS4J 1.58 security environments

11g Release 1 (11.1.1) includes the following new features:

Integration with the Oracle Fusion Middleware framework

Shared authorization and authentication infrastructure for Web applications and Web services through Oracle Platform Security Services

Automatic identity propagation

Integrated configuration, management, and monitoring of Web services using Oracle Enterprise Manager Fusion Middleware Control

Use of the Oracle Metadata Repository via Oracle Enterprise Manager Fusion Middleware Control

Integrated security management and monitoring of WebLogic Web services

Integrated policy attachment and monitoring support for WebLogic Web services

Enhanced support for Web services security standards

Enterprise policy framework with full standards support (WS-Policy, WS-SecurityPolicy, and WS-PolicyAttachment)

Runtime Services Oriented Architecture (SOA) governance support through reusable runtime policies and bulk attachment of policies

Policy usage and impact analysis
Part I contains the following chapters:

- Chapter 1, "Overview of Web Services Security and Administration"
- Chapter 2, "Understanding Web Services Security Concepts"
- Chapter 3, "Understanding Oracle WSM Policy Framework"
- Chapter 4, "Examining the Rearchitecture of Oracle WSM in Oracle Fusion Middleware"
Companies worldwide are actively deploying service-oriented architectures (SOA) using Web services, both in intranet and internet environments. While Web services offer many advantages over traditional alternatives (for example, distributed objects or custom software), deploying networks of interconnected Web services still presents key challenges, particularly in terms of security and administration.

This chapter provides an overview of Web services security and administration in Oracle Fusion Middleware 11g.

- Web Services Security and Administration in Oracle Fusion Middleware 11g
- Web Service Security and Administration Tasks
- Securing and Administering Oracle Infrastructure Web Services
- Securing and Administering WebLogic Web Services
- Accessing the Security and Administration Tools

Web Services Security and Administration in Oracle Fusion Middleware 11g

The following highlights the main features of Oracle Fusion Middleware 11g Release 1 (11.1.1):

- **Oracle Web Services Manager (WSM) security and management has been completely redesigned and rearchitected.** The previous release, Oracle WSM 10g, was delivered as a standalone product or as a component of the Oracle SOA Suite. In the 11g release, Oracle WSM has been integrated into the Oracle WebLogic Server. For complete details, see "Examining the Rearchitecture of Oracle WSM in Oracle Fusion Middleware" on page 4-1.

- **Oracle Web services can be classified into the following categories:**
  - WebLogic (Java EE) Web services (see "Securing and Administering WebLogic Web Services" on page 1-4)
  - Oracle Infrastructure Web services—SOA, ADF, and WebCenter services (see "Securing and Administering Oracle Infrastructure Web Services" on page 1-3)

For more information about the two Web service categories and the types of Web services and clients in Oracle Fusion Middleware 11g, see *Introducing Web Services*.

- **To support the two categories, there are two types of policies that can be attached to Web services, as defined in the following table.**
Application developers can use Oracle JDeveloper to leverage the security and management features of the Oracle WSM policy framework. For more information about attaching policies using Oracle JDeveloper, see the following sections:

- "Using Policies with Web Services" in the "Developing with Web Services” section of the Oracle JDeveloper online help.

System administrators can use the following tools to secure and administer Web services:

- Oracle Enterprise Manager Fusion Middleware Control to secure and administer Oracle Infrastructure Web services, and to secure and test WebLogic (Java EE) Web services.
- Oracle WebLogic Administration Console to secure and administer WebLogic (Java EE) Web services.
- Oracle WebLogic Scripting Tool (WLST) to view, configure, and secure SOA, ADF, and WebCenter Web services.

**Web Service Security and Administration Tasks**

The following list provides an example of the tasks required to secure and administer Web services:

- Deploy, configure, test, and monitor Web services.
- Enable, publish, and register Web services.
- Attach policies to secure and manage Web services and analyze policy usage.
- Create new policies and assertion templates, and manage and configure existing policies.
- Create custom assertions to meet the requirements of your application.
- Manage policy lifecycle to transition from a test to production environment.
- Manage your file-based and database stores in your development and production environments, respectively.
- Test interoperability with other Web services.
- Diagnose problems.

The steps to develop, secure, and administer Web services vary based on the Web service category in use. The following sections outline the steps required:

- **Securing and Administering Oracle Infrastructure Web Services**
- **Securing and Administering WebLogic Web Services**

## Securing and Administering Oracle Infrastructure Web Services

To secure and administer Oracle Infrastructure Web services:

- At development time, application developers can attach policies, using Oracle JDeveloper or other IDE, to leverage the security and management features of the Oracle WSM policy framework. For more information about attaching policies using Oracle JDeveloper, see the following sections:
  - "Using Policies with Web Services" in the "Developing with Web Services" section of the Oracle JDeveloper online help.
- System administrators can use the tools described in Table 1–2 to secure and administer Oracle Infrastructure Web services.

### Table 1–2  Tools Used to Secure and Administer Oracle Infrastructure Web Services

<table>
<thead>
<tr>
<th>Use this tool...</th>
<th>To...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oracle Enterprise Manager Fusion Middleware Control</td>
<td>Secure and administer SOA, ADF, and WebCenter services, performing the tasks described in &quot;Web Service Security and Administration Tasks&quot; on page 1-2.</td>
</tr>
</tbody>
</table>

To access Oracle Enterprise Manager Fusion Middleware Control, see "Accessing Oracle Enterprise Manager Fusion Middleware Control" on page 1-5.

Oracle Enterprise Manager Fusion Middleware Control leverages Oracle Web Services Manager (WSM) to centrally define security and management policies, and enforce them locally at runtime. For more information about Oracle WSM, see "Understanding Oracle WSM Policy Framework" on page 3-1.

For more information about Oracle Enterprise Manager Fusion Middleware Control, see "Getting Started Using Oracle Enterprise Manager Fusion Middleware Control" in Oracle Fusion Middleware Administrator’s Guide.
Securing and Administering WebLogic Web Services

To secure and administer WebLogic Web services:

- At development time, application developers can attach security policies using Oracle JDeveloper or other IDE. For more information, see the following topics:
  - "Using Policies with Web Services" in the "Developing with Web Services" section of the Oracle JDeveloper online help.
  - "Using Oracle Web Service Security Policies" in Securing WebLogic Web Services for Oracle WebLogic Server

- System administrators can use the tools defined in Table 1–3 to secure and administer WebLogic Web services.

### Table 1–2 (Cont.) Tools Used to Secure and Administer Oracle Infrastructure Web

<table>
<thead>
<tr>
<th>Use this tool...</th>
<th>To...</th>
</tr>
</thead>
<tbody>
<tr>
<td>WebLogic Scripting Tool (WLST)</td>
<td>Perform Web service configuration and policy management tasks.</td>
</tr>
<tr>
<td></td>
<td>To access WLST, see &quot;Accessing the Web Services Custom WLST Commands&quot; on page 1-6.</td>
</tr>
<tr>
<td></td>
<td>For more information about using WLST, see &quot;Getting Started Using the Oracle WebLogic Scripting Tool (WLST)&quot; in Oracle Fusion Middleware Administrator’s Guide.</td>
</tr>
</tbody>
</table>

Part II, "Basic Administration" and Part III, "Advanced Administration" describe how to secure and administer SOA, ADF, and WebCenter services in detail.
Part IV, "WebLogic Web Service Administration" provides a roadmap for securing and administering WebLogic Web services.

### Accessing the Security and Administration Tools

The following sections describe how to access the security and administration tools described in the previous sections.

#### Accessing Oracle Enterprise Manager Fusion Middleware Control

To access Oracle Enterprise Manager Fusion Middleware Control:

1. Start the Oracle WebLogic Server instance.
   
   For more information, see "Start and stop servers" in the Oracle WebLogic Server Administration Console Online Help.

2. Open a supported Web browser and navigate to the following URL:

   http://hostname:port/em

   The Login page displays.

3. Enter the username and password.

#### Table 1–3  Tools Used to Secure and Administer WebLogic Web Services

<table>
<thead>
<tr>
<th>Use this tool . . .</th>
<th>To perform the following tasks . . .</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oracle Enterprise Manager Fusion Middleware Control</td>
<td>Leverage Oracle WSM to perform the following tasks:</td>
</tr>
<tr>
<td></td>
<td>■ Enforce policies at runtime.</td>
</tr>
<tr>
<td></td>
<td>■ Manage Oracle WSM security policies and attach to WebLogic JEE Web services (not clients).</td>
</tr>
<tr>
<td></td>
<td>■ Advertise policies for JAX-WS WebLogic Web services secured with Oracle WSM security policies.</td>
</tr>
<tr>
<td></td>
<td>■ Test the WebLogic Web service.</td>
</tr>
<tr>
<td></td>
<td>■ Monitor the runtime performance of WebLogic Web services.</td>
</tr>
</tbody>
</table>

For more information about Oracle WSM, see “Understanding Oracle WSM Policy Framework” on page 3-1.

To access Oracle Enterprise Manager Fusion Middleware Control, see “Accessing Oracle Enterprise Manager Fusion Middleware Control” on page 1-5.

For more information about Oracle Enterprise Manager Fusion Middleware Control, see “Getting Started Using Oracle Enterprise Manager Fusion Middleware Control” in Oracle Fusion Middleware Administrator’s Guide.

**Note**: The following features are **not supported** for WebLogic Web services in the 11g release:

- Security and administration of JAX-RPC WebLogic Web services.

Oracle WebLogic Server Administration Console

Secure and manage WebLogic Web services.

To access the Oracle WebLogic Server Administration Console, see "Accessing Oracle WebLogic Administration Console" on page 1-6.

For more information about using the Oracle WebLogic Server Administration Console to secure and administer WebLogic Web services, see “Web Services” in the Oracle WebLogic Server Administration Console Online Help.
The default user name for the administrator user is `weblogic`. This is the account you can use to log in to Fusion Middleware Control for the first time. The password is the one you supplied during the installation of Oracle Fusion Middleware.

4. Click Login.

For more information, see "Getting Started Using Oracle Enterprise Manager Fusion Middleware Control" in Oracle Fusion Middleware Administrator’s Guide.

### Accessing Oracle WebLogic Administration Console

To access Oracle WebLogic Administration Console:

1. Start the Oracle WebLogic Server.
   
   For more information, see "Start and stop servers" in the Oracle WebLogic Server Administration Console Online Help.

2. Open a supported Web browser and navigate to one of the following URLs:

   - `http://hostname:port/console`
   - `https://hostname:port/console`

   `hostname` specifies the DNS name or IP address of the Oracle WebLogic Administration Server and `port` specifies the address of the port on which the Oracle WebLogic Administration Server is listening for requests (7001 by default).

   Use `https` if you started the Oracle WebLogic Server using the Secure Sockets Layer (SSL).

   For a list of supported browsers, see System Requirements and Supported Platforms for Oracle WebLogic Server at:


   The Login page displays.

3. Enter the username and password.
   
   You may have specified the username and password during the installation process. This may be the same username and password that you use to start the Oracle Administration Server. Or, a username that is granted one of the default global security roles.

4. Click Log In.

   For more information, see "Starting the Console" in the Oracle WebLogic Server Administration Console Online Help.

### Accessing the Web Services Custom WLST Commands

To access the Web services WLST commands:

1. Go to the Oracle Common home directory for your installation, for example `/home/Oracle/Middleware/oracle_common`.
   
   For information about the Oracle Common home directory and installing Oracle Fusion Middleware, see the Oracle Fusion Middleware Installation Planning Guide.

2. Start WLST using the `WLST.sh/cmd` command located in the `oracle_common/common/bin` directory. For example:
Accessing the Security and Administration Tools

■ /home/Oracle/Middleware/oracle_common/common/bin/wlst.sh (UNIX)
■ C:\Oracle\Middleware\oracle_common\common\bin\wlst.cmd (Windows)

When executed, these commands start WLST in offline mode. To use the Web services WLST commands, you must use WLST in online mode.


   For more information, see “Start and stop servers” in the Oracle WebLogic Server Administration Console Online Help.

4. Connect to the running WebLogic Server instance using the `connect()` command. For example, the following command connects WLST to the Admin Server at the URL myAdminServer.oracle.com:7001 using the username/password credentials weblogic/welcome1:

   ```
   connect("weblogic","welcome1","t3://myAdminServer.oracle.com:7001")
   ```

   For more information about using WLST, see "Using the WebLogic Scripting Tool" in Oracle WebLogic Scripting Tool.

   For more information about the Web Services WLST commands, see "Web Services Custom WLST Commands" in WebLogic Scripting Tool Command Reference.
Understanding Web Services Security Concepts

This chapter introduces the Web services security concepts. It is divided into the following sections:

- Securing Web Services
- How Oracle Fusion Middleware Secures Web Services and Clients

For an introduction to general Web service concepts, see "What are Web Services" in Introducing Web Services.

Securing Web Services

Because of its nature (loosely coupled connections) and its use of open access (mainly HTTP), SOA implemented by Web services adds a new set of requirements to the security landscape. Web services security includes several aspects:

- **Authentication**—Verifying that the user is who she claims to be. A user’s identity is verified based on the credentials presented by that user, such as:
  1. Something one has, for example, credentials issued by a trusted authority such as a passport (real world) or a smart card (IT world).
  2. Something one knows, for example, a shared secret such as a password.
  3. Something one is, for example, biometric information.

Using a combination of several types of credentials is referred to as “strong” authentication, for example using an ATM card (something one has) with a PIN or password (something one knows).

- **Authorization (or Access Control)**—Granting access to specific resources based on an authenticated user’s entitlements. Entitlements are defined by one or several attributes. An attribute is the property or characteristic of a user, for example, if “Marc” is the user, “conference speaker” is the attribute.

- **Confidentiality, privacy**—Keeping information secret. Accesses a message, for example a Web service request or an email, as well as the identity of the sending and receiving parties in a confidential manner. Confidentiality and privacy can be achieved by encrypting the content of a message and obfuscating the sending and receiving parties’ identities.

- **Integrity, non repudiation**—Making sure that a message remains unaltered during transit by having the sender digitally sign the message. A digital signature is used to validate the signature and provides non-repudiation. The timestamp in the signature prevents anyone from replaying this message after the expiration.
Web services security requirements also involve credential mediation (exchanging security tokens in a trusted environment), and service capabilities and constraints (defining what a Web service can do, under what circumstances).

In many cases, Web services security tools such as Oracle WSM rely on Public Key Infrastructure (PKI) environments. A PKI uses cryptographic keys (mathematical functions used to encrypt or decrypt data). Keys can be private or public. In an asymmetric cipher model, the receiving party’s public key is used to encrypt plaintext, and the receiving party’s matching private key is used to decrypt the ciphertext. Also, a private key is used to create a digital signature by signing the message, and the public key is used for verifying the signature. Public-key certificates (or certificates, for short) are used to guarantee the integrity of public keys.

Web services security requirements are supported by industry standards both at the transport level (Secure Socket Layer) and at the application level relying on XML frameworks.

For more information about the specifications, standards, and security tokens supported by Web services, see Appendix A, "Web Service Security Standards."

---

**Note:** Oracle has been instrumental in contributing to emerging standards, in particular the specifications hosted by the OASIS Web Services Secure Exchange technical committee.

---

**Transport-level Security**

Secure Socket Layer (SSL), otherwise known as Transport Layer Security (TLS), the Internet Engineering Task Force (IETF) officially standardized version of SSL, is the most widely used transport-level data-communication protocol providing:

- Authentication (the communication is established between two trusted parties).
- Confidentiality (the data exchanged is encrypted).
- Message integrity (the data is checked for possible corruption).
- Secure key exchange between client and server.

SSL provides a secure communication channel, however, when the data is not "in transit," the data is not protected. This makes the environment vulnerable to attacks in multi-step transactions. (SSL provides point-to-point security, as opposed to end-to-end security.)

**Application-level Security**

Application-level security complements transport-level security. Application-level security is based on XML frameworks defining confidentiality, integrity, authenticity; message structure; trust management and federation.

Data confidentiality is implemented by XML Encryption. XML Encryption defines how digital content is encrypted and decrypted, how the encryption key information is passed to a recipient, and how encrypted data is identified to facilitate decryption.

Data integrity and authenticity are implemented by XML Signature. XML Signature binds the sender’s identity (or “signing entity”) to an XML document. Signing and signature verification can be done using asymmetric or symmetric keys.

Signature ensures non-repudiation of the signing entity and proves that messages have not been altered since they were signed. Message structure and message security are implemented by SOAP and its security extension, WS-Security. WS-Security
defines how to attach XML Signature and XML Encryption headers to SOAP messages. In addition, WS-Security provides profiles for 5 security tokens: Username (with password digest), X.509 certificate, Kerberos ticket, Security Assertion Markup Language (SAML) assertion, and REL (rights markup) document.

The SOAP envelope body includes the business payload, for example a purchase order, a financial document, or simply a call to another Web service. SAML is one of the most interesting security tokens because it supports both authentication and authorization. SAML is an open framework for sharing security information on the Internet through XML documents. SAML includes 3 parts:

- SAML Assertion—How you define authentication and authorization information.
- SAML Protocol—How you ask (SAML Request) and get (SAML Response) the assertions you need.
- SAML Bindings and Profiles—How SAML assertions ride "on" (Bindings) and "in" (Profiles) industry-standard transport and messaging frameworks.

The full SAML specification is used in browser-based federation cases. However, web services security systems such as Oracle WSM only use SAML assertions. The protocol and bindings are taken care of by WS-Security and the transport protocol, for example HTTP.

SAML assertions and references to assertion identifiers are contained in the WS-Security Header element, which in turn is included in the SOAP Envelope Header element (described in the WS-Security SAML Token Profile). The SAML security token is particularly relevant in situations where identity propagation is essential.

**Web Service Security Requirements**

The following summarize the Web service security requirements:

1. The use of transport security to protect the communication channel between the Web service consumer and Web service provider.
2. Message-level security to ensure confidentiality by digitally encrypting message parts; integrity using digital signatures; and authentication by requiring username, X.509, or SAML tokens.

Oracle Web Services Manager (WSM) is designed to define and implement Web services security in heterogeneous environments, including authentication, authorization, message encryption and decryption, signature generation and validation, and identity propagation across multiple Web services used to complete a single transaction.

**How Oracle Fusion Middleware Secures Web Services and Clients**

Figure 2–1 shows an Oracle Fusion Middleware application that demonstrates some common interactions between Web services and their clients. How security is managed at each step in the process is explained following the figure.

The Oracle WSM Policy Manager (labeled as OWSM in Figure 2–1) is the security linchpin for Oracle Fusion Middleware Web services and SOA applications. For more information about how the Oracle WSM Policy Manager manages the policy framework, see Chapter 3, “Understanding Oracle WSM Policy Framework.”
As shown in the previous figure, there are two types of policies that can be attached to Web services: Oracle WSM policies and WebLogic Server policies. For more information, see Table 1–1, "Types of Web Service Policies".

The following describes in more detail the Web service and client interactions called out in the previous figure, and how security is managed at each step in the process. As noted in the figure, security is managed using both Oracle WSM policies and WebLogic Web service policies.

1. At design time, you attach Oracle WSM and WebLogic Web service policies to applications programmatically using your favorite IDE, such as Oracle JDeveloper.

   Alternatively, at deployment time you attach policies to SOA composites, ADF, and WebCenter applications using the Oracle Enterprise Manager Fusion Middleware Control, and to WebLogic Web services (Java EE) using the WebLogic Server Administration Console (not shown in the figure).

   **Note:** Policies that are attached to WebLogic Web services at design time cannot be detached at deployment time. You can only attach new policies.

2. A user logs in to the ADF Web application.

   The user may be internal or external to Company A.
3. Using a Web service data control, the ADF Web application accesses a service, such as a WebLogic Web service, a SOA composite application, or an ADF Business Component.

At the Web service client side, Oracle WSM intercepts the SOAP message request to the service, injects the relevant tokens, and signs and encrypts the message, as required by the attached policies.

At the Web service side, Oracle WSM intercepts the SOAP message request to the service, extracts the tokens, and verifies the client’s credentials against an identity management infrastructure (for example, a file, an LDAP-compliant directory, or Oracle Access Manager), as required by the attached policies.

4. Interactions with the SOA service components (shown in the figure) include:
   a. The SOA service component accesses an ADF Business Component to query or update tables in a database.
   b. A WebCenter client access the SOA service component to process a customer request.
   c. The SOA service component accesses the Web service internal to Company A to accomplish a specific task.
   d. The SOA service component accesses a Web service via an external provider (Company B) to accomplish a specific task. As long as you know the URL that identifies the WSDL document, you can access the Web service.

Again, at the Web service client side, Oracle WSM intercepts the SOAP message request to the service, injects the relevant tokens, and signs and encrypts the message, as required by the attached policies.

At the Web service side, Oracle WSM intercepts the SOAP message request to the service, extracts the tokens, and verifies the client’s credentials against an identity management infrastructure (for example, a file, an LDAP-compliant directory, or Oracle Access Manager), as required by the attached policies.

5. A client accesses a WebLogic JEE Web service.

In this case, components in a larger composite application interact with the WebLogic Web service. An Oracle WSM policy is used to secure the WebLogic JAX-WS Web service client. A WebLogic Web service policy is used to secure the WebLogic JAX-RPC service client.
This chapter contains the following sections:

- Overview of Oracle WSM Policy Framework
- What Are Policies?
- Building Policies Using Policy Assertions
- Attaching Policies to Subjects
- How Policies are Executed
- Oracle WSM Predefined Policies and Assertion Templates
- Defining Multiple Policy Alternatives (OR Groups)
- Overriding Security Policy Configuration
- Recommended Naming Conventions for Policies

Overview of Oracle WSM Policy Framework

Oracle Web Services Manager (WSM) provides a policy framework to manage and secure Web services consistently across your organization. Oracle WSM can be used by both developers, at design time, and system administrators in production environments.

The policy framework is built using the WS-Policy standard. The Oracle WSM Policy Enforcement Point (PEP) leverages Oracle Platform Security Service (OPSS) and the Oracle WebLogic Server authenticator for authentication and permission-based authorization, as shown in the following figure.
Developers can leverage Oracle WSM policy framework from Oracle JDeveloper. For more information, see “Developing with Web Services” in the Oracle JDeveloper online help.

System administrators can leverage the Oracle WSM through the Oracle Enterprise Manager Fusion Middleware Control to:

- Centrally define policies using the Oracle WSM Policy Manager.
- Enforce Oracle WSM security and management policies locally at runtime.

All of Oracle WSM’s functionality is accessible to administrators from Oracle Enterprise Manager Fusion Middleware Control. Part II, “Basic Administration” and Part III, “Advanced Administration” describe the security and administration tasks in more detail.

The following list provides examples of specific tasks that you can perform using Oracle WSM:

- Handle WS-Security (for example, encryption, decryption, signing, signature validation, and so on)
- Define authentication and authorization policies against an LDAP directory.
- Generate standard security tokens (such as SAML tokens) to propagate identities across multiple Web services used in a single transaction.
- Segment policies into different namespaces by creating policies within different folders.
- Examine log files.

Figure 3–2 shows the main components of Oracle WSM architecture.
Table 3–1 describes the components of Oracle WSM shown in the previous figure.

<table>
<thead>
<tr>
<th>Oracle WSM Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oracle Enterprise Manager Fusion Middleware Control</td>
<td>Enables administrators to access Oracle WSM’s functionality to manage, secure, and monitor Web services.</td>
</tr>
<tr>
<td>Oracle JDeveloper</td>
<td>Provides a full-featured Java IDE for SOA that can be used for end-to-end development of Web services. Using visual and declarative tools, developers can build Oracle SOA, ADF, WebCenter, and WebLogic Java EE (JEE) Web services, automatically deploy them to an instance of Oracle WebLogic Server, and immediately test the running Web service. Alternatively, JDeveloper can be used to drive the creation of Web services from WSDL descriptions. JDeveloper is Ant-aware. You can use this tool to build and run Ant scripts for assembling the client and for assembling and deploying the service. For more information, see the Oracle JDeveloper online help. For information about installing JDeveloper, see Oracle Fusion Middleware Installation Guide for Oracle JDeveloper.</td>
</tr>
<tr>
<td>WebLogic Scripting Tool (WLST)</td>
<td>Enables administrators to view and configure Web services, and manage Web service policies from the command line. For more information, see WebLogic Scripting Tool Command Reference.</td>
</tr>
<tr>
<td>Oracle WSM Policy Manager</td>
<td>Reads/writes the policies, including predefined and custom policies from the Metadata Services Repository.</td>
</tr>
<tr>
<td>Oracle WSM Agent</td>
<td>Manages the enforcement of policies via the Policy Interceptor Pipeline.</td>
</tr>
</tbody>
</table>
What Are Policies?

Policies describe the capabilities and requirements of a Web service such as whether and how a message must be secured, whether and how a message must be delivered reliably, and so on.

Oracle Fusion Middleware 11g Release 1 (11.1.1) supports the types of policies defined in Table 3–2. The policies are part of the Oracle WSM enterprise policy framework which allows policies to be centrally created and managed.

### Table 3–2 Types of Policies

<table>
<thead>
<tr>
<th>Policy Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>WS-Reliable Messaging</td>
<td>Reliable messaging policies that implement the WS-ReliableMessaging standard describes a wire-level protocol that allows guaranteed delivery of SOAP messages, and can maintain the order of sequence in which a set of messages are delivered. The technology can be used to ensure that messages are delivered in the correct order. If a message is delivered out of order, the receiving system can be configured to guarantee that the messages will be processed in the correct order. The system can also be configured to deliver messages at least once, not more than once, or exactly once. If a message is lost, the sending system re-transmits the message until the receiving system acknowledges it receipt.</td>
</tr>
<tr>
<td>Management</td>
<td>Management policies that log request, response, and fault messages to a message log. Management policies may include custom policies.</td>
</tr>
</tbody>
</table>
A policy is comprised of one or more policy assertions. A policy assertion is the smallest unit of a policy that performs a specific action for the request and response operations. Assertions, like policies, belong to one of the following categories: Reliable Messaging, Management, WS-Addressing, Security, and MTOM.

Policy assertions are chained together in a pipeline. The assertions in a policy are executed on the request message and the response message, and the same set of assertions are executed on both types of messages. The assertions are executed in the order in which they appear in the pipeline.

Figure 3–3 illustrates a typical execution flow. For the request message, Assertion 1 is executed first, followed by Assertion 2, and Assertion n. Although the same assertions may be executed on the response message (if a response is returned at all), the actions performed on the response message differ from the request message, and the assertions are executed on the response message in reverse order. For the response message in Figure 3–3, Assertion n is executed first, followed by Assertion 2, then Assertion 1.

For example, in Figure 3–4, the policy contains two assertions:
1. **wss11-username-with-certificates**—Built using the `wss11_username_token_with_message_protection_service_template`, authenticates the user based on credentials in the WS-Security UsernameToken SOAP header.

2. **binding-authorization**—Built using the `binding_authorization_template`, provides simple role-based authorization for the request based on the authenticated subject at the SOAP binding level.

*Figure 3–4 Example Policy With Two Assertions*

When the request message is sent to the Web service, the assertions are executed in the order shown. When the response message is returned to the client, the same assertions are executed, but this time in reverse order. The behavior of the assertion for the request message differs from the behavior for the response message. And, in some instances, it is possible that nothing happens on the response. For example, in the example above, the authorization assertion is only executed as part of the request.

### Attaching Policies to Subjects

A policy subject is the target resource to which the policies are attached. Policy subjects include Web services endpoints, Web service clients, SOA service endpoints, SOA clients, and SOA components. There are different policies for different types of resources (for example, a Web service or a SOA component).

You can attach one or more policies to a policy subject, either individually or as a bulk attachment. When the policy is attached to a policy subject, enforcement of the policy begins immediately.

If a policy on the client side is modifying the message, for example to encrypt the message, there must be a corresponding policy on the Web service side, for example, to decrypt the policy. Otherwise, the message request will fail.

### How Policies are Executed

When a request is made from a service consumer (also known as a client) to a service provider (also known as a Web service), the request is intercepted by one or more policy interceptors. These interceptors execute policies that are attached to the client and to the Web service. There are five types of interceptors (reliable messaging, management, WS-Addressing, security, and MTOM) that together form a policy interceptor chain. Each interceptor executes policies of the same type. The security interceptor intercepts and executes security policies, the MTOM interceptor intercepts and executes MTOM policies, and so on.

Policies attached to a client or Web service are executed in a specific order via the Policy Interceptor Pipeline, as shown in *Figure 3–5*. 
How Policies are Executed

Understanding Oracle WSM Policy Framework

Figure 3–5 Policy Interceptors Acting on Messages Between a Client and Web Service

As shown in the previous figure, when a client or a Web service initiates a message, whether it be a request message in the case of a client, or a response message in the case of a Web service, the policies are intercepted in the following order: Reliable Messaging, Management, Addressing, Security, and MTOM. When a client or a Web service receives a message, that is, a request message in the case of the Web service or a response message in the case of a client, the policies are executed in the reverse order: MTOM, Security, Addressing, Management, and Reliable Messaging.

A message may have one or more policies attached. Not every message will contain each type of policy. A message may contain a security policy and an MTOM policy. In this instance, the security interceptor executes the security policy, and the MTOM interceptor executes the MTOM policy. In this example, the other interceptors are not involved in processing the message.

The following describes how the policy interceptors act on messages between the client and the Web service. (Refer to Figure 3–5.)

1. The client sends a request message to a Web service.
2. The policy interceptors intercept and execute the policies attached to the client. After the client policies are successfully executed, the request message is sent to the Web service.
3. The request message is intercepted by policy interceptors which then execute any service policies that are attached to the Web service.
4. After the service policies are successfully executed, the request message is passed to the Web service. The Web service executes the request message and returns a response message.
5. The response message is intercepted by the policy interceptors which execute the service policies attached to the Web service. After the service policies are successfully executed, the response message is sent to the client.
6. The response message is intercepted by the policy interceptors which execute any client policies attached to the client.
7. After the client policies are successfully executed, the response message is passed to the client.
Oracle WSM Predefined Policies and Assertion Templates

There is a set of predefined policies and assertion templates that are automatically available when you install Oracle Fusion Middleware. The predefined policies are based on common best practice policy patterns used in customer deployments.

You can immediately begin attaching these predefined policies to your Web services or clients. You can configure the predefined policies or create a new policy by making a copy of one of the predefined policies.

Predefined policies are constructed using assertions based on predefined assertion templates. You can create new assertion templates, as required.

For more information about the predefined policies and assertion templates, see:

- "Predefined Policies" on page B-1.
- "Predefined Assertion Templates" on page C-1.

Note: WS-SecurityPolicy defines scenarios that describe examples of how to set up WS-SecurityPolicy policies for several security token types described in the WS-Security specification (supporting both WS-Security 1.0 and 1.1). The Oracle WSM predefined policies support a subset of the WS-SecurityPolicy scenarios that represents the most common customer use cases.

Defining Multiple Policy Alternatives (OR Groups)

To define multiple alternatives for policy enforcement, you can define a set of assertions, called an OR group, within a service policy. At runtime, based on the assertions defined in the OR group on the service side, a client has the flexibility to choose which one of the assertions to enforce.

For example, if a service-side policy defines an OR group that consists of the following assertions:

- wss11-saml-with-certificates
- wss11-username-with-certificates

At run-time, the client can choose to enforce either the wss11-saml-with-certificates assertion OR wss11-username-with-certificates assertion.

There is no limit to the number of assertions that can be included in an OR group. Each assertion must be valid for the policy and should support the policy requirements. For example, you should not include a log assertion in an OR group that otherwise contains security assertions and that is designed to enforce security. In this case, the log assertion would pass in the event the security assertions failed, resulting in no security.

There are two predefined service policies that contain OR groups:

- oracle/wss_saml_or_username_token_over_ssl_service_policy—For more information, see "oracle/wss_saml_or_username_token_over_ssl_service_policy" on page B-8.
- oracle/wss11_saml_or_username_token_with_message_protection_service_policy—For more information, see "oracle/wss11_saml_or_username_token_with_message_protection_service_policy" on page B-18.
Overriding Security Policy Configuration

Multiple Web services or clients may use the same policy. Each may have different policy configuration requirements such as username and password.

Oracle WSM policy configuration override enables you to update the configuration on a per service or client basis without creating new policies for each. In this way, you can create policies that define default configuration values and customize those values based on your runtime requirements.

For example, you might specify the username and password when configuring a client policy, as the information may vary from client to client.

For more information about overriding security policy configuration, see "Attaching Client Policies Permitting Overrides" on page 8-14 and "Attaching Web Service Policies Permitting Overrides" on page 8-16.

You can define whether a configuration property is overridable when creating custom assertions, as described in "Creating Custom Assertions" on page 14-1.

Recommended Naming Conventions for Policies

The valid characters for directory, policy, and assertion template names are:

- Uppercase and lowercase letters
- Numerals
- Currency symbol ($)
- Underscore (_)
- Hyphen (-)
- Spaces

Note: The first character in the name cannot be a hyphen or space.

Oracle recommends that you encode as much information as possible into the name of the policy so that you can tell, at a glance, what the policy does. For example, one of the predefined security policies that is delivered with Oracle Fusion Middleware 11g Release 1 (11.1.1) is named oracle/wss10_username_token_with_message_protection_service_policy. Figure 3–6 identifies the different parts of this predefined policy name.

Figure 3–6  Identifying the Different Parts of a Policy Name

oracle/wss10_username_token_with_message_protection_service_policy

Path Location  Web Services Standard  Authentication Token  Message Protection  Policy Type

The following convention is used to name the predefined policies. The parts of the policy name are separated with an underscore character (_).
Recommended Naming Conventions for Policies

- **Path Location** – All policies are identified by the directory in which the policy is located. All predefined policies that come with the product are in the `oracle` directory.

- **Web services Standard** – If the policy uses a WS-Security standard, it is identified with `wss10` (WS-Security 1.0) or `wss11` (WS-Security 1.1). Or it could just be set to `wss` to indicate that it is independent of WS-Security 1.0 or 1.1.

- **Authentication token** – If the policy authenticates users, then the type of token is specified. The predefined options include:
  - `http_token` – HTTP token
  - `kerberos_token` – Kerberos token
  - `saml_token` – SAML token
  - `username_token` – Username and password token
  - `x509_token` – X.509 certificate token

  You can also define custom authentication tokens.

- **Transport security** – If the policy requires that the message be sent over a secure transport layer, then the token name is followed by `over_ssl`, for example, `wss_http_token_over_ssl_client_template`.

- **Message protection** – If the policy also provides message confidentiality and message integrity, then this is indicated using the phrase `with_message_protection` as in Figure 3–6.

- **Policy Type** – Indicates the type of policy or assertion template— `client` or `service`. Use the term `policy` to indicate that it is a policy, or `template` to indicate that it is an assertion template. For example, there are predefined policy and template assertions that are distinguished, as follows:
  ```
  wss10_message_protection_service_policy
  wss10_message_protection_service_template
  ```

Whatever conventions you adopt, Oracle recommends you take some time to consider how to name your policies. This will make it easier for you to keep track of your policies as your enterprise grows and you create new policies.

It is recommended that you keep any policies you create in a directory that is separate from the `oracle` directory where the predefined policies are located. You can organize your policies at the root level, in a directory other than `oracle`, or in subdirectories. For example, all of the following are valid:

- `wss10_message_protection_service_policy`
- `oracle/hq/wss10_message_protection_service_policy`
- `hq/wss10_message_protection_service_policy`

---

**Note:** You cannot prefix the name of a policy with "oracle_". For example, `oracle_wss_http_token_service_policy` is not a valid policy name.
Examining the Rearchitecture of Oracle WSM in Oracle Fusion Middleware

In Oracle Fusion Middleware 11g Release 1 (11.1.1), Oracle Web Services Manager (WSM) security and management has been completely redesigned and rearchitected. The previous release, Oracle WSM 10g, was delivered as a standalone product or as a component of the Oracle SOA Suite. In the 11g release, Oracle WSM has been integrated with Oracle WebLogic Server as part of the Oracle Fusion Middleware SOA Suite.

This chapter contains the following sections:

- How Oracle WSM 10g is Redesigned in Oracle Fusion Middleware 11g Release 1 (11.1.1)
- Comparing Oracle WSM 10g and Oracle WSM 11g Policies
- Comparing Oracle Application Server 10g WS-Security with Oracle WSM 11g
- Interoperability and Upgrade

How Oracle WSM 10g is Redesigned in Oracle Fusion Middleware 11g Release 1 (11.1.1)

Oracle WSM 10g has been rearchitected in Oracle Fusion Middleware 11g Release 1 (11.1.1), as follows:

- **Oracle WSM Agent functionality is integrated into Oracle WebLogic Server.** In Oracle Fusion Middleware 11g, the Oracle WSM 10g Agents are managed by the security and management policy interceptors.

- **Policy management and monitoring is integrated into Oracle Enterprise Manager Fusion Middleware Control.** The functions of the Oracle WSM Monitor and the Web Services Manager Control have been integrated into Fusion Middleware Control. This allows you to manage your enterprise from one central location.

- **Oracle WSM Policy Manager enforces additional Web service QoS requirements.** The Oracle WSM Policy Manager manages not only security policies, but it also manages other types of policies such as Message Transmission Optimization Mechanism (MTOM), Reliable Messaging, Addressing, and Management.

- **The Oracle WSM Database is replaced by the Oracle Metadata Services (MDS) Repository and Oracle Fusion Middleware Database.** The database continues to store policies and monitoring data in 11g. MDS provides integration with a common Metadata Repository.
Oracle WSM 10g policies have been replaced by Oracle WSM 11g policies. For a discussion of the differences between the policies in 10g and 11g, see "Comparing Oracle WSM 10g and Oracle WSM 11g Policies" on page 4-3.

Some Oracle WSM 10g features will not be supported in the first release of Oracle Fusion Middleware:

- A subset of Oracle WSM 10g components will not be supported in this first release of Oracle Fusion Middleware 11g.

  You can continue to use the Oracle WSM 10g Gateway components with Oracle WSM 10g policies in your applications. For information about Oracle WSM 10g interoperability, see "Interoperability with Oracle WSM 10g Security Environments" in Interoperability Guide for Oracle Web Services Manager.

- Oracle WSM 10g supported policy enforcement agents for third-party application servers, such as IBM WebSphere and Red Hat JBoss. Oracle Fusion Middleware 11g Release 1 (11.1.1) only supports Oracle WebLogic Server. Support for third-party application servers will follow this release.

The comparison between 10g and 11g components is summarized in Table 4–1 and the components are identified in Figure 4–1 and Figure 4–2.

### Table 4–1 Comparison of Oracle WSM 10g and Oracle Fusion Middleware 11g Release 1 (11.1.1)

<table>
<thead>
<tr>
<th>Description of Functionality</th>
<th>Oracle WSM 10g Component</th>
<th>Oracle Fusion Middleware 11g Release 1 (11.1.1) Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Policy enforcement point</td>
<td>Oracle WSM Server and Client Agents, Oracle WSM Gateway</td>
<td>Oracle WSM Agent which manages the policy interceptors There is no equivalent component for the Oracle WSM Gateway in Oracle Fusion Middleware 11g Release 1 (11.1.1).</td>
</tr>
<tr>
<td>2 GUI Component to author policies and attach policies to Web services</td>
<td>Web Services Manager Control</td>
<td>Oracle Enterprise Manager Fusion Middleware Control</td>
</tr>
<tr>
<td>3 Component to manage policies</td>
<td>Oracle WSM Policy Manager</td>
<td>Oracle WSM Policy Manager</td>
</tr>
<tr>
<td>4 Component used to monitor Web services data</td>
<td>Oracle WSM Monitor</td>
<td>Oracle Enterprise Manager Fusion Middleware Control and Oracle Enterprise Manager Grid Control</td>
</tr>
<tr>
<td>5 Policy Store</td>
<td>Oracle WSM Database</td>
<td>Oracle Metadata Services (MDS) Repository</td>
</tr>
</tbody>
</table>

Figure 4–1 illustrate the Oracle WSM 10g components, and the numbers in Table 4–1 identify the components in this figure.
Comparing Oracle WSM 10g and Oracle WSM 11g Policies

In both Oracle WSM 10g and Oracle WSM 11g, policies are used to enforce security. However, the structure of the policies is somewhat different. In Oracle WSM 10g, a policy consists of a Request Pipeline and a Response Pipeline, each comprised of one or more policy steps.

For example, in Figure 4–3, the Request Pipeline consists of the following policy steps: Extract Credentials, LDAP Authenticate, and LDAP Authorize. The Response Pipeline contains a different policy step, XML Encrypt. The Request Pipeline and Response Pipelines can be comprised of different policy steps, and, therefore, different behaviors can be executed in the request and response messages.
In Oracle WSM 11g, policies are comprised of one or more assertions, and you control the assertions that are used in the request and response messages. For example, in Figure 4–4, the example 11g policy contains two assertions:

1. wss11-username-with-certificate
2. binding-authorization

When the request message is sent to the Web service, the assertions are executed in the order shown. When the response message is returned to the client, the same assertions are executed, but this time in reverse order. The behavior of the assertion for the request message differs from the behavior for the response message. And, in some instances, it is possible that nothing happens on the response. For example, in the example above, the authorization assertion is only executed as part of the request.

For information about how the Oracle WSM 10.1.3 policy steps can be mapped to Oracle WSM 11g predefined policies, see "Upgrading Oracle Web Services Manager Policies" in Upgrade Guide for Oracle SOA Suite, WebCenter, and ADF Release 11g.

Comparing Oracle Application Server 10g WS-Security with Oracle WSM 11g

The following list identifies the primary enhancements to Oracle WSM 11g over Oracle Application Server 10g WS-Security:

■ **Centralized policy management.** Using the Oracle WSM Policy Manager, you centrally define security and management policies.

■ **Custom policy support.** You can create custom policies that support your security and management policy requirements, if the predefined policies do not meet your needs.

■ **Toolset used to manage and attach policies.** Security administrators can use Oracle Enterprise Manager Fusion Middleware Control to manage and attach Web services. Developers can attach security policies at development time, using Oracle JDeveloper or other IDE.

■ **Policies managed at the enterprise level.** Policies are defined at the enterprise level and not at the application level.
Interoperability and Upgrade

Oracle WSM 11g can interoperate with the following 10.1.3 components:

- Oracle WSM, as described in "Interoperability with Oracle WSM 10g Security Environments" in Interoperability Guide for Oracle Web Services Manager.

- Oracle WSM gateways, as described in "Interoperability with Oracle WSM 10g Security Environments" in Interoperability Guide for Oracle Web Services Manager.

- Application Server, as described in "Interoperability with Oracle Containers for J2EE (OC4J) 10g Security Environments" in Interoperability Guide for Oracle Web Services Manager.

In addition, you can interoperate with the following components:

- WebLogic Web services, as described "Interoperability with Oracle WebLogic Server 11g Web Service Security Environments” in Interoperability Guide for Oracle Web Services Manager.

- Microsoft .NET, as described in "Interoperability with Microsoft WCF/.NET 3.5 Security Environments” in Interoperability Guide for Oracle Web Services Manager.

- Oracle Service Bus, as described in "Interoperability with Oracle Service Bus 10g Security Environments” in Interoperability Guide for Oracle Web Services Manager.

- Axis 1.4 and WSS4J 1.58, as described in "Interoperability with Axis 1.4 and WSS4J 1.58 Security Environments” in Interoperability Guide for Oracle Web Services Manager.

You can upgrade the following 10.1.3 features to Oracle Fusion Middleware 11g Release 1 (11.1.1):

- OC4J Web services 10.1.3 to WebLogic Web services. See "Upgrading Your Java EE Applications” in Upgrade Guide for Java EE Release 11g.

- Oracle WSM 10.1.3 policies to Oracle WSM 11g. See "Upgrading Oracle Web Services Manager (WSM) Policies” in Upgrade Guide for Oracle SOA Suite, WebCenter, and ADF Release 11g.

Part II contains the following chapters:

- Chapter 5, "Deploying Web Services Applications"
- Chapter 6, "Administering Web Services"
- Chapter 7, "Managing Web Service Policies"
- Chapter 8, "Attaching Policies to Web Services"
- Chapter 9, "Setting Up Your Environment for Policies"
- Chapter 10, "Configuring Policies"
- Chapter 11, "Testing Web Services"
- Chapter 12, "Monitoring the Performance of Web Services"
Deploying Web Services Applications

This chapter contains the following sections:

- Overview
- Deploying Web Services Applications
- Redeploying a Web Services Application
- Undeploying a Web Services Application

Overview

As you work with Web services, you will find that you can deploy and undeploy their associated applications in different ways. Follow these guidelines when deploying applications associated with Web services:

- Use Oracle Enterprise Manager Fusion Middleware Control to deploy Java EE applications that require Oracle Metadata Services (MDS) or that take advantage of the Oracle Application Development Framework (Oracle ADF).
- If your application is a SOA composite, use the SOA Composite deployment wizard.
- If your application is a WebCenter application, use Oracle Enterprise Manager Fusion Middleware Control.
- If your application is not a SOA composite or it does not require an MDS repository or ADF connections, then you can deploy your application using Fusion Middleware Control or the Oracle WebLogic Server Administration Console.

Note: To deploy WebLogic Web services, use only the Oracle WebLogic Administration Console.

Additional Deployment Documentation Available

This chapter provides an overview of the basic procedure for deploying a Web service application. For more information about deploying applications, see "Deploying Applications" in Oracle Fusion Middleware Administrator’s Guide. In particular, take note of the following sections:

- Deploying, Undeploying, and Redeploying Java EE Applications
- Deploying, Undeploying, and Redeploying Oracle ADF Applications
- Deploying, Undeploying, and Redeploying SOA Composite Applications
Deploying Web Services Applications

The following is an overview of the basic procedure for deploying a Web service application using the Oracle Enterprise Manager Fusion Middleware Control.

To deploy a Web services application
1. From the navigation pane, expand WebLogic Domain.
2. Expand the domain in which you want to deploy the Web service, and then select the instance of the server on which you want to deploy it.
4. Select Application Deployment, and then select Deploy.

The first screen of the Deploy process is displayed, as shown in Figure 5–1.

5. Click on one of the following Archive or Exploded Directory options:
   - Archive is on the machine where this web browser is running.
   - Archive or exploded directory is on the server where Enterprise Manager is running.

6. A deployment plan is an XML file that you use to configure an application for deployment to a specific environment. If you do not already have a deployment plan for the Web services application you are deploying, one is created for you when you deploy the application.

   Click one of the following Deployment Plan options:
   - Automatically create a new deployment plan
   - Deployment plan is present on local host
Deployment plan is already present on the server where Enterprise Manager is running.

7. Click Next.

8. On the Select Target page, select the target (WebLogic server or cluster) to which you want this application deployed, and click Next.

**Figure 5-2 Select Target Page**

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Deployment Applica</th>
</tr>
</thead>
<tbody>
<tr>
<td>AdminServer</td>
<td>Oracle WebLogic Server</td>
<td>adminserver@1.1.1.1.0.0, adminserver@1.1.1.1.0.0, adminserver@1.1.1.1.0.0, adminserver@1.1.1.1.0.0</td>
</tr>
<tr>
<td>JMServer-0</td>
<td>JMS server</td>
<td></td>
</tr>
</tbody>
</table>

9. On the Application Attributes page, enter the attributes for this Web services application, and click Next. Application Name is the only required attribute. However, if you want to be able to later redeploy this Web service application without first having to undeploy it, you must also assign a version number.

The context root is the URI for the web module. Each web module or EJB module that contains web services may have a context root.

**Figure 5-3 Application Attributes Page**

<table>
<thead>
<tr>
<th>Application Attributes</th>
<th>Cancel</th>
<th>Back</th>
<th>Step 3 of 4</th>
<th>Next</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Name</td>
<td>jaxws2000-web-test</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Application Version</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Context Root of Web Modules</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Web Module</td>
<td>Context Root</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>jaxws2000-web-war</td>
<td>jaxws2000-web-war</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
10. On the Deployment Settings page, edit the deployment settings for this Web services application, as shown in Figure 5–4.

**Figure 5–4  Deployment Settings Page**

11. To save a copy of the deployment plan to your local system, click Save Deployment Plan.

12. To edit the deployment plan, possibly to add advanced deployment options, click Edit Deployment Plan. If you do so, the Edit Deployment Plan screen is displayed, as shown in Figure 5–5. After making changes to the deployment plan, click Apply to make the change effective.

**Figure 5–5  Edit Deployment Plan**

13. Click Deploy on the Deployment Settings page. If successful, the Deployment Succeeded screen is displayed.
Undeploying a Web Services Application

The procedure for undeploying or redeploying a Web service is the same as the procedure for any application.

To undeploy a Web services application

1. From the navigation pane, expand Application Deployments, then select the application that you want to undeploy.
   
   The Application Deployment is displayed

2. Using Fusion Middleware Control, click Application Deployment.

3. From the Application Deployment menu, select Application Deployment, then Undeploy.
   
   The undeploy confirmation page is displayed.

4. Click Undeploy.
   
   Processing messages are displayed.

5. When the operation completes, click Close.

Redeploying a Web Services Application

When you redeploy a Web service application, the running application is automatically stopped and then restarted.

Redeploy an application if:

- You have made changes to the application and you want to make the changes available.
- You have made changes to the deployment plan.
- You want to redeploy an entirely new archive file in a new location.

When you redeploy an application, you can redeploy the original archive file or exploded directory, or you can specify a new archive file in place of the original one. You can also change the deployment plan that is associated with the application.

Note: Applications that were previously deployed without a version cannot be redeployed. To redeploy the not-versioned applications, you need to undeploy and deploy the application.

To redeploy a Web services application

The steps that you follow to redeploy a Web service application are identical to those required when you first deployed the application (see Deploying Web Services Applications), with two exceptions: you must redeploy the application with a new version, and you can optionally set the retirement policy for the current version. Both of these actions occur at Step 3 of redeployment process, as shown in Figure 5–6.
Figure 5–6 Setting Application Attributes During Redeploy

Application Attributes

Archetype Type: Web Module (WAR file)
Archetype Location: default
Deployment Plan: Create a new plan
Deployment Target: Adminserver
Application Name: uddi-war
Existing Version: 1

Deployment Options:
The application was previously deployed with version 1. You can redeploy the application with a new version. To redeploy with same version, you need to undeploy and deploy the application.

- Application Version

Instrumentation Policy
- Allow the application to finish its current sessions and then retrieve.
- Retain the previous version after a new timeout.

Context Root of Web Modules:
The context root is not configurable from EM if the web module already has the context root configured in application.xml.

<table>
<thead>
<tr>
<th>Web Module</th>
<th>Context Root</th>
</tr>
</thead>
<tbody>
<tr>
<td>uddi-war</td>
<td>uddi-war</td>
</tr>
</tbody>
</table>
Oracle Enterprise Manager Fusion Middleware Control is the primary interface that you can use to manage Oracle Fusion Middleware Web Services. You can also use WebLogic Scripting Tool (WLST) commands to perform some configuration tasks for SOA, ADF, and WebCenter services. This chapter describes how to navigate to the pages in Fusion Middleware Control where you perform many of the tasks to manage your Web services, and it describes how to perform basic administration tasks. When applicable, it describes how to perform the task using WLST also. This chapter includes the following sections:

- Viewing All Current Web Services for a Server
- Navigating to the Web Services Summary Page for an Application
- Viewing the Web Services in Your Application
- Viewing the Web Services and References in a SOA Composite
- Viewing the Details for a Web Service Endpoint
- Viewing the Security Violations for a Web Service
- Viewing Web Service Clients
- Displaying the Web Service WSDL Document
- Configuring the Web Service Endpoint
- Enabling or Disabling a Web Service
- Enabling or Disabling RESTful Web Services
- Enabling or Disabling the Display of the Web Service WSDL Document
- Enabling or Disabling the Exchange of Metadata
- Enabling or Disabling the Web Service Test Endpoint
- Validating the Request Message
- Configuring Web Services Atomic Transactions
- Setting the Size of the Request Message
- Configuring Asynchronous Web Services
- Enabling and Disabling MTOM
- Configuring the Web Service Client
Viewing All Current Web Services for a Server

Follow the procedures below to view all of the currently-deployed Web services for a given server.

Using Fusion Middleware Control

To view all current Web services for a server:

1. In the navigator pane, expand WebLogic Domain to show the domain in which you want to see the Web services.
2. Expand the domain.
3. Select the server for which you want to view all current Web services.
4. Using Fusion Middleware Control, click WebLogic Server and then Web Services. The server-specific Web Services Summary page appears, as shown in Figure 6–1.

You can view tabs for Java EE Web services, non-SOA Oracle Web services such as those for ADF and WebCenter, and SOA Web services.

The tabs that are displayed depend on the Web services deployed on that server.

From this page you can click Attach Policies to attach one or more policies to one or more Web services. Note that attaching policies from this page (bulk attachment) does not perform validation on the policies that you attach.

![Figure 6–1 Server-Specific Web Services Summary Page](image)

Using WLST

To view all the current Web services for a server:

1. Connect to the running instance of WebLogic Server for which you want to view the Web services as described in "Accessing the Web Services Custom WLST Commands" on page 1-6.
2. Use the listWebServices() WLST command to display a list of the Web services.

   ```
   listWebServices (application,composite,[detail])
   ```

   For example:
Navigating to the Web Services Summary Page for an Application

To navigate to the Web services summary page for an application:

1. From the navigator pane, click the plus sign (+) for the Application Deployments folder to expose the applications in the domain, and select the application.
Navigating to the Web Services Summary Page for an Application

The Application Deployment home page is displayed.

2. Using Fusion Middleware Control, click Application Deployment, then click Web Services.

This takes you to the Web Services summary page for your application. Figure 6–2 shows the Web Services summary page for an ADF or WebCenter application. Figure 6–3 shows the Web Services summary page for a WebLogic JEE application.

**Note:** In the Web Service Details section of the page, Oracle Infrastructure Web service provider endpoints display n/a in the Endpoint Enabled column.
Viewing the Web Services in Your Application

Use the procedures described in the following sections to view the Web services in your application.

Using Fusion Middleware Control

Navigate to the home page for your Web service, as described in "Navigating to the Web Services Summary Page for an Application" on page 6-3. From the Web Services Summary page, you can do the following:

- View the Web services in the application.
- View the Web service configuration, endpoint status, policy faults, and more. (ADF and WebCenter applications only.)
- View and monitor Web services faults, including Security, Reliable Messaging, MTOM, Management, and Service faults. (ADF and WebCenter applications only.)
- View and monitor Security violations, including authentication, authorization, message integrity, and message confidentiality violations. (ADF and WebCenter applications only.)
- Navigate to pages where you can configure your Web services endpoints, including enabling and disabling the endpoint, and attaching policies to Web services.

Using WLST

To view the Web services in your application:

1. Connect to the running instance of WebLogic Server to which the application is deployed as described in "Accessing the Web Services Custom WLST Commands" on page 1-6.

2. Use the listWebServices WLST command to display a list of the Web services in your application. You must specify the complete application path name to identify the application and the server instance to which it is deployed.

   `listWebServices (application,composite, [detail])`

For example:

```
<wls:ws-domain/serverConfig>listWebServices("wls-domain/AdminServer/jaxwsejb30
ws")
</wls:ws-domain/AdminServer/jaxwsejb30ws:

moduleName=jaxwsejb, moduleName=jaxwsejb, moduleName=jaxwsejb, moduleName=jaxwsejb,
moduleType=web, moduleType=web, moduleType=web, moduleType=web,
serviceName=JaxwsWithHandlerChainBeanService
serviceName=WsdIConcreteService
serviceName=EchoEJBService
serviceName=CalculatorService
moduleName=jaxwsejb, moduleName=jaxwsejb, moduleName=jaxwsejb,
moduleType=web, moduleType=web, moduleType=web,
serviceName=DoclitWrapperWTJService
serviceName=DoclitWrapperWTJService
```

For details about the listWebServices command, see "Web Services Custom WLST Commands" in WebLogic Scripting Tool Command Reference.

Note: This procedure applies to Oracle Infrastructure Web services only.
Viewing the Web Services and References in a SOA Composite

Use the following procedure to view the Web services and references in a SOA composite application:

1. From the navigator, click the plus sign (+) for SOA deployments.
2. Select `soa-infra`, expand the SOA partition (for example, the default partition) and select the target SOA composite application.
   
   The SOA composite home page displays.
3. Select the **Dashboard** tab if it is not already selected.
   
   The Services and References section of this tab displays the service and reference components being used in the application, as shown in **Figure 6–4**.

**Figure 6–4  SOA Composite Application Dashboard Page**

Viewing the Details for a Web Service Endpoint

Use the procedures described in the following sections to view the details for a Web service endpoint (port) using Oracle Enterprise Manager Fusion Middleware Control and WLST.

Using Fusion Middleware Control

In Fusion Middleware Control, the steps you follow to view the details for a Web service endpoint depend on the application type, as described in the following sections.
To view the details for a non-SOA Oracle Infrastructure or WebLogic Web service endpoint:

1. Navigate to the Web Services Summary page as described in "Navigating to the Web Services Summary Page for an Application" on page 6-3.

2. In the Web Service Details section of the page, click on the plus (+) for the Web service to display the Web service endpoints if they are not already displayed.

3. Click the name of the endpoint to navigate to the Web Service Endpoints page.

4. From the Web Service Endpoints page, you can do the following:
   - Click the Operations tab to see the list of operations for this endpoint.
   - Click the Policies tab to see the policies attached to this endpoint.
   - Click the Charts tab to see a graphical display of the faults for this endpoint. (Oracle Infrastructure Web Services only.)
   - Click the Configuration tab to see the configuration for this endpoint. (Oracle Infrastructure Web Services only.)

As an alternative method of viewing the details for a Web service endpoint, you can instead navigate to the server-wide Web Services Summary page, as described in "Viewing All Current Web Services for a Server" on page 6-2, which lists all of the Web services, and click the name of the endpoint to navigate to the specific Web Service Endpoints page.

To view the Web service endpoint configuration for a SOA composite application:

1. Navigate to the home page for the SOA composite as described in "Viewing the Web Services and References in a SOA Composite" on page 6-6.

2. In the Services and References section of the page, click the name of the service or reference to display the Service Home or Reference Home page, as appropriate.

3. From the Service Home or Reference Home page, you can do the following:
   - Click the Dashboard tab, if it is not already selected, to see a graphic representation of the total incoming messages and faults since server startup, and recently rejected messages, including the message name, time of the fault, and the type of fault (business or system).
   - Click the Policies tab to view or change the policies attached to this endpoint.
   - Click the Faults and Rejected Messages tab to see a list of faults and rejected messages, including details such as the error message, time of the fault, and the associated composite instance ID.
   - Click the Properties tab to view and modify the configuration for this endpoint.

For additional information about SOA composite endpoints, see "Administering Binding Components" in Oracle Fusion Middleware Administrator’s Guide for Oracle SOA Suite and Oracle Business Process Management Suite.

Using WLST

To view the details for a Web service endpoint (port):
Viewing the Details for a Web Service Endpoint

1. Connect to the running instance of WebLogic Server to which the application is deployed as described in "Accessing the Web Services Custom WLST Commands" on page 1-6.

2. Use the listWebServices WLST command to display a list of the Web services in your application as described in "Viewing the Web Services in Your Application" on page 6-5.

3. Use the listWebServicePorts command to display the endpoint name and endpoint URL for a Web service.

   listWebServicePorts(application, moduleOrCompName, moduleType, serviceName)

   For example, to display the endpoint for the WsdlConcreteService:

   wls:/wls-domain/serverConfig>
   listWebServicePorts("/wls-domain/AdminServer/jaxwsejb30ws","jaxwsejb","web","WsdlConcreteService")

   WsdlConcretePort http://host.us.oracle.com:7001/jaxwsejb/WsdlAbstract

4. Use the listWebServiceConfiguration command to view the configuration details for a Web service endpoint.

   listWebServiceConfiguration(application, moduleOrCompName, moduleType, serviceName, [subjectName])

   For example, to view the configuration details for the WsdlConcretePort:

   wls:/wls-domain/serverConfig>
   listWebServiceConfiguration("/wls-domain/AdminServer/jaxwsejb30ws","jaxwsejb","web","WsdlConcreteService","WsdlConcretePort")

   enable: true
   enableREST: false
   maxRequestSize: -1
   loggingLevel: NULL

5. Use the listWebServicePolicies command to view the policies that are attached to a Web service endpoint.

   listWebServicePolicies(application, moduleOrCompName, moduleType, serviceName, subjectName)

   For example, to view the policies attached to the WsdlConcretePort endpoint and any policy override settings:

   wls:/wls_domain/serverConfig> listWebServicePolicies("/wls_domain/AdminServer/jaxwsejb30ws", "jaxwsejb","web","WsdlConcreteService","WsdlConcretePort")

   WsdlConcretePort : 
   addressing : oracle/wsaddr_policy , enabled=true
   management : oracle/log_policy , enabled=true

   For more information about these WLST commands and their arguments, see "Web Services Custom WLST Commands" in WebLogic Scripting Tool Command Reference.

Note: This procedure applies to Oracle Infrastructure Web services only.
Viewing the Security Violations for a Web Service

Follow the procedure below to view security violations for a Web service.

---

**Note:** This procedure applies to Oracle Infrastructure Web services only.

---

**To view the security violations for a Web service:**

1. Navigate to the Web Services Summary page.
2. In the Charts section of the page, select the **Security Violations** tab.
   
   A graphical representation of the authentication, authorization, confidentiality, and integrity faults for all Web services in the application is displayed in the pie chart.
3. In the Web Service Details section of the page, click on the plus (+) for the Web service to display the Web service endpoints if they are not already displayed.
4. Click the name of the endpoint to navigate to the Web Service Endpoints page.
5. Click the **Charts** tab to see a graphical representation of all faults and all security faults.
6. Click the **Policies** tab.
   
   A list of the policies that are attached to the endpoint is displayed. The status of the policy (whether the policy is enabled or disabled), the number of security faults (authentication, authorization, confidentiality, and integrity), and total policy faults for each policy are displayed.

Viewing Web Service Clients

The following sections describe how to view Web service clients for your application.

Using Fusion Middleware Control

The steps you follow to view a Web service client depend on the application type (SOA reference, ADF DC, WebCenter, or asynchronous Callback client), as described in the following sections.

Viewing SOA References

Use the following procedure to view a SOA reference client:

1. From the navigator pane, click the plus sign (+) for SOA deployments.
2. Select `soa-infra`, expand the SOA partition (for example, the default partition) and select the target SOA composite application.
   
   The SOA composite home page displays.
3. Click the Dashboard tab, if it is not already selected.
4. In the Services and References portion of the page, select the SOA reference to view.
5. In the Reference Home page, click the tabs to view the client data.
Viewing ADF DC Web Service Clients

Use the following procedure to view an ADF DC Web service client.

1. From the navigator pane, click the plus sign (+) for the Application Deployments folder to expose the applications in the farm, and select the application.
   
   The Application Deployment home page is displayed.

2. From the Application Deployment menu, select ADF, and then Configure ADF Connections.

3. On the ADF Connections Configuration page, select a connection from the Web Service Connections section of the page, and then select the endpoint from the Configure Web Service list.

4. In the Configure Web Service page, click the tabs to view the client data.

Viewing WebCenter Portlets

Use the following procedure to view a WebCenter portlet.

1. From the navigator pane, click the plus sign (+) for the WebCenter folder and WebCenter Spaces folder to display the WebCenter spaces.

2. Click the name of the WebCenter space to view.

3. From the WebCenter menu, select Settings and Service Configuration.
   
   The WebCenter Service Configuration page is displayed.

4. Select Portlet Producers to view the WebCenter portlets.

Viewing Asynchronous Web Service Callback Clients

Use the following procedure to view an asynchronous Web service Callback client. Callback clients are used only by asynchronous Web services to return the response to the caller. For more information, see "Developing Asynchronous Web Services" in Oracle Fusion Middleware Concepts Guide for Oracle Infrastructure Web Services.

1. Navigate to the endpoint for the asynchronous Web service, as described in "Viewing the Details for a Web Service Endpoint" on page 6-6.

2. Click Callback Client in the upper right portion of the endpoint page.

Using WLST

Use the following procedure to view the Web service clients using WLST commands:

| Note: | This procedure applies to Oracle Infrastructure Web service clients only. |

1. Connect to the running instance of WebLogic Server to which the application is deployed as described in "Accessing the Web Services Custom WLST Commands" on page 1-6.

2. Use the listWebServiceClients WLST command to display a list of the Web service clients.

   listWebServiceClients {application,composite,[detail]}

   This command enables you to list the clients for an application, a SOA composite, or a domain. To list the client information for an application or SOA composite,
specify the appropriate argument. If you do not specify an application or SOA composite, the command outputs information, including the module name, module type, and SOA reference name for all the Web service clients in all applications and composites in every server instance in the domain. To view details about each client, including the endpoint and policies, set the detail argument to true.

For example:

```
wls:/base_domain/serverConfig> listWebServiceClients(None,None,true)
```

/base_domain/soa_server1/soa-infra:
    compositeName=default/sdo-ejb-cust-nobpel[1.0], moduleType=soa,
    serviceRefName=EJBReference
    compositeName=default/EventMediatorDemo[1.0], moduleType=soa,
    serviceRefName=OrderLogger

/base_domain/AdminServer/application1#V2.0 :
    moduleName=test1, moduleType=wsconn, serviceRefName=client
    HelloWorld_pt
    keystore.recipient.alias=A1
    saml.issuer.name=B1
    user.roles.include=C1
    management : oracle/log_policy , enabled=true
    addressing : oracle/wmaddr_policy , enabled=true

/base_domain/soa_server1/ServiceClient :
    moduleName=test1, moduleType=wsconn, serviceRefName=AppModuleService
    AppModuleServiceSoapHttpPort
    security : oracle/wss10_saml_token_client_policy , enabled=true
    management : oracle/log_policy , enabled=true
    addressing : oracle/wmaddr_policy , enabled=true

Note that the output displays SOA references (using the serviceRefName argument) for the SOA composites default/sdo-ejb-cust-nobpel[1.0] and default/EventMediatorDemo[1.0]. To list the SOA references for a SOA composite, specify the composite name in the command, for example `listWebServiceClients(None,'default/EventMediatorDemo[1.0]')`.

ADF and WebCenter clients are specified by the moduleType=wsconn argument in the output.

For more information about the WLST commands and their arguments, see "Web Services Custom WLST Commands" in WebLogic Scripting Tool Command Reference.

Displaying the Web Service WSDL Document

Follow the procedure below to display the WSDL document for a Web service.

To display the WSDL document for a Web service:
1. Navigate to the Web Services Summary page.
2. In the Web Service Details section of the page, click on the plus (+) for the Web service to display the Web service endpoints if they are not already displayed.
3. Click the name of the endpoint to navigate to the Web Service Endpoint page.
4. In the WSDL Document field, click the endpoint name to display the WSDL for the Web service (Figure 6–5).
Configuring the Web Service Endpoint

Follow the procedures below to configure the Web service endpoint (or port).

**Note:** The procedures described in this section apply to Oracle Infrastructure Web services and providers only.

Oracle Infrastructure Web service providers implement the java.xml.ws.Provider interface. On the Web Service Endpoint page, they display the Implementation Class and provide a subset of configuration properties.

**Using Fusion Middleware Control**

Use the following procedure to configure the Web service endpoint using Fusion Middleware Control:

1. Navigate to the Web Service Endpoints page, or the Service Home page (for SOA composites), as described in “Viewing the Details for a Web Service Endpoint” on page 6-6.

2. Click the **Configuration** tab. For SOA composites, click the **Properties** tab.

3. Set the configuration attributes and click **Apply**.

For more information about setting the configuration attributes, see:

- “Enabling or Disabling a Web Service” on page 6-15
- “Enabling or Disabling RESTful Web Services” on page 6-16
- “Enabling or Disabling the Display of the Web Service WSDL Document” on page 6-17
- “Enabling or Disabling the Exchange of Metadata” on page 6-18
- “Enabling or Disabling the Web Service Test Endpoint” on page 6-19
- “Setting the Log Level for Diagnostic Logs” on page 16-3
- “Validating the Request Message” on page 6-20
4. For ADF and WebCenter applications, restart the Web service application. You do not need to restart a SOA composite.

---

**Note:** You need to wait approximately 30 seconds (or the equivalent of the configured Graceful Shutdown Timeout time) between stopping and restarting the application. During this time, the server is allowing all global transactions to complete before shutting down the application. If you do not wait the configured Graceful Shutdown Timeout time, then the application will not be restarted appropriately and you will not be able to access it. To avoid waiting the graceful shutdown timeout period, you can restart the application twice.

---

**Using WLST**

Use the following procedure to configure the Web service endpoint (port) using WLST:

1. Connect to the running instance of WebLogic Server to which the application is deployed as described in "Accessing the Web Services Custom WLST Commands" on page 1-6.

2. Use the `listWebServices` WLST command to display a list of the Web services in your application as described in "Viewing the Web Services in Your Application" on page 6-5.

3. Use the `listWebServicePorts` command to display the endpoint name and endpoint URL for a Web service.

   ```
   listWebServicePorts(application, moduleOrCompName, moduleType, serviceName)
   ```

   For example, to display the endpoint for the `WsdlConcreteService`:

   ```
   wls:/wls-domain/serverConfig>
   listWebServicePorts("/wls-domain/AdminServer/jaxwsejb30ws", None, "web", "WsdlConcreteService")
   WsdlConcretePort   http://host.us.oracle.com:7001/jaxwsejb/WsdlAbstract
   ```

4. Use the `listWebServiceConfiguration` command to view the configuration details for a Web service endpoint.

   ```
   listWebServiceConfiguration(application, moduleOrCompName, moduleType, serviceName, [subjectName])
   ```

   For example, to view the configuration details for the `WsdlConcretePort`:

   ```
   wls:/wls-domain/serverConfig>
   listWebServiceConfiguration("/wls-domain/AdminServer/jaxwsejb30ws","jaxwsejb", "web", "WsdlConcreteService","WsdlConcretePort")
   enable: true
   enableREST: false
   maxRequestSize: -1
   loggingLevel: NULL
   ```
Alternatively, you can set the `detail` argument to `true` in the `listWebServices` command to view the configuration details for the endpoint as shown in "Using WLST" in "Viewing All Current Web Services for a Server" on page 6-2.

5. Use the `setWebServiceConfiguration` command to set or change the endpoint configuration. Specify the properties to be set or changed using the `itemProperties` argument.

```
setWebServiceConfiguration(application,moduleOrCompName,moduleType,serviceName,subjectName,itemProperties)
```

For example, to change the logging level to `SEVERE` for the `WsdlConcretePort`, use the following command:

```
setWebServiceConfiguration("/wls-domain/AdminServer/jaxwsejb30ws", "jaxwsejb","web","WsdlConcreteService","WsdlConcretePort",
[("loggingLevel","SEVERE")])
```

Please restart application to uptake the policy changes.

For more information about the configurable properties, see:

- "Enabling or Disabling a Web Service" on page 6-15
- "Enabling or Disabling RESTful Web Services" on page 6-16
- "Enabling or Disabling the Display of the Web Service WSDL Document" on page 6-17
- "Enabling or Disabling the Web Service Test Endpoint" on page 6-19
- "Configuring Web Services Atomic Transactions" on page 6-20
- "Setting the Size of the Request Message" on page 6-23
- "Setting the Log Level for Diagnostic Logs" on page 16-3

**Note:** If any configuration item contains an unrecognized property name or an invalid value, this set command is rejected and an error message is displayed.

6. For ADF and WebCenter applications, restart the Web service application. You do not need to restart a SOA composite.

**Note:** You need to wait approximately 30 seconds (or the equivalent of the configured Graceful Shutdown Timeout time) between stopping and restarting the application. During this time, the server is allowing all global transactions to complete before shutting down the application. If you do not wait the configured Graceful Shutdown Timeout time, then the application will not be restarted appropriately and you will not be able to access it. To avoid waiting the graceful shutdown timeout period, you can restart the application twice.

For more information about these WLST commands and their arguments, see "Web Services Custom WLST Commands" in *WebLogic Scripting Tool Command Reference*. 
Enabling or Disabling a Web Service

When a Web service application is deployed, the Web service endpoint is enabled by default if no errors are encountered. If there are errors, the Web service application is deployed, but the Web service endpoint is not enabled.

You may need to temporarily make a Web service unavailable by disabling the Web service. For example, you may need to correct an invalid policy reference. When you disable a Web service, requests to the Web service will fail. To disable a Web service, you must make the endpoint on which the Web service receives requests unavailable.

Using Fusion Middleware Control

To disable an ADF or WebCenter Web service endpoint:
1. Navigate to the Web Services Summary page.
2. In the Web Service Details section of the page, click on the plus (+) for the Web service to display the Web service endpoints if they are not already displayed.
3. Click the name of the endpoint to navigate to the Web Service Endpoints page.
4. From the Web Service Endpoints page, click the Configuration tab.
5. In the Endpoint Enabled field, select Disabled from the menu, and click Apply.
6. Restart the application that uses the Web service.

Using WLST

To disable a Web service endpoint (port) using WLST, use the `setWebServiceConfiguration` command. Set the enable property of the itemProperties argument to false to disable the endpoint and to true to enable it.

The procedure for using this command is described in "Using WLST" in "Configuring the Web Service Endpoint" on page 6-12.

For example, to disable the endpoint WsdlConcretePort, use the following command:

```bash
wls:wls-domain/serverConfig> setWebServiceConfiguration
("/wls-domain/AdminServer/jaxwsejb30ws","jaxwsejb","web","WsdlConcreteService", "WsdlConcretePort",[{"enable","false"}])
```

Please restart application to uptake the policy changes.

---

Note: The procedures described in this section apply to Oracle Infrastructure Web services only.

Note: You need to wait approximately 30 seconds (or the equivalent of the configured Graceful Shutdown Timeout time) between stopping and restarting the application. During this time, the server is allowing all global transactions to complete before shutting down the application. If you do not wait the configured Graceful Shutdown Timeout time, then the application will not be restarted appropriately and you will not be able to access it. To avoid waiting the graceful shutdown timeout period, you can restart the application twice.
Enabling or Disabling RESTful Web Services

You can enable or disable a Web services endpoint to accept messages in Representational State Transfer (REST) format.

**Note:** The procedures described in this section apply to Oracle Infrastructure Web services only.

Using Fusion Middleware Control

To enable or disable Web service styles:

1. Navigate to the Web Service Endpoints page, or the Service Home page (for SOA composites), as described in "Viewing the Details for a Web Service Endpoint" on page 6-6.

2. Click the **Configuration** tab. For SOA composites, click the **Properties** tab.

3. In the REST Enabled field, select **True** from the menu to enable REST, or select **False** to disable REST, and click **Apply**.

   Figure 6–3 indicates the location of the REST Enabled field for an ADF or WebCenter endpoint.

4. For ADF and WebCenter applications, restart the Web service application. You do not need to restart a SOA composite.
Using WLST

To enable or disable a Web services endpoint (port) to accept messages in REST format using WLST, use the `setWebServiceConfiguration` command. Set the `enableREST` property of the `itemProperties` argument to `true` to enable REST and to `false` to disable it.

The procedure for using this command is described in "Using WLST" in "Configuring the Web Service Endpoint" on page 6-12.

For example, to enable the REST format for the `WsdlConcretePort`, use the following command:

```
wlst:/wls-domain/serverConfig> setWebServiceConfiguration
("/wls-domain/AdminServer/jaxwsejb30ws","jaxwsejb","web","WsdlConcreteService", 
"WsdlConcretePort",[("enableREST","true")])
```

Please restart application to uptake the policy changes.

For more information about this WLST command, see "Web Services Custom WLST Commands" in WebLogic Scripting Tool Command Reference.

Enabling or Disabling the Display of the Web Service WSDL Document

The following procedures describe how to enable or disable the display of the Web service WSDL document.

**Note:** The procedures described in this section apply to Oracle Infrastructure Web services and providers only.

Using Fusion Middleware Control

To enable or disable the display of the Web service WSDL document:

1. Navigate to the Web Service Endpoints page, or the Service Home page (for SOA composites), as described in “Viewing the Details for a Web Service Endpoint” on page 6-6.

2. Click the Configuration tab. For SOA composites, click the Properties tab.

3. From the WSDL Enabled field, select True from the menu to enable the display of the WSDL or False to disable the display of the WSDL, and click Apply.

4. For ADF and WebCenter applications, restart the Web service application. You do not need to restart a SOA composite.
Enabling or Disabling the Exchange of Metadata

Using WLST

To enable or disable the display of a WSDL document for a Web service endpoint (port), use the `setWebServiceConfiguration` command. Set the `enableWSDL` property of the `itemProperties` argument to `true` to enable display the WSDL and to `false` to disable it.

The procedure for using this command is described in "Using WLST" in "Configuring the Web Service Endpoint" on page 6-12.

For example, to enable the WSDL display for the `WsdlConcretePort`, use the following command:

```
wls:/wls-domain/serverConfig> setWebServiceConfiguration
("/wls-domain/AdminServer/jaxwsejb30ws","jaxwsejb","web", "WsdlConcreteService","WsdlConcretePort",[{"enableWSDL","true"}])
```

Please restart application to uptake the policy changes.

For more information about this WLST command, see "Web Services Custom WLST Commands" in `WebLogic Scripting Tool Command Reference`.

Enabling or Disabling the Exchange of Metadata

The following procedure describes how to enable or disable the exchange of Web service metadata.

```
Note:  The procedure described in this section applies to Oracle Infrastructure Web services only.
```

To enable or disable the exchange of metadata:

1. Navigate to the Web Service Endpoints page, or the Service Home page (for SOA composites), as described in "Viewing the Details for a Web Service Endpoint" on page 6-6.
2. Click the Configuration tab. For SOA composites, click the Properties tab.
3. In the Metadata Exchange Enabled field, select True from the menu to enable the exchange of metadata or False to disable the exchange of metadata, and click Apply.
4. For ADF and WebCenter applications, restart the Web service application. You do not need to restart a SOA composite.
Enabling or Disabling the Web Service Test Endpoint

The following procedures describes how to enable or disable the Web service test endpoint using Fusion Middleware Control and WLST.

**Using Fusion Middleware Control**

To enable or disable the Web service test endpoint:

1. Navigate to the Web Service Endpoints page, or the Service Home page (for SOA composites), as described in "Viewing the Details for a Web Service Endpoint" on page 6-6.
2. Click the Configuration tab. For SOA composites, click the Properties tab.
3. In the Endpoint Test Enabled field, select True from the menu to enable the test endpoint or False to disable the test endpoint, and click Apply.
4. For ADF and WebCenter applications, restart the Web service application. You do not need to restart a SOA composite.

**Using WLST**

To enable or disable the Web service test endpoint, use the setWebServiceConfiguration command. Set the enableTestPage property of the itemProperties argument to true to enable the test endpoint and to false to disable it.

**Note:** You need to wait approximately 30 seconds (or the equivalent of the configured Graceful Shutdown Timeout time) between stopping and restarting the application. During this time, the server is allowing all global transactions to complete before shutting down the application. If you do not wait the configured Graceful Shutdown Timeout time, then the application will not be restarted appropriately and you will not be able to access it. To avoid waiting the graceful shutdown timeout period, you can restart the application twice.
Validating the Request Message

The following procedure describes how to enable or disable the validation of the request message against the schema.

**Note:** The procedure described in this section applies to Oracle Infrastructure Web services only.

To enable or disable schema validation:

1. Navigate to the Web Service Endpoints page, or the Service Home page (for SOA composites), as described in "Viewing the Details for a Web Service Endpoint" on page 6-6.

2. Click the **Configuration** tab. For SOA composites, click the **Properties** tab.

3. In the Schema validation field, select **True** from the menu to enable schema validation or **False** to disable schema validation, and click **Apply**.

4. For ADF and WebCenter applications, restart the Web service application. You do not need to restart a SOA composite.

**Note:** You need to wait approximately 30 seconds (or the equivalent of the configured Graceful Shutdown Timeout time) between stopping and restarting the application. During this time, the server is allowing all global transactions to complete before shutting down the application. If you do not wait the configured Graceful Shutdown Timeout time, then the application will not be restarted appropriately and you will not be able to access it. To avoid waiting the graceful shutdown timeout period, you can restart the application twice.

Configuring Web Services Atomic Transactions

WebLogic Web services support the WS-Coordination and WS-AtomicTransaction (WS-AT) specifications. Therefore, you can configure Web services atomic transactions to enable interoperability between Oracle WebLogic Server and other vendor’s transaction processing systems, such as WebSphere, JBoss, Microsoft .NET, and so on.

Web services atomic transactions are supported for WebLogic JAX-WS Web services and SOA Web services and references. You can enable and configure Web services atomic transactions at design time as described in the following topics:
"Using Web Services Atomic Transactions" in *Programming Advanced Features of JAX-WS Web Services for Oracle WebLogic Server*

"WS-Atomic Transaction Support" in *Oracle Fusion Middleware Developer's Guide for Oracle SOA Suite*

For WebLogic JAX-WS Web services, you can configure Web services atomic transactions at deployment time using the WebLogic Server Administration Console. For more information, see "Configure Web service atomic transactions" in the *Oracle WebLogic Server Administration Console Help*.

For SOA Web services and references, you can configure Web services atomic transactions at deployment time, on the service or reference endpoint, using Oracle Enterprise Manager Fusion Middleware Control or WLST. Refer to the following sections for detailed procedures using both interfaces.

For information about configuring Web service atomic transactions for SOA references, see "Configuring the Web Service Client" on page 6-26.

### Using Fusion Middleware Control

To configure atomic transactions for a SOA Web service:

1. Navigate to the SOA composite home page as described in "Viewing the Web Services and References in a SOA Composite" on page 6-6.

2. In the Services and References section of the page, select the service to be configured.

3. In the Service Home page, click the **Properties** tab.

4. In the **Atomic Transaction Version** field, select the version of the Web service atomic transaction coordination context that is supported for the SOA service. The value specified must be consistent across the entire transaction. Valid values are:
   - **WSAT10**
   - **WSAT11**
   - **WSAT12**
   - **Default**

   If you select **Default**, all three versions are accepted.

   **Note:** This property works with SOA Web services that have synchronous-only operations and with Web services that have both synchronous and asynchronous operations. It does not work with SOA Web services with asynchronous-only operations.

5. In the **Atomic Transaction Flow Option** field, select whether the transaction coordination context is to be passed with the transaction flow into the SOA Web service.

   Valid values on the SOA Web service are:
   - **Never** – Do not export transaction coordination context. This is the default.
   - **Supports** – Export transaction coordination context if transaction is available.
   - **Mandatory** – Export transaction coordination context. An exception is thrown if there is no active transaction.
Using WLST

To configure atomic transactions for a SOA Web service endpoint using WLST, use the `setWebServiceConfiguration` command. The procedure for using this command is described in "Using WLST" in "Configuring the Web Service Endpoint" on page 6-12.

### Note:
To configure Web service atomic transactions for SOA references, you use the `setWebServiceClientStubProperty` command. For additional information, see "Configuring the Web Service Client" on page 6-26.

Specify values for the `itemProperties` argument as described in the following table.

#### Table 6–1  SOA Web Service Atomic Transaction WLST Configuration Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
<th>Valid Values</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>wsat.flowOption</code></td>
<td>Atomic transaction flow option</td>
<td>&quot;NEVER&quot; – Do not export transaction coordination context. This is the default.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;SUPPORTS&quot; – Export transaction coordination context if transaction is available.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;MANDATORY&quot; – Export coordination context. An exception is thrown if there is no active transaction.</td>
</tr>
<tr>
<td><code>wsat.version</code></td>
<td>Atomic transaction version</td>
<td>&quot;WSAT10&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;WSAT11&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;WSAT12&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;DEFAULT&quot;—If you specify DEFAULT, all three versions are accepted.</td>
</tr>
</tbody>
</table>
For example, to configure atomic transactions for the TaskService_pt Web service endpoint of the default/SimpleApproval[1.0] SOA composite application, use the following command:

```java
wls:/soa-infra/serverConfig> setWebServiceConfiguration
("soa-infra","default/SimpleApproval[1.0]","soa","client",
"TaskService_pt",[("wsat.flowOption","MANDATORY"),("wsat.version", "DEFAULT")])
```

To verify the settings, use the `listWebServices(None,None,true)` command:

```java
wls:/soainfra/serverConfig> listWebServices(None,None,true)
/soainfra/soa_server1/soa-infra:
    compositeName=default/SimpleApproval[1.0], moduleType=soa,
    serviceName=client
    enableTestPage: true
    enableWSDL: true
    TaskService_pt
    http://myhost:8001/soa-infra/services/default/SimpleApproval!1.0/client
        enable: true
        enableREST: false
        enableSOAP: true
        maxRequestSize: -1
        loggingLevel: NULL
        wsat.flowOption: MANDATORY
        wsat.version: DEFAULT
```

For more information about this WLST command, see "Web Services Custom WLST Commands" in WebLogic Scripting Tool Command Reference.

## Setting the Size of the Request Message

The maximum size of the request message to the Web service can be configured using the procedures provided in the following sections.

### Note: The procedures described in this section apply to Oracle Infrastructure Web services and providers only.

### Using Fusion Middleware Control

To set the size of the request message:

1. Navigate to the Web Service Endpoints page, or the Service Home page (for SOA composites), as described in "Viewing the Details for a Web Service Endpoint" on page 6-6.
2. Click the Configuration tab. For SOA composites, click the Properties tab.
3. Set the Maximum Request Size and the Unit of Maximum Request Size and click Apply.

### Note: If you set the Maximum Request Size to -1, indicating that there is no maximum request size, then the Unit of Maximum Request Size setting is irrelevant and defaults to bytes.
-1 sets no limit to the size of the message. Or, you can set a maximum limit to the message by entering a number in the text box and selecting the unit of measurement.

4. For ADF and WebCenter applications, restart the Web service application. You do not need to restart a SOA composite.

**Note:** You need to wait approximately 30 seconds (or the equivalent of the configured Graceful Shutdown Timeout time) between stopping and restarting the application. During this time, the server is allowing all global transactions to complete before shutting down the application. If you do not wait the configured Graceful Shutdown Timeout time, then the application will not be restarted appropriately and you will not be able to access it. To avoid waiting the graceful shutdown timeout period, you can restart the application twice.

**Using WLST**

To set the size of a request message for a Web service endpoint (port), use the `setWebServiceConfiguration` command. Set the `maxRequestSize` property of the `itemProperties` argument to the desired value. Enter a long integer to set the maximum value, or -1 to set no limit to the size of the message. The default is -1.

The procedure for using this command is described in "Using WLST" in "Configuring the Web Service Endpoint" on page 6-12.

For example, to specify that there is no message limit size for the WsdlConcretePort, use the following command:

```bash
wls:/wls-domain/serverConfig> setWebServiceConfiguration (/"wls-domain/AdminServer/jaxwsejb30ws","jaxwsjdbc","web","WsdlConcreteService", "WsdlConcretePort",["maxRequestSize","-1"])```

For more information about this WLST command, see "Web Services Custom WLST Commands" in WebLogic Scripting Tool Command Reference.
Configuring Asynchronous Web Services

When you invoke a Web service synchronously, the invoking client application waits for the response to return before it can continue with its work. In cases where the response returns immediately, this method of invoking the Web service might be adequate. However, because request processing can be delayed, it is often useful for the client application to continue its work and handle the response later on. By calling a Web service asynchronously, the client can continue its processing, without interrupt, and will be notified when the asynchronous response is returned.

For information about developing asynchronous Web services, see "Developing Asynchronous Web Services" in Oracle Fusion Middleware Concepts Guide for Oracle Infrastructure Web Services.

The following procedure describes how to configure your deployed asynchronous Web services. You can also configure asynchronous Callback client, as described in "Configuring Asynchronous Web Service Callback Clients" on page 6-29.

To configure asynchronous Web services:

1. Navigate to the Web Services Summary page.

2. In the Web Service Details section of the page, click on the plus (+) for the Web service to display the Web service endpoints if they are not already displayed.

3. Click the name of the endpoint of the asynchronous Web service to navigate to the Web Service Endpoint page.

For an asynchronous Web service, the Asynchronous flag at the top of the page is set to True. Review the following flags, which provide more information about the asynchronous Web service:

- Transaction Enabled for Request Queue—Flag that specifies whether transactions are enabled on the request queue.
- Using Response Queue—Flag that specifies whether a response queue is being used. If set to false, then the response is sent directly to the Web service client, without being stored.
- Transaction Enabled for Response Queue—Flag that specifies whether transactions are enabled on the response queue.

These flags are configured at design time. For more information, see “Developing Asynchronous Web Services” in Oracle Fusion Middleware Concepts Guide for Oracle Infrastructure Web Services.

4. From the Web Service Endpoint page, click the Configuration tab.

5. Under the Asynchronous Web Service section of the page, you can set the configuration properties defined in Table 6–2.

---

Note: The configuration properties defined in Table 6–2 appear and are valid only for asynchronous Web services.

<table>
<thead>
<tr>
<th>Configuration Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>JMS Request Queue Connection Factory Name</td>
<td>Name of the connection factory for the JMS request queue. The default JMS connection factory, weblogic.jms.XAConnectionFactory, provided with the base domain is used by default.</td>
</tr>
</tbody>
</table>
Enabling and Disabling MTOM

Support for MTOM is provided by attaching the oracle/wsmtom_policy policy to a Web service. You can enable or disable MTOM for a Web service by enabling or disabling this policy. See “Disabling a Policy for a Single Policy Subject” on page 7-17 for more information.

You must restart the application after enabling or disabling MTOM.

Configuring the Web Service Client

**Note:** The procedures described in this section apply to Oracle Infrastructure Web services only.

For the Web service clients in your application, including SOA references, ADF data control, and asynchronous Web service Callback clients, you can set the configuration properties defined in Table 6–3.

### Table 6–2 (Cont.) Configuration Properties for Asynchronous Web Services

<table>
<thead>
<tr>
<th>Configuration Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>JMS Request Queue Name</td>
<td>Name of the request queue. The following queue is used by default: oracle.j2ee.ws.server.async.DefaultRequestQueue.</td>
</tr>
<tr>
<td>JMS Response Queue Connection Factory Name</td>
<td>Name of the connection factory for the JMS response queue. The default JMS connection factory, weblogic.jms.XAConnectionFactory, provided with the base domain is used by default.</td>
</tr>
<tr>
<td>JMS Response Queue Name</td>
<td>Name of the request queue. The following queue is used by default: oracle.j2ee.ws.server.async.DefaultResponseQueue.</td>
</tr>
<tr>
<td>JMS System User</td>
<td>The user that is authorized to use the JMS queues. By default, this property is set to OracleSystemUser.</td>
</tr>
</tbody>
</table>

**Note:** For most users, the OracleSystemUser is sufficient. However, if you need to change this user to another user in your security realm, you can do so using the instructions provided in “Changing the JMS System User for Asynchronous Web Services” on page 13-26.

---

6. Click **Apply**.

7. For ADF and WebCenter applications, restart the Web service application. You do not need to restart a SOA composite.

---

**Note:** You need to wait approximately 30 seconds (or the equivalent of the configured Graceful Shutdown Timeout time) between stopping and restarting the application. During this time, the server is allowing all global transactions to complete before shutting down the application. If you do not wait the configured Graceful Shutdown Timeout time, then the application will not be restarted appropriately and you will not be able to access it. To avoid waiting the graceful shutdown timeout period, you can restart the application twice.

---

**Enabling and Disabling MTOM**

Support for MTOM is provided by attaching the oracle/wsmtom_policy policy to a Web service. You can enable or disable MTOM for a Web service by enabling or disabling this policy. See “Disabling a Policy for a Single Policy Subject” on page 7-17 for more information.

You must restart the application after enabling or disabling MTOM.

**Note:** The procedures described in this section apply to Oracle Infrastructure Web services only.

For the Web service clients in your application, including SOA references, ADF data control, and asynchronous Web service Callback clients, you can set the configuration properties defined in Table 6–3.
<table>
<thead>
<tr>
<th>Configuration Property</th>
<th>Property Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UDDI ServiceKey</td>
<td>oracle.soa.uddi.serviceKey</td>
<td>Specifies the service key of the Oracle Service Registry (OSR) if UDDI is used for run-time resolution of the endpoint. For more information, see “Changing the Endpoint Reference and Service Key for Oracle Service Registry Integration” in Oracle Fusion Middleware Administrator’s Guide for Oracle SOA Suite and Oracle Business Process Management Suite.</td>
</tr>
<tr>
<td>Endpoint Address</td>
<td>javax.xml.ws.service.endpoint.address</td>
<td>Endpoint URL to which the client will send the request. <strong>Note:</strong> This property is not available for asynchronous Web service Callback clients.</td>
</tr>
<tr>
<td>Maintain Session</td>
<td>javax.xml.ws.session.maintain</td>
<td>Flag that specifies whether the session should be maintained. <strong>Note:</strong> This property is not available for asynchronous Web service Callback clients.</td>
</tr>
<tr>
<td>Atomic Transaction</td>
<td>wsat.Version</td>
<td>Specifies the version of the SOA Web service atomic transaction coordination context used for outbound messages only. The value specified must be consistent across the entire transaction. Valid values are WSAT10, WSAT11, WSAT12, and Default. Note that if the flow option is set to WSDL Driven, you cannot specify a version. The version advertised in the WSDL is used. If the flow option is set to Supports or Mandatory and you specify the Default option, then WSAT10 is used. <strong>Note:</strong> In WLST, the valid values must be specified as &quot;WSAT10&quot;, &quot;WSAT11&quot;, &quot;WSAT12&quot;, and &quot;DEFAULT&quot;. Use of an invalid value results in an error message.</td>
</tr>
<tr>
<td>Version</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Configuration Property</td>
<td>Property Name</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------------------------------------------</td>
<td>---------------------------</td>
<td>-----------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Atomic Transaction Flow Option (SOA reference clients only)</td>
<td>wsat.flowOption</td>
<td>Specifies whether the transaction coordination context is passed with the transaction flow.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Valid values on the SOA reference client are:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>Never</strong> (default) – Do not export transaction coordination context.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>Supports</strong> – Export transaction coordination context if transaction is available.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>Mandatory</strong> – Export transaction coordination context. An exception is thrown if there is no active transaction.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>WSDL Driven</strong> – Use the value set in the WSDL.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Note:</strong> In WLST, the valid values must be specified as &quot;NEVER&quot;, &quot;SUPPORTS&quot;, &quot;MANDATORY&quot;, and &quot;WSDLDriven&quot;. Use of an invalid value results in an error message.</td>
</tr>
</tbody>
</table>

**HTTP Chunking**

<table>
<thead>
<tr>
<th>Stop Chunking</th>
<th>oracle.webservices.donotChunk</th>
<th>Flag that specifies whether chunking is enabled for client requests.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chunking Size (bytes)</td>
<td>oracle.webservices.chunkSize</td>
<td>Size of the request chunk in bytes.</td>
</tr>
</tbody>
</table>

**HTTP Timeout**

<table>
<thead>
<tr>
<th>HTTP Read Timeout (ms)</th>
<th>oracle.webservices.httpReadTimeout</th>
<th>Length of the request read timeout in milliseconds.</th>
</tr>
</thead>
<tbody>
<tr>
<td>HTTP Connection Timeout (ms)</td>
<td>oracle.webservices.httpConnTimeout</td>
<td>Length of the request connection timeout in milliseconds.</td>
</tr>
</tbody>
</table>

**HTTP Basic Authentication**

<table>
<thead>
<tr>
<th>HTTP User Name</th>
<th>(javax.xml.ws.security.auth.username)</th>
<th>oracle.webservices.auth.username</th>
<th>Authenticated HTTP user name.</th>
</tr>
</thead>
<tbody>
<tr>
<td>HTTP User Password</td>
<td>(javax.xml.ws.security.auth.password)</td>
<td>oracle.webservices.auth.password</td>
<td>Authenticated HTTP user password.</td>
</tr>
</tbody>
</table>

| Preemptive | oracle.webservices.preemptiveBasicAuth | Flag that specifies whether security will be sent with the request without being challenged. |

**HTTP Proxy**

<table>
<thead>
<tr>
<th>Proxy Host</th>
<th>oracle.webservices.proxyHost</th>
<th>URL of proxy to which client will send the request.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proxy Port</td>
<td>oracle.webservices.proxyPort</td>
<td>Port number of the proxy.</td>
</tr>
<tr>
<td>Proxy User Name</td>
<td>oracle.webservices.proxyUsername</td>
<td>Valid user name to access the proxy.</td>
</tr>
<tr>
<td>Proxy User Password</td>
<td>oracle.webservices.proxyPassword</td>
<td>Valid password to access the proxy.</td>
</tr>
<tr>
<td>Proxy Realm</td>
<td>oracle.webservices.proxyAuthRealm</td>
<td>Realm used by the proxy.</td>
</tr>
<tr>
<td>Proxy Authentication Type</td>
<td>oracle.webservices.proxyAuthType</td>
<td>Authentication type used by the proxy.</td>
</tr>
</tbody>
</table>
The following sections describe how to configure Web service clients using Fusion Middleware Control and WLST.

**Using Fusion Middleware Control**

The following procedures describe how to configure SOA reference, ADF DC, WebCenter, and asynchronous Web service Callback clients.

**Configuring SOA References**

The following procedure describes how to configure a SOA reference.

1. View the SOA reference, as described in "Viewing SOA References" on page 6-9.
2. Click the Properties tab.
3. Set the property values as required. Refer to Table 6–3.
4. Click Apply.

**Configuring ADF DC Web Service Clients**

The following procedure describes how to configure an ADF DC Web service client.

1. View the ADF DC Web service client, as described in "Viewing ADF DC Web Service Clients" on page 6-10.
2. Click the Configuration tab.
3. Set the configuration values as required. Refer to Table 6–3.
4. Click Apply.

**Configuring Asynchronous Web Service Callback Clients**

The following procedure describes how to configure an asynchronous Web service Callback client. Callback clients are used only by asynchronous Web services to return the response to the caller. For more information, see "Developing Asynchronous Web Services" in Oracle Fusion Middleware Concepts Guide for Oracle Infrastructure Web Services.

To configure an asynchronous Web service Callback client:

1. Navigate to the endpoint for the asynchronous Web service, as described in "Viewing the Details for a Web Service Endpoint" on page 6-6.
2. Click Callback Client in the upper right portion of the endpoint page.
3. Click the Configuration tab.
4. Set the configuration values as required. Refer to Table 6–3.
5. Click Apply.

**Using WLST**

Use the following procedure to configure the Web service client endpoint (port) using WLST:

1. Connect to the running instance of WebLogic Server to which the application is deployed as described in "Accessing the Web Services Custom WLST Commands" on page 1-6.
2. Use the `listWebServiceClients` WLST command to display a list of the Web service clients in your application as described in "Viewing Web Service Clients" on page 6-9.

3. Use the `listWebServiceClientPorts` command to display the endpoint name and endpoint URL for a Web service client.

   `listWebServiceClientPorts(application, moduleOrCompName, moduleType, serviceRefName)`

   For example, to display the endpoint for the service reference `client`:

   `wls:wl-Domain/serverConfig> listWebServiceClientPorts('/base_domain/AdminServer/application1#V2.0', 'test1', 'wsconn', 'client')`

   `HelloWorld_pt`

4. Use the `listWebServiceClientStubProperties` command to view the configuration details for a Web service client endpoint.

   `listWebServiceClientStubProperties(application, moduleOrCompName, moduleType, serviceRefName, portInfoName)`

   For example, to view the configuration details for the `HelloWorld_pt`:

   `wls:wl-Domain/serverConfig> listWebServiceClientPorts('/base_domain/AdminServer/application1#V2.0', 'test1', 'wsconn', 'client', 'HelloWorld_pt')`

   `keystore.recipient.alias=A1`
   `saml.issuer.name=B1`
   `user.roles.include=C1`

   Alternatively, you can set the `detail` argument to `true` in the `listWebServiceClients` command to view the configuration details for the endpoint as shown in "Using WLST" in "Viewing Web Service Clients" on page 6-9.

5. Do one of the following:
   - Use the `setWebServiceClientStubProperty` command to set or change a single stub property of a Web service client endpoint. Specify the property to be set or changed using the `propName` and `propValue` arguments. To remove a property, specify a blank value for the `propValue` argument.

     `setWebServiceClientStubProperty(application, moduleOrCompName, moduleType, serviceRefName, portInfoName, propName, [propValue])`

     For example, to change the `keystore.recipient.alias` to `oracle` for the `HelloWorld_pt`, use the following command:

     `wls:wl-Domain/serverConfig> setWebServiceClientStubProperty('/base_domain/AdminServer/application1#V2.0', 'test1', 'wsconn', 'client', 'HelloWorld_pt', 'keystore.recipient.alias', 'oracle')`

   - Use the `setWebServiceClientStubProperties` command to configure the set of properties of a Web service client endpoint. Specify the properties to be set or changed using the `properties` argument.

     `setWebServiceClientStubProperties(application, moduleOrCompName, moduleType, serviceRefName, portInfoName, properties)`
This command configures or resets all of the stub properties for the Oracle WSM client security policy attached to the client. Each property that you list in the command is set to the value you specify. If a property that was previously set is not explicitly specified in this command, it is reset to the default for the property. If no default exists, the property is removed.

For example, to configure atomic transactions for the TaskReference_pt SOA reference endpoint of the default/SimpleRef[1.0] SOA composite application, use the following command:

```
```

To verify that the reference is properly configured, enter the following command:

```
listWebServiceClients(None, None, true)
```

For more information about the client properties that you can set, see Table 6–3, "Configuration Properties for Web Service Clients". When specifying these properties, use the format shown in the Property Name column.

You can also set the properties described in "Attaching Client Policies Permitting Overrides" on page 8-14.

6. For ADF and WebCenter applications, restart the Web service application. You do not need to restart a SOA composite.

For more information about these WLST commands and their arguments, see "Web Services Custom WLST Commands" in WebLogic Scripting Tool Command Reference.
Managing Web Service Policies

This chapter includes the following sections:

- Overview of Web Services Policy Management
- Viewing Available Web Services Policies
- Viewing a Web Service Policy
- Searching for Web Service Policies
- Creating Web Service Policies
- Working With Assertions
- Validating Web Services Policies
- Editing Web Service Policies
- Versioning Web Service Policies
- Exporting Web Service Policies
- Deleting Web Service Policies
- Generating Client Policies
- Disabling a Policy for a Single Policy Subject
- Disabling a Web Service Policy for All Subjects
- Analyzing Policy Usage

Overview of Web Services Policy Management

For information about Web services policies and how Oracle Fusion Middleware uses policies to manage Quality of Service (QoS) for Web services, see "Understanding Oracle WSM Policy Framework" on page 3-1.”

Viewing Available Web Services Policies

You can use both Fusion Middleware Control and the WebLogic Scripting Tool (WLST) to view the Web service policies in your domain. In Fusion Middleware Control, you view the policies using the Web Services Policies page.

Use the procedures in the following sections to view a list of the policies.
Navigating to the Web Services Policies Page in Fusion Middleware Control

You manage the Web services policies in your farm from the Web Services Policies page. From this page, you can view, create, edit, and delete Web services policies.

1. In the navigator pane, expand **WebLogic Domain** to show the domain for which you want to see the policies. Select the domain.

2. Using Fusion Middleware Control, click **WebLogic Domain**, then **Web Services** and then **Policies**.

The Web Services Policies page is displayed (Figure 7–1).

**Figure 7–1   Web Services Policy Page**

Displaying a List of the Available Policies Using WLST

To display a list of the available policies using WLST:

1. Connect to the running instance of WebLogic Server for which you want to view the Web services as described in "Accessing the Web Services Custom WLST Commands" on page 1-6.

2. Use the `listAvailableWebServicePolicies()` WLST command to display a list of the Web services.

   `listAvailableWebServicePolicies([category],[subject])`

For example:

```
wls:/base_domain/domainRuntime> listAvailableWebServicePolicies()
```

List of available OWSM policy - total : 58
security : oracle/binding_authorization_denyall_policy
security : oracle/binding_authorization_permitall_policy
security : oracle/binding_permission_authorization_policy
security : oracle/component_authorization_denyall_policy
security : oracle/component_authorization_permitall_policy
security : oracle/component_permission_authorization_policy
management : oracle/log_policy
addressing : oracle/wsaddr_policy
mtom : oracle/wsmtom_policy
wasm : oracle/wasm10_policy
wasm : oracle/wasm11_policy
3. Use the optional category and subject arguments to specify the policy category, such as security or management, and the policy subject type, such as server or client.

For example:

```
wlsc:/base_domain/domainRuntime>
listAvailableWebServicePolicies("security","server")
```

List of available OWSM policy - total : 27

- security : oracle/wss10_saml_token_with_message_integrity_service_policy
- security : oracle/wss11_username_token_with_message_protection_service_policy
- security : oracle/wss11_x509_token_with_message_protection_service_policy
- security : oracle/wss_username_token_service_policy
- security : oracle/wss_saml_token_over_ssl_service_policy
- security : oracle/wss10_x509_token_with_message_protection_service_policy
- security : oracle/wss10_username_token_with_message_protection_ski_basic256_service_policy

**Viewing a Web Service Policy**

Follow the procedure below to view the policy details in read-only mode.

**To view a Web service policy**

1. Navigate to the Web Services Policy page, as described in "Navigating to the Web Services Policies Page in Fusion Middleware Control" on page 7-2.

2. From the Web Services Policies page, select a policy from the Policies table and click View.

3. When you are done viewing the policy, click Return to Web Services Policies.

**Searching for Web Service Policies**

In the Web Services Policies page, you can narrow down the number of policies that are returned by specifying criteria in the Search Filter (Figure 7–2).

The wildcard character asterisk (*) in the Name field matches any characters.

*Figure 7–2  Search Filter Criteria*

<table>
<thead>
<tr>
<th>Category</th>
<th>Security</th>
<th>Applies To</th>
<th>ServiceEndpoints</th>
<th>Name</th>
</tr>
</thead>
</table>

The policies that are returned are those that match the criteria specified in the Category, Applies To, and Name fields (Table 7–1).
Creating Web Service Policies

You can create a Web service policy in one of the following ways:

- Creating a new policy using assertion templates
- Creating a policy from an existing policy
- Importing a policy from a file
- Creating custom policies

The sections that follow describe how to create policies using each of these methods.

Creating a New Web Service Policy

Follow the procedure below to create a new policy using one or more assertion templates.

For example, if Security is selected in the Category field, and Service Endpoints is selected in the Applies To field, and the Name field is left blank, then the policies returned are those security policies that can be attached to Web service endpoints.

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To create a new Web service policy

1. Navigate to the Web Services Policy page, as described in "Navigating to the Web Services Policies Page in Fusion Middleware Control" on page 7-2.

2. From the Category list, select the category to which this policy will belong and click Create.

   **Note:** The Create button is available only for the Security and Management categories.

3. In the Create Policy page (Figure 7–3), enter the path, name, and brief description for your policy. All policies are identified by the directory in which the policy is located.

   Oracle recommends that you follow the policy naming conventions described in "Recommended Naming Conventions for Policies" on page 3-9.

   **Figure 7–3 Create Policy Page**

4. Set the Local Optimization control. See "Configuring Local Optimization for a Policy" on page 10-69 for a description of the Local Optimization control.

5. By default, the policy is enabled. If you want to disable the policy, clear the Enabled box. A policy that is not enabled is not enforced at runtime.

6. Specify the type of policy subjects the policy can be attached to by selecting from the Applies To list. If you select Service Bindings, then specify whether the policy can be attached to Web service endpoints, Web service clients, or to both.

   Of the predefined assertions, only assertions (which you add next) of type security/logging can be added under Service Category Both. If you plan to add other types of assertions, choose Service Endpoints or Service Clients.

7. To add a single assertion:

   a. In the Assertion Information section, click Add.
b. In the Add Assertion box, enter a meaningful name for your assertion, and select an assertion template from the Assertion Template list.

   See Appendix C, "Predefined Assertion Templates" for information on the Oracle Fusion Middleware Web Services policy assertion templates.

c. Click OK.

8. To add an OR group, click Add OR Group. For more details, see "Adding an OR Group to a Policy" on page 7-8.

9. In the Assertion Information section, select the assertion you just added.

10. In the Assertion Details section, enter a description for the assertion.

11. If active for the assertion category, on the Settings tab specify the properties for the assertion. Click the Help icon for information on setting the properties.

12. If active for the assertion category, click the Configurations tab to set the configuration options. Click the Help icon for information on setting the properties.

13. Add additional assertions as needed.

14. When you have finished adding assertions, select the assertions and use the Up and Down controls to order them as needed. Assertions are invoked in the order in which they appear in the list.

15. Click Validate to verify that the policy does not contain errors. For more information on policy validation, see "Validating Web Services Policies" on page 7-9.

   If the policy is invalid, it is disabled as a precaution. After you correct the validation issues, you will have to enable the policy.

16. Click Save.

Creating a Web Service Policy from an Existing Policy

You can take a Web service policy and use it as a base for creating another policy. By default, Oracle Fusion Middleware 11g Release 1 (11.1.1) comes with predefined policies. You can create a copy of one of the predefined policies or you can create a copy of a policy that you have created. Once the policy is created, you can treat it like any other policy, adding or deleting assertions, and modifying existing assertions.

To make a copy of a Web service policy

1. Navigate to the Web Services Policy page, as described in "Navigating to the Web Services Policies Page in Fusion Middleware Control" on page 7-2.

2. From the Web Services Policies page, select a policy from the Policies list and click Create Like.

3. In the Create Policy page, enter a name for the policy.

   The word Copy is appended to the name of the copied policy and, by default, this is the name assigned to the new policy. For example, if the policy being copied is named oracle/wss10_username_token_service, then the default name of the copy is oracle/wss10_username_token_service_Copy.

   It is recommended that you change the name of this new policy to be more meaningful in your environment.

4. Modify the policy as required, including the assertions.
5. Click **Validate** to verify that the policy does not contain errors. For more information on policy validation, see "Validating Web Services Policies" on page 7-9.

6. Click **Save**.

**Importing Web Service Policies**

Follow the procedure in this section to import a policy to the Policy Store. Once the policy is imported, you can attach it to Web services and make changes to it.

---

**Note:** The policy name you import must not already exist in the Policy Store.

Be aware that "policy name" and "file name" are different. The policy name is specified by the name attribute of the policy content; the file name is the name of the policy file. You might find it convenient for the two names to match, but it is not required.

You cannot prefix the name of a policy with oracle_. Otherwise, you will receive exceptions when you try to use the policy.

---

**To import a Web service policy**

1. Navigate to the Web Services Policy page, as described in "Navigating to the Web Services Policies Page in Fusion Middleware Control" on page 7-2.

2. From the Web Services Policies page, click **Import From File**.

3. In the Create Policy From File box, enter the file path of the file in the Select Policy File Box. Or, you can click on the **Browse** button and select the policy file.

4. Click **OK**.

**Creating Custom Policies**

For information about creating custom Web service policies, see "Creating Custom Assertions" on page 14-1.

**Working With Assertions**

You can add one or more assertions to a policy. The predefined assertions are described in Appendix C, "Predefined Assertion Templates". Assertions are executed in the order in which they appear in the list. You can change the order of the assertions in the list by selecting the assertion and clicking the **Up** or **Down** arrow.

The following sections provide more information about working with assertions:

- "Naming Conventions for Assertion Templates" on page 7-8
- "Viewing an Assertion Template" on page 7-8
- "Adding Assertions to a Policy" on page 7-8
- "Adding an OR Group to a Policy" on page 7-8
- "Configuring Assertions" on page 7-9
Naming Conventions for Assertion Templates

The same naming conventions used to name predefined policies are used to name the assertion templates. Assertion templates begin with the directory name oracle/ and are identified with the suffix _template at the end; for example, oracle/wss10_message_protection_service_template. For more information on naming conventions for predefined policies, see "Recommended Naming Conventions for Policies" on page 3-9.

Viewing an Assertion Template

To view the assertion templates, from the Web Services Policies page navigate to the Web Services Assertion Templates page. By default, you will see all of the assertion templates in the list.

Select the template you want to view from the list and click View.

Adding Assertions to a Policy

You can add assertions from the Create Policy page, the Copy Policy page, or the Edit Policy Detail page.

Each policy can contain only one assertion for each of the following categories: MTOM Attachments and Reliable Messaging. The policy can contain any number of assertions belonging to the Security category; however, the combination of assertions must be valid. For more information on valid assertions, see "Validating Web Services Policies" on page 7-9.

To add an assertion to a policy:

1. Navigate to the Create Policy page, the Create Like page, or the Edit Policy Detail page.
2. In the Assertion List section, click Add.
3. In the Add an Assertion dialog, enter the name of your assertion, and select an assertion from the Assertion Template list.
4. Click OK.

Adding an OR Group to a Policy

You can create an OR group, consisting of one or more assertions, enabling a single policy to accept multiple types of security tokens. A client can enforce any one of the policies that are defined in the OR group. For more information, see "Defining Multiple Policy Alternatives (OR Groups)" on page 3-8.

You can add only one OR group to a policy. Once you have generated an OR Group, the Add OR Group button is greyed out.

You can add an OR group from the Create Policy page, the Copy Policy page, or the Edit Policy Detail page.

To add an OR group to a policy:

1. Navigate to the Create Policy page, the Create Like page, or the Edit Policy Detail page.
2. In the Assertion List section, click Add OR Group.
3. In the Add OR Group dialog, enter the name of the first assertion in the group, and select an assertion template from the Assertion Template list.
4. Click OK.
   The assertion is added under the OR Group.

5. To add additional assertions to the OR group:
   a. Ensure that an assertion within the OR group is currently selected.
   b. Click Add.
   c. In the Add Assertion dialog, enter the name of the assertion in the group, and
      select an assertion template from the Assertion Template list.
   d. Click OK.

6. To configure the assertions, see “Configuring Assertions” on page 7-9.
   The policy attribute values for attachTo and category limit the assertions that are
   valid within the current policy. All assertions within an OR group must be
   compatible with the attachTo and category attribute values in order to be
   considered.

7. When you have finished adding assertions to the OR group, select the assertions
   and use the **Up** and **Down** controls to order them as needed. Assertions are
   considered for invocation in the order that they appear on the list.

8. To delete an assertion from the OR group, select the assertion and click **Delete**. To
   delete the entire OR group, select the OR group and click **Delete**.

### Configuring Assertions

Once an assertion has been added to a policy, you can configure the assertion
attributes. You can configure assertions from the Create Policy page, the Create Like
page, or the Edit Policy Detail page.

**To configure an assertion:**

1. Navigate to the Create Policy page, the Create Like page, or the Edit Policy Detail
   page.

2. Select the assertion in the assertion table.

3. In the Assertion Details section of the page, click one of the tabs, **Settings** or
   **Configurations**.

4. Edit the Settings and Configuration attributes, and click **Save**.

See Appendix C, "Predefined Assertion Templates" for more information about the
Settings and Configuration assertion attributes.

### Validating Web Services Policies

There are restrictions on the type and number of policy assertions that are permitted in
a Web service policy. When you validate a policy, Enterprise Manager checks to see if
the policy is consistent with these restrictions. A policy can contain only assertions
that belong to a single category. Therefore, you cannot combine a Security assertion
with an MTOM assertion in the same policy. The policy type is determined by the
category of the assertion. Therefore, a policy containing a security assertion is a
security policy, a policy containing a management assertion is a management policy,
and so on. Security assertions are further categorized into subcategories:
authentication, logging, message protection (msg-protection), and authorization.
There are restrictions on the number and type of assertions you can have in a policy. The restrictions are as follows:

- MTOM and Reliable Messaging policies can contain only one assertion.
- A security policy can contain multiple security assertions; however, there can be only one assertion from the following subcategories in a policy: encryption, signing, and authentication.
- Some assertions contain both authentication and message protection. For example, if you view the `oracle/wss11_username_token_with_message_protection_service_policy`, you will see that the second assertion falls into two categories: security/authentication and security/msg-protection. See Figure 7–4.

![Figure 7–4 Assertion Belonging to Two Categories](image)

- A security policy can contain any number of security_log_template assertions. For example, if you view any of the predefined security policies, you will see two logging assertions included.

Oracle recommends that you create one policy for authentication and message protection, and a second policy for authorization. If you create a policy that contains both an authentication and an authorization assertion, then the authentication assertion must precede the authorization assertion.

When you validate your policies, the validation process checks to see that your policies meet these requirements. If the validation fails during policy creation, the policy is created but is marked as disabled.

### Validating a Policy

Policies can be validated from the Create Policy and Edit Policy pages.

**To validate a policy:**

1. From the Create Policy or Edit Policy page, make any changes to your policy.
2. Click **Validate**.
   - If successful, the **Validation successful** message appears.
   - If not successful, the resulting error message describes the problem.

### Editing Web Service Policies

You can make changes to the policies you create or to the predefined policies that come with the product. However, Oracle recommends that you do not change the predefined policies so that you will always have a known set of valid policies to work with.

The changes take effect at the next polling interval for policy changes. If you are using a database-based metadata repository, each time you save a change to your policy, a new version is created, and the older versions are retained.
To edit Web service policies:
1. Navigate to the Web Services Policy page, as described in "Navigating to the Web Services Policies Page in Fusion Middleware Control" on page 7-2.
2. From the Web Services Policies page, select a policy from the Policies table and click Edit.
3. On the Edit Policy page, make the changes to the policy.
4. Click Save.

Versioning Web Service Policies

Whenever a change to a policy is saved, this results in a new version of the policy being automatically created and the version number being incremented. The Policy Manager maintains the history of these changes, and you can go back to an earlier version.

For example, you might find it useful to create two different versions of a policy, perhaps one with logging and one without, and alternate between them. As another example, you might have an occasional need to use a policy such as oracle/binding_authorization_denyall_policy policy with selected roles to temporarily lock down access to a Web service.

By using the versioning feature, you can reuse multiple versions of a policy without having to recreate them every time you need them.

The following sections describe versioning in more detail:
- "Viewing the Version History of Web Services Policies" on page 7-11
- "About the Restore and Activate Policy Options" on page 7-12
- "Creating a New Version of a Web Service Policy" on page 7-13
- "Restoring an Earlier Version of a Web Service Policy" on page 7-13
- "Deleting Versions of a Web Service Policy" on page 7-14

Note: The versioning feature described in this section requires that you use a database-based Metadata Services (MDS) Repository. If you are not using a database-based MDS, versioning information is not maintained or displayed.

Viewing the Version History of Web Services Policies

To view the Web services policy version history:
1. Navigate to the Web Services Policy page, as described in "Navigating to the Web Services Policies Page in Fusion Middleware Control" on page 7-2.
2. From the Web Services Policies page, select a policy from the Policies table and click View.

In the Policy Information section, you see the version information, including the Version Number of the active version and the date that the policy was last updated.

3. In the View Policy page, click Version History Link (Figure 7–5) to go to the View Policy Version History page.
4. The policies appear in order in the Policy Version History table with the active policy shown first (Figure 7–6). The active policy has the highest version number, and is the only policy that can be attached to a subject. However, you can make an earlier version of a policy the active policy.

**Figure 7–6 View Policy Version History Page**

<table>
<thead>
<tr>
<th>Version</th>
<th>Version Date</th>
<th>Enabled</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>March 25, 2009 8:49:08 AM</td>
<td>Yes</td>
<td>REMOTE - This policy is a special case of simple role-based authorization policy based upon the authenticated Subject. The policy determines whether the subject is authorized. The policy should be attached to any SOAP endpoint.</td>
</tr>
<tr>
<td>1</td>
<td>March 25, 2009 11:42:04 AM</td>
<td>Yes</td>
<td>This policy is a special case of simple role-based authentication policy where the subject is established. This policy can be attached to any SOAP-based endpoint.</td>
</tr>
</tbody>
</table>

**About the Restore and Activate Policy Options**

You can make an earlier version active by selecting a policy from the Policy Version History table (Figure 7–6), and clicking either the Restore or Activate Policy buttons. In both instances, the selected policy is made the current, active policy, and the policy version number is incremented. The following describes the difference between the Restore and Activate Policy options:

- **Clicking Restore**, the earlier version of the policy is retained. You can make the earlier version the active version without deleting it. Use Restore if you are modifying your policy and want to keep earlier versions of the policy.

- **Clicking Activate Policy**, the selected policy is now the current active policy. The earlier version of the policy is deleted, and the current version is incremented by 1. For example, assume that you have version 1 and version 3 of the policy. You select version 1 and click **Activate Policy**. The policy is activated as version 4, and version 1 is deleted.

The Activate Policy option can be used in situations where you need to switch between different versions, but you do not want to keep adding policy versions. For example, you may use one version of the policy during business hours and another version during non-business hours. You want to switch between the versions, but you do not want to accumulate multiple versions of the same policy. Therefore, you use Activate Policy to delete the earlier version.
You can also delete any version of the policy, except the active policy, from the Policy Version History table by selecting the policy and clicking **Delete**. You cannot edit the policy from the Policy Version History page. You must edit a policy from the Web Services Management page.

**Creating a New Version of a Web Service Policy**

You create a new version of an existing Web service policy by making any desired changes and saving the policy.

---

**Note:** Save does an implicit validation. If the validation fails, the policy is persisted, but the status is set to **Disabled**.

---

**To create a new version of a Web service policy:**

1. From the Edit Policy page, make a change to your policy.
2. Click **Save**.

In the Policy Information section of the page, the version number for the policy is incremented by 1.

**Restoring an Earlier Version of a Web Service Policy**

Follow the procedure below to return to an earlier version of a policy.

**To restore an earlier version of a Web service policy**

1. From the View Policy page, click **Version History Link**, as shown in **Figure 7–7**.

---

**Figure 7–7  Version History Link on Edit Policy Page**

2. In the Policy History table, select a policy and click **Restore** or click **Activate Policy**.

---

**Note:** **Restore** saves the earlier version of the policy, and **Activate Policy** deletes the earlier version.

If you click **Restore**, the selected policy is now the current active policy. The earlier version of the policy is retained, and the current version is incremented by 1.
If you click **Activate Policy**, the selected policy is now the current active policy. The earlier version of the policy is deleted, and the current version is incremented by 1.

**Deleting Versions of a Web Service Policy**

Follow the procedure below to permanently remove earlier versions of a policy. You can delete all versions except the active policy version. To delete all versions of the policy, including the active version, see "Deleting Web Service Policies" on page 7-14.

**To delete a Web service policy version**

1. From the Copy Policy page or the Edit Policy Detail page, click **Version History Link**.
2. In the Policy History table, select the policy you want to remove, and click **Delete**.
3. A dialog box appears with a message asking you to confirm the deletion. Click **OK**.

The selected policy is deleted from the Metadata Services Repository and the Policy History table.

**Exporting Web Service Policies**

You might want to export a policy to copy it from a development environment to a production environment, or to simply view the policy in another tool or application. Follow the procedure in this section to export a policy from the policy store. Once the policy is exported, you can import it to another policy store, attach it to Web services, make changes to it, and so forth.

**To export a Web service policy**

1. Navigate to the Web Services Policy page, as described in "Navigating to the Web Services Policies Page in Fusion Middleware Control" on page 7-2.
2. Select the policy that you want to export from the list.
3. From the Web Services Policies page, click **Export to File**.
4. Save the policy in the filename of your choice. (Use only ASCII characters in the filename.)

**Note:** You cannot prefix the name of a policy with oracle_. When you export a predefined policy file, the file is renamed from oracle/<policyname> to oracle_<policyname>. You should change this name. Otherwise, you will receive exceptions when trying to use the policy.

**Deleting Web Service Policies**

Before you delete a policy, Oracle recommends that you verify that the policy is not attached to any policy subjects. You can see the policy subjects that are attached to a policy by doing a policy dependency analysis. See "Analyzing Policy Usage" on page 7-19 for more information. If you try to delete a policy that is attached to a subject, you will receive a warning. You will not be prevented from deleting an attached policy. However, the Web service request will fail the next time the subject to which the policy is attached is invoked.
When you delete a policy, the active policy and all previous versions of the policy are deleted. To retain the active policy version and delete only the previous versions of the policy, see "Versioning Web Service Policies" on page 7-11.

To delete a Web service policy:
1. Navigate to the Web Services Policy page, as described in "Navigating to the Web Services Policies Page in Fusion Middleware Control" on page 7-2.
2. From the Web Services Policies page, select a policy from the Policies table and click Delete.
3. A dialog box appears asking you to confirm the deletion. Click OK.

Generating Client Policies

Once you have created the service policy, you can use the Web service WSDL to generate an equivalent client policy with the parameters required to call that service.

You must use the Oracle WSDL instead of the standard WSDL to generate the client policy. The URL for the Web service must be appended with ?orawsdl, instead of ?wsdl. Generating the policy increases the likelihood that the client policy will work with the service policy.

Once a policy is generated, you can edit the policy. The policy is populated with the client assertion that is the matching pair to the service assertion. For example, if the service policy contained the assertion, wss_http_token_service_template, then the generated client policy is populated with its counterpart, wss_http_token_client_template.

However, the client security policies that are generated will not contain any configuration information. Therefore, once the policies are generated, use the client assertion template and import the configuration information into your client policy. In the example, you would import configuration information from the client assertion template, wss_http_token_client_template. After you have made the desired changes to the policy, you must save the policy. Once a policy is saved, you can access it from the Web Services Management page.

You can also delete any generated policies that you do not need. For example, you may want to delete duplicates of already existing MTOM or Reliable Messaging policies.

To generate a Web service client policy
1. Determine the WSDL for the Web service for which you want to generate a Web service client policy.
2. Navigate to the Web Services Policy page, as described in "Navigating to the Web Services Policies Page in Fusion Middleware Control" on page 7-2.
3. From the Web Services Policies page, click Generate Client Policies, as shown in Figure 7–8.
4. In the Generated Client Policies page, enter the URL to the Web service WSDL using the following format: Web_service_endpoint?orawsdl, and click the control to access the Web service and ports, as shown in Figure 7–9.

**Note:** You must use \?orawsdl, instead of \?wsdl, to get the WSDL that is used to generate the corresponding client policy. Prepend ora to wsdl to accomplish this.

The Web_service_endpoint is the URL to the Web service. The service policy information in the Oracle WSDL published for the Web service is used as the basis for generating the initial client policies.

5. In the Generated Client Policies page (Figure 7–10), click **Generate** to generate the client policies, as shown in Figure 7–10.
6. Select a generated policy from the table and click **Edit**.

7. In the Edit Policy page, edit the policy as necessary.

8. Click **Validate** to validate your changes.

9. Click **Save** to save the changes to your policy.

10. You are returned to the Generated Client Policies page. Edit the other policies as needed.

Once the policy is saved, you can navigate to the Web Services Management page and find the policy in the Policies table.

### Disabling a Policy for a Single Policy Subject

When a policy is attached to a Web service, it is enabled by default. You may temporarily disable a policy for a single endpoint without disassociating it from the Web service. When the policy is disabled for an endpoint, it is not enforced for that endpoint.

#### Using Fusion Middleware Control

Policies must be individually enabled or disabled for the endpoint; you cannot enable or disable multiple policies at the same time.

To disable a policy attachment:

1. From the Web Service Endpoints page, click the **Policies** tab.
2. Select the policy you want to disable.
3. Select **Disable** and confirm your selection. (See Figure 7–11.)

![Figure 7–11 Disabling a Policy Attachment](image)

#### Using WLST

**Note:** The procedure described in this section applies to Oracle Infrastructure Web services only.

To disable a policy or multiple policies attached to an endpoint (port):
Disabling a Policy for a Single Policy Subject

1. Connect to the running instance of WebLogic Server for which you want to view the Web services as described in "Accessing the Web Services Custom WLST Commands" on page 1-6.

2. Use the listWebServicePolicies WLST command to display a list of the Web service policies attached to the desired port.

   listWebServicePolicies(application, moduleOrCompName, moduleType, serviceName, subjectName)

   For example, to see a list of the policies attached to the WsdlConcretePort, use the following command:

   wls:/base_domain/domainRuntime> listWebServicePolicies('/base_domain/soa_server1/jaxwsejb30ws', 'jaxwsejb', 'web', 'WsdlConcreteService', 'WsdlConcretePort')

   WsdlConcretePort:
   security: oracle/binding_authorization_denyall_policy, enabled=true
   security: oracle/wss_username_token_service_policy, enabled=true

3. Disable a single policy using the enableWebServicePolicy command and setting the enable argument to false.

   enableWebServicePolicy(application, moduleOrCompName, moduleType, serviceName, subjectName, policyURI, [enable], [subjectType=None])

   For example, to disable the oracle/binding_authorization_denyall_policy, enter the following command:

   wls:/base_domain/domainRuntime> enableWebServicePolicy('/base_domain/soa_server1/jaxwsejb30ws', 'jaxwsejb', 'web', 'WsdlConcreteService', 'WsdlConcretePort', 'oracle/binding_authorization_denyall_policy', false)

4. Disable multiple policies attached to a port using the enableWebServicePolicies command and setting the enable argument to false.

   enableWebServicePolicies(application, moduleOrCompName, moduleType, serviceName, subjectName, policyURIs, [enable], [subjectType=None])

   For example:

   wls:/base_domain/domainRuntime> enableWebServicePolicies('/base_domain/soa_server1/jaxwsejb30ws', 'jaxwsejb', 'web', 'WsdlConcreteService', 'WsdlConcretePort', ['oracle/binding_authorization_denyall_policy', oracle/wss_username_token_service_policy], false)

5. For ADF and WebCenter applications, restart the Web service application. You do not need to restart a SOA composite.

   For more information about these WLST commands and their arguments, see "Web Services Custom WLST Commands" in WebLogic Scripting Tool Command Reference.
Disabling a Web Service Policy for All Subjects

When a policy is created, it is enabled by default unless it has validation errors. A policy can be globally disabled from the Edit Policy page. You can disable the policy from one central location, and it will be disabled for any policy subject to which it is attached.

When you disable a policy from the Edit Policy page, the policy continues to be attached to the policy subjects, but the policy is not enforced. You may want to temporarily disable a policy if you discover that there is a problem with the policy that is causing all requests to a Web service to fail. Once the problem is corrected, you can globally enable the policy.

Before disabling a policy, you may want to click Usage Analysis Link (see "Analyzing Policy Usage" on page 7-19) to see the policy subjects to which the policy is attached. The change to the policy takes effect at the next polling interval for policy changes.

You may also selectively disable a policy for a specific policy subject rather than for all policy subjects. See "Disabling a Policy for a Single Policy Subject" on page 7-17 for more information.

To disable a Web service policy for all policy subjects

1. Navigate to the Web Services Policy page, as described in "Navigating to the Web Services Policies Page in Fusion Middleware Control" on page 7-2.
2. Select a policy from the Policies table and click Edit.
3. In the Policy Information section of the Edit Policy page, clear the Enabled box (Figure 7–12).
4. Click Save.

Analyzing Policy Usage

Note: The policy usage feature described in this section requires that you use a database-based Metadata Services (MDS) Repository. If you are not using a database-based MDS, policy usage information is not maintained or displayed.

Policies are created at and managed from the domain level. The central management of policies gives you the ability to reuse policies and attach them to multiple policy subjects. Any change to a policy (for example, editing a policy or deleting a policy) affects all policy subjects to which the policy is attached. Therefore, before making any
changes to your policies, Oracle recommends you do a usage analysis to see which subjects are using a particular policy.

---

**Note:** The usage analysis simply identifies which policy subjects will be affected; it does not define the effect of the change. You need to evaluate the change on each of the policy subjects and determine if you should proceed.

---

**To perform a usage analysis:**

1. Navigate to the Web Services Policies page.
2. The Attachment Count column of the Policies table shows the number of subjects to which a policy is attached.
3. Select the policy from the Policies table and click View.
4. In the Policy Information region of the page, click the **Attachment Count Number** to display the Usage Analysis page.

**Figure 7–13 Usage Analysis for a Policy**

The Usage Analysis table shows the different policy subjects to which this policy is attached. Subjects are organized using the following subject types: Service Reference, SOA Component, SOA Reference, SOA Service, WS Endpoint, Async Callback Client (asynchronous Callback clients), and WS Connection.

Please note:

- Both enabled and disabled policy references are included in the policy usage count. For information about disabling a policy reference, see Section, “Disabling a Policy for a Single Policy Subject” and Section, “Disabling a Web Service Policy for All Subjects”.
- After attaching a policy, you need to restart the Web service application to display an accurate policy usage count. You do not need to restart a SOA composite or a WebLogic JEE Web service application.
- You must invoke an ADF DC client to display an accurate policy usage count.
Attaching Policies to Web Services

This chapter includes the following sections:

- Viewing the Policies That are Attached to a Web Service
- Attaching a Policy to a Single Subject
- Attaching a Policy to Multiple Subjects (Bulk Attachment)
- Validating Policy Subjects
- Attaching Policies to Web Service Clients
- Attaching Client Policies Permitting Overrides
- Attaching Web Service Policies Permitting Overrides
- Configuring User-Defined Client- or Server-Side Override Properties
- Overriding Configuration Properties When Attaching a Policy Using WLST

Viewing the Policies That are Attached to a Web Service

The following sections describe how to view the policies that are attached to a Web service using Fusion Middleware Control and the WebLogic Scripting Tool (WLST).

Using Fusion Middleware Control

To view the policies that are attached to a Web service:

1. Navigate to the home page for the Web service, as described in "Navigating to the Web Services Summary Page for an Application" on page 6-3.
2. In the Web Service Details section of the page, click on the plus (+) for the Web service to display the Web service ports if they are not already displayed.
3. Click the name of a port to navigate to the Web Service Endpoints page for a particular Web service.
4. Click the Policies tab.

A list of the policies that are attached to the port is displayed, as shown in Figure 8–1.

Note: This figure shows the screen display for an Oracle Infrastructure Web service endpoint. The Charts and Configuration tabs are not available for WebLogic JEE Web service endpoints.
Using WLST

Use the following procedure to view the policies that are attached to a Web service:

1. Connect to the running instance of WebLogic Server to which the application is deployed as described in "Accessing the Web Services Custom WLST Commands" on page 1-6.
2. Use the listWebServices WLST command to display a list of the Web services in your application as described in "Viewing the Web Services in Your Application" on page 6-5.
3. Use the listWebServicePorts command to display the port name and endpoint URL for a Web service.

   ```
   listWebServicePorts(application, moduleOrCompName, moduleType, serviceName)
   ```

   For example, to display the port for the WsdlConcreteService:

   ```
   wls:/wls-domain/serverConfig>
   listWebServicePorts("/wls-domain/AdminServer/jaxwsejb30ws", "jaxwsejb", "web","WsdlConcreteService")
   ```

   WsdlConcretePort   http://host.us.oracle.com:7001/jaxwsejb/WsdlAbstract

4. Use the listWebServicePolicies command to view the policies that are attached to a Web service port.

   ```
   listWebServicePolicies(application, moduleOrCompName, moduleType, serviceName, subjectName)
   ```

   For example, to view the policies attached to the WsdlConcretePort port and any policy override settings:

   ```
   wls:/wls_domain/serverConfig> listWebServicePolicies("/wls_domain/AdminServer/jaxwsejb30ws", "jaxwsejb", "web", "WsdlConcreteService", "WsdlConcretePort")
   ```

   WsdlConcretePort :
   addressing : oracle/wsaddr_policy , enabled=true

---

**Figure 8–1 Policies Attached to a Web Service**

```
<table>
<thead>
<tr>
<th>Policy Name</th>
<th>Category</th>
<th>Policy Reference</th>
<th>Total Violations</th>
<th>Authorization</th>
<th>Subject Authorized</th>
</tr>
</thead>
<tbody>
<tr>
<td>override_log_policy</td>
<td>Management</td>
<td>Enabled</td>
<td>0</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>overrideBinding_authorization_deny_all_policy</td>
<td>Security</td>
<td>Enabled</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
```

**Note:** This procedure applies to Oracle Infrastructure Web services only.
Attaching a Policy to a Single Subject

A subject is an entity to which a policy can be associated. You can attach one or more policies to a subject.

The order in which policies are attached to a subject or appear in the list of attached policies does not determine the order in which policies are executed. As a message is passed between the client and the Web service, the order of the interceptors in the policy interceptor chain determines the order in which the policies are executed.

See "How Policies are Executed" on page 3-6 for more information.

Note: Policy attachment is not synchronized automatically for ADF, WebCenter, and WebLogic JEE Web services in a cluster. When using ADF, WebCenter, and WebLogic JEE Web services in a cluster, you must attach and/or detach policies to each instance of the cluster. This issue does not apply to SOA composite applications.

Attaching a Policy to a Web Service Using Fusion Middleware Control

Follow this procedure to attach a policy to a single Web service. See "Attaching a Policy to Multiple Subjects (Bulk Attachment)" to attach a policy to multiple Web services at the same time.

Note: For WebLogic JEE Web services policy attachment using Fusion Middleware Control:

- Only Oracle WSM security policies can be attached.
- Oracle WSM policies and WebLogic Web Service policies cannot be attached to the same endpoint. If a WebLogic JEE endpoint has WebLogic policies attached, you cannot attach Oracle WSM security policies using Fusion Middleware Control. Note that WebLogic policies can be attached using the WebLogic Server Administration Console. You cannot attach WebLogic policies using Fusion Middleware Control.

To attach a policy to a Web service:

1. Navigate to the home page for the Web service, as described in "Navigating to the Web Services Summary Page for an Application" on page 6-3.
2. In the Web Service Details section of the page, click on the plus (+) for the Web service to display the Web service ports, if they are not already displayed.
3. Click the name of a port to navigate to the Web Service Endpoints page for a particular Web service.
4. Click the Policies tab.
   A list of the policies that are already attached to the port is displayed. For example, consider the policies shown in Figure 8–1.
5. Click Attach/Detach.
6. Select a policy from the Available Policies list, and click Attach. See Figure 8–2.

Figure 8–2 Attaching Policies to a Web Service

7. To view details about a policy, select the policy and click the View Detail icon. A pop-up window provides a full read-only description of the policy and lists the assertions that it contains. See Figure 8–3. Click OK when you are finished reviewing the details of the policy.

Figure 8–3 Viewing Details about a Policy

8. Continue selecting and attaching policies. When you are finished, click Validate to verify that the combination of policies selected are valid.

9. Click OK.

10. The Web Service Endpoint page now displays the attached policy on the Policies tab.

11. For ADF and WebCenter applications, restart the Web service application. You do not need to restart a SOA composite or a WebLogic JEE Web service application.
Attaching Policies to Web Services

8-5

Attaching a Policy to a Single Subject

Use the following procedure to attach (or detach) a single policy, or multiple policies, to a single Web service port using WLST.

1. View the list of policies currently attached to the port as described in "Using WLST" in "Viewing the Policies That are Attached to a Web Service" on page 8-1.
2. View the list of available policies as described in "Displaying a List of the Available Policies Using WLST" on page 7-2.
3. To attach policies, do one of the following:
   - Use the attachWebServicePolicy command to attach a single policy to a Web service port. Specify the policy to be attached using the policyURI argument. If you specify a policy that is already attached or exists, then this command enables the policy if it is disabled.

   ```java
   attachWebServicePolicy(application, moduleOrCompName, moduleType, serviceName, subjectName, policyURI, [subjectType=None])
   ```

   For example, to attach the policy oracle/wss_username_token_service_policy to the Wsd1ConcretePort of the Wsd1ConcreteService, use the following command:

   ```bash
   wls:/wls_domain/serverConfig> attachWebServicePolicy("/wls_domain/AdminServer/jaxwsejb30ws", "jaxwsejb", "web", "Wsd1ConcreteService", "Wsd1ConcretePort", "oracle/wss_username_token_service_policy")
   ```

   Note: You need to wait approximately 30 seconds (or the equivalent of the configured Graceful Shutdown Timeout time) between stopping and restarting the application. During this time, the server is allowing all global transactions to complete before shutting down the application. If you do not wait the configured Graceful Shutdown Timeout time, then the application will not be restarted appropriately and you will not be able to access it. To avoid waiting the graceful shutdown timeout period, you can restart the application twice.

   This procedure applies to Oracle Infrastructure Web services only.

   - Use the attachWebServicePolicies command to attach multiple policies to a Web service port. Specify the policies to be attached using the policyURIs argument. If any of the policies that you specify in this command are already attached, then this command enables the policies that are already attached (if they are disabled), and attaches the others.

   ```java
   attachWebServicePolicies(application, moduleOrCompName, moduleType, serviceName, subjectName, policyURIs, [subjectType=None])
   ```

   For example, to attach the policies oracle/wss_username_token_service_policy and oracle/wsrm10_policy to the Wsd1ConcretePort of the Wsd1ConcreteService, use the following command:
wls:/wls_domain/serverConfig> attachWebServicePolicies("/wls_domain/AdminServer/jaxwsejb30ws", "jaxwsejb", "web", "Wsd1ConcreteService", "Wsd1ConcretePort", ["oracle/wss_username_token_service_policy","oracle/wsrm10_policy"])

Please restart application to uptake the policy changes.

**Note:** The policyURIs are validated through the Oracle WSM Policy Manager APIs if the wsm-pm application is installed on WebLogic Server and is available. If the policy validation fails, a message is displayed and the command is not executed.

If the wsm-pm application is not installed or is not available, these commands are not executed.

For additional information about validating policies, see "Validating Policy Subjects" on page 8-9.

4. To detach policies, do one of the following:

   ■ Use the `detachWebServicePolicy` command to detach a single policy from a Web service port. Specify the policy to be detached using the policyURI argument.

     ```
     detachWebServicePolicy(application, moduleOrCompName, moduleType, serviceName, subjectName, policyURI, [subjectType=None])
     ```

     For example, to detach the policy `oracle/wss_username_token_service_policy` from the `Wsd1ConcretePort` of the `Wsd1ConcreteService`, use the following command:

     ```
     wls:/wls_domain/serverConfig> detachWebServicePolicy("/wls_domain/AdminServer/jaxwsejb30ws", "jaxwsejb", "web", "Wsd1ConcreteService", "Wsd1ConcretePort", "oracle/wss_username_token_service_policy")
     ```

   ■ Use the `detachWebServicePolicies` command to detach multiple policies from a Web service port. Specify the policies to be detached using the policyURIs argument.

     ```
     detachWebServicePolicies(application, moduleOrCompName, moduleType, serviceName, subjectName, policyURIs, [subjectType=None])
     ```

     For example, to detach the policies `oracle/wss_username_token_service_policy` and `oracle/wsrm10_policy` from the `Wsd1ConcretePort` of the `Wsd1ConcreteService`, use the following command:

     ```
     wls:/wls_domain/serverConfig> detachWebServicePolicies("/wls_domain/AdminServer/jaxwsejb30ws", "jaxwsejb", "web", "Wsd1ConcreteService", "Wsd1ConcretePort", ["oracle/wss_username_token_service_policy","oracle/wsrm10_policy"])
     ```

     Please restart application to uptake the policy changes.

5. For ADF and WebCenter applications, restart the Web service application. You do not need to restart a SOA composite.
Attaching a Policy to Multiple Subjects (Bulk Attachment)

From the Application pages, you can attach one or more policies to one or more Web services.

Notes:  The bulk attachment mechanism does not perform validation on the policies that you attach.

The bulk attachment mechanism does not prevent you from creating an unsupported configuration such as having multiple authentication policies, or from attaching the same policy multiple times, and so forth.

Policy attachment is not synchronized automatically for ADF, WebCenter, and WebLogic JEE Web services in a cluster. When using ADF, WebCenter, and WebLogic JEE Web services in a cluster, you must attach and/or detach policies to each instance of the cluster. This issue does not apply to SOA composite applications.

To attach a policy to multiple Web services within an application:

1. In the navigator pane, expand **WebLogic Domain** to show the domain in which you want to attach the policy.

2. Select the domain, and then the instance of the server to which you want to attach the policy. The server can be an Administration Server or a Managed Server.

3. Using Fusion Middleware Control, click **WebLogic Server** and then **Web Services**.

4. From the Web Services Summary page, click **Attach Policies**.

5. From the Select Policy Subjects page, select one or more applications to which to attach a policy, as shown in Figure 8–4.

Use the **Search** control to search for a particular policy subject type, a particular application name, or the type of Web service to which you want to attach a policy. Valid policy subject types include: Web Service Endpoint, Web Service Client, Web Service Connection, SOA Component, SOA Service, SOA Reference, Asynchronous Callback Client, or WLS Web Service Endpoint. For more information about asynchronous callback clients, see "Developing Asynchronous Web Services" in **Concepts Guide to Oracle Infrastructure Web Services**.
For example, if you choose to search for a policy subject type of Web Service Client, only available Web service clients, if any, are displayed. To select more than one application, press the Ctrl key and click the applications.

Figure 8–4  Select Subjects Page

6. Click Next.

7. From the Select Policies page, select one or more policies that you want to attach to the selected applications, as shown in Figure 8–5. The Select Policies page shows only those policies that you can apply to all of the subjects selected in the previous step.

Note: You can attach only security policies to WebLogic JEE Web service endpoints using Fusion Middleware Control. If you attempt to attach a non-security policy to a WebLogic Web service endpoint, the action is ignored.

To select more than one policy, press the Ctrl key and click the policies you want to attach.

Figure 8–5  Select Policies Page

8. Click Next.

The Summary page displays the applications you selected and the policies that will be attached to those applications, as shown in Figure 8–6.
9. Click **Back** to make any changes, or click **Attach** to complete the bulk attachment.

10. For ADF and WebCenter applications, restart the Web service application. You do not need to restart a SOA composite or a WebLogic JEE Web service application.

---

**Validating Policy Subjects**

The type and number of assertions within a policy may be valid and, therefore, a policy may be internally consistent and valid. However, when more than one policy is attached to a policy subject, the combination of policies must also be valid. Specifically, the following must be true:

- Only one MTOM policy can be attached to a policy subject.
- Only one Reliable Messaging policy can be attached to a policy subject.
- Only one WS-Addressing policy can be attached to a policy subject.
- Only one Management policy can be attached to a policy subject.
- Only one Security policy with subtype authentication can be attached to a subject.
- Only one Security policy with subtype message protection can be attached to a subject.
- Only one security policy with subtype authorization can be attached to a subject.

**Note:** There may be either one or two security policies attached to a policy subject. A security policy can contain an assertion that belongs to the authentication or message protection subtype categories, or an assertion that belongs to both subtype categories. The second security policy contains an assertion that belongs to the authorization subtype.

- If an authentication policy and an authorization policy are both attached to a policy subject, the authentication policy must precede the authorization policy.
If the policy requires a particular transport protocol (for example, HTTP or HTTPS), it checks to see that the Web service uses the expected transport protocol.

You cannot use policy subject validation to check the validity of multiple policy subjects when you use the bulk attachment feature. After you attach the policies to your subjects with this feature, you must validate each subject individually.

---

**Note:** The policy subject validation does not validate the XML schema of the policy. Therefore, if you manually edit the policy file, you must use another tool to check that the XML is valid.

---

**To check for policy subject validation:**

1. From the navigator pane, click the plus sign (+) for the Application Deployments folder to expose the applications in the farm, and select the application.

   The Application Deployment home page is displayed.

2. Using Fusion Middleware Control, click **Application Deployment**, then click **Web Services**.

   This takes you to the Web Services summary page for your application.

3. In the Web Service Details section of the page, click on the plus (+) for the Web service to display the Web service ports if they are not already displayed.

4. Click the name of the port to navigate to the Web Service Endpoints page.

5. Click the **Policies** tab.

6. Click **Attach/Detach**.

7. Click **Validate**.

   If there is a validation error, a dialog box appears describing the error. Fix the error and do a policy subject validation again.

---

**Attaching Policies to Web Service Clients**

This section describes how to attach a policy to a Web service client, including SOA reference, ADF Data Control (DC), and asynchronous Web service Callback clients.

When using WLST to attach policies to a Web service client, the steps that you follow are the same for all Web service client types. The argument settings specify the type of client to which you are attaching the policy.

---

**Note:** Attaching Oracle WSM policies to WebLogic JEE Web service clients is not supported.

---

**Using Fusion Middleware Control**

In Fusion Middleware Control, the steps you follow to attach a policy to a Web service client are the same for all Web service client types. However, how you navigate to the Web service client varies based on the application type, as described in the following sections.
Attaching Policies to SOA References

The following procedures describe how to attach policies to SOA references. For more information about developing SOA references, see Oracle Fusion Middleware Developer’s Guide for Oracle SOA Suite.

To attach policies to a SOA reference:

1. View the SOA reference, as described in "Viewing SOA References" on page 6-9.
2. Click the Policies tab.
3. Click Attach/Detach.
4. From the Available Policies portion of the page, select one or more policies that you want to attach. Click Validate to validate the policy, or Check Services Compatibility to make sure that the client policies are compatible with the service policies.
5. Click Attach when you are sure that you want to attach the policy or policies.
6. Click OK.

Attaching Policies to ADF DC Web Service Clients

The following procedure describes how to attach policies to an ADF DC Web service client. For more information about developing ADF DC Web service clients, see "Using Oracle ADF Model in a Fusion Web Application" in Oracle Fusion Middleware Fusion Developer’s Guide for Oracle Application Development Framework.

To attach policies to an ADF DC Web service client:

1. Use Fusion Middleware Control to expand Application Deployments.
2. Select the target application.
3. From the Application Deployment menu, select ADF, and then Configure ADF Connections.
4. On the ADF Connections Configuration page, select a row in the Web Service Connections list, and then use the Configure Web Service list to configure the Web Service client.
5. On the Web Service Client page, select the Policies tab.
6. Click Attach/Detach.
7. On the Available Policies section of the page, select one or more policies that you want to attach. Click Validate to validate the policy, or Check Services Compatibility to make sure that the client policies are compatible with the service policies.
8. Click Attach when you are sure that you want to attach the policy or policies.
9. Click OK.

Attaching Policies to Asynchronous Web Service Callback Clients

The following procedure describes how to attach policies to an asynchronous Web service Callback client. For more information about developing asynchronous Web services and callback clients, see "Developing Asynchronous Web Services" in Concepts Guide to Oracle Infrastructure Web Services.

To attach policies to an asynchronous Callback client:
1. Navigate to the endpoint for the asynchronous Web service, as described in "Viewing the Details for a Web Service Endpoint" on page 6-6.

2. Click Callback Client in the upper right portion of the endpoint page.

3. Click the Policy tab.

4. Click Attach/Detach.

5. From the Available Policies portion of the page, select one or more policies that you want to attach. Click Validate to validate the policy, or Check Services Compatibility to make sure that the client policies are compatible with the service policies.

6. Click Attach when you are sure that you want to attach the policy or policies.

7. Click OK.

Using WLST

The following procedure describes how to attach policies to SOA references, ADF Web service DC and WebCenter clients, and asynchronous Web service callback clients. The steps that you follow are the same for each type of client. However, the argument settings will vary depending on the type of client to which you are attaching or detaching policies.

1. View the Web service clients as described in Using WLST in "Viewing Web Service Clients" on page 6-9.

2. Use the listWebServiceClientPorts command to display the port name and endpoint URL for a Web service client.

   listWebServiceClientPorts(application, moduleOrCompName, moduleType, serviceRefName)

   For example, to display the port for the service reference client:

   wls:/wls-domain/serverConfig> listWebServiceClientPorts('/base_domain/AdminServer/application1#V2.0', 'test1', 'wsconn', 'client')

   HelloWorld_pt

3. View the list of available policies as described in "Displaying a List of the Available Policies Using WLST" on page 7-2.

   To view only available client policies, set the subject argument to client. For example:

   listAvailableWebServicePolicies('', ''client'')

4. To attach policies, do one of the following:

   - Use the attachWebServiceClientPolicy command to attach a single policy to a Web service client port.

   attachWebServiceClientPolicy(application, moduleOrCompName, moduleType, serviceRefName, portInfoName, policyURI, [subjectType=None]

   Set the arguments as follows:

   - For a SOA reference, specify the name of the SOA composite using the moduleOrCompName argument, specify soa for the moduleType
argument, and the name of the SOA reference using the
serviceRefName argument.

- For an ADF DC or WebCenter client, specify the name of the client
application using the application argument, specify wsconn for the
moduleType argument, and the service reference name using the
serviceRefName argument.

- For an asynchronous Web service callback client, specify web for the
moduleType argument. Specify the name of the client application or SOA
composite using the application and moduleOrCompName arguments,
respectively.

- For all client types, specify the name of the port using the portInfoName
argument.

- Specify the policy to be attached using the policyURI argument. If you
specify a policy that is already attached or exists, then this command
enables the policy if it is disabled.

For example, to attach the client policy oracle/wss_username_token_
client_policy to the HelloWorld_pt of the client service, use the
following command:

```
ws:/wls_domain/serverConfig> attachWebServiceClientPolicy("/wls_domain/AdminServer/application1#2.0",
"test1","wsconn","client","HelloWorld_pt","oracle/wss_username_token_client_policy")
```

■ Use the attachWebServiceClientPolicies command to attach multiple
policies to a Web service client port. Set the arguments as described for
attaching a single client policy above, however you specify multiple policies to
be attached using the policyURIs argument. If any of the policies that you
specify in this command are already attached, then this command enables the
policies that are already attached (if they are disabled), and attaches the
others.

```
attachWebServiceClientPolicies(application, moduleOrCompName,
moduleType, serviceRefName, portInfoName, policyURIs, [subjectType=None])
```

For example, to attach the policies oracle/wss_username_token_
client_policy and oracle/wsrm10_policy to the HelloWorld_pt of
the client service, use the following command:

```
ws:/wls_domain/serverConfig> attachWebServiceClientPolicies("/wls_domain/AdminServer/application1#2.0",
"test1","wsconn","client","HelloWorld_pt",
["oracle/wss_username_token_client_policy","oracle/wsrm10_policy"])
```

Please restart application to uptake the policy changes.
Attaching Client Policies Permitting Overrides

5. To detach policies, do one of the following:
   - Use the `detachWebServiceClientPolicy` command to detach a single policy from a Web service client port.
     
     ```
     detachWebServiceClientPolicy(application, moduleOrCompName, moduleType, serviceRefName, portInfoName, policyURI, [subjectType=None])
     ```
     
     Set the arguments as described in step 4 above.
     
     For example, to detach the client policy `oracle/wss_username_token_client_policy` from the `HelloWorld_pt` of the `client` service, use the following command:
     
     ```
     wls:/wls_domain/serverConfig> detachWebServiceClientPolicy("/wls_domain/AdminServer/application1#2.0", "test1","wsconn","client","HelloWorld_pt","oracle/wss_username_token_client_policy")
     ```
     
     - Use the `detachWebServiceClientPolicies` command to detach multiple policies from a Web service client port. Set the arguments as described for detaching a single client policy above, however you specify multiple policies to be detached using the `policyURIs` argument.
       
       ```
       detachWebServiceClientPolicies(application, moduleOrCompName, moduleType, serviceRefName, portInfoName, policyURIs, [subjectType=None])
       ```
       
       For example, to detach the policies `oracle/wss_username_token_client_policy` and `oracle/wsrm10_policy` from the `HelloWorld_pt` of the `client` service, use the following command:
       
       ```
       wls:/wls_domain/serverConfig> detachWebServiceClientPolicies("/wls_domain/AdminServer/application1#2.0", "test1","wsconn","client","HelloWorld_pt",
                                                        ["oracle/wss_username_token_client_policy","oracle/wsrm10_policy"])
       ```
       
       Please restart application to uptake the policy changes.

6. For ADF DC and WebCenter client applications, restart the Web service client application. You do not need to restart a SOA composite.

   For more information about these WLST commands and their arguments, see "Web Services Custom WLST Commands" in WebLogic Scripting Tool Command Reference.

Attaching Client Policies Permitting Overrides

The policy configuration override feature allows you to specify certain Web service client configuration information on a per-client basis, in addition to or in lieu of setting
it globally for any attachment of the policy. This targeting of configuration information limits the number of distinct policies you need to maintain.

You can define a single policy, and specify a default value for a configuration value. Rather than creating multiple policies with slightly varied configurations, you could use the same generic policy and override specific values to meet your requirements.

For example, the `oracle/ess_http_token_client_policy` policy is one example of a policy that includes the `csf-key` property, which has a default value of `basic.credentials`. The value signifies a key that maps to a username/password. It might happen that you will always use the same key value any time you attach this policy to any number of Web service clients. In this case, you can specify the key value on the `oracle/ess_http_token_client_policy` policy Configurations page and have it apply to every instance.

However, you also have the option to override this key value on a per-client basis. After you attach a client policy that includes a property you can override, you can then supply a value in the Security Configuration Setting section of the Policies page, as shown in Figure 8–7.

**Figure 8–7 Overriding a Configuration Property**

You can override only the following properties in Web service client policies:

- `user.roles.include` (Optional, does not have to be set.)
- `csf-key` (Must be set on policy Configuration page or overridden.)
- `saml.issuer.name` (Optional, does not have to be set.)
- `saml.assertion.filename` (Optional, does not have to be set.)
- `service.principal.name` (Must be set on policy Configuration page or overridden.)
- `keystore.recipient.alias` (Can be set on policy Configuration page or overridden. Superseded by the "Using Service Identity Certification Extension" on page 9-10 feature. If the client overrides the keystore.recipient.alias property, the override is always used, and not the certificate published in the WSDL.)
- `keystore.sig.csf.key` (Optional, does not have to be set.)
- `keystore.enc.csf.key` (Optional, does not have to be set.)
Clearing a Configuration Property

If you need to clear an overridden configuration property, set it to an empty string.

Before you clear it, remember that other policies could be using the same property. The properties are client-specific and there could be multiple policies that are attached to the same client that use the same property.

Attaching Web Service Policies Permitting Overrides

You can specify a value for server-side configuration properties in a predefined or custom Web service policy, and then either use that value each time you attach the policy to a Web service or override it on a per-attachment basis.

For example, you might specify an IP address as a configuration property, and then validate the IP address from your Web service.

The scope for the server-side configuration property value is limited to the specific policy. That is, you could have two policies with the same server-side configuration property name, say $P1$, attached to the same Web service endpoint, and the two $P1$ properties can have different values.

Server side properties that you can override are of two types: included in the predefined policies, and user defined.

- The server-side configuration properties included with the predefined policies allow you to override certain domain-wide configuration settings from a policy, such as the CSF key used for storing the signature-key password.

- For a user-defined property, you can add a property that has meaning in your environment. You can add a user-defined server-side property to the predefined policies, or to a custom policy.

Configuring Server-Side Override Properties for Message Protection Policies

This release of Oracle WSM includes the server-side override properties shown in Table 8–1 for message protection policies.

If you set (or then override) these properties, the new values are used in the attached Web service instead of the keystore passwords you configure as part of setting up the keystore for message protection, as described in "Setting up the Keystore for Message Protection" on page 9-7.
If you do not set these properties and leave the default blank values, the values you configure as part of setting up the keystore for message protection are used instead, as described in "Setting up the Keystore for Message Protection" on page 9-7.

### Table 8–1 Server-Side Configuration Properties for Message Protection Policies

<table>
<thead>
<tr>
<th>Property Name</th>
<th>Default Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>keystore.sig.csf.key</td>
<td>Blank</td>
<td>The alias and password used for storing the signature key password in the keystore. This property allows you to specify the signature key on a per-attachment level instead of at the domain level. (Applicable only to WSS10 message protection policies)</td>
</tr>
<tr>
<td>keystore.enc.csf.key</td>
<td>Blank</td>
<td>The alias and password used for storing the decryption key password in the keystore. This property allows you to specify the decryption key on a per-attachment level instead of at the domain level. (Applicable to WSS10 and WSS11 message protection synchronous policies)</td>
</tr>
</tbody>
</table>

**Setting Default Values for the Configuration Properties**

By default, the `keystore.sig.csf.key` and `keystore.enc.csf.key` properties have a blank value. You can choose to set a value such that any Web service that attaches the policy can use these values, or override the values when you attach the policy.

**To set a value of a configuration property for a policy:**

1. Navigate to the Web Services Policy page, as described in "Navigating to the Web Services Policies Page in Fusion Middleware Control" on page 7-2.
2. From the Web Services Policies page, select the message protection policy from the Policies table and click **Edit**.
3. On the Edit Policy page, click the **Configurations** tab.
4. Select the configuration property and click **Edit** to make the change to the `keystore.sig.csf.key` and `keystore.enc.csf.key` properties based on the keys in your keystore. See Figure 8–8.

**Figure 8–8 Server-Side Configuration Properties**

<table>
<thead>
<tr>
<th>Property Set</th>
<th>Name</th>
<th>Value</th>
<th>Default</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>standard-security</td>
<td>keystore.sig.csf.key</td>
<td></td>
<td></td>
<td>Optional</td>
<td></td>
</tr>
<tr>
<td>standard-security</td>
<td>keystore.enc.csf.key</td>
<td></td>
<td></td>
<td>Optional</td>
<td></td>
</tr>
</tbody>
</table>

5. Validate your changes.

6. Click **Save**.
Overriding the Configuration Properties When Attaching a Policy

After you attach a message protection policy that includes a server-side configuration property, you can then override the existing value. In Fusion Middleware Control, you do this using the Security Configuration Setting section of the Policies page. In WLST, you do so using the setWebServicePolicyOverride command as described in “Overriding Configuration Properties When Attaching a Policy Using WLST” on page 8-22.

To do this using Fusion Middleware Control, select the attached policy with the server-side configuration property. The Security Configuration Details portion of the page appears, as shown in Figure 8–9.

Figure 8–9 Overriding a Server-Side Configuration Property

The property is overridden on a per-attachment basis.

For example, assume that you have not changed the value of the keystore.sig.csf.key property for the oracle/wss10_message_protection_service_policy policy and that it is still blank. If Web service A attaches the oracle/wss10_message_protection_service_policy policy and overrides the keystore.sig.csf.key property to be "sigkey," the keystore.sig.csf.key property has a value of "sigkey" only for the oracle/wss10_message_protection_service_policy policy attached to Web service A.

For all other policies, keystore.sig.csf.key has the value you configure as part of setting up the keystore for message protection are used instead, as described in “Setting up the Keystore for Message Protection” on page 9-7.

Configuring Server-Side Override Properties for Authorization Policies

This release of Oracle WSM includes the server-side override properties shown in Table 8–2 for the oracle/binding_permission_authorization_policy policy. You can use these properties to set a different action and resource.

If you set (or then override) these properties, the new values are used in the attached Web service instead of the action and resource you configure as described in “How Authorization Permissions Are Determined” on page 10-47.

Table 8–2 Server-Side Configuration Property for Authorization Policies

<table>
<thead>
<tr>
<th>Property Name</th>
<th>Default Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>action</td>
<td>*</td>
<td>Specify the operations for which this policy should be enforced.</td>
</tr>
<tr>
<td>resource</td>
<td>*</td>
<td>Specify the Web service name (Namespace of Web service plus ServiceName)</td>
</tr>
</tbody>
</table>

Setting Default Values for the Configuration Properties

By default, the action and resource properties have a value of *. You can choose to set a different value such that any Web service that attaches the policy can use that value, or override the value when you attach the policy.
To set a value for the configuration property:
1. Navigate to the Web Services Policy page, as described in "Navigating to the Web Services Policies Page in Fusion Middleware Control" on page 7-2.
2. From the Web Services Policies page, select the oracle/binding_permission_authorization_policy policy from the Policies table and click Edit.
3. On the Edit Policy page, click the Configurations tab.
4. Select the configuration property and click Edit to make the change to the action or resource property based on your environment.
5. Validate your changes.
6. Click Save.

Overriding the Configuration Properties When Attaching a Policy
After you attach the oracle/binding_permission_authorization_policy policy, you can then override the existing value in the Security Configuration Setting section of the Policies page using Fusion Middleware Control. In WLST, you do so using the setWebServicePolicyOverride command as described in "Overriding Configuration Properties When Attaching a Policy Using WLST" on page 8-22.

To do this using Fusion Middleware Control, select the attached oracle/binding_permission_authorization_policy policy. The Security Configuration Details portion of the page appears.

Configuring User-Defined Client- or Server-Side Override Properties

You can use the Add New Configure Property feature to add one or more configuration properties that have meaning in your environment. Specifically, you can add one or more user-defined server- or client-side properties to the predefined policies, or to a custom policy. Then, you can either use the user-defined property as-is, or override it when you attach the policy.

In both cases, the property must already exist in the policy before you can override it when attaching the policy to a Web service or client. That is, you can override only those properties that are already present in the policy.

Therefore, you would typically add a user-supplied property with some default value to the predefined or custom policy, and then override it on a per-attachment basis. You can add a user-defined property of type required, optional, or constant, but you cannot override a property of type constant.

Scope of User-Defined Configuration Properties

As with the predefined configuration properties, the scope for user-defined configuration properties in a policy differs for clients and Web services. Consider the following:

- The scope for a client-side configuration property value is the client. There could be multiple policies that are attached to the same client that use the same property.
The scope for a server-side configuration property value is limited to the specific policy. That is, you could have two policies with the same server-side configuration property name, say \( P1 \), attached to the same Web service endpoint, and the two \( P1 \) properties can have different values.

**Adding a User-Defined Configuration Property**

You edit the predefined or custom policy to add a user-defined configuration property.

**To add a user-defined configuration property:**

1. Navigate to the Web Services Policy page, as described in "Navigating to the Web Services Policies Page in Fusion Middleware Control" on page 7-2.
2. From the Web Services Policies page, select the policy for which you want to add a property from the Policies table and click **Edit**.
3. On the Edit Policy page, click the **Configurations** tab.
4. Click Add. The Add New Configure Property dialog box shown in Figure 8–10 appears.

**Figure 8–10 Adding a New Configuration Property**

5. Enter the following information and click **OK**.
   - **Property Set** is your name for the group (set) to which you want this property to belong. This is a required field.
   - **Name** is your name for the property. The name must be unique for this policy. This is a required field.
   - **Description** is your description for the property.
   - **Value** is the current String value for the property. This is a required field.
   - **Default** is the default String value for the property if it is not otherwise set.
   - **Content Type** can be one of Constant, Optional, or Required. You can subsequently override only properties of type Optional and Required.
6. Validate the policy.
7. Click **Save**.

**Editing a User-Defined Configuration Property**

You can edit a user-defined configuration property if you need to change it.
To edit a user-defined configuration property:
1. Navigate to the Web Services Policy page, as described in "Navigating to the Web Services Policies Page in Fusion Middleware Control" on page 7-2.
2. From the Web Services Policies page, select the policy for which you want to edit a property from the Policies table and click Edit.
3. On the Edit Policy page, click the Configurations tab.
4. Select the user-defined configuration property you want to edit and click Edit.
5. Make any needed changes.
6. Validate the policy.
7. Click Save.

Deleting a User-Defined Configuration Property
You can delete a user-defined configuration property if you no longer need it.

To delete a user-defined configuration property:
1. Navigate to the Web Services Policy page, as described in "Navigating to the Web Services Policies Page in Fusion Middleware Control" on page 7-2.
2. From the Web Services Policies page, select the policy for which you want to delete a property from the Policies table and click Edit.
3. On the Edit Policy page, click the Configurations tab.
4. Select the user-defined configuration property you want to delete and click Delete.
5. Validate the policy.
6. Click Save.

Overriding the Configuration Properties When Attaching a Policy
When you attach a policy that has a user-defined configuration property, you can override the existing value in the Security Configuration Setting section of the Policies page using Fusion Middleware Control. In WLST, you do so using the setWebServicePolicyOverride command as described in "Overriding Configuration Properties When Attaching a Policy Using WLST" on page 8-22.

To do this using Fusion Middleware Control, attach the policy as described in "Attaching a Policy to a Single Subject" on page 8-3, "Attaching a Policy to Multiple Subjects (Bulk Attachment)" on page 8-7, or "Attaching Policies to Web Service Clients" on page 8-10 as appropriate.

Then, select the attached policy with the user-defined property. The Security Configuration Details portion of the page appears, as shown in Figure 8–11.
Overriding Configuration Properties When Attaching a Policy Using WLST

When you attach a policy that has an overridable property, you can override the existing value using the `setWebServicePolicyOverride` command. To do so, use the following procedure.

1. Attach the policy to the service as described in "Attaching a Policy to a Web Service Using WLST" on page 8-5.

2. Use the `setWebServicePolicyOverride` command to override policy properties.

   ```
   setWebServicePolicyOverride(application, moduleOrCompName, moduleType, serviceName, portName, policyURI, properties)
   ```

   You can override the properties listed in Table 8–1 and Table 8–2, and user-defined properties as described in "Configuring User-Defined Client- or Server-Side Override Properties" on page 8-19.

   For example, to override the `ROLE` property in the `oracle/wss_username_token_service_policy` policy, use the following command:

   ```
   wls:/wls-domain/serverConfig> setWebServicePolicyOverride (/wls_domain/AdminServer/Jaxwsejb30ws', 'jaxwsejb', 'web', 'Wsd1ConcreteService', 'Wsd1ConcretePort', "oracle/wss_username_token_service_policy", ["ROLE","ADMIN"])
   ```

3. For ADF and WebCenter applications, restart the Web service application. You do not need to restart a SOA composite.

   **Notes:**
   - If the policy that you specify is not attached to the port, an error message is displayed and/or an exception is thrown.
   - If you set the `properties` argument to `None`, then all policy overrides are removed.
Note: You need to wait approximately 30 seconds (or the equivalent of the configured Graceful Shutdown Timeout time) between stopping and restarting the application. During this time, the server is allowing all global transactions to complete before shutting down the application. If you do not wait the configured Graceful Shutdown Timeout time, then the application will not be restarted appropriately and you will not be able to access it. To avoid waiting the graceful shutdown timeout period, you can restart the application twice.

For more information about this WLST command and its arguments, see "Web Services Custom WLST Commands" in WebLogic Scripting Tool Command Reference.
Setting Up Your Environment for Policies

This chapter describes how to set up your Fusion Middleware Control and WebLogic Server environments for security policies.

This chapter includes the following sections:

- "Configuring Keystores for SSL" on page 9-1
- "Setting up the Keystore for Message Protection" on page 9-7
- "Using Service Identity Certification Extension" on page 9-10
- "Configuring the Credential Store Provider" on page 9-13
- "Configuring an Authentication Provider in WebLogic Server" on page 9-14
- "Configuring the SAML and Kerberos Login Modules" on page 9-15
- "Configuring SAML" on page 9-16
- "Using Kerberos Tokens" on page 9-21
- "SAML Message Protection Use Case" on page 9-26

Configuring Keystores for SSL

If you want to use any of the policies listed in "Which Policies Require You to Configure SSL?" on page 9-2 or "Which Policies Require You to Configure Two-Way SSL?" on page 9-2, you must configure keystores for SSL.

SSL provides secure connections by allowing two applications connecting over a network to authenticate the other's identity and by encrypting the data exchanged between the applications.

Authentication allows a server, and optionally a client, to verify the identity of the application on the other end of a network connection. Encryption makes data transmitted over the network intelligible only to the intended recipient. A client certificate (two-way SSL) can be used to authenticate the user.

This section describes how to set up a Web service client and the WebLogic Server Web service container to send requests over SSL.

In order to use SSL in a Web service application, you need to:

- Configure the WebLogic Server keystore and SSL settings.
- Configure the Web service client keystore and SSL settings.

These steps are described in the sections that follow.
Managing Keystores for SSL

Which Policies Require You to Configure SSL?

The predefined policies that require you to configure SSL are as follows:

- oracle/wss_http_token_over_ssl_service_policy
- oracle/wss_http_token_over_ssl_client_policy
- oracle/wss_saml_token_bearer_over_ssl_server_policy
- oracle/wss_saml_token_bearer_over_ssl_client_policy
- oracle/wss_saml_token_over_ssl_service_policy
- oracle/wss_saml_token_over_ssl_client_policy
- oracle/wss_username_token_over_ssl_service_policy
- oracle/wss_username_token_over_ssl_client_policy

In addition, you can create a new policy that requires SSL by using the following templates:

- oracle/wss_http_token_over_ssl_service_template
- oracle/wss_http_token_over_ssl_client_template
- oracle/wss_saml_token_bearer_over_ssl_service_template
- oracle/wss_saml_token_bearer_over_ssl_client_template
- oracle/wss_saml_token_over_ssl_service_template
- oracle/wss_saml_token_over_ssl_client_template
- oracle/wss_username_token_over_ssl_service_template
- oracle/wss_username_token_over_ssl_client_template

See Appendix C, "Predefined Assertion Templates" and Appendix B, "Predefined Policies" for more information on these assertions and policies.

Which Policies Require You to Configure Two-Way SSL?

The predefined policies that require you to configure two-way SSL are as follows:

- oracle/wss_saml_token_over_ssl_client_policy
- oracle/wss_saml_token_over_ssl_service_policy
- oracle/wss_username_token_over_ssl_client_policy, when mutual authentication is selected.
- oracle/wss_username_token_over_ssl_service_policy, when mutual authentication is selected.
- oracle/wss_http_token_over_ssl_client_policy, when mutual authentication is selected.
- oracle/wss_http_token_over_ssl_service_policy, when mutual authentication is selected.

In addition, you can create a new policy that requires two-way SSL by using the following templates:

- oracle/wss_saml_token_over_ssl_client_template
- oracle/wss_saml_token_over_ssl_service_template
How to Configure a Keystore on WebLogic Server

Private keys, digital certificates, and trusted certificate authority certificates establish and verify identity and trust in the WebLogic Server environment.

This section briefly summarizes the steps that are required to configure the keystore in WebLogic Server. See the following two sources for complete information:

- Oracle WebLogic Server Administration Console Help for complete information, particularly the topic "Servers: Configuration: Keystores."
- Securing Oracle WebLogic Server, particularly Configuring Identity and Trust.

WebLogic Server is configured with a default identity keystore DemoIdentity.jks and a default trust keystore DemoTrust.jks. In addition, WebLogic Server trusts the certificate authorities in the cacerts file in the JDK. This default keystore configuration is appropriate for testing and development purposes. However, these keystores should not be used in a production environment.

To configure identity and trust for a server:

1. Obtain digital certificates, private keys, and trusted CA certificates from Sun Microsystem’s keytool utility, or a reputable vendor such as Entrust or Verisign, and include them in the keystore.

   To get the certificate, you must create a Certificate Request and submit it to the CA. The CA will authenticate the certificate requestor and create a digital certificate based on the request.

   The PEM (Privacy Enhanced Mail) format is the preferred format for private keys, digital certificates, and trusted certificate authorities (CAs).

   If you use the keytool utility, the default key pair generation algorithm is Digital Signature Algorithm (DSA). WebLogic Server does not support DSA. Specify another key pair generation and signature algorithm such as RSA when using WebLogic Server. For more information about Sun's keytool utility, see the keytool-Key and Certificate Management Tool description at http://java.sun.com/j2se/1.5.0/docs/tooldocs/windows/keytool.html.

   You can also use the digital certificates, private keys, and trusted CA certificates provided by the WebLogic Server kit. The demonstration digital certificates, private keys, and trusted CA certificates should be used only in a development environment.

2. Create one keystore for identity and one for trust. The preferred keystore format is JKS (Java KeyStore).

3. Load the private keys and trusted CAs into the keystores.

4. In the left pane of the Console, expand Environment and select Servers.

5. Click the name of the server for which you want to configure the identity and trust keystores.

6. Select Configuration, and then Keystores.

7. In the Keystores field, select the method for storing and managing private keys/digital certificate pairs and trusted CA certificates. These options are available:

   - Custom Identity and Custom Trust: Identity and trust keystores you create.
8. In the Identity section, define attributes for the identity keystore.

- Custom Identity Keystore: The fully qualified path to the identity keystore.
- Custom Identity Keystore Type: The type of the keystore. Generally, this attribute is Java KeyStore (JKS); if left blank, it defaults to JKS.
- Custom Identity Keystore Passphrase: The password you will enter when reading or writing to the keystore. This attribute is optional or required depending on the type of keystore. All keystores require the passphrase in order to write to the keystore. However, some keystores do not require the passphrase to read from the keystore. WebLogic Server only reads from the keystore so whether or not you define this property depends on the requirements of the keystore.

**Note:** The passphrase for the Demo Identity keystore is `DemoIdentityKeyStorePassPhrase`.

9. In the Trust section, define properties for the trust keystore.

If you chose Java Standard Trust as your keystore, specify the password defined when creating the keystore. Confirm the password.

If you chose Custom Trust, define the following attributes:

- Custom Trust Keystore: The fully qualified path to the trust keystore.
- Custom Trust Keystore Type: The type of the keystore. Generally, this attribute is JKS; if left blank, it defaults to JKS.
- Custom Trust Keystore Passphrase: The password you will enter when reading or writing to the keystore. This attribute is optional or required depending on the type of keystore. All keystores require the passphrase in order to write to the keystore. However, some keystores do not require the passphrase to read from the keystore. WebLogic Server only reads from the keystore, so whether or not you define this property depends on the requirements of the keystore.

10. The changes are automatically activated.

**Configuring SSL on WebLogic Server (One-Way)**

With one-way SSL, the server is required to present a certificate to the client but the client is not required to present a certificate to the server.

After you configure identity and trust keystores for a WebLogic Server instance as described in "Configuring Keystores for SSL" on page 9-1, you configure its SSL attributes. These attributes describe the location of the identity key and certificate in
the keystore specified on the Configuration: Keystores page. Use the Configuration:
SSL page to specify this information.

This section summarizes the steps required to configure SSL on WebLogic Server. For 
complete information, see *Securing Oracle WebLogic Server*.

To configure SSL:

1. In the left pane of the WebLogic Server Administration Console, expand 
   Environment and select **Servers**.

2. Click the name of the server for which you want to configure SSL.

3. Select **Configuration**, and then the **SSL** page, and choose the location of identity 
   (certificate and private key) and trust (trusted CAs) for WebLogic Server.

4. Set SSL attributes for the private key alias and password.

5. At the bottom of the page, click **Advanced**.

6. Set Hostname Verification to None.

7. Indicate the number of times WebLogic Server can use an exportable key between 
   a domestic server and an exportable client before generating a new key. The more 
   secure you want WebLogic Server to be, the fewer times the key should be used 
   before generating a new key.


9. Specify the inbound and outbound SSL certificate validation methods. These 
   options are available:
   - Builtin SSL Validation Only: Uses the built-in trusted CA-based validation. 
     This is the default.
   - Builtin SSL Validation and Cert Path Validators: Uses the built-in trusted 
     CA-based validation and uses configured CertPathValidator providers to 
     perform extra validation.

**Configuring SSL on WebLogic Server (Two-Way)**

With two-way SSL, the server presents a certificate to the client and the client presents 
a certificate to the server. WebLogic Server can be configured to require clients to 
submit valid and trusted certificates before completing the SSL handshake.

After you configure identity and trust keystores for a WebLogic Server instance as 
described in “Configuring Keystores for SSL” on page 9-1, you can configure its 
two-way SSL attributes if the policy or template you are using requires it, as described 

This section summarizes the steps required to configure SSL on WebLogic Server. For 
complete information, see *Securing Oracle WebLogic Server*.

To configure two-way SSL:

1. In the left pane of the WebLogic Server Administration Console, expand 
   Environment and select **Servers**.

2. Click the name of the server for which you want to configure SSL.

3. Select **Configuration**, and then the **SSL** page, and choose the location of identity 
   (certificate and private key) and trust (trusted CAs) for WebLogic Server.

4. Set SSL attributes for the private key alias and password.

5. At the bottom of the page, click **Advanced**.
6. Set Hostname Verification to None.

7. Indicate the number of times WebLogic Server can use an exportable key between a domestic server and an exportable client before generating a new key. The more secure you want WebLogic Server to be, the fewer times the key should be used before generating a new key.

8. Set the Use Server Certs control if needed. Setting this control determines whether a Web service client hosted on WebLogic Server should use the server certificates/key as the client identity when initiating a connection over HTTPS.

9. Set the **Two Way Client Cert Behavior** control to Client Certs Requested and Enforced.

10. Specify the inbound and outbound SSL certificate validation methods. These options are available:
   - Builtin SSL Validation Only: Uses the built-in trusted CA-based validation. This is the default.
   - Builtin SSL Validation and Cert Path Validators: Uses the built-in trusted CA-based validation and uses configured CertPathValidator providers to perform extra validation.

**Configuring SSL for a Web Service Client**

The core WebLogic Server security subsystem uses private key and X.509 certificate pairs, stored in the default keystores, for SSL.

You must ensure that the Web service client trusts the X.509 certificate that WebLogic Server uses to digitally sign the request. Do one of the following:

1. Ensure that WebLogic Server obtains a digital certificate that the client automatically trusts, because it has been issued by a trusted certificate authority.

2. Create a certificate registry that lists all the individual certificates trusted by WebLogic Server, and then ensure that the client trusts these registered certificates.

To configure SSL for a Web service client:

1. Create a keystore used by the client application. Oracle recommends that you create one client keystore per application user.
   
   You can use the keytool utility to perform this step. For development purposes, the keytool utility is the easiest way to get started.

2. Create a private key and digital certificate pair, and load it into the client keystore.
   Make sure that the certificate’s key usage allows both encryption and digital signatures. Oracle requires a key length of 1024 bits or larger.

3. Make sure that the following properties are set in the client’s JVM:
   - `javax.net.ssl.trustStore` -- The name of the file that contains the trust store.
   - `javax.net.ssl.trustStoreType` -- The type of KeyStore object that you want the default TrustManager to use.
   - `javax.net.ssl.trustStorePassword` -- The password for the KeyStore object that you want the default TrustManager to use.
Configuring Two-Way SSL for a Web Service Client

You must ensure that WebLogic Server is able to validate the X.509 certificate that the client uses to digitally sign its request, and that WebLogic Server in turn uses to encrypt its responses to the client. Do one of the following:

1. Ensure that the client application obtains a digital certificate that WebLogic Server automatically trusts, because it has been issued by a trusted certificate authority.

2. Create a certificate registry that lists all the individual certificates trusted by WebLogic Server, and then ensure that the client uses one of these registered certificates.

To configure SSL for a Web service client:

1. Create a keystore used by the client application. Oracle recommends that you create one client keystore per application user.
   
   You can use the keytool utility to perform this step. For development purposes, the keytool utility is the easiest way to get started.

2. Create a private key and digital certificate pair, and load it into the client keystore.
   
   Make sure that the certificate’s key usage allows both encryption and digital signatures. Oracle requires a key length of 1024 bits or larger.

3. Make sure that the following properties are set in the client’s JVM:
   
   - `javax.net.ssl.trustStore` -- The name of the file that contains the trust store.
   - `javax.net.ssl.trustStoreType` -- The type of KeyStore object that you want the default TrustManager to use.
   - `javax.net.ssl.trustStorePassword` -- The password for the KeyStore object that you want the default TrustManager to use.
   - `javax.net.ssl.keyStore` -- The name of the file that contains the KeyStore object.
   - `javax.net.ssl.keyStoreType` -- The type of KeyStore object.
   - `javax.net.ssl.keyStorePassword` -- The password for the KeyStore.

Setting up the Keystore for Message Protection

In order to sign and encrypt SOAP messages you must first create and configure the Web Services Manager Keystore for a WebLogic domain. This keystore is used to store public and private keys for SOAP messages within the WebLogic Domain.

**Note:** The Web services manager runtime does not use the WebLogic Server keystore that is used for SSL as documented elsewhere in this chapter.
The signature and encryption keys are used to sign, verify, encrypt, and decrypt the SOAP messages.

The keystore configuration is domain wide: all Web services and Web service clients in the domain use this keystore.

To set up the keystore used by Web Services Manager follow these steps:

1. Use the keytool to create a Java keystore, as described in "How to Create and Use a Java Keystore" on page 9-9.

2. In the navigator pane, expand WebLogic Domain to show the domain for which you need to configure the keystore. Select the domain.

3. Using Fusion Middleware Control, click WebLogic Domain, then Security, and then Security Provider Configuration.

   Click the plus sign (+) to expand the Keystore control near the bottom of the page, then click Configure.

   The Web Services Manager Keystore Configuration page is displayed, as shown in Figure 9–1.

   **Figure 9–1  Web Services Manager Keystore Configuration**

   ![Web Services Manager Keystore Configuration](image)

   4. If it is not already enabled, click the Configure Keystore Management check box.

   5. Enter the path and name for the keystore that you created. By default, the keystore name is default-keystore.jks, but you can change this. However, you cannot change the keystore type; it must be JKS.

   6. Enter a password for the keystore and confirm it.

   7. Enter an alias and password for the signature and encryption keys. Confirm the passwords.

      The alias and password for the signature and encryption keys define the string alias and password used to store and retrieve the keys.

   8. Click OK to submit the changes.

   Note that all fields on this page require a restart of Oracle Enterprise Manager Fusion Middleware Control to take effect.
Setting up the Keystore for Message Protection

Note: The Oracle WSM agent caches the keystore name and object. If you make subsequent changes to the contents of the keystore or to its name, you must restart Oracle Enterprise Manager Fusion Middleware Control.

Setting Up the Web Service Client Keystore at Design Time

You need to create a Java Key Store (JKS) keystore to store the signature and encryption keys required by the X.509 token on the client. Keys are used for a variety of purposes, including authentication and data integrity. For example:

- To sign data, you must have the signer’s private key.
- To verify a signature, you must have a trusted CA certificate and the public key that matches the private key.
- To encrypt data, you must have the recipient's public key. The Web service's base64-encoded public certificate is published in the WSDL for use by the Web service client, as described in “Using Service Identity Certification Extension” on page 9-10.
- To decrypt data, you must have the private key that corresponds to the public key.

These trusted certificates and public and private keys are stored in the keystore. The following sections describe where you can obtain trusted certificates and how to create and use these keystores.

- "How to Obtain a Trusted Certificate" on page 9-9
- "How to Create and Use a Java Keystore" on page 9-9
- "How to Create Private Keys and Load Trusted Certificates" on page 9-10

How to Obtain a Trusted Certificate

You can obtain a certificate from a Certificate Authority (CA), such as Verisign or Entrust, and include them in the keystore. To get the certificate, you must create a Certificate Request and submit it to the CA. The CA will authenticate the certificate requestor and create a digital certificate based on the request.

How to Create and Use a Java Keystore

The Java Keystore (JKS) is the proprietary keystore format defined by Sun Microsystems. To create and manage the keys and certificates in the JKS, use the keytool utility. You can use the keytool utility to perform the following tasks:

- Create public and private key pairs, designate public keys belonging to other parties as trusted, and manage your keystore.
- Issue certificate requests to the appropriate Certification Authority (CA), and import the certificates which they return.
- Administer your own public and private key pairs and associated certificates. This allows you to use your own keys and certificates to authenticate yourself to other users and services. This process is known as ‘self-authentication.’ You can also use your own keys and certificates for data integrity and authentication services, using digital signatures.
- Cache the public keys of your communicating peers. The keys are cached in the form of certificates.
How to Create Private Keys and Load Trusted Certificates

The following section provides an outline of how to create and manage the JKS with the keytool utility. It describes how to create a keystore and to load private keys and trusted CA certificates. You can find more detailed information on the commands and arguments for the keytool utility at this Web address.

http://java.sun.com/j2se/1.4.2/docs/tooldocs/windows/keytool.html

1. Create a new private key and self-signed certificate.

   Use the genKey command to create a private key. It will create a new private key if one does not exist. The following command generates an RSA key, with RSA-SHA1 as the signature algorithm, with the alias test in the test.jks keystore.

   keytool -genkey -alias test -keyalg "RSA" -sigalg "SHA1withRSA" -dname "CN=test, C=US" -keystore test.jks

   The keytool utility prompts for the needed key and keystore passwords. DSA key is not supported. Make sure you pass the parameter "-keyalg RSA " in the command.

2. Display the keystore.

   The following command displays the contents of the keystore. It will prompt you for the keystore password.

   keytool -list -v -keystore test.jks

3. Import a trusted CA certificate in the keystore.

   Use the -import command to import the certificate. The following command imports a trusted CA certificate into the test.jks keystore. It will create a new keystore if one does not exist. The keytool utility prompts for the needed password.

   keytool -import -alias aliasfortrustedcacert -trustcacerts -file trustedcafilename -keystore test.jks

4. Generate a certificate request.

   Use the -certreq command to generate the request. The following command generates a certificate request for the test alias. The CA will return a certificate or a certificate chain.

   keytool -certreq -alias test -sigalg "RSAwithSHA1" -file certreq_file -storetype jks -keystore test.jks

5. Replace the self-signed certificate with the trusted CA certificate.

   You must replace the existing self-signed certificate with the certificate from the CA. To do this, use the -import command. The following command replaces the trusted CA certificate in the test.jks keystore. The keytool utility prompts for the needed password.

   keytool -import -alias test -file trustedcafilename -keystore test.jks

Using Service Identity Certification Extension

In prior releases of Oracle WSM, for Web services that implemented a message-protection policy the Web service client needed to store the Web service's public certificate in its domain-level keystore. The client then used the keystore.recipient.alias property to identify the certificate in the keystore. To do this, you
either identified the `keystore.recipient.alias` property on the Configurations page or 
overrode it on a per-client basis using the Security Configuration Details control when 
attaching the policy (or programmatically).

In this release of Oracle WSM, for Web services that implement a message-protection 
policy the Web service's base64-encoded public certificate is published in the WSDL. 
The certificate is included for message protection policies whether or not the policy 
encrypts or decrypts data.

The certificate in the WSDL is the service's public key by default, as determined by the 
Encryption Key you specified when "Setting up the Keystore for Message Protection" 
on page 9-7.

If this certificate is not found, the `keystore.recipient.alias` property is used instead and 
the certificate must be in the client's domain-level keystore as before.

---

**Note:** Self-signed certificates must be available in the client side 
keystore in order to be trusted.

---

**Hostname Verification Included in WSDL**

This release includes a hostname verification feature that ensures that a certificate 
retrieved from a WSDL was not the subject of a substitution attack or "man in the 
middle" attack and is indeed the expected certificate.

To to this, Oracle WSM validates that the common name (CN) or the subject Group 
Base Distinguished Name (DN) in the certificate matches the hostname of the service. 

This feature depends upon the subject DN of the certificate. 

By default, hostname verification is disabled.

**Enabling or Disabling Service Identity Certificate Extension and Hostname Verification**

You use Fusion Middleware Control to enable or disable service identity certificate 
extension and hostname verification.

The properties on the Identity Extension tab enable you to specify whether to enforce 
Web service policies by publishing the X509 certificate in the WSDL. If there is no need 
to publish the X509 certificate (for e.g., with SSL), you can override the default setting 
to avoid publishing the certificate. In addition, if the X509 is published, you can also 
specify whether to ignore hostname verification.

Service identity certificate extension is enabled by default; hostname verification is 
disabled by default.

---

**Note:** Service identity certificate extension does not set the 
encryption key from which the public key is derived. You must first 
specify this key as described in "Setting up the Keystore for Message 
Protection" on page 9-7.

---

To enable or disable service identity certificate extension and hostname verification:

1. Set the encryption key from which the public key is derived, as described in 
   "Setting up the Keystore for Message Protection" on page 9-7.

   If you use a service side override to override the encryption key or keystore for a 
Web service, the certificate corresponding to the overridden key is used.
2. From the navigation pane, expand **WebLogic Domain**.

3. Select the domain in which you want to enable or disable service identity certificate extension and hostname verification.

4. Using Fusion Middleware Control, click **WebLogic Domain**.

5. Select **Web Services**, and then select **Platform Policy Configuration**.

6. Select the **Identity Extension** tab.

7. To modify an identity extension property, select it and then click **Edit**. In the Edit Property window, you can edit the Value field to change the default amount for each property:

   - **wsm.ignore.identity.wsdl** – Specifies whether to enable or disable the consumption of the X509 Certificate from a client-side WSDL, per domain. By default, this property is enabled (false), which means that the certificate from the WSDL will be used by the client runtime for encryption. You can disable the consumption of the X509 Certificate by changing the default setting to true.

   - **wsm.ignore.hostname.verification** – Specifies whether to ignore the hostname verification feature per domain. By default this property is disabled (true). However, you can enable hostname verification by setting the property to false.

8. To delete an existing property, select it and then click **Delete**.

9. Click **Apply** to apply the property updates.

### Ignoring the Service Identity Certificate Extension From the Client

**Note:** If the client overrides the `keystore.recipient.alias` property `[oracle.wsm.security.util.SecurityConstants.ClientConstants.WSS_RECIPIENT_KEY_ALIAS` in a client programmatic override), the override is always used, and not the certificate published in the WSDL.

For a JEE client, the value of the wsm.ignore.identity.wsdl property is read automatically and no additional configuration is required. Set this property in Fusion Middleware Control to turn identity verification on and off, as described in "Enabling or Disabling Service Identity Certificate Extension and Hostname Verification" on page 9-11.

For a JSE client, the Web service client must take explicit action to ignore the certificate in the WSDL and rely solely on the `keystore.recipient.alias` property it sets.

To do this, set the value of `wsm.ignore.identity.wsdl` to true:

```java
BindingProvider.getRequestContext().put(SecurityConstants.ClientConstants.WSM_IGNORE_IDENTITY_WSDL, "true");
```

### Ignoring Hostname Verification from the Client

For a JEE client, the value of the wsm.ignore.hostname.verification property is read automatically and no additional configuration is required. Set this property in Fusion Middleware Control to turn hostname verification on and off, as described in
Configuring the Credential Store Provider

The credential store provider provides a way to store, retrieve, and delete credentials for a Web service and other applications.

For example, the oracle/wss_http_token_client_policy policy includes the csf-key property, with a default value of basic.credentials. This credential is stored in the credential store provider.

Follow these steps to configure the credential store provider:

1. In the navigator pane, expand WebLogic Domain to show the domain for which you need to configure the keystore. Select the domain.

2. Using Fusion Middleware Control, click WebLogic Domain, then Security, and then Credentials.

   The Credential Store Provider Configuration page is displayed, as shown in Figure 9–2. (In this figure, the Credential Store Provider control has already been expanded.)

Figure 9–2  Credential Store Provider Configuration Page

3. Click Create Map and enter the map name oracle.wsm.security, as shown in Figure 9–3.

Figure 9–3  Set Security Provider Screen

4. Click Create Key. The Create Key dialog box appears, as shown in Figure 9–4.

"Enabling or Disabling Service Identity Certificate Extension and Hostname Verification" on page 9-11.

For a JSE client, the Web service client must take explicit action to ignore hostname verification.

To do this, set the value of wsm.ignore.hostname.verification to true:

BindingProvider.getRequestContext().put(SecurityConstants.ClientConstants.WSM_IGNORE_HOSTNAME_VERIFICATION, "false");
5. Select the map name `oracle.wsm.security` if it is not already selected.

6. Enter the key name.

7. Select the key type, either `Password` or `Generic`. A password credential can store a username and password. A generic credential can store any credential object.

8. For a password credential, enter the username and password.

9. Click OK.

10. Restart Fusion Middleware Control.

---

**Configuring an Authentication Provider in WebLogic Server**

This section introduces WebLogic Server security features that are described in detail in *Securing Oracle WebLogic Server* and in the *Oracle WebLogic Server Administration Console Help*. This section provides only a brief introduction to the security features, and concentrates on how they relate to configuring policies.

The security policies that you use determine what types of security providers you must configure in WebLogic Server. You can categorize the policies based on their token type:

- Policies that use the username token require an authentication provider that can handle the `NameCallback` and `PasswordCallback`. The WebLogic Default Authentication provider is one such provider.

The following policies fall into this category:

- `oracle/wss_http_token_service_policy`
- `oracle/wss_username_token_service_policy`
- `oracle/wss_username_token_over_ssl_service_policy`
- `oracle/wss11_username_token_with_message_protection_service_policy`
- `oracle/wss10_username_token_with_message_protection_service_policy`
- `oracle/wss10_username_token_with_message_protection_ski_basic256_service_policy`

- Policies that use the X.509 and SAML tokens require an authentication provider (or Identity Assertion provider) that can handle perimeter authentication via the `NameCallback`. The Web service runtime process the tokens on your behalf to determine the username, and then invokes the Oracle Platform Security Service (OPSS) layer to complete the authentication. In this way, the security providers do
not handle the X.509 or SAML tokens directly, and the WebLogic providers do not have to support these token types.

The following policies fall into this category:
- oracle/wss10_x509_token_with_message_protection_service_policy
- oracle/wss10_saml_token_service_policy
- oracle/wss10_saml_token_with_message_protection_service_policy
- oracle/wss_saml_token_over_ssl
- oracle/wss_saml_token_bearer_over_ssl_service_policy
- oracle/wss10_saml_hok_token_with_message_protection_service_policy
- oracle/wss11_saml_token_with_message_protection_service_policy
- oracle/wss10_saml_token_with_message_protection_ski_basic256_service_policy
- oracle/wss11_x509_token_with_message_protection_service_policy

What Type of WebLogic Security Authentication Providers Must You Create?

You can use any WebLogic Authentication provider that can validate the credentials in the NameCallback and PasswordCallback callbacks, or the NameCallback alone, as appropriate. This means that you can use the WebLogic Default Authentication provider and authenticate the user against the embedded LDAP datastore if you so choose, or the Default Identity Asserter, and so forth. See "Configure Authentication and Identity Assertion Providers" in the Oracle WebLogic Server Administration Console Help for information on how to do this.

Configuring the SAML and Kerberos Login Modules

The SAML and Kerberos policies have associated login modules, as determined by the assertions that make up the policy. When you attach a SAML policy to a Web service, you must edit the login policy and make any needed changes. The Kerberos login module has settings that you can optionally configure.

(Login modules associated with other policy types do not have settings specific to the Web service policies.)

Table 9–1 lists the available login modules and which policies use them.

<table>
<thead>
<tr>
<th>Login Module Service Name</th>
<th>Description</th>
<th>Settable Attributes and Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>saml.loginmodule</td>
<td>The SAML login module is a Java Authentication and Authorization Service (JAAS) login module that accepts SAML assertions to do a login. The SAML login module enables the Web services to be run using the login context of the principal created from the SAML assertion.</td>
<td>Issuers. Name of the issuer of the SAML token. <a href="http://www.oracle.com">www.oracle.com</a> is the default.</td>
</tr>
</tbody>
</table>
Configuring SAML

Do the following to configure a login module:

1. In the navigator pane, expand WebLogic Domain to show the domain for which you need to configure the keystore. Select the domain.

2. Using Fusion Middleware Control, click WebLogic Domain, then Security, and then Security Provider Configuration.

3. From the list of login modules, select a login module and click Edit.

4. Configure any specific attributes or custom properties for the login module.

### Configuring SAML

The SAML standard defines a common XML framework for creating, requesting, and exchanging security assertions between software entities on the Web. The SAML Token profile is part of the core set of WS-Security standards, and specifies how SAML assertions can be used for Web services security. SAML also provides a standard way...
to represent a security token that can be passed across the multiple steps of a business process or transaction, from browser to portal to networks of web services.

If you use any of the following predefined policies, you must configure SAML:

- oracle/wss_saml_token_bearer_over_ssl_server_policy
- oracle/wss_saml_token_bearer_over_ssl_client_policy
- oracle/wss_saml_token_over_ssl_service_policy
- oracle/wss_saml_token_over_ssl_client_policy
- oracle/wss10_saml_token_service_policy
- oracle/wss10_saml_token_client_policy
- oracle/wss10_saml_token_with_message_protection_client_policy
- oracle/wss10_saml_token_with_message_protection_service_policy
- oracle/wss10_saml_token_with_message_protection_ski_basic256_client_policy
- oracle/wss10_saml_token_with_message_protection_ski_basic256_service_policy
- oracle/wss10_saml_hok_token_with_message_protection_service_policy
- oracle/wss10_saml_hok_token_with_message_protection_client_policy
- oracle/wss10_saml_token_with_message_integrity_service_policy
- oracle/wss10_saml_token_with_message_integrity_client_policy
- oracle/wss11_saml_token_with_message_protection_service_policy
- oracle/wss11_saml_token_with_message_protection_client_policy

**How the SAML Token is Validated**

The SAML login module verifies the SAML tokens on behalf of the Web service. The SAML login module then extracts the username from the verified token and (indirectly) passes it to Oracle Platform Security Services (OPSS) via the `NameCallback` to complete the perimeter authentication.

**Which Authentication Provider is Used?**

Any configured authentication provider (identity asserter) that handles the `NameCallback` can then be invoked.

The authentication provider then simply checks whether the user exists (identity assertion mode) and, if it does, the user is asserted and a subject is established.

**How to Configure SAML Web Service Client at Design Time**

Follow the steps described in this section to configure the SAML Web service client at design time. (If you attach the SAML policies to the Web service client at deploy time, you do not need to configure these properties and they are not exposed in Fusion Middleware Control.)

You can also include user roles in the assertion and change the SAML assertion issuer name, as described in subsequent sections.

**Configure the Username for the SAML Assertion**

For a JSE client application, configure the username as a BindingProvider property:
Map<String, Object> reqContext = ((BindingProvider) proxy).getRequestContext();
reqContext.put(BindingProvider.USERNAME_PROPERTY, "jdoe")

where proxy refers to the Web service proxy used for invoking the actual Web service.
For a JEE client, if the user is already authenticated and a subject is established in the container, then the username is obtained from the subject automatically and no additional configuration is required.
For example, if user jdoe is already authenticated to the JEE application and you are making a Web service call from that JEE application, the username jdoe will be automatically propagated.
However, if the user is not authenticated, then you need to configure the username in the BindingProvider as in the JSE case.

Including User Roles in the Assertion

You can pass the user’s role as an attribute statement in the SAML assertion. To do this at post-deploy time, configure the user.role.include property to "true." The default value in the policy is "false."

To configure the user’s role at design time, set the user.role.include property to "true" in the BindingProvider.

How to Configure Oracle Platform Security Services (OPSS) for SAML Policies

Follow these steps to configure OPSS for the predefined SAML policies:

1. Configure the SAML login module, as described in "Configuring the SAML and Kerberos Login Modules" on page 9-15.

By default, the SAML assertion issuer name is www.oracle.com. The saml.issuer.name property must be www.oracle.com if you are using the predefined SAML policies (or assertions) on both the Web service client and Web service sides. Therefore, you can generally use the defaults and not configure any issuer.

To use a different issuer name, click Add to add an additional issuer name, as shown in Figure 9–5.

Figure 9–5 Adding a SAML Issuer to the Login Module

2. Configure the identity assertion provider in the WebLogic Server Administration Console.

3. If you will be using policies that involve signatures related to SAML assertions (for example, SAML holder-of-key policies) where a key referenced by the assertion is used to sign the message, or sender-vouches policies where the sender’s key is used to sign the message, you need to configure keys and certificates for signing and verification, as described in "Setting up the Keystore for Message Protection" on page 9-7.

4. If you will be using policies that require SSL, you need to configure SSL, as described in "Configuring Keystores for SSL" on page 9-1.
Adding an Additional SAML Assertion Issuer Name

The `saml.issuer.name` property is generally `www.oracle.com` if you are using the predefined SAML policies (or assertions) on both the Web service client and Web service sides. Therefore, you can generally use the defaults and not configure any issuer.

If a different client, for instance .NET/WLS, is talking to a Web service protected by a predefined SAML policy, or you otherwise need to use a different SAML issuer, then you need to add an additional issuer name.

To add an additional SAML assertion issuer name:

1. Configure the SAML login module, as described in "Configuring the SAML and Kerberos Login Modules" on page 9-15. Click Add to add an additional issuer name, as shown in Figure 9–5.
2. At deploy time, specify a value for `saml.issuer.name` on the Configurations page for the SAML client policy, or override it on a per-client basis using the Security Configuration Details control when you attach the policy. The default value in the policy is `www.oracle.com`.

   To configure the issuer at design time, set the `saml.issuer.name` property in the BindingProvider.

Configuring SAML Web Service Clients for Identity Switching

Oracle WSM includes the `wss11_saml_token_identity_switch_with_message_protection_client_policy` policy that enables identity switching. Identity switching means that the policy propagates a different identity than the one based on the authenticated Subject.

You might have a scenario in which your SOA application needs to specify which user identity to use in client-side Web service policies, and then dynamically switch the user associated with the SAML token in the outbound Web service request. Instead of using the username from the Subject, this policy allows you to set a new user name when sending the SAML Web service request.

The `wss11_saml_token_identity_switch_with_message_protection_client_policy` policy creates the SAML token based on the user ID set via the property `javax.xml.ws.security.auth.username`.

Consider the following use case in which a Web service client calls a SOA application, which in turn becomes the client for a Web service.

```
client -> SOA -> web service
```

In this use case:

- The client is secured with the `wss11_username_with_message_protection_client_policy` policy. It communicates with the SOA entry point as user `end_user1`.
- The SOA entry point is protected by `wss11_username_with_message_protection_service_policy`. The SOA application authenticates the end user and establishes the Subject based on `end_user1`. However, it wants to propagate a different identity to the external Web service.

Therefore, in order to do identity switching, attach the `wss11_saml_identity_switch_message_protection_client_policy` policy to the SOA reference binding component.
The username that is propagated is determined dynamically by the BPEL process, which is a component in the SOA application. The username is set as BPEL property `javax.xml.ws.security.auth.username` with the dynamically determined username value. The external Web service can be protected by `wss11_saml_with_message_protection_service_policy`. It receives the switched user and not `end_user1`.

A similar scenario can be used by a J2EE application (replacing SOA in this scenario with the J2EE application) that establishes the Subject based on an end user but then needs to propagate a different identity. In case of J2EE, you can set the user name programmatically as follows:

```java
((BindingProvider) port).getRequestContext().put(BindingProvider.USERNAME_PROPERTY, config.get(USERNAME));
```

Use Fusion Middleware Control to add the `WSIdentityPermission` permission to the SOA reference binding component.

The `wss11_saml_token_identity_switch_with_message_protection_client_policy` policy requires that an application to which the policy is attached must have the `WSIdentityPermission` permission. That is, applications from which Oracle WSM accepts the externally-supplied identity must have the `WSIdentityPermission` permission.

This is to avoid potentially rogue applications from providing an identity to Oracle WSM.

**Note:** The `wss11_saml_token_identity_switch_with_message_protection_client_policy` policy disables local optimization (see "Configuring Local Optimization for a Policy" on page 10-69 for SOA to SOA interactions on the same server. This policy is compatible with the `wss11_saml_token_with_message_protection_service_policy` policy on the Web service.

### Set the `javax.xml.ws.security.auth.username` Property

**For SOA:**

The SOA composite has a BPEL process as one SOA service component. A BPEL process provides process orchestration and storage of synchronous and asynchronous processes.

You can define a BPEL property with the exact name `javax.xml.ws.security.auth.username`. The value for this property can be the identity that the SOA application wants to propagate, which could potentially be determined dynamically by the BPEL process.

**For J2EE:**

Set the `BindingProvider.USERNAME_PROPERTY` property.

### Set the `WSIdentityPermission` Permission

The Web service client (for example, the SOA reference binding component) to which you attached the `wss11_saml_token_identity_switch_with_message_protection_client_policy` policy must have the `oracle.wsm.security.WSIdentityPermission` permission.
Use Fusion Middleware Control to add the oracle.wsm.security.WSIdentityPermission permission to the SOA reference binding component as a System Grant, as follows:

1. In the navigator pane, expand **WebLogic Domain** to show the domain for which you need to configure the application. Select the domain.

2. Using Fusion Middleware Control, click **WebLogic Domain**, then **Security**, and then **Security Policies**. System policies are the system-wide policies applied to all applications deployed to the current WebLogic Domain.

3. From the **System Policies** page, select the arrow icon in the **Permission** field to search the system security grants.

4. Select one of the codebase permissions to use as a starting point and click **Create Like**.

5. In the **Grant Details** section of the page, enter file:${common.components.home}/modules/oracle.wsm.agent.common_11.1.1/wsm-agent-core.jar in the **Codebase** field.

6. In the **Permissions** section of the page, select the starting point permission class and click **Edit**.

7. Enter oracle.wsm.security.WSIdentityPermission in the **Permission Class** field. The resource name is the composite name for SOA, and the application name for a J2EE client. The action is always **assert**, as shown in Figure 9–6.

**Figure 9–6 Adding the WSIdentityPermission**

<table>
<thead>
<tr>
<th>Permission Class</th>
<th>Resource Name</th>
<th>Permissions Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>oracle.wsm.security.WSIdentityPermission</td>
<td>your.application.name</td>
<td>assert</td>
</tr>
</tbody>
</table>

**Using Kerberos Tokens**

Oracle Fusion Middleware 11g Release 1 (11.1.1) provides support for Kerberos tokens with the following predefined policies:

- oracle/wss11_kerberos_token_client_policy
- oracle/wss11_kerberos_token_service_policy
- oracle/wss11_kerberos_token_with_message_protection_client_policy
- oracle/wss11_kerberos_token_with_message_protection_service_policy

You may also create a policy using the following assertion templates:

- oracle/wss11_kerberos_token_client_template
- oracle/wss11_kerberos_token_service_template
- oracle/wss11_kerberos_token_with_message_protection_client_template
- oracle/wss11_kerberos_token_with_message_protection_service_template

See Appendix C, "Predefined Assertion Templates" and Appendix B, "Predefined Policies" for more information on these assertions and policies.
Configuring the KDC

Follow the steps described in this section to configure the Key Distribution Center (KDC) for use by the Web service client and Web service.

You can also use Microsoft Active Directory with KDC. See "Using Active Directory with Kerberos and Message Protection" on page 9-25.

Initializing and Starting the KDC

Initialize KDC database. For example, on UNIX you might run the following command as root, where oracle.com is your default realm:

```
root# /usr/kerberos/sbin/kdb5_util -r oracle.com -s
```

Start the kerberos service processes. For example, on UNIX you might run the following commands as root:

```
root# /usr/kerberos/sbin/krb5kdc &
root# /usr/kerberos/sbin/kadmind &
```

Creating Principals

Create two accounts in the KDC user registry. The first account is for the end user; that is, the Web service client principal. The second account is for the Web service principal.

One way to create these accounts is with the kadmin.local tool, which is typically provided with MIT KDC distributions. For example:

```
>sudo su - # become root
>cd /usr/kerberos/sbin/kadmin.local
>kadmin.local>addprinc fmwadmin -pw welcome1
>kadmin.local> addprinc SOAP/myhost.oracle.com -randkey
>kadmin.local>listprincs # to see the added principals
```

The Web service principal name (SOAP/myhost.oracle.com) is shown in the example as being created with a random password. The Web service principals use keytables (a file that stores the service principal name and key) to log into Kerberos System. Using a random password increases security.

Configuring the Web Service Client to Use the Correct KDC

The Web service client needs to be configured to authenticate against the right KDC.

The configuration for the KDC resides at /etc/krb5.conf for UNIX hosts, and at C:\windows\krb5.ini for Windows hosts.

A sample krb5.conf is shown in Example 9–1. Note the following:

- The file tells the kerberos runtime the realm of operation and the KDC endpoint to contact.
- For Kerberos token policies to work, three additional properties need to be specified in the libdefaults section of this file:
  - default_tkt_enctypes = des3-cbc-sha1 des-cbc-md5 des-cbc-crc
  - default_tgs_enctypes = des3-cbc-sha1 des-cbc-md5 des-cbc-crc
  - permitted_enctypes = des3-cbc-sha1 des-cbc-md5 des-cbc-crc
The order of cipher suites is significant. For Kerberos message protection to work, the first in the list needs to "des3-cbc-sha1". This is because Oracle WSM supports the encryption algorithm TripleDES, but not plain DES.

**Example 9–1 Sample krb5.conf File**

```plaintext
[logging]
default = FILE:/var/log/krb5libs.log
dc = FILE:/var/log/krb5kdc.log
admin_server = FILE:/var/log/kadmind.log

[libdefaults]
default_realm = oracle.com
dns_lookup_realm = false
dns_lookup_kdc = false
default_tkt_enctypes = des3-cbc-sha1 des-cbc-md5 des-cbc-crc
default_tgs_enctypes = des3-cbc-sha1 des-cbc-md5 des-cbc-crc
permitted_enctypes = des3-cbc-sha1 des-cbc-md5 des-cbc-crc

[realms]
oracle.com =
{kdc = someadminserver.com:88  admin_server = someadminserver.com:749

default_domain = us.oracle.com  }
[domain_realm]
us.oracle.com = oracle.com
[kdc]
profile = /var/kerberos/krb5kdc/kdc.conf

[appdefaults]
pam =
{   debug = false    ticket_lifetime = 36000   renew_lifetime = 36000

forwardable = true    krb4_convert = false  }
```

### Setting the Service Principal Name In the Web Service Client

The Web service client that is enforcing Kerberos client side policies needs to know the service principal name of the service it is trying to access. You set the service principal name in "Creating Principals" on page 9-22.

You can specify a value for `service.principal.name` on the Configurations page, or override it on a per-client basis using the Security Configuration Details control when you attach the policy. The default (place holder) value is `HOST/localhost@oracle.com`.

### Setting the Service Principal Name In the Web Service Client at Design Time

The Web service client that is enforcing Kerberos client side policies needs to know the service principal name of the service it is trying to access. You set the service principal name in "Creating Principals" on page 9-22.

Use a configuration override to specify the service principal name at design time, as follows:

**JAX-WS Clients:**

```java
((BindingProvider)port).getRequestContext().put(SecurityConstants.ClientConstants.WSSEC_KERBEROS_SERVICE_PRINCIPAL,
```
Configuring the Web Service to Use the Right KDC

Configure the Web service to authenticate against the right KDC. The configuration for the KDC resides at `/etc/krb5.conf` for UNIX hosts, and at `C:\windows\krb5.ini` for Windows hosts.

A sample KDC configuration for a Web service client is shown in Example 9–1. This example also applies to the Web service KDC configuration.

Using the Correct Keytab File in Enterprise Manager

To use the correct keytab file, you

- Extract and install the keytab File
- Modify the krb5 login module

These tasks are described in the sections that follow.

Extract and Export the Keytab File

Extract the key table file, which is often referred to as the keytab, for the service principal account from the KDC and install on the machine where the Web service implementation is hosted.

For example, you can use a tool such as `kadmin.local` to extract the keytab for the service principal name, as follows:

```bash
>kadmin.local>ktadd -k /tmp/krb5.keytab SOAP/myhost.oracle.com
```

Export the keytab file to the machine where the Web service is hosted. The keytab is a binary file; if you ftp it, use binary mode.

Modify the krb5 Login Module to use the Keytab File

Modify the krb5 login module as described in "Configuring the SAML and Kerberos Login Modules" on page 9-15 to identify the location of the Web service KDC file.

For example, assume that the keytab file is installed at `/scratch/myhome/krb5.keytab`. Note the changes for the keytab and principal properties:

- principal value=SOAP/myhost.oracle.com@oracle.com
- useKeyTab value=true
- storeKey value=true
- keyTab value=/scratch/myhome/krb5.keytab
- doNotPrompt value=true

Authenticating the User Corresponding to the Service Principal

The Web services runtime must be able to verify the validity of the kerberos token.

If the token is valid, Oracle Platform Security Services (OPSS) must then be able to authenticate the user corresponding to the service principal against one of the configured WebLogic Server Authentication providers. (Authentication providers are described in "Configuring an Authentication Provider in WebLogic Server" on page 9-14.)

The user must therefore exist and be valid in the identity store used by the Authentication provider.
For example, consider a service principal such as SOAP/myhost.oracle.com@oracle.com. In this example, a user with the name SOAP/myhost.oracle.com must exist in the identity store. Note that @domain should not be part of your user entry.

Creating a Ticket Cache for the Web Service Client
Perform the following steps to create a ticket cache for the Web service client:

1. Log in to the Kerberos system using the user principal you created for the client.
   > kinit fmwadmin welcome1
2. This creates a ticket cache on the file system with ticket granting ticket. To see this:
   > klist -e
   Information similar to the following is displayed:
   Credentials cache: /tmp/krb5cc_36687
   Default principal: fmwadmin@oracle.com, 1 entry found.
   [1] Service Principal: krbtgt/oracle.com@oracle.com
   Valid starting: Sep 28, 2007 17:20
   Expires: Sep 29, 2007 17:20
   Encryption type: DES3 CBC mode with SHA1-KD

   Make sure the encryption type reflects what is shown above.
3. Run the Web service client. Alternatively, you can run the Web service client without first logging into the Kerberos. You are prompted for the Kerberos user name and password. Note that in this case a ticket cache is not created on the file system; it is maintained in memory.

Using Active Directory with Kerberos and Message Protection
You can use Microsoft Active Directory with the Key Distribution Center (KDC) as your KDC. This section describes how to configure the KDC through Active Directory for use with Kerberos and message protection.

This section assumes that you are already familiar with Active Directory. See your Active Directory documentation for additional details.

Setting Up the Web Service Client
This section describes the following tasks:
- "Create a User Account" on page 9-25
- "Create a Keytab File" on page 9-26
- "Set the Service Principal Name" on page 9-26

Create a User Account
Use Active Directory to create a new user account. Do not use DES encryption. By default, the user account is created with RC4-HMAC.

For example, you might create a user testpol with the user logon name test/testpol.

The user logon name should be of the form container/name. You can create the account in any container.
Create a Keytab File
Use ktpass to create a keytab file:

```bash
ktpass -princ test/testpol@{domain} -pass {...} -mapuser testpol -out testpol.keytab -ptype KRB5_NT_PRINCIPAL -target {domain}
```

where `test/testpol` is the Service Principal Name and it is mapped to the user `testpol`. Do not set `/desonly` or `crypto` as `des-cbc-crc`.

Set the Service Principal Name
Use `setSpn` to map the Service Principal Name to the user:

```bash
setSpn -A test/testpol testpol
setSpn -L testpol (this should display the available mapping)
```

There should be only one Service Principal Name mapped to the user. If there are multiple Service Principal Names mapped to the user, remove them using `setSpn -D <spname> <username>`.

Set Up the Web Service
Perform the following steps to set up the Web service:

1. Attach the Kerberos policy to your Web service.
2. Configure the Web service client to authenticate against the right KDC.
   - The configuration for the KDC resides at `/etc/krb5.conf` for UNIX hosts, and at `C:\windows\krb5.ini` for Windows hosts.
   - Configure the default domain and realm in the `krb5.conf` or `krb5.ini` file. Enable the `RC4-HMAC` encryption type (available in JDK6).
     ```ini
     [libdefaults]
     default_tkt_enctypes = rc4-hmac
     default_tgs_enctypes = rc4-hmac
     permitted_enctypes = rc4-hmac
     ```
3. Export the keytab file you created in "Create a Keytab File" on page 9-26 to the system where the Web service is hosted. The keytab is a binary file; if you ftp it, use binary mode.
4. Verify the keytab file using `kinit`:
   ```bash
   kinit -k -t <absolute path the the keytab file> <Service Principal Name>
   ```
5. Modify the `krb5` login module as described in "Configuring the SAML and Kerberos Login Modules" on page 9-15 to specify the keytab location and the Service Principal Name.
   Use the absolute path to the keytab file. Also, be sure to add `@realmname` to the Service Principal Name. For example:
   ```bash
   principal value=test/testpol@oracle.com
   ```

SAML Message Protection Use Case
Assume that you have a Web service client that you want to protect with the `wss11_saml_token_with_message_protection_client_policy` policy, and a corresponding Web
service that you want to protect with the wss11_saml_token_with_message_protection_service_policy policy.

This section steps through the procedure for using these two policies.

The following topics are described:

- "What You Need to Know" on page 9-27
  - "Requirements of the wss11_saml_token_with_message_protection_service_policy Policy" on page 9-27
  - "How Are Messages Protected Via Symmetric Keys?" on page 9-28
  - "What Keys Must Be in the Keystore?" on page 9-28
  - "Multi-Domain Use Case (Keystore Hardening)" on page 9-29
  - "When to Override the SAML Issuer" on page 9-29
- "Main Steps" on page 9-30
  - "Create a WebLogic Server User" on page 9-30
  - "Create a Java Keystore" on page 9-31
  - "Configure the Web Services Manager Keystore" on page 9-32
  - "Store the Password for the Decryption Key in the Credential Store" on page 9-32
  - "Attach the Policy to Your Web Service" on page 9-32
  - "Attach the Policy to Your Web Service Client" on page 9-33

What You Need to Know

This section describes what you need to know to configure this SAML message protection use case. The following topics are described:

- "Requirements of the wss11_saml_token_with_message_protection_service_policy Policy" on page 9-27
- "How Are Messages Protected Via Symmetric Keys?" on page 9-28
- "What Keys Must Be in the Keystore?" on page 9-28
- "Multi-Domain Use Case (Keystore Hardening)" on page 9-29
- "When to Override the SAML Issuer" on page 9-29

Requirements of the wss11_saml_token_with_message_protection_service_policy Policy

wss11_saml_token_with_message_protection_service_policy enforces message-level protection (that is, message integrity and message confidentiality), and SAML-based authentication for inbound SOAP requests in accordance with the WS-Security 1.1 standard.

Messages are protected using WS-Security’s Basic 128 suite of symmetric key technologies, specifically RSA key mechanisms for message confidentiality, SHA-1 hashing algorithm for message integrity, and AES-128 bit encryption. For more information about the available algorithms for message protection, see “Supported Algorithm Suites” on page C-55.

Therefore, when you use the keytool (or other tool) to create the signature and encryption keys needed by this policy, you need to make sure you use the RSA key
mechanism, the SHA-1 algorithm, and AES-128 bit encryption to satisfy the policy requirements for the key.

**How Are Messages Protected Via Symmetric Keys?**

This policy uses symmetric key technology. Symmetric key cryptography relies on a single, shared secret key, as follows:

1. The client creates the symmetric key, uses it to sign and encrypt the message, and shares it with the Web service in the request message.
   
   In order to protect the symmetric key, the symmetric key sent in the request message is encrypted using the service's certificate.

2. The Web service uses the symmetric key in the request message to verify the signature of the request message and decrypt it, and to then sign and encrypt the response message.

Consider the following process flow.

**To create the request, the Oracle WSM agent does the following:**

1. Generates the shared symmetric key and uses it to both sign and encrypt the request message.

2. Uses its own private key to "endorse" the signature of the request message.

3. Uses the Web service's public key to encrypt the symmetric key.

4. Sends the symmetric key along with the request to the Web service. The client sends its public key in the request so that the Web service can verify the endorsement.

**When the Web service gets the request, it does the following:**

1. Uses its private key to decrypt the symmetric key.

2. Uses the symmetric key to decrypt the request message and to verify its signature.

3. Uses the client's public key in the request message to verify the endorsement signature.

**To send the response back to the client, the Web service does the following:**

1. Uses the same client-generated symmetric key sent along with the request to sign the response message.

2. Uses the same client-generated symmetric key to encrypt the response message.

**When the Oracle WSM agent receives the response message, it does the following:**

1. Uses the symmetric key it generated initially to decrypt the response message.

2. Uses the symmetric key it generated initially to verify signature of the response message.

**What Keys Must Be in the Keystore?**

If the client and Web service are in the same domain with access to the same keystore, they can share the same private/public key pair.

That is, the client can use the private key "orakey" to endorse the signature of the request message and the public key "orakey" to encrypt the symmetric key. The Web
service in turn uses the public key “orakey” to verify the endorsement, and the private key “orakey” to decrypt the symmetric key.

For demonstration purposes, this use case creates one key pair.

**Multi-Domain Use Case (Keystore Hardening)**

If the client and Web service are not in the same domain and do not have access to the same keystore, the client and Web service must each have a private/public key pair.

Consider the following requirements in a multiple-domain use case, as shown in Table 9–2.

<table>
<thead>
<tr>
<th>Web Service Client</th>
<th>Web Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needs its own private/public key pair in the client keystore.</td>
<td>Needs its own private/public key pair in the service keystore.</td>
</tr>
<tr>
<td>Needs the Web service public key.</td>
<td>Needs the intermediary and root certificate corresponding to the client's public key in the keystore.</td>
</tr>
<tr>
<td></td>
<td>These certificates will be used to verify the signature by generating a trusted certificate chain.</td>
</tr>
<tr>
<td>Generates symmetric key at runtime</td>
<td>Needs the symmetric key, but this is sent in the request message.</td>
</tr>
</tbody>
</table>

For the public key the client uses to encrypt the symmetric key -- that is, the public key of the Web service -- you have two approaches:

- The Web service’s base64-encoded public certificate is published in the WSDL for use by the Web service client, as described in "Using Service Identity Certification Extension". Therefore, in this use the Web service’s public key does not have to be in the client’s keystore.

- As an alternative, you can specify a value for keystore.recipient.alias on the Configurations page, or override it on a per-client basis using the Security Configuration Details control when you attach the policy. The keystore recipient alias specifies the alias used to look up the public key in the keystore when retrieving a key for encryption of outbound SOAP messages. In this use the Web service’s public key must be in the client's keystore.

**When to Override the SAML Issuer**

The saml.issuer.name property of the client policy identifies the issuer of the SAML token, and defaults to a value of www.oracle.com. This use case uses the www.oracle.com default.

You can optionally specify a value for saml.issuer.name on the Configurations page, or override it on a per-client basis using the Security Configuration Details control when you attach the policy.

If you do use a different SAML authority (issuer) in the policy, that issuer name must be configured in the client and included in the list of possible issuers in the SAML login module. See “Adding an Additional SAML Assertion Issuer Name” on page 9-19 for information on how to do this.
Main Steps

This section describes the steps you follow to configure the SAML message protection use case. The following topics are described:

- "Create a WebLogic Server User" on page 9-30
- "Create a Java Keystore" on page 9-31
- "Configure the Web Services Manager Keystore" on page 9-32
- "Store the Password for the Decryption Key in the Credential Store" on page 9-32
- "Attach the Policy to Your Web Service" on page 9-32
- "Attach the Policy to Your Web Service Client" on page 9-33

Create a WebLogic Server User

The user in the SAML token must already exist in the WebLogic Server identity store. The Web service runtime extracts the SAML token from the WS-Security header and uses the name in the SAML token to validate the user against the WebLogic Server identity store.

Specifically, the SAML login module (see "Configuring the SAML and Kerberos Login Modules" on page 9-15 verifies the SAML tokens on behalf of the Web service. The SAML login module then extracts the username from the verified token and (indirectly) passes it to Oracle Platform Security Services (OPSS) via the NameCallback to complete the perimeter authentication.

Any configured WebLogic Server authentication provider (identity asserter) that handles the JAAS NameCallback can then be invoked, including the default Authentication provider.

The WebLogic Authentication provider then simply checks whether the user exists (identity assertion mode) and, if it does, the user is asserted and a subject is established.

Create the User

You use the WebLogic Server Administration Console to add the user to the identity store, as described in the Oracle WebLogic Server Administration Console Help.

The steps are repeated here for ease of use.

To create a user in the WebLogic Server Administration Console:

1. In the left pane select **Security Realms**.
2. On the Summary of Security Realms page select the name of the realm (for example, myrealm).
3. On the Settings for Realm Name page select **Users and Groups** and then **Users**. The User table displays the names of all users defined in the Authentication provider.
4. Click **New**.
5. In the Name field of the Create New User page enter the name of the user. User names are case sensitive and must be unique. Do not use commas, tabs or any other characters in the following comma-separated list: <>, #, \, &, ?, ( ), { }
6. (Optional) In the Description field, enter a description. The description might be the user’s full name.
7. In the Provider drop-down list, select the Authentication provider for the user.
   If multiple WebLogic Authentication providers are configured in the security
   realm, they will appear in the list. Select which WebLogic Authentication
   provider’s database should store information for the new user.

8. In the Password field, enter a password for the user.
   The minimum password length for a user defined in the WebLogic Authentication
   provider is 8 characters.

9. Re-enter the password for the user in the Confirm Password field.

10. Click OK to save your changes.
    The user name appears in the User table.

Create a Java Keystore
This section provides an outline of how to create and manage the Java keystore with
the keytool utility. It describes how to create a keystore and load the private key and
trusted CA certificates.

You can find more detailed information on the commands and arguments for the
keytool utility at the following Web address:
http://java.sun.com/j2se/1.4.2/docs/tooldocs/windows/keytool.htm

---

Note: You specify an alias when you add an entity to the keystore
using the -genkey command to generate a key pair (public and private
key), or when you use the -import command to add a certificate or
certificate chain to the list of trusted certificates.

Subsequent keytool commands must use this same alias to refer to the
entity.

---

1. Create a new key pair and self-signed certificate.
   Use the genKey command to create the key pair (public and private key). genKey
   creates a new private key if one does not exist.
   The following command generates an RSA key, with RSA-SHA1 as the signature
   algorithm, with the alias "orakey" in the default-keystore.jks keystore. You can
   choose any alias name; you do not need to name your alias "orakey".
   `keytool -genkey -alias orakey -keyalg "RSA" -sigalg "SHA1withRSA" -dname
   "CN=test, C=US" -keystore default-keystore.jks`
   The keytool utility prompts for the needed key and keystore passwords. You need
   these passwords later.

2. Generate a certificate request to the certificate authority.
   Use the -certreq command to generate the request. The following commands
   generates a certificate request for the orakey alias.
   The CA will return a certificate or a certificate chain.
   `keytool -certreq -alias orakey -sigalg "RSAwithSHA1" -file certreq_file
   -storetype jks -keystore client-default-keystore.jks`
   `keytool -genkey -alias orakey -keyalg "RSA" -sigalg "SHA1withRSA" -dname
   "CN=test, C=US" -keystore default-keystore.jks`

3. Replace (import) the self-signed certificate with the trusted CA certificate.
You must replace the existing self-signed certificate with the certificate returned from the CA. To do this, use the -import command. The following command replaces the trusted CA certificate in the default-keystore.jks keystore. The keytool utility prompts for the needed password.

```
keytool -import -alias orakey -file trustedcafilename -keystore default-keystore.jks
```

**Configure the Web Services Manager Keystore**

Perform the following steps to configure the Oracle Web Services Manager keystore:

1. In the navigator pane, expand WebLogic Domain to show the domain for which you need to configure the keystore. Select the domain.

2. Using Fusion Middleware Control, click **WebLogic Domain**, then **Security**, and then **Security Provider Configuration**.

   Click the plus sign (+) to expand the Keystore control near the bottom of the page, then click **Configure**.

   The Web Services Manager Keystore Configuration page is displayed, as shown in Figure 9–1.

3. If it is not already enabled, click the **Configure Keystore Management** check box.

4. Enter the path and name for the keystore that you created. By default, the keystore name is default-keystore.jks, as used in this use case. The keystore type must be JKS.

5. Enter the password for the keystore and confirm it.

6. Enter the alias and password for the signature and encryption keys.

   In this use case, orakey is the alias for both the signature and encryption keys.

   Confirm the passwords.

7. Click **OK** to submit the changes.

   Note that all fields on this page require a restart of Fusion Middleware Control to take effect.

**Store the Password for the Decryption Key in the Credential Store**

You must store the password for the decryption key in the credential store, as described in "Configuring the Credential Store Provider" on page 9-13. Use `keystore.enc.csf.key` as the key name.

**Attach the Policy to Your Web Service**

Attach `wss11_saml_token_with_message_protection_service_policy` to your Web service as described in "Attaching a Policy to a Single Subject" on page 8-3.

Configure the policy assertion for message signing and message encryption. The default is to sign and encrypt the entire body for the request the response. You have the option to not do this and to instead specify the specific body elements that you want to sign and encrypt. You can also additionally specify header elements that you want to sign and encrypt. Whatever you set here must match the client policy settings.
Attach the Policy to Your Web Service Client

Attach wss11_saml_token_with_message_protection_client_policy to your Web service client, as described in "Attaching Policies to Web Service Clients" on page 8-10.

Configure the policy assertion for message signing, message encryption, or both.

The default is to sign and encrypt the entire body. You have the option to not do this and to instead specify the specific body elements that you want to sign and encrypt. You can also additionally specify header elements that you want to sign and encrypt. Whatever you set here must match the Web service policy settings.

The Web service’s base64-encoded public certificate is published in the WSDL for use by the Web service client, as described in "Using Service Identity Certification Extension" on page 9-10. The certificate in the WSDL is the service’s public key by default, as determined by the encryption key you specified (“orakey”) when you configured the Web Services Manager keystore.

Therefore, you do not need to set or change keystore.recipient.alias.

You can optionally specify a value for saml.issuer.name on the Configurations page, or override it on a per-client basis using the Security Configuration Details control when you attach the policy. The saml.issuer.name property defaults to a value of www.oracle.com. See "When to Override the SAML Issuer" on page 9-29.

You can specify a value for user.roles.include on the Configurations page, or override it on a per-client basis using the Security Configuration Details control when you attach the policy.
This chapter discusses how to configure policies in Web services and Web service clients to achieve Quality of Service (QoS) requirements.

The predefined policies are described in Appendix B, "Predefined Policies". This Appendix is the definitive source of information for the format of the policies. Some information from the Appendix is repeated here for your convenience.

This chapter includes the following sections:
- Determining Which Security Policies to Use
- Protecting Messages
- Authentication-Only Policies and Configuration Steps
- Message Protection-Only Policies and Configuration Steps
- Message Protection and Authentication Policies and Configuration Steps
- Authorization Policies and Configuration Steps
- WS-Addressing Policies and Configuration Steps
- MTOM Attachment Policies and Configuration Steps
- Reliable Messaging Policies and Configuration Steps
- Management Policies and Configuration Steps
- Attaching Policy Files to Web Services and Clients
- Using Client Programmatic Configuration Overrides
- Configuring Local Optimization for a Policy

**Determining Which Security Policies to Use**

Use the following series of questions to help you identify the security policies that best meet your requirements:

1. What are the **basic requirements** of your security policy? Decide if you need to only authenticate users, or if you only need message protection, or if you need both.
   a. Do you require authentication only? If yes, then go to step 2.
   b. Do you require authorization only? If yes, then see "Authorization Policies and Configuration Steps" on page 10-46
   c. Do you require authentication and authorization? If yes, then go to step 3.
d. Do you only require message protection? If yes, then see "Message Protection-Only Policies and Configuration Steps" on page 10-11.

e. Do you require both authentication and message protection? If yes, then go to step 4.

2. If you only require **authentication**, then there are two basic questions you need to consider:

   a. Where will the token be inserted? Will the token to be inserted in the transport layer or in a SOAP header?

   b. Do you need to use a particular type of token? The supported credentials for authentication-only policies are username/password, SAML, and Kerberos tokens.

3. If you require **authentication and authorization**, then you need to consider the following:

   a. Review the considerations provided for authentication in step 2.


4. If you require both **authentication and message protection**, then you need to consider the following:

   a. Will message protection be handled in the transport layer? If yes, then there are four sets of policies to choose from: Username over SSL, SAML over SSL (Sender-Vouches), SAML over SSL (Token Bearer), and HTTP token over SSL.

      In one set of policies (wss_http_token_over_ssl_client_policy and wss_http_token_over_ssl_service_policy) authentication is also handled in the transport layer. For the other three policies, authentication takes place in the SOAP header.

      If you are using the WS-Security V1.0 or V1.1 standard, then both authentication and message protection occur in the SOAP header. There are five pairs of policies supporting the following tokens: username/password, SAML, and X.509 certificates.

      For more information, see "Message Protection and Authentication Policies and Configuration Steps" on page 10-16.

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**Protecting Messages**

Message protection involves encrypting the message for message confidentiality and signing the message for message integrity. Oracle Fusion Middleware predefined policies and any policy you create using one of the message-protection assertion templates provide the options for message confidentiality, message integrity, or both.

The following steps summarizes what you must do in order to configure the clients and services for message protection:

- Attach the appropriate message protection policy to each of the clients and services.
- If you want message integrity, then the message must be signed.
- If you want message confidentiality, then the message must be encrypted.
Add the required public and private keys to the keystores of the clients and services. This step requires you to configure the keystore, as described in "Setting up the Keystore for Message Protection" on page 9-7.

**Message Protection Basics**

Message protection encompasses two concepts, message confidentiality and message integrity.

Message confidentiality involves keeping the data secret, as well as the identities of the sending and receiving parties. Confidentiality is achieved by encrypting the content of messages and obfuscating the identities of the sending and receiving parties. The sender uses the recipient's public key to encrypt the message. Only the recipient's private key can successfully decrypt the message, ensuring that it cannot be read by third parties while in transit. The Web service's base64-encoded public certificate is published in the WSDL for use by the Web service client, as described in "Using Service Identity Certification Extension" on page 9-10.

Message integrity is achieved by having an authority digitally sign the message. Digital signatures are used to authenticate the sender of the SOAP message and to ensure the integrity of the SOAP message (that is, to ensure that the SOAP message is not altered while in transit).

When a digital signature is applied to a SOAP message, a unique hash is produced from the message, and this hash is then encrypted with the sender's private key. When the message is received, the recipient decrypts the hash using the sender's public key.

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**Note:** Generally, the recipient does not need to have the sender’s public key in its keystore to validate the certificate. It is sufficient to have the root certificate in the keystore to verify the certificate chain. However, if the sender’s public key is not present in the message, as in the case of the Thumbprint and SerialIssuer mechanisms, the sender’s public key must be in the recipient’s keystore.

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This serves to authenticate the sender, because only the sender could have encrypted the hash with the private key. It also serves to ensure that the SOAP message has not been tampered with while in transit, because the recipient can compare the hash sent with the message with a hash produced on the recipient’s end.

The message-protection assertion templates and predefined policies can be used to protect request and response messages by doing the following:

- Signing messages
- Encrypting messages
- Signing and encrypting messages
- Decrypting messages
- Verifying signatures
- Decrypting messages and verifying signatures

The Fusion Middleware Control user interface for the predefined message protection policies makes it easy to specify which message parts are signed, encrypted, or both, as shown in Figure 10–1. You can require that the entire body be signed, encrypted, or both, or identity specific header and body elements.
Security SwA Attachments
Packaging as attachments in SOAP messages has become a norm in the Web services area for any data that cannot be placed inside SOAP Envelope. The primary SOAP message can reference additional entities as attachments or attachments with MIME headers.

Each SwA attachment is a MIME part and contains the MIME header. **Include SwA Attachment** signs the attachment but not the MIME header corresponding to that. **Include MIME Headers** signs the corresponding MIME headers as well as the attachments.

Which Policies Offer Message Protection?
The following policies offer message protection. The subsequent sections for each of these policies later in this chapter describe how each policy implements message protection.

- oracle/wss10_message_protection_client_policy
- oracle/wss10_message_protection_service_policy
- oracle/wss10_username_id_propagation_with_msg_protection_client_policy
- oracle/wss10_username_id_propagation_with_msg_protection_service_policy
- oracle/wss10_username_token_with_message_protection_client_policy
- oracle/wss10_username_token_with_message_protection_service_policy
- oracle/wss10_username_token_with_message_protection_ski_basic256_client_policy
- oracle/wss10_username_token_with_message_protection_ski_basic256_service_policy
- oracle/wss10_x509_token_with_message_protection_client_policy
- oracle/wss10_x509_token_with_message_protection_service_policy
- oracle/wss10_saml_token_with_message_protection_client_policy
Both the WS-Security 1.0 and WS-Security 1.1 standards are supported. Use the assertion template or predefined policy that supports the standard which both the Web service and client share in common. If you are starting anew, use the WS-Security 1.1 standard because it provides more options and requires less PKI deployment.

The assertion templates support partial signing and encryption as well as full signing and encryption of the message body. For those assertion templates or predefined policies that provide SOAP message protection, the default behavior is to protect the entire SOAP message body by signing and encrypting the entire SOAP body. You can configure the assertions and policies to protect selected elements, if you wish.

**Authentication-Only Policies and Configuration Steps**

Table B–1 in Appendix B, "Predefined Policies" summarizes the security policies that enforce authentication only, and indicates whether the token is inserted at the transport layer or SOAP header.

This section lists the authentication-only predefined policies, indicates the type of Web service to which they apply, and provides a link to the configuration steps you must perform to use them.

**oracle/wss_http_token_client_policy**

The oracle/wss_http_token_client_policy policy includes credentials in the HTTP header for outbound client requests. It is the analogous client policy to the oracle/wss_http_token_service_policy service endpoint policy.

This policy contains the following policy assertion: oracle/wss_http_token_client_template. See "oracle/wss_http_token_client_template" on page 2 for more information about the assertion.

**Settings You Can Change**

See Table C–2.

**Properties You Can Configure**

See Table C–3.
How to Set Up the Web Service Client
You can specify a value for csf-key on the Configurations page, or override it on a per-client basis using the Security Configuration Details control when you attach the policy.

The value signifies a key that maps to a username/password. See "Configuring the Credential Store Provider" on page 9-13 for information on how to add the key to the credential store.

If you do not set the Require Mutual Authentication control, SSL is not involved. If you do set the Require Mutual Authentication control, the client must supply credentials, and expect credentials back from the Web service. See "Configuring Two-Way SSL for a Web Service Client" on page 9-7.

How to Set Up the Web Service Client at Design Time
See "Using Client Programmatic Configuration Overrides" on page 10-60 for a description of the configuration settings you can override.

The client must pass the credentials in the HTTP header.

If you do not set the Require Mutual Authentication control, SSL is not involved. If you do set the Require Mutual Authentication control, the client must supply credentials, and expect credentials back from the Web service. See "Configuring Two-Way SSL for a Web Service Client" on page 9-7.

oracle/wss_http_token_service_policy
The wss_http_token_service_policy uses the credentials in the HTTP header to authenticate users.

This policy contains the following policy assertion: oracle/wss_http_token_service_template. See "oracle/wss_http_token_service_template" on page 4 for more information about the assertion.

Settings You Can Change
See Table C–2.

Properties You Can Configure
See Table C–4.

How to Set Up WebLogic Server
The Web service must authenticate the supplied username and password credentials against the configured authentication source.

Use the WebLogic Server Administration Console to add an Authentication provider to the active security realm for the WebLogic domain in which the Web service is deployed, as described in "Configuring an Authentication Provider in WebLogic Server" on page 9-14.

For mutual SSL authentication, you must configure WebLogic Server. See "Configuring SSL on WebLogic Server (Two-Way)" on page 9-5.
oracle/wss_username_token_client_policy

Note: This policy is not secure and is provided for demonstration purposes only. The password is sent in clear text.

This policy includes credentials in the WS-Security UsernameToken header for all outbound SOAP request messages. A plain text mechanism is supported, in addition to a password not being required. It is the analogous client policy to the oracle/wss_username_token_service_policy service endpoint policy.

This policy contains the following policy assertion: oracle/wss_username_token_client_template. See "oracle/wss_username_token_client_template" on page C-5 for more information about the assertion.

Settings You Can Change
See Table C-5.

Properties You Can Configure
See Table C-6.

How to Set Up the Web Service Client
You can specify a value for csf-key on the Configurations page, or override it on a per-client basis using the Security Configuration Details control when you attach the policy.

The value signifies a key that maps to a username/password. See "Configuring the Credential Store Provider" on page 9-13 for information on how to add the key to the credential store.

If you specify a password type of None on the Settings page, you do not need to include a password in the key.

How to Set Up the Web Service Client At Design Time
See "Using Client Programmatic Configuration Overrides" on page 10-60 for a description of the configuration settings you can override.

The client must include a WS-Security UsernameToken element (<wsse:UsernameToken/>) in the SOAP request message. The client provides a username and password for authentication.

oracle/wss_username_token_service_policy

Note: This policy is not secure and is provided for demonstration purposes only. The password is sent in clear text.

This policy uses the credentials in the UsernameToken WS-Security SOAP header to authenticate users. The plain text mechanism is supported.

This policy contains the following policy assertion: oracle/wss_username_token_service_template. See "oracle/wss_username_token_service_template" on page C-7 for more information about the assertion.
**Settings You Can Change**
See Table C–5.

**Properties You Can Configure**
See Table C–7.

**How to Set Up WebLogic Server**
Use the WebLogic Server Administration Console to add an Authentication provider to the active security realm for the WebLogic domain in which the Web service is deployed, as described in "Configuring an Authentication Provider in WebLogic Server" on page 9-14.

*oracle/wss10_saml_token_client_policy*

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**Note:** This policy is not secure and is provided for demonstration purposes only. Although the SAML issuer name is present, the SAML token is not endorsed. Therefore, it is possible to spoof the message.

This policy includes SAML tokens in outbound SOAP request messages.

This policy contains the following policy assertion: oracle/wss10_saml_token_client_template. See "oracle/wss10_saml_token_client_template" on page 8 for more information about the assertion.

**Settings You Can Change**
See Table C–8.

**Properties You Can Configure**
See Table C–9.

**How to Set Up the Web Service Client**
See "Configuring SAML" on page 9-16.

You can specify a value for saml.issuer.name on the Configurations page, or override it on a per-client basis using the Security Configuration Details control when you attach the policy. The saml.issuer.name property defaults to a value of www.oracle.com. See "Adding an Additional SAML Assertion Issuer Name" on page 9-19 for additional considerations.

**How to Set Up the Web Service Client at Design Time**
See "How to Configure SAML Web Service Client at Design Time" on page 9-17.

See "Using Client Programmatic Configuration Overrides" on page 10-60 for a description of the configuration settings you can override.

Include a WS-Security Header Element (<saml:Assertion>) that inserts a SAML token in the outbound SOAP message. The confirmation type is always sender-vouches.
oracle/wss10_saml_token_service_policy

Note: This policy is not secure and is provided for demonstration purposes only. Although the SAML issuer name is present, the SAML token is not endorsed. Therefore, it is possible to spoof the message.

This policy authenticates users using credentials provided in SAML tokens in the WS-Security SOAP header.

This policy contains the following policy assertion: oracle/wss10_saml_token_service_template. See "oracle/wss10_saml_token_service_template" on page C-9 for more information about the assertion.

Settings You Can Change
See Table C–8.

Properties You Can Configure
See Table C–10.

Configure the Login Module
Configure the saml.loginmodule login module. See "Configuring the SAML and Kerberos Login Modules" on page 9-15 for more information.

How to Set Up Oracle Platform Security Services (OPPS)
See "Configuring SAML" on page 9-16.

How to Set Up WebLogic Server
Use the WebLogic Server Administration Console to add an Authentication provider to the active security realm for the WebLogic domain in which the Web service is deployed, as described in "Configuring an Authentication Provider in WebLogic Server" on page 9-14.

The SAML login module extracts the username from the verified token and passes it (via the NameCallback) to the provider.

oracle/wss11_kerberos_token_client_policy

This policy includes a Kerberos token in the WS-Security header in accordance with the WS-Security Kerberos Token Profile v1.1 standard.

Service principal names (SPN) are a key component in Kerberos authentication. SPNs are unique identifiers for services running on servers. Every service that uses Kerberos authentication needs to have an SPN set for it so that clients can identify the service on the network. If an SPN is not set for a service, clients have no way of locating that service and Kerberos authentication is not possible.

This policy contains the following policy assertion: oracle/wss11_kerberos_token_client_template. See "oracle/wss11_kerberos_token_with_message_protection_client_template" on page C-38 for more information about the assertion.

Settings You Can Change
See Table C–42.
Properties You Can Configure
See Table C–43.

How to Set Up the Web Service Client

The Web service client that is enforcing Kerberos client side policies needs to know the service principal name of the service it is trying to access. You can specify a value for service.principal.name on the Configurations page, or override it on a per-client basis using the Security Configuration Details control when you attach the policy. The default value (place holder) is HOST=localhost@oracle.com.

How to Set Up the Web Service Client at Design Time

You must set the service principal name. The service principal name specifies the name of the service principal for which the client requests a ticket from the KDC.

If the Kerberos authentication is successful, then send the obtained Kerberos ticket and authenticator to the Web service enclosed in a BinarySecurityToken element in the SOAP Security header.

oracle/wss11_kerberos_token_service_policy

This policy is enforced in accordance with the WS-Security Kerberos Token Profile v1.1 standard.

Service principal names (SPN) are a key component in Kerberos authentication. SPNs are unique identifiers for services running on servers. Every service that uses Kerberos authentication needs to have an SPN set for it so that clients can identify the service on the network. If an SPN is not set for a service, clients have no way of locating that service and Kerberos authentication is not possible.

This policy contains the following policy assertion: oracle/wss11_kerberos_token_service_template. See "oracle/wss11_kerberos_token_with_message_protection_service_template" on page C-40 for more information about the assertion.

Settings You Can Change
See Table C–42.

Properties You Can Configure
See Table C–44.

Configure the Login Module
Configure the krb5.loginmodule login module. See "Configuring the SAML and Kerberos Login Modules" on page 9-15 for more information.

How to Configure WebLogic Server
Use the WebLogic Server Administration Console to add an Authentication provider to the active security realm for the WebLogic domain in which the Web service is deployed, as described in "Configuring an Authentication Provider in WebLogic Server" on page 9-14.
Message Protection-Only Policies and Configuration Steps

See "Protecting Messages" on page 10-2 for a description of how the predefined policies implement message protection.

Table B–2 summarizes the policies that enforce only message protection, and indicates whether the policy is enforced at the transport layer or SOAP header.

Message protection-only policies do not authenticate or authorize the requester.

There may be either one or two Security policies attached to a policy subject. A Security policy can contain an assertion that belongs to the authentication or message protection (as in this case) subtype categories, or a single assertion that belongs to both subtype categories. You can then use an assertion that belongs to the authorization subtype to authorize the requester.

oracle/wss10_message_protection_client_policy

This policy provides message protection (integrity and confidentiality) for outbound SOAP requests in accordance with the WS-Security 1.0 standard.

This policy contains the following policy assertion: oracle/wss10_message_protection_client_template. See "oracle/wss10_message_protection_client_policy" on page B-4 for more information about the assertion.

Settings You Can Change

See Table C–15.

Properties You Can Configure

See Table C–16.

How to Set Up the Web Service Client

Configure the policy assertion for message signing, message encryption, or both.

This policy requires you to set up the Web service keystore, as described in "Setting up the Keystore for Message Protection" on page 9-7.

The Web service’s base64-encoded public certificate is published in the WSDL for use by the Web service client, as described in "Using Service Identity Certification Extension" on page 9-10.

As an alternative, you can specify a value for keystore.recipient.alias on the Configurations page, or override it on a per-client basis using the Security Configuration Details control when you attach the policy. The keystore.recipient.alias specifies the alias used to look up the public key in the keystore when retrieving a key for encryption of outbound SOAP messages.

You can specify a value for keystore.sig.csf.key and keystore.enc.csf.key on the Configurations page, or override them on a per-client basis using the Security Configuration Details control when you attach the policy.

How to Set Up the Web Service Client at Design Time

This policy requires you to set up the Web service client keystore, as described in "Setting Up the Web Service Client Keystore at Design Time" on page 9-9. The policy specifically requires that the client’s and Web service’s respective keystores already contain digital certificates containing each other’s public key.
See "Using Client Programmatic Configuration Overrides" on page 10-60 for a description of the configuration settings you can override.

Configure the policy assertion for message signing, message encryption, or both.

Example 10–1 shows the typical structure of a signature included in the Security header in conformance with the WS-Security 1.0 standards. In this example, the body element of the SOAP message is signed.

**Example 10–1  WS-Security 1.0 Message Integrity of SOAP Message**

```
<dsig:Signature xmlns:dsig="http://www.w3.org/2000/09/xmldsig#">
  <dsig:SignedInfo>
    <dsig:CanonicalizationMethod
      Algorithm="http://www.w3.org/2001/10/xml-exc-c14n#"/>
    <dsig:SignatureMethod
      Algorithm="http://www.w3.org/2000/09/xmldsig#rsa-sha1"/>
    <dsig:Reference URI="#Timestamp-...">
      <dsig:Transforms>
        <dsig:Transform
          Algorithm="http://www.w3.org/2001/10/xml-exc-c14n#"/>
      </dsig:Transforms>
      <dsig:DigestMethod
        Algorithm="http://www.w3.org/2000/09/xmldsig#sha1"/>
      <dsig:DigestValue>...</dsig:DigestValue>
    </dsig:Reference>
  </dsig:SignedInfo>
  <dsig:SignatureValue>....</dsig:SignatureValue>
  <dsig:KeyInfo Id="KeyInfo-...">
    <wsse:SecurityTokenReference
      xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-soap-message-security-1.0#STR-Transform">
      <TransformationParameters
        xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd">
        <CanonicalizationMethod
          Algorithm="http://www.w3.org/2001/10/xml-exc-c14n#"
          xmlns="http://www.w3.org/2000/09/xmldsig#"/>
      </TransformationParameters>
    </wsse:SecurityTokenReference>
  </dsig:KeyInfo>
  <dsig:Reference URI="#Body-...">
    <dsig:Transforms>
      <dsig:Transform
        Algorithm="http://www.w3.org/2001/10/xml-exc-c14n#"/>
    </dsig:Transforms>
    <dsig:DigestMethod
      Algorithm="http://www.w3.org/2000/09/xmldsig#sha1"/>
    <dsig:DigestValue>...</dsig:DigestValue>
  </dsig:Reference>
</dsig:Signature>
```
Example 10–2 is an example of the typical structure of encryption elements included in the Security header in conformance with the WS-Security 1.0 standards. In this example, the body element is encrypted.

Example 10–2  WS-Security 1.0 Message Confidentiality of SOAP Message
<env:Body
xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd" wsu:Id="Body-JA9fsCRnqbfJ0ocBAMKb7g22">
<xenc:EncryptedData xmlns:xenc="http://www.w3.org/2001/04/xmlenc#" Type="http://www.w3.org/2001/04/xmlenc#Content" Id="...">
  <xenc:EncryptionMethod Algorithm="http://www.w3.org/2001/04/xmlenc#aes256-cbc"/>
  <xenc:CipherData>
    <xenc:CipherValue>...
  </xenc:CipherValue>
</xenc:CipherData>
</xenc:EncryptedData>
</env:Body>

oracle/wss10_message_protection_service_policy
This policy enforces message protection (integrity and confidentiality) for inbound SOAP requests in accordance with the WS-Security 1.0 standard.

The messages are protected using WS-Security's Basic 128 suite of asymmetric key technologies, specifically RSA key mechanism for message confidentiality, SHA-1 hashing algorithm for message integrity, and AES-128 bit encryption. This policy does not authenticate or authorize the requester.

This policy contains the following policy assertion: oracle/wss10_message_protection_service_template. See "oracle/wss10_message_protection_service_template" on page C-13 for more information about the assertion.

Settings You Can Change
See Table C–15.

Properties You Can Configure
See Table C–17. You also have the option to override the keystore.sig.csf.key and keystore.enc.csf.key server-side configuration properties, as described in "Attaching Web Service Policies Permitting Overrides" on page 8-16.

How to Set Up Oracle Platform Security Services (OPSS)
Configure the policy assertion for message signing, message encryption, or both.

This policy requires you to set up the keystore, as described in "Setting up the Keystore for Message Protection" on page 9-7.

Store the trusted certificate that corresponds to the client's private key (used to sign the message) in the keystore. You also need to store the service's private key in the keystore for decrypting the message, and the CA root certificate.

You must store the password for the decryption key in the credential store, as described in "Configuring the Credential Store Provider" on page 9-13. Use keystore.enc.csf.key as the key name.

You also have the option to override the keystore.sig.csf.key and keystore.enc.csf.key server-side configuration properties, as described in "Attaching Web Service Policies Permitting Overrides" on page 8-16.
oracle/wss11_message_protection_client_policy

This policy provides message integrity and confidentiality for outbound SOAP requests in accordance with the WS-Security 1.1 standard.

This policy contains the following policy assertion: oracle/wss11_message_protection_client_template. See "oracle/wss11_message_protection_client_template" on page C-14 for more information about the assertion.

Settings You Can Change

See Table C–18.

Properties You Can Configure

See Table C–19.

How to Configure the Web Service Client

Configure the policy assertion for message signing, message encryption, or both.

This policy requires you to set up the Web service keystore, as described in "Setting up the Keystore for Message Protection" on page 9-7.

The Web service’s base64-encoded public certificate is published in the WSDL for use by the Web service client, as described in "Using Service Identity Certification Extension" on page 9-10.

As an alternative, you can specify a value for keystore.recipient.alias on the Configurations page, or override it on a per-client basis using the Security Configuration Details control when you attach the policy. The keystore recipient alias specifies the alias used to look up the public key in the keystore when retrieving a key for encryption of outbound SOAP messages.

You can specify a value for keystore.enc.csf.key on the Configurations page, or override it on a per-client basis using the Security Configuration Details control when you attach the policy.

How to Configure the Web Service Client at Design Time

This policy requires you to set up the Web service client keystore, as described in "Setting Up the Web Service Client Keystore at Design Time" on page 9-9. The policy specifically requires that the client’s and Web service’s respective keystores already contain digital certificates containing each other’s public key.

This policy uses symmetric key technology, which is an encryption method that uses the same shared key to encrypt and decrypt data. The symmetric key is used to sign the message.

See "Using Client Programmatic Configuration Overrides" on page 10-60 for a description of the configuration settings you can override.

Configure the policy assertion for message signing, message encryption, or both.

Example 10–3 is an example of the typical structure of encryption elements included in the Security header in conformance with the WS-Security 1.1 standards. In this example, the body element is encrypted.

Example 10–3  WS-Security 1.1 Message Confidentiality of SOAP Message

<xenc:EncryptedKey xmlns:xenc="http://www.w3.org/2001/04/xmlenc#" Id="EK-..."/>
<xenc:EncryptionMethod Algorithm="http://www.w3.org/2001/04/xmlenc#rsa-oaep-mgf1p">
</xenc:EncryptionMethod>
<dsig:KeyInfo xmlns:dsig="http://www.w3.org/2000/09/xmldsig#">
<wsse:SecurityTokenReference xmlns="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-soap-message-security-1.1#ThumbprintSHAL" EncodingType="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-soap-message-security-1.0#Base64Binary">...
<wsse:KeyIdentifier ValueType="http://docs.oasis-open.org/wss/oasis-wss-soap-message-security-1.1#ThumbprintSHA1" EncodingType="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-soap-message-security-1.0#Base64Binary">...
</wsse:SecurityTokenReference>
</dsig:KeyInfo>
<xenc:CipherData>
<xenc:CipherValue>...</xenc:CipherValue>
</xenc:CipherData>
<xenc:ReferenceList>
<xenc:DataReference URI="#_..." />
</xenc:ReferenceList>
</xenc:EncryptedKey>
<xenc:EncryptedData xmlns:xenc="http://www.w3.org/2001/04/xmlenc#" Type="http://www.w3.org/2001/04/xmlenc#Content" Id="...">
<xenc:EncryptionMethod Algorithm="http://www.w3.org/2001/04/xmlenc#aes256-cbc" />
<dsig:KeyInfo xmlns:dsig="http://www.w3.org/2000/09/xmldsig#">
<wsse:Reference URI="#EK-..." ValueType="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-soap-message-security-1.1#EncryptedKey" />
</wsse:SecurityTokenReference>
</dsig:KeyInfo>
<xenc:CipherData>
<xenc:CipherValue>...
</xenc:CipherValue>
</xenc:CipherData>
</xenc:EncryptedData>
</env:Body>

**oracle/wss11_message_protection_service_policy**

This policy enforces message integrity and confidentiality for inbound SOAP requests in accordance with the WS-Security 1.1 standard.

This policy contains the following policy assertion: oracle/wss11_message_protection_service_template. See "oracle/wss11_message_protection_service_template" on page C-15 for more information about the assertion.

**Settings You Can Change**

See Table C–18.
Properties You Can Configure
See Table C–20. You also have the option to override the keystore.enc.csf.key server-side configuration property, as described in "Attaching Web Service Policies Permitting Overrides" on page 8-16.

How to Set Up Oracle Platform Security Services (OPSS)
Configure the policy assertion for message signing, message encryption, or both.
This policy requires you to set up the keystore, as described in "Setting up the Keystore for Message Protection" on page 9-7.
Store the trusted certificate that corresponds to the client’s private key (used to sign the message) in the keystore. You also need to store the service’s private key in the keystore for decrypting the message, and the CA root certificate.
You must store the password for the decryption key in the credential store, as described in "Configuring the Credential Store Provider" on page 9-13. Use keystore.enc.csf.key as the key name.
You also have the option to override the keystore.enc.csf.key server-side configuration property, as described in "Attaching Web Service Policies Permitting Overrides" on page 8-16.

Message Protection and Authentication Policies and Configuration Steps
Table B–3 summarizes the policies that enforce both message protection and authentication, and indicates whether the policy is enforced at the transport layer or SOAP header. These polices are described in the sections that follow.
See "Protecting Messages" on page 10-2 for a description of how the predefined policies implement message protection.

Configuring a Policy With an OR Group
The oracle/wss11_saml_or_username_token_with_message_protection_service_policy and oracle/wss_saml_or_username_token_over_ssl_service_policy policies contain assertions as an OR group--meaning that either type of assertion can be enforced by a client.
In addition, you can add an OR group to the policy of your choice, as described in "Adding an OR Group to a Policy" on page 7-8.
The oracle/wss11_saml_or_username_token_with_message_protection_service_policy policy contains the following assertions:
  - oracle/wss11_saml_token_with_message_protection_service_template. See "oracle/wss11_saml_token_with_message_protection_service_policy" on page 10-42 for information about configuring the policy.
  - oracle/wss11_username_token_with_message_protection_service_template. See "oracle/wss11_username_token_with_message_protection_service_policy" on page 10-44 for information about configuring the policy.
The oracle/wss_saml_or_username_token_over_ssl_service_policy policy contains the following assertions:
  - oracle/wss_saml_token_over_ssl_service_template. See "oracle/wss_saml_token_over_ssl_service_policy" on page 10-20 for information about configuring the policy.
oracle/wss_username_token_over_ssl_service_template. See "oracle/wss_username_token_over_ssl_service_policy" on page 10-22 for information about configuring the policy.

oracle/wss_http_token_over_ssl_client_policy
This policy includes credentials in the HTTP header for outbound client requests. This policy also verifies that the transport protocol is HTTPS. Requests over a non-HTTPS transport protocol are refused. This policy can be applied to any HTTP-based endpoint.

**Note:** Currently only HTTP basic authentication is supported.

This policy contains the following policy assertion: oracle/wss_http_token_over_ssl_client_template. See "oracle/wss_http_token_over_ssl_client_template" on page C-17 for more information about the assertion.

**Setting You Can Change**
See Table C–22.

**Properties You Can Configure**
See Table C–23.

**How to Set Up the Web Services Client**
You can specify a value for csf-key on the Configurations page, or override it on a per-client basis using the Security Configuration Details control when you attach the policy.

The value signifies a key that maps to a username/password. See "Configuring the Credential Store Provider" on page 9-13 for information on how to add the key to the credential store.

If you do not set the Require Mutual Authentication control, one-way SSL is involved. See "Configuring SSL for a Web Service Client" on page 9-6.

If you do set the Require Mutual Authentication control, the client must supply credentials, and expect credentials back from the Web service. See "Configuring Two-Way SSL for a Web Service Client" on page 9-7.

**How to Set Up the Web Service Client at Design Time**
See "Using Client Programmatic Configuration Overrides" on page 10-60 for a description of the configuration settings you can override.

The client must pass the credentials in the HTTP header.

If you do not set the Require Mutual Authentication control, one-way SSL is involved. See "Configuring SSL for a Web Service Client" on page 9-6.

If you do set the Require Mutual Authentication control, the client must supply credentials, and expect credentials back from the Web service. See "Configuring Two-Way SSL for a Web Service Client" on page 9-7.
**oracle/wss_http_token_over_ssl_service_policy**

This policy extracts the credentials in the HTTP header and authenticates users.

This policy verifies that the transport protocol is HTTPS. Requests over a non-HTTPS transport protocol are refused. This policy can be applied to any HTTP-based endpoint.

**Note:** Currently only HTTP basic authentication is supported.

This policy contains the following policy assertion: oracle/wss_http_token_over_ssl_service_template. See "oracle/wss_http_token_over_ssl_service_template" on page C-19 for more information about the assertion.

**Settings You Can Change**
See Table C–22.

**Properties You Can Configure**
See Table C–24.

**How to Set Up WebLogic Server**
Configure SSL, as described in "Configuring SSL on WebLogic Server (One-Way)" on page 9-4, or as in "Configuring SSL on WebLogic Server (Two-Way)" on page 9-5 if Allow Mutual Authentication is checked.

Use the WebLogic Server Administration Console to add an Authentication provider to the active security realm for the WebLogic domain in which the Web service is deployed, as described in "Configuring an Authentication Provider in WebLogic Server" on page 9-14.

**oracle/wss_saml_token_bearer_over_ssl_client_policy**

This policy includes SAML tokens in outbound SOAP request messages. The SAML token with confirmation method **Bearer** is created automatically.

This policy contains the following policy assertion: oracle/wss_saml_token_bearer_over_ssl_client_template. See "oracle/wss_saml_token_bearer_over_ssl_client_template" on page C-20 for more information about the assertion.

**Settings You Can Change**
See Table C–25.

**Properties You Can Configure**
None.

**How to Set Up the Web Service Client**
See "How to Configure SAML Web Service Client at Design Time" on page 9-17.

If you do not set the **Require Mutual Authentication** control, one-way SSL is involved, as described in "Configuring SSL for a Web Service Client" on page 9-6.

If you do set the **Require Mutual Authentication** control, the client must supply credentials, and expect credentials back from the Web service. See "Configuring Two-Way SSL for a Web Service Client" on page 9-7.
How to Set Up the Web Service Client at Design Time

See "How to Configure SAML Web Service Client at Design Time" on page 9-17.

See "Using Client Programmatic Configuration Overrides" on page 10-60 for a description of the configuration settings you can override.

If you do not set the Require Mutual Authentication control, one-way SSL is involved, as described in "Configuring SSL for a Web Service Client" on page 9-6.

If you do set the Require Mutual Authentication control, the client must supply credentials, and expect credentials back from the Web service. See "Configuring Two-Way SSL for a Web Service Client" on page 9-7.

**oracle/wss_saml_token_bearer_over_ssl_service_policy**

This policy authenticates users using credentials provided in SAML tokens with confirmation method 'Bearer' in the WS-Security SOAP header.

This policy contains the following policy assertion: oracle/wss_saml_token_bearer_over_ssl_service_template. See "oracle/wss_saml_token_bearer_over_ssl_service_template" on page C-21 for more information about the assertion.

**Settings You Can Change**

See Table C-25.

**Properties You Can Configure**

None.

**Configure the Login Module**

Configure the saml.loginmodule login module. See "Configuring the SAML and Kerberos Login Modules" on page 9-15 for more information.

**How to Set Up Oracle Platform Security Services (OPSS)**

See "Configuring SAML" on page 9-16.

**How to Set Up WebLogic Server**

Use the WebLogic Server Administration Console to add an Authentication provider to the active security realm for the WebLogic domain in which the Web service is deployed, as described in "Configuring an Authentication Provider in WebLogic Server" on page 9-14.

The SAML login module extracts the username from the verified token and passes it (via the NameCallback) to the Authentication provider.

To configure SSL, see "Configuring SSL on WebLogic Server (One-Way)" on page 9-4, or "Configuring SSL on WebLogic Server (Two-Way)" on page 9-5 if Require Mutual Authentication is checked.

**oracle/wss_saml_token_over_ssl_client_policy**

This policy enables the authentication of credentials provided via a SAML token within WS-Security SOAP header.

This policy contains the following policy assertion: oracle/wss_saml_token_over_ssl_client_template. See "oracle/wss_saml_token_over_ssl_client_template" on page C-21 for more information about the assertion.
Message Protection and Authentication Policies and Configuration Steps

Settings You Can Change
See Table C–26.

Properties You Can Configure
None.

How to Set Up the Web Service Client
See "How to Configure SAML Web Service Client at Design Time" on page 9-17.

If you do not set the Require Mutual Authentication control, one-way SSL is involved, as described in 'Configuring SSL for a Web Service Client' on page 9-6.

If you do set the Require Mutual Authentication control, the client must supply credentials, and expect credentials back from the Web service. See "Configuring Two-Way SSL for a Web Service Client" on page 9-7.

How to Set Up the Web Service Client at Design Time
See "How to Configure SAML Web Service Client at Design Time" on page 9-17.
See "Using Client Programmatic Configuration Overrides" on page 10-60 for a description of the configuration settings you can override.

If you do not set the Require Mutual Authentication control, one-way SSL is involved, as described in 'Configuring SSL for a Web Service Client' on page 9-6.

If you do set the Require Mutual Authentication control, the client must supply credentials, and expect credentials back from the Web service. See "Configuring Two-Way SSL for a Web Service Client" on page 9-7.

oracle/wss_saml_token_over_ssl_service_policy
This policy enforces the authentication of credentials provided via a SAML token within WS-Security SOAP header.

This policy contains the following policy assertion: oracle/wss_saml_token_over_ssl_service_template. See "oracle/wss_saml_token_over_ssl_service_template" on page C-22 for more information about the assertion.

Settings You Can Change
See Table C–26

Properties You Can Configure
None.

Configure the Login Module.
Configure the saml.loginmodule login module. See "Configuring the SAML and Kerberos Login Modules" on page 9-15 for more information.

How to Set Up Oracle Platform Security Services (OPSS)
See "Configuring SAML" on page 9-16.

How to Set Up WebLogic Server
Use the WebLogic Server Administration Console to add an Authentication provider to the active security realm for the WebLogic domain in which the Web service is
deployed, as described in "Configuring an Authentication Provider in WebLogic Server" on page 9-14.

The SAML login module extracts the username from the verified token and passes it (via the NameCallback) to the Authentication provider.

To configure SSL, see "Configuring SSL on WebLogic Server (One-Way)" on page 9-4, or "Configuring SSL on WebLogic Server (Two-Way)" on page 9-5 if Require Mutual Authentication is checked.

oracle/wss_username_token_over_ssl_client_policy

This policy includes credentials in the WS-Security UsernameToken header in outbound SOAP request messages. The plain text mechanism is supported. The policy also uses SSL for achieving transport layer security.

This policy contains the following policy assertion: oracle/wss_username_token_over_ssl_client_template. See "oracle/wss_username_token_over_ssl_client_template" on page C-22 for more information about the assertion.

Settings You Can Change
See Table C–27.

Properties You Can Configure
See Table C–28.

How to Set Up the Web Service Client
If you do not set the Require Mutual Authentication control, one-way SSL is involved, as described in "Configuring SSL for a Web Service Client" on page 9-6.

If you do set the Require Mutual Authentication control, the client must supply credentials, and expect credentials back from the Web service. See "Configuring Two-Way SSL for a Web Service Client" on page 9-7.

You can specify a value for csf-key on the Configurations page, or override it on a per-client basis using the Security Configuration Details control when you attach the policy.

The value signifies a key that maps to a username/password. See "Configuring the Credential Store Provider" on page 9-13 for information on how to add the key to the credential store.

If you specify a password type of None on the Settings page, you do not need to include a password in the key.

How to Set Up the Web Service Client at Design Time
The client must include a WS-Security UsernameToken element (<wsse:UsernameToken/>) in the SOAP request message. The client provides a username and password for authentication.

See "Using Client Programmatic Configuration Overrides" on page 10-60 for a description of the configuration settings you can override.

If you do not set the Require Mutual Authentication control, one-way SSL is involved. See "Configuring SSL for a Web Service Client" on page 9-6.
If you do set the **Require Mutual Authentication** control, the client must supply credentials, and expect credentials back from the Web service. See "Configuring Two-Way SSL for a Web Service Client" on page 9-7.

**oracle/wss_username_token_over_ssl_service_policy**

This policy uses the credentials in the UsernameToken WS-Security SOAP header to authenticate users. The plain text mechanism is supported.

This policy contains the following policy assertion: oracle/wss_username_token_over_ssl_service_template. See "oracle/wss_username_token_over_ssl_service_template" on page C-24 for more information about the assertion.

**Settings You Can Change**

See Table C–27.

**Properties You Can Configure**

See Table C–29.

**How to Set Up WebLogic Server**

Use the WebLogic Server Administration Console to add an Authentication provider to the active security realm for the WebLogic domain in which the Web service is deployed, as described in "Configuring an Authentication Provider in WebLogic Server" on page 9-14.

The username and password must exist and be valid.

To configure SSL, see "Configuring SSL on WebLogic Server (One-Way)" on page 9-4, or "Configuring SSL on WebLogic Server (Two-Way)" on page 9-5 if **Require Mutual Authentication** is checked.

**oracle/wss10_saml_hok_token_with_message_protection_client_policy**

This policy provides message-level protection and SAML holder of key based authentication for outbound SOAP messages in accordance with the WS-Security 1.0 standard.

This policy contains the following policy assertion: oracle/wss10_saml_hok_with_message_integrity_client_template. See "oracle/wss10_saml_hok_with_message_protection_service_template" on page C-28 for more information about the assertion.

**Settings You Can Change**

See Table C–30.

**Properties You Can Configure**

See Table C–31.

**How to Set Up the Web Service Client**

See "How to Configure SAML Web Service Client at Design Time" on page 9-17.

Override the saml.assertion.filename property to point to the file that has the holder-of-key assertion.

Configure the policy assertion for message signing, message encryption, or both.
This policy requires you to set up the Web service keystore, as described in "Setting up the Keystore for Message Protection" on page 9-7.

You can specify a value for saml.issuer.name on the Configurations page, or override it on a per-client basis using the Security Configuration Details control when you attach the policy. The saml.issuer.name property defaults to a value of www.oracle.com. See “Adding an Additional SAML Assertion Issuer Name” on page 9-19 for additional considerations.

The Web service's base64-encoded public certificate is published in the WSDL for use by the Web service client, as described in "Using Service Identity Certification Extension" on page 9-10.

As an alternative, you can specify a value for keystore.recipient.alias on the Configurations page, or override it on a per-client basis using the Security Configuration Details control when you attach the policy. The keystore recipient alias specifies the alias used to look up the public key in the keystore when retrieving a key for encryption of outbound SOAP messages.

You can specify a value for keystore.sig.csf.key and keystore.enc.csf.key on the Configurations page, or override them on a per-client basis using the Security Configuration Details control when you attach the policy.

How to Set Up the Web Service Client at Design Time
See "How to Configure SAML Web Service Client at Design Time" on page 9-17.

This policy requires you to set up the Web service client keystore, as described in "Setting Up the Web Service Client Keystore at Design Time" on page 9-9. The policy specifically requires that the client’s and Web service’s respective keystores already contain digital certificates containing each other’s public key.

Override the saml.assertion.filename property to point to the file that has the holder-of-key assertion. See "Using Client Programmatic Configuration Overrides" on page 10-60 for a description of the configuration settings you can override.

Configure the policy assertion for message signing, message encryption, or both.

Example 10–1 shows the typical structure of a signature included in the Security header in conformance with the WS-Security 1.0 standards. In this example, the body element of the SOAP message is signed.

Example 10–2 is an example of the typical structure of encryption elements included in the Security header in conformance with the WS-Security 1.0 standards. In this example, the body element is encrypted.

**oracle/wss10_saml_hok_token_with_message_protection_service_policy**

This policy enforces message-level protection and SAML holder of key based authentication for inbound SOAP requests in accordance with the WS-Security 1.0 standard.

This policy contains the following policy assertion: oracle/wss10_saml_hok_with_message_integrity_service_template. See "oracle/wss10_saml_hok_with_message_protection_service_template" on page C-28 for more information about the assertion.

Configure the Login Module
Configure the saml.loginmodule login module. See "Configuring the SAML and Kerberos Login Modules" on page 9-15 for more information.
How to Set Up WebLogic Server
Use the WebLogic Server Administration Console to add an Authentication provider to the active security realm for the WebLogic domain in which the Web service is deployed, as described in "Configuring an Authentication Provider in WebLogic Server" on page 9-14.

The SAML login module extracts the username from the verified token and passes it (via the NameCallback) to the Authentication provider.

How to Set Up Oracle Platform Security Services (OPSS)
See "Configuring SAML" on page 9-16.

Configure the policy assertion for message signing, message encryption, or both.

This policy requires you to set up the keystore, as described in "Setting up the Keystore for Message Protection" on page 9-7.

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Note: A CertificateExpiredException is returned if an expired certificate is present in the keystore, regardless of whether this certificate is being referenced. To resolve this exception, remove the expired certificate from the keystore.

---

Store the trusted certificate of the SAML authority in the keystore.

Store the trusted certificate that corresponds to the client’s private key (used to sign the message) in the keystore. You also need to store the service’s private key in the keystore for decrypting the message, and the CA root certificate.

You must store the password for the decryption key in the credential store, as described in "Configuring the Credential Store Provider" on page 9-13. Use keystore.enc.csf.key as the key name.

You also have the option to override the keystore.sig.csf.key and keystore.enc.csf.key server-side configuration properties, as described in "Attaching Web Service Policies Permitting Overrides" on page 8-16.

**oracle/wss10_saml_token_with_message_integrity_client_policy**

This policy provides message-level integrity and SAML-based authentication for outbound SOAP messages in accordance with the WS-Security 1.0 standard.

This policy contains the following policy assertion: oracle/wss10_saml_token_with_message_integrity_client_template. See "oracle/wss10_saml_token_with_message_protection_client_template" on page C-29 for more information about the assertion.

**Settings You Can Change**
See Table C-33.

**Properties You Can Configure**
See Table C-34.

**How to Set Up the Web Service Client**
See "Configuring SAML" on page 9-16.

This policy requires you to set up the Web service keystore, as described in "Setting up the Keystore for Message Protection" on page 9-7.
You can specify a value for `saml.issuer.name` on the Configurations page, or override it on a per-client basis using the Security Configuration Details control when you attach the policy. The `saml.issuer.name` property defaults to a value of www.oracle.com. See “Adding an Additional SAML Assertion Issuer Name” on page 9-19 for additional considerations.

You can specify a value for `user.roles.include` on the Configurations page, or override it on a per-client basis using the Security Configuration Details control when you attach the policy.

You can specify a value for `keystore.sig.csf.key` and `keystore.enc.csf.key` on the Configurations page, or override them on a per-client basis using the Security Configuration Details control when you attach the policy.

**How to Set Up the Web Service Client at Design Time**

See "How to Configure SAML Web Service Client at Design Time" on page 9-17.

See "Using Client Programmatic Configuration Overrides" on page 10-60 for a description of the configuration settings you can override.

This policy requires you to set up the Web service client keystore, as described in "Setting Up the Web Service Client Keystore at Design Time" on page 9-9. The policy specifically requires that the client’s and Web service’s respective keystores already contain digital certificates containing each other’s public key.

Include a WS-Security Header Element (`<saml:Assertion>`) that inserts a SAML token in the outbound SOAP message. The confirmation type is always `sender-vouches`.

Example 10–1 shows the typical structure of a signature included in the Security header in conformance with the WS-Security 1.0 standards. In this example, the body element of the SOAP message is signed.

Example 10–2 is an example of the typical structure of encryption elements included in the Security header in conformance with the WS-Security 1.0 standards. In this example, the body element is encrypted.

**oracle/wss10_saml_token_with_message_integrity_service_policy**

This policy enforces message-level integrity protection and SAML-based authentication for inbound SOAP requests in accordance with the WS-Security 1.0 standard.

This policy contains the following policy assertion: `oracle/wss10_saml_token_with_message_integrity_service_template`. See "oracle/wss10_saml_token_with_message_protection_service_template" on page C-31 for more information about the assertion.

**Settings You Can Change**

See Table C–33.

**Properties You Can Configure**

See Table C–35.

You also have the option to override the `keystore.sig.csf.key` and `keystore.enc.csf.key` server-side configuration properties, as described in "Attaching Web Service Policies Permitting Overrides" on page 8-16.
Configure the Login Module
Configure the `saml.loginmodule` login module. See "Configuring the SAML and Kerberos Login Modules" on page 9-15 for more information.

How to Set Up Oracle Platform Security Services (OPSS)
See "Configuring SAML" on page 9-16.

You also have the option to override the `keystore.sig.csf.key` and `keystore.enc.csf.key` server-side configuration properties, as described in "Attaching Web Service Policies Permitting Overrides" on page 8-16.

How to Set Up WebLogic Server
Use the WebLogic Server Administration Console to add an Authentication provider to the active security realm for the WebLogic domain in which the Web service is deployed, as described in "Configuring an Authentication Provider in WebLogic Server" on page 9-14.

The SAML login module extracts the username from the verified token and passes it (via the `NameCallback`) to the Authentication provider.

**oracle/wss10_saml_token_with_message_protection_client_policy**
This policy provides message-level protection and SAML-based authentication for outbound SOAP messages in accordance with the WS-Security 1.0 standard.

This policy contains the following policy assertion: `oracle/wss10_saml_token_with_message_protection_client_template`. See "oracle/wss10_saml_token_with_message_protection_client_template" on page C-29 for more information about the assertion.

Settings You Can Change
See Table C–33.

Properties You Can Configure
See Table C–34.

How to Set Up the Web Service Client
See "Configuring SAML" on page 9-16.

Configure the policy assertion for message signing, message encryption, or both.

This policy requires you to set up the Web service keystore, as described in "Setting up the Keystore for Message Protection" on page 9-7.

The Web service’s base64-encoded public certificate is published in the WSDL for use by the Web service client, as described in "Using Service Identity Certification Extension" on page 9-10.

As an alternative, you can specify a value for `keystore.recipient.alias` on the Configurations page, or override it on a per-client basis using the Security Configuration Details control when you attach the policy. The keystore recipient alias specifies the alias used to look up the public key in the keystore when retrieving a key for encryption of outbound SOAP messages.

You can specify a value for `keystore.sig.csf.key` and `keystore.enc.csf.key` on the Configurations page, or override them on a per-client basis using the Security Configuration Details control when you attach the policy.
You can specify a value for `saml.issuer.name` on the **Configurations** page, or override it on a per-client basis using the **Security Configuration Details** control when you attach the policy. The `saml.issuer.name` property defaults to a value of `www.oracle.com`. See "Adding an Additional SAML Assertion Issuer Name" on page 9-19 for additional considerations.

You can specify a value for `user.roles.include` on the **Configurations** page, or override it on a per-client basis using the **Security Configuration Details** control when you attach the policy.

### How to Set Up the Web Service Client at Design Time

See "How to Configure SAML Web Service Client at Design Time" on page 9-17.

This policy requires you to set up the Web service client keystore, as described in "Setting Up the Web Service Client Keystore at Design Time" on page 9-9. The policy specifically requires that the client’s and Web service’s respective keystores already contain digital certificates containing each other’s public key.

See "Using Client Programmatic Configuration Overrides" on page 10-60 for a description of the configuration settings you can override.

Configure the policy assertion for message signing, message encryption, or both.

**Example 10–1** shows the typical structure of a signature included in the Security header in conformance with the WS-Security 1.0 standards. In this example, the body element of the SOAP message is signed.

**Example 10–2** is an example of the typical structure of encryption elements included in the Security header in conformance with the WS-Security 1.0 standards. In this example, the body element is encrypted.

**oracle/wss10_saml_token_with_message_protection_service_policy**

This policy enforces message-level protection and SAML-based authentication for inbound SOAP requests in accordance with the WS-Security 1.0 standard.

This policy contains the following policy assertion: `oracle/wss10_saml_token_with_message_protection_service_template`. See "oracle/wss10_saml_token_with_message_protection_service_template" on page C-31 for more information about the assertion.

### Settings You Can Change

See Table C–33.

### Properties You Can Configure

See Table C–35.

You also have the option to override the `keystore.sig.csf.key` and `keystore.enc.csf.key` server-side configuration properties, as described in "Attaching Web Service Policies Permitting Overrides" on page 8-16.

### Configure the Login Module

Configure the `saml.loginmodule` login module. See "Configuring the SAML and Kerberos Login Modules" on page 9-15 for more information.

### How to Set Up WebLogic Server

Use the WebLogic Server Administration Console to add an Authentication provider to the active security realm for the WebLogic domain in which the Web service is
deployed, as described in "Configuring an Authentication Provider in WebLogic Server" on page 9-14.

The SAML login module extracts the username from the verified token and passes it (via the NameCallback) to the Authentication provider.

**How to Set Up Oracle Platform Security Services (OPSS)**

See "Configuring SAML" on page 9-16.

Configure the policy assertion for message signing, message encryption, or both.

This policy requires you to set up the keystore, as described in "Setting up the Keystore for Message Protection" on page 9-7.

Store the trusted certificate that corresponds to the client’s private key (used to sign the message) in the keystore. You also need to store the service’s private key in the keystore for decrypting the message, and the CA root certificate.

You must store the password for the decryption key in the credential store, as described in "Configuring the Credential Store Provider" on page 9-13. Use `keystore.enc.csf.key` as the key name.

You also have the option to override the `keystore.sig.csf.key` and `keystore.enc.csf.key` server-side configuration properties, as described in "Attaching Web Service Policies Permitting Overrides" on page 8-16.

**oracle/wss10_saml_token_with_message_protection_ski_basic256_client_policy**

This policy provides message-level protection and SAML-based authentication for outbound SOAP messages in accordance with the WS-Security 1.0 standard.

This policy uses the Subject Key Identifier (ski) reference mechanism for the encryption key in the request, and for both the signature and encryption keys in the response.

This policy contains the following policy assertion: `oracle/wss10_saml_token_with_message_protection_client_template`. See "oracle/wss10_saml_token_with_message_protection_client_template" on page C-29 for more information about the assertion.

**Settings You Can Change**

See Table C–33.

**Properties You Can Configure**

See Table C–34.

**How to Set Up the Web Service Client**

See "Configuring SAML" on page 9-16.

Configure the policy assertion for message signing, message encryption, or both.

This policy requires you to set up the Web service keystore, as described in "Setting up the Keystore for Message Protection" on page 9-7.

The Web service's base64-encoded public certificate is published in the WSDL for use by the Web service client, as described in "Using Service Identity Certification Extension" on page 9-10.

As an alternative, you can specify a value for `keystore.recipient.alias` on the Configurations page, or override it on a per-client basis using the Security
**Configuration Details** control when you attach the policy. The keystore recipient alias specifies the alias used to look up the public key in the keystore when retrieving a key for encryption of outbound SOAP messages.

You can specify a value for `keystore.sig.csf.key` and `keystore.enc.csf.key` on the **Configurations** page, or override them on a per-client basis using the **Security Configuration Details** control when you attach the policy.

You can specify a value for `saml.issuer.name` on the **Configurations** page, or override it on a per-client basis using the **Security Configuration Details** control when you attach the policy. The `saml.issuer.name` property defaults to a value of www.oracle.com. See "Adding an Additional SAML Assertion Issuer Name" on page 9-19 for additional considerations.

You can specify a value for `user.roles.include` on the **Configurations** page, or override it on a per-client basis using the **Security Configuration Details** control when you attach the policy.

**How to Set Up the Web Service Client at Design Time**

See "How to Configure SAML Web Service Client at Design Time" on page 9-17.

This policy requires you to set up the Web service client keystore, as described in "Setting Up the Web Service Client Keystore at Design Time" on page 9-9. The policy specifically requires that the client’s and Web service’s respective keystores already contain digital certificates containing each other’s public key.

See "Using Client Programmatic Configuration Overrides" on page 10-60 for a description of the configuration settings you can override.

Configure the policy assertion for message signing, message encryption, or both.

**Example 10–1** shows the typical structure of a signature included in the Security header in conformance with the WS-Security 1.0 standards. In this example, the body element of the SOAP message is signed.

**Example 10–2** is an example of the typical structure of encryption elements included in the Security header in conformance with the WS-Security 1.0 standards. In this example, the body element is encrypted.

**oracle/wss10_saml_token_with_message_protection_ski_basic256_service_policy**

This policy enforces message-level protection and SAML-based authentication for inbound SOAP requests in accordance with the WS-Security 1.0 standard.

This policy uses the Subject Key Identifier (ski) reference mechanism for the encryption key in the request, and for both the signature and encryption keys in the response.

This policy contains the following policy assertion: oracle/wss10_saml_token_with_message_protection_service_template. See "oracle/wss10_saml_token_with_message_protection_service_template" on page C-31 for more information about the assertion.

**Settings You Can Change**

See Table C–33.

**Properties You Can Configure**

See Table C–35.
You also have the option to override the `keystore.sig.csf.key` and `keystore.enc.csf.key` server-side configuration properties, as described in “Attaching Web Service Policies Permitting Overrides” on page 8-16.

**Configure the Login Module**
Configure the `saml.loginmodule` login module. See "Configuring the SAML and Kerberos Login Modules" on page 9-15 for more information.

**How to Set Up WebLogic Server**
Use the WebLogic Server Administration Console to add an Authentication provider to the active security realm for the WebLogic domain in which the Web service is deployed, as described in "Configuring an Authentication Provider in WebLogic Server" on page 9-14.

The SAML login module extracts the username from the verified token and passes it (via the `NameCallback`) to the Authentication provider.

**How to Set Up Oracle Platform Security Services (OPSS)**
See "Configuring SAML" on page 9-16.

Configure the policy assertion for message signing, message encryption, or both.

This policy requires you to set up the keystore. When using the ski reference mechanism, use OpenSSL or another such utility to create the certificate.

Store the trusted certificate that corresponds to the client’s private key (used to sign the message) in the keystore. You also need to store the service’s private key in the keystore for decrypting the message, and the CA root certificate.

You must store the password for the decryption key in the credential store, as described in "Configuring the Credential Store Provider" on page 9-13. Use `keystore.enc.csf.key` as the key name.

You also have the option to override the `keystore.sig.csf.key` and `keystore.enc.csf.key` server-side configuration properties, as described in "Attaching Web Service Policies Permitting Overrides" on page 8-16.

**oracle/wss10_username_id_propagation_with_msg_protection_client_policy**
This policy provides message-level protection (that is, integrity and confidentiality) and identity propagation for outbound SOAP requests in accordance with the WS-Security 1.0 standard.

This policy contains the following policy assertion: `oracle/wss10_username_id_propagation_with_msg_protection_client_template`. See "oracle/wss10_username_token_with_message_protection_client_template" on page C-32 for more information about the assertion.

**Settings You Can Change**
See Table C–36.

**Properties You Can Configure**
See Table C–37.

**How to Set Up the Web Service Client**
Configure the policy assertion for message signing, message encryption, or both.
This policy requires you to set up the Web service keystore, as described in "Setting up the Keystore for Message Protection" on page 9-7.

The Web service’s base64-encoded public certificate is published in the WSDL for use by the Web service client, as described in "Using Service Identity Certification Extension" on page 9-10.

As an alternative, you can specify a value for keystore.recipient.alias on the Configurations page, or override it on a per-client basis using the Security Configuration Details control when you attach the policy. The keystore recipient alias specifies the alias used to look up the public key in the keystore when retrieving a key for encryption of outbound SOAP messages.

You can specify a value for keystore.sig.csf.key and keystore.enc.csf.key on the Configurations page, or override them on a per-client basis using the Security Configuration Details control when you attach the policy.

How to Set Up the Web Service Client at Design Time
The client must include a WS-Security UsernameToken element (<wsse:UsernameToken/>) in the SOAP request message. The client provides a username and password for authentication.

This policy requires you to set up the Web service client keystore, as described in "Setting Up the Web Service Client Keystore at Design Time" on page 9-9. The policy specifically requires that the client’s and Web service’s respective keystores already contain digital certificates containing each other’s public key.

Configure the policy assertion for message signing, message encryption, or both. See "Using Client Programmatic Configuration Overrides" on page 10-60 for a description of the configuration settings you can override.

Example 10–1 shows the typical structure of a signature included in the Security header in conformance with the WS-Security 1.0 standards. In this example, the body element of the SOAP message is signed.

Example 10–2 is an example of the typical structure of encryption elements included in the Security header in conformance with the WS-Security 1.0 standards. In this example, the body element is encrypted.

**oracle/wss10_username_id_propagation_with_msg_protection_service_policy**

This policy enforces message level protection (that is, integrity and confidentiality) and identity propagation for inbound SOAP requests using mechanisms described in WS-Security 1.0.

This policy contains the following policy assertion: oracle/wss10_username_id_propagation_with_msg_protection_service_template. See "oracle/wss10_username_token_with_message_protection_service_template" on page C-35 for more information about the assertion.

**Settings You Can Change**
See Table C–37.

**Properties You Can Configure**
See Table C–39. You also have the option to override the keystore.sig.csf.key and keystore.enc.csf.key server-side configuration properties, as described in “Attaching Web Service Policies Permitting Overrides” on page 8-16.
How to Set Up WebLogic Server
Use the WebLogic Server Administration Console to add an Authentication provider to the active security realm for the WebLogic domain in which the Web service is deployed, as described in "Configuring an Authentication Provider in WebLogic Server" on page 9-14.

The SAML login module extracts the username from the verified token and passes it (via the NameCallback) to the Authentication provider.

How to Set Up Oracle Platform Security Services (OPSS)
Configure the policy assertion for message signing, message encryption, or both.

This policy requires you to set up the keystore, as described in "Setting up the Keystore for Message Protection" on page 9-7.

Store the trusted certificate that corresponds to the client’s private key (used to sign the message) in the keystore. You also need to store the service’s private key in the keystore for decrypting the message, and the CA root certificate.

You must store the password for the decryption key in the credential store, as described in "Configuring the Credential Store Provider" on page 9-13. Use keystore.enc.csf.key as the key name.

You also have the option to override the keystore.sig.csf.key and keystore.enc.csf.key server-side configuration properties, as described in "Attaching Web Service Policies Permitting Overrides" on page 8-16.

oracle/wss10_username_token_with_message_protection_client_policy
This policy provides message-level protection (message integrity and confidentiality) and authentication for outbound SOAP requests in accordance with the WS-Security 1.0 standard.

This policy contains the following policy assertion: oracle/wss10_username_token_with_message_protection_client_template. See "oracle/wss10_username_token_with_message_protection_client_template" on page C-32 for more information about the assertion.

Settings You Can Change
See Table C–36.

Properties You Can Configure
See Table C–37.

How to Set Up the Web Service Client
Configure the policy assertion for message signing, message encryption, or both.

This policy requires you to set up the Web service keystore, as described in "Setting up the Keystore for Message Protection" on page 9-7.

The Web service’s base64-encoded public certificate is published in the WSDL for use by the Web service client, as described in "Using Service Identity Certification Extension" on page 9-10.

As an alternative, you can specify a value for keystore.recipient.alias on the Configurations page, or override it on a per-client basis using the Security Configuration Details control when you attach the policy. The keystore recipient alias
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specifies the alias used to look up the public key in the keystore when retrieving a key for encryption of outbound SOAP messages.

You can specify a value for `keystore.sig.csf.key` and `keystore.enc.csf.key` on the Configurations page, or override them on a per-client basis using the Security Configuration Details control when you attach the policy.

You can specify a value for `csf-key` on the Configurations page, or override it on a per-client basis using the Security Configuration Details control when you attach the policy.

The value signifies a key that maps to a username/password. See "Configuring the Credential Store Provider" on page 9-13 for information on how to add the key to the credential store.

How to Set Up the Web Service Client at Design Time

Configure the policy assertion for message signing, message encryption, or both.

See "Using Client Programmatic Configuration Overrides" on page 10-60 for a description of the configuration settings you can override.

This policy requires you to set up the Web service client keystore, as described in "Setting Up the Web Service Client Keystore at Design Time" on page 9-9. The policy specifically requires that the client’s and Web service’s respective keystores already contain digital certificates containing each other’s public key.

Example 10–1 shows the typical structure of a signature included in the Security header in conformance with the WS-Security 1.0 standards. In this example, the body element of the SOAP message is signed.

Example 10–2 is an example of the typical structure of encryption elements included in the Security header in conformance with the WS-Security 1.0 standards. In this example, the body element is encrypted.

**oracle/wss10_username_token_with_message_protection_service_policy**

This policy enforces message-level protection (message integrity and confidentiality) and authentication for inbound SOAP requests in accordance with the WS-Security 1.0 standard.

This policy contains the following policy assertion: `oracle/wss10_username_token_with_message_protection_service_template`. See "oracle/wss10_username_token_with_message_protection_service_template" on page C-35 for more information about the assertion.

Settings You Can Change

See Table C–36.

Properties You Can Configure

See Table C–38. You also have the option to override the `keystore.sig.csf.key` and `keystore.enc.csf.key` server-side configuration properties, as described in "Attaching Web Service Policies Permitting Overrides" on page 8-16.

How to Set Up WebLogic Server

Use the WebLogic Server Administration Console to add an Authentication provider to the active security realm for the WebLogic domain in which the Web service is
deployed, as described in "Configuring an Authentication Provider in WebLogic Server" on page 9-14.

**How to Set Up Oracle Platform Security Services (OPSS)**

Configure the policy assertion for message signing, message encryption, or both.

This policy requires you to set up the keystore, as described in "Setting up the Keystore for Message Protection" on page 9-7.

Store the trusted certificate that corresponds to the client’s private key (used to sign the message) in the keystore. You also need to store the service's private key in the keystore for decrypting the message, and the CA root certificate.

You must store the password for the decryption key in the credential store, as described in "Configuring the Credential Store Provider" on page 9-13. Use `keystore.enc.csf.key` as the key name.

You also have the option to override the `keystore.sig.csf.key` and `keystore.enc.csf.key` server-side configuration properties, as described in "Attaching Web Service Policies Permitting Overrides" on page 8-16.

**oracle/wss10_username_token_with_message_protection_ski_basic256_client_policy**

This policy provides message-level protection (message integrity and confidentiality) and authentication for outbound SOAP requests in accordance with the WS-Security 1.0 standard.

This policy uses the Subject Key Identifier (ski) reference mechanism for the encryption key in the signature, and for both the signature and encryption keys in the response.

This policy contains the following policy assertion: `oracle/wss10_username_token_with_message_protection_client_template`. See "oracle/wss10_username_token_with_message_protection_client_template" on page C-32 for more information about the assertion.

**Settings You Can Change**

See Table C–36.

**Properties You Can Configure**

See Table C–37.

**How to Set Up the Web Service Client**

Configure the policy assertion for message signing, message encryption, or both.

This policy requires you to set up the Web service keystore, as described in "Setting up the Keystore for Message Protection" on page 9-7.

The Web service's base64-encoded public certificate is published in the WSDL for use by the Web service client, as described in "Using Service Identity Certification Extension" on page 9-10.

As an alternative, you can specify a value for `keystore.recipient.alias` on the Configurations page, or override it on a per-client basis using the Security Configuration Details control when you attach the policy. The keystore recipient alias specifies the alias used to look up the public key in the keystore when retrieving a key for encryption of outbound SOAP messages.
You can specify a value for `keystore.sig.csf.key` and `keystore.enc.csf.key` on the Configurations page, or override them on a per-client basis using the Security Configuration Details control when you attach the policy.

You can specify a value for `csf-key` on the Configurations page, or override it on a per-client basis using the Security Configuration Details control when you attach the policy.

The value signifies a key that maps to a username/password. See "Configuring the Credential Store Provider" on page 9-13 for information on how to add the key to the credential store.

**How to Set Up the Web Service Client at Design Time**

Configure the policy assertion for message signing, message encryption, or both. See "Using Client Programmatic Configuration Overrides" on page 10-60 for a description of the configuration settings you can override.

This policy requires you to set up the Web service client keystore, as described in "Setting Up the Web Service Client Keystore at Design Time" on page 9-9. The policy specifically requires that the client’s and Web service’s respective keystores already contain digital certificates containing each other’s public key.

Example 10–1 shows the typical structure of a signature included in the Security header in conformance with the WS-Security 1.0 standards. In this example, the body element of the SOAP message is signed.

Example 10–2 is an example of the typical structure of encryption elements included in the Security header in conformance with the WS-Security 1.0 standards. In this example, the body element is encrypted.

**oracle/wss10_username_token_with_message_protection_ski_basic256_service_policy**

This policy enforces message-level protection (message integrity and confidentiality) and authentication for inbound SOAP requests in accordance with the WS-Security 1.0 standard.

This policy uses the Subject Key Identifier (ski) reference mechanism for the encryption key in the request, and for both the signature and encryption keys in the response.

This policy contains the following policy assertion: oracle/wss10_username_token_with_message_protection_service_template. See "oracle/wss10_username_token_with_message_protection_service_template" on page C-35 for more information about the assertion.

**Settings You Can Change**

See Table C–36.

**Properties You Can Configure**

See Table C–38. You also have the option to override the `keystore.sig.csf.key` and `keystore.enc.csf.key` server-side configuration properties, as described in "Attaching Web Service Policies Permitting Overrides" on page 8-16.

**How to Set Up WebLogic Server**

Use the WebLogic Server Administration Console to add an Authentication provider to the active security realm for the WebLogic domain in which the Web service is
deployed, as described in "Configuring an Authentication Provider in WebLogic Server" on page 9-14.

**How to Set Up Oracle Platform Security Services (OPSS)**

Configure the policy assertion for message signing, message encryption, or both.

This policy requires you to set up the keystore. When using the ski reference mechanism, use OpenSSL or another such utility to create the certificate.

Store the trusted certificate that corresponds to the client’s private key (used to sign the message) in the keystore. You also need to store the service's private key in the keystore for decrypting the message, and the CA root certificate.

You must store the password for the decryption key in the credential store, as described in "Configuring the Credential Store Provider" on page 9-13. Use `keystore.enc.csf.key` as the key name.

You also have the option to override the `keystore.sig.csf.key` and `keystore.enc.csf.key` server-side configuration properties, as described in "Attaching Web Service Policies Permitting Overrides" on page 8-16.

**oracle/wss10_x509_token_with_message_protection_client_policy**

This policy provides message-level protection and certificate credential population for outbound SOAP requests in accordance with the WS-Security 1.0 standard.

This policy contains the following policy assertion: oracle/wss10_x509_token_with_message_protection_client_template. See "oracle/wss10_x509_token_with_message_protection_client_template" on page C-36 for more information about the assertion.

**Settings You Can Change**

See Table C-39.

**Properties You Can Configure**

See Table C-40.

**How to Set Up the Web Service Client**

Configure the policy assertion for message signing, message encryption, or both.

This policy requires you to set up the Web service keystore, as described in "Setting up the Keystore for Message Protection" on page 9-7.

The Web service's base64-encoded public certificate is published in the WSDL for use by the Web service client, as described in "Using Service Identity Certification Extension" on page 9-10.

As an alternative, you can specify a value for `keystore.recipient.alias` on the Configurations page, or override it on a per-client basis using the Security Configuration Details control when you attach the policy. The keystore recipient alias specifies the alias used to look up the public key in the keystore when retrieving a key for encryption of outbound SOAP messages.

You can specify a value for `keystore.sig.csf.key` and `keystore.enc.csf.key` on the Configurations page, or override them on a per-client basis using the Security Configuration Details control when you attach the policy.
How to Set Up the Web Service Client at Design Time

The Web service client needs to provide valid X.509 authentication credentials in the SOAP message through the WS-Security binary security token.

This policy requires you to set up the Web service client keystore, as described in "Setting Up the Web Service Client Keystore at Design Time" on page 9-9. The policy specifically requires that the client’s and Web service’s respective keystores already contain digital certificates containing each other’s public key.

See “Using Client Programmatic Configuration Overrides” on page 10-60 for a description of the configuration settings you can override.

Configure the policy assertion for message signing, message encryption, or both.

Example 10–1 shows the typical structure of a signature included in the Security header in conformance with the WS-Security 1.0 standards. In this example, the body element of the SOAP message is signed.

Example 10–2 is an example of the typical structure of encryption elements included in the Security header in conformance with the WS-Security 1.0 standards. In this example, the body element is encrypted.

oracle/wss10_x509_token_with_message_protection_service_policy

This policy enforces message-level protection and certificate-based authentication for inbound SOAP requests in accordance with the WS-Security 1.0 standard.

This policy contains the following policy assertion: oracle/wss10_x509_token_with_message_protection_service_template. See "oracle/wss10_x509_token_with_message_protection_service_template" on page C-38 for more information about the assertion.

Settings You Can Change

See Table C–39.

Attributes You Can Configure

See Table C–41. You also have the option to override the keystore.sig.csf.key and keystore.enc.csf.key server-side configuration properties, as described in "Attaching Web Service Policies Permitting Overrides" on page 8-16.

How to Set Up Oracle Platform Security Services (OPSS)

Configure the policy assertion for message signing, message encryption, or both.

This policy requires you to set up the keystore, as described in "Setting up the Keystore for Message Protection" on page 9-7.

Store the trusted certificate that corresponds to the client’s private key (used to sign the message) in the keystore. You also need to store the service’s private key in the keystore for decrypting the message, and the CA root certificate.

You must store the password for the decryption key in the credential store, as described in "Configuring the Credential Store Provider" on page 9-13. Use keystore.enc.csf.key as the key name.

You also have the option to override the keystore.sig.csf.key and keystore.enc.csf.key server-side configuration properties, as described in "Attaching Web Service Policies Permitting Overrides" on page 8-16.
How to Set Up WebLogic Server
You need to configure an Authentication provider, as described in "Configuring an Authentication Provider in WebLogic Server" on page 9-14, and make sure that you provide the X.509 callback information for this provider.

oracle/wss11_kerberos_token_with_message_protection_client_policy
This policy includes a Kerberos token in the WS-Security header, and uses Kerberos keys to guarantee message integrity and confidentiality, in accordance with the WS-Security Kerberos Token Profile v1.1 standard.

This policy contains the following policy assertion: oracle/wss11_kerberos_token_with_message_protection_client_template. See "oracle/wss11_kerberos_token_with_message_protection_client_template" on page C-38 for more information about the assertion.

Settings You Can Change
See Table C-42.

Properties You Can Configure
See Table C-43.

How to Set up the Web Service Client
Configure the policy assertion for message signing, message encryption, or both.

This policy requires you to set up the Web service keystore, as described in "Setting up the Keystore for Message Protection" on page 9-7. You can specify a value for keystore.sig.csf.key and keystore.enc.csf.key on the Configurations page, or override them on a per-client basis using the Security Configuration Details control when you attach the policy.

Also see "Using Kerberos Tokens" on page 9-21.

How to Set Up the Web Service Client at Design Time
This policy requires you to set up the Web service client keystore, as described in "Setting Up the Web Service Client Keystore at Design Time" on page 9-9. Also see "Using Kerberos Tokens" on page 9-21.

See "Using Client Programmatic Configuration Overrides" on page 10-60 for a description of the configuration settings you can override.

Configure the policy assertion for message signing, message encryption, or both.

Example 10-3 is an example of the typical structure of encryption elements included in the Security header in conformance with the WS-Security 1.1 standards. In this example, the body element is encrypted.

oracle/wss11_kerberos_token_with_message_protection_service_policy
This policy is enforced in accordance with the WS-Security Kerberos Token Profile v1.1 standard.

This policy contains the following policy assertion: oracle/wss11_kerberos_token_with_message_protection_service_template. See "oracle/wss11_kerberos_token_with_
message_protection_service_template” on page C-40 for more information about the assertion.

Settings You Can Change
See Table C–42.

Properties You Can Configure
See Table C–44. You also have the option to override the keystore.enc.csf.key server-side configuration property, as described in "Attaching Web Service Policies Permitting Overrides" on page 8-16.

Configure the Login Module
Configure the krb5.loginmodule login module. See "Configuring the SAML and Kerberos Login Modules” on page 9-15.

How to Set Up Oracle Platform Security Services (OPSS)
Configure the policy assertion for message signing, message encryption, or both.

This policy requires you to set up the keystore, as described in "Setting up the Keystore for Message Protection” on page 9-7.

Store the trusted certificate that corresponds to the client’s private key (used to sign the message) in the keystore. You also need to store the service’s private key in the keystore for decrypting the message, and the CA root certificate.

You must store the password for the decryption key in the credential store, as described in “Configuring the Credential Store Provider” on page 9-13. Use keystore.enc.csf.key as the key name.

You also have the option to override the keystore.enc.csf.key server-side configuration property, as described in "Attaching Web Service Policies Permitting Overrides" on page 8-16.

Configure Kerberos, as described in "Using Kerberos Tokens” on page 9-21.

How to Set Up WebLogic Server
Use the WebLogic Server Administration Console to add an Authentication provider to the active security realm for the WebLogic domain in which the Web service is deployed, as described in "Configuring an Authentication Provider in WebLogic Server” on page 9-14.

oracle/wss11_saml_token_with_message_protection_client_policy
This policy enables message level protection and SAML token population for outbound SOAP requests using mechanisms described in WS-Security 1.1.

This policy contains the following policy assertion: oracle/wss11_saml_token_with_message_protection_client_template. See "oracle/wss11_saml_token_with_message_protection_client_template” on page C-41 for more information about the assertion.

Settings You Can Change
See Table C–45.

Properties You Can Configure
See Table C–46.
How to Set Up the Web Service Client
See "How to Configure SAML Web Service Client at Design Time" on page 9-17.

Configure the policy assertion for message signing, message encryption, or both.

This policy requires you to set up the Web service keystore, as described in "Setting up the Keystore for Message Protection" on page 9-7.

The Web service's base64-encoded public certificate is published in the WSDL for use by the Web service client, as described in "Using Service Identity Certification Extension" on page 9-10.

As an alternative, you can specify a value for `keystore.recipient.alias` on the Configurations page, or override it on a per-client basis using the Security Configuration Details control when you attach the policy. The keystore recipient alias specifies the alias used to look up the public key in the keystore when retrieving a key for encryption of outbound SOAP messages.

You can specify a value for `keystore.sig.csf.key` and `keystore.enc.csf.key` on the Configurations page, or override them on a per-client basis using the Security Configuration Details control when you attach the policy.

You can specify a value for `saml.issuer.name` on the Configurations page, or override it on a per-client basis using the Security Configuration Details control when you attach the policy. The `saml.issuer.name` property defaults to a value of www.oracle.com. See "Adding an Additional SAML Assertion Issuer Name" on page 9-19 for additional considerations.

You can specify a value for `user.roles.include` on the Configurations page, or override it on a per-client basis using the Security Configuration Details control when you attach the policy.

How to Set Up the Web Service Client at Design Time
See "How to Configure SAML Web Service Client at Design Time" on page 9-17.

This policy requires you to set up the Web service client keystore, as described in "Setting Up the Web Service Client Keystore at Design Time" on page 9-9. The policy specifically requires that the client’s and Web service’s respective keystores already contain digital certificates containing each other’s public key.

See "Using Client Programmatic Configuration Overrides" on page 10-60 for a description of the configuration settings you can override.

Configure the policy assertion for message signing, message encryption, or both.

Example 10–3 is an example of the typical structure of encryption elements included in the Security header in conformance with the WS-Security 1.1 standards. In this example, the body element is encrypted.

oracle/wss11_saml_token_identity_switch_with_message_protection_client_policy
This policy enables identity switching. Identity switching means that the policy propagates a different identity than the one based on the authenticated Subject. Instead of using the username from the Subject, this policy allows you to set a new user name when sending the SAML Web service request.

This policy enables message level protection and SAML token population for outbound SOAP requests using mechanisms described in WS-Security 1.1.
This policy contains the following policy assertion: oracle/wss11_saml_token_with_message_protection_client_template. See "oracle/wss11_saml_token_with_message_protection_client_template" on page C-41 for more information about the assertion.

**Settings You Can Change**

See Table C–45.

**Properties You Can Configure**

See Table C–46.

**How to Set Up the Web Service Client**

You attach the wss11_saml_token_identity_switch_with_message_protection_client_policy to a Web service client of any type.

See "Configuring SAML Web Service Clients for Identity Switching" on page 9-19 for information about how to use this policy. In particular, you need to "Set the javax.xml.ws.security.auth.username Property" on page 9-20, and "Set the WSIdentityPermission Permission" on page 9-20.

See "How to Configure SAML Web Service Client at Design Time" on page 9-17 for additional SAML considerations.

Configure the policy assertion for message signing, message encryption, or both.

This policy requires you to set up the Web service keystore, as described in "Setting up the Keystore for Message Protection" on page 9-7.

The Web service's base64-encoded public certificate is published in the WSDL for use by the Web service client, as described in "Using Service Identity Certification Extension" on page 9-10.

As an alternative, you can specify a value for keystore.recipient.alias on the Configurations page, or override it on a per-client basis using the Security Configuration Details control when you attach the policy. The keystore recipient alias specifies the alias used to look up the public key in the keystore when retrieving a key for encryption of outbound SOAP messages.

You can specify a value for keystore.sig.csf.key and keystore.enc.csf.key on the Configurations page, or override them on a per-client basis using the Security Configuration Details control when you attach the policy.

You can specify a value for saml.issuer.name on the Configurations page, or override it on a per-client basis using the Security Configuration Details control when you attach the policy. The saml.issuer.name property defaults to a value of www.oracle.com. See "Adding an Additional SAML Assertion Issuer Name" on page 9-19 for additional considerations.

subject.precedence is set to false to allow for the use of a client-specified username rather than the authenticated subject.

You can specify a value for saml.audience.uri on the Configurations page, or override it on a per-client basis using the Security Configuration Details control when you attach the policy.

You can specify a value for user.roles.include on the Configurations page, or override it on a per-client basis using the Security Configuration Details control when you attach the policy.
How to Set Up the Web Service Client at Design Time
See "How to Configure SAML Web Service Client at Design Time" on page 9-17.

This policy requires you to set up the Web service client keystore, as described in "Setting Up the Web Service Client Keystore at Design Time" on page 9-9. The policy specifically requires that the client’s and Web service’s respective keystores already contain digital certificates containing each other’s public key.

See "Using Client Programmatic Configuration Overrides" on page 10-60 for a description of the configuration settings you can override.

Configure the policy assertion for message signing, message encryption, or both.

Example 10-3 is an example of the typical structure of encryption elements included in the Security header in conformance with the WS-Security 1.1 standards. In this example, the body element is encrypted.

oracle/wss11_saml_token_with_message_protection_service_policy
This policy enforces message-level integrity protection and SAML-based authentication for inbound SOAP requests in accordance with the WS-Security 1.0 standard.

This policy contains the following policy assertion: oracle/wss11_saml_token_with_message_protection_service_template. See "oracle/wss11_saml_token_with_message_protection_service_template" on page C-43 for more information about the assertion.

Settings You Can Change
See Table C–45.

Properties You Can Configure
See Table C–46.
You also have the option to override the keystore.enc.csf.key server-side configuration property, as described in "Attaching Web Service Policies Permitting Overrides" on page 8-16.

Configure the Login Module
Configure the saml.loginmodule login module. See "Configuring the SAML and Kerberos Login Modules" on page 9-15.

How to Set Up Oracle Platform Security Services (OPSS)
See "Configuring SAML" on page 9-16.

Configure the policy assertion for message signing, message encryption, or both.

This policy requires you to set up the keystore, as described in "Setting up the Keystore for Message Protection" on page 9-7.

Store the trusted certificate that corresponds to the client’s private key (used to sign the message) in the keystore. You also need to store the service’s private key in the keystore for decrypting the message, and the CA root certificate.

You must store the password for the decryption key in the credential store, as described in "Configuring the Credential Store Provider" on page 9-13. Use keystore.enc.csf.key as the key name.
You also have the option to override the `keystore.enc.csf.key` server-side configuration property, as described in "Attaching Web Service Policies Permitting Overrides" on page 8-16.

**How to Set Up WebLogic Server**

Use the WebLogic Server Administration Console to add an Authentication provider to the active security realm for the WebLogic domain in which the Web service is deployed, as described in "Configuring an Authentication Provider in WebLogic Server" on page 9-14.

The SAML login module extracts the username from the verified token and passes it (via the `NameCallback`) to the Authentication provider.

**oracle/wss11_username_token_with_message_protection_client_policy**

This policy provides message-level protection and authentication for outbound SOAP requests in accordance with the WS-Security 1.1 standard.

This policy contains the following policy assertion: oracle/wss11_username_token_with_message_protection_client_template. See "oracle/wss11_username_token_with_message_protection_client_template" on page C-44 for more information about the assertion.

**Settings You Can Change**

See Table C–48.

**Properties You Can Configure**

See Table C–49.

**How to Set Up the Web Service Client**

Configure the policy assertion for message signing, message encryption, or both.

This policy requires you to set up the Web service keystore, as described in "Setting up the Keystore for Message Protection" on page 9-7.

The Web service’s base64-encoded public certificate is published in the WSDL for use by the Web service client, as described in "Using Service Identity Certification Extension" on page 9-10.

As an alternative, you can specify a value for `keystore.recipient.alias` on the Configurations page, or override it on a per-client basis using the Security Configuration Details control when you attach the policy. The keystore recipient alias specifies the alias used to look up the public key in the keystore when retrieving a key for encryption of outbound SOAP messages.

You can specify a value for `keystore.enc.csf.key` on the Configurations page, or override it on a per-client basis using the Security Configuration Details control when you attach the policy.

**How to Set Up the Web Service Client at Design Time**

This policy uses symmetric key technology, which is an encryption method that uses the same shared key to encrypt and decrypt data. The symmetric key is used to sign the message.

Configure the policy assertion for message signing, message encryption, or both.
See "Using Client Programmatic Configuration Overrides" on page 10-60 for a description of the configuration settings you can override.

**Example 10–3** is an example of the typical structure of encryption elements included in the Security header in conformance with the WS-Security 1.1 standards. In this example, the body element is encrypted.

**oracle/wss11_username_token_with_message_protection_service_policy**

This policy enforces message-level protection (that is, message integrity and message confidentiality) and authentication for inbound SOAP requests in accordance with the WS-Security 1.1 standard.

This policy contains the following policy assertion: `oracle/wss11_username_token_with_message_protection_service_template`. See "oracle/wss11_username_token_with_message_protection_service_template" on page C-47 for more information about the assertion.

**Settings You Can Change**

See Table C–48.

**Properties You Can Configure**

See Table C–50. You also have the option to override the `keystore.enc.csf.key` server-side configuration property, as described in "Attaching Web Service Policies Permitting Overrides" on page 8-16.

**How to Set Up Oracle Platform Security Services (OPSS)**

Configure the policy assertion for message signing, message encryption, or both.

This policy requires you to set up the keystore, as described in "Setting up the Keystore for Message Protection" on page 9-7.

Store the trusted certificate that corresponds to the client’s private key (used to sign the message) in the keystore. You also need to store the service’s private key in the keystore for decrypting the message, and the CA root certificate.

You must store the password for the decryption key in the credential store, as described in "Configuring the Credential Store Provider" on page 9-13. Use `keystore.enc.csf.key` as the key name.

You also have the option to override the `keystore.enc.csf.key` server-side configuration property, as described in "Attaching Web Service Policies Permitting Overrides" on page 8-16.

**How to Set Up WebLogic Server**

Use the WebLogic Server Administration Console to add an Authentication provider to the active security realm for the WebLogic domain in which the Web service is deployed, as described in "Configuring an Authentication Provider in WebLogic Server" on page 9-14.

**oracle/wss11_x509_token_with_message_protection_client_policy**

This policy provides message-level protection and certificate-based authentication for outbound SOAP requests in accordance with the WS-Security 1.1 standard.
This policy contains the following policy assertion: oracle/wss11_x509_token_with_message_protection_client_template. See "oracle/wss11_x509_token_with_message_protection_client_template" on page C-47 for more information about the assertion.

**Settings You Can Change**
See Table C–51.

**Properties You Can Configure**
See Table C–52.

**How to Set Up the Web Service Client**
Configure the policy assertion for message signing, message encryption, or both.

This policy requires you to set up the Web service keystore, as described in "Setting up the Keystore for Message Protection" on page 9-7.

The Web service's base64-encoded public certificate is published in the WSDL for use by the Web service client, as described in "Using Service Identity Certification Extension" on page 9-10.

As an alternative, you can specify a value for keystore.recipient.alias on the Configurations page, or override it on a per-client basis using the Security Configuration Details control when you attach the policy. The keystore recipient alias specifies the alias used to look up the public key in the keystore when retrieving a key for encryption of outbound SOAP messages.

You can specify a value for keystore.sig.csf.key and keystore.enc.csf.key on the Configurations page, or override them on a per-client basis using the Security Configuration Details control when you attach the policy.

**How to Set Up the Web Service Client at Design Time**
This policy requires you to set up the Web service client keystore, as described in "Setting Up the Web Service Client Keystore at Design Time" on page 9-9. The policy specifically requires that the client’s and Web service’s respective keystores already contain digital certificates containing each other’s public key.

The Web service client needs to provide valid X.509 authentication credentials in the SOAP message through the WS-Security binary security token.

See "Using Client Programmatic Configuration Overrides" on page 10-60 for a description of the configuration settings you can override.

Configure the policy assertion for message signing, message encryption, or both.

Example 10–3 is an example of the typical structure of encryption elements included in the Security header in conformance with the WS-Security 1.1 standards. In this example, the body element is encrypted.

**oracle/wss11_x509_token_with_message_protection_service_policy**
This policy enforces message-level protection and certificate-based authentication for inbound SOAP requests in accordance with the WS-Security 1.1 standard.

This policy contains the following policy assertion: oracle/wss11_x509_token_with_message_protection_service_template. See "oracle/wss11_x509_token_with_message_protection_service_template" on page C-49 for more information about the assertion.
Authorization Policies and Configuration Steps

Settings You Can Change
See Table C–51.

Properties You Can Configure
See Table C–53. You also have the option to override the keystore.enc.csf.key server-side configuration property, as described in "Attaching Web Service Policies Permitting Overrides" on page 8-16.

How to Set Up Oracle Platform Security Services (OPSS)
Configure the policy assertion for message signing, message encryption, or both.

This policy requires you to set up the keystore, as described in "Setting up the Keystore for Message Protection" on page 9-7.

Store the trusted certificate that corresponds to the client’s private key (used to sign the message) in the keystore. You also need to store the service’s private key in the keystore for decrypting the message, and the CA root certificate.

You must store the password for the decryption key in the credential store, as described in "Configuring the Credential Store Provider" on page 9-13. Use keystore.enc.csf.key as the key name.

You also have the option to override the keystore.enc.csf.key server-side configuration property, as described in "Attaching Web Service Policies Permitting Overrides" on page 8-16.

How to Set Up WebLogic Server
You need to configure the Authentication provider, as described in "Configuring an Authentication Provider in WebLogic Server" on page 9-14, and make sure that you provide the X.509 callback information for this provider.

Authorization Policies and Configuration Steps
Frequently, authentication is the first step of determining whether a user should be given access to a Web service. After the user is authenticated, the second step is to verify that the user is authorized to access the Web service. This is accomplished using an authorization policy. You can create an authorization policy using the binding_authorization_template or the component_authorization_template assertion templates.

Policies created with these templates perform role- or permission-based access control (RBAC) and check that the authenticated user has been granted one of the roles or permissions allowed access to the Web service.

Predefined Policies summarizes the security policies that enforce authorization, and indicates whether the policy is enforced at the transport layer or SOAP header.

---

**Note:** The authorization polices can follow any authentication policy where the subject is established.

You cannot attach both a permitall and denyall policy to the same Web service.
Determining Which Resources to Protect

The authorization policies provide the following properties that you can use to specify which resources you want the policy to protect. Not all of the predefined policies feature all of the properties.

- Constraint Pattern -- Reserved for future use.
- Action Pattern -- The Web service operation for which permission-based checks are performed. This value can be a comma-separated list of values. This field accepts wildcards. * means all Web service operations.

  The valid values for Action Pattern are determined by the Web service methods. For example, if the Web service method is `validate(amountAvailable)`, enter the Action Pattern as `validate`.

- Resource Pattern -- The name of the resource for which permission-based checks are performed. This field accepts wildcards, and the default is * for all resources in the Web services protected by the policy.

  By convention you enter the Resource Pattern as (namespace of Web service + Web service name).

  For example, if the namespace of the Web service is `http://project11` and the Web service name is `CreditValidation`, you would enter the Resource Name as `http://project11/CreditValidation`.

  If you specify a specific Resource Pattern, the policy is enforced only for those Web services that match the criteria. That is, entering a specific Resource Pattern limits the scope of the authorization policy. This condition also applies if you have bulk-attached this authorization policy to multiple subjects. The default of * protects all resources (namespace of Web service + Web service name) of the bulk-attached Web services.

- Permission Check Class -- By default, it is `oracle.wsm.security.WSFunctionPermission`. The class must be in the classpath.

- Authorization Setting -- Possible values are Permit All, Deny All, and Selected Roles. If you choose Selected Roles, you must then select from the enterprise (Global) roles defined in WebLogic Server, which may include the following:
  - AdminChannelUser
  - Anonymous
  - AppTester
  - CrossDomainConnector
  - Deployer
  - Monitor
  - Operator
  - OracleSystemRole

How Authorization Permissions Are Determined

Conceptually, determining whether an authenticated subject is authorized to access a particular resource protected by a Web service policy has two parts that work in tandem.

- The Resource Pattern and Action Pattern parameters on the Policy Settings page for the policy determine what resources are being protected by the policy, as
Authorization Policies and Configuration Steps

shown in Figure 10–2. (You can also override these properties, as described in "Configuring Server-Side Override Properties for Authorization Policies" on page 8-18.)

You have the option to change the Permission Check Class configuration property for the policy, which identifies the permission class as per JAAS standards. The permission class must be available in the application or server classpath.

The custom permission class must extend the abstract Permission class and implement the Serializable interface. See the Javadoc at http://java.sun.com/j2se/1.5.0/docs/api/java/security/Permission.html. The default is oracle.wsm.security.WSFunctionPermission.

Figure 10–2 The Permission Settings for a Policy

<table>
<thead>
<tr>
<th>Settings</th>
<th>Configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permission</td>
<td></td>
</tr>
<tr>
<td>Constraint Pattern</td>
<td></td>
</tr>
<tr>
<td>Action Pattern</td>
<td>validate</td>
</tr>
<tr>
<td>Resource Pattern</td>
<td><a href="http://project11/CreditValidation">http://project11/CreditValidation</a></td>
</tr>
<tr>
<td>Permission Check Class</td>
<td>oracle.wsm.security.WSFunctionPermission</td>
</tr>
</tbody>
</table>

The OPSS Application Policies page specifies whether the authenticated subject has invoke access to the Resource Name listed there, as shown in Figure 10–3.

Figure 10–3 Adding a Permission on the OPSS Create Application Grant Page

<table>
<thead>
<tr>
<th>Customise resource or actions for selected permission.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Permission Class</td>
<td>oracle.wsm.security.WSFunctionPermission</td>
</tr>
<tr>
<td>Resource Name</td>
<td><a href="http://project11/CreditValidation#validate">http://project11/CreditValidation#validate</a></td>
</tr>
<tr>
<td>Permission Actions</td>
<td>invoke</td>
</tr>
</tbody>
</table>

OPSS uses the Policy Settings page for the Web service to determine which resources require an authorization check. Then, access to the resource is allowed if the authenticated subject has been granted WSFunctionPermission (or other permission) for that resource via OPSS.

**Note:** If you changed the Permission Check Class configuration property for the policy to a custom class, use the custom class here as well.

Consider further the example shown in Figure 10–2 and Figure 10–3.

On the Policy Settings page, assume that you specify the following to protect the validate method of the http://project11/CreditValidation Web service:

- **Action pattern:** validate
- **Resource pattern:** http://project11/CreditValidation
- **Permission Check Class:** oracle.wsm.security.WSFunctionPermission

Then, on the OPSS Application Policies page, you would use http://project11/CreditValidation#validate for the Resource Name to specify that the authenticated subject has permission to invoke this resource.
Permission Class: oracle.wsm.security.WSFunctionPermission
Resource Name: http://project11/CreditValidation#validate
Permissions Action: invoke

You can grant the WSFunctionPermission permission to a user, a group, or an application role. If you grant WSFunctionPermission to a user or group it will apply to all applications that are deployed in the domain.

**OPSS Resource Name Can Include Operation Name**

In previous releases of Fusion Middleware Control, the Resource Name on the OPSS Application Policies page was determined by name-space-of-webservice/ServiceName. For example, if the name space of a Web service was http://project1/ and the service name was CreditValidation, the Resource Name would have been http://project1/CreditValidation. You could also use an asterisk (*) wildcard for providing permission to all the actions or all resources.

In this release, the resource target of the WSFunctionPermission is enhanced to include the actual Web service operation name. The syntax for the Resource Name is now name-space-of-webservice/servicename#[operation name]. (For a component it is compositename/componentname#[operation name].)

You must now include at least the name-space-of-webservice/service name. That is, you can no longer use an asterisk (*) wildcard for providing permission to all the actions or all resources.

Instead, to specify all operations for a Web service, simply leave the operation name blank. For example, name-space-of-webservice/servicename#

*Permission Action is always invoke.*

**oracle/binding_authorization_denial_policy**

This policy provides a simple role-based authorization policy based on the authenticated subject.

This policy denies all users with any role.

This policy should follow an authentication policy where the subject is established and can be attached to any SOAP-based endpoint.

You must have already configured a WebLogic Authentication provider, as described in "Configure Authentication Providers" in the Oracle WebLogic Server Administration Console Help.

This policy contains the following policy assertion: oracle/binding_authorization_template

See "oracle/binding_authorization_template" on page C-50 for more information about the assertion.

**Settings You Can Change**

See Table C–55.

To add roles:

1. Click Add.
2. To add roles, click the checkbox next to each role you want to add in the Roles Available column and click Move. To add all roles, click Move All.
To remove roles, click the checkbox next to each role you want to remove in the Roles Selected to Add column, and click Remove. To remove all roles, click Remove All.

To search for roles, enter a search string in the Role Name search box and click the go arrow. The Roles Available column is updated to include only those roles that match the search string.

3. Click OK.

To delete roles:

1. Select the role that you want to delete in the Selected Roles list.
2. Click Delete.

Properties You Can Configure
None defined.

How to Set Up Oracle Platform Security Services (OPSS)
If you specify one or more of the WebLogic Server enterprise roles, the authenticated subject must already have that role. You use the WebLogic Server Administration Console to grant a role to a user or group, as described in the Oracle WebLogic Server Administration Console Help.

You must configure a WebLogic Authentication provider, as described in "Configure Authentication Providers" in the Oracle WebLogic Server Administration Console Help.

oracle/binding_authorization_permitall_policy
This policy provides a simple role-based authorization policy based on the authenticated subject.

This policy permits all users with any roles.

This policy should follow an authentication policy where the subject is established and can be attached to any SOAP-based endpoint.

You must have already configured a WebLogic Authentication provider, as described in "Configure Authentication Providers" in the Oracle WebLogic Server Administration Console Help.

This policy contains the following policy assertion: oracle/binding_authorization_template. See "oracle/binding_authorization_template" on page C-50 for more information about the assertion.

Settings You Can Change
See Table C–55.

To add roles:

1. Click Add.

2. To add roles, click the checkbox next to each role you want to add in the Roles Available column and click Move. To add all roles, click Move All.

To remove roles, click the checkbox next to each role you want to remove in the Roles Selected to Add column, and click Remove. To remove all roles, click Remove All.
To search for roles, enter a search string in the Role Name search box and click the go arrow. The Roles Available column is updated to include only those roles that match the search string.

3. Click OK.

To delete roles:

1. Select the role that you want to delete in the Selected Roles list.
2. Click Delete.

Properties You Can Configure
None defined.

How to Set Up Oracle Platform Security Services (OPSS)
If you specify one or more of the WebLogic Server enterprise roles, the authenticated subject must already have that role. You use the WebLogic Server Administration Console to grant a role to a user or group, as described in the Oracle WebLogic Server Administration Console Help.

You must configure a WebLogic Authentication provider, as described in "Configure Authentication providers" in the Oracle WebLogic Server Administration Console Help.

oracle/binding_permission_authorization_policy
This policy provides a permission-based authorization policy based on the authenticated subject.

This policy ensures that the subject has permission to perform the operation. To do this, the Authorization Policy executor leverages OPSS to check if the authenticated subject has been granted oracle.wsm.security.WSFunctionPermission (or whatever permission class is specified in Permission Check Class) using the Resource Pattern and Action Pattern as parameters.

This policy should follow an authentication policy where the subject is established and can be attached to any SOAP-based endpoint.

This policy contains the following policy assertion: oracle/binding_permission_authorization_template. See "oracle/binding_permission_authorization_template" on page C-51 for more information about the assertion.

Settings You Can Change
See Table C–56.

Attributes You Can Configure
You have the option to change the permission_class configuration property for the policy, which identifies the permission class as per JAAS standards. The permission class must be available in the application or server classpath.

The custom permission class must extend the abstract Permission class and implement the Serializable interface. See the Javadoc at http://java.sun.com/j2se/1.5.0/docs/api/java/security/Permission.html.

The default is oracle.wsm.security.WSFunctionPermission.
How to Set Up Oracle Platform Security Services (OPSS)
Use Fusion Middleware Control to grant the WSFunctionPermission (or other) permission to the user, group, or application that will attempt to authenticate to the Web service.

You have the option to change the permission_class configuration property for the policy, which identifies the permission class as per JAAS standards. The class must be available in the server classpath. The default is oracle.wsm.security.WSFunctionPermission.

You must configure a WebLogic Authentication provider, as described in "Configure Authentication Providers" in the Oracle WebLogic Server Administration Console Help.

oracle/component_authorization_denyall_policy
This policy provides a simple role-based authorization policy based on the authenticated subject.

This policy denies all users with any roles.

You must have already configured a WebLogic Authentication provider, as described in "Configure Authentication providers" in the Oracle WebLogic Server Administration Console Help.

This policy should follow an authentication policy where the subject is established and can be attached to any SCA-based endpoint.

This policy contains the following policy assertion: oracle/component_authorization_template. See "oracle/component_authorization_template" on page C-52 for more information about the assertion.

Settings You Can Change
See Table C–57.

To add roles:
1. Click Add.
2. To add roles, click the checkbox next to each role you want to add in the Roles Available column and click Move. To add all roles, click Move All.

To remove roles, click the checkbox next to each role you want to remove in the Roles Selected to Add column, and click Remove. To remove all roles, click Remove All.

To search for roles, enter a search string in the Role Name search box and click the go arrow. The Roles Available column is updated to include only those roles that match the search string.

3. Click OK.

To delete roles:
1. Select the role that you want to delete in the Selected Roles list.
2. Click Delete.

Properties You Can Configure
None defined.
How to Set Up Oracle Platform Security Services (OPSS)

If you specify one or more of the WebLogic Server enterprise roles, the authenticated subject must already have that role. You use the WebLogic Server Administration Console to grant a role to a user or group, as described in the Oracle WebLogic Server Administration Console Help.

You must configure a WebLogic Authentication provider, as described in “Configure Authentication providers” in the Oracle WebLogic Server Administration Console Help.

**oracle/component_authorization_permitall_policy**

This policy provides a simple role-based authorization policy based on the authenticated subject.

This policy permits all users with any roles.

You must have already configured a WebLogic Authentication provider, as described in “Configure Authentication providers” in the Oracle WebLogic Server Administration Console Help.

It should follow an authentication policy where the subject is established and can be attached to any SCA-based endpoint.

This policy contains the following policy assertion: oracle/component_authorization_template. See ”oracle/component_authorization_template” on page C-52 for more information about the assertion.

**Settings You Can Change**

See Table C–57.

To add roles:

1. Click Add.
2. To add roles, click the checkbox next to each role you want to add in the Roles Available column and click Move. To add all roles, click Move All.
   - To remove roles, click the checkbox next to each role you want to remove in the Roles Selected to Add column, and click Remove. To remove all roles, click Remove All.
   - To search for roles, enter a search string in the Role Name search box and click the go arrow. The Roles Available column is updated to include only those roles that match the search string.
3. Click OK.

To delete roles:

1. Select the role that you want to delete in the Selected Roles list.
2. Click Delete.

**Properties You Can Configure**

None defined.

**How to Set Up Oracle Platform Security Services (OPSS)**

If you specify one or more of the WebLogic Server enterprise roles, the authenticated subject must already have that role. You use the WebLogic Server Administration
Console to grant a role to a user or group, as described in the Oracle WebLogic Server Administration Console Help.

You must configure a WebLogic Authentication provider, as described in "Configure Authentication providers" in the Oracle WebLogic Server Administration Console Help.

**oracle/component_permission_authorization_policy**

This policy provides a permission-based authorization policy based on the authenticated subject.

This policy ensures that the subject has permission to perform the operation. To do this, the Authorization Policy executor leverages OPSS to check if the authenticated subject has been granted oracle.wsm.security.WSFunctionPermission (or whatever permission class is specified in Permission Check Class) using the Resource Pattern and Action Pattern as parameters. Resource Pattern and Action Pattern are used to identify if the authorization assertion is to be enforced for this particular request. Access is allowed if the authenticated subject has been granted WSFunctionPermission.

You can grant the WSFunctionPermission permission to a user, a group, or an application role. If you grant WSFunctionPermission to a user or group it will apply to all applications that are deployed in the domain.

This policy should follow an authentication policy where the subject is established and can be attached to any SCA-based endpoint.

This policy contains the following policy assertion: oracle/component_permission_authorization_template. See "oracle/component_permission_authorization_template" on page C-53 for more information about the assertion.

**Settings You Can Change**

See Table C–58.

**Properties You Can Configure**

None defined.

**How to Set Up Oracle Platform Security Services (OPSS)**

Use Fusion Middleware Control to grant the WSFunctionPermission permission to the user, group, or application that will attempt to authenticate to the Web service.

You must configure a WebLogic Authentication provider, as described in "Configure Authentication providers" in the Oracle WebLogic Server Administration Console Help.

**WS-Addressing Policies and Configuration Steps**

The Web Services Addressing (WS-Addressing) specification (http://www.w3.org/TR/ws-addr-core/) provides transport-neutral mechanisms to address Web services and messages. In particular, the specification defines a number of XML elements used to identify Web service endpoints and to secure end-to-end endpoint identification in messages.

This section describes the predefined WS-Addressing policies.

**oracle/wsaddr_policy**

This policy causes the platform to check inbound messages for the presence of WS-Addressing headers conforming to the W3C 2005 Final WS-Addressing Policy
standard. In addition, it causes the platform to include a WS-Addressing header in outbound SOAP messages.

**How to Set Up the Web Service Client**

No configuration is needed.

**How to Set Up the Web Service Client at Design Time**

Configure WS-Addressing for the Web service client as described in the *Web Services Addressing 1.0 - SOAP Binding* specification ([http://www.w3.org/TR/ws-addr-soap/](http://www.w3.org/TR/ws-addr-soap/)).

**How to Set Up Oracle Platform Security Services (OPSS)**

No configuration is needed.

### MTOM Attachment Policies and Configuration Steps

This section describes the predefined MTOM policies.

**oracle/wsmtom_policy**


The Message Transmission Optimization Mechanism (MTOM) policy rejects inbound messages that are not in MTOM format and verifies that outbound messages are in MTOM format.

MTOM refers to specifications [http://www.w3.org/TR/2005/REC-soap12-mtom-20050125](http://www.w3.org/TR/2005/REC-soap12-mtom-20050125) and [http://www.w3.org/Submission/2006/SUBM-soap11mtom10-20060405](http://www.w3.org/Submission/2006/SUBM-soap11mtom10-20060405) for SOAP 1.2 and SOAP 1.1 bindings, respectively.

**How to Set Up the Web Service Client**

No configuration is required.

**How to Set Up the Web Service Client at Design Time**

To enable MTOM on the client of the Web service, pass the `javax.xml.ws.soap.MTOMFeature` as a parameter when creating the Web service proxy or dispatch, as illustrated in the following example.

```java
package examples.webservices.mtom.client;
import javax.xml.ws.soap.MTOMFeature;
public class Main {
    public static void main(String[] args) {
        String FOO = "FOO";
        MtomService service = new MtomService();
        MtomPortType port = service.getMtomPortTypePort(new MTOMFeature());
        String result = null;
        result = port.echoBinaryAsString(FOO.getBytes());
        System.out.println( "Got result: " + result );
    }
}
```
How to Set Up Oracle Platform Security Services (OPSS)
No configuration is required.

Reliable Messaging Policies and Configuration Steps

WS-ReliableMessaging makes message exchanges reliable. It ensures that messages are delivered reliably between distributed applications regardless of software component, system, or network failures. Ordered delivery is assured and automatic retransmission of failed messages does not have to be coded by each client application.

Consider using reliable messaging if your Web service is experiencing the following problems:

- network failures or dropped connections
- messages are lost in transit
- messages are arriving at their destination out of order

WS-ReliableMessaging considers the source and destination of a message to be independent of the client/server model. That is, the client and the server can each act simultaneously as both a message source and destination on the communications path.

This section describes the predefined Reliable Messaging policies.

WS-RM Policy Properties

Table 10–1 lists the properties that you can set for the WS-RM policies.

<table>
<thead>
<tr>
<th>Property Name</th>
<th>Description</th>
<th>Default Value Used by Policy</th>
<th>Possible Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>DeliveryAssurance</td>
<td>Delivery assurance. The following defines the delivery assurance types:</td>
<td>InOrder</td>
<td>InOrder</td>
</tr>
<tr>
<td></td>
<td>- At Most Once—Messages are delivered at most once, without duplication.</td>
<td></td>
<td>AtLeastOnce</td>
</tr>
<tr>
<td></td>
<td>- At Least Once—Every message is delivered at least once. It is possible that some messages are delivered more than once.</td>
<td></td>
<td>ExactlyOnce</td>
</tr>
<tr>
<td></td>
<td>- Exactly Once—Every message is delivered exactly once, without duplication.</td>
<td></td>
<td>ExactlyOnceInOrder</td>
</tr>
<tr>
<td></td>
<td>- Messages are delivered in the order that they were sent. This delivery assurance can be combined with one of the preceding three assurances.</td>
<td></td>
<td>AtMostOnce</td>
</tr>
<tr>
<td>StoreType</td>
<td>Type of message store.</td>
<td>InMemory</td>
<td>InMemory</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>FileSystem (not fully supported)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>JDBC</td>
</tr>
<tr>
<td>StoreName</td>
<td>Name of the message store.</td>
<td>oracle</td>
<td>String value</td>
</tr>
</tbody>
</table>
Configuring Policies

oracle/wsrm10_policy

This policy provides support for version 1.0 of the Web Services Reliable Messaging protocol. This policy can be attached to any SOAP-based client or endpoint.

How to Set Up the Web Service Client

The Web service client will automatically detect the WSDL policy assertions at runtime and use them to enable the advertised version of WS-RM on the client.

How to Set Up the Web Service Client at Design Time

For multi-message sequences, the client code must include explicit invocations of methods for delimiting sequence boundaries. Otherwise, every message is wrapped in its own sequence.

Edit the client to enable a reliable messaging session for the messages sent to the service. The oracle.webservices.rm.client.RMSessionLifecycle interface provides the client with a mechanism for demarcating WS-RM sequence boundaries.

Example 10–4 illustrates sample WS-RM client code. In the code, a new TestService is created. The TestPort, through which the client will communicate with the service, is retrieved. The port object is cast to a RMSessionLifecycle object and a reliable messaging session is opened on it (openSession). After the messages are sent to the service, the session is closed (closeSession).

Example 10–4 Sample WS-Rm Client Code

```java
public class ClientServlet extends HttpServlet {

    public void doGet(HttpServletRequest request,
                        HttpServletResponse response)
                        throws ServletException, IOException {

        int num1 = Integer.parseInt(request.getParameter("num1"));
        int num2 = Integer.parseInt(request.getParameter("num2"));
        String outputStr = null;
```
Management Policies and Configuration Steps

TestService service = new TestService();
Test port = service.getTestPort();

try {
    ((RMSessionLifecycle) port).openSession();
    outputStr = port.hello(inputStr);
} catch (Exception e) {
    e.printStackTrace();
    outputStr = e.getMessage();
} finally {
    ((RMSessionLifecycle) port).closeSession();
    response.getOutputStream().write(outputStr.getBytes());
}

How to Set Up Oracle Platform Security Services (OPSS)
No additional configuration is required.

oracle/wsrm11_policy
This policy provides support for version 1.1 of the Web Services Reliable Messaging protocol. This policy can be attached to any SOAP-based client or endpoint.

How to Set Up the Web Service Client
The Web service client will automatically detect the WSDL policy assertions at runtime and use them to enable the advertised version of WS-RM on the client.

How to Set Up the Web Service Client at Design Time
For multi-message sequences, the client code must include explicit invocations of methods for delimiting sequence boundaries. Otherwise, every message is wrapped in its own sequence

Edit the client to enable a reliable messaging session for the messages sent to the service. The oracle.webservices.rm.client.RMSessionLifecycle interface provides the client with a mechanism for demarcating WS-RM sequence boundaries.

Example 10–4 illustrates a servlet client. In the code, a new TestService is created. The TestPort, through which the client will communicate with the service, is retrieved. The port object is cast to a RMSessionLifecycle object and a reliable messaging session is opened on it (openSession). After the messages are sent to the service, the session is closed (closeSession).

How to Set Up Oracle Platform Security Services (OPSS)
No additional configuration is required.

Management Policies and Configuration Steps
This section describes the predefined Management policies.

oracle/log_policy
This policy causes the request, response, and fault messages to be sent to a message log.
This policy contains the following policy assertion: oracle/log_template. See "oracle/security_log_template” on page C-54 for more information about the assertion.

**Settings You Can Change**

See Table C–60.

**Properties You Can Configure**

None defined.

**How to Set Up the Web Service or Client**

Determine whether you want to log messages for the request and response, based on the following categories:

- all
- header
- SOAP body
- SOAP envelope

**How to Set Up Oracle Platform Security Services (OPSS)**

Messages are logged to the message log for the domain.

To view the message log

1. In the navigator pane, expand WebLogic Domain to show the domain for which you want to see the logged messages. Select the domain.
2. Using Fusion Middleware Control, click WebLogic Domain, then Logs and then View Log Messages.

**Attaching Policy Files to Web Services and Clients**

There are two ways to attach policies to Web service clients and Web services: at the client and service design time, and post deployment.

Post-deployment, you attach security and management policies to SOA composites, ADF, and WebCenter applications using the Oracle Enterprise Manager Fusion Middleware Control. This method provides the most power and flexibility because it moves Web service security to the control of the security administrator.

At design time, Oracle JDeveloper automates ADF and SOA client policy attachment. Or, you can attach Oracle WSM security and management policies to applications programmatically. You typically do this using your favorite IDE, such as Oracle JDeveloper.

Either way, the client-side policy must be the equivalent of the one associated with the Web service. If the two files are different, and there is a conflict in the assertions contained in the files, then the invoke of the Web service operation returns an error.

For example, if the oracle/wss_http_token_over_ssl_service_policy policy requires mutual authentication, the client policy must also be set for mutual authentication.

For the predefined policies, both client and Web service policies are included. If you create a new policy, generating the policy as described in "Creating Web Service Policies” on page 7-4 increases the likelihood that the client policy will work with the service policy.
Using Client Programmatic Configuration Overrides

"Attaching Client Policies Permitting Overrides" on page 8-14 describes the policy configuration override feature that allows you to specify certain Web service client configuration information when you attach a policy. However, you can also override this configuration information programmatically at design time. This section describes client programmatic overrides.

Table 10–2 shows the properties you can set via programmatic configuration overrides for a given policy. Example 10–5 shows an example of setting these properties from a program.

<table>
<thead>
<tr>
<th>Property List</th>
<th>Description</th>
<th>Applies to These Policies</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>oracle.wsm.security.util.SecurityConstants.ClientConstants.WSS_CSF_KEY</code></td>
<td>Gets the username and password corresponding to the csf-key specified in the credential store if the credential store is available to the client. Instead of using this property, you can also explicitly set the username and password as shown in Example 10–5</td>
<td>oracle/wss10_username_token_with_message_protection_client_policy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>oracle/wss10_username_token_with_message_protection_ski_basic256_client_policy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>oracle/wss11_username_token_with_message_protection_client_policy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>oracle/wss_username_token_client_policy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>oracle/wss_username_token_over_ssl_client_policy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>oracle/wss_username_token_with_digestpassword_client_policy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>oracle/wss10_username_id_propagation_with_msg_protection_client_policy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>oracle/wss_http_token_client_policy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>oracle/wss_http_token_over_ssl_client_policy</td>
</tr>
</tbody>
</table>
**Table 10–2 (Cont.) Properties Set Via Programmatic Configuration Overrides**

<table>
<thead>
<tr>
<th>Property List</th>
<th>Description</th>
<th>Applies to These Policies</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>oracle.wsm.security.util.SecurityConstants.ClientConstants.WSS_KEYSTORE_LOCATION</code></td>
<td>This property sets the location of the keystore file. If provided, this value will override any statically configured value. Type: java.lang.String</td>
<td><code>oracle/wss10_message_protection_client_policy</code>&lt;br&gt;<code>oracle/wss10_saml_hok_token_with_message_protection_client_policy</code>&lt;br&gt;<code>oracle/wss10_saml_token_with_message_integrity_client_policy</code>&lt;br&gt;<code>oracle/wss10_saml_token_with_message_protection_client_policy</code>&lt;br&gt;<code>oracle/wss10_saml_token_with_message_protection_ski_basic256_client_policy</code>&lt;br&gt;<code>oracle/wss10_username_token_with_message_protection_client_policy</code>&lt;br&gt;<code>oracle/wss10_username_token_with_message_protection_ski_basic256_client_policy</code>&lt;br&gt;<code>oracle/wss10_x509_token_with_message_protection_client_policy</code>&lt;br&gt;<code>oracle/wss11_kerberos_token_with_message_protection_client_policy</code>&lt;br&gt;<code>oracle/wss11_message_protection_client_policy</code>&lt;br&gt;<code>oracle/wss11_saml_token_with_message_protection_client_policy</code>&lt;br&gt;<code>oracle/wss11_username_token_with_message_protection_client_policy</code>&lt;br&gt;<code>oracle/wss11_x509_token_with_message_protection_client_policy</code></td>
</tr>
</tbody>
</table>
### Using Client Programmatic Configuration Overrides

#### Table 10–2  (Cont.) Properties Set Via Programmatic Configuration Overrides

<table>
<thead>
<tr>
<th>Property List</th>
<th>Description</th>
<th>Applies to These Policies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Property List</td>
<td>Description</td>
<td>Applies to These Policies</td>
</tr>
<tr>
<td>---------------</td>
<td>-------------</td>
<td>--------------------------</td>
</tr>
</tbody>
</table>
| `oracle.wsm.security.util.SecurityConstants.ClientConstants.WSS_KEYSTORE_PASSWORD` | This property sets the password of the keystore file. If provided, this value will override any statically configured value. Type: java.lang.String | oracle/wss10_message_protection_client_policy  
oracle/wss10_saml_hok_token_with_message_protection_client_policy  
oracle/wss10_saml_token_with_message_integrity_client_policy  
oracle/wss10_saml_token_with_message_protection_client_policy  
oracle/wss10_saml_token_with_message_protection_ski_basic256_client_policy  
oracle/wss10_username_token_with_message_protection_client_policy  
oracle/wss10_username_token_with_message_protection_ski_basic256_client_policy  
oracle/wss10_x509_token_with_message_protection_client_policy  
oracle/wss11_kerberos_token_with_message_protection_client_policy  
oracle/wss11_message_protection_client_policy  
oracle/wss11_saml_token_with_message_protection_client_policy  
oracle/wss11_username_token_with_message_protection_client_policy  
oracle/wss11_x509_token_with_message_protection_client_policy |
Using Client Programmatic Configuration Overrides

<table>
<thead>
<tr>
<th>Property List</th>
<th>Description</th>
<th>Applies to These Policies</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>oracle.wsm.security.util.SecurityConstants.ClientConstants.WSS_SIG_KEY_ALIAS</code></td>
<td>This property sets the alias of the key within the keystore that will be used for digital signatures. If provided, this value will override any statically configured value. Type: java.lang.String. For WSS11 policies, this property is used only in the case of mutual authentication.</td>
<td><code>oracle/wss10_message_protection_client_policy</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td><code>oracle/wss10_saml_hok_token_with_message_protection_client_policy</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td><code>oracle/wss10_saml_token_with_message_integrity_client_policy</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td><code>oracle/wss10_saml_token_with_message_protection_client_policy</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td><code>oracle/wss10_saml_token_with_message_protection_ski_basic256_client_policy</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td><code>oracle/wss10_username_token_with_message_protection_client_policy</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td><code>oracle/wss10_username_token_with_message_protection_ski_basic256_client_policy</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td><code>oracle/wss10_x509_token_with_message_protection_client_policy</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td><code>oracle/wss11_kerberos_token_with_message_protection_client_policy</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td><code>oracle/wss11_message_protection_client_policy</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td><code>oracle/wss11_saml_token_with_message_protection_client_policy</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td><code>oracle/wss11_username_token_with_message_protection_client_policy</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td><code>oracle/wss11_x509_token_with_message_protection_client_policy</code></td>
</tr>
</tbody>
</table>

Table 10–2 (Cont.) Properties Set Via Programmatic Configuration Overrides
<table>
<thead>
<tr>
<th>Property List</th>
<th>Description</th>
<th>Applies to These Policies</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>oracle.wsm.security.util.SecurityConstants.ClientConstants.WSS_SIG_KEY_PASSWORD</code></td>
<td>This property sets the password for the alias of the key within the keystore that will be used for digital signatures. If provided, this value will override any statically configured value. Type: java.lang.String. For WSS11 policies, this property is used only in the case of mutual authentication.</td>
<td><code>oracle/wss10_message_protection_client_policy</code>&lt;br&gt;<code>oracle/wss10_saml_hok_token_with_message_protection_client_policy</code>&lt;br&gt;<code>oracle/wss10_saml_token_with_message_integrity_client_policy</code>&lt;br&gt;<code>oracle/wss10_saml_token_with_message_protection_client_policy</code>&lt;br&gt;<code>oracle/wss10_saml_token_with_message_protection_ski_basic256_client_policy</code>&lt;br&gt;<code>oracle/wss10_username_token_with_message_protection_client_policy</code>&lt;br&gt;<code>oracle/wss10_username_token_with_message_protection_ski_basic256_client_policy</code>&lt;br&gt;<code>oracle/wss10_x509_token_with_message_protection_client_policy</code>&lt;br&gt;<code>oracle/wss11_kerberos_token_with_message_protection_client_policy</code>&lt;br&gt;<code>oracle/wss11_message_protection_client_policy</code>&lt;br&gt;<code>oracle/wss11_saml_token_with_message_protection_client_policy</code>&lt;br&gt;<code>oracle/wss11_username_token_with_message_protection_client_policy</code>&lt;br&gt;<code>oracle/wss11_x509_token_with_message_protection_client_policy</code></td>
</tr>
<tr>
<td><code>oracle.wsm.security.util.SecurityConstants.ClientConstants.WSS_ENC_KEY_ALIAS</code></td>
<td>This property sets the alias of the key within the keystore that will be used to decrypt the response from the service. If provided, this value will override any statically configured value. Type: java.lang.String. Not used in WSS11 policies.</td>
<td><code>oracle/wss10_message_protection_client_policy</code>&lt;br&gt;<code>oracle/wss10_saml_hok_token_with_message_protection_client_policy</code>&lt;br&gt;<code>oracle/wss10_saml_token_with_message_integrity_client_policy</code>&lt;br&gt;<code>oracle/wss10_saml_token_with_message_protection_client_policy</code>&lt;br&gt;<code>oracle/wss10_saml_token_with_message_protection_ski_basic256_client_policy</code>&lt;br&gt;<code>oracle/wss10_username_token_with_message_protection_client_policy</code>&lt;br&gt;<code>oracle/wss10_username_token_with_message_protection_ski_basic256_client_policy</code>&lt;br&gt;<code>oracle/wss10_x509_token_with_message_protection_client_policy</code></td>
</tr>
</tbody>
</table>
### Table 10–2  (Cont.) Properties Set Via Programmatic Configuration Overrides

<table>
<thead>
<tr>
<th>Property List</th>
<th>Description</th>
<th>Applies to These Policies</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>oracle.wsm.security.util.SecurityConstants.ClientConstants.WSS_ENC_KEY_PASSWORD</code></td>
<td>This property sets the password for the key within the keystore that will be used for decryption. If provided, this value will override any statically configured value. Type: java.lang.String Not used in WSS11 policies.</td>
<td><code>oracle/wss10_message_protection_client_policy</code> <code>oracle/wss10_saml_hok_token_with_message_protection_client_policy</code> <code>oracle/wss10_saml_token_with_message_integrity_client_policy</code> <code>oracle/wss10_saml_token_with_message_protection_client_policy</code> <code>oracle/wss10_saml_token_with_message_protection_ski_basic256_client_policy</code> <code>oracle/wss10_username_token_with_message_protection_client_policy</code> <code>oracle/wss10_username_token_with_message_protection_ski_basic256_client_policy</code> <code>oracle/wss10_x509_token_with_message_protection_client_policy</code></td>
</tr>
<tr>
<td><code>oracle.wsm.security.util.SecurityConstants.ClientConstants.WSS_RECIPIENT_KEY_ALIAS</code></td>
<td>This property sets the alias for the recipient’s public key that is used to encrypt type outbound message. If provided this value will override any static configuration value. Type: java.lang.String</td>
<td><code>oracle/wss10_message_protection_client_policy</code> <code>oracle/wss10_saml_hok_token_with_message_protection_client_policy</code> <code>oracle/wss10_saml_token_with_message_integrity_client_policy</code> <code>oracle/wss10_saml_token_with_message_protection_client_policy</code> <code>oracle/wss10_saml_token_with_message_protection_ski_basic256_client_policy</code> <code>oracle/wss10_username_token_with_message_protection_client_policy</code> <code>oracle/wss10_username_token_with_message_protection_ski_basic256_client_policy</code> <code>oracle/wss10_x509_token_with_message_protection_client_policy</code></td>
</tr>
</tbody>
</table>
Using Client Programmatic Configuration Overrides

Table 10–2 (Cont.) Properties Set Via Programmatic Configuration Overrides

<table>
<thead>
<tr>
<th>Property List</th>
<th>Description</th>
<th>Applies to These Policies</th>
</tr>
</thead>
<tbody>
<tr>
<td>oracle.wsm.security.util.SecurityConstants.ClientConstants.WSM_SUBJECT_PRECEDENCE</td>
<td>In case of SAML client policies, set this property to false if there is a need to use a client-specified username rather than subject.</td>
<td>Applies to all of the SAML client policies listed in “Configuring SAML” on page 9-16.</td>
</tr>
<tr>
<td>oracle.wsm.security.util.SecurityConstants.ClientConstants.WSM_SAML_ISSUER_NAME</td>
<td>This property sets the SAML issuer name when trying access a service that is protected using SAML mechanism. If provided this value will override any static configuration value. Type: java.lang.String</td>
<td>Applies to all of the SAML client policies listed in “Configuring SAML” on page 9-16.</td>
</tr>
<tr>
<td>oracle.wsm.security.util.SecurityConstants.ClientConstants.WSM_INCLUDE_USER_ROLES</td>
<td>This property sets the user roles in a SAML assertion.</td>
<td>Applies to all of the SAML client policies listed in “Configuring SAML” on page 9-16.</td>
</tr>
<tr>
<td>oracle.wsm.security.util.SecurityConstants.ClientConstants.WSM_SAML_ASSERTION_FILE_NAME</td>
<td>For SAML HOK policies, this file contains the assertion.</td>
<td>Applies to all of the SAML client policies listed in “Configuring SAML” on page 9-16.</td>
</tr>
<tr>
<td>oracle.wsm.security.util.SecurityConstants.ClientConstants.WSS_KERBEROS_SERVICE_PRINCIPAL</td>
<td>This property sets the service principal name when trying access a service that is protected using the Kerberos mechanism. If provided this value will override any static configuration value. Type: java.lang.String</td>
<td>oracle/wss11_kerberos_token_with_message_protection_client_policy</td>
</tr>
</tbody>
</table>
| BindingProvider.USERNAME_PROPERTY (javax.xml.ws.security.auth.username) | User name for authentication. | Used by username policies, and SAML policies including identity switching policies. For username client policies, you have two options:  
  - csf-key  
  - BindingProvider.USERNAME_PROPERTY and BindingProvider.PASSWORD_PROPERTY.  
  For SAML client policies including the identity switch policy, use BindingProvider.USERNAME_PROPERTY. |
| BindingProvider.PASSWORD_PROPERTY (javax.xml.ws.security.auth.password) | Password for authentication. | Used by username client policies. |
Configuration Override Example

Example 10–5 shows an example of a Web service client overriding the keystore and username/password.

If you need to clear an overridden configuration property, set it to an empty string.

Before you clear it, remember that other policies could be using the same property. The properties are client-specific and there could be multiple policies that are attached to the same client that use the same property.

Example 10–5  Overriding the Keystore and Username/Password

```java
package example;
import oracle.wsm.security.utils.SecurityConstants;
public class MyClientJaxWs {
    public static void main(String[] args) {
        try {
            URL serviceWsdl = new URL("http://localhost/myApp/myPort?WSDL");
            QName serviceName = new QName("MyNamespace", "MyService");
            Service service = Service.create(serviceWsdl, serviceName);
            MyInterface proxy = service.getPort(MyInterface.class);
            RequestContext context = ((BindingProvider)proxy).getRequestContext();
            context.put(oracle.webservices.ClientConstants.CLIENT_CONFIG, new File("c:/dat/client-pdd.xml"));
            context.put(BindingProvider.USERNAME_PROPERTY, getCurrentUsername());
            context.put(BindingProvider.PASSWORD_PROPERTY, getCurrentPassword());
            context.put(SecurityConstants.ClientConstants.WSS_KEYSTORE_LOCATION, "c:/mykeystore.jks");
            context.put(SecurityConstants.ClientConstants.WSS_KEYSTORE_PASSWORD, "keystorepassword");
            context.put(SecurityConstants.ClientConstants.WSS_KEYSTORE_TYPE, "JKS");
            context.put(SecurityConstants.ClientConstants.WSS_SIG_KEY_ALIAS, "your signature alias");
            context.put(SecurityConstants.ClientConstants.WSS_SIG_KEY_PASSWORD, "your signature password");
            context.put(SecurityConstants.ClientConstants.WSS_ENC_KEY_ALIAS, "your encryption alias");
            context.put(SecurityConstants.ClientConstants.WSS_ENC_KEY_PASSWORD, "your encryption password");
            System.out.println(proxy.myOperation("MyInput"));
        } catch (Exception e) {
            e.printStackTrace();
        }
    }
}
```

In Example 10–5, the contents of `c:/dat/client-pdd.xml` referenced might be as follows:

```xml
<webservice-client>
    <port-info>
        <policy-references>
            <policy-reference uri="management/Log_Msg_Policy" category="management"/>
            <policy-reference uri="oracle/wss10_username_token_with_message_protection_client_policy" category="security"/>
        </policy-references>
    </port-info>
</webservice-client>
```
Configuring Local Optimization for a Policy

Oracle WSM supports a SOA local optimization feature for composite-to-composite invocations in which the reference of one composite specifies a Web service binding to a second composite running in the same container. Local optimization enables you to bypass the HTTP stack and SOAP-normalized message conversions during runtime.


Controlling When Local Optimization is Used

There are two ways to control the local optimization feature, and they have different scope:

- By adding the oracle.webservices.local.optimization property in the binding section of the composite.xml file. There are two possible values, true and false:
  - true -- Local optimization is used if the policy supports it as shown in Table 10–3 and the policy-level control is configured to use it as described in "Configuring the Policy-Level Optimization Control" on page 10-69. If optimization is used, the policy is not applied.
  - false -- Local optimization is not used, regardless of how the policy-level control is configured and the default policy setting for the local-optimization property shown in Table 10–3. This setting forces the policy to be applied.

The composite-level property is independent of the policy-level configuration. That is, if you want to turn off the optimization regardless of whether a policy is attached, set the composite-level property to false.

See "Policy Attachments and Local Optimization in Composite-to-Composite Invocations" for information on overriding the local-optimization setting for a policy by adding the oracle.webservices.local.optimization property in the binding section of the composite.xml file.

- By configuring the optimization control for a policy, as described in "Configuring the Policy-Level Optimization Control" on page 10-69. The policy-level property controls the optimization wherever the policy is used, except as overridden by the composite-level property.

Configuring the Policy-Level Optimization Control

Note: If there is a policy attached to the Web service, the policy may not be invoked if this optimization is used. Therefore, for each policy you need to decide whether you want to use the local optimization.

The optimization control is available when you create or edit a policy, as shown in Figure 10–4.
There are three possible settings for the Local Optimization control: On, Off, and Check Identity:

- **On** -- Optimization is turned on and the policy is not applied.
- **Off** -- Optimization is turned off and the policy is applied. The request goes through the usual WS/SOAP/HTTP process.
- **Check Identity** -- Optimize only if a JAAS subject already exists in the current thread, indicating that authentication has already succeeded. Otherwise, go through the usual WS/SOAP/HTTP process.

Table 10–3 shows the predefined policies, and describes how each policy implements the local optimization feature.

### Table 10–3  Default Optimization Setting of Predefined Policies

<table>
<thead>
<tr>
<th>Policy Name</th>
<th>Default Optimization Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>oracle/wsaddr_policy</td>
<td>On</td>
</tr>
<tr>
<td>oracle/binding_authorization_denyall_policy</td>
<td>Always Off</td>
</tr>
<tr>
<td>oracle/binding_authorization_permitall_policy</td>
<td>Always Off</td>
</tr>
<tr>
<td>oracle/binding_permission_authorization_policy</td>
<td>Off</td>
</tr>
<tr>
<td>oracle/component_authorization_denyall_policy</td>
<td>Always Off. (Does not apply to bindings.)</td>
</tr>
<tr>
<td>oracle/component_authorization_permitall_policy</td>
<td>Always Off. (Does not apply to bindings.)</td>
</tr>
<tr>
<td>oracle/component_permission_authorization_policy</td>
<td>Off</td>
</tr>
<tr>
<td>oracle/log_policy</td>
<td>On</td>
</tr>
<tr>
<td>oracle/wsmtom_policy</td>
<td>On</td>
</tr>
</tbody>
</table>
### Table 10–3 (Cont.) Default Optimization Setting of Predefined Policies

<table>
<thead>
<tr>
<th>Policy Name</th>
<th>Default Optimization Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>oracle/wss_http_token_client_policy</td>
<td>Check Identity</td>
</tr>
<tr>
<td>oracle/wss_http_token_service_policy</td>
<td>Check Identity</td>
</tr>
<tr>
<td>oracle/wss_http_token_over_ssl_client_policy</td>
<td>Check Identity</td>
</tr>
<tr>
<td>oracle/wss_http_token_over_ssl_service_policy</td>
<td>Check Identity</td>
</tr>
<tr>
<td>oracle/wss11_kerberos_token_client_policy</td>
<td>Check Identity</td>
</tr>
<tr>
<td>oracle/wss11_kerberos_token_service_policy</td>
<td>Check Identity</td>
</tr>
<tr>
<td>oracle/wss_username_token_client_policy</td>
<td>Check Identity</td>
</tr>
<tr>
<td>oracle/wss_username_token_service_policy</td>
<td>Check Identity</td>
</tr>
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<td>Check Identity</td>
</tr>
<tr>
<td>oracle/wss_username_token_over_ssl_service_policy</td>
<td>Check Identity</td>
</tr>
<tr>
<td>oracle/wss10_message_protection_client_policy</td>
<td>On</td>
</tr>
<tr>
<td>oracle/wss10_message_protection_service_policy</td>
<td>On</td>
</tr>
<tr>
<td>oracle/wss10_username_token_with_message_protection_client_policy</td>
<td>Check Identity</td>
</tr>
<tr>
<td>oracle/wss10_username_token_with_message_protection_service_policy</td>
<td>Check Identity</td>
</tr>
<tr>
<td>oracle/wss10_x509_token_with_message_protection_client_policy</td>
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<td>Check Identity</td>
</tr>
<tr>
<td>oracle/wss10_saml_token_with_message_protection_client_policy</td>
<td>Check Identity</td>
</tr>
<tr>
<td>oracle/wss10_saml_token_with_message_protection_service_policy</td>
<td>Check Identity</td>
</tr>
<tr>
<td>oracle/wss10_saml_token_client_policy</td>
<td>Check Identity</td>
</tr>
<tr>
<td>oracle/wss10_saml_token_service_policy</td>
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<thead>
<tr>
<th>Policy Name</th>
<th>Default Optimization Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>oracle/wss10_username_id_propagation_with_msg_</td>
<td>Check Identity</td>
</tr>
<tr>
<td>protection_client_policy</td>
<td></td>
</tr>
<tr>
<td>oracle/wss10_username_id_propagation_with_msg_</td>
<td>Check Identity</td>
</tr>
<tr>
<td>protection_service_policy</td>
<td></td>
</tr>
<tr>
<td>oracle/wss11_message_protection_client_policy</td>
<td>On</td>
</tr>
<tr>
<td>oracle/wss11_message_protection_service_policy</td>
<td>On</td>
</tr>
<tr>
<td>oracle/wss11_username_token_with_message_</td>
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<tr>
<td>protection_client_policy</td>
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<tr>
<td>oracle/wss11_x509_token_with_message_protection_client_policy</td>
<td>Check Identity</td>
</tr>
<tr>
<td>oracle/wss11_x509_token_with_message_protection_service_policy</td>
<td>Check Identity</td>
</tr>
<tr>
<td>oracle/wsrn10_policy</td>
<td>On</td>
</tr>
<tr>
<td>oracle/wsrn11_policy</td>
<td>On</td>
</tr>
</tbody>
</table>
This chapter includes the following sections:

- Testing Your Web Services
- Editing the Input Arguments as XML Source
- Enabling Authentication
- Enabling Quality of Service Testing
- Enabling HTTP Transport Options
- Stress Testing the Web Service Operation
- Disabling the Test Page for a Web Service

Testing Your Web Services

This section describes how to use the Fusion Middleware Control Test Web Service page to verify that you are receiving the expected results from the Web service.

The Test Web Service page allows you to test any of the operations exposed by a Web service. You can test Web services that are deployed on any accessible host; the Web service does not have to be deployed on this host.

**Note:** The Test Web Service page can parse WSDL URLs that contain ASCII characters only. If the URL contains non-ASCII characters, the parse operation fails. To test a Web service that has non-ASCII characters in the URL, allow your browser to convert the WSDL URL and use the resulting encoded WSDL URL in the Test Web Service page.

When testing Web services that use policies, the Oracle WSM component must be installed in the same domain that Fusion Middleware Control is being run. Otherwise, an invalid policy exception will be returned.

You can navigate to the Test Web Service page in many ways. This section describes one typical way to do so.

**To test your Web service**

1. In the navigator pane, expand **WebLogic Domain** to show the domain in which you want to test a Web service.
2. Select the domain.
3. From the **WebLogic Domain** menu, select **Web Services**, and then **Test Web Service**. The Test Web Service input page appears.

4. Enter the WSDL of the Web service you want to test and click **Parse WSDL**. If you do not know the WSDL, click the search link and select from the registered Web services, if any.

5. The **Test Web Service** page appears, as shown in **Figure 11–1** and **Figure 11–2**.

**Figure 11–1  Top Portion of Test Web Service Page**

The Test Page can be used to test any WSDL, including WSDLs that are not in the farm. To test a Web service, enter the WSDL and click Parse WSDL. When the page refreshes with the WSDL details, first select the Service, then select the Port, and then select the Operation that you want to test. Specify any input parameters, and click Test Web Service.

**Figure 11–2  Bottom Portion of Test Web Service Page**

6. Select the operation to perform during the test from the **Operation** control. The available operations are determined from the WSDL.

   To test a RESTful Web service, select the GET or POST service port operations.

7. If you want to change the Endpoint URL of the test, click **Edit** and make the change.

8. Select the **Request** tab if it is not already selected.
9. In the Security section, select the type of security token to verify. The security setting is not determined from a policy in the WSDL; you can specify the type of token you want to test. The default is None. If you do specify a username and password, they must exist and be valid for the WebLogic Server.

When testing RESTful Web services, because the SOAP protocol is not used, the only security options are HTTP Basic Authentication or None.

10. In the Quality of Service section, specify whether you want to explicitly test a Reliable Messaging, WS-Addressing, or a MTOM policy.

    **Note:** This section is not available when testing RESTful Web services.

In the default setting of Auto, WS-RM, WS-Addressing, and MTOM policies found in the WSDL are taken into consideration.

11. In the HTTP Transport section, the test mechanism uses the WSDL to determine whether a SOAP action is available to test.

    **Note:** This section is not available when testing RESTful Web services.

12. In the Additional Test Options section, set the **Stress Test** control if you want to invoke the Web service multiple times simultaneously. If you set this control, you can provide values for the stress test options or accept the defaults.

13. In the Input Arguments section, the parameters and type are determined from the WSDL, and require you to enter values of the correct type.

    You can view this section in Tree view or XML view.

14. Click **Test Web Service** to initiate the test.

15. If the test is successful, the **Test Status** field indicates *passed*, and the response time is displayed, as shown in Figure 11–3.
Editing the Input Arguments as XML Source

You can view the input arguments in a user-friendly form, or you can edit the XML source code directly. If you edit the XML source code directly, you must enter valid XML. Use the drop-down list in the Input Arguments section of the page to toggle between Tree View and XML View.

Enabling Authentication

You can use the Test Page to test policies that use username tokens to authenticate users.

Note: Only policies that expect a username and password are supported by the test function, including custom policies. Policies that require certificates or other tokens are not supported.
The security setting is not determined from a policy in the WSDL; you can specify the type of token you want to test. The default is None. If you do specify a username and password, they must exist and be valid.

The password must be passed in plain text. Authentication credentials may be supplied in the request by selecting one of the options in the Security section of the page (Figure 11–5). Select one of the following:

- **WSS-Username Token** – A WS-Security SOAP header is inserted. Username is required, and password is optional.
- **Http Basic Auth** – Username and password credentials are inserted in the HTTP transport header. Both the username and password are required.
- **Custom Policy** – A custom policy can be used to authenticate the user. You must specify the URI for the policy. The username and password are optional.
- **None** – No credentials are included.

**Note:** When testing RESTful Web services, because the SOAP protocol is not used, the only security options are HTTP Basic Authentication or None.

---

**Figure 11–5 Security Parameters on the Web Services Test Page**

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**Enabling Quality of Service Testing**

**Note:** This section is not applicable when testing RESTful Web services.

Three characteristics of Quality of Service (QoS) can be tested: reliable messaging (WS-RM), WS-Addressing, and Message Transmission Optimization Mechanism (MTOM) in the Quality of Service section of the Web Services Test Page (Figure 11–6). For each type of Quality of Service, there are three options:

- **Auto** – Execute the default behavior of the WSDL. For example, if **Auto** is selected for MTOM, and the WSDL contains a reference to an MTOM policy, the policy is enforced. If the WSDL does not contain a reference to an MTOM policy, then no MTOM policy is enforced.
- **None** – No policy for the specific QoS, even if it is included in the WSDL, is executed. For example, if **None** is selected for WS-RM, no reliable messaging policy is enforced. If the WSDL contains a reference to a reliable messaging policy, it is ignored.
- **Custom** – Enforce a custom policy. For example, if a WS-Addressing policy is referenced in the WSDL, this policy will be ignored, and the policy specified in URI will be used instead.
- **URI** – Specify the location of the policy to be enforced.
Enabling HTTP Transport Options

The test mechanism uses the WSDL to determine whether a SOAP action is available to test. If the WSDL soap:operation has a soapAction attribute, then this is displayed and SOAP Action is enabled.

When a request is sent with SOAP Action enabled, then the SOAP action HTTP header is sent.

To change this behavior, clear the SOAP Action box, in which case the HTTP header is not sent. Or, you can override the behavior by providing a different value in the SOAP Action text box. (You must already know the SOAP action that you want to test, and the syntax.)

Stress Testing the Web Service Operation

Select the Stress Test Enable check box (Figure 11–8) to display the options to create and configure a continuous series of invocations of the Web service operation (Figure 11–8).

- **Number of Concurrent Threads** – The number of concurrent threads on which the invocations should be sent. The default is 5 threads.
- **Number of Loops per Thread** – The number of times to invoke the operation. The default is 10 times.
- **Delay in Milliseconds** – The number of milliseconds to wait between operation invocations. The default is 1000 milliseconds (1 second).
Disabling the Test Page for a Web Service

When you invoke the test, a progress box indicates the test status. When the test completes, a stress report page is returned. The report page identifies the service end point and operation being tested, the size of the message sent, the number of concurrent threads on which it is run, the number of times it is run on each thread, and the delay between each operation invocation.

Disabling the Test Page for a Web Service

Note: This section does not apply to JEE Web services.

Disabling the Test Page for a Web service allows you to increase security by reducing the externally visible details of an application that exposes Web services.

Note: Disabling the Test Enabled control affects only the Web service’s externally-visible test page. It does not affect the Web service test feature described in this chapter.

To disable the Test Page using Fusion Middleware Control

1. Navigate to the Web Services Summary page, as described in "Navigating to the Web Services Summary Page for an Application" on page 6-3.
2. In the Web Service Details section of the page, click on the plus (+) for the Web service to display the Web service ports if they are not already displayed.
3. Click the name of the port to navigate to the Web Service Endpoint page.
4. Click the Configuration tab.
5. In the Test Enabled field, select False from the list.
6. Click Apply.
Monitoring the Performance of Web Services

This chapter describes how to monitor the performance of a Web service. The chapter includes the following sections:

- Overview of Performance Monitoring
- Viewing Web Service Statistics from the Summary Page
- Viewing Web Service Statistics for a Server Instance
- Viewing Web Service-Specific Statistics
- Viewing Endpoint-Specific Operations Statistics
- Viewing Policy Security Violations for an Endpoint

In addition to the monitoring features described in this chapter, see "Analyzing Policy Usage" on page 7-19 to analyze how policies are used by one or more Web services.

Overview of Performance Monitoring

*Note:* Not all of the monitoring features described in this chapter apply to Java EE Web services.

From the Web Services home page, you can do the following:

- Monitor Web services faults, including Security, Reliable Messaging, MTOM, Management, and Service faults.
- Monitor Security failures, including authentication, authorization, message integrity, and message confidentiality failures.
- Configure your Web services ports, including enabling and disabling the port, attaching policies to Web services, and enabling or disabling policies.

The Application home page also displays select Web service details if the application includes Web services.

When Are Web Service Statistics Started or Reset?

The statistics described in this chapter are started or reset when any one of the following events occur:

- When the application is being deployed for the first time.
- When the application is redeployed.
If the application is already deployed, and the hosting server is restarted.

**Viewing Web Service Statistics from the Summary Page**

The Web Services summary page for an application displays the collective **Summary** and fault/violation information for all Web services in the application, as shown in Figure 12–1.

The **Charts** section shows a graphical view of all security faults for a Web service.

**To navigate to the Web Service Summary page for a Web service**

1. In the navigator pane, expand **Application Deployments** to show the application for which you want to monitor the Web service performance.
   - Select the application.

2. Using Fusion Middleware Control, click **Web Services**.
   - The **Web Services Summary** page for this application is displayed.
   - The page displays Web service endpoints as well as application-level metrics.

The following Web service-wide statistics are displayed:

- Web Services (Number of Web services in the application)
- Web Service Endpoints
- Web Service Endpoints Disabled
- Total Policy Violations
- Total Faults
- Invocations Completed

**Figure 12–1  Web Services Performance Summary and Charts**

<table>
<thead>
<tr>
<th>Summary</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Web Services</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Web Service Endpoints</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Web Service Endpoints Disabled</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Requests and Faults</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Policy Violations</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Total Faults</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Invocations Completed</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

**Viewing Web Service Statistics for a Server Instance**

The server-side Web services page displays statistics for all of the Web services on that server.

**To view the Web service statistics for a server**

1. In the navigator pane, expand **WebLogic Domain** to show the domain for which you want to see the policies. Select the domain.

2. Expand the domain to show the servers in that domain. Select the server for which you want to view the statistics.
3. Using Fusion Middleware Control, click **WebLogic Server**, and then **Web Services**.

4. The Web services statistics page for the server is displayed, as shown in **Figure 12–2**.

   Depending on what types of Web services you have deployed, tabs are available for the available Web service types: Java EE, ADF and Web Center, and SOA.

**Figure 12–2 Web Services for a Server**

Viewing Web Service-Specific Statistics

The **Web Service Details** section of the Web Services Summary page displays statistics on a per-Web service basis, as shown in **Figure 12–3**. The following statistics are displayed:

- Endpoint Enabled
- Invocations Completed
- Response Time, in seconds
- Policy Violations
- Total Faults

**Figure 12–3 Web Service-Specific Statistics**

Viewing Endpoint-Specific Operations Statistics

To display operation statistics for a particular Web service endpoint, in the **Web Services Details** section of the **Web Service Summary** page select the endpoint for which you want to display the statistics.

The **Web Service Endpoint** page is displayed.

The following statistics are presented:

- Policy Reference Status
- Total Violations
- Security Violations
Viewing Policy Security Violations for an Endpoint

To display security violations for a particular Web service endpoint, do the following:

1. In the **Web Services Details** section of the **Web Service Summary** page select the endpoint for which you want to display the statistics.
   
   The **Web Service Endpoint Summary** page is displayed.

2. Click the **Policies** tab.

The following security violations are displayed:

- Total Violations
- Authentication violations
- Authorization violations
- Confidentiality violations
- Integrity
Part III
Advanced Administration

Part III contains the following chapters:

- Chapter 13, "Advanced Administration"
- Chapter 14, "Creating Custom Assertions"
- Chapter 15, "Managing Application Migration Between Environments"
- Chapter 16, "Diagnosing Problems"
- Chapter 17, "Maintaining the MDS Repository"
This chapter includes the following sections:

- Registering Web Services and Sources
- Publishing Web Services to UDDI
- Auditing Web Services
- Managing the WSDL
- Managing Policy Assertion Templates
- Registering a Metadata Services (MDS) Repository
- Adding Security to a Running Client
- Configuring Platform Policy Properties
- Configuring a Web Service on a Remote Policy Manager and Tuning the Policy Cache
- Configuring Web Service Policy Retrieval
- Tuning Web Service Security Policy Enforcement
- Setting Up the Java Object Cache
- Deleting the OracleSystemUser Default User
- Changing the JMS System User for Asynchronous Web Services

Registering Web Services and Sources

A key feature of the Web services model is the ability to make Web services widely available and discoverable. UDDI is one approach to publishing and discovery of Web services that centralizes information about businesses and their services in registries. Another emerging alternative standard is the Web Services Inspection Language (WSIL) specification.

Oracle Enterprise Manager Fusion Middleware Control provides support for registering Web services that are published in WS-Inspection (WSIL) documents and UDDI v3 registries. Any service that is available in a WSIL document or a UDDI v3 registry can be registered within Enterprise Manager.

You can also register meta information, or a profile, for sources of services to help you manage your registered services within Enterprise Manager. Once you register a source and assign it a logical name, you do not need to specify connectivity information, such as a URL for a WSDL, in the future. A domain can have multiple registered sources, and each registered source can have multiple registered services.
Once you register a source, you can easily look up services that you can register to the source.

Service names and corresponding WSDLs must be unique within a registered single source. Once you have registered a service, an attempt to register another service with the same name, or a different name but the same WSDL URL as another service, is not valid.

Once you register a Web service, you can later, more conveniently, reference the service from a selection list within Enterprise Manager. For example, when testing a Web service as described in “Testing Your Web Services” on page 11-1, instead of specifying a WSDL, you can click the Search icon and then select the WSDL from the list of registered services, as shown in Figure 13–1.

Figure 13–1 Selecting From a Registered Service

<table>
<thead>
<tr>
<th>Service Name</th>
<th>Service Description</th>
<th>Service Location</th>
<th>Source Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Google Search</td>
<td>Google Search</td>
<td>http://some_url</td>
<td>Local file upload</td>
</tr>
</tbody>
</table>

UDDI Basics

Universal Description Discovery & Integration (UDDI) is an industry initiative that aims to enable businesses to quickly, easily, and dynamically find and carry out transactions with one another. A populated UDDI registry contains cataloged information about businesses; the services that they offer; and communication standards and interfaces they use to conduct transactions.

The owners of Web services publish them to the UDDI registry. Once published, the UDDI registry maintains pointers to the Web Service description and to the service. The UDDI allows clients to search this registry, find the intended service, and retrieve its details. These details include the service invocation point as well as other information to help identify the service and its functionality.

WSIL Basics

WSIL defines an Extensible Markup Language (XML) format for referencing Web service descriptions. These references are contained in a WSIL document, and refer to Web service descriptions (for example, WSDL files) and to other aggregations of Web services (for example, another WSIL document or a UDDI registry).

WSIL documents are typically distributed by the Web service provider. These documents describe how to inspect the provider’s Web site for available Web services. Therefore, the WSIL standard also defines rules for how WSIL documents should be made available to consumers of Web services.

The WSIL model decentralizes Web service discovery. In contrast to UDDI registries, which centralize information on multiple business entities and services, WSIL makes it possible to provide Web service description information from any location. Unlike UDDI, WSIL is not concerned about business entity information, and does not require a specific service description format. It assumes that you know who the service provider is and relies on other standards for Web service description, such as WSDL.

Viewing Registered Sources and Web Services

Follow the steps in this section to view and edit a registered source and Web service.
1. In the navigator pane, expand **WebLogic Domain** to show the domain in which you want to view the registered sources and Web services.

2. Select the domain.

3. Using Fusion Middleware Control, select **WebLogic Domain** then **Web Services** and then **Registered Services**. The Registered Sources and Services page appears, as shown in **Figure 13–2**.

**Figure 13–2 Viewing Registered Sources and Services**

In the Sources table, you can view the following information about each registered source:

- **Name**—Logical name for the source
- **Description**—Description of the source
- **Source URL**—Location of the source in URL format
- **Type**—Source type: UDDI v3 registry import, WSIL import from file, WSIL import from URL
- **User ID**—User ID for the external source

You can customize the information that is displayed using the **View** menu. From this section of the page, you can also add new sources, edit or delete sources, register Web services for a source, and publish a Web service from a source to a predefined UDDI registry.

4. Select a source in the Sources table.

Each registered source can have multiple registered services. In the Services table, you can view the following information about the registered services imported from the selected source location:

- **Name**—Name of the registered service
- **Description**—Description of the service
- **Service location**—Location of the service in URL format

You can customize the information that is displayed using the **View** menu. You can also display the WSDL for the selected service and test the selected Web service.
Registering Web Services and Sources

Registering a Source

You can register Web service sources of the following types:

- UDDI v3 registry import
- WSIL import from URL
- WSIL import from file

Follow the steps in this section to register a source.

To register a source

1. In the navigator pane, expand WebLogic Domain to show the domain in which you want to register a Web service source.

2. Select the domain.

3. Using Fusion Middleware Control, select WebLogic Domain then Web Services and then Registered Services. The Registered Sources and Services page appears, as shown in Figure 13–2.

4. Click Add to register a new source. The Register New Source page appears, as shown in Figure 13–3.

Figure 13–3 Register New Source Page

5. Enter the following information for the new source.

- **Name**—A logical name for the source.
- **Description**—A description of the source.
- **Type**—choose from one of three options: UDDI v3 registry import, WSIL import from URL, or WSIL import from File

  Additional information that you need to enter differs based on the option you select.

6. If you selected **UDDI v3 registry import**, enter the following information:

   - In the **Source URL** field, enter the UDDI inquiry URL, for example, http://somehost/uddi/inquiry.

   - To allow the services to be published to a UDDI source (which is an external UDDI registry), select the **Enable** box and complete the fields as follows:

     - In the **Publication URL** field, enter URL location of the registry to which you want to publish the service.

     - In the **Security URL** field, enter the URL location of the security port required to access the registry.
– In the User ID and Password fields, enter the security credentials required to access the registry.

7. If you selected WSIL import from URL, enter the following information:
   ■ In the Source URL field, enter the location of the WSIL in URL form.
   ■ If a username and password are required to access the WSIL, select the Enable box in the Basic Authorization field. In the User ID and Password fields, enter the username and password.

8. If you selected WSIL import from File, click Browse (next to the WSIL File field) to select the WSIL file to be imported.

9. Click OK to register the source.

Registering Web Services from a UDDI Source

Follow the steps in this section to register Web services from a registered UDDI source.

1. In the navigator pane, expand WebLogic Domain to show the domain in which you want to register a Web service.

2. Select the domain.

3. Using Fusion Middleware Control, select WebLogic Domain then Web Services and then Registered Services. The Registered Sources page displays, as shown in Figure 13–1.

4. Select the UDDI source from which you want to register services. Note that the Type for a UDDI source is specified as UDDI v3 registry import.

5. Select Register Web Services.
   The Register New Service page displays, as shown in Figure 13–4.

Figure 13–4  Register New Service from UDDI Source

The Register New Service page displays the source information, in read-only format, and a list of the services that are available in UDDI that you can register.

You can filter the list of available services that are displayed using the Service Name and Service Key fields. For example, to find calculator services, enter calc
in the Service Name field. Only services that contain the calc string, such as calculator services are displayed. The search is not case-sensitive.

In the Services available in UDDI section of the page, you can view service details from UDDI for each service in the table by clicking the View Service Details icon. The Service Details from UDDI window displays information about the service such as the Service Name, Service Description, Service WSDL, Service Key, Business Key, and Service Location, among others.

You can edit the details of a service by clicking the Edit icon, which allows you to change the name and description of the selected service.

6. In the Services available in UDDI section of the page, select the service or services that you want to register from the source and click Register.

A confirmation message displays indicating that the service was registered successfully.

Registering Web Services from a WSIL Source

Follow the steps in this section to register Web services from a registered WSIL source.

1. In the navigator pane, expand WebLogic Domain to show the domain in which you want to register a Web service.

2. Select the domain.

3. Using Fusion Middleware Control, select WebLogic Domain then Web Services and then Registered Services. The Registered Sources and Services page displays, as shown in Figure 13–1.

4. Select the WSIL source from which you want to register services. Note that the Type for a WSIL source is specified as either WSIL import from File or WSIL import from URL.

5. Select Register Web Services.

The Register New Service page displays, as shown in Figure 13–5.

Figure 13–5 Register New Service from WSIL Source
The Register New Service page displays the Source information, in read-only format, and a list of available services, if any, in the WSIL that you can register, shown in the Services Available in WSIL table. If there are any WSIL references in the WSIL, they are listed in the References Available in WSIL table.

In the Services Available in WSIL table, you can edit the details of a service by clicking the Edit icon, which allows you to change the name and description of the selected service.

6. To register a service available from the current WSIL, select the service in the Services Available in WSIL table and click Register.

A confirmation message displays indicating that the service was registered successfully.

7. If the current WSIL also references other WSIL URLs or references, expand References Available in WSIL to display them. You can register the referenced Web services as well.

To register a service from a referenced WSIL instead of the current WSIL, click the Process icon for the reference in the References Available in WSIL table.

If the WSIL parses successfully, a new source is registered and the current WSIL source is replaced by the referenced WSIL. The services available in the referenced WSIL source are listed in the Services Available in WSIL table. You can then register services from the referenced WSIL.

**Note:** For each new source created, _n is appended to the parent source name. For example, if the parent source name is wsil_file_1, then referenced new sources are named wsil_file_1_1, wsil_file_1_2) with source type WSIL URL. The new sources are listed in the Sources table in the Registered Sources and Services page.

If the WSIL does not parse successfully, an error message displays. Usually, in such cases, the system successfully registers the new source for the selected WSIL reference. However, because the system could not parse the WSIL document, the error message displays. Close the error dialog and click OK to return to the Registered Sources and Services page.

WSIL parsing can fail if the reference is bad or it needs authorization credentials. You can enable authorization for the WSIL source as described in "Registering a Source" on page 13-4.
Unregistering a Web Service or Web Service Source

Follow the steps in this section to unregister a Web service or a Web service source.

1. In the navigator pane, expand WebLogic Domain to show the domain in which you want to unregister a Web service.

2. Select the domain.

3. Using Fusion Middleware Control, select WebLogic Domain then Web Services and then Registered Services. The Registered Sources and Services page displays, as shown in Figure 13–2.

4. Do one of the following:
   - To unregister a source, select the source from the Sources table and click Delete.
     A confirmation message displays. Click OK to delete the source.
   - To unregister a service from a source, select the source in the Sources table.
     The registered Web services are displayed in the Services table.
     Select the service to be unregistered from the Services table and click Delete.
     A confirmation message displays. Click OK to delete the service.

Publishing Web Services to UDDI

You can publish Web services to UDDI from a registered UDDI source and from the Web services summary page for ADF, WebCenter, and JEE applications. Registered UDDI sources are listed in the Registered Sources and Services page, which includes all sources and services registered in a domain. The Web services summary page lists the Web services in an application. The following procedures describe both methods.

---

Note:

When the system fails to retrieve Web services from a registered source, because of connection or other failures, the Register New Service page is displayed with read only information for the source, but does not show any Web services. In such cases, click OK in the error dialog, if an error dialog is displayed, then click OK in the Register New Service page to return to the Registered Sources and Services page. To troubleshoot, you can then view the registered sources through other means. For example, if the source is a:

- WSIL URL source, copy the URL to a browser address bar to view its contents.
- WSIL file source, examine the WSIL file using an XML editor.
- UDDI source, try to access the UDDI registry directly to investigate.

You can also review any related Enterprise Manager error logs.
To publish a Web service to UDDI from a registered source:

1. Navigate to the Registered Sources and Services page as described in "Viewing Registered Sources and Web Services" on page 13-2.

2. Select the source row in the Sources table and then Publish to UDDI.

3. In the Publish Service to UDDI window, enter the information about the service to be published:
   - **Service Name** is the name of the Web service to be published to the UDDI registry. This field is required.
   - **Service Description** is a description of the selected Web service.
   - **Service Definition Location** is the URL location of the service definition. This field is required.
   - **UDDI Source** is the name of the UDDI source from which the service is to be registered. This field is read only.
   - **Business Name** is the name of the data structure in the UDDI registry. It is assumed that the business has already been registered in the UDDI. Choose the Business name from the list. This field is required.

4. Click OK in the Publish Service to UDDI window.

Note: You need to use a proxy to publish a service to UDDI, since this requires access to URLs outside of your firewall. For more information about the required proxy settings, see "Configuring the Proxy Server for UDDI" on page 13-11.
The system verifies that the service specified has a valid WSDL and that the UDDI registry has accepted the new entry or updated an existing one. If it is successful, a confirmation message displays and the service is published to the registry.

Once the service is published in the UDDI, it becomes available to be registered to a source, as described in "Registering Web Services from a UDDI Source" on page 13-5.

Any errors during the operation will result in an error message.

Note that you can only register the service to a source if it uses a unique WSDL.

To publish a Web service to UDDI from an application:

1. Navigate to the Web Services summary page as described in "Navigating to the Web Services Summary Page for an Application" on page 6-3.

2. From the Web Service Details section of the page, select the service to be published.

3. Select Actions, then Publish to UDDI. See Figure 13–8.

4. In the Publish Service to UDDI dialog box (Figure 13–9), enter the information about the service to be published:
   - **Service Name** is the name of the Web service to be published to the UDDI registry. This field is required.
   - **Service Description** is a description of the selected Web service.
   - **Service Definition Location** is prepopulated with the URL location of the service definition (This field is read-only.)
   - **UDDI Source** is a logical name for the UDDI registry source. Choose the UDDI source from the list. This field is required.

   **Note:** The list contains the UDDI sources registered in the domain that have been enabled for publishing. For more information about registered sources, see "Registering Web Services and Sources" on page 13-1.

   - **Business Name** is the name of the data structure in the UDDI registry. It is assumed that the business has already been registered in the UDDI. Choose the business name from the list. This field is required.
5. Click OK to connect to the external UDDI registry and register the Web service. 
   Upon successfully registering the service, a confirmation message displays. Any 
   errors during the operation will result in an error message.

### Configuring the Proxy Server for UDDI

In order to access URLs outside of your firewall, you must use a proxy to publish a 
service to UDDI.

Before starting WebLogic Server, you must set the Java system properties defined in 
Table 13–1. You can set them as environment variables, or in WebLogic Server startup 
files.

<table>
<thead>
<tr>
<th><strong>Table 13–1 Java System Properties Used to Specify the Proxy Server for UDDI</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Property</strong></td>
</tr>
<tr>
<td>proxySet=true</td>
</tr>
<tr>
<td>http.proxyHost=proxyHost</td>
</tr>
<tr>
<td>http.proxyPort=proxyPort</td>
</tr>
<tr>
<td>http.nonProxyHosts=hostname</td>
</tr>
</tbody>
</table>

For example:

```
set PROXY_SETTINGS="-DproxySet=true -Dhttp.proxyHost=www-proxy.us.oracle.com
-Dhttp.proxyPort=80 -Dhttp.nonProxyHosts=localhost|${HOST}|*.us.oracle.com"
```

### Auditing Web Services

Auditing describes the process of collecting and storing information about security 
events and the outcome of those events. An audit provides an electronic trail of 
selected system activity.

An audit *policy* defines the type and scope of events to be captured at runtime. 
Although a very large array of system and user events can occur during an operation, 
the events that are actually audited depend on the audit policies in effect at runtime. 
You can define component- or application-specific policies, or audit individual users.

You configure auditing for system components, including Web services, and 
applications at the domain level using the Audit Policy page. You can audit SOA, 
ADF, and WebCenter services.
The audit policies table, at the center of the page, displays the audits that are currently in effect. The table includes the following information:

- **Name**—Name of the system components and applications that you can audit.
- **Enable Audit**—Identifies the components and applications for which auditing is currently in effect.
- **Filter**—Specifies any filters that are currently in effect.

The following table summarizes the events that you can audit for Web services and the relevant component.

**Table 13–2 Auditing Events for Web Services**

<table>
<thead>
<tr>
<th>Enable auditing for the following Web service events . . .</th>
<th>Using this system component . . .</th>
</tr>
</thead>
<tbody>
<tr>
<td>User authentication.</td>
<td>Oracle Web Services Manager—Agent</td>
</tr>
<tr>
<td>User authorization.</td>
<td></td>
</tr>
<tr>
<td>Policy enforcement, including message integrity, message confidentiality, and security policy.</td>
<td></td>
</tr>
<tr>
<td>Web service requests sent and responses received.</td>
<td>Oracle Web Services</td>
</tr>
<tr>
<td>SOAP faults incurred.</td>
<td></td>
</tr>
<tr>
<td>Oracle WSM policy creation, deletion, or modification.</td>
<td>Oracle Web Services Manager</td>
</tr>
<tr>
<td>Assertion template creation, deletion, or modification.</td>
<td></td>
</tr>
<tr>
<td>Oracle WSM policy attachment.</td>
<td>Oracle Web Services Manager—Policy Attachment</td>
</tr>
</tbody>
</table>

You can also audit the events for a specific user, for example, you can audit all events by an administrator.
For more information about configuring audit policies, see "Configuring and Managing Auditing" in Oracle Fusion Middleware Security Guide.

The following sections describe how to define audit policies and view audit data:

- Configuring Audit Policies
- Managing Audit Data Collection and Storage
- Viewing Audit Reports

Configuring Audit Policies

Follow the steps in this section to configure audit policies.

1. In the Navigator pane, expand WebLogic Domain.
2. Click the domain for which you want to manage assertion templates.
3. From the WebLogic Domain menu select Security > Audit Policy.

   The Audit Policy Settings page is displayed.

4. Select and audit level from the Audit Level menu.

   Valid audit levels include:

   - None—Disables auditing.
   - Low—Audits a small scope of events. The subset of events is predefined individually for each component. For example, for a given component, Low may collect authentication and authorization events only.
   - Medium—Audits a medium scope of events (which is a superset of the events collected at the Low level). For example, for a given component, Medium may collect authentication, authorization, and policy authoring events.
   - Custom—Enables you to provide a custom auditing policy.

   You can view the components and applications that are selected for audit at each level in the audit policies list. For all audit levels other than Custom, the information in the audit policies list is greyed out, as you cannot customize other audit level settings.

5. If you selected the Custom audit level, perform one of the following steps:

   - Select the information that you want to audit by clicking the associated checkbox in the Enable Audit column.

     You can audit at the following levels of granularity: All events for a component, all events within a component event group, an individual event, or a specific outcome of an individual event (such as success or failure).

     At the event outcome level, you can specify an edit filter. Filters are rules-based expressions that you can define to control the events that are returned. For example, you might specify an Initiator as a filter for policy management operations to track when policies were created, modified, or deleted by a specific user. To define a filter for an outcome level, click the Edit Filter icon in the appropriate column, specify the filter attributes, and click OK. The filter definition appears in the Filter column.

     Deselect the checkbox for a component at a higher level to customize auditing for its subcomponents. You can select all components and applications by checking the checkbox adjacent to the column name.
To audit only failures for all system components and applications, Select Failures Only.

If selected, all checkboxes in the Enable Audit column are cleared.

6. If required, enter a comma-separated list of users in the Always Audit Users text box.

Specified users will always be audited, regardless of whether auditing is enabled or disabled, and at what level auditing is set.

7. Click Apply.

To revert all changes made during the current session, click Revert.

Managing Audit Data Collection and Storage

To manage the data collection and storage of audit information, you need to perform the following tasks:

- Set up and manage an audit data repository.
  
  You can store records using one of two repository modes: file and database. It is recommended that you use the database repository mode. The Oracle Business Intelligence Publisher-based audit reports only work in the database repository mode.

- Set up audit event collection.

For more information, see "Managing Audit Data Collection and Storage" in Oracle Fusion Middleware Security Guide.

Viewing Audit Reports

For database repositories, data is exposed through pre-defined reports in Oracle Business Intelligence Publisher.

A number of predefined reports are available, such as: authentication and authorization history, Oracle WSM policy enforcement and management, and so on. For details about generating and viewing audit reports using Oracle Business Intelligence Publisher, see "Using Audit Analysis and Reporting" in Oracle Fusion Middleware Security Guide.

For file-based repositories, you can view the bus-stop files using a text editor and create your own custom queries.

Managing the WSDL

In some cases, you might not want the Web service WSDL to be accessible to the public. You can enable or disable public access to the WSDL from the Web Service Endpoint page.

Note: In some cases, a Web service client needs to access a WSDL during invocation. If public access to the WSDL is disabled, the client will need to have a local copy of the WSDL.

To manage the WSDL:

1. Navigate to the Web Service endpoint configuration page, as described in "Configuring the Web Service Endpoint" on page 6-12.
2. On the Configuration tab, set the WSDL Enabled field to True or False to enable or disable public access to your WSDL, respectively.

3. Click Apply.

Managing Policy Assertion Templates

The following sections describe how to create and manage policy assertion templates.

- Navigating to the Web Services Assertion Templates Page
- Viewing an Assertion Template
- Searching for an Assertion Template
- Creating an Assertion Template
- Exporting an Assertion Template
- Importing an Assertion Template
- Editing an Assertion Template
- Deleting an Assertion Template

Navigating to the Web Services Assertion Templates Page

You can manage your assertion templates at the domain level from the Web Services Assertion Template page. From this page, you can copy, edit, and delete assertion templates.

To navigate to the Web Services Assertion Templates page:

1. In the Navigator pane, expand WebLogic Domain.
2. Click the domain for which you want to manage assertion templates.
3. From the WebLogic Domain menu select Web Services > Policies.
   The Web Services Policies page is displayed.
4. Click Web Services Assertion Templates in the upper right corner of the page.
   The Web Services Assertion Templates page is displayed, as shown in the following figure.

Figure 13–11 Web Services Assertion Templates Page

---

Advanced Administration 13-15
Viewing an Assertion Template

Follow the steps in this section to view an assertion template.

1. Navigate to the Web Services Assertion Templates page, as described in "Navigating to the Web Services Assertion Templates Page" on page 13-15.
2. Select the assertion template from the Assertion Templates table that you want to view.
3. Click View.
4. In the View Template page, review the assertion.
5. When you are done, click Return to Web Services Assertion Templates.

Searching for an Assertion Template

You can search for a Web service assertion template by category, name, or both.

To search for an asserting template:
1. Navigate to the Web Services Assertion Templates page, as described in "Navigating to the Web Services Assertion Templates Page" on page 13-15.
2. Perform one or more of the following steps:
   - To search for assertion templates in a specific category (or all categories), select a category from the Category dropdown list.
     Valid categories include: All, Security, MTOM Attachments, Reliable Messaging, WS-Addressing, and Management.
   - To search for an assertion template that contains a specific string, enter a string in the Name field.
     Specify any portion of the name of an assertion template to display all assertion templates that contain the string for the specified category.
3. Click Go.

The assertion templates list is refreshed to include only those assertion templates that match the specified search criteria.

Creating an Assertion Template

A new assertion template is created based on an existing assertion. Pick the assertion template that most closely matches the desired behavior, then make any changes required to get the desired behavior.

To create an assertion template:
1. Navigate to the Web Services Assertion Templates page, as described in "Navigating to the Web Services Assertion Templates Page" on page 13-15.
2. Select the assertion template from the Assertion Templates table that you want to copy.
3. Click Create Like.

The following shows the Create Template page.
Managing Policy Assertion Templates

Figure 13–12  Create Template Page

4. In the Copy Assertion Template box, edit the name of the assertion and enter a brief description.

The word Copy is appended to the name of the copied assertion template and, by default, this is the name assigned to the new assertion template. For example, if the assertion template being copied is named `oracle/wss10_username_token_service_template`, then the default name of the copy is `oracle/wss10_username_token_service_template_Copy`.

It is recommended that you change the name of this new assertion template to be more meaningful in your environment.

5. Click OK.

The assertion is added to the Assertion Templates table. You can now select the new assertion and click Edit to configure the assertion.

Exporting an Assertion Template

You can export individual assertion templates from Oracle Enterprise Manager Fusion Middleware Control. You can then copy the assertion template to a directory or import the assertion template to move it to another repository. Once moved, you can import the assertion template, as described in “Importing an Assertion Template” on page 13-18.

To export an assertion template:

1. Navigate to the Web Services Assertions Templates page, as described in "Navigating to the Web Services Assertion Templates Page” on page 13-15.
2. Select the assertion template from the Assertion Templates table that you want to export to a file.
3. Click Export to File.
You are prompted to open or save the file.

4. Select **Save File**.
5. Click **Ok**.
6. Navigate to the location on your local directory to which you want to save the file and update the filename as desired.
7. Click **Save**.

**Importing an Assertion Template**

Follow the steps in this section to view an assertion template.

1. Navigate to the Web Services Assertions Templates page, as described in "Navigating to the Web Services Assertion Templates Page" on page 13-15.
2. Click **Import From File**.
   You are prompted to provide the assertion template file.
3. Click **Browse** to navigate to the directory where the assertion template file is located and select the assertion template to be imported.
4. Click **OK**.
   The assertion template appears in the Assertion Templates table.

**Editing an Assertion Template**

Follow the steps in this section to edit an assertion template.

1. Navigate to the Web Services Assertions Templates page, as described in "Navigating to the Web Services Assertion Templates Page" on page 13-15.
2. Select the assertion template from the Assertion Templates table that you want to edit.
3. Click **Edit**.
4. Edit the assertion template as required.
5. Click **Save**.

**Deleting an Assertion Template**

Follow the steps in this section to delete an assertion template.

1. Navigate to the Web Services Assertions Templates page, as described in "Navigating to the Web Services Assertion Templates Page" on page 13-15.
2. Select the assertion template from the Assertion Templates table that you want to delete.
3. Click **Delete**.
   You are prompted to confirm that you want to delete the assertion template.
4. Click **OK**.

**Registering a Metadata Services (MDS) Repository**

An MDS repository can be file-based or database-based. For production environments, you use a database-based repository.
For a list of the databases that are supported for this release, see Oracle Fusion Middleware Supported System Configurations at:

Before you can deploy an application to an MDS Repository, you must register the repository with the Oracle WebLogic Server domain. To register an MDS repository, expand Metadata Repositories in the Navigator pane, as shown in Figure 13–13.

Figure 13–13 Metadata Repository in Navigation Pane

![Navigation Pane with Metadata Repository]

Then, register a metadata repository, as shown in Figure 13–14.

Figure 13–14 Registering a Metadata Repository

![Registering Metadata Repository]

Complete details for registering and managing a metadata repository are provided in "Managing the Oracle Metadata Repository" in the Oracle Fusion Middleware Administrator’s Guide.

For details about maintaining an MDS repository for Oracle Web Services Manager, see Chapter 17, "Maintaining the MDS Repository."

Adding Security to a Running Client

Security policies can be attached to a running client using Oracle Enterprise Manager Fusion Middleware Control. You do not have to redeploy the client application in order to attach or detach policies from the client. See Chapter 8, "Attaching Policies to Web Services" for more information on how to attach policies using Fusion Middleware Control.

Configuring Platform Policy Properties

You can manage properties for the following components from the Platform Policy Configuration page:

- Policy Accessor
- Policy Cache
- Policy Interceptors
Configuring a Web Service on a Remote Policy Manager and Tuning the Policy Cache

Identity Extension

To manage policy accessor, policy cache, policy interceptor, and identity extension properties:

1. In the navigator pane, expand WebLogic Domain to view the domains.
2. Select the domain for which you want to manage properties.

The Platform Policy Configuration page appears, as shown in Figure 13–15.

Figure 13–15  Platform Policy Configuration Page

<table>
<thead>
<tr>
<th>Policy Accessor</th>
<th>Policy Cache</th>
<th>Policy Interceptors</th>
<th>Identity Extension</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Category</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BindingSecurityInterceptor</td>
<td>security</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BindingManagementInterceptor</td>
<td>management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WebManagementInterceptor</td>
<td>management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MDFSecurityInterceptor</td>
<td>mdf</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VirtualServiceInterceptor</td>
<td>security</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WSIFIdentityInterceptor</td>
<td>wss</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. Select the tab corresponding to the component for which you want to define properties:

- “Configuring a Web Service on a Remote Policy Manager and Tuning the Policy Cache” on page 13-20
- “Configuring Web Service Policy Retrieval” on page 13-22
- “Tuning Web Service Security Policy Enforcement” on page 13-23
- “Defining Identity Extension Properties” on page 13-24

Configuring a Web Service on a Remote Policy Manager and Tuning the Policy Cache

By default, the Oracle Infrastructure Web Services Manager supports an auto-discovery feature that it uses to locate and connect to an Oracle WSM Policy Manager within a domain. In certain scenarios auto-discovery may not work as expected. For example, you may want to disable the auto-discovery feature if:

- You are using firewalls, load balancers, and so on. The auto-discovery feature does not work well in this type of environment.
- You want to access an Oracle WSM Policy Manager that is running in a different domain. The auto-discovery feature expects the Oracle WSM Policy Manager to exist in the current domain.
- You are running on a platform that does not support the auto-discovery feature, such as WebSphere, Application Server, JBOSS, and so on.
You prefer to override the default settings.

For Oracle Infrastructure Web service policies, the Policy Accessor tab enables you to explicitly set a remote JNDI provider URL and corresponding csf-key credentials to access a Policy Manager in a remote domain or on another platform. The properties on the Policy Cache tab allow you to tune the behavior of the policy cache to avoid network calls and increase performance while fetching policies from a remote Oracle WSM Policy Manager.

2. Select the Policy Accessor tab.
3. Click Add to define a remote JNDI provider.
   
   In the Add Property window, specify the following values:
   a. In the Name field, enter the JNDI provider URL property as java.naming.provider.url.
   b. In the Value field, enter the JNDI provider’s URL for the remote domain.
      This specifies the location of a running Policy Manager in different domain in order to access that Policy Manager. If this property is not specified, the auto-discovery feature attempts to look up the Policy Manager in the same domain.
   c. Click OK.
4. Click Add to define a corresponding csf-key credential property. In the Add Property window, specify the following values:
   a. In the Name field, enter the name of the JNDI provider’s csf-key credential property as jndi.lookup.csf.key.
   b. In the Value field, enter the csf-key credentials.
      Because the Policy Manager is security enabled, the csf-key specifies the java.naming.security.principal and java.naming.security.credentials when using the JNDI URL to look up a Policy Manager.
   c. Click OK.
5. Select the Policy Cache tab.
6. To modify an existing policy cache property, select it and then click Edit. In the Edit Property window, you can edit the Value field to change the default amount for each property.
   a. cache.tolerance – The amount of time (in milliseconds) between refreshes of the policy cache. This ensures that polling occurs after the specified time to get the latest copy of policies from Oracle WSM Policy Manager. The default is 60000 milliseconds (1 minute).
   b. cache.size – The maximum number of policies that can be stored in the policy cache. The default is 200 NOS.
   c. To add another property, click Add, and in the Add Property window, specify the necessary values.
   d. Click OK.
7. To modify an existing property, select it and then click Edit.
8. To delete an existing property, select it and then click **Delete**.

9. Click **Apply** to apply the property updates.

## Configuring Web Service Policy Retrieval

The Policy Accessor tab also enables you to configure the retrieval of Oracle WebLogic Server Web service policies from a repository. This includes specifying the repository accessor type (for example, classpath, local, or remote aliases), repository location (JARs, directory, or host and port), account information (for a remote repository), retry logic (for high availability) and cache tuning.


2. Select the **Policy Accessor** tab.

3. Click **Add** to add a policy retrieval property.

4. Use the following table to specify the available property names and values in the Add Property window:

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>java.naming.provider.url</td>
<td>JNDI URL that specifies the location of a running Oracle WSM Policy Manager in another domain in order to access that Policy Manager. By default, this property is not specified. If this property is not specified, Oracle WSM auto-discovery attempts to look up the Policy Manager in the same domain.</td>
</tr>
</tbody>
</table>
| jndi.lookup.csf.key          | If the location of the Oracle WSM Policy Manager is provided in the java.naming.provider.url property, the csf-key provides credential configuration. Because the Oracle WSM Policy Manager is security enabled, the csf-key specifies the java.naming.security.principal and java.naming.security.credentials when using the JNDI URL to look up a Oracle WSM Policy Manager. By default, this property is not specified. You should configure this property when:  
  - You want to specify an explicit account to connect with the Oracle WSM Policy Manager rather than the system account, OracleSystemUser, that is used by Oracle WSM by default.  
  - The Authentication Provider and LDAP directory that is configured does not support system accounts used by Oracle WebLogic Server, but which Oracle WSM relies on by default. Therefore, a different account in the LDAP directory must be used.  
  - There is no concept of default system accounts in a particular application server, and so the system cannot rely on system accounts. |
| cache.refresh.initial        | Number of milliseconds to wait before initial cache refresh. The default is 60000 milliseconds (1 minute). |
| cache.refresh.repeat         | Number of milliseconds to wait between cache refreshes. The default is 60000 milliseconds (1 minute). |
| missing.entry.delay          | Number of milliseconds to wait before trying to retrieve a missing document. The default is 15000 milliseconds. |
5. To modify an existing property, select it and then click **Edit**.
6. To delete an existing property, select it and then click **Delete**.
7. Click **Apply** to apply the property updates.

### Tuning Web Service Security Policy Enforcement

The **BindingSecurityInterceptor** property on the Policy Interceptors tab allows you to tune security policy enforcement by adjusting the default message timestamp skews between system clocks, the time-to-live for nonce messages in the policy cache, and the message expiration time.

2. Select the **Policy Interceptors** tab.
3. Select the **BindingSecurityInterceptor** security property on the list.
4. To modify a **BindingSecurityInterceptor** security property, select it and then click **Edit**. In the Edit Property window, you can edit the Value field to change the default amount for each property.
   a. **agent.clock.skew** – Tolerance of time differences, in seconds, between client and server machines. For example, when timestamps are sent across in a message to a service that follows a different time zone, this property allows for the specified time tolerance. The default value is 300 seconds.
   b. **agent.nonce.ttl** – Total time-to-live, in seconds, for nonce in the cache when nonce is sent across in a message. This property caches the nonce and

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>usage.record.delay</td>
<td>Number of milliseconds to wait before sending usage data. The default is 30000 milliseconds.</td>
</tr>
<tr>
<td>failure.retry.count</td>
<td>Number of times to retry after communication failure. The default is 2 retry attempts.</td>
</tr>
<tr>
<td>failure.retry.delay</td>
<td>Number of milliseconds to wait between retry attempts. The default is 5000 milliseconds.</td>
</tr>
<tr>
<td>wsm.repository.path</td>
<td>List of JARs from which to load documents.</td>
</tr>
<tr>
<td>oracle.wsm.policymanager.accessor.IRepositoryAccess</td>
<td>Name of Repository Accessor class or alias to provide to Policy Access Point instance. The default values are:</td>
</tr>
<tr>
<td>access.protocol</td>
<td>Legacy property for name of Repository Accessor class or alias to provide to Policy Access Point instance. The default values are:</td>
</tr>
<tr>
<td>wsm.repository.path</td>
<td>Location of local, file-based repository.</td>
</tr>
<tr>
<td>mds.module.home</td>
<td>Legacy property for location of local, file-based repository.</td>
</tr>
<tr>
<td>external.attachments</td>
<td>Specifies whether to enable processing of external attachments. The default is <strong>false</strong>.</td>
</tr>
</tbody>
</table>
Defining Identity Extension Properties

The properties on the Identity Extension tab enable you to specify whether to enforce Web service policies by publishing the X509 certificate in the WSDL. If there is no need to publish the X509 certificate (for e.g., with SSL), you can override the default setting to avoid publishing the certificate. In addition, if the X509 is published, you can also specify whether to ignore the hostname verification feature.

For more information, see "Using Service Identity Certification Extension" on page 9-10.

Setting Up the Java Object Cache

To protect against replay attacks, the wss_username_token_client_policy and wss_username_token_service_policy policies provide the option to require a nonce in the username token. A nonce is a unique number that can be used only once in a SOAP request and is used to prevent replay attacks.

The nonce is cached to prevent its reuse. However, in a cluster environment you must take steps to synchronize this cache across the Managed Servers. Otherwise, a request sent to a Web service running on one server can be replayed and sent to another Managed Server, where it will be processed. Oracle WSM uses an instance of Java Object Cache (JOC) to cache the nonce.

You use the ORACLE_HOME/bin/configure-joc.py Python script to configure the JOC on all of the Managed Servers in distributed mode. The script runs in WLST online mode and expects the Administration Server to be up and running.

---

**Note:** After configuring the Java Object Cache, restart all affected Managed Servers for the configurations to take effect.

---

Running the configure-joc.py Script

To enable the JOC in distributed mode, perform the following steps:

1. Connect to the Administration Server using the command-line Oracle WebLogic Scripting Tool (WLST), for example:

   ORACLE_HOME/oracle_common/common/bin/wlst.sh
   $ connect()

   Enter the Oracle WebLogic Administration user name and password when prompted.
2. After connecting to the Administration Server using WLST, start the script using the `execfile` command, for example:

   ```bash
   wls:/mydomain/serverConfig>execfile('ORACLE_HOME/bin/configure-joc.py')
   ```

3. Configure JOC for all the Managed Servers for a given cluster.

   Enter 'y' when the script prompts whether you want to specify a cluster name, and also specify the cluster name and discover port, when prompted. This discovers all the Managed Servers for the given cluster and configures the JOC for each Managed Server. The discover port is common for the entire JOC configuration across the cluster. For example:

   ```bash
   Do you want to specify a cluster name (y/n) <y>
   Enter Cluster Name : Spaces_Cluster
   Enter Discover Port : 9988
   ```

   Here is a walkthrough for using `configure-joc.py` for HA environments:

   ```bash
   execfile('ORACLE_HOME/bin/configure-joc.py')
   .
   Enter Hostnames (eg host1,host2) : SOAHOST1, SOAHOST2
   .
   Do you want to specify a cluster name (y/n) <y>y
   .
   Enter Cluster Name : Spaces_Cluster
   .
   Enter Discover Port : 9988
   .
   Enter Distribute Mode (true|false) <true> : true
   .
   Do you want to exclude any server(s) from JOC configuration (y/n) <n> n
   ```

   The script can also be used to perform the following JOC configurations:

   - **Configure JOC for all specified Managed Servers.**
     
     Enter 'n' when the script prompts whether you want to specify a cluster name, and also specify the Managed Server and discover port, when prompted. For example:
     
     ```bash
     Do you want to specify a cluster name (y/n) <y>n
     Enter Managed Server and Discover Port (eg WLS_Spaces1:9988, WLS_Spaces2:9988) : WLS_Spaces1:9988,WLS_Spaces2:9988
     ```

   - **Exclude JOC configuration for some Managed Servers.**
     
     The script allows you to specify the list of Managed Servers for which the JOC configuration "DistributeMode" will be set to 'false'. Enter 'y' when the script prompts whether you want to exclude any servers from JOC configuration, and enter the Managed Server names to be excluded, when prompted. For example:
     
     ```bash
     Do you want to exclude any server(s) from JOC configuration (y/n) <n>y
     Exclude Managed Server List (eg Server1,Server2) : WLS_Spaces1,WLS_Spaces3
     ```

   - **Disable the distribution mode for all Managed Servers.**
     
     The script allows you to disable the distribution to all the Managed Servers for a specified cluster. Specify 'false' when the script prompts for the distribution mode. By default, the distribution mode is set to 'true'.

     ```bash
     ```
     Verify JOC configuration using the CacheWatcher utility. For more information, see "Running CacheWatcher to Verify Java Object Cache" in *Oracle Fusion Middleware High Availability Guide*. 

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You can configure the Java Object Cache (JOC) using the HA Power Tools tab in the Oracle WebLogic Administration Console as described in "Using HA Power Tools" in the Oracle Fusion Middleware High Availability Guide.

Deleting the OracleSystemUser Default User

If you delete the OracleSystemUser default user in favor of using the csf-key, then you must perform the following steps:

1. Add the following property and value to the Policy Accessor configuration. For more information, see "Configuring Platform Policy Properties" on page 13-19.
   
   **Name**: jndi.lookup.csf.key
   
   **Value**: basic.credentials

2. Ensure that the jndi.lookup.csf.key property is defined in the credential store. For example, basic.credential should be present in the credential store. For more information, see "Configuring the Credential Store Provider" on page 9-13.

3. Restart the server.

Changing the JMS System User for Asynchronous Web Services

By default, the JMS System User is set as the OracleSystemUser. For most users, this default value is sufficient. However, if you need to change this value to a custom user in your security realm, you can do so by changing the value of the user in Oracle Enterprise Manager Fusion Middleware Control and in the WebLogic Server Administration Console as described in the following procedure.

**To change the JMS System User:**

1. Access the **Configuration** tab on the Web Service Endpoint page for the asynchronous Web service as described in "Configuring Asynchronous Web Services" on page 6-25.

2. Enter the name of the custom user in the **JMS System User** field and click **Apply**. See Figure 13–16.

**Note:** The custom user must exist in the security realm and have the permissions required to access the JMS resources.
3. Access the WebLogic Server Administration Console. To do so from Fusion Middleware Control, select the domain in the navigator pane. From the **WebLogic Domain** menu, select **WebLogic Server Administration Console**.

4. Log into the WebLogic Server Administration Console using a valid username and password with the required administrative privileges.

5. Click **Deployments** in the Domain Structure pane and navigate to the corresponding **service_AsynchRequestProcessorMDB** or **service_AsynchResponseProcessorMDB** MDBs. In these MDB names, **service** is the name of the asynchronous service for which you are changing the user name.

6. In the Change Center, select **Lock & Edit**.

7. Select the MDB name for the request or response MDB. (You will need to update the user name for both the request and response MDBs.) In the Settings page, select the **Configuration** tab.

8. In the Enterprise Bean Configuration section of the page, enter the custom user name in the **Run As Principal Name** field and click **Save**. See **Figure 13–17**.

Note that the user name you enter in this field must match the user name you entered for the JMS System User in Fusion Middleware Control.
The configuration changes need to be saved in a new deployment plan.

9. Use the Save Deployment Plan Assistant to save the new deployment plan.

10. Repeat steps 7 and 8 for the second MDB. The changes are automatically saved to the new deployment plan.

11. In the Change Center, click **Activate Changes**.

12. Redeploy the application. For more information, see Chapter 5, "Deploying Web Services Applications."
Creating Custom Assertions

This chapter describes how to create custom assertions. It includes the following sections:

- **Overview of Custom Assertion Creation**
- **Step 1: Create the Custom Assertion Class**
- **Step 2: Create the Custom Policy File**
- **Step 3: Create the policy-config.xml File**
- **Step 4: Create the JAR File**
- **Step 5: Update Your CLASSPATH**
- **Step 6: Import the Custom Policy File**
- **Step 7: Attach the Custom Policy to a Web Service or Client**

**Overview of Custom Assertion Creation**

If the predefined assertion templates, defined in "Predefined Assertion Templates" on page C-1, do not fit your needs, you can create your own custom assertions.

To create a custom assertion, you need to create the following files:

- Custom assertion class—Implements the Java class and its parsing and enforcement logic.
- Custom policy file—Enables you to define the bindings for and configure the custom assertion.
- policy-config.xml file—Registers the custom policy file.

You package the assertion class and policy-config.xml file as a JAR file and make the JAR file available in the CLASSPATH for your domain. Then, you import the custom policy file and attach it to your Web service or client, as required.

The following sections describe each step in the process.

**Step 1: Create the Custom Assertion Class**

Create the custom assertion class to execute and validate the logic of your policy assertion. The custom assertion class must extend oracle.wsm.policyengine.impl.AssertionExecutor.

When building the custom assertion class, ensure that the following JAR files are in your CLASSPATH: wsm-policy-core.jar and wsm-agent-core.jar.
The following example shows a custom assertion executor that can be used to validate the IP address of the request. If the IP address of the request is invalid, a FAULT_FAILED_CHECK exception is thrown.

For more information about the APIs that are available to you for developing your own custom assertion class, see the Java API Reference for Oracle Web Services Manager.

**Example 14–1  Example Custom Assertion Class**

```java
package sampleassertion;

import oracle.wsm.common.sdk.IContext;
import oracle.wsm.common.sdk.IMessageContext;
import oracle.wsm.common.sdk.IResult;
import oracle.wsm.common.sdk.Result;
import oracle.wsm.policy.model.IAssertionBindings;
import oracle.wsm.policy.model.IConfig;
import oracle.wsm.policy.model.IPropertySet;
import oracle.wsm.policy.model.ISimpleOracleAssertion;
import oracle.wsm.policyengine.impl.AssertionExecutor;

public class IpAssertionExecutor extends AssertionExecutor {

    public IpAssertionExecutor() {
    }

    public void destroy() {
    }

    public void init(oracle.wsm.policy.model.IAssertion assertion,
                     oracle.wsm.policyengine.IExecutionContext econtext,
                     oracle.wsm.common.sdk.IContext context) {
        this.assertion = assertion;
        this.econtext = econtext;
    }

    public oracle.wsm.policyengine.IExecutionContext getExecutionContext() {
        return this.econtext;
    }

    public boolean isAssertionEnabled() {
        return ((ISimpleOracleAssertion)this.assertion).isEnforced();
    }

    public String getAssertionName() {
        return this.assertion.getQName().toString();
    }

    /**
     * @param context
     * @return
     */
    public IResult execute(IContext context) throws WSMException {
        try {
            IAssertionBindings bindings =
                ((SimpleAssertion)(this.assertion)).getBindings();
            IConfig config = bindings.getConfigs().get(0);
            IPropertySet propertyset = config.getPropertySets().get(0);
            String valid_ips =
                propertyset.getPropertyByName("valid_ips").getValue();
            String ipAddr = ((IMessageContext)context).getRemoteAddr();
            IResult result = new Result();
            if (valid_ips != null && valid_ips.trim().length() > 0) {
                String[] valid_ips_array = valid_ips.split(",");
                boolean isPresent = false;
                for (String valid_ip : valid_ips_array) {
                    if (ipAddr.equals(valid_ip.trim())) {
                        isPresent = true;
                        break;
                    }
                }
                if (isPresent) {
                    result.setFault("FAULT_FAILED_CHECK");
                    result.setDetails(new String[] {"Invalid IP address"});
                }
            }
            return result;
        } finally {
            econtext.setFaultCauseIID(res.getFaultCauseIID());
            econtext.setFaultCategoryID(res.getFaultCategoryID());
            econtext.setFaultCode(res.getFaultCode());
            econtext.setFaultMessage(res.getFaultMessage());
        }
    }
}
```
Step 2: Create the Custom Policy File

Create the custom policy file to define the bindings for and configure the custom assertion. "Schema Reference for Custom Assertions" on page E-1 describes the schema that you can use to construct your custom policy file and custom assertion.

The following example defines the oracle/ip_assertion_policy custom policy file. The assertion defines a comma-separated list of IP addresses that are valid for a request.

**Example 14–2 Example Custom Policy File**

```xml
<?xml version='1.0' encoding='UTF-8'?>
    xmlns:orasp="http://schemas.oracle.com/ws/2006/01/securitypolicy"
    orawsp:status='enabled'
    xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" orawsp:category='security'
    orawsp:attachTo='binding.server' wsu:Id='ip_assertion_policy'
    xmlns:orawsp="http://schemas.oracle.com/ws/2006/01/policy"
    wsp:Name='oracle/ip_assertion_policy'>
    <orasp:ipAssertion orawsp:Silent='true' orawsp:Enforced='true'
        orawsp:name='WSSecurity IpAssertion Validator' orawsp:category='security/authentication'>
        <orawsp:bindings>
            <orawsp:Config orawsp:name='ipassertion' orawsp:configType='declarative'>
                <orawsp:PropertySet orawsp:name='valid_ips'>
                    <orawsp:Property orawsp:name='valid_ips' orawsp:type='string'
                        orawsp:contentType='constant'>
                        <orawsp:Value>127.0.0.1,192.168.1.1</orawsp:Value>
                    </orawsp:Property>
                </orawsp:PropertySet>
            </orawsp:Config>
        </orawsp:bindings>
    </orasp:ipAssertion>
</wsp:Policy>
```
Step 3: Create the policy-config.xml File

Create a policy-config.xml file that defines an entry for the new assertion and associates it with its executor class.

The following defines the format for the policy-config.xml file:

```xml
<?xml version="1.0" encoding="UTF-8"?>
<policy-config>
  <policy-model-config>
    <entry>
      <key namespace="namespace" elementName="elementname"/>
      <executor-classname>assertionclass</executor-classname>
    </entry>
  </policy-model-config>
</policy-config>
```

The following table lists the attributes for the key element.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>namespace</td>
<td>Namespace of the policy. This value must match the namespace defined in the custom policy file (in Step 2). In Example 14–2, the namespace is defined as part of the <code>&lt;wsp:Policy&gt;</code> tag as follows: <code>xmlns:orasp=&quot;http://schemas.oracle.com/ws/2006/01/securitypolicy&quot;</code></td>
</tr>
<tr>
<td>elementName</td>
<td>Name of the element. This value must match the assertion name defined in the custom policy file (in Step 2). In Example 14–2, the element name ipAssertion is defined in the following tag: <code>&lt;orasp:ipAssertion orawsp:Silent='true' orawsp:Enforced='true' orawsp:name='WSSecurity IpAssertion Validator' orawsp:category='security/authentication'&gt;</code></td>
</tr>
</tbody>
</table>

The following provides an example of a the policy-config.xml file with an entry for the ipAssertion policy.

**Example 14–3  Example policy-config.xml File**

```xml
<?xml version="1.0" encoding="UTF-8"?>
<policy-config>
  <policy-model-config>
    <entry>
      <key namespace="http://schemas.oracle.com/ws/2006/01/securitypolicy" elementName="ipAssertion"/>
      <executor-classname>sampleassertion.IpAssertionExecutor</executor-classname>
    </entry>
  </policy-model-config>
</policy-config>
```
Step 4: Create the JAR File

Create the custom assertion JAR file that includes the IPAssertionExecutor class and the policy-config.xml file. You can use Oracle JDeveloper, other IDE, or the jar tool to generate the JAR file.

Step 5: Update Your CLASSPATH

You need to add the following files to your CLASSPATH:

- Custom assertion JAR file so that the custom assertion execution class is available in the server environment.
- wsm-policy-core.jar, wsm-agent-core.jar, and modules/oracle.logging-utils_11.1.1.jar required for building the custom assertion class.

Add the custom assertion JAR to your CLASSPATH by performing the following steps:

1. Stop the WebLogic Server.
   For more information on stopping the WebLogic Server, see Managing Server Startup and Shutdown for Oracle WebLogic Server.

2. Copy the custom assertion JAR file created in Step 4 to the following directory: $DOMAIN_HOME/lib.

3. Restart the WebLogic Server.
   For more information on restarting the WebLogic Server, see Managing Server Startup and Shutdown for Oracle WebLogic Server.

Step 6: Import the Custom Policy File

Before you can attach the custom policy to a Web service, you must import it using the procedure described in "Importing Web Service Policies" on page 7-7.

Step 7: Attach the Custom Policy to a Web Service or Client

Attach the custom policy to a Web service using the steps described in "Attaching Policies to Web Services" on page 8-1.
Step 7: Attach the Custom Policy to a Web Service or Client
This chapter describes how to migrate Web service applications between environments, such as from development or test to production. It includes the following sections:

- Overview of Web Service Application Migration
- Overview of Horizontal Policy Migration
- Sample Use Cases for Deployment Descriptor Migration
- Migrating Policies
- Migrating Policy Configuration
- Migrating Assertion Templates
- Migrating Deployment Descriptors

**Overview of Web Service Application Migration**

To migrate Web service applications independently between environments, such as from test to production, or in a scaled clustered environment, you must export the policies and the deployment configuration information to the new environment so that you can deploy the application. Depending on your configuration, you may also need to migrate policy configuration artifacts and policy assertion templates.

A deployment descriptor is an XML file that contains the basic deployment configuration for an application. For WebLogic Server and WebLogic JEE Web services applications, you create a deployment plan that contains the necessary deployment descriptors for deploying the application in a new environment.

For ADF Business Components and WebCenter services, however, runtime policy changes are persisted in proprietary deployment descriptor (PDD) files: oracle-webservices.xml and oracle-webservices-client.xml. Because these files are not included in the WebLogic deployment plan or exported with any other deployment descriptors, you must export and import these PDD files separately. You must also export and import these PDD files separately if you are scaling your application in a clustered environment.

Note that the following Oracle Infrastructure Web services components provide different configuration management mechanisms:

- For a SOA composite, Web services and Oracle WSM configurations are persisted in a composite.xml file which is included in a configuration plan used for
Overview of Horizontal Policy Migration

The SOA framework provides its own mechanism for composite services and configuration lifecycle and synchronizations.

- ADF Web Service data control configuration stores connection details for WebCenter services in a connections.xml file and all post-deployment changes as customizations in the Metadata Services (MDS) repository.

The general steps for migrating a Web service application from a development or test environment to a production environment are as follows:

1. Install and configure the production environment with the components that you need.
2. Migrate security information, such as users and groups, the identity and policy stores, and credentials. For more information, see "Migrating Policy Configuration" on page 15-5.
3. Migrate policies and deployment configuration data as required. For more information, see "Migrating Policies" on page 15-4 and "Migrating Deployment Descriptors" on page 15-7. Modify any information that is specific to the new environment such as host name or ports.
4. Deploy the applications in the new environment.

For information about migrating Fusion Middleware applications between environments, see "Advanced Administration: Expanding Your Environment" in Oracle Fusion Middleware Administrator's Guide.

Overview of Horizontal Policy Migration

The following steps describe a typical scenario for how to create a policy and migrate the policy horizontally through the different stages of the application development and deployment cycles.

1. Use Oracle Enterprise Manager Fusion Middleware Control to create a policy.
   For more information, see "Creating Web Service Policies" on page 7-4.
2. Export the policy to a file.
   For more information, see "Migrating Policies" on page 15-4.
3. Copy the policy file to policy store location in the Oracle JDeveloper environment.
4. Create a Web service in Oracle JDeveloper and attach the policy to the Web service.
   For more information, see "Using Policies with Web Services" in the "Developing with Web Services" section of the JDeveloper online help.
5. Deploy the Web service to the staging server, and test the Web service.
   For more information, see "Developing Web Services" in the JDeveloper online help.
6. Import the policy to the production server environment.
   For more information, see "Migrating Policies" on page 15-4.
7. Migrate the following information, as required:
   - Policy configuration. See "Migrating Policy Configuration" on page 15-5.
8. Deploy the application into the production environment, and test the Web service.
See "Deploying Web Services Applications" on page 5-1 and "Testing Web Services" on page 11-1.

Sample Use Cases for Deployment Descriptor Migration

The following sections provide sample use cases for ADF Business Control or WebCenter Web Service applications for which you must migrate the PDD files.

Scaling a Deployed ADF Business Control or WebCenter Web Service Application in a Cluster

The following steps describe a sample use case for scaling a deployed ADF Business Control or WebCenter Web service application within a cluster.

1. Deploy an ADF Business Control or WebCenter Web service application in a clustered WebLogic Server domain consisting of, for example, an Administration Server and two Managed Servers (MServer1 and MServer2). For deployment information, see Chapter 5, "Deploying Web Services Applications."

2. Using Fusion Middleware Control or WLST, modify the policy configuration. For example, attach a policy named oracle/wss_username_token_service_policy to the Web service on MServer2. For more information, see Chapter 8, "Attaching Policies to Web Services."

   The configuration changes are persisted in the PDD files.

3. Restart the application.

4. Export the PDD to a JAR file using the exportJRFWSApplicationPDD command. For more information, see "Migrating Deployment Descriptors" on page 15-7.

5. Using the WebLogic Server Administration Console, clone a new Managed Server named MServer3 in the cluster from MServer2. For more information, see "Clone Servers" in the WebLogic Server Administration Server Online Help.

6. Start the new Managed Server, MServer3.

   Note that MServer3 does not have the policy oracle/wss_username_token_service_policy attached because it was attached after the application was initially deployed.

7. Import the JAR file containing the Oracle WSM PDD files that you created in step 4 to MServer3 using the importJRFWSApplicationPDD command. For more information, see "Migrating Deployment Descriptors" on page 15-7.

8. Restart the application.

Propagating Run-time Policy Changes in an ADF Business Control or WebCenter Web Service Environment

The following steps describe a sample use case for propagating run-time policy changes for an ADF Business Control or WebCenter Web service application to all servers in a cluster.

1. Deploy an ADF Business Control or WebCenter Web service application in a clustered WebLogic Server domain consisting of, for example, an Administration Server and three Managed Servers (MServer1, MServer2, and MServer3). For deployment information, see Chapter 5, "Deploying Web Services Applications."
2. Using Fusion Middleware Control or WLST, modify the policy configuration. For example, detach all policies from MServer2. For more information, see Chapter 8, "Attaching Policies to Web Services."

The configuration changes are persisted in the PDD files.

3. Restart the application.

4. Export the PDD files from MServer2 to a JAR file using the exportJRFWSApplicationPDD command. For more information, see "Migrating Deployment Descriptors" on page 15-7.

5. Use the savePddToAllAppInstancesInDomain command, with the restartApp argument set to true. For more information, see "Migrating Deployment Descriptors" on page 15-7.

The policies are now detached from all server instances in the domain and the application is restarted.

Migrating Policies

You can export individual policies from Oracle Enterprise Manager Fusion Middleware Control. You can then copy the policy to a directory or import the policy to move it to another repository.

For details about exporting and importing policies, see the following sections in "Managing Web Service Policies" on page 7-1:

- "Exporting Web Service Policies" on page 7-14
- "Importing Web Service Policies" on page 7-7

Alternatively, you can use the exportMetadata and importMetadata WLST commands to export and import the policies. The following describes the steps required:

To migrate policies using WLST commands:

1. Export the Oracle WSM policies to a local directory. For example, to export all Oracle WSM artifacts to the /exported/owsm_policies directory:

   exportMetadata(application='wsm-pm', server='<server_name>', docs='/policies/mycompany/**', toLocation='/exported/owsm_policies')

2. Move the files to the new machine. Ensure that the Oracle WSM Policy Manager is deployed on the new machine.

3. Import the Oracle WSM policies. For example, to import all Oracle WSM artifacts from the /toimport/owsm_policies directory:

   importMetadata(application='wsm-pm', server='<server_name>', fromLocation='/toimport/owsm_policies', docs='/policy/mycompany/**')
Migrating Policy Configuration

The following sections describe how to migrate the configuration artifacts for Oracle WSM policies. Sections include:

- Migrating Keystores
- Migrating Users and Groups
- Migrating Credentials
- Migrating Oracle Platform Security Services Application and System Policies
- Migrating Oracle Platform Security Services Configuration
- Migrating SSL
- Migrating Kerberos Configuration

Migrating Keystores

If you are using message protection policies, you need to migrate your keystores. To migrate keystores:

1. Manually copy your keystores to the new environment.

   For Java SE applications, copy the keystore to a user-defined location. For Java EE applications, copy the keystore to the same directory as the jps-config.xml file, namely `DOMAIN_HOME/config/fmwconfig`.

2. By default, the keystore is named default-keystore.jks. If you have renamed the keystore, you must configure the keystore name in the Oracle Platform Security Services keystore service instance.

   For information about configuring the keystore, see "Setting up the Keystore for Message Protection" on page 9-7.

Migrating Users and Groups

Users and groups are maintained as part of the WebLogic Server security realm.

To migrate users and groups in embedded LDAP, you can migrate the data using either the Oracle WebLogic Administration Console or WLST. For a complete description of the steps required, see "Migrating Security Data" in Securing Oracle WebLogic Server.

To migrate users and groups in an LDAP store, there is no migration path. You need to recreate the users and groups and specify the assignments in the LDAP store in the

Migrating Credentials

There are two types of credentials maintained in the credential store that you may need to migrate:

- Username and password
- Keystore and encryption key passwords

The migration steps are described in the sections below.

Migrating Username and Password

If users are stored in an embedded LDAP and migrated, as described in "Migrating Users and Groups" on page 15-5, then you simply migrate the existing credentials to the new credential store. For a complete description of the steps required, see "Migrating Security Data" in Securing Oracle WebLogic Server.

If users are stored in an LDAP store, there is no automated migration path. You need to recreate the credentials in the credential store. For more information about configuring credentials, see "Configuring the Credential Store Provider" on page 9-13.

Migrating Keystores and Encryption Key Passwords

You can migrate keystores and encryption key passwords manually using the procedure described in "Migrating Credentials Manually" in "Deploying Secure Applications" in Oracle Fusion Middleware Security Guide.

Migrating Oracle Platform Security Services Application and System Policies

If your Web service uses authorization policies, you must migrate the Oracle Platform Security Services application and system policies that grant permissions. For more information, see "Migrating Policies with the Command migrateSecurityStore" in "OPSS Authorization and the Policy Store" in Oracle Fusion Middleware Security Guide.

Migrating Oracle Platform Security Services Configuration

There is no automated migration path for Oracle Platform Security Services configuration. You must recreate the configuration in the new environment.

There are three types of configurations in the Oracle Platform Security Services that you may need to recreate:

- SAML trusted assertion issuer names (applicable for all SAML policies).
  
  If you use the default configuration for SAML trusted issuer configuration, then no migration is required. For information about configuring SAML in the new environment, see "Configuring the SAML and Kerberos Login Modules" on page 9-15.

- Keystore locations and CSF key configuration for keystore and keystore password (applicable for message protection policies only).
  
  If you use the default configuration for keystores, then no migration is required. For information about configuring keystores in the new environment, see "Setting up the Keystore for Message Protection" on page 9-7.

- Keytab location and service principal name (applicable to Kerberos policy).
For information about configuring the keytab location and service principal name in the new environment, see "Configuring the SAML and Kerberos Login Modules" on page 9-15.

Migrating SSL

There is no automated migration path for SSL configuration. You must configure SSL keystores and settings in the new environment. For more information about configuring SSL keystores and settings in the new environment, see "Configuring Keystores for SSL" on page 9-1.

Migrating Kerberos Configuration

To migrate the Kerberos configuration:

1. Copy the Kerberos configuration file to the new environment, matching the directory structure. The Kerberos configuration file is located in the following locations, based on your operating system:
   - UNIX: /etc/krb5.conf
   - Windows: C:\windows\krb5.ini
2. Initialize the ticket cache with the correct credentials.
   For more information, see "Using Kerberos Tokens" on page 9-21.

Migrating Assertion Templates

You can export individual assertion templates from Oracle Enterprise Manager Fusion Middleware Control. You can then copy the policy to a directory or import the policy to move it to another repository.

For details about exporting and importing assertion templates, see the following sections:

- "Exporting an Assertion Template" on page 13-17
- "Importing an Assertion Template" on page 13-18

Migrating Deployment Descriptors

To deploy an application in a new environment, you must export the application’s deployment configuration to the new environment. Refer to the following topics for information about exporting WebLogic JEE Web services, SOA composites, and ADF data control deployment configuration:

- WebLogic JEE Web services: "Exporting an Application for Deployment to New Environments" in Deploying Applications to Oracle WebLogic Server.

Run-time Web service policy changes to ADF Business Control and WebCenter Web service applications are persisted in proprietary deployment descriptor (PDD) files. To preserve these policy changes in a scaled or new environment, or to propagate these
changes in a domain, you must migrate the PDD files using WLST commands. The following procedure describes the steps required to migrate the PDD files.

1. Connect to the running instance of the WebLogic Administration Server in the domain in which the application is deployed. For instructions, see "Accessing the Web Services Custom WLST Commands" on page 1-6.

2. Optionally, use the listWebServices(None,None,true) command to list all the Web services in all applications and composites in the domain.

   For example:

   ```
   wls:/wls-domain/serverConfig> listWebServices(None,None,true)
   ```

   /wls-domain/ManagedServer1/j2wbasicPolicy:
   - moduleName=j2wbasicPolicy, moduleType=web, serviceName=WssUsernameService
   - enableTestPage: true
   - enableWSDL: true
     - JRFWssUsernamePort http://host:port/j2wbasicPolicy/WssUsername
     - enable: true
     - enableREST: false
     - enableSOAP: true
     - maxRequestSize: -1
     - loggingLevel: NULL
     - security: oracle/wss_username_token_service_policy, enabled=true
     - enableWSDL: true

   3. Modify the policy configuration using Fusion Middleware Control or WLST. For example, to attach the policy oracle/wsmtom_policy policy to ManagedServer1 using WLST, enter the following command:

   ```
   wls:/wls-domain/serverConfig> attachWebServicePolicy('/wls-domain/ManagedServer1/j2wbasicPolicy','j2wbasicPolicy','web','WssUsernameService','JRFWssUsernamePort','oracle/wsmtom_policy,')
   ```

   The policy change is persisted in the application PDD.

4. Restart the application.

5. Optionally, use the listWebServices(None,None,true) command again to verify that the policy is attached to the server instance. For example:

   ```
   wls:/wls-domain/serverConfig> listWebServices(None,None,true)
   ```

   /wls-domain/ManagedServer1/j2wbasicPolicy:
   - moduleName=j2wbasicPolicy, moduleType=web, serviceName=WssUsernameService
   - enableTestPage: true
   - enableWSDL: true
     - JRFWssUsernamePort http://host:port/j2wbasicPolicy/WssUsername
     - enable: true
     - enableREST: false
     - enableSOAP: true
     - maxRequestSize: -1
     - loggingLevel: NULL
     - security: oracle/wss_username_token_service_policy , enabled=true
     - mtom : oracle/wsmtom_policy , enabled=true
6. Export the application PDD to a JAR file using the `exportJRFWSApplicationPDD` WLST command.

   ```
   exportJRFWSApplicationPDD(application, pddJarFileName=None)
   ```

   For example, to export the PDD for the j2wbasicPolicy application using the default JAR filename, use the following command:

   ```
   wls:/wls-domain/serverConfig>
   exportJRFWSApplicationPDD('/wls-domain/ManagedServer1/j2wbasicPolicy', None)
   ```

   The default name and path to the JAR file is displayed.

   ```
   /tmp/j2wbasicPolicy-PDD-20100115-145338.jar
   ```

7. If you are scaling your environment, use the WebLogic Server Administration Console to clone a new Managed Server. For more information, see “Clone Servers” in the WebLogic Server Administration Server Online Help.

   If you are migrating your application to a new environment, ensure that the policies and any other configuration artifacts are copied to the new environment. For more information, see “Migrating Policies” on page 15-4 and “Migrating Policy Configuration” on page 15-5.

8. In a scaled environment, start the cloned Managed Server.

   Note that the oracle/wsmtom_policy is not attached to the cloned Managed Server. To do so using the `listWebServices` command:

   ```
   wls:/wls-domain/serverConfig> listWebServices(None, None, True)
   .
   .
   .
   /wls-domain/ClonedManagedServer/j2wbasicPolicy :
   moduleName=j2wbasicPolicy, moduleType=web, serviceName=WssUsernameService
   enableTestPage: true
   enableWSDL: true
   JRFWssUsernamePort  http://host:port/j2wbasicPolicy/WssUsernameService
   enable: true
   enableREST: false
   enableSOAP: true
   maxRequestSize: -1
   loggingLevel: NULL
   security: oracle/ws_username_token_service_policy , enabled=true
   ```

9. Import the application PDD to the new server, or to the new environment, using the `importJRFWSApplicationPDD` command.

   ```
   importJRFWSApplicationPDD(application, pddJarFileName)
   ```

   For example, to import the PDD JAR created in step 6 to the cloned Managed Server, use the following command:

   ```
   wls:/wls-domain/serverConfig> importJRFWSApplicationPDD
   ('/wls-domain/ClonedManagedServer/j2wbasicPolicy', '/tmp/j2wbasicPolicy-PDD-20100115-145338.jar')
   application  /wls-domain/ClonedManagedServer/j2wbasicPolicy  PDD has been reset, please restart application now to uptake changes!
   ```

10. Restart the application and, optionally, verify the changes by executing the `listWebServices(None, None, True)` command again. For example:
wls:/wls-domain/serverConfig> listWebServices(None, None, true)
.
.
/wls-domain/ClonedManagedServer/j2wbasicPolicy :
   moduleName=j2wbasicPolicy, moduleType=web, serviceName=WssUsernameService
   enableTestPage: true
   enableWSDL: true
       JRFWssUsernamePort  http://host:port/j2wbasicPolicy/WssUsername
       enable: true
       enableREST: false
       enableSOAP: true
       maxRequestSize: -1
       loggingLevel: NULL
       security: oracle/wss_username_token_service_policy , enabled=true
       mtom : oracle/wsmtom_policy , enabled=true

11. Use the **savePddToAllAppInstancesInDomain** command to apply the policy changes (that you applied to a single server in step 9 using the **importJRFWSApplicationPDD** command) to all the server instances in the domain. This command is useful for propagating run-time policy changes to all servers in a cluster.

   savePddToAllAppInstancesInDomain(applicationName, pddJarFileName, restartApp=true)

   For example, to apply the same policy attachment to all server instances running the application in the domain, use the following command:

   wls:/wls-domain/serverConfig>
   savePddToAllAppInstancesInDomain('j2wbasicPolicy', '/tmp/j2wbasicPolicy-PDD-20100115-145338.jar', true)

   The oracle/wsmtom_policy is now attached to all server instances in the domain and the application is automatically restarted.

12. Optionally, execute the **listWebServices(None, None, true)** command to verify the changes were applied to all servers.

   For more information about these deployment migration WLST commands and their arguments, see "Web Services Custom WLST Commands" in *WebLogic Scripting Tool Command Reference*. 

---

**Migrating Deployment Descriptors**

**10.** Oracle Fusion Middleware Security and Administrator's Guide for Web Services
This chapter contains the following sections:

- Diagnosing Problems with Oracle WSM Policy Manager
- Diagnosing Problems Using Logs
- Configuring a Diagnostic Logger for a Web Service

Diagnosing Problems with Oracle WSM Policy Manager

The Oracle WSM Policy Manager manages all Oracle WSM policies and needs to be running in order to use the Oracle WSM policy framework. You can check the current state of the Policy Manager and review its response time, load, and other data from the Oracle WSM Policy Manager page, shown in the following figure.

![Oracle WSM Policy Manager Page](image)

To view the Oracle WSM Policy Manager page:

1. In the navigator pane, expand Application Deployments.
2. Expand Internal Applications.


3. Click **wsm-pm**.

   The Oracle WSM Policy Manager home page is displayed.

4. Perform one or more of the following tasks:
   
   - Check the current state of the Policy Manager and identify the server to which it is deployed.
   - View the response time and current load.
   - Click the Test Point URL to validate the Policy Manager. Click the Validate Policy Manager link. If operational, a list of the predefined policies is displayed with descriptions.

   **Note:** You can navigate to the Test Point URL by entering the following URL into a browser:
   
   http://host:port/wsm-pm/validator.

The following lists the signs that indicate the Oracle WSM Policy Manager is not running. You can restart the wsm-pm application, as described in "Starting and Stopping Applications Using Fusion Middleware Control" in Oracle Fusion Middleware Administrator’s Guide.

   - The Policy Manager state is shown as being shutdown in the Oracle WSM Policy Manager home page, shown in **Figure 16–1**.
   - The wsm-pm internal application deployment displays as being shutdown on the Farm page in the Enterprise Manager, as shown in the following figure.

   **Figure 16–2  Oracle WSM Policy Manager Shutdown (Farm Page)**

   ![Deployment Chart](image)

   **Name** | **Status** | **Target**
   --- | --- | ---
   Application Deployments |  |  
   Internal Applications |  |  
   wsm-pm | ![AdminServer](image) | soa_server1
   wall-wls | ![AdminServer](image) | soa_server1
   wall-wls | ![AdminServer](image) | soa_server1

   - An error dialog box similar to the following displays when you attempt to access the Oracle WSM policy management pages in the Enterprise Manager. This error information is also written to the diagnostic log file, as described in "Reviewing Sample Logs" on page 16-7.
Oracle Fusion Middleware components, including Web services, generate log files containing messages that record all types of events, including startup and shutdown information, errors, warning messages, access information on HTTP requests, and so on. Each log message includes specific information such as time, component ID, and user to assist you in pinpointing and diagnosing problems that arise.

You can review log messages to diagnose problems with specific components, such as Web services. There are two categories of log files that you can reference to assist in diagnosing problems with Web services:

- **Diagnostic logs**—Enable you to access diagnostic data about specific feature components in Oracle Fusion Middleware. For more information, see "Using Diagnostic Logs for Web Services" on page 16-3.
  
  There is a set of predefined diagnostic loggers. You can configure your own diagnostic logger, as described in "Configuring a Diagnostic Logger for a Web Service" on page 16-9.

- **Message logs**—Enable you to view elements of the SOAP message request. You control message log creation using policies. For more information, see "Using Message Logs for Web Services" on page 16-6.

For more information about logging in Oracle Fusion Middleware, see "Managing Log Files and Diagnostic Data" in Oracle Fusion Middleware Administrator's Guide.

The following sections describe how to use diagnostic and message logs to diagnose problems. A set of sample logs is provided at the end of this section.

### Using Diagnostic Logs for Web Services

Diagnostic logs enable you to access diagnostic data about specific feature components in Oracle Fusion Middleware.

The following sections describe how to view and manage diagnostic log files:

- **Setting the Log Level for Diagnostic Logs**
- **Viewing Diagnostic Logs**
- **Filtering Diagnostic Logs**

### Setting the Log Level for Diagnostic Logs

You set the logging level for Web service and Oracle WSM components at the WebLogic Server level, using the Log Configuration page.

In addition, you can override the log levels set at the server level for a specific Web service endpoint from the Web Service Endpoint page. The logging level set at the
Web service endpoint level must be "finer grained" than the level set at the WebLogic Server level. Otherwise, the logging level set at the WebLogic Server level will be used.

The following procedures describe how to set the log level for diagnostic logs at the WebLogic Server and Web service endpoint levels. For more information, see "Setting the Level of Information Written to Log Files" in Oracle Fusion Middleware Administrator’s Guide.

To set the log level for diagnostics logs at the WebLogic Server level:
1. Navigate to the WebLogic Server for which you want to configure diagnostic logs.
   a. In the navigator pane, expand WebLogic Domain.
   b. Expand the domain.
   c. Select the desired server from the list.
      The WebLogic Server home page is displayed.
2. From the WebLogic Server menu, select Logs > Log Configuration.
   The Log Configuration page is displayed.
3. Select the Log Levels tab.
4. Expand Root Logger.
5. Expand oracle.
6. Set the logging level for one or more of the following components:
   ■ oracle.webservices—Web service components.
   ■ oracle.wsm—Oracle WSM components.
   You can fine tune the logging level by expanding either of the above components and specifying the logging level at the subcomponent level. By default, the logging levels are inherited from the parent and set to NOTIFICATION: 1 (INFO) for the Web service and Oracle WSM components and subcomponents.

To set the log level for diagnostic logs at the Web service endpoint level:
1. Navigate to the Web Service Endpoint page, as described in "Viewing the Details for a Web Service Endpoint" on page 6-6.
2. Click the Configuration tab.
3. Set the Logging Level field to one of the following settings: Severe, Warning, Information, Configuration, Fine, Finer, Finest or NULL.

---

**Note:** You can also set the log level at the Web service endpoint using the setWebServiceConfiguration WLST command. Set the loggingLevel property of the itemProperties argument to one of the following settings: SEVERE, WARNING, INFO, CONFIG, FINE, FINER, FINEST, or NULL. For details about using this command, see "Using WLST" in "Configuring the Web Service Endpoint" on page 6-12.

---

**Viewing Diagnostic Logs**
You can view the diagnostic log files for an ADF and WebCenter Web service endpoint from the Log Messages page.
To view diagnostic logs for a Web service endpoint:

Navigate to the Web Service Endpoint page, as described in "Viewing the Details for a Web Service Endpoint" on page 6-6, and in the Quick Links section of the Web Services Endpoint page (top right), click Diagnostic Logs.

Note: You can view a summary of all faults incurred by the Web services in your application. For more information, see "Monitoring the Performance of Web Services" on page 12-1.

The Log Messages page is displayed, as shown in the following figure.

![Log Messages Page](image)

Click on a message in the message area to view more details at the bottom of the page. If desired, you can export a message to a text, XML, or CSV file by selecting the messages on the list and clicking Export Messages to File.

You can control the message content displayed using the following controls:

- **Search**—Modify the search criteria. For more information, see "Filtering Diagnostic Logs" on page 16-6.
- **View menu**—Select the columns to display in the table. Click on a particular column to sort contents up or down.
- **Show menu**—Group messages by type or ID, or view them in chronological order.
- **View Related Messages**—View messages related to those selected on the list.
- **Broaden Target Scope**—Broaden the scope of messages displayed. You can broaden the scope to include all messages for the domain, WebLogic Server, or Farm.
- **Refresh menu**—Specify an automatic or manual refresh rate.

To view the contents of a generated log file:

- Click the log file icon associated with a message to view the contents of that log file.
- Click Target Log Files... to display the Log Files page and view or download the contents of all generated log files.
For more information, see “Searching and Viewing Log Files” in Oracle Fusion Middleware Administrator’s Guide.

Filtering Diagnostic Logs
By default, the Log Messages page displays a summary of diagnostic messages logged over the last hour.

To filter diagnostic logs:
1. Filter the messages that are displayed by updating the search criteria using the following fields:
   - **Date Range**—Set the date range to one of the following:
     - Most Recent—Set the amount of time to define the duration.
     - Time Interval—Set the start and end dates to define the interval.
   - **Message Types**—Select the message types that you want to display.
   - **Add Fields**—Add other message fields to your search criteria, such as Message ID, Component, and so on.
2. Click Search once you have set the fields, as desired.
   The messages area is updated with the filtered results.

For more information, see “Searching and Viewing Log Files” in Oracle Fusion Middleware Administrator’s Guide.

Using Message Logs for Web Services
Message logs enable you to access the contents of the SOAP message requests and responses for ADF and WebCenter Web services and clients. Messages logs are stored in a log file separate from the diagnostic messages, by default.

The following sections describe how to view and manage message log files:
- Configuring Message Logs
- Viewing Message Logs
- Filtering Message Logs

Configuring Message Logs
You configure message logs for a Web service or client by attaching a policy that contains a logging assertion.

There is one predefined logging assertion template: oracle/log_template. This template is configured to log the entire SOAP message for the Web service request and response. By default, all predefined Web service security policies use this logging assertion to capture the entire SOAP message before and after the primary security assertion is executed. By default, the log assertion is not enforced. You must enable it in order for the SOAP message to be logged in message logs. It is recommended that the logging assertion be enabled for debugging and auditing purposes only. For more information about the predefined logging policy, see “oracle/log_policy” on page B-24.

You can create your own logging policy or assertion template to further refine the elements of the SOAP message that are logged for the Web service request and response. For example, you may wish to view only the SOAP body of the request message. To create a new policy, following the procedure described in “Creating Web Service Policies” on page 7-4. You may wish to create a copy of the oracle/log_template...
template assertion template and configure it for use in the new policy. For more information about creating a new assertion template, see "Creating an Assertion Template" on page 13-16.

Viewing Message Logs
You can view the message log files for an ADF and WebCenter Web service endpoint from the Log Messages page.

To view message logs for a Web service endpoint:
Navigate to the Web Service Endpoint page, as described in "Viewing the Details for a Web Service Endpoint" on page 6-6, and in the Quick Links section of the Web Services Endpoint page (top right), click Message Logs.

The Log Messages page is displayed, similar to Figure 16–4. For more details about the contents of the Log Messages page, see "Viewing Diagnostic Logs" on page 16-4.

Filtering Message Logs
By default, the Log Messages page displays a summary of SOAP messages logged over the last hour. You can filter the messages that are displayed by updating the search criteria. The process is the same as for diagnostic logs; for more information, see "Filtering Diagnostic Logs" on page 16-6.

By default, the Component and Module message fields are included as part of the Search criteria for message logs. The Component field is set to the WebLogic Server name; the Module field is set to oracle.wsm.msg.logging, which is the name of the message logging component.

Reviewing Sample Logs
The following sections provide excerpts from sample logs, demonstrating how to diagnose specific problems using the log entries.

- **Sample Log: Oracle WSM Policy Manager Not Available**
- **Sample Log: Security Keystore Not Configured**
- **Sample Log: Certificate Not Available**

Sample Log: Oracle WSM Policy Manager Not Available
The following sample log excerpt indicates that the Oracle WSM Policy Manager is down. To resolve this issue, restart the wsm-pm application, as described in "Starting and Stopping Applications Using Fusion Middleware Control" in Oracle Fusion Middleware Administrator’s Guide.

```
```

Sample Log: Security Keystore Not Configured
The following sample log excerpt indicates that an Oracle WSM security policy with message protection was applied, but the keystore was not configured. To resolve this
security fault, configure the keystore, as described in "Setting up the Keystore for Message Protection" on page 9-7.

Feb 16, 2009 5:29:56 PM oracle.wsm.common.logging.WsmMessageLogger logSevere
SEVERE: The specified Keystore file /scratch/sbollapa/stage131/user_projects/domains/sai131_domain/config/fmwconfig/default-keystore.jks cannot be found; it either does not exist or its path is not included in the application classpath.

Feb 16, 2009 5:29:56 PM oracle.wsm.common.logging.WsmMessageLogger logSevere
SEVERE: Keystore is not properly configured in jps config.

Feb 16, 2009 5:29:56 PM oracle.wsm.common.logging.WsmLogUtil log
SEVERE: failure in OWSM Agent processRequest, category=security, function=agent.function.client, application=default, composite=pe3test3, modelObj=Serviced, + policy=null, policyVersion=null, assertionName=null
oracle.wsm.common.sdk.WSMException: WSM-00101 : The specified Keystore file /scratch/sbollapa/stage131/user_projects/domains/sai131_domain/config/fmwconfig/default-keystore.jks cannot be found; it either does not exist or its path is not included in the application classpath.

Sample Log: Certificate Not Available
The following sample log excerpt indicates that an Oracle WSM security policy with message protection was applied that required a security certificate that was not available in the keystore. To resolve this security fault, configure the keystore with a certificate, as described in "Setting up the Keystore for Message Protection" on page 9-7.

[2009-04-15T04:07:02.821-07:00] [jrfServer] [ERROR] [WSM-000062] [oracle.wsm.resources.security] [tid: [ACTIVE].ExecuteThread: '0' for queue: 'weblogic.kernel.Default (self-tuning)'] [userId: <anonymous>] [ecid: 000012d7f07d7cision9eh9uh19tRyv000000,0:1] [WEBSERVICE_PORT.name: NonCAAsCAMessageProtectionPolicyPort] [APP: jaxwsservices] [J2EE_MODULE.name: NonCAAsCAMessageProtectionPolicy] [WEBSERVICE.name: NonCAAsCAMessageProtectionPolicyService] [J2EE_APP.name: jaxwsservices] [arg: oracle.wsm.security.SecurityException: WSM-00062 : The path to the certificate used for the signature is invalid.]

[2009-04-15T04:07:02.810-07:00] [jrfServer] [NOTIFICATION] [] [oracle.wsm.security.policy.scenario.processor.Was1X509TokenProcessor] [tid: [ACTIVE].ExecuteThread: '0' for queue: 'weblogic.kernel.Default (self-tuning)'] [userId: <anonymous>] [ecid: 000012d7f07d7cision9eh9uh19tRyv000000,0:1] [WEBSERVICE_PORT.name: NonCAAsCAMessageProtectionPolicyPort] [APP: jaxwsservices] [J2EE_MODULE.name: NonCAAsCAMessageProtectionPolicy] [WEBSERVICE.name: NonCAAsCAMessageProtectionPolicyService] [J2EE_APP.name: jaxwsservices] Certificate path validation failed for signing certificate

[2009-04-15T04:07:02.821-07:00] [jrfServer] [ERROR] [WSM-000062] [oracle.wsm.security.policy.scenario.processor.Was1X509TokenProcessor] [tid: [ACTIVE].ExecuteThread: '0' for queue: 'weblogic.kernel.Default (self-tuning)'] [userId: <anonymous>] [ecid: 000012d7f07d7cision9eh9uh19tRyv000000,0:1] [WEBSERVICE_PORT.name: NonCAAsCAMessageProtectionPolicyPort] [APP: jaxwsservices] [J2EE_MODULE.name: NonCAAsCAMessageProtectionPolicy] [WEBSERVICE.name: NonCAAsCAMessageProtectionPolicyService] [J2EE_APP.name: jaxwsservices] [arg: oracle.wsm.security.SecurityException: WSM-00062 : The path to the certificate used for the signature is invalid.] Error in receiving the request: oracle.wsm.security.SecurityException: WSM-00062 : The path to the certificate used for the signature is invalid.
Configuring a Diagnostic Logger for a Web Service

To further organize your diagnostic data, you can configure a new diagnostic logger for a Web service. You can configure diagnostic loggers for SOA, ADF, and Web Center services.

By default, the following loggers are defined:

- odl-handler—Logs general diagnostic data for the Java EE components in the server.
- owsm-message-handler—Logs SOAP messages as per Oracle WSM logging policies.
- owsm-odl-handler—Logs diagnostic data for Oracle WSM components.

To configure a diagnostic logger for a Web service:

1. Navigate to the WebLogic Server for which you want to configure a diagnostic logger.
   a. In the navigator pane, expand WebLogic Domain.
   b. Expand the domain.
   c. Select the desired server from the list.
      The WebLogic Server home page is displayed.

2. From the WebLogic Sever menu, select Logs > Log Configuration.
   The Log Configuration page is displayed.

3. Select the Log Files tab.
   The current list of diagnostic loggers is displayed.

4. Click Create.

   Note: To copy the configuration for an existing diagnostic logger, select the logger and click Create Like.

   The Create Log File page is displayed.

5. Enter the data for the diagnostic logger, as follows.

   Table 16–1 Fields in Create Log File Page

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Handler Class</td>
<td>Handler class. Leave this value set to oracle.core.ojdl.looging.ODLHandlerFactory.</td>
</tr>
<tr>
<td>Log File</td>
<td>Name of the log file.</td>
</tr>
<tr>
<td>Log Path</td>
<td>Path to the log file.</td>
</tr>
<tr>
<td>Log File Format</td>
<td>Format of the log file. Valid values are text or XML.</td>
</tr>
</tbody>
</table>
Configuring a Diagnostic Logger for a Web Service

6. Click OK to create the diagnostic logger.

<table>
<thead>
<tr>
<th>Table 16–1 (Cont.) Fields in Create Log File Page</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Field</strong></td>
</tr>
<tr>
<td>Log Level</td>
</tr>
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<tr>
<td></td>
</tr>
<tr>
<td>Use Default Attributes</td>
</tr>
<tr>
<td>Supplemental Attributes</td>
</tr>
<tr>
<td>Loggers to Associate</td>
</tr>
<tr>
<td>Rotation Policy</td>
</tr>
</tbody>
</table>
Maintaining the MDS Repository

The following topics provide guidance for maintaining the Metadata Services (MDS) repository for Oracle Web services:

- About the MDS Repository
- Understanding the Different Mechanisms for Importing and Exporting Policies
- Migrating Policies Between Application Environments
- Patching Policies in the Repository
- Backing Up and Restoring the MDS Repository
- Upgrading the Oracle WSM Policies in the MDS Repository
- Rebuilding the MDS Repository

About the MDS Repository

Oracle Web Services Manager (WSM) uses an MDS repository to store policies, assertion templates, and policy usage data. Policies, assertion templates, and usage data can be stored either as files in the file system (supported for development) or to the Oracle Fusion Middleware database (supported for production).

For a list of the databases that are supported for this release, see Oracle Fusion Middleware Supported System Configurations at: http://www.oracle.com/technology/software/products/ias/files/fusion_certification.html

Within the repository, each policy has a URI that is evaluated to form a path in which to locate a particular XML document containing the policy. Oracle WSM does not use the MDS customization feature, so all policies are stored as complete documents. Although MDS supports the ability to store multiple versions of a given document, Oracle WSM only accesses the latest version during policy enforcement.

Details about managing the MDS repository are provided in the following documents:

- "Metadata Services (MDS) Custom WLST Commands" in WebLogic Scripting Tool Command Reference
- "Managing the Metadata Repository" in Oracle Fusion Middleware Administrator’s Guide
Understanding the Different Mechanisms for Importing and Exporting Policies

You can use Fusion Middleware Control or MDS WebLogic Scripting Tool (WLST) commands to import and export policies to and from the MDS repository. While both mechanisms perform the same basic functions, you should understand the subtle differences in their behavior before deciding which one to use.

The following sections describe the differences between the two mechanisms.

Using Fusion Middleware Control

Oracle Enterprise Manager Fusion Middleware Control provides the ability to selectively import and export one policy at a time. When you import or export a policy using Fusion Middleware Control, the operation is routed through an instance of the Oracle WSM Policy Manager application. At runtime, when a request for a policy is made, the Policy Manager guarantees that the latest policy is always provided. Therefore, the latest policies are always enforced.

The procedures for importing and exporting policies using Fusion Middleware Control are described in the following sections:

- "Importing Web Service Policies" on page 7-7
- "Exporting Web Service Policies" on page 7-14

Using MDS Custom WLST Commands

The MDS custom WLST commands provide a command-line interface that you can use to make direct modifications to the MDS repository. Unlike Fusion Middleware Control, when you import or export policies using importMetadata and exportMetadata MDS WLST commands, the operation is not routed through an instance of the Oracle WSM Policy Manager. Consequently, Oracle Web Services Manager may not be aware of the changes and may continue to enforce outdated policies. To ensure that only the latest policies are enforced, you must restart all the servers to which the MDS repository is registered.

An example for using these commands is provided in "Migrating Policies" on page 15-4.

For more information about the importMetadata and exportMetadata commands, see "Metadata Services (MDS) Custom WLST Commands" in WebLogic Scripting Tool Command Reference.

Migrating Policies Between Application Environments

Policies can be migrated through the different stages of the application development and deployment cycles, such as from development to production. Policy migration is described in more detail in "Migrating Policies" on page 15-4

When using the MDS WLST commands to perform the migration, it is important to ensure that only the desired policies are transferred. You specify the set of metadata objects that are exported (using the exportMetadata command) or imported (using the importMetadata command) using the docs parameter. If the value /** is provided (the default), all objects, including policies, assertion templates, and policy usage data are transferred. While it may be desirable to transfer all of the policies and assertion templates, transferring the policy usage data will introduce errors into the usage analysis numbers reported in Fusion Middleware Control if the source and
target environments are not identical. Therefore, it is recommended that you use a more specific path when you are exporting policies (or assertion templates).

If you adhered to the recommended naming conventions described in "Recommended Naming Conventions for Policies" on page 3-9 when you named your policies, and you placed all custom policies into their own directory, then you can easily limit the export to the required documents by specifying the directory name. For example, to export only the policies under the mycompany directory, specify the following command:

```bash
exportMetadata(application='wsm-pm',server='myserver',
docs='/policies/mycompany/**',toLocation='/exported/owsm_policies')
```

If it is not possible to specify all of the necessary objects in a single command (for example, if policies reside in more than one directory or it is necessary to export both policies and assertion templates), you can specify the exportMetadata command multiple times.

---

**Note:** The Policy Manager requires that all policies be located in a /policies directory. Therefore, although you can use any directory name that you choose when exporting policies, any policies to be imported must be located in a /policies directory. For example, if you export policies to a directory named /somedir/mypolicies and you want to import these policies, you must either rename the directory to /somedir/policies or copy the policies to a /policies directory.

You should not specify the /policies directory with the importMetadata command. For example:

```bash
importMetadata
(application='wsm-pm',server='myserver',docs='/somedir/**')
```

---

For more information about the importMetadata and exportMetadata commands, see "Metadata Services (MDS) Custom WLST Commands" in WebLogic Scripting Tool Command Reference.

### Exporting Policies from the MDS Repository for Use in JDeveloper

In JDeveloper, you can add custom policies to the default policy store location at:

```bash
C:\Documents and Settings\user-dir\ApplicationData\JDeveloper\system11.1.2.x.x.x\DefaultDomain\oracle\store\gmds
```

Within this directory, Oracle WSM policies files must be included using one of the following directory structures:

- **Predefined Oracle WSM policies:** `owsm/policies/oracle/policy_file`
- **Custom user policies:** `owsm/policies/policy_file`

When exporting policy files from the Oracle WSM Metadata Services (MDS) repository for use in JDeveloper, this directory structure is not maintained. You must ensure that when adding the exported policy to the JDeveloper environment that you use the required directory structure noted above. Otherwise, the policies will not be available in the JDeveloper environment.
Patching Policies in the Repository

You can patch the repository using either Fusion Middleware Control or the WLST commands, as described in "Understanding the Different Mechanisms for Importing and Exporting Policies" on page 17-2. When you create or update a policy, there are two possible scenarios to consider when you patch the repository:

- You create a new policy or update an existing policy that uses a new policy URI. In this scenario, the patching of the repository acts as if a new file was added to the installation and, as a result, only impacts the components that expect to use the new policy. Once loaded, the policy is available to all applications. Generally speaking, using a new policy URI is the preferred model as policies are typically named to convey the behavior they represent.

- You create a new policy or update an existing policy that uses an existing policy URI. In this scenario, the patching of the repository acts as if an existing file was overwritten with a new version and, therefore, impacts all components that are using the existing policy. Once loaded, all applications will use the new version of the policy. Reusing an existing URI is typically only done to make minor modifications to the behavior of a policy. Note that if you use WLST commands to patch the repository, you need to restart the server to ensure that the latest version of the policy is enforced. You do not need to restart if you use Fusion Middleware Control.

Backing Up and Restoring the MDS Repository

Although the use cases are different, backing up and restoring the repository is functionally identical to migrating policies between environments. To back up the repository, use the exportMetadata command to export all repository artifacts. To restore the repository, use the importMetadata command to import all repository artifacts.

For additional information, see "Migrating Policies Between Application Environments" on page 17-2.

For details about these commands, see "Metadata Services (MDS) Custom WLST Commands" in WebLogic Scripting Tool Command Reference.

Upgrading the Oracle WSM Policies in the MDS Repository

Both predefined and custom Oracle WSM policies are stored in the Oracle MDS repository. In subsequent releases, these predefined policies may be discontinued, changed, or additional predefined policies may be provided. You can use the Web services custom WLST commands to upgrade the repository with new or updated predefined policies when you install a new version of the Fusion Middleware software. You can also refresh the repository by deleting all Oracle WSM policies from the repository, including custom policies, and then repopulating it using the predefined policies provided in your installation. All of the policies in the repository are also revalidated when you upgrade the repository.

**Note:** You should back up your existing policies to a safe location before deleting any policies. In the event you have any issues with the new policies, you can import the existing policies from the backup.

To upgrade the MDS repository:
1. Install the new version of Oracle Fusion Middleware.

2. Ensure that the MDS repository to be upgraded is registered with the new installation of Oracle Fusion Middleware. For more information, see “Registering a Metadata Services (MDS) Repository” on page 13-18.

3. Invoke WLST from the Oracle home in which you installed the new version of Oracle Fusion Middleware as described in "Accessing the Web Services Custom WLST Commands" on page 1-6.

4. Do one of the following:
   - To add new predefined policies that are provided in the latest installation of the Oracle Fusion Middleware software, enter the following command:
     
     ```java
     upgradeWSMPolicyRepository()
     ```
     
     When you execute this command, a message is displayed indicating the policies that have been added to the repository. Note that existing predefined and user-defined custom policies in the repository are unchanged. The output message also displays a list of any existing predefined policies that have changed or discontinued in the latest release. If a policy has been discontinued and is no longer supported, Oracle recommends that you remove all references to it and then delete it using Oracle Enterprise Manager. If a predefined policy has changed in the latest release, Oracle recommends that you import the updated version of the policy using Oracle Enterprise Manager. For details about deleting and importing policies using Enterprise Manager, see Chapter 7, "Managing Web Service Policies."
   
   - To delete existing predefined policies stored in the repository and replace them with the latest set of predefined policies, use the following command:
     
     ```java
     resetWSMPolicyRepository(false)
     ```
     
     User-defined custom policies are unchanged. An output message is displayed that lists the predefined policies that have been added, deleted, or replaced in the repository.
   
   - To delete all policies from the repository, including custom policies, and replace them with the latest set of predefined policies, use the following command:
     
     ```java
     resetWSMPolicyRepository(true)
     ```

     **Note:** Before you delete a policy, Oracle recommends that you verify that the policy is not attached to any policy subjects.

When you execute any of these commands, all existing policies are revalidated.

For more information about these WLST commands, see "Policy Repository Upgrade Commands" in *WebLogic Scripting Tool Command Reference*.

**Rebuilding the MDS Repository**

In some circumstances, it may be desirable to rebuild the entire repository, including restoring the original predefined policies and assertion templates. For example, when starting a new project in a test environment it may be useful to reset the repository contents to their original state.

To rebuild the policy repository, perform the following steps:
1. Connect to the Administration Server instance of the WebLogic Server domain to which the repository is registered. For instructions, see "Accessing the Web Services Custom WLST Commands" on page 1-6.

---

**Note:** You should back up your existing policies to a safe location before deleting any policies or rebuilding the repository. In the event you have any issues with the new policies, you can import the existing policies from the backup.

---

2. Use the `resetWSMPolicyRepository(true)` command to delete all the documents from the Oracle WSM partition of the repository and repopulate it with the set of predefined policies and assertion templates that were installed with the software. This is the preferred method.

   For more information about the `resetWSMPolicyRepository` WLST command, see "Policy Repository Upgrade Commands" in *WebLogic Scripting Tool Command Reference*.

   Alternatively, you can use the `deleteMetadata` MDS WLST command, for example:

   ```
   deleteMetadata(application='wsm-pm',server='soa_server1',docs='/**')
   ```

   After you execute the `deleteMetadata` command, restart the Managed Server in which the Oracle WSM policy manager is running. On startup, the policy manager will detect an empty repository and will automatically install the original predefined policies and assertion templates.

---

**Note:** Before you delete a policy, Oracle recommends that you verify that the policy is not attached to any policy subjects.

---

For details about the `deleteMetadata` command, see "Metadata Services (MDS) Custom WLST Commands" in *WebLogic Scripting Tool Command Reference*. 
Part IV

WebLogic Web Service Administration

Part IV contains the following chapter:

- Chapter 18, "Securing and Administering WebLogic Web Services"
Securing and Administering WebLogic Web Services

This chapter describes how to secure and administer WebLogic Web services, including the following sections:

- Steps to Secure and Administer WebLogic Web Services
- Attaching Policies to WebLogic Web Services and Clients

Steps to Secure and Administer WebLogic Web Services

Table 18–1 summarizes the steps required to administer and secure WebLogic Web services. For information about developing WebLogic Web services, see Getting Started With JAX-WS Web Services for Oracle WebLogic Server.

<table>
<thead>
<tr>
<th>#</th>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
</table>
| 1   | Deploy and administer the WebLogic Web service.                      | Use the Oracle WebLogic Server Administration Console to perform the following deployment and administration tasks:  
- Deploy a WebLogic Web service and view deployed services.  
- Start and stop a WebLogic Web service.  
- View the WebLogic Web service configuration.  
- Delete a WebLogic Web service.  
- View the SOAP message handlers.  
- View the WSDL.  
For more information, see "Web Services" in the Oracle WebLogic Server Administration Console Online Help. |
| 2   | Attach the security and management policies to your WebLogic Web services and clients. | You can attach two types of policies to WebLogic Web services and clients at design and deployment time: Oracle WSM and WebLogic Web service policies. You can use Oracle Enterprise Manager Fusion Middleware Control to attach Oracle WSM security policies to WebLogic JEE Web services (not clients). For details, see "Attaching Policies to WebLogic Web Services and Clients" on page 18-2. |
| 3   | Test the WebLogic Web services.                                      | See "Testing Web Services" on page 11-1.                                                                                                                                                                   |
| 4   | Monitor the performance of WebLogic Web services.                    | See "Monitoring the Performance of Web Services" on page 12-1.                                                                                                                                              |
Attaching Policies to WebLogic Web Services and Clients

In Oracle Fusion Middleware 11g Release 1 (11.1.1), you can provide security and management policy enforcement of WebLogic Web services using one of the following policy types: Oracle WSM or WebLogic Web service.

The following table describes each policy type.

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oracle Web Services Manager (WSM) Policy</td>
<td>Provided by the Oracle WSM. For more information about the Oracle WSM and the predefined policies, see &quot;Understanding Oracle WSM Policy Framework&quot; on page 3-1. You can attach Oracle WSM policies to WebLogic JAX-WS Web services only.</td>
</tr>
<tr>
<td>WebLogic Web Service Policy</td>
<td>Provided by Oracle WebLogic Server. For more information about the WebLogic Web service policies, see Securing WebLogic Web Services for Oracle WebLogic Server. A subset of WebLogic Web service policies interoperate with Oracle WSM policies. For more information, see &quot;Interoperability with Oracle WebLogic Server 11g Web Service Security Environments&quot; in Interoperability Guide for Oracle Web Services Manager.</td>
</tr>
</tbody>
</table>

**Note:** It is recommended that you use Oracle WSM policies whenever possible. You cannot mix your use of Oracle WSM and WebLogic Web service policies.

The following sections describe how to attach each type of policy to WebLogic Web services and clients.

- **Attaching Oracle WSM Policies to WebLogic Web Services**
- **Attaching Oracle WSM Policies to WebLogic Web Service Clients**
- **Attaching WebLogic Web Service Policies to WebLogic Web Services**
- **Attaching WebLogic Web Service Policies to WebLogic Web Service Clients**

**Attaching Oracle WSM Policies to WebLogic Web Services**

You attach Oracle WSM policies to WebLogic Web services at design time and after the Web service has been deployed.

- **At design time,** use the `weblogic.wsee.jws.jaxws.owsm.SecurityPolicy` and `weblogic.wsee.jws.jaxws.owsm.SecurityPolicies` JWS annotations in your JWS file to associate policy files with your Web service. You can associate any number of policy files with a Web service, although it is up to you to ensure that the assertions do not contradict each other. You can specify a policy file at the class level of your JWS file. For more information, see the following sections:
  - "Using Policies with Web Services" in "Developing with Web Services" in the Oracle JDeveloper online help.

- **After the Web service has been deployed,** you can use the Oracle WebLogic Server Administration Console to attach Oracle WSM policies to WebLogic Web services. You can also use Oracle Enterprise Manager Fusion Middleware Control to attach Oracle WSM security policies to WebLogic Web services. For more information about attaching policies using Fusion Middleware Control, see...
Chapter 8, "Attaching Policies to Web Services." For more information about attaching policies using the WebLogic Server Administration Console, see "Associate a WS-Policy file with a Web Service" in the WebLogic Server Administration Console Online Help.

**Attaching Oracle WSM Policies to WebLogic Web Service Clients**

You attach policies to WebLogic Web service clients at design time, using JAX-WS Stubs. For more information, see "Using Oracle Web Service Security Policies" in Securing Web Services for Oracle WebLogic Server.

**Attaching WebLogic Web Service Policies to WebLogic Web Services**

You attach policies to WebLogic Web services at both design time and after the Web service has been deployed.

- At design time, use the `weblogic.jws.Policy` and `weblogic.jws.Policies` JWS annotations in your JWS file to associate policy files with your Web service. You can associate any number of policy files with a Web service, although it is up to you to ensure that the assertions do not contradict each other. You can specify a policy file at the class level of your JWS file. For more information, see the following sections:
  - Securing WebLogic Web Services for Oracle WebLogic Server.
  - "Using Policies with Web Services" in "Developing with Web Services" in the Oracle JDeveloper online help.

- After the Web service has been deployed, use the Oracle WebLogic Server Administration Console to attach WebLogic Web service policies to WebLogic Web services. For more information, see "Associate a WS-Policy file with a Web Service" in the WebLogic Server Administration Console Online Help.

**Attaching WebLogic Web Service Policies to WebLogic Web Service Clients**

You attach policies to WebLogic Web service clients at design time, using JAX-WS Stubs. For more information, see "Using a Client-side Security Policy File" in Securing Web Services for Oracle WebLogic Server.
Part V contains the following chapters:

- Appendix A, "Web Service Security Standards"
- Appendix B, "Predefined Policies"
- Appendix C, "Predefined Assertion Templates"
- Appendix D, "Schema Reference for Predefined Assertions"
- Appendix E, "Schema Reference for Custom Assertions"
Security standards are implemented in non-XML frameworks at the transport level, and in XML frameworks at the application level.

The following sections describe the standards that are key to providing secure and manageable SOA environments at both the transport and application levels.

- Web Services Interoperability Organization—Basic Security Profile
- Transport Layer Security—SSL
- XML Encryption (Confidentiality)
- XML Signature (Integrity, Authenticity)
- WS-Security
- WS-Security Tokens
- WS-Policy
- WS-SecurityPolicy
- Web Services Addressing (WS-Addressing)
- WS-ReliableMessaging

See Also: For a complete list of standards supported by Oracle WebLogic Web services, see "Standards Supported by WebLogic Web Services" in Introducing WebLogic Web Services for Oracle WebLogic Server.

Web Services Interoperability Organization—Basic Security Profile

Oracle considers interoperability of Web services platforms to be more important than providing support for all possible edge cases of the Web services specifications. Oracle complies with the following specification from the Web Services Interoperability Organization and considers it to be the baseline for Web services interoperability:
Transport Layer Security—SSL

Secure Sockets Layer (SSL), also known as Transport Layer Security (TLS), is the most widely used transport-layer data-communication protocol. SSL provides the following:

- Authentication—communication is established between two trusted parties.
- Message confidentiality—data exchanged is encrypted.
- Message integrity—data is checked for corruption.
- Secure key exchange between client and server

SSL can be used in three modes:

- No authentication: Neither the client nor the server authenticates itself to the other. No certificates are sent or exchanged. In this case, only confidentiality (encryption/decryption) is used.
- One-way authentication (or server authentication): Only the server authenticates itself to the client. The server sends the client a certificate verifying that the server is authentic. This is typically the approach used for Internet transactions such as online banking.
- Two-way authentication (or bilateral authentication): Both client and server authenticate themselves to each other by sending certificates to each other. This approach is necessary to prevent attacks from occurring between a proxy and a Web service endpoint.

SSL uses a combination of secret-key and public-key cryptography to secure communications. SSL traffic uses secret keys for encryption and decryption, and the exchange of public keys is used for mutual authentication of the parties involved in the communication.

XML Encryption (Confidentiality)

The XML encryption specification describes a process for encrypting data and representing the result in XML. Specifically, XML encryption defines:

- How digital content is encrypted and decrypted.
- How the encryption key information is passed to a recipient.
- How encrypted data is identified to facilitate encryption.

An XML document may be encrypted as a whole or in part. Example A–1 illustrates credit card data represented in XML.

**Example A–1 XML Representation of Credit Card Data**

```
<PaymentInfo xmlns="http://www.example.com/payment">
  <CreditCard>
    <Name>John Smith</Name>
    <CreditCardNumber>4019 2445 0277 5567</CreditCardNumber>
    <Limit>5000</Limit>
    <Issuer>Example Bank</Issuer>
    <Expiration>04/02</Expiration>
  </CreditCard>
</PaymentInfo>
```
Example A–2 illustrates the same XML snippet with the credit card number encrypted and represented by a cipher value.

Example A–2  XML Representation of Encrypted Credit Card Data

```xml
<PaymentInfo xmlns='http://www.example.com/payment'>
  <CreditCard>
    <Name>John Smith</Name>
    <CreditcardNumber>
      <EncryptedData xmlns="http://www..." Type="http://www...">
        <CipherData>
          <CipherValue>A23B4...5C56</CipherValue>
        </CipherData>
      </EncryptedData>
    </CreditcardNumber>
    <Limit>5000</Limit>
    <Issuer>Example Bank</Issuer>
    <Expiration>04/02</Expiration>
  </CreditCard>
</PaymentInfo>
```

See Also:
For more information about XML encryption, see "XML Encryption Syntax and Processing" specification at:
http://www.w3.org/TR/xmlenc-core

XML Signature (Integrity, Authenticity)

The XML Signature specification describes signature processing rules and syntax. XML Signature binds the sender’s identity (or “signing entity”) to an XML document. The document is signed using the sender’s private key; the signature is verified using the sender’s public key.

Signing and signature verification can be done using asymmetric or symmetric keys. XML Signature also ensures non-repudiation of the signing entity, that is, it provides proof that messages have not been altered since they were signed.

A signature can apply to a whole document or just part of a document, as shown in the following example.

Example A–3  XML Representation of Signed Data

```xml
<Signature xmlns="http://www.w3.org/2000/09/xmldsig#">
  <!-- The signedInfo element allows us to sign any portion of a document -->
  <SignedInfo>
    <CanonicalizationMethod Algorithm="http://www..."/>
    <SignatureMethod Algorithm="http://www..."/>
    <Reference URI="#Body">
      <DigestMethod Algorithm="http://www..."/>
      <DigestValue>o+jtqlieRtF6DrUb...X8O9M/CmySg</DigestValue>
    </Reference>
  </SignedInfo>
  <!-- Following is the result of running the algorithm over the document. If changes are made to the document, the SignatureValue is changed. The security application verifies the SignatureValue, extracts the X.509 cert and uses it to authenticate the user -->
  <SignatureValue>oa+ttbsvSFi...EtRD2oNC5</SignatureValue>
</Signature>
```
WS-Security

Web Services Security (WS-Security) specifies SOAP security extensions that provide confidentiality using XML Encryption and data integrity using XML Signature. WS-Security also includes profiles that specify how to insert different types of binary and XML security tokens in WS-Security headers for authentication and authorization purposes. WS-Security token profiles are described in the following sections.

See Also:

For more information about WS-Security and its specification, see:


WS-Security Tokens

Web services security supports the following security tokens:

- Username—defines how a Web service consumer can supply a username as a credential for authentication. For more information, see "Username" on page A-4
- X.509 certificate—a signed data structure designed to send a public key to a receiving party. For more information, see "X.509 Certificate" on page A-5
- Kerberos ticket—a binary authentication and session token. For more information, see "Kerberos Ticket" on page A-5
- Security Assertion Markup Language (SAML) assertion—shares security information over the Internet through XML documents. For more information, see "SAML Token" on page A-5

Username

The username token carries basic authentication information. The username-token element propagates username and password information to authenticate the message.
The information provided in the token and the trust relationship provide the basis for establishing the identity of the user.

**See Also:**
For more information about the username token profile, see:


**X.509 Certificate**

An X.509 digital certificate is a signed data structure designed to send a public key to a receiving party. A certificate includes standard fields such as certificate ID, issuer’s Distinguished Name (DN), validity period, owner’s DN, owner’s public key, and so on.

Certificates are issued by certificate authorities (CA). A CA verifies an entity’s identity and grants a certificate, signing it with the CA’s private key. The CA publishes its own certificate which includes its public key.

Each network entity has a list of the certificates of the CAs it trusts. Before communicating with another entity, a given entity uses this list to verify that the signature of the other entity’s certificate is from a trusted CA.

**See Also:**
For more information about the X.509 token profile, see:

http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-x509-token-profile-1.0.pdf

**Kerberos Ticket**

Kerberos is a cross-platform authentication and single sign-on system. The Kerberos protocol provides mutual authentication between two entities relying on a shared secret (symmetric keys). Kerberos uses the following terminology:

- A Principal is an identity for a user (i.e., a user is assigned a principal), or an identity for an application offering Kerberos services.
- A Realm is a Kerberos server environment; a Kerberos realm can be a domain name such as EXAMPLE.COM (by convention expressed in uppercase).

Kerberos involves a client, a server, and a trusted party to mediate between them called the Key Distribution Center (KDC). Each Kerberos realm has at least one KDC. KDCs come in different packages based on the operating platform used (for example, on Microsoft Windows, the KDC is a domain service). The Kerberos Token profile of WS-Security allows business partners to use Kerberos tokens in service-oriented architectures.

**SAML Token**

The Security Assertion Markup Language (SAML) is an open framework for sharing security information over the Internet through XML documents. SAML was designed to address the following:

- Limitations of web browser cookies to a single domain: SAML provides a standard way to transfer cookies across multiple Internet domains.
Proprietary web single sign-on (SSO): SAML provides a standard way to implement SSO within a single domain or across multiple domains. This functionality is provided by the Oracle Identity Federation product.

Federation: SAML facilitates identity management (e.g., account linking when a single user is known to multiple web sites under different identities), also supported by Oracle Identity Federation.

Web Services Security: SAML provides a standard security token (a SAML assertion) that can be used with standard web services security frameworks (e.g., WS-Security) – This is the use of SAML that is particularly relevant to web services security, fully supported by Oracle WSM.

Identity propagation: SAML provides a standard way to represent a security token that can be passed across the multiple steps of a business process or transaction, from browser to portal to networks of web services, also a feature supported by Oracle WSM.

The SAML framework includes 4 parts:

- Assertions: How you define authentication and authorization information.
- Protocols: How you ask (SAML Request) and get (SAML Response) the assertions you need.
- Bindings: How SAML Protocols ride on industry-standard transport (e.g., HTTP) and messaging frameworks (e.g., SOAP).
- Profiles: How SAML Protocols and Bindings combine to support specific use cases.

In the context of WS-Security, only SAML assertions are used. The protocols and bindings are provided by the WS-Security framework. SAML is widely adopted by the industry, both for browser-based federation and federation enabled by web services flows.

SAML assertions are very popular security tokens within WS-Security because they are very expressive and can help prevent man-in-the-middle and replay attacks.

Typically, a SAML assertion makes statements about a principal (a user or an application). All SAML assertions include the following common information:

- Issuer ID and issuance timestamp
- Assertion ID
- Subject
- Name
- Optional subject confirmation (for example, a public key)
- Optional conditions (under which an assertion is valid)
- Optional advice (on how an assertion was made)

SAML assertions can include three types of statements:

- Authentication statement: issued by an authentication authority upon successful authentication of a subject. It asserts that Subject S was authenticated by Means M at Time T.
- Attribute statement: issued by an attribute authority, based on policies. It asserts that Subject S is associated with Attributes A, B, etc. with values a, b, and so on.
Authorization decision statement (deprecated in SAML 2.0, now supported by XACML): issued by an authorization authority which decides whether to grant the request by Subject S, for Action A (e.g., read, write, etc.), to Resource R (e.g., a file, an application, a Web service), given Evidence E.

SAML assertions can be embedded (i.e., a SAML assertion can contain another SAML assertion). SAML assertions can be signed (using XML Signature) and/or encrypted (using XML Encryption).

See Also:
For more information about the SAML token profile, see:
http://docs.oasis-open.org/wss/oasis-wss-saml-token-profile-1.0.pdf

WS-Policy

Together with WS-Security, WS-Policy is another key industry standard for Oracle Fusion Middleware security.

A Web service provider may define conditions (or policies) under which a service is to be provided. The WS-Policy framework enables one to specify policy information that can be processed by web services applications, such as Oracle WSM.

A policy is expressed as one or more policy assertions representing a Web service’s capabilities or requirements. For example, a policy assertion may stipulate that a request to a Web service be encrypted. Likewise, a policy assertion can define the maximum message size that a Web service can accept.

WS-Policy expressions are associated with various web services components using the WS-PolicyAttachment specification. WS-Policy information can be embedded in a WSDL file, thus making it easy to expose Web service policies through a UDDI registry.

WS-SecurityPolicy

WS-SecurityPolicy is part of the Web Services Secure Exchange (WS-SX) set of specifications hosted by OASIS (in addition to WS-SecurityPolicy, the WS-SX technical committee defines two other sets of specifications: WS-Trust and WS-SecureConversation, described later in this chapter).

WS-SecurityPolicy defines a set of security policy assertions used in the context of the WS-Policy framework. WS-SecurityPolicy assertions describe how messages are secured on a communication path. Oracle has contributed to the OASIS WS-SX technical committee several practical security scenarios (a subset of which is provided by Oracle WSM 11g). Each security scenario describes WS-SecurityPolicy policy expressions.

WS-SecurityPolicy scenarios describe examples of how to set up WS-SecurityPolicy policies for several security token types described in the WS-Security specification (supporting both WS-Security 1.0 and 1.1). The subset of the WS-SecurityPolicy scenarios supported by Oracle WSM 11g represents the most common customer use cases. Each scenario has been tested in multiple-vendor WS-Security environments.

To illustrate WS-SecurityPolicy, let’s use a scenario supported by Oracle WSM: UsernameToken with plain text password. As mentioned earlier, Username token is one of the security tokens specified by WS-Security. This specific scenario uses a policy that says that a requester must send a password in a Username token to a recipient.
who has authority to validate that token. The password is a default requirement for
the WS-Security Username Token Profile 1.1.
This scenario is only recommended when confidentiality of the password is not an
issue, such as a pre-production test scenario with dummy passwords.

Example A–4 Example of WS-SecurityPolicy

```xml
<wsp:Policy>
  <sp:SupportingTokens>
    <wsp:Policy>
      <sp:UsernameToken/>
    </wsp:Policy>
  </sp:SupportingTokens>
</wsp:Policy>
```

An example of a message that conforms to the above stated policy is shown below.

Example A–5 Example of Message Conforming to WS-SecurityPolicy

```xml
<?xml version="1.0" encoding="utf-8" ?>
<soap:Envelope xmlns:soap="...">
  <soap:Header>
    <wsse:Security soap:mustUnderstand="1" xmlns:wsse="...">
      <wsse:UsernameToken>
        <wsse:Username>Marc</wsse:Username>
        <wsse:Password Type="http://docs.oasis-open.org...">XYZ</wsse:Password>
        <wsse:Nonce EncodingType="#Base64Binary">qB...</wsse:Nonce>
        <wsu:Created>2008-01-02T00:01:03Z</wsu:Created>
      </wsse:UsernameToken>
    </wsse:Security>
  </soap:Header>
  <soap:Body>
    <Oracle xmlns=http://xmlsoap.org/Oracle>
      <text>EchoString</text>
    </Oracle>
  </soap:Body>
</soap:Envelope>
```

The example above contains a `<Nonce>` element and a `<Created>` timestamp, which,
while optional, are recommended to improve security of requests against replay and
other attacks. A nonce is a randomly generated (unique) number. The timestamp can
be used to define the amount of time the security token is valid.

Web Services Addressing (WS-Addressing)

SOAP does not provide a standard way to specify where a message is going or how
responses or faults are returned. WS-Addressing provides an XML framework for
identifying web services endpoints and for securing end-to-end endpoint
identification in messages.

A Web service endpoint is a resource (such as an application or a processor) to which
web services messages are sent.

The following is an example using WS-Addressing (`wsa` is the namespace for
WSAddressing):
Example A–6   Example of WS-Addressing

```xml
<S:Envelope xmlns:S="http://www.w3.org/2003/05/soap-envelope"
  <S:Header>
    <wsa:MessageID>http://example.com/xyz-abcd-123</wsa:MessageID>
    <wsa:ReplyTo>
      <wsa:Address>http://example.myClient1</wsa:Address>
    </wsa:ReplyTo>
  </S:Header>
</S:Envelope>
```

WS-Addressing is transport-independent; that is, the request may be over JMS and the response over HTTP. WS-Addressing is used with other WS-* specifications, such as WS-Policy.

**WS-ReliableMessaging**

WS-ReliableMessaging (WS-RM) defines a framework for identifying and managing the reliable delivery of messages between Web services endpoints. WS-RM is predicated on the SOAP messaging structure (SOAP binding) and relies on WS-Security, WS-Policy, and WS-Addressing to provide reliable messaging.

WS-RM defines a reliable messaging (RM) source (the party that sends the message) and an RM destination (the party that receives the message). WS-RM mandates prerequisites, for example, trust between endpoints must be established, and the message and endpoints must be formally identified (this is achieved through the use of the complementary WS-* specifications mentioned earlier).

WS-RM Policy defines a policy assertion that leverages the WS-Policy framework in order to enable an RM destination and an RM source to describe their requirements for a given sequence.
This appendix summarizes the predefined policies and contains the following sections:

- Security Policies
- WS-Addressing Policies
- MTOM Attachment Policies
- Reliable Messaging Policies
- Management Policies

Oracle has been instrumental in contributing to emerging standards, in particular the specifications hosted by the OASIS Web Services Secure Exchange technical committee. Oracle has contributed to the OASIS WS-SX technical committee several practical security scenarios, a subset of which are implemented in the predefined policies.

---

**Note:** For information about WebLogic Web service policies, see *Securing WebLogic Web Services for Oracle WebLogic Server*.

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**Security Policies**

The following sections describe the security policies.

- Authentication Only Policies
- Message Protection Only Policies
- Message Protection and Authentication Policies
- Authorization Only Policies

**Authentication Only Policies**

Table B–1 summarizes the security policies that enforce authentication only, and indicates whether the token is inserted at the transport layer or SOAP header.
The wss_http_token_client_policy includes credentials in the HTTP header for outbound client requests. This policy can be enforced on any HTTP-based client.

**Note:** Currently only HTTP basic authentication is supported.

This policy contains the following policy assertion: oracle/wss_http_token_client_template. See "oracle/wss_http_token_client_template" on page C-2 for more information about the assertion.

For more information about configuring the policy, see "oracle/wss_http_token_client_policy" on page 10-5.

The wss_http_token_service_policy uses the credentials in the HTTP header to authenticate users against the Oracle Platform Security Services identity store. This policy can be enforced on any HTTP-based endpoint.

**Note:** Currently only HTTP basic authentication is supported.

This policy contains the following policy assertion: oracle/wss_http_token_service_template. See "oracle/wss_http_token_service_template" on page C-4 for more information about the assertion.

For information about configuring the policy, see "oracle/wss_http_token_service_policy" on page 10-6.

This policy includes credentials in the WS-Security UsernameToken SOAP header for all outbound SOAP request messages. Both plain text and digest mechanisms are supported. This policy can be attached to any SOAP-based client.

**Note:** Digest passwords are not supported in this release.
This policy contains the following policy assertion: oracle/wss_username_token_client_template. See "oracle/wss_username_token_client_template" on page C-5 for more information about the assertion.

For information about configuring the policy, see "oracle/wss_username_token_client_policy" on page 10-7.

**oracle/wss_username_token_service_policy**

This policy uses the credentials in the WS-Security UsernameToken SOAP header to authenticate users. Both plain text and digest mechanisms are supported. This policy can be attached to any SOAP-based endpoint.

**Note:** Digest passwords are not supported in this release.

This policy contains the following policy assertion: oracle/wss_username_token_service_template. See "oracle/wss_username_token_service_template" on page C-7 for more information about the assertion.

For information about configuring the policy, see "oracle/wss_username_token_service_policy" on page 10-7.

**oracle/wss10_saml_token_client_policy**

This policy includes SAML tokens in outbound SOAP request messages. The policy can be enforced on any SOAP-based client.

This policy contains the following policy assertion: oracle/wss10_saml_token_client_template. See "oracle/wss10_saml_token_client_template" on page C-8 for more information about the assertion.

For information about configuring the policy, see "oracle/wss10_saml_token_client_policy" on page 10-8.

**oracle/wss10_saml_token_service_policy**

This policy authenticates users using credentials provided in SAML tokens in the WS-Security SOAP header. The credentials in the SAML token are authenticated against a SAML login module. This policy can be enforced on any SOAP-based endpoint.

This policy contains the following policy assertion: oracle/wss10_saml_token_service_template. See "oracle/wss10_saml_token_service_template" on page C-9 for more information about the assertion.

For information about configuring the policy, see "oracle/wss10_saml_token_service_policy" on page 10-9.

**oracle/wss11_kerberos_token_client_policy**

This policy includes a Kerberos token in the WS-Security header in accordance with the WS-Security Kerberos Token Profile v1.1 standard. This policy is compatible with MIT and Active Directory KDCs. This policy can be enforced on any SOAP-based client.

This policy contains the following policy assertion: oracle/wss11_kerberos_token_client_template. See "oracle/wss11_kerberos_token_with_message_protection_client_template" on page C-38 for more information about the assertion.
For information about configuring the policy, see "oracle/wss11_kerberos_token_client_policy" on page 10-9.

**oracle/wss11_kerberos_token_service_policy**

This policy is enforced in accordance with the WS-Security Kerberos Token Profile v1.1 standard. This policy extracts the Kerberos token from the SOAP header and authenticates the user. The container must have the Kerberos infrastructure configured through Oracle Platform Security Services. This policy is compatible with MIT and Active Directory KDCs. This policy can be attached to any SOAP-based endpoint.

This policy contains the following policy assertion: oracle/wss11_kerberos_token_service_template. See "oracle/wss11_kerberos_token_with_message_protection_service_template" on page C-40 for more information about the assertion.

For information about configuring the policy, see "oracle/wss10_saml_token_service_policy" on page 10-9.

**Message Protection Only Policies**

Table B–2 summarizes the policies that enforce message protection only, and indicates whether the policy is enforced at the transport layer or SOAP header.

<table>
<thead>
<tr>
<th>Client Policy</th>
<th>Service Policy</th>
<th>Authentication Transport</th>
<th>Authentication SOAP</th>
<th>Message Protection Transport</th>
<th>Message Protection SOAP</th>
</tr>
</thead>
<tbody>
<tr>
<td>oracle/wss10_message_protection_client_policy</td>
<td>oracle/wss10_message_protection_service_policy</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>oracle/wss11_message_protection_client_policy</td>
<td>oracle/wss11_message_protection_service_policy</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**oracle/wss10_message_protection_client_policy**

This policy provides message protection (integrity and confidentiality) for outbound SOAP requests in accordance with the WS-Security 1.0 standard.

This policy uses the WS-Security’s Basic 128 suite of asymmetric key technologies, specifically RSA key mechanism for message confidentiality, SHA-1 hashing algorithm for message integrity, and AES-128 bit encryption. For more information about the available algorithms for message protection, see "Supported Algorithm Suites" on page C-55.

This policy contains the following policy assertion: oracle/wss10_message_protection_client_template. See "oracle/wss11_message_protection_service_template" on page C-15 for more information about the assertion.

For information about configuring the policy, see "oracle/wss10_message_protection_client_policy" on page 10-11.

**oracle/wss10_message_protection_service_policy**

This policy enforces message protection (integrity and confidentiality) for inbound SOAP requests in accordance with the WS-Security 1.0 standard.

The messages are protected using WS-Security’s Basic 128 suite of asymmetric key technologies, specifically RSA key mechanism for message confidentiality, SHA-1
hashing algorithm for message integrity, and AES-128 bit encryption. For more information about the available algorithms for message protection, see "Supported Algorithm Suites" on page C-55.

This policy contains the following policy assertion: oracle/wss10_message_protection_service_template. See "oracle/wss10_message_protection_service_template" on page C-13 for more information about the assertion.

For information about configuring the policy, see "oracle/wss10_message_protection_service_policy" on page 10-13.

oracle/wss11_message_protection_client_policy
This policy provides message protection (integrity and confidentiality) for outbound SOAP requests in accordance with the WS-Security 1.1 standard.

This policy uses the symmetric key technology for signing and encryption, and the WS-Security's Basic 128 suite of asymmetric key technology for endorsing signatures. For more information about the available asymmetric algorithms for message protection, see "Supported Algorithm Suites" on page C-55.

This policy contains the following policy assertion: oracle/wss11_message_protection_client_template. See "oracle/wss11_message_protection_client_template" on page C-14 for more information about the assertion.

For information about configuring the policy, see "oracle/wss11_message_protection_client_policy" on page 10-14.

oracle/wss11_message_protection_service_policy
This policy enforces message protection (integrity and confidentiality) for inbound SOAP requests in accordance with the WS-Security 1.1 standard.

This policy uses the symmetric key technology for signing and encryption, and the WS-Security's Basic 128 suite of asymmetric key technology for endorsing signatures. For more information about the available asymmetric algorithms for message protection, see "Supported Algorithm Suites" on page C-55.

This policy contains the following policy assertion: oracle/wss11_message_protection_service_template. See "oracle/wss11_message_protection_service_template" on page C-15 for more information about the assertion.

For information about configuring the policy, see "oracle/wss11_message_protection_service_policy" on page 10-15.

Message Protection and Authentication Policies
Table B–3 summarizes the policies that enforce both message protection and authentication but do not conform to the WS-Security 1.0 or 1.1 standard. The table indicates whether the policy is enforced at the transport layer or SOAP header.
<table>
<thead>
<tr>
<th>Client Policy</th>
<th>Service Policy</th>
<th>Authentication Transport</th>
<th>Authentication SOAP</th>
<th>Message Protection Transport</th>
<th>Message Protection SOAP</th>
</tr>
</thead>
<tbody>
<tr>
<td>oracle/wss_http_token_over_ssl_client_policy</td>
<td>oracle/wss_http_token_over_ssl_service_policy</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Attach one of the following:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>■ oracle/wss_saml_or_username_token_over_ssl_client_policy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>■ oracle/wss_username_token_over_ssl_client_policy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>oracle/wss_saml_token_bearer_over_ssl_client_policy</td>
<td>oracle/wss_saml_token_bearer_over_ssl_service_policy</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>oracle/wss_saml_token_over_ssl_client_policy</td>
<td>oracle/wss_saml_token_over_ssl_service_policy</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>oracle/wss_username_token_over_ssl_client_policy</td>
<td>oracle/wss_username_token_over_ssl_service_policy</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>oracle/wss10_saml_hok_with_message_protection_client_policy</td>
<td>oracle/wss10_saml_hok_token_with_message_protection_service_policy</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>oracle/wss10_saml_token_with_message_integrity_client_policy</td>
<td>oracle/wss10_saml_token_with_message_integrity_service_policy</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>oracle/wss10_saml_token_with_message_protection_client_policy</td>
<td>oracle/wss10_saml_token_with_message_protection_service_policy</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>oracle/wss10_saml_token_with_message_protection_ski_based256_client_policy</td>
<td>oracle/wss10_saml_token_with_message_protection_ski_based256_service_policy</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>oracle/wss10_username_id_propagation_with_msg_protection_client_policy</td>
<td>oracle/wss10_username_id_propagation_with_msg_protection_service_policy</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>oracle/wss10_username_token_with_message_protection_client_policy</td>
<td>oracle/wss10_username_token_with_message_protection_service_policy</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Client Policy</td>
<td>Service Policy</td>
<td>Authentication Transport</td>
<td>Authentication SOAP</td>
<td>Message Protection Transport</td>
<td>Message Protection SOAP</td>
</tr>
<tr>
<td>--------------</td>
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<td>---------------------</td>
<td>-----------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>oracle/wss10_username_token_with_message_protection_ski_basic256_client_policy</td>
<td>oracle/wss10_username_token_with_message_protection_ski_basic256_service_policy</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>oracle/wss10_x509_token_with_message_protection_client_policy</td>
<td>oracle/wss10_x509_token_with_message_protection_service_policy</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>oracle/wss11_kerberos_token_with_message_protection_client_policy</td>
<td>oracle/wss11_kerberos_token_with_message_protection_service_policy</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Attach one of the following: ■ oracle/wss11_saml_token_with_message_protection_client_policy</td>
<td>oracle/wss11_saml_or_username_token_with_message_protection_service_policy</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>oracle/wss11_saml_token_with_message_protection_client_policy</td>
<td>oracle/wss11_saml_token_with_message_protection_service_policy</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>oracle/wss11_saml_token_with_identity_switch_message_protection_client_policy</td>
<td>oracle/wss11_saml_token_with_identity_switch_message_protection_service_policy</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>oracle/wss11_username_token_with_message_protection_client_policy</td>
<td>oracle/wss11_username_token_with_message_protection_service_policy</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>oracle/wss11_x509_token_with_message_protection_client_policy</td>
<td>oracle/wss11_x509_token_with_message_protection_service_policy</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**oracle/wss_http_token_over_ssl_client_policy**

This policy includes credentials in the HTTP header for outbound client requests and authenticates users against the Oracle Platform Security Services identity store. This policy also verifies that the transport protocol is HTTPS. Requests over a non-HTTPS transport protocol are refused. This policy can be enforced on any HTTP-based client.
This policy contains the following policy assertion: oracle/wss_http_token_over_ssl_client_template. See "oracle/wss_http_token_over_ssl_client_template" on page C-17 for more information about the assertion.

For information about configuring the policy, see "oracle/wss_http_token_over_ssl_client_policy" on page 10-17.

**oracle/wss_http_token_over_ssl_service_policy**

This policy extracts the credentials in the HTTP header and authenticates users against the Oracle Platform Security Services identity store. This policy verifies that the transport protocol is HTTPS. Requests over a non-HTTPS transport protocol are refused. This policy can be enforced on any HTTP-based endpoint.

**Note:** Currently only HTTP basic authentication is supported.

This policy contains the following policy assertion: oracle/wss_http_token_over_ssl_service_template. See "oracle/wss_http_token_over_ssl_service_template" on page C-19 for more information about the assertion.

For information about configuring the policy, see "oracle/wss_http_token_over_ssl_service_policy" on page 10-18.

**oracle/wss_saml_or_username_token_over_ssl_service_policy**

This policy enforces message protection (integrity and confidentiality) and one of the following authentication policies, based on whether the client uses a SAML or username token, respectively:

- SAML token within WS-Security SOAP header using the sender-vouches confirmation type.
- WS-Security UsernameToken SOAP header to authenticate users against the Oracle Platform Security Services configured identity store.

This policy contains the following assertions, as an OR group—meaning either type of policy can be enforced by a client:

- oracle/wss_saml_token_over_ssl_service_template. See "oracle/wss_saml_token_over_ssl_service_template" on page C-22 for more information about the assertion.
- oracle/wss_username_token_over_ssl_service_template. See "oracle/wss_username_token_over_ssl_service_template" on page C-24 for more information about the assertion.

For information about configuring the policy, see "oracle/wss_saml_token_over_ssl_service_policy" on page 10-20 and "oracle/wss_username_token_over_ssl_service_policy" on page 10-22.

**oracle/wss_saml_token_bearer_over_ssl_client_policy**

This policy includes SAML tokens in outbound SOAP request messages. The SAML token with confirmation method **Bearer** is created automatically. The policy also verifies that the transport protocol provides SSL message protection. This policy can be attached to any SOAP-based client.

**Note:** Currently only HTTP basic authentication is supported.
This policy contains the following policy assertion: oracle/wss_saml_token_bearer_over_ssl_client_template. See "oracle/wss_saml_token_bearer_over_ssl_client_template" on page C-20 for more information about the assertion.

For information about configuring the policy, see "oracle/wss_saml_token_bearer_over_ssl_client_policy" on page 10-18.

**oracle/wss_saml_token_bearer_over_ssl_service_policy**

This policy authenticates users using credentials provided in SAML tokens with confirmation method 'Bearer' in the WS-Security SOAP header. The credentials in the SAML token are authenticated against a SAML login module. The policy verifies that the transport protocol provides SSL message protection. This policy can be enforced on any SOAP-based endpoint.

This policy contains the following policy assertion: oracle/wss_saml_token_bearer_over_ssl_service_template. See "oracle/wss_saml_token_bearer_over_ssl_service_template" on page C-21 for more information about the assertion.

For information about configuring the policy, see "oracle/wss_saml_token_bearer_over_ssl_service_policy" on page 10-19.

**oracle/wss_saml_token_over_ssl_client_policy**

This policy includes SAML tokens in outbound WS-Security SOAP headers using the sender-vouches confirmation type. The policy verifies that the transport protocol provides SSL message protection. This policy can be enforced on any SOAP-based client.

This policy contains the following policy assertion: oracle/wss_saml_token_over_ssl_client_template. See "oracle/wss_saml_token_over_ssl_client_template" on page C-21 for more information about the assertion.

For information about configuring the policy, see "oracle/wss_saml_token_over_ssl_client_policy" on page 10-19.

**oracle/wss_saml_token_over_ssl_service_policy**

This policy enforces the authentication of credentials provided via a SAML token within WS-Security SOAP header using the sender-vouches confirmation type. The SAML token is mapped to a user in the configured identity store. The policy verifies that the transport protocol provides SSL message protection. This policy can be enforced on any SOAP-based endpoint.

This policy contains the following policy assertion: oracle/wss_saml_token_over_ssl_service_template. See "oracle/wss_saml_token_over_ssl_service_template" on page C-22 for more information about the assertion.

For information about configuring the policy, see "oracle/wss_saml_token_over_ssl_service_policy" on page 10-20.

**oracle/wss_username_token_over_ssl_client_policy**

This policy includes credentials in the WS-Security UsernameToken header in outbound SOAP request messages. The policy verifies that the transport protocol provides SSL message protection. Both plain text and digest mechanisms are supported. This policy can be attached to any SOAP-based client.

---

**Note:** Digest passwords are not supported in this release.
This policy contains the following policy assertion: oracle/wss_username_token_over_ssl_client_template. See "oracle/wss_username_token_over_ssl_client_template" on page C-22 for more information about the assertion.

For information about configuring the policy, see "oracle/wss_username_token_over_ssl_client_policy" on page 10-21.

**oracle/wss_username_token_over_ssl_service_policy**

This policy uses the credentials in the WS-Security UsernameToken SOAP header to authenticate users against the Oracle Platform Security Services configured identity store. The policy verifies that the transport protocol provides SSL message protection. Both plain text and digest mechanisms are supported. This policy can be attached to any SOAP-based endpoint.

---

**Note:** Digest passwords are not supported in this release.

---

This policy contains the following policy assertion: oracle/wss_username_token_over_ssl_service_template. See "oracle/wss_username_token_over_ssl_service_template" on page C-24 for more information about the assertion.

For information about configuring the policy, see "oracle/wss_username_token_over_ssl_service_policy" on page 10-22.

**oracle/wss10_saml_hok_with_message_protection_client_policy**

This policy provides message protection (integrity and confidentiality) and SAML holder of key based authentication for outbound SOAP messages in accordance with the WS-Security 1.0 standard. A SAML token, included in the SOAP message, is used in SAML-based authentication with holder of key confirmation.

The policy uses WS-Security’s Basic 128 suite of asymmetric key technologies, specifically RSA key mechanisms for message confidentiality, SHA-1 hashing algorithm for message integrity, and AES-128 bit encryption. For more information about the available algorithms for message protection, see "Supported Algorithm Suites" on page C-55.

This policy contains the following policy assertion: oracle/wss10_saml_hok_with_message_protection_client_template. See "oracle/wss10_saml_hok_with_message_protection_service_template" on page C-28 for more information about the assertion.

For information about configuring the policy, see "oracle/wss10_saml_hok_token_with_message_protection_client_policy" on page 10-22.

**oracle/wss10_saml_hok_token_with_message_protection_service_policy**

This policy enforces message protection (integrity and confidentiality) and SAML holder of key based authentication for inbound SOAP requests in accordance with the WS-Security 1.0 standard.

This policy uses WS-Security’s Basic 128 suite of asymmetric key technologies, specifically RSA key mechanisms for message confidentiality, SHA-1 hashing algorithm for message integrity, and AES-128 bit encryption. For more information about the available algorithms for message protection, see "Supported Algorithm Suites" on page C-55.

This policy contains the following policy assertion: oracle/wss10_saml_hok_token_with_message_protection_service_template. See "oracle/wss10_saml_hok_token_with_message_protection_service_template" on page C-28 for more information about the assertion.
For information about configuring the policy, see "oracle/wss10_saml_hok_token_with_message_protection_service_policy" on page 10-23.

oracle/wss10_saml_token_with_message_integrity_client_policy
This policy provides message-level integrity and SAML-based authentication for outbound SOAP messages in accordance with the WS-Security 1.0 standard. A SAML token, included in the SOAP message, is used in SAML-based authentication with sender vouches confirmation.

This policy uses WS-Security's Basic 128 suite of asymmetric key technologies and SHA-1 hashing algorithm for message integrity. For more information about the available algorithms for message protection, see "Supported Algorithm Suites" on page C-55.

This policy contains the following policy assertion: oracle/wss10_saml_token_with_message_protection_client_template. See "oracle/wss10_saml_token_with_message_protection_client_template" on page C-29 for more information about the assertion.

For information about configuring the policy, see "oracle/wss10_saml_token_with_message_integrity_client_policy" on page 10-24.

oracle/wss10_saml_token_with_message_integrity_service_policy
This policy enforces message-level integrity protection and SAML-based authentication for inbound SOAP requests in accordance with the WS-Security 1.0 standard. It extracts the SAML token from the WS-Security binary security token or the current Java Authentication and Authorization Service (JAAS) subject, and uses those credentials to validate users against the Oracle Platform Security Services identity store.

This policy uses WS-Security's Basic 128 suite of asymmetric key technologies and SHA-1 hashing algorithm for message integrity. For more information about the available algorithms for message protection, see "Supported Algorithm Suites" on page C-55.

This policy contains the following policy assertion: oracle/wss10_saml_token_with_message_protection_service_template. See "oracle/wss10_saml_token_with_message_protection_service_template" on page C-31 for more information about the assertion.

For information about configuring the policy, see "oracle/wss10_saml_token_with_message_integrity_service_policy" on page 10-25.

oracle/wss10_saml_token_with_message_protection_client_policy
This policy provides message-level protection and SAML-based authentication for outbound SOAP messages in accordance with the WS-Security 1.0 standard. The Web service consumer includes a SAML token in the SOAP header and the confirmation type is sender-vouches.

To prevent replay attacks, the assertion provides the option to include time stamps, SAML token limits, and their verification by the Web service provider.

This policy uses WS-Security's Basic 128 suite of asymmetric key technologies, specifically RSA key mechanisms for message confidentiality, SHA-1 hashing algorithm for message integrity, and AES-128 bit encryption. For more information about the available algorithms for message protection, see "Supported Algorithm Suites" on page C-55.
This policy contains the following policy assertion: oracle/wss10_saml_token_with_message_protection_client_template. See "oracle/wss10_saml_token_with_message_protection_client_template" on page C-29 for more information about the assertion.

For information about configuring the policy, see "oracle/wss10_saml_token_with_message_protection_client_policy" on page 10-26.

**oracle/wss10_saml_token_with_message_protection_service_policy**

This policy enforces message protection (integrity and confidentiality) and SAML-based authentication for inbound SOAP requests in accordance with the WS-Security 1.0 standard. The Web service consumer includes a SAML token in the SOAP header and the confirmation type is sender-vouches. The SOAP message is signed and encrypted. The Web service provider decrypts the message, and verifies and authenticates the signature. It extracts the SAML token from the WS-Security binary security token, and uses those credentials to validate users against the Oracle Platform Security Services identity store.

To prevent replay attacks, the assertion provides the option to include time stamps, SAML token limits, and their verification by the Web service provider.

This policy uses WS-Security’s Basic 128 suite of asymmetric key technologies, specifically RSA key mechanisms for message confidentiality, SHA-1 hashing algorithm for message integrity, and AES-128 bit encryption. For more information about the available algorithms for message protection, see "Supported Algorithm Suites" on page C-55.

This policy contains the following policy assertion: oracle/wss10_saml_token_with_message_protection_service_template. See "oracle/wss10_saml_token_with_message_protection_service_template" on page C-31 for more information about the assertion.

For information about configuring the policy, see "oracle/wss10_saml_token_with_message_protection_service_policy" on page 10-27.

**oracle/wss10_saml_token_with_message_protection_ski_basic256_client_policy**

This policy provides message-level protection and SAML-based authentication for outbound SOAP messages in accordance with the WS-Security 1.0 standard. The Web service consumer includes a SAML token in the SOAP header and the confirmation type is sender-vouches.

To prevent replay attacks, the assertion provides the option to include time stamps, SAML token limits, and their verification by the Web service provider.

The policy uses WS-Security’s Basic 256 suite of asymmetric key technologies, specifically RSA key mechanisms for message confidentiality, SHA-1 hashing algorithm for message integrity, and AES-256 bit encryption. This policy uses Subject Key Identifier (ski) reference mechanism for encryption key in the request and for both signature and encryption keys in the response. For more information about the available algorithms for message protection, see "Supported Algorithm Suites" on page C-55.

This policy contains the following policy assertion: oracle/wss10_saml_token_with_message_protection_client_template. See "oracle/wss10_saml_token_with_message_protection_client_template" on page C-29 for more information about the assertion.

For information about configuring the policy, see "oracle/wss10_saml_token_with_message_protection_client_policy" on page 10-26.
**oracle/wss10_saml_token_with_message_protection_ski_basic256_service_policy**

This policy enforces message protection (integrity and confidentiality) and SAML-based authentication for inbound SOAP requests in accordance with the WS-Security 1.0 standard. The Web service consumer includes a SAML token in the SOAP header and the confirmation type is sender-vouches. The SOAP message is signed and encrypted. The Web service provider decrypts the message, and verifies and authenticates the signature. It extracts the SAML token from the WS-Security binary security token, and uses those credentials to validate users against the Oracle Platform Security Services identity store.

To prevent replay attacks, the assertion provides the option to include time stamps, SAML token limits, and their verification by the Web service provider.

The policy uses WS-Security's Basic 256 suite of asymmetric key technologies, specifically RSA key mechanisms for message confidentiality, SHA-1 hashing algorithm for message integrity, and AES-256 bit encryption. This policy uses Subject Key Identifier (ski) reference mechanism for encryption key in the request and for both signature and encryption keys in the response. For more information about the available algorithms for message protection, see “Supported Algorithm Suites” on page C-55.

This policy contains the following policy assertion: oracle/wss10_saml_token_with_message_protection_service_template. See "oracle/wss10_saml_token_with_message_protection_service_template" on page C-31 for more information about the assertion.

For information about configuring the policy, see "oracle/wss10_saml_token_with_message_protection_service_policy" on page 10-27.

**oracle/wss10_username_id_propagation_with_msg_protection_client_policy**

This policy provides message protection (integrity and confidentiality) and identity propagation for outbound SOAP requests in accordance with the WS-Security 1.0 standard. Credentials (only username) are included in outbound SOAP request messages via a WS-Security UsernameToken header. No password is included. This policy can be enforced on any SOAP-based client.

Message protection is provided using WS-Security's Basic128 suite of asymmetric key technologies. Specifically RSA key mechanisms for confidentiality, SHA-1 hashing algorithm for integrity and AES-128 bit encryption. For more information about the available algorithms for message protection, see “Supported Algorithm Suites” on page C-55.

This policy contains the following policy assertion: oracle/wss10_username_token_with_message_protection_client_template. See "oracle/wss10_username_token_with_message_protection_client_template" on page C-32 for more information about the assertion.

For information about configuring the policy, see "oracle/wss10_username_id_propagation_with_msg_protection_client_policy" on page 10-30.

**oracle/wss10_username_id_propagation_with_msg_protection_service_policy**

This policy enforces message level protection (i.e., integrity and confidentiality) and identity propagation for inbound SOAP requests using mechanisms described in WS-Security 1.0. This policy can be enforced on any SOAP-based endpoint.

Message protection is provided using WS-Security 1.0's Basic128 suite of asymmetric key technologies. Specifically RSA key mechanisms for confidentiality, SHA-1 hashing algorithm for integrity and AES-128 bit encryption. For more information about the
available algorithms for message protection, see "Supported Algorithm Suites" on page C-55.

This policy contains the following policy assertion: oracle/wss10_username_id_propagation_with_msg_protection_service_template. See "oracle/wss10_username_token_with_message_protection_service_template" on page C-35 for more information about the assertion.

For information about configuring the policy, see "oracle/wss10_username_id_propagation_with_msg_protection_service_policy" on page 10-31.

oracle/wss10_username_token_with_message_protection_client_policy

This policy provides message protection (integrity and confidentiality) and authentication for outbound SOAP requests in accordance with the WS-Security 1.0 standard. Both plain text and digest mechanisms are supported. This policy can be attached to any SOAP-based client.

---

**Note:** Digest passwords are not supported in this release.
---

To protect against replay attacks, the assertion provides the option to require nonce or creation time in the username token. The SOAP message is signed and encrypted. The Web service provider decrypts the message, and verifies and authenticates the signature.

This policy uses WS-Security’s Basic 128 suite of asymmetric key technologies, specifically RSA key mechanism for message confidentiality, SHA-1 hashing algorithm for message integrity, and AES-128 bit encryption. For more information about the available algorithms for message protection, see "Supported Algorithm Suites" on page C-55.

This policy contains the following policy assertion: oracle/wss10_username_token_with_message_protection_client_template. See "oracle/wss11_username_token_with_message_protection_client_template" on page C-44 for more information about the assertion.

For information about configuring the policy, see "oracle/wss10_username_token_with_message_protection_client_policy" on page 10-32.

oracle/wss10_username_token_with_message_protection_service_policy

This policy enforces message protection (message integrity and confidentiality) and authentication for inbound SOAP requests in accordance with the WS-Security 1.0 standard. Both plain text and digest mechanisms are supported. This policy can be attached to any SOAP-based endpoint.

---

**Note:** Digest passwords are not supported in this release.
---

To protect against replay attacks, the assertion provides the option to require nonce or creation time in the username token. The SOAP message is signed and encrypted. The Web service provider decrypts the message, and verifies and authenticates the signature.

This policy uses WS-Security’s Basic 128 suite of asymmetric key technologies, specifically RSA key mechanism for message confidentiality, SHA-1 hashing algorithm for message integrity, and AES-128 bit encryption. For more information about the
available algorithms for message protection, see "Supported Algorithm Suites" on page C-55.

This policy contains the following policy assertion: oracle/wss10_username_token_with_message_protection_service_template. See "oracle/wss11_username_token_with_message_protection_service_template" on page C-47 for more information about the assertion.

For information about configuring the policy, see "oracle/wss10_username_token_with_message_protection_service_policy" on page 10-33.

oracle/wss10_username_token_with_message_protection_ski_basic256_client_policy

This policy provides message protection (integrity and confidentiality) and authentication for outbound SOAP requests in accordance with the WS-Security 1.0 standard. Both plain text and digest mechanisms are supported. This policy can be attached to any SOAP-based client.

Note: Digest passwords are not supported in this release.

To protect against replay attacks, the assertion provides the option to require nonce or creation time in the username token. The SOAP message is signed and encrypted. The Web service provider decrypts the message, and verifies and authenticates the signature.

This policy uses WS-Security’s Basic 256 suite of asymmetric key technologies, specifically RSA key mechanism for message confidentiality, SHA-1 hashing algorithm for message integrity, and AES-256 bit encryption. This policy uses Subject Key Identifier (ski) reference mechanism for encryption key in the request and for both signature and encryption keys in the response. For more information about the available algorithms for message protection, see "Supported Algorithm Suites" on page C-55.

This policy contains the following policy assertion: oracle/wss10_username_token_with_message_protection_client_template. See "oracle/wss11_username_token_with_message_protection_client_template" on page C-44 for more information about the assertion.

For information about configuring the policy, see "oracle/wss10_username_token_with_message_protection_client_policy" on page 10-32.

oracle/wss10_username_token_with_message_protection_ski_basic256_service_policy

This policy enforces message protection (message integrity and confidentiality) and authentication for inbound SOAP requests in accordance with the WS-Security 1.0 standard. Both plain text and digest mechanisms are supported. This policy can be attached to any SOAP-based endpoint.

Note: Digest passwords are not supported in this release.

To protect against replay attacks, the assertion provides the option to require nonce or creation time in the username token. The SOAP message is signed and encrypted. The Web service provider decrypts the message, and verifies and authenticates the signature.
This policy uses WS-Security’s Basic 256 suite of asymmetric key technologies, specifically RSA key mechanisms for message confidentiality, SHA-1 hashing algorithm for message integrity, and AES-256 bit encryption. This policy uses Subject Key Identifier (ski) reference mechanism for encryption key in the request and for both signature and encryption keys in the response. For more information about the available algorithms for message protection, see "Supported Algorithm Suites" on page C-55.

This policy contains the following policy assertion: oracle/wss10_username_token_with_message_protection_service_template. See "oracle/wss11_username_token_with_message_protection_service_template" on page C-47 for more information about the assertion.

For information about configuring the policy, see "oracle/wss10_username_token_with_message_protection_service_policy" on page 10-33.

oracle/wss10_x509_token_with_message_protection_client_policy

This policy provides message protection (integrity and confidentiality) and certificate credential population for outbound SOAP requests in accordance with the WS-Security 1.0 standard.

This policy uses WS-Security’s Basic 128 suite of asymmetric key technologies, specifically RSA key mechanisms for message confidentiality, SHA-1 hashing algorithm for message integrity, and AES-128 bit encryption. For more information about the available algorithms for message protection, see "Supported Algorithm Suites" on page C-55.

This policy contains the following policy assertion: oracle/wss10_x509_token_with_message_protection_client_template. See "oracle/wss11_x509_token_with_message_protection_client_template" on page C-47 for more information about the assertion.

For information about configuring the policy, see "oracle/wss10_x509_token_with_message_protection_client_policy" on page 10-36.

oracle/wss10_x509_token_with_message_protection_service_policy

This policy enforces message protection (integrity and confidentiality) and certificate-based authentication for inbound SOAP requests in accordance with the WS-Security 1.0 standard.

This policy uses WS-Security’s Basic 128 suite of asymmetric key technologies, specifically RSA key mechanisms for message confidentiality, SHA-1 hashing algorithm for message integrity, and AES-128 bit encryption. For more information about the available algorithms for message protection, see "Supported Algorithm Suites" on page C-55.

This policy contains the following policy assertion: oracle/wss10_x509_token_with_message_protection_service_template. See "oracle/wss11_x509_token_with_message_protection_service_template" on page C-49 for more information about the assertion.

For information about configuring the policy, see "oracle/wss10_x509_token_with_message_protection_service_policy" on page 10-37.

oracle/wss11_kerberos_token_with_message_protection_client_policy

This policy includes a Kerberos token in the WS-Security header, and uses Kerberos keys to guarantee message integrity and confidentiality, in accordance with the WS-Security Kerberos Token Profile v1.1 standard. This policy is compatible with MIT and Active Directory KDCs. This policy can be enforced on any SOAP-based client.
This policy contains the following policy assertion: oracle/wss11_kerberos_token_with_message_protection_client_template. See "oracle/wss11_kerberos_token_with_message_protection_client_template" on page C-38 for more information about the assertion.

For information about configuring the policy, see "oracle/wss11_kerberos_token_with_message_protection_client_policy" on page 10-38.

oracle/wss11_kerberos_token_with_message_protection_service_policy
This policy is enforced in accordance with the WS-Security Kerberos Token Profile v1.1 standard. This policy is compatible with MIT and Active Directory KDCs. This policy can be attached to any SOAP-based endpoint.

This policy extracts the Kerberos token from the SOAP header and authenticates the user, and it enforces message integrity and confidentiality using Kerberos keys. The container must have the Kerberos infrastructure configured through Oracle Platform Security Services.

This policy contains the following policy assertion: oracle/wss11_kerberos_token_with_message_protection_service_template. See "oracle/wss11_kerberos_token_with_message_protection_service_template" on page C-40 for more information about the assertion.

For information about configuring the policy, see "oracle/wss11_kerberos_token_with_message_protection_service_policy" on page 10-38.

oracle/wss11_saml_token_with_message_protection_client_policy
This policy enables message protection (integrity and confidentiality) and SAML token population for outbound SOAP requests using mechanisms described in WS-Security 1.1. A SAML token is included in the SOAP message for use in SAML based authentication with sender vouches confirmation.

This policy uses the symmetric key technology for signing and encryption, and the WS-Security's Basic 128 suite of asymmetric key technology for endorsing signatures. For more information about the available asymmetric algorithms for message protection, see "Supported Algorithm Suites" on page C-55.

This policy contains the following policy assertion: oracle/wss11_saml_token_with_message_protection_client_template. See "oracle/wss11_saml_token_with_message_protection_client_template" on page C-41 for more information about the assertion.

For information about configuring the policy, see "oracle/wss11_saml_token_with_message_protection_client_policy" on page 10-39.

oracle/wss11_saml_token_with_identity_switch_message_protection_client_policy
This policy performs dynamic identity switching by propagating a different identity than the one based on the authenticated subject. This policy can be attached to any SOAP-based client.

This policy enables message protection (integrity and confidentiality) and SAML token population for outbound SOAP requests using mechanisms described in WS-Security 1.1. A SAML token is included in the SOAP message for use in SAML based authentication with sender vouches confirmation.

This policy uses the symmetric key technology for signing and encryption, and the WS-Security's Basic 128 suite of asymmetric key technology for endorsing signatures. For more information about the available asymmetric algorithms for message protection, see "Supported Algorithm Suites" on page C-55.
This policy contains the following policy assertion: oracle/wss11_saml_token_with_message_protection_client_template. See "oracle/wss11_saml_token_with_message_protection_client_template" on page C-41 for more information about the assertion.

For information about configuring the policy, see "oracle/wss11_saml_token_identity_switch_with_message_protection_client_policy" on page 10-40.

**oracle/wss11_saml_token_with_message_protection_service_policy**

This policy enforces message protection (integrity and confidentiality) and SAML-based authentication for inbound SOAP requests in accordance with the WS-Security 1.1 standard. It extracts the SAML token from the WS-Security binary security token, and uses those credentials to validate users against the Oracle Platform Security Services identity store.

This policy uses the symmetric key technology for signing and encryption, and the WS-Security's Basic 128 suite of asymmetric key technology for endorsing signatures. For more information about the available asymmetric algorithms for message protection, see "Supported Algorithm Suites" on page C-55.

This policy contains the following policy assertion: oracle/wss11_saml_token_with_message_protection_service_template. See "oracle/wss11_saml_token_with_message_protection_service_template" on page C-43 for more information about the assertion.

For information about configuring the policy, see "oracle/wss11_saml_token_with_message_protection_service_policy" on page 10-42.

**oracle/wss11_saml_or_username_token_with_message_protection_service_policy**

This policy enforces message protection (integrity and confidentiality) and one of the following authentication policies, based on whether the client uses a SAML or username token, respectively:

- SAML-based authentication for inbound SOAP requests in accordance with the WS-Security 1.1 standard.
- Username token authentication for inbound SOAP requests in accordance with the WS-Security 1.1 standard.

This policy uses the symmetric key technology for signing and encryption, and the WS-Security's Basic 128 suite of asymmetric key technology for endorsing signatures. For more information about the available asymmetric algorithms for message protection, see “Supported Algorithm Suites” on page C-55.

This policy contains the following assertions, as an OR group—meaning either type of policy can be enforced by a client:

- oracle/wss11_saml_token_with_message_protection_service_template. See "oracle/wss11_saml_token_with_message_protection_service_template" on page C-43 for more information about the assertion.
- oracle/wss11_username_token_with_message_protection_service_template. See "oracle/wss11_username_token_with_message_protection_service_template" on page C-47 for more information about the assertion.

For information about configuring the policy, see "oracle/wss11_saml_token_with_message_protection_service_policy" on page 10-42 and "oracle/wss11_username_token_with_message_protection_service_policy" on page 10-44.
oracle/wss11_username_token_with_message_protection_client_policy
This policy provides message protection (integrity and confidentiality) and
authentication for outbound SOAP requests in accordance with the WS-Security 1.1
standard. Both plain text and digest mechanisms are supported. This policy can be
attached to any SOAP-based client.

Note: Digest passwords are not supported in this release.

The Web service consumer inserts username and password credentials, and signs and
encrypts the outgoing SOAP message. The Web service provider decrypts and verifies
the message and the signature.

In order to prevent replay attacks, the assertion provides the option to include time
stamps and verification by the Web service provider. The message can be protected
with ciphers of different strengths.

This policy uses the symmetric key technology for signing and encryption, and the
WS-Security’s Basic 128 suite of asymmetric key technology for endorsing signatures.
For more information about the available asymmetric algorithms for message
protection, see “Supported Algorithm Suites” on page C-55.

This policy contains the following policy assertion: oracle/wss11_username_token_
with_message_protection_client_template. See “oracle/wss11_username_token_
with_message_protection_client_template” on page C-44 for more information about the
assertion.

For information about configuring the policy, see “oracle/wss11_username_token_
with_message_protection_client_policy” on page 10-43.

oracle/wss11_username_token_with_message_protection_service_policy
This policy enforces message protection (integrity and confidentiality) and
authentication for inbound SOAP requests in accordance with the WS-Security 1.1
standard. Both plain text and digest mechanisms are supported.

Note: Digest passwords are not supported in this release.

The Web service consumer inserts username and password credentials, and signs and
encrypts the outgoing SOAP message. The Web service provider decrypts and verifies
the message and the signature. This policy can be attached to any SOAP-based
endpoint.

In order to prevent replay attacks, the assertion provides the option to include time
stamps and verification by the Web service provider. The message can be protected
with ciphers of different strengths.

Note: Digest passwords are not supported in this release.

This policy uses the symmetric key technology for signing and encryption, and the
WS-Security’s Basic 128 suite of asymmetric key technology for endorsing signatures.
For more information about the available asymmetric algorithms for message
protection, see “Supported Algorithm Suites” on page C-55.

This policy contains the following policy assertion: oracle/wss11_username_token_
with_message_protection_service_template. See “oracle/wss11_username_token_
with_message_protection_service_template” on page C-47 for more information about the assertion.

For information about configuring the policy, see "oracle/wss11_username_token_with_message_protection_service_policy" on page 10-44.

oracle/wss11_x509_token_with_message_protection_client_policy
This policy provides message protection (integrity and confidentiality) and certificate-based authentication for outbound SOAP requests in accordance with the WS-Security 1.1 standard.

This policy uses the symmetric key technology for signing and encryption, and the WS-Security’s Basic 128 suite of asymmetric key technology for endorsing signatures. For more information about the available asymmetric algorithms for message protection, see “Supported Algorithm Suites” on page C-55.

This policy contains the following policy assertion: oracle/wss11_x509_token_with_message_protection_client_template. See "oracle/wss11_x509_token_with_message_protection_client_template" on page C-47 for more information about the assertion.

For information about configuring the policy, see "oracle/wss11_x509_token_with_message_protection_client_policy" on page 10-44.

oracle/wss11_x509_token_with_message_protection_service_policy
This policy enforces message-level protection and certificate-based authentication for inbound SOAP requests in accordance with the WS-Security 1.1 standard.

This policy uses the symmetric key technology for signing and encryption, and the WS-Security’s Basic 128 suite of asymmetric key technology for endorsing signatures. For more information about the available asymmetric algorithms for message protection, see “Supported Algorithm Suites” on page C-55.

This policy contains the following policy assertion: oracle/wss11_x509_token_with_message_protection_service_template. See "oracle/wss11_x509_token_with_message_protection_service_template" on page C-49 for more information about the assertion.

For information about configuring the policy, see "oracle/wss11_x509_token_with_message_protection_service_policy" on page 10-45.

Authorization Only Policies
Table B–1 summarizes the security policies that enforce authorization, and indicates whether the policy is enforced at the transport layer or SOAP header.

Note: The authorization polices can follow any authentication policy where the Subject is established.

You cannot attach both a permitall and denyall policy to the same Web service.
Table B–4  Authorization Only Policies

<table>
<thead>
<tr>
<th>Client Policy</th>
<th>Authentication</th>
<th>Authentication SOAP</th>
<th>Message Protection</th>
<th>Message Protection SOAP</th>
</tr>
</thead>
<tbody>
<tr>
<td>oracle/binding_authorization_denyall_policy</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>oracle/binding_authorization_permitall_policy</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>oracle/binding_permission_authorization_policy</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>oracle/component_authorization_denyall_policy</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>oracle/component_authorization_permitall_policy</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>oracle/component_permission_authorization_policy</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

**oracle/binding_authorization_denyall_policy**

This policy provides simple role-based authorization for the request based on the authenticated Subject at the SOAP binding level. This policy denies all users with any roles. It should follow an authentication policy where the Subject is established and can be attached to any SOAP-based endpoint.

This policy contains the following policy assertion: oracle/binding_authorization_template. See "oracle/binding_authorization_template" on page C-50 for more information about the assertion.

For information about configuring the policy, see "oracle/binding_authorization_denyall_policy" on page 10-49.

**oracle/binding_authorization_permitall_policy**

This policy provides a simple role-based authorization for the request based on the authenticated Subject at the SOAP binding level. This policy permits all users with any roles. It should follow an authentication policy where the Subject is established and can be attached to any SOAP-based endpoint.

This policy contains the following policy assertion: oracle/binding_authorization_template. See "oracle/binding_authorization_template" on page C-50 for more information about the assertion.

For information about configuring the policy, see "oracle/binding_authorization_permitall_policy" on page 10-50.

**oracle/binding_permission_authorization_policy**

This policy provides simple permission-based authorization for the request based on the authenticated Subject at the SOAP binding level. This policy ensures that the Subject has permission to perform the operation. This policy should follow an authentication policy where the Subject is established and can be attached to any SOAP-based endpoint.
This policy contains the following policy assertion: oracle/binding_permission_authorization_template. See "oracle/component_permission_authorization_template" on page C-53 for more information about the assertion.

For information about configuring the policy, see "oracle/binding_permission_authorization_policy" on page 10-51.

**oracle/component_authorization_denyall_policy**

This policy provides simple role-based authorization for the request based on the authenticated Subject at the SOAP binding level. This policy denies all users with any roles. It should follow an authentication policy where the Subject is established and can be attached to any SCA-based endpoint.

This policy contains the following policy assertion: oracle/component_authorization_template. See "oracle/component_authorization_template" on page C-52 for more information about the assertion.

For information about configuring the policy, see "oracle/component_authorization_denyall_policy" on page 10-52.

**oracle/component_authorization_permitall_policy**

This policy provides a simple role-based authorization policy based on the authenticated Subject. This policy permits all users with any roles. It should follow an authentication policy where the Subject is established and can be attached to any SCA-based endpoint.

This policy contains the following policy assertion: oracle/component_authorization_template. See "oracle/component_authorization_template" on page C-52 for more information about the assertion.

For information about configuring the policy, see "oracle/binding_authorization_permitall_policy" on page 10-50.

**oracle/component_permission_authorization_policy**

This policy provides a permission-based authorization policy based on the authenticated Subject. This policy ensures that the Subject has permission to perform the operation. This policy should follow an authentication policy where the Subject is established and can be attached to any SCA-based endpoint.

This policy contains the following policy assertion: oracle/component_permission_authorization_template. See "oracle/component_permission_authorization_template" on page C-53 for more information about the assertion.

For information about configuring the policy, see "oracle/component_permission_authorization_policy" on page 10-54.

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**WS-Addressing Policies**

This section describes the predefined WS-Addressing policies.

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**Note:** WS-Addressing policies are not supported for WebLogic Web services.
Management Policies

Predefined Policies

oracle/wsaddr_policy

This policy causes the platform to check inbound messages for the presence of WS-Addressing headers conforming to the W3C 2005 Final WS-Addressing Policy standard. In addition, it causes the platform to include a WS-Addressing header in outbound SOAP messages. For information about configuring the policy, see "oracle/wsaddr_policy" on page 10-54.

MTOM Attachment Policies

This section describes the predefined MTOM policies.

Note: MTOM policies are not supported for WebLogic Web services.

oracle/wsmtom_policy

This Message Transmission Optimization Mechanism (MTOM) policy rejects inbound messages that are not in MTOM format and verifies that outbound messages are in MTOM format. MTOM refers to specifications [http://www.w3.org/TR/2005/REC-soap12-mtom-20050125](http://www.w3.org/TR/2005/REC-soap12-mtom-20050125) and [http://www.w3.org/Submission/2006/SUBM-soap11mtom10-20060405](http://www.w3.org/Submission/2006/SUBM-soap11mtom10-20060405) for SOAP 1.2 and SOAP 1.1 bindings, respectively. For information about configuring the policy, see "oracle/wsmtom_policy" on page 10-55.

Reliable Messaging Policies

This section describes the predefined Reliable Messaging policies.

Note: Reliable messaging policies are not supported for WebLogic Web services.

oracle/wsrmm10_policy

This policy provides support for version 1.0 of the Web Services Reliable Messaging protocol. This policy can be attached to any SOAP-based client or endpoint. Full support for this feature may require additional programming. For information about configuring the policy, see "oracle/wsrmm10_policy" on page 10-57.

oracle/wsrmm11_policy

This policy provides support for version 1.1 of the Web Services Reliable Messaging protocol. This policy can be attached to any SOAP-based client or endpoint. Full support for this feature may require additional programming. For information about configuring the policy, see "oracle/wsrmm11_policy" on page 10-58.

Management Policies

This section describes the predefined Management policies.

Note: Management policies are not supported for WebLogic Web services.
oracle/log_policy

This policy causes the request, response, and fault messages to be sent to a message log. For information about configuring the policy, see "oracle/log_policy" on page 10-58.

This policy contains the following policy assertion: oracle/log_template. See "oracle/security_log_template" on page C-54 for more information about the assertion.
Predefined Assertion Templates

This appendix describes the predefined assertion templates that you can use to construct your policies or copy to create new policies.

This chapter contains the following sections:

- Security Assertion Templates
- Management Assertions
- Supported Algorithm Suites
- Message Signing and Encryption Settings for Request, Response, and Fault Messages

Security Assertion Templates

The following sections describe the security assertion templates in more detail.

- Authentication Only Assertion Templates
- Message-Protection Only Assertion Template
- Message Protection and Authentication Assertion Templates
- Authorization Assertion Templates

You can jump to a specific assertion template description (client or template) using the following links (listed alphabetically):

- oracle/binding_authorization_template
- oracle/binding_permission_authorization_template
- oracle/component_authorization_template
- oracle/component_permission_authorization_template
- oracle/security_log_template
- oracle/wss_http_token_over_ssl_client_template or oracle/wss_http_token_over_ssl_service_template
- oracle/wss_http_token_client_template or oracle/wss_http_token_service_template
- oracle/wss_saml_token_bearer_over_ssl_client_template or oracle/wss_saml_token_bearer_over_ssl_service_template
- oracle/wss_saml_token_over_ssl_client_template or oracle/wss_saml_token_over_ssl_service_template
Authentication Only Assertion Templates

Table C–59 summarizes the assertion templates that enforce authentication only, and indicates whether the token is inserted at the transport layer or SOAP header.

<table>
<thead>
<tr>
<th>Client Template</th>
<th>Service Template</th>
<th>Authentication Transport</th>
<th>Authentication SOAP</th>
<th>Message Protection Transport</th>
<th>Message Protection SOAP</th>
</tr>
</thead>
<tbody>
<tr>
<td>oracle/wss_http_token_client_template</td>
<td>oracle/wss_http_token_service_template</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>oracle/username_token_client_template</td>
<td>oracle/username_token_service_template</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>oracle/wss10_saml_token_client_template</td>
<td>oracle/wss10_saml_token_service_template</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

oracle/wss_http_token_client_template

The wss_http_token_client_template assertion template includes username and password credentials in the HTTP header. You can control whether one-way or two-way authentication is required.
Settings

Table C–2 lists the settings for the wss_http_token_client_template assertion template.

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authentication Header—Mechanism</td>
<td>Authentication mechanism.</td>
<td>basic</td>
</tr>
<tr>
<td></td>
<td>Valid values include:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- basic—Client authenticates itself by transmitting the username and password.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- digest—Not supported in this release. Client authenticates itself by transmitting an encrypted password through the use of an MD5 digest.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- cert—Not supported in this release. Client authenticates itself by transmitting a certificate.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- custom—Not supported in this release. Custom authentication mechanism.</td>
<td></td>
</tr>
<tr>
<td>Authentication Header—Header Name</td>
<td>Name of the authentication header.</td>
<td>None</td>
</tr>
<tr>
<td>Transport Security—Require Mutual Authentication</td>
<td>Not applicable.</td>
<td>Disabled</td>
</tr>
</tbody>
</table>

Configurations

Table C–3 lists the identity store configurations for the wss_http_token_client_template assertion template.
The wss_http_token_service_template assertion template uses the credentials in the HTTP header to authenticate users against the Oracle Platform Security Services identity store. You can control whether one-way or two-way authentication is required.

**Settings**

The settings for the wss_http_token_service_template are identical to those for the client version of the assertion. See Table C–2 for information on the settings.

**Configurations**

Table C–4 lists the identity store configurations for the wss_http_token_service_template assertion template.

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>csf-key</td>
<td>Credential Store Key that maps to a username and password in the Oracle Platform Security Services identity store. Specify the following properties:</td>
</tr>
<tr>
<td></td>
<td>■ Value—Current value.</td>
</tr>
<tr>
<td></td>
<td>■ Default—Default value. This value is used if Value field is not set.</td>
</tr>
<tr>
<td></td>
<td>Defaults to basic.credentials.</td>
</tr>
<tr>
<td></td>
<td>■ Type—Specifies one of the following values:</td>
</tr>
<tr>
<td></td>
<td>■ Constant—Property cannot be overridden.</td>
</tr>
<tr>
<td></td>
<td>■ Required—Property is required and can be overridden.</td>
</tr>
<tr>
<td></td>
<td>■ Optional—Property is optional and can be overridden.</td>
</tr>
<tr>
<td></td>
<td>This value defaults to required. For information about overriding policies, see &quot;Attaching Client Policies Permitting Overrides&quot; on page 8-14.</td>
</tr>
<tr>
<td></td>
<td>■ Description—Description of the property.</td>
</tr>
<tr>
<td>role</td>
<td>SOAP role.</td>
</tr>
<tr>
<td></td>
<td>Specify the following properties:</td>
</tr>
<tr>
<td></td>
<td>■ Value—Current value.</td>
</tr>
<tr>
<td></td>
<td>■ Default—Default value. This value is used if Value field is not set.</td>
</tr>
<tr>
<td></td>
<td>Defaults to ultimateReceiver.</td>
</tr>
<tr>
<td></td>
<td>■ Type—Specifies one of the following values:</td>
</tr>
<tr>
<td></td>
<td>■ Constant—Property cannot be overridden.</td>
</tr>
<tr>
<td></td>
<td>■ Required—Property is required and can be overridden.</td>
</tr>
<tr>
<td></td>
<td>■ Optional—Property is optional and can be overridden.</td>
</tr>
<tr>
<td></td>
<td>This value defaults to constant. For information about overriding policies, see &quot;Attaching Client Policies Permitting Overrides&quot; on page 8-14.</td>
</tr>
<tr>
<td></td>
<td>■ Description—Description of the property.</td>
</tr>
</tbody>
</table>

Oracle Fusion Middleware Security and Administrator's Guide for Web Services
Predefined Assertion Templates

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>realm</td>
<td>HTTP Realm.</td>
</tr>
<tr>
<td></td>
<td>Specify the following properties:</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Value—Current value.</td>
</tr>
<tr>
<td></td>
<td>- Default—Default value. This value is used if Value field is not set. Defaults to owsm.</td>
</tr>
<tr>
<td></td>
<td>- Type—Specifies one of the following values:</td>
</tr>
<tr>
<td></td>
<td>- Constant—Property cannot be overridden.</td>
</tr>
<tr>
<td></td>
<td>- Required—Property is required and can be overridden.</td>
</tr>
<tr>
<td></td>
<td>- Optional—Property is optional and can be overridden.</td>
</tr>
<tr>
<td></td>
<td>This value defaults to constant. For information about overriding policies, see “Attaching Client Policies Permitting Overrides” on page 8-14.</td>
</tr>
<tr>
<td></td>
<td>- Description—Description of the property.</td>
</tr>
<tr>
<td>role</td>
<td>SOAP role.</td>
</tr>
<tr>
<td></td>
<td>Specify the following properties:</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Value—Current value.</td>
</tr>
<tr>
<td></td>
<td>- Default—Default value. This value is used if Value field is not set. Defaults to ultimateReceiver.</td>
</tr>
<tr>
<td></td>
<td>- Type—Specifies one of the following values:</td>
</tr>
<tr>
<td></td>
<td>- Constant—Property cannot be overridden.</td>
</tr>
<tr>
<td></td>
<td>- Required—Property is required and can be overridden.</td>
</tr>
<tr>
<td></td>
<td>- Optional—Property is optional and can be overridden.</td>
</tr>
<tr>
<td></td>
<td>This value defaults to constant. For information about overriding policies, see “Attaching Client Policies Permitting Overrides” on page 8-14.</td>
</tr>
<tr>
<td></td>
<td>- Description—Description of the property.</td>
</tr>
</tbody>
</table>

**oracle/wss_username_token_client_template**

The wss_username_token_client_template assertion template includes authentication with username and password credentials in the WS-Security UsernameToken header. The assertion supports three types of password credentials: plain text, digest, and no password.

---

**Note:** Digest passwords are not supported in this release.

---

To protect against replay attacks, the assertion provides the option to require nonce or creation time in the username token.

**Settings**

Table C–5 lists the settings for the wss_username_token_client_template assertion template.
Table C–5  wss_username_token_client_template Settings

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Password Type</td>
<td>Type of password required.</td>
<td>plaintext</td>
</tr>
<tr>
<td></td>
<td>Valid values are:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>■ none—No password.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>■ plaintext—Unencrypted password in clear text.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>■ digest—Not supported in this release. Client</td>
<td></td>
</tr>
<tr>
<td></td>
<td>authenticates itself by transmitting an encrypted</td>
<td></td>
</tr>
<tr>
<td></td>
<td>password through the use of an MD5 digest.</td>
<td></td>
</tr>
<tr>
<td>Note:</td>
<td>The plaintext type is not recommended when the</td>
<td></td>
</tr>
<tr>
<td></td>
<td>token propagation occurs on an unsecure channel.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>However, if SSL is being used as the transport</td>
<td></td>
</tr>
<tr>
<td></td>
<td>channel to secure a point-to-point connection</td>
<td></td>
</tr>
<tr>
<td></td>
<td>between client and server, the plaintext type</td>
<td></td>
</tr>
<tr>
<td></td>
<td>can be used as the channel takes care of</td>
<td></td>
</tr>
<tr>
<td></td>
<td>protecting the password.</td>
<td></td>
</tr>
<tr>
<td>Nonce Required</td>
<td>Flag that specifies whether a nonce must be</td>
<td>False</td>
</tr>
<tr>
<td></td>
<td>included with the username to prevent replay</td>
<td></td>
</tr>
<tr>
<td></td>
<td>attacks.</td>
<td></td>
</tr>
<tr>
<td>Note:</td>
<td>If Password Type is set to digest, then this</td>
<td></td>
</tr>
<tr>
<td></td>
<td>attribute must be set to true. Otherwise, the</td>
<td></td>
</tr>
<tr>
<td></td>
<td>policy to which it is attached will not validate.</td>
<td></td>
</tr>
<tr>
<td>Creation Time Required</td>
<td>Flag that specifies whether a time stamp for</td>
<td>False</td>
</tr>
<tr>
<td></td>
<td>the creation of the username token is required.</td>
<td></td>
</tr>
<tr>
<td>Note:</td>
<td>If Password Type is set to digest, then this</td>
<td></td>
</tr>
<tr>
<td></td>
<td>attribute must be set to true. Otherwise, the</td>
<td></td>
</tr>
<tr>
<td></td>
<td>policy to which it is attached will not validate.</td>
<td></td>
</tr>
</tbody>
</table>

Configurations

Table C–6 lists the identify store configurations for the wss_username_token_client_template assertion template.
The \textit{wss\_username\_token\_service\_template} assertion template enforces authentication with username and password credentials in the WS-Security UsernameToken SOAP header. The assertion supports three types of password credentials: plain text, digest, and no password.

To protect against replay attacks, the assertion provides the option to require nonce or creation time in the username token.

\textbf{Settings}

The settings for the \textit{wss\_username\_token\_service\_template} are identical to the client version of the assertion. See \nameref{tab:table_c-5} for information on the settings.

\textbf{Configurations}

\textit{Table C-7} lists the identify store configurations for the \textit{wss\_username\_token\_service\_template} assertion template.
The wss10_saml_token_client_template assertion template includes SAML tokens in outbound SOAP request messages. The SAML token is created automatically.

**Settings**

Table C–8 lists the settings for the wss10_saml_token_client_template assertion template.

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Version</td>
<td>SAML version. The only valid value is 1.1.</td>
<td>1.1</td>
</tr>
<tr>
<td>Confirmation Type</td>
<td>Confirmation type. The only valid value is:</td>
<td>sender-vouches</td>
</tr>
<tr>
<td></td>
<td>■ sender-vouches—Uses the Sender Vouches SAML token for authentication.</td>
<td></td>
</tr>
</tbody>
</table>

**Configurations**

Table C–9 lists the identity store configurations for the wss10_saml_token_client_template assertion template.
The wss10_saml_token_service_template assertion template authenticates users using credentials provided in SAML tokens in the WS-Security SOAP header.

**Settings**

The settings for the wss10_saml_token_service_template are identical to the client version of the assertion. See Table C–8 for information on the settings.

**Configurations**

Table C–10 lists the identity store configurations for the wss10_saml_token_service_template assertion template.
The wss11_kerberos_token_client_template assertion template includes a Kerberos token in the WS-Security header in accordance with the WS-Security Kerberos Token Profile v1.1 standard.

**Settings**

Table C–11 lists the settings for the wss11_kerberos_token_client_template assertion template.

### Table C–11  wss11_kerberos_token_client_template Settings

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kerberos Token Type</td>
<td>Type of Kerberos token. The only valid value is: gss-apreq-v5 (Kerberos Version 5 GSS-API).</td>
<td>gss-apreq-v5</td>
</tr>
</tbody>
</table>

**Configurations**

Table C–12 lists the identity store configurations for the wss11_kerberos_token_client_template assertion template.

### Table C–12  wss11_kerberos_token_client_template Configurations

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>service.principal.name</td>
<td>Kerberos principal name that identifies the service.</td>
</tr>
<tr>
<td></td>
<td>Specify the following properties:</td>
</tr>
<tr>
<td></td>
<td>■ Value—Current value.</td>
</tr>
<tr>
<td></td>
<td>■ Default—Default value. This value is used if Value field is not set.</td>
</tr>
<tr>
<td></td>
<td>■ Type—Specifies one of the following values:</td>
</tr>
<tr>
<td></td>
<td>- Constant—Property cannot be overridden.</td>
</tr>
<tr>
<td></td>
<td>- Required—Property is required and can be overridden.</td>
</tr>
<tr>
<td></td>
<td>- Optional—Property is optional and can be overridden.</td>
</tr>
<tr>
<td></td>
<td>This value defaults to constant.</td>
</tr>
<tr>
<td></td>
<td>■ Description—Description of the property.</td>
</tr>
</tbody>
</table>
**oracle/wss11_kerberos_token_service_template**

The wss11_kerberos_token_service_template assertion template enforces in accordance with the WS-Security Kerberos Token Profile v1.1 standard. It extracts the Kerberos token from the SOAP header and authenticates the user. The container must have the Kerberos infrastructure configured through Oracle Platform Security Services.

**Settings**

The settings for the wss11_keberos_token_service_template are identical to the client version of the assertion. See Table C–11 for information on the settings.

**Configurations**

Table C–13 lists the identity store configurations for the wss11_kerberos_token_service_template assertion template.

**Table C–13 wss11_kerberos_token_service_template Configurations**

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
</table>
| role | SOAP role. Specify the following properties:  
  ■ Value—Current value.  
  ■ Default—Default value. This value is used if Value field is not set. Defaults to ultimateReceiver.  
  ■ Type—Specifies one of the following values:  
    - Constant—Property cannot be overridden.  
    - Required—Property is required and can be overridden.  
    - Optional—Property is optional and can be overridden.  
  This value defaults to constant. For information about overriding policies, see “Attaching Client Policies Permitting Overrides” on page 8-14.  
  ■ Description—Description of the property. |

**Message-Protection Only Assertion Template**

**Table C–14 Authentication Only Assertions**

<table>
<thead>
<tr>
<th>Client Template</th>
<th>Service Template</th>
<th>Authentication Transport</th>
<th>Authentication SOAP</th>
<th>Message Protection Transport</th>
<th>Message Protection SOAP</th>
</tr>
</thead>
<tbody>
<tr>
<td>oracle/wss10_message_protection_client_template</td>
<td>oracle/wss10_message_protection_service_template</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>oracle/wss11_message_protection_client_template</td>
<td>oracle/wss11_message_protection_service_template</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**oracle/wss10_message_protection_client_template**

The wss10_message_protection_client_template assertion template provides message protection (integrity and confidentiality) for outbound SOAP requests in accordance with the WS-Security 1.0 standard.
Settings

Table C–15 lists the settings for the wss10_message_protection_client_template assertion template.

Table C–15  wss10_message_protection_client_template Settings

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sign Key Reference Mechanism</td>
<td>Mechanism used when signing the request.</td>
<td>direct</td>
</tr>
<tr>
<td></td>
<td>Valid values include:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>direct—X.509 Token is included in the request.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ski—Subject Key Identifier (SKI) extension value of the X.509 certificate used to reference the certificate. (Some certificates may not have this extension.) The recipient of the message looks up its keystore for a certificate corresponding to the SKI and validates the signature against it.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>issuerserial—Composite key of issuer name and serial number attributes used to reference the X.509 certificate. The recipient of the message looks up its keystore for a certificate corresponding to Issuer name and Serial Number and validates the signature using it.</td>
<td></td>
</tr>
<tr>
<td>Encryption Key Reference Mechanism</td>
<td>Mechanism used when encrypting the request. Valid values are the same as for Sign Key Reference Mechanism above.</td>
<td>direct</td>
</tr>
<tr>
<td>Recipient Sign Key Reference Mechanism</td>
<td>Mechanism used when encrypting the receipt. Valid values are the same as for Sign Key Reference Mechanism above.</td>
<td>direct</td>
</tr>
<tr>
<td>Recipient Encryption Key Reference Mechanism</td>
<td>Mechanism used when encrypting the receipt. Valid values are the same as for Sign Key Reference Mechanism above.</td>
<td>direct</td>
</tr>
<tr>
<td>Algorithm Suite</td>
<td>Algorithm suite used for message protection. See &quot;Supported Algorithm Suites&quot; on page C-55.</td>
<td>Basic128</td>
</tr>
<tr>
<td>Include Timestamp</td>
<td>Flag that specifies whether to include a timestamp. A timestamp can be used to prevent replay attacks by identifying an expiration time after which the message is no longer valid.</td>
<td>Enabled</td>
</tr>
<tr>
<td>Request Message Settings</td>
<td>See Table C–62.</td>
<td>N/A</td>
</tr>
<tr>
<td>Response Message Settings</td>
<td>See Table C–62.</td>
<td>N/A</td>
</tr>
<tr>
<td>Fault Message Settings</td>
<td>See Table C–62.</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Configurations

Table C–16 lists the identity store configurations for the wss10_message_protection_client_template assertion template.
The wss10_message_protection_service_template assertion template provides message protection (integrity and confidentiality) for inbound SOAP requests in accordance with the WS-Security 1.0 standard.

Settings
The settings for the wss10_message_protection_service_template are identical to the client version of the assertion. See Table C–15 for information on the settings.

Configurations
Table C–17 lists the identity store configurations for the wss10_message_protection_client_template assertion template.
The wss11_message_protection_client_template assertion template provides message protection (integrity and confidentiality) for outbound SOAP requests in accordance with the WS-Security 1.1 standard.

**Settings**

Table C–18 lists the settings for the wss11_message_protection_client_template assertion template.

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confirm Signature</td>
<td>Flag that specifies whether to send a signature confirmation back to the client.</td>
<td>True</td>
</tr>
<tr>
<td>Encryption Key Reference Mechanism</td>
<td>Mechanism used when encrypting the request. Valid values include:</td>
<td>thumbprint</td>
</tr>
<tr>
<td></td>
<td>- direct—X.509 Token is included in the request.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- ski—Subject Key Identifier (SKI) extension value of the X.509 certificate used to reference the certificate. (Some certificates may not have this extension.) The recipient of the message looks up its keystore for a certificate corresponding to the SKI and validates the signature against it.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- issuerserial—Composite key of issuer name and serial number attributes used to reference the X.509 certificate. The recipient of the message looks up its keystore for a certificate corresponding to Issuer name and Serial Number and validates the signature using it.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- thumbprint—Fingerprint (SHA1 hash) of the contents of the certificate. Provides a method to store certificates that is low overhead.</td>
<td></td>
</tr>
<tr>
<td>Algorithm Suite</td>
<td>Algorithm suite used for message protection. See &quot;Supported Algorithm Suites&quot; on page C-55.</td>
<td>Basic128</td>
</tr>
</tbody>
</table>
Table C–18 (Cont.) wss11_message_protection_client_template Settings

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Include Timestamp</td>
<td>Flag that specifies whether to include a timestamp. A timestamp can be used to prevent replay attacks by identifying an expiration time after which the message is no longer valid.</td>
<td>Enabled</td>
</tr>
<tr>
<td>Request Message Settings</td>
<td>See Table C–62.</td>
<td>N/A</td>
</tr>
<tr>
<td>Response Message Settings</td>
<td>See Table C–62.</td>
<td>N/A</td>
</tr>
<tr>
<td>Fault Message Settings</td>
<td>See Table C–62.</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Configurations

Table C–19 lists the identity store configurations for the wss11_message_protection_client_template assertion template.

Table C–19 wss11_message_protection_client_template Configurations

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
</table>
| keystore.recipient.alias | Keystore alias associated with the peer certificate. The security runtime uses this alias to extract the peer certificate from the configured keystore and to encrypt messages to the peer. Specify the following properties:  
  ■ Value—Current value.  
  ■ Default—Default value. This value is used if Value field is not set. Defaults to orakey.  
  ■ Type—Specifies one of the following values:  
    - Constant—Property cannot be overridden.  
    - Required—Property is required and can be overridden.  
    - Optional—Property is optional and can be overridden.  
  This value defaults to required. For information about overriding policies, see "Attaching Client Policies Permitting Overrides" on page 8-14.  
  ■ Description—Description of the property. |
| role                     | SOAP role. Specify the following properties:  
  ■ Value—Current value.  
  ■ Default—Default value. This value is used if Value field is not set. Defaults to ultimateReceiver.  
  ■ Type—Specifies one of the following values:  
    - Constant—Property cannot be overridden.  
    - Required—Property is required and can be overridden.  
    - Optional—Property is optional and can be overridden.  
  This value defaults to constant. For information about overriding policies, see "Attaching Client Policies PermittingOverrides" on page 8-14.  
  ■ Description—Description of the property. |

oracle/wss11_message_protection_service_template

The wss11_message_protection_service_template assertion template enforces message protection (integrity and confidentiality) for inbound SOAP requests in accordance with the WS-Security 1.1 standard.
Settings
The settings for the wss11_message_protection_service_template are identical to the client version of the assertion. See Table C–18 for information on the settings.

Configurations
Table C–20 lists the identity store configurations for the wss11_message_protection_service_template assertion template.

<table>
<thead>
<tr>
<th>Table C–20</th>
<th>wss11_message_protection_service_template Configurations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Description</td>
</tr>
<tr>
<td>role</td>
<td>SOAP role. Specify the following properties:</td>
</tr>
<tr>
<td></td>
<td>■ Value—Current value.</td>
</tr>
<tr>
<td></td>
<td>■ Default—Default value. This value is used if Value field is not set. Defaults to ultimateReceiver.</td>
</tr>
<tr>
<td></td>
<td>■ Type—Specifies one of the following values:</td>
</tr>
<tr>
<td></td>
<td>- Constant—Property cannot be overridden.</td>
</tr>
<tr>
<td></td>
<td>- Required—Property is required and can be overridden.</td>
</tr>
<tr>
<td></td>
<td>- Optional—Property is optional and can be overridden.</td>
</tr>
<tr>
<td></td>
<td>This value defaults to constant. For information about overriding policies, see “Attaching Client Policies Permitting Overrides” on page 8-14.</td>
</tr>
<tr>
<td></td>
<td>■ Description—Description of the property.</td>
</tr>
</tbody>
</table>

Message Protection and Authentication Assertion Templates
Table C–21 summarizes the assertion templates that enforce both message protection and authentication, and indicates whether the token is inserted at the transport layer or SOAP header.

<table>
<thead>
<tr>
<th>Table C–21</th>
<th>Message Protection and Authentication Assertions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Client Template</td>
<td>Service Template</td>
</tr>
<tr>
<td>oracle/wss_http_token_over_ssl_client_template</td>
<td>oracle/wss_http_token_over_ssl_service_template</td>
</tr>
<tr>
<td>oracle/wss_saml_token_bearer_over_ssl_client_template</td>
<td>oracle/wss_saml_token_bearer_over_ssl_service_template</td>
</tr>
<tr>
<td>oracle/wss_saml_token_over_ssl_client_template</td>
<td>oracle/wss_saml_token_over_ssl_service_template</td>
</tr>
<tr>
<td>oracle/wss_username_token_over_ssl_client_template</td>
<td>oracle/wss_username_token_over_ssl_service_template</td>
</tr>
<tr>
<td>oracle/wss10_saml_hok_with_message_protection_client_template</td>
<td>oracle/wss10_saml_hok_with_message_protection_service_template</td>
</tr>
</tbody>
</table>
The `wss_http_token_over_ssl_client_template` assertion template includes credentials in the HTTP header for outbound client requests and authenticates users against the Oracle Platform Security Services identity store.

### Settings

Table C–22 lists the settings for the `wss_http_token_over_ssl_client_template` assertion template.

---

**Table C–21 (Cont.) Message Protection and Authentication Assertions**

<table>
<thead>
<tr>
<th>Client Template</th>
<th>Service Template</th>
<th>Authentication Transport</th>
<th>Authentication SOAP</th>
<th>Message Protection Transport</th>
<th>Message Protection SOAP</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>oracle/wss10_saml_token_with_message_protection_client_template</code></td>
<td><code>oracle/wss10_saml_token_with_message_protection_service_template</code></td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td><code>oracle/wss10_username_token_with_message_protection_client_template</code></td>
<td><code>oracle/wss10_username_token_with_message_protection_service_template</code></td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td><code>oracle/wss10_x509_token_with_message_protection_client_template</code></td>
<td><code>oracle/wss10_x509_token_with_message_protection_service_template</code></td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td><code>oracle/wss11_kerberos_token_with_message_protection_client_template</code></td>
<td><code>oracle/wss11_kerberos_token_with_message_protection_service_template</code></td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td><code>oracle/wss11_username_token_with_message_protection_client_template</code></td>
<td><code>oracle/wss11_username_token_with_message_protection_service_template</code></td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td><code>oracle/wss11_x509_token_with_message_protection_client_template</code></td>
<td><code>oracle/wss11_x509_token_with_message_protection_service_template</code></td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Table C–22  wss_http_token_over_ssl_client_template Settings

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authentication Header—Mechanism</td>
<td>Authentication mechanism.</td>
<td>basic</td>
</tr>
<tr>
<td></td>
<td>Valid values include:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>■ basic—Client authenticates itself by transmitting the username and password.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>■ digest—<strong>Not supported in this release</strong>. Client authenticates itself by transmitting an encrypted password through the use of an MD5 digest.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>■ cert—<strong>Not supported in this release</strong>. Client authenticates itself by transmitting a certificate.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>■ custom—<strong>Not supported in this release</strong>. Custom authentication mechanism.</td>
<td></td>
</tr>
<tr>
<td>Authentication Header—Header Name</td>
<td>Name of the authentication header.</td>
<td>None</td>
</tr>
<tr>
<td>Transport Security—Mutual</td>
<td>Flag that specifies whether two-way authentication is required.</td>
<td>Disabled</td>
</tr>
<tr>
<td>Authentication Required</td>
<td>Valid values include:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>■ Enabled—The service must authenticate itself to the client, and the client must authenticate itself to the service.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>■ Disabled—One-way authentication is required. The service must authenticate itself to the client, but the client is not required to authenticate itself to the service.</td>
<td></td>
</tr>
<tr>
<td>Transport Security—Include</td>
<td>Flag that specifies whether to include a timestamp. A timestamp can be used to prevent replay attacks by identifying an expiration time after which the message is no longer valid.</td>
<td>Disabled</td>
</tr>
<tr>
<td>Timestamp</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Configurations**

Table C–23 lists the identity store configurations for the wss_http_token_over_ssl_client_template assertion template.
The wss_http_token_over_ssl_service_template assertion template extracts the credentials in the HTTP header and authenticates users against the Oracle Platform Security Services identity store.

**Settings**

The settings for the wss_http_token_over_ssl_service_template assertion template are identical to the client version of the assertion. See Table C–22 for information on the settings.

**Configurations**

Table C–24 lists the identity store configurations for the wss_http_token_service_template assertion template.

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>csf-key</td>
<td>Credential Store Key that maps to a username and password in the Oracle Platform Security Services identity store. Specify the following properties:</td>
</tr>
<tr>
<td></td>
<td>■ Value—Current value.</td>
</tr>
<tr>
<td></td>
<td>■ Default—Default value. This value is used if Value field is not set. Defaults to basic.credentials.</td>
</tr>
<tr>
<td></td>
<td>■ Type—Specifies one of the following values:</td>
</tr>
<tr>
<td></td>
<td>- Constant—Property cannot be overridden.</td>
</tr>
<tr>
<td></td>
<td>- Required—Property is required and can be overridden.</td>
</tr>
<tr>
<td></td>
<td>- Optional—Property is optional and can be overridden. This value defaults to required. For information about overriding policies, see “Attaching Client Policies Permitting Overrides” on page 8-14.</td>
</tr>
<tr>
<td></td>
<td>■ Description—Description of the property.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>role</th>
<th>SOAP role. Specify the following properties:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>■ Value—Current value.</td>
</tr>
<tr>
<td></td>
<td>■ Default—Default value. This value is used if Value field is not set. Defaults to ultimateReceiver.</td>
</tr>
<tr>
<td></td>
<td>■ Type—Specifies one of the following values:</td>
</tr>
<tr>
<td></td>
<td>- Constant—Property cannot be overridden.</td>
</tr>
<tr>
<td></td>
<td>- Required—Property is required and can be overridden.</td>
</tr>
<tr>
<td></td>
<td>- Optional—Property is optional and can be overridden. This value defaults to constant. For information about overriding policies, see “Attaching Client Policies Permitting Overrides” on page 8-14.</td>
</tr>
<tr>
<td></td>
<td>■ Description—Description of the property.</td>
</tr>
</tbody>
</table>
The wss_saml_token_bearer_over_ssl_client_template assertion template includes SAML tokens in outbound SOAP request messages. The SAML token with confirmation method \[Bearer\] is created automatically.

### Settings

**Table C–24 wss_http_token_over_ssl_service_template Configurations**

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>realm</td>
<td>HTTP Realm. Specify the following properties:</td>
</tr>
<tr>
<td></td>
<td>- Value—Current value.</td>
</tr>
<tr>
<td></td>
<td>- Default—Default value. This value is used if Value field is not set. Defaults to owsm.</td>
</tr>
<tr>
<td></td>
<td>- Type—Specifies one of the following values:</td>
</tr>
<tr>
<td></td>
<td>- Constant—Property cannot be overridden.</td>
</tr>
<tr>
<td></td>
<td>- Required—Property is required and can be overridden.</td>
</tr>
<tr>
<td></td>
<td>- Optional—Property is optional and can be overridden.</td>
</tr>
<tr>
<td></td>
<td>This value defaults to constant. For information about overriding policies, see &quot;Attaching Client Policies Permitting Overrides&quot; on page 8-14.</td>
</tr>
<tr>
<td></td>
<td>- Description—Description of the property.</td>
</tr>
<tr>
<td>role</td>
<td>SOAP role. Specify the following properties:</td>
</tr>
<tr>
<td></td>
<td>- Value—Current value.</td>
</tr>
<tr>
<td></td>
<td>- Default—Default value. This value is used if Value field is not set. Defaults to ultimateReceiver.</td>
</tr>
<tr>
<td></td>
<td>- Type—Specifies one of the following values:</td>
</tr>
<tr>
<td></td>
<td>- Constant—Property cannot be overridden.</td>
</tr>
<tr>
<td></td>
<td>- Required—Property is required and can be overridden.</td>
</tr>
<tr>
<td></td>
<td>- Optional—Property is optional and can be overridden.</td>
</tr>
<tr>
<td></td>
<td>This value defaults to constant. For information about overriding policies, see &quot;Attaching Client Policies Permitting Overrides&quot; on page 8-14.</td>
</tr>
<tr>
<td></td>
<td>- Description—Description of the property.</td>
</tr>
</tbody>
</table>

**oracle/wss_saml_token_bearer_over_ssl_client_template**
The wss_saml_token_bearer_over_ssl_client_template assertion template includes SAML tokens in outbound SOAP request messages. The SAML token with confirmation method \[Bearer\] is created automatically.

**Settings**

Table C–25 lists the settings for the wss_saml_token_bearer_over_ssl_client_template assertion template.

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Version</td>
<td>SAML version. The only valid value is: 1.1.</td>
<td>1.1</td>
</tr>
<tr>
<td>Confirmation Type</td>
<td>Confirmation type. The only valid value is: bearer.</td>
<td>bearer</td>
</tr>
<tr>
<td>Is Signed</td>
<td>Flag that specifies whether the SAML token is signed.</td>
<td>False</td>
</tr>
</tbody>
</table>
Table C–25 (Cont.) wss_saml_token_bearer_over_ssl_client_template Settings

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is Encrypted</td>
<td>Flag that specifies whether the SAML token is encrypted.</td>
<td>False</td>
</tr>
<tr>
<td>Transport Security—Mutual Authentication Required</td>
<td>Flag that specifies whether two-way authentication is required.</td>
<td>Disabled</td>
</tr>
<tr>
<td></td>
<td>Valid values include:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>■ Enabled—The service must authenticate itself to the client, and the client must authenticate itself to the service.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>■ Disabled—One-way authentication is required. The service must authenticate itself to the client, but the client is not required to authenticate itself to the service.</td>
<td></td>
</tr>
<tr>
<td>Transport Security—Include Timestamp</td>
<td>Flag that specifies whether to include a timestamp. A timestamp can be used to prevent replay attacks by identifying an expiration time after which the message is no longer valid.</td>
<td>Disabled</td>
</tr>
</tbody>
</table>

Configurations
None defined.

oracle/wss_saml_token_bearer_over_ssl_service_template
The wss_saml_token_bearer_over_ssl_service_template assertion template authenticates users using credentials provided in SAML tokens with confirmation method ‘Bearer’ in the WS-Security SOAP header.

Settings
The settings for the wss_saml_token_bearer_over_ssl_service_template assertion template are identical to the client version of the assertion. See Table C–25 for information on the settings.

Configurations
None defined.

oracle/wss_saml_token_over_ssl_client_template
The wss_saml_token_over_ssl_client_template assertion template enables the authentication of credentials provided via a SAML token within WS-Security SOAP header using the sender-vouches confirmation type.

Settings
Table C–26 lists the settings for the wss_saml_token_over_ssl_client_template assertion template.
oracle/wss_saml_token_over_ssl_service_template

The wss_saml_token_over_ssl_service_template enforces the authentication of credentials provided via a SAML token within WS-Security SOAP header using the sender-vouches confirmation type.

Settings
The settings for the wss_saml_token_over_ssl_service_template assertion template are identical to the client version of the assertion. See Table C–26 for information on the settings.

Configurations
None defined.

oracle/wss_username_token_over_ssl_client_template

The wss_username_token_over_ssl_client_template assertion template includes credentials in the WS-Security UsernameToken header in outbound SOAP request messages. The assertion supports three types of password credentials: plain text, digest, and no password.

Note: Digest passwords are not supported in this release.

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Version</td>
<td>SAML version. The only valid value is: 1.1.</td>
<td>1.1</td>
</tr>
<tr>
<td>Confirmation Type</td>
<td>Confirmation type. The only valid value is:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>■ sender-vouches—Uses the Sender Vouches SAML token for authentication.</td>
<td></td>
</tr>
<tr>
<td>Is Signed</td>
<td>Flag that specifies whether the SAML token is signed. The only valid value for this policy is True.</td>
<td>True</td>
</tr>
<tr>
<td>Is Encrypted</td>
<td>Flag that specifies whether the SAML token is encrypted.</td>
<td>False</td>
</tr>
<tr>
<td>Transport Security—Mutual Authentication Required</td>
<td>Flag that specifies whether two-way authentication is required.</td>
<td>Enabled</td>
</tr>
<tr>
<td></td>
<td>Valid values include:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>■ Enabled—The service must authenticate itself to the client, and the client must authenticate itself to the service.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>■ Disabled—One-way authentication is required. The service must authenticate itself to the client, but the client is not required to authenticate itself to the service.</td>
<td></td>
</tr>
<tr>
<td>Transport Security—Include Timestamp</td>
<td>Flag that specifies whether to include a timestamp. A timestamp can be used to prevent replay attacks by identifying an expiration time after which the message is no longer valid.</td>
<td>Disabled</td>
</tr>
</tbody>
</table>
To protect against replay attacks, the assertion provides the option to require nonce or creation time in the username token.

**Settings**

Table C–27 lists the settings for the wss_username_token_over_ssl_client_template assertion template.

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Password Type</strong></td>
<td>Type of password required. Valid values are:</td>
<td>plaintext</td>
</tr>
<tr>
<td></td>
<td>none—No password.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>plaintext—Unencrypted password in clear text.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>digest—Not supported in this release. Client authenticates itself by transmitting an encrypted password through the use of an MD5 digest.</td>
<td></td>
</tr>
<tr>
<td><strong>Creation Time Required</strong></td>
<td>Flag that specifies whether a time stamp for the creation of the username token is required.</td>
<td>False</td>
</tr>
<tr>
<td><strong>Nonce Required</strong></td>
<td>Flag that specifies whether a nonce must be included with the username to prevent replay attacks.</td>
<td>False</td>
</tr>
<tr>
<td><strong>Transport Security—Mutual Authentication Required</strong></td>
<td>Flag that specifies whether two-way authentication is required. Valid values include:</td>
<td>Disabled</td>
</tr>
<tr>
<td></td>
<td>Enabled—Two-way authentication. The service must authenticate itself to the client, and the client must authenticate itself to the service.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Disabled—One-way authentication. The service must authenticate itself to the client, but the client is not required to authenticate itself to the service.</td>
<td></td>
</tr>
<tr>
<td><strong>Transport Security—Include Timestamp</strong></td>
<td>Flag that specifies whether to include a timestamp. A timestamp can be used to prevent replay attacks by identifying an expiration time after which the message is no longer valid.</td>
<td>Disabled</td>
</tr>
</tbody>
</table>

**Configurations**

Table C–28 lists the identity store configurations for the wss_username_token_over_ssl_client_template assertion template.
The wss_username_token_over_ssl_service_template assertion template uses the credentials in the UsernameToken WS-Security SOAP header to authenticate users against the Oracle Platform Security Services configured identity store. The assertion supports three types of password credentials: plain text, digest, and no password.

Note: Digest passwords are not supported in this release.

To protect against replay attacks, the assertion provides the option to require nonce or creation time in the username token.

**Settings**

The settings for the wss_username_token_over_ssl_service_template assertion template are identical to the client version of the assertion. See Table C–27 for information on the settings.
Configurations

Table C–29 lists the identity store configurations for the wss_username_token_over_ssl_service_template assertion template.

Table C–29  wss_username_token_over_ssl_service_template Configurations

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>role</td>
<td>SOAP role.</td>
</tr>
<tr>
<td></td>
<td>Specify the following properties:</td>
</tr>
<tr>
<td></td>
<td>■ Value—Current value.</td>
</tr>
<tr>
<td></td>
<td>■ Default—Default value. This value</td>
</tr>
<tr>
<td></td>
<td>is used if Value field is not set.</td>
</tr>
<tr>
<td></td>
<td>■ Type—Specifies one of the following values:</td>
</tr>
<tr>
<td></td>
<td>- Constant—Property cannot be overridden.</td>
</tr>
<tr>
<td></td>
<td>- Required—Property is required and can be overridden.</td>
</tr>
<tr>
<td></td>
<td>- Optional—Property is optional and can be overridden.</td>
</tr>
<tr>
<td></td>
<td>This value defaults to constant. For information about overriding policies, see “Attaching Client Policies Permitting Overrides” on page 8-14.</td>
</tr>
<tr>
<td></td>
<td>■ Description—Description of the property.</td>
</tr>
</tbody>
</table>

oracle/wss10_saml_hok_with_message_protection_client_template

The wss10_saml_hok_with_message_protection_client_template assertion template provides message protection (integrity and confidentiality) and SAML holder of key based authentication for outbound SOAP messages in accordance with the WS-Security 1.0 standard.

Settings

Table C–30 lists the settings for the wss10_saml_hok_with_message_protection_client_template assertion template.

Table C–30  wss10_saml_hok_with_message_protection_client_template Settings

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Version</td>
<td>SAML version. The only valid value is: 1.1.</td>
<td>1.1</td>
</tr>
<tr>
<td>Confirmation Type</td>
<td>Confirmation type. The only valid value is: holder-of-key.</td>
<td>holder-of-key</td>
</tr>
<tr>
<td>Is Signed</td>
<td>Flag that specifies whether the SAML token is signed. The only valid value is: True.</td>
<td>True</td>
</tr>
<tr>
<td>Is Encrypted</td>
<td>Flag that specifies whether the SAML token is encrypted.</td>
<td>False</td>
</tr>
</tbody>
</table>
Configurations

Table C–31 lists the identity store configurations for the wss10_saml_hok_with_message_protection_client_template assertion template.
### Table C–31  \textit{wss10\_samlhok\_with\_message\_protection\_client\_template} Configurations

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
</table>
| keystore.recipient.alias  | Keystore alias associated with the peer certificate. The security runtime uses this alias to extract the peer certificate from the configured keystore and to encrypt messages to the peer. Specify the following properties:  
  - Value—Current value.  
  - Default—Default value. This value is used if Value field is not set. Defaults to orakey.  
  - Type—Specifies one of the following values:  
    - Constant—Property cannot be overridden.  
    - Required—Property is required and can be overridden.  
    - Optional—Property is optional and can be overridden.  
  This value defaults to required. For information about overriding policies, see “Attaching Client Policies Permitting Overrides” on page 8-14.  
  - Description—Description of the property. |
| saml.issuer.name          | Name identifier for the issuer of the SAML token. Specify the following properties:  
  - Value—Current value.  
  - Default—Default value. This value is used if Value field is not set. Defaults to www.oracle.com.  
  - Type—Specifies one of the following values:  
    - Constant—Property cannot be overridden.  
    - Required—Property is required and can be overridden.  
    - Optional—Property is optional and can be overridden.  
  This value defaults to optional. For information about overriding policies, see “Attaching Client Policies Permitting Overrides” on page 8-14.  
  - Description—Description of the property. |
| user.roles.include        | Flag that specifies whether to include SOAP roles. Specify the following properties:  
  - Value—Current value.  
  - Default—Default value. This value is used if Value field is not set. Defaults to false.  
  - Type—Specifies one of the following values:  
    - Constant—Property cannot be overridden.  
    - Required—Property is required and can be overridden.  
    - Optional—Property is optional and can be overridden.  
  This value defaults to optional. For information about overriding policies, see “Attaching Client Policies Permitting Overrides” on page 8-14.  
  - Description—Description of the property. |
The wss10_saml_hok_with_message_protection_service_template assertion template enforces message-level protection and SAML holder of key based authentication for inbound SOAP requests in accordance with the WS-Security 1.0 standard.

### Settings
The settings for the wss10_saml_hok_with_message_protection_service_template are identical to those for client version of the assertion. See Table C–30 for information on the settings.

### Configurations
Table C–32 lists the identity store configurations for the wss10_saml_hok_with_message_protection_service_template assertion template.

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>saml.assertion.filename</td>
<td>Name of the of the SAML token file. Specify the following properties:</td>
</tr>
<tr>
<td></td>
<td>■ Value—Current value.</td>
</tr>
<tr>
<td></td>
<td>■ Default—Default value. This value is used if Value field is not set. Defaults to temp.</td>
</tr>
<tr>
<td></td>
<td>■ Type—Specifies one of the following values:</td>
</tr>
<tr>
<td></td>
<td>- Constant—Property cannot be overridden.</td>
</tr>
<tr>
<td></td>
<td>- Required—Property is required and can be overridden.</td>
</tr>
<tr>
<td></td>
<td>- Optional—Property is optional and can be overridden.</td>
</tr>
<tr>
<td></td>
<td>This value defaults to optional. For information about overriding policies, see &quot;Attaching Client Policies Permitting Overrides” on page 8-14.</td>
</tr>
<tr>
<td></td>
<td>■ Description—Description of the property.</td>
</tr>
</tbody>
</table>

#### oracle/wss10_saml_hok_with_message_protection_service_template
The wss10_saml_hok_with_message_protection_client_template assertion template enforces message-level protection and SAML holder of key based authentication for inbound SOAP requests in accordance with the WS-Security 1.0 standard.

### Settings
The settings for the wss10_saml_hok_with_message_protection_service_template are identical to those for client version of the assertion. See Table C–30 for information on the settings.

### Configurations
Table C–32 lists the identity store configurations for the wss10_saml_hok_with_message_protection_service_template assertion template.

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>role</td>
<td>SOAP role. Specify the following properties:</td>
</tr>
<tr>
<td></td>
<td>■ Value—Current value.</td>
</tr>
<tr>
<td></td>
<td>■ Default—Default value. This value is used if Value field is not set. Defaults to ultimateReceiver.</td>
</tr>
<tr>
<td></td>
<td>■ Type—Specifies one of the following values:</td>
</tr>
<tr>
<td></td>
<td>- Constant—Property cannot be overridden.</td>
</tr>
<tr>
<td></td>
<td>- Required—Property is required and can be overridden.</td>
</tr>
<tr>
<td></td>
<td>- Optional—Property is optional and can be overridden.</td>
</tr>
<tr>
<td></td>
<td>This value defaults to constant. For information about overriding policies, see &quot;Attaching Client Policies Permitting Overrides” on page 8-14.</td>
</tr>
<tr>
<td></td>
<td>■ Description—Description of the property.</td>
</tr>
</tbody>
</table>
The wss10_saml_token_with_message_protection_client_template assertion template provides message-level protection and SAML-based authentication for outbound SOAP messages in accordance with the WS-Security 1.0 standard.

The Web service consumer includes a SAML token in the SOAP header, and the confirmation type is sender-vouches. The SOAP message is signed and encrypted. The Web service provider decrypts the message, and verifies and authenticates the signature.

To prevent replay attacks, the assertion provides the option to include time stamps, SAML token limits, and their verification by the Web service provider.

### Settings

Table C–33 lists the settings for the wss10_saml_token_with_message_protection_client_template assertion template.

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Version</td>
<td>SAML version. The only valid value is: 1.1.</td>
<td>1.1</td>
</tr>
<tr>
<td>Confirmation Type</td>
<td>Confirmation type. The only valid value is: sender-vouches.</td>
<td>sender-vouches</td>
</tr>
<tr>
<td>Is Signed</td>
<td>Flag that specifies whether the SAML token is signed. The only valid value for this policy is: True.</td>
<td>True</td>
</tr>
<tr>
<td>Is Encrypted</td>
<td>Flag that specifies whether the SAML token is encrypted.</td>
<td>False</td>
</tr>
<tr>
<td>Sign Key Reference Mechanism</td>
<td>Mechanism used when signing the request.</td>
<td>direct</td>
</tr>
<tr>
<td>Encryption Key Reference Mechanism</td>
<td>Mechanism used when encrypting the request. Valid values are the same as for Sign Key Reference Mechanism above.</td>
<td>direct</td>
</tr>
<tr>
<td>Recipient Sign Key Reference Mechanism</td>
<td>Mechanism used when encrypting the receipt. Valid values are the same as for Sign Key Reference Mechanism above.</td>
<td>direct</td>
</tr>
<tr>
<td>Recipient Encryption Key Reference Mechanism</td>
<td>Mechanism used when encrypting the receipt. Valid values are the same as for Sign Key Reference Mechanism above.</td>
<td>direct</td>
</tr>
<tr>
<td>Algorithm Suite</td>
<td>Algorithm suite used for message protection. See &quot;Supported Algorithm Suites&quot; on page C-55.</td>
<td>Basic128</td>
</tr>
</tbody>
</table>
### Table C–33 (Cont.) wss10_saml_token_with_message_protection_client_template Settings

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Include Timestamp</td>
<td>Flag that specifies whether to include a timestamp. A timestamp can be used to prevent replay attacks by identifying an expiration time after which the message is no longer valid.</td>
<td>Enabled</td>
</tr>
<tr>
<td>Request Message Settings</td>
<td>See Table C–62.</td>
<td>N/A</td>
</tr>
<tr>
<td>Response Message Settings</td>
<td>See Table C–62.</td>
<td>N/A</td>
</tr>
<tr>
<td>Fault Message Settings</td>
<td>See Table C–62.</td>
<td>N/A</td>
</tr>
</tbody>
</table>

### Configurations

Table C–34 lists the identity store configurations for the wss10_saml_token_with_message_protection_client_template assertion template.
The `wss10_saml_token_with_message_protection_service_template` assertion template enforces message protection (integrity and confidentiality) and SAML-based

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
</table>
| `keystore.recipient.alias`    | Keystore alias associated with the peer certificate. The security runtime uses this alias to extract the peer certificate from the configured keystore and to encrypt messages to the peer. Specify the following properties:  
  ■ Value—Current value.  
  ■ Default—Default value. This value is used if Value field is not set. Defaults to orakey.  
  ■ Type—Specifies one of the following values:  
    - Constant—Property cannot be overridden.  
    - Required—Property is required and can be overridden.  
    - Optional—Property is optional and can be overridden.  
    This value defaults to required. For information about overriding policies, see “Attaching Client Policies Permitting Overrides” on page 8-14.  
  ■ Description—Description of the property. |
| `user.roles.include`         | Flag that specifies whether to include SOAP roles. Specify the following properties:  
  ■ Value—Current value.  
  ■ Default—Default value. This value is used if Value field is not set. Defaults to false.  
  ■ Type—Specifies one of the following values:  
    - Constant—Property cannot be overridden.  
    - Required—Property is required and can be overridden.  
    - Optional—Property is optional and can be overridden.  
    This value defaults to optional. For information about overriding policies, see “Attaching Client Policies Permitting Overrides” on page 8-14.  
  ■ Description—Description of the property. |
| `saml.issuer.name`            | Name identifier for the issuer of the SAML token. Specify the following properties:  
  ■ Value—Current value.  
  ■ Default—Default value. This value is used if Value field is not set. Defaults to www.oracle.com.  
  ■ Type—Specifies one of the following values:  
    - Constant—Property cannot be overridden.  
    - Required—Property is required and can be overridden.  
    - Optional—Property is optional and can be overridden.  
    This value defaults to optional. For information about overriding policies, see “Attaching Client Policies Permitting Overrides” on page 8-14.  
  ■ Description—Description of the property. |
authentication for inbound SOAP requests in accordance with the WS-Security 1.0 standard.

The Web service consumer includes a SAML token in the SOAP header, and the confirmation type is sender-vouches. The SOAP message is signed and encrypted. The Web service provider decrypts the message, and verifies and authenticates the signature.

To prevent replay attacks, the assertion provides the option to include time stamps, SAML token limits, and their verification by the Web service provider.

Settings
The settings for the wss10_saml_token_with_message_protection_service_template are identical to those for client version of the assertion. See Table C–33 for information on the settings.

Configurations
Table C–35 lists the identity store configurations for the wss10_saml_token_with_message_protection_service_template assertion template.

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>role</td>
<td>SOAP role. Specify the following properties:</td>
</tr>
<tr>
<td></td>
<td>■ Value—Current value.</td>
</tr>
<tr>
<td></td>
<td>■ Default—Default value. This value is used if Value field is not set. Defaults to ultimateReceiver.</td>
</tr>
<tr>
<td></td>
<td>■ Type—Specifies one of the following values:</td>
</tr>
<tr>
<td></td>
<td>- Constant—Property cannot be overridden.</td>
</tr>
<tr>
<td></td>
<td>- Required—Property is required and can be overridden.</td>
</tr>
<tr>
<td></td>
<td>- Optional—Property is optional and can be overridden.</td>
</tr>
<tr>
<td></td>
<td>This value defaults to constant. For information about overriding policies, see “Attaching Client Policies Permitting Overrides” on page 8-14.</td>
</tr>
<tr>
<td></td>
<td>■ Description—Description of the property.</td>
</tr>
</tbody>
</table>

oracle/wss10_username_token_with_message_protection_client_template
The wss10_username_token_with_message_protection_client_template assertion template provides message protection (integrity and confidentiality) and authentication for outbound SOAP requests in accordance with the WS-Security 1.0 standard. Credentials are included in the WS-Security UsernameToken header in the outbound SOAP message.

The assertion supports three types of password credentials: plain text, digest, and no password.

Note: Digest passwords are not supported in this release.

To protect against replay attacks, the assertion provides the option to require nonce or creation time in the username token. The SOAP message is signed and encrypted. The Web service provider decrypts the message, and verifies and authenticates the signature.
## Settings

Table C–36 lists the settings for the wss10_username_token_with_message_protection_client_template assertion template.

### Table C–36  wss10_username_token_with_message_protection_client_template Settings

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Password Type</td>
<td>Type of password required.</td>
<td>plaintext</td>
</tr>
<tr>
<td></td>
<td>Valid values are:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>■ none—No password.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>■ plaintext—Unencrypted password in clear text.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>■ digest—Not supported in this release. Client authenticates itself by transmitting an encrypted password through the use of an MD5 digest.</td>
<td></td>
</tr>
<tr>
<td>Nonce Required</td>
<td>Flag that specifies whether a nonce must be included with the username to prevent replay attacks.</td>
<td>False</td>
</tr>
<tr>
<td></td>
<td><strong>Note</strong>: If Password Type is set to digest, then this attribute must be set to true. Otherwise, the policy to which it is attached will not validate.</td>
<td></td>
</tr>
<tr>
<td>Creation Time Required</td>
<td>Flag that specifies whether a time stamp for the creation of the username token is required.</td>
<td>False</td>
</tr>
<tr>
<td></td>
<td><strong>Note</strong>: If Password Type is set to digest, then this attribute must be set to true. Otherwise, the policy to which it is attached will not validate.</td>
<td></td>
</tr>
<tr>
<td>Is Signed</td>
<td>Flag that specifies whether the username is signed.</td>
<td>True</td>
</tr>
<tr>
<td>Is Encrypted</td>
<td>Flag that specifies whether the username is encrypted.</td>
<td>True</td>
</tr>
<tr>
<td>Sign Key Reference Mechanism</td>
<td>Mechanism used when signing the request.</td>
<td>direct</td>
</tr>
<tr>
<td></td>
<td>Valid values include:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>■ direct—X.509 Token is included in the request.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>■ ski—Subject Key Identifier (SKI) extension value of the X.509 certificate used to reference the certificate. (Some certificates may not have this extension.) The recipient of the message looks up its keystore for a certificate corresponding to the SKI and validates the signature against it.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>■ issuerserial—Composite key of issuer name and serial number attributes used to reference the X.509 certificate. The recipient of the message looks up its keystore for a certificate corresponding to Issuer name and Serial Number and validates the signature using it.</td>
<td></td>
</tr>
<tr>
<td>Encryption Key Reference Mechanism</td>
<td>Mechanism used when encrypting the request. Valid values are the same as for Sign Key Reference Mechanism above.</td>
<td>direct</td>
</tr>
<tr>
<td>Recipient Sign Key Reference Mechanism</td>
<td>Mechanism used when encrypting the receipt. Valid values are the same as for Sign Key Reference Mechanism above.</td>
<td>direct</td>
</tr>
<tr>
<td>Recipient Encryption Key Reference Mechanism</td>
<td>Mechanism used when encrypting the receipt. Valid values are the same as for Sign Key Reference Mechanism above.</td>
<td>direct</td>
</tr>
<tr>
<td>Algorithm Suite</td>
<td>Algorithm suite used for message protection. See &quot;Supported Algorithm Suites&quot; on page C-55.</td>
<td>Basic128</td>
</tr>
</tbody>
</table>
Configurations

Table C–37 lists the identity store configurations for the wss10_username_token_with_message_protection_client_template assertion template.

Table C–37  wss10_username_token_with_message_protection_client_template Configurations

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Include Timestamp</td>
<td>Flag that specifies whether to include a timestamp. A timestamp can be used to prevent replay attacks by identifying an expiration time after which the message is no longer valid.</td>
<td>Enabled</td>
</tr>
<tr>
<td>Request Message Settings</td>
<td>See Table C–62.</td>
<td>N/A</td>
</tr>
<tr>
<td>Response Message Settings</td>
<td>See Table C–62.</td>
<td>N/A</td>
</tr>
<tr>
<td>Fault Message Settings</td>
<td>See Table C–62.</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Csf-key

Credential Store Key that maps to a username and password in the Oracle Platform Security Services identity store. Specify the following properties:

- Value—Current value
- Default—Default value. This value is used if the Value field is not set. Defaults to basic.credentials.
- Type—Specifies one of the following values:
  - Constant—Property cannot be overridden.
  - Required—Property is required and can be overridden.
  - Optional—Property is optional and can be overridden.

This value defaults to required. For information about overriding policies, see "Attaching Client Policies Permitting Overrides" on page 8-14.

- Description—Description of the property.

Role

SOAP role. Specify the following properties:

- Value—Current value.
- Default—Default value. This value is used if Value field is not set. Defaults to ultimateReceiver.
- Type—Specifies one of the following values:
  - Constant—Property cannot be overridden.
  - Required—Property is required and can be overridden.
  - Optional—Property is optional and can be overridden.

This value defaults to constant. For information about overriding policies, see "Attaching Client Policies Permitting Overrides" on page 8-14.

- Description—Description of the property.
Predefined Assertion Templates

oracle/wss10_username_token_with_message_protection_service_template

The wss10_username_token_with_message_protection_service_template assertion template enforces message protection (integrity and confidentiality) and authentication for inbound SOAP requests in accordance with the WS-Security 1.0 standard.

The assertion supports three types of password credentials: plain text, digest, and no password.

Note: Digest passwords are not supported in this release.

To protect against replay attacks, the assertion provides the option to require nonce or creation time in the username token. The SOAP message is signed and encrypted. The Web service provider decrypts the message, and verifies and authenticates the signature.

Settings

The settings for the wss10_username_token_with_message_protection_service_template assertion template are identical to the client version of the assertion. See Table C–36 for information on the settings.

Configurations

Table C–38 lists the identity store configurations for the wss10_username_token_with_message_protection_service_template assertion template.
The wss10_x509_token_with_message_protection_client template assertion template provides message protection (integrity and confidentiality) and certificate credential population for outbound SOAP requests in accordance with the WS-Security 1.0 standard.

**Settings**

Table C–36 lists the settings for the wss10_x509_token_with_message_protection_client template assertion template.

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>role</td>
<td>SOAP role. Specify the following properties:</td>
</tr>
<tr>
<td>■ Value—Current value.</td>
<td></td>
</tr>
<tr>
<td>■ Default—Default value. This value is used if Value field is not set. Defaults to ultimateReceiver.</td>
<td></td>
</tr>
<tr>
<td>■ Type—Specifies one of the following values:</td>
<td></td>
</tr>
<tr>
<td>- Constant—Property cannot be overridden.</td>
<td></td>
</tr>
<tr>
<td>- Required—Property is required and can be overridden.</td>
<td></td>
</tr>
<tr>
<td>- Optional—Property is optional and can be overridden.</td>
<td></td>
</tr>
<tr>
<td>This value defaults to constant. For information about overriding policies, see “Attaching Client Policies Permitting Overrides” on page 8-14.</td>
<td></td>
</tr>
<tr>
<td>■ Description—Description of the property.</td>
<td></td>
</tr>
</tbody>
</table>

**oracle/wss10_x509_token_with_message_protection_client_template**

The wss10_x509_token_with_message_protection_client template assertion template provides message protection (integrity and confidentiality) and certificate credential population for outbound SOAP requests in accordance with the WS-Security 1.0 standard.

**Settings**

Table C–38 lists the settings for the wss10_x509_token_with_message_protection_client template assertion template.

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sign Key Reference Mechanism</td>
<td>Mechanism used when signing the request. Valid values include:</td>
</tr>
<tr>
<td>■ direct—X.509 Token is included in the request.</td>
<td></td>
</tr>
<tr>
<td>■ ski—Subject Key Identifier (SKI) extension value of the X.509 certificate used to reference the certificate. (Some certificates may not have this extension.) The recipient of the message looks up its keystore for a certificate corresponding to the SKI and validates the signature against it.</td>
<td></td>
</tr>
<tr>
<td>■ issuerserial—Composite key of issuer name and serial number attributes used to reference the X.509 certificate. The recipient of the message looks up its keystore for a certificate corresponding to Issuer name and Serial Number and validates the signature using it.</td>
<td></td>
</tr>
<tr>
<td>Encryption Key Reference Mechanism</td>
<td>Mechanism used when encrypting the request. Valid values are the same as for Sign Key Reference Mechanism above.</td>
</tr>
<tr>
<td>Recipient Sign Key Reference Mechanism</td>
<td>Mechanism used when encrypting the receipt. Valid values are the same as for Sign Key Reference Mechanism above.</td>
</tr>
<tr>
<td>Recipient Encryption Key Reference Mechanism</td>
<td>Mechanism used when encrypting the receipt. Valid values are the same as for Sign Key Reference Mechanism above.</td>
</tr>
</tbody>
</table>
Table C–39 (Cont.) wss10_x509_token_with_message_protection_client_template Settings

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Algorithm Suite</td>
<td>Algorithm suite used for message protection. See &quot;Supported Algorithm Suites&quot; on page C-55.</td>
<td>Basic128</td>
</tr>
<tr>
<td>Include Timestamp</td>
<td>Flag that specifies whether to include a timestamp. A timestamp can be used to prevent replay attacks by identifying an expiration time after which the message is no longer valid.</td>
<td>Enabled</td>
</tr>
<tr>
<td>Request Message Settings</td>
<td>See Table C–62.</td>
<td>N/A</td>
</tr>
<tr>
<td>Response Message Settings</td>
<td>See Table C–62.</td>
<td>N/A</td>
</tr>
<tr>
<td>Fault Message Settings</td>
<td>See Table C–62.</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Configurations**

Table C–40 lists the identity store configurations for the wss10_x509_token_with_message_protection_client_template assertion template.

Table C–40 wss10_x509_token_with_message_protection_client_template Configurations

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>role</td>
<td>SOAP role. Specify the following properties:</td>
</tr>
<tr>
<td></td>
<td>- Value—Current value.</td>
</tr>
<tr>
<td></td>
<td>- Default—Default value. This value is used if Value field is not set.</td>
</tr>
<tr>
<td></td>
<td>Defaults to ultimateReceiver.</td>
</tr>
<tr>
<td></td>
<td>- Type—Specifies one of the following values:</td>
</tr>
<tr>
<td></td>
<td>- Constant—Property cannot be overridden.</td>
</tr>
<tr>
<td></td>
<td>- Required—Property is required and can be overridden.</td>
</tr>
<tr>
<td></td>
<td>- Optional—Property is optional and can be overridden.</td>
</tr>
<tr>
<td></td>
<td>This value defaults to constant. For information about overriding policies, see &quot;Attaching Client Policies Permitting Overrides&quot; on page 8-14.</td>
</tr>
<tr>
<td></td>
<td>- Description—Description of the property.</td>
</tr>
<tr>
<td>keystore.recipient.alias</td>
<td>Keystore alias associated with the peer certificate. The security runtime uses this alias to extract the peer certificate from the configured keystore and to encrypt messages to the peer. Specify the following properties:</td>
</tr>
<tr>
<td></td>
<td>- Value—Current value.</td>
</tr>
<tr>
<td></td>
<td>- Default—Default value. This value is used if Value field is not set.</td>
</tr>
<tr>
<td></td>
<td>Defaults to orakey.</td>
</tr>
<tr>
<td></td>
<td>- Type—Specifies one of the following values:</td>
</tr>
<tr>
<td></td>
<td>- Constant—Property cannot be overridden.</td>
</tr>
<tr>
<td></td>
<td>- Required—Property is required and can be overridden.</td>
</tr>
<tr>
<td></td>
<td>- Optional—Property is optional and can be overridden.</td>
</tr>
<tr>
<td></td>
<td>This value defaults to required. For information about overriding policies, see &quot;Attaching Client Policies Permitting Overrides&quot; on page 8-14.</td>
</tr>
<tr>
<td></td>
<td>- Description—Description of the property.</td>
</tr>
</tbody>
</table>
oracle/wss10_x509_token_with_message_protection_service_template
The wss10_x509_token_with_message_protection_service_template assertion template enforces message protection (integrity and confidentiality) and certificate-based authentication for inbound SOAP requests in accordance with the WS-Security 1.0 standard.

Settings
The settings for the wss10_x509_token_with_message_protection_service_template assertion template are identical to the client version of the assertion. See Table C–39 for information on the settings.

Configurations
Table C–41 lists the identity store configurations for the wss10_x509_token_with_message_protection_service_template assertion template.

Table C–41  wss10_x509_token_with_message_protection_service_template Configurations

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>role</td>
<td>SOAP role. Specify the following properties:</td>
</tr>
<tr>
<td></td>
<td>■ Value—Current value.</td>
</tr>
<tr>
<td></td>
<td>■ Default—Default value. This value is used if Value field is not set. Defaults to ultimateReceiver.</td>
</tr>
<tr>
<td></td>
<td>■ Type—Specifies one of the following values:</td>
</tr>
<tr>
<td></td>
<td>- Constant—Property cannot be overridden.</td>
</tr>
<tr>
<td></td>
<td>- Required—Property is required and can be overridden.</td>
</tr>
<tr>
<td></td>
<td>- Optional—Property is optional and can be overridden.</td>
</tr>
<tr>
<td></td>
<td>This value defaults to constant. For information about overriding policies, see &quot;Attaching Client Policies Permitting Overrides&quot; on page 8-14.</td>
</tr>
<tr>
<td></td>
<td>■ Description—Description of the property.</td>
</tr>
</tbody>
</table>

oracle/wss11_kerberos_token_with_message_protection_client_template
The wss11_kerberos_token_with_message_protection_client_template assertion template includes a Kerberos token in the WS-Security header in accordance with the WS-Security Kerberos Token Profile v1.1 standard.

Settings
Table C–42 lists the settings for the wss11_kerberos_token_with_message_protection_client_template assertion template.
Table C–42  wss11_kerberos_token_with_message_protection_client_template Settings

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kerberos Token Type</td>
<td>Type of Kerberos token. The only valid value is: gss-apreq-v5 (Kerberos Version 5 GSS-API).</td>
<td>gss-apreq-v5</td>
</tr>
<tr>
<td>Confirm Signature</td>
<td>Flag that specifies whether to send a signature confirmation back to the client.</td>
<td>True</td>
</tr>
</tbody>
</table>
| Sign Key Reference Mechanism  | Mechanism used when signing the request. Valid values include: 
  ■ direct—X.509 Token is included in the request. 
  ■ ski—Subject Key Identifier (SKI) extension value of the X.509 certificate used to reference the certificate. (Some certificates may not have this extension.) The recipient of the message looks up its keystore for a certificate corresponding to the SKI and validates the signature against it. 
  ■ issuerserial—Composite key of issuer name and serial number attributes used to reference the X.509 certificate. The recipient of the message looks up its keystore for a certificate corresponding to Issuer name and Serial Number and validates the signature using it. | direct |
| Encryption Key Reference Mechanism | Mechanism used when encrypting the request. Valid values are the same as for Sign Key Reference Mechanism above. | direct |
| Algorithm Suite               | Algorithm suite used for message protection. See “Supported Algorithm Suites” on page C-55. | TripleDes     |
| Include Timestamp             | Flag that specifies whether to include a timestamp. A timestamp can be used to prevent replay attacks by identifying an expiration time after which the message is no longer valid. | Enabled       |
| Request Message Settings      | See Table C–62.                                                            | N/A           |
| Response Message Settings     | See Table C–62.                                                            | N/A           |
| Fault Message Settings        | See Table C–62.                                                            | N/A           |

Configurations

Table C–43 lists the identity store configurations for the wss11_kerberos_token_with_message_protection_client_template assertion template.
The `wss11_kerberos_token_with_message_protection_service_template` assertion template enforces in accordance with the WS-Security Kerberos Token Profile v1.1 standard. It extracts the Kerberos token from the SOAP header and authenticates the user. The container must have the Kerberos infrastructure configured through Oracle Platform Security Services.

**Settings**

The settings for the `wss11_kerberos_token_with_message_protection_service_template` assertion template are identical to the client version of the assertion. See Table C–42 for information on the settings.

**Configurations**

None required.

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>service.principal.name</td>
<td>Kerberos principal name that identifies the service. Specify the following properties:</td>
</tr>
<tr>
<td></td>
<td>Value—Current value.</td>
</tr>
<tr>
<td></td>
<td>Default—Default value. This value is used if Value field is not set. Defaults to HOST=<a href="mailto:localhost@EXAMPLE.COM">localhost@EXAMPLE.COM</a>.</td>
</tr>
<tr>
<td></td>
<td>Type—Specifies one of the following values:</td>
</tr>
<tr>
<td></td>
<td>- Constant—Property cannot be overridden.</td>
</tr>
<tr>
<td></td>
<td>- Required—Property is required and can be overridden.</td>
</tr>
<tr>
<td></td>
<td>- Optional—Property is optional and can be overridden.</td>
</tr>
<tr>
<td></td>
<td>This value defaults to required. For information about overriding policies, see “Attaching Client Policies Permitting Overrides” on page 8-14.</td>
</tr>
<tr>
<td></td>
<td>Description—Description of the property.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>role</td>
<td>SOAP role. Specify the following properties:</td>
</tr>
<tr>
<td></td>
<td>Value—Current value.</td>
</tr>
<tr>
<td></td>
<td>Default—Default value. This value is used if Value field is not set. Defaults to ultimateReceiver.</td>
</tr>
<tr>
<td></td>
<td>Type—Specifies one of the following values:</td>
</tr>
<tr>
<td></td>
<td>- Constant—Property cannot be overridden.</td>
</tr>
<tr>
<td></td>
<td>- Required—Property is required and can be overridden.</td>
</tr>
<tr>
<td></td>
<td>- Optional—Property is optional and can be overridden.</td>
</tr>
<tr>
<td></td>
<td>This value defaults to constant. For information about overriding policies, see “Attaching Client Policies Permitting Overrides” on page 8-14.</td>
</tr>
<tr>
<td></td>
<td>Description—Description of the property.</td>
</tr>
</tbody>
</table>
oracle/wss11_saml_token_with_message_protection_client_template

The wss11_saml_token_with_message_protection_client_template assertion template enables message protection (integrity and confidentiality) and SAML token population for outbound SOAP requests in accordance with WS-Security 1.1. A SAML token is included in the SOAP message for use in SAML based authentication with sender vouches confirmation.

Settings
Table C–45 lists the settings for the wss11_saml_token_with_message_protection_client_template assertion template.

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Version</td>
<td>SAML version. The only valid value is: 1.1.</td>
<td>None</td>
</tr>
<tr>
<td>Confirmation Type</td>
<td>Confirmation type. Valid values include: sender-vouches.</td>
<td>sender-vouches.</td>
</tr>
<tr>
<td>Is Signed</td>
<td>Flag that specifies whether the SAML token is signed. The only valid value for SAML policies is: True.</td>
<td>True</td>
</tr>
<tr>
<td>Is Encrypted</td>
<td>Flag that specifies whether the SAML token is encrypted.</td>
<td>False</td>
</tr>
<tr>
<td>Confirm Signature</td>
<td>Flag that specifies whether to send a signature confirmation back to the client.</td>
<td>True</td>
</tr>
<tr>
<td>Sign Key Reference Mechanism</td>
<td>Mechanism used when signing the request. Valid values include:</td>
<td>direct</td>
</tr>
<tr>
<td></td>
<td>• direct—X.509 Token is included in the request.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• ski—Subject Key Identifier (SKI) extension value of the X.509 certificate used to reference the certificate. (Some certificates may not have this extension.) The recipient of the message looks up its keystore for a certificate corresponding to the SKI and validates the signature against it.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• issuerserial—Composite key of issuer name and serial number attributes used to reference the X.509 certificate. The recipient of the message looks up its keystore for a certificate corresponding to Issuer name and Serial Number and validates the signature using it.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• thumbprint—Fingerprint (SHA1 hash) of the contents of the certificate. Provides a method to store certificates that is low overhead. This value is valid for Encryption Key Reference Mechanism only (described below.)</td>
<td></td>
</tr>
<tr>
<td>Encryption Key Reference Mechanism</td>
<td>Mechanism used when encrypting the request. Valid values are the same as for Sign Key Reference Mechanism above.</td>
<td>thumbprint</td>
</tr>
<tr>
<td>Algorithm Suite</td>
<td>Algorithm suite used for message protection. See “Supported Algorithm Suites” on page C-55.</td>
<td>Basic128</td>
</tr>
<tr>
<td>Include Timestamp</td>
<td>Flag that specifies whether to include a timestamp. A timestamp can be used to prevent replay attacks by identifying an expiration time after which the message is no longer valid.</td>
<td>Enabled</td>
</tr>
</tbody>
</table>
### Table C–45 (Cont.) wss11_saml_token_with_message_protection_client_template Settings

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Request Message Settings</td>
<td>See Table C–62.</td>
<td>N/A</td>
</tr>
<tr>
<td>Response Message Settings</td>
<td>See Table C–62.</td>
<td>N/A</td>
</tr>
<tr>
<td>Fault Message Settings</td>
<td>See Table C–62.</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Configurations**

Table C–45 lists the identity store configurations for the wss11_saml_token_with_message_protection_client_template assertion template.
The wss11_saml_token_with_message_protection_service_template assertion template enforces message-level integrity protection and SAML-based authentication for inbound SOAP requests in accordance with the WS-Security 1.0 standard. It extracts...
the SAML token from the WS-Security binary security token, and uses those credentials to validate users against the Oracle Platform Security Services identity store.

**Settings**
The settings for the wss11_saml_token_with_message_protection_service_template are identical to the client version of the assertion. See Table C-45 for information on the settings.

**Configurations**
Table C-47 lists the identity store configurations for the wss11_saml_token__with_message_protection_service_template assertion template.

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>role</td>
<td>SOAP role. Specify the following properties:</td>
</tr>
<tr>
<td></td>
<td>■ Value—Current value.</td>
</tr>
<tr>
<td></td>
<td>■ Default—Default value. This value is used if Value field is not set.</td>
</tr>
<tr>
<td></td>
<td>■ Type—Specifies one of the following values:</td>
</tr>
<tr>
<td></td>
<td>■ Constant—Property cannot be overridden.</td>
</tr>
<tr>
<td></td>
<td>■ Required—Property is required and can be overridden.</td>
</tr>
<tr>
<td></td>
<td>■ Optional—Property is optional and can be overridden.</td>
</tr>
<tr>
<td></td>
<td>■ Description—Description of the property.</td>
</tr>
</tbody>
</table>

**oracle/wss11_username_token_with_message_protection_client_template**
The ws11_username_token_with_message_protection_client_template assertion template includes authentication and message protection in accordance with the WS-Security v1.1 standard.

The Web service consumer inserts username and password credentials, and signs and encrypts the outgoing SOAP message. The Web service provider decrypts and verifies the message and the signature.

In order to prevent replay attacks, the assertion provides the option to include time stamps and verification by the Web service provider. The message can be protected with ciphers of different strengths.

**Settings**
Table C-48 lists the settings for the wss11_username_token_with_message_protection_client_template assertion template.
<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Password Type</td>
<td>Type of password required. Valid values are:</td>
<td>plaintext</td>
</tr>
<tr>
<td></td>
<td>■ none—No password.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>■ plaintext—Unencrypted password in clear text.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>■ digest—Not supported in this release. Client authenticates itself by transmitting an encrypted password through the use of an MD5 digest.</td>
<td></td>
</tr>
<tr>
<td>Nonce Required</td>
<td>Flag that specifies whether a nonce must be included with the username to prevent replay attacks.</td>
<td>False</td>
</tr>
<tr>
<td></td>
<td>Note: If Password Type is set to digest, then this attribute must be set to true. Otherwise, the policy to which it is attached will not validate.</td>
<td></td>
</tr>
<tr>
<td>Creation Time Required</td>
<td>Flag that specifies whether a time stamp for the creation of the username token is required.</td>
<td>False</td>
</tr>
<tr>
<td></td>
<td>Note: If Password Type is set to digest, then this attribute must be set to true. Otherwise, the policy to which it is attached will not validate.</td>
<td></td>
</tr>
<tr>
<td>Is Signed</td>
<td>Flag that specifies whether the username is signed.</td>
<td>True</td>
</tr>
<tr>
<td>Is Encrypted</td>
<td>Flag that specifies whether the username is encrypted.</td>
<td>True</td>
</tr>
<tr>
<td>Confirm Signature</td>
<td>Flag that specifies whether to send a signature confirmation back to the client.</td>
<td>True</td>
</tr>
<tr>
<td>Encryption Key Reference</td>
<td>Mechanism used when encrypting the request. Valid values include:</td>
<td>thumbprint</td>
</tr>
<tr>
<td>Mechanism</td>
<td>■ direct—X.509 Token is included in the request.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>■ ski—Subject Key Identifier (SKI) extension value of the X.509 certificate used to reference the certificate. (Some certificates may not have this extension.) The recipient of the message looks up its keystore for a certificate corresponding to the SKI and validates the signature against it.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>■ issuerserial—Composite key of issuer name and serial number attributes used to reference the X.509 certificate. The recipient of the message looks up its keystore for a certificate corresponding to Issuer name and Serial Number and validates the signature using it.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>■ thumbprint—Fingerprint (SHA1 hash) of the contents of the certificate. Provides a method to store certificates that is low overhead.</td>
<td></td>
</tr>
<tr>
<td>Algorithm Suite</td>
<td>Algorithm suite used for message protection. See &quot;Supported Algorithm Suites&quot; on page C-55.</td>
<td>Basic256</td>
</tr>
<tr>
<td>Include Timestamp</td>
<td>Flag that specifies whether to include a timestamp. A timestamp can be used to prevent replay attacks by identifying an expiration time after which the message is no longer valid.</td>
<td>Enabled</td>
</tr>
<tr>
<td>Request Message Settings</td>
<td>See Table C-62.</td>
<td>N/A</td>
</tr>
<tr>
<td>Response Message Settings</td>
<td>See Table C-62.</td>
<td>N/A</td>
</tr>
<tr>
<td>Fault Message Settings</td>
<td>See Table C-62.</td>
<td>N/A</td>
</tr>
</tbody>
</table>
## Configurations

Table C–49 lists the identity store configurations for the wss11_username_token_with_message_protection_client_template assertion template.

### Table C–49  wss11_username_token_with_message_protection_client_template Configurations

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
</table>
| csf-key            | Credential Store Key that maps to a username and password in the Oracle Platform Security Services identity store. Specify the following properties:  
  - Value—Current value.  
  - Default—Default value. This value is used if Value field is not set. Defaults to basic.credentials.  
  - Type—Specifies one of the following values:  
    - Constant—Property cannot be overridden.  
    - Required—Property is required and can be overridden.  
    - Optional—Property is optional and can be overridden.  
  
  This value defaults to required. For information about overriding policies, see "Attaching Client Policies Permitting Overrides" on page 8-14.  
  - Description—Description of the property. |
| role               | SOAP role. Specify the following properties:  
  - Value—Current value.  
  - Default—Default value. This value is used if Value field is not set. Defaults to ultimateReceiver.  
  - Type—Specifies one of the following values:  
    - Constant—Property cannot be overridden.  
    - Required—Property is required and can be overridden.  
    - Optional—Property is optional and can be overridden.  
  
  This value defaults to constant. For information about overriding policies, see "Attaching Client Policies Permitting Overrides" on page 8-14.  
  - Description—Description of the property. |
| keystore.recipient.alias | Keystore alias associated with the peer certificate. The security runtime uses this alias to extract the peer certificate from the configured keystore and to encrypt messages to the peer. Specify the following properties:  
  - Value—Current value.  
  - Default—Default value. This value is used if Value field is not set. Defaults to orakey.  
  - Type—Specifies one of the following values:  
    - Constant—Property cannot be overridden.  
    - Required—Property is required and can be overridden.  
    - Optional—Property is optional and can be overridden.  
  
  This value defaults to required. For information about overriding policies, see "Attaching Client Policies Permitting Overrides" on page 8-14.  
  - Description—Description of the property. |
The ws11_username_token_with_message_protection_service_template assertion template enforces authentication and message protection in accordance with the WS-Security v1.1 standard.

The Web service consumer inserts username and password credentials, and signs and encrypts the outgoing SOAP message. The Web service provider decrypts and verifies the message and the signature. In order to prevent replay attacks, the assertion provides the option to include time stamps and verification by the Web service provider. The message can be protected with ciphers of different strengths.

Settings
The settings for the ws11_username_token_with_message_protection_service_template are identical to the client version of the assertion. See Table C–48 for information on the settings.

Configurations
Table C–50 lists the identity store configurations for the ws11_username_token_with_message_protection_service_template assertion template.

Table C–50 ws11_username_token_with_message_protection_service_template Configurations

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
</table>
| role | SOAP role. Specify the following properties:  
- Value—Current value.  
- Default—Default value. This value is used if Value field is not set. Defaults to ultimateReceiver.  
- Type—Specifies one of the following values:  
  - Constant—Property cannot be overridden.  
  - Required—Property is required and can be overridden.  
  - Optional—Property is optional and can be overridden.  
  This value defaults to constant. For information about overriding policies, see "Attaching Client Policies Permitting Overrides" on page 8-14.  
- Description—Description of the property. |

oracle/ws11_x509_token_with_message_protection_client_template
The ws11_x509_token_with_message_protection_client_template assertion template provides message protection (integrity and confidentiality) and certificate-based authentication for outbound SOAP requests in accordance with the WS-Security 1.1 standard. Credentials are included in the WS-Security binary security token of the SOAP message.

Settings
Table C–51 lists the settings for the ws11_x509_token_with_message_protection_client_template assertion template.
Table C–51  wss11_x509_token_with_message_protection_client_template Settings

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confirm Signature</td>
<td>Flag that specifies whether to send a signature confirmation back to the client.</td>
<td>True</td>
</tr>
<tr>
<td>Sign Key Reference Mechanism</td>
<td>Mechanism used when signing the request. Valid values include:</td>
<td>direct</td>
</tr>
<tr>
<td></td>
<td>■ direct—X.509 Token is included in the request.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>■ ski—Subject Key Identifier (SKI) extension value of the X.509 certificate used to reference the certificate. (Some certificates may not have this extension.) The recipient of the message looks up its keystore for a certificate corresponding to the SKI and validates the signature against it.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>■ issuerserial—Composite key of issuer name and serial number attributes used to reference the X.509 certificate. The recipient of the message looks up its keystore for a certificate corresponding to Issuer name and Serial Number and validates the signature using it.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>■ thumbprint—Fingerprint (SHA1 hash) of the contents of the certificate. Provides a method to store certificates that is low overhead. This value is valid for Encryption Key Reference Mechanism only (described below.)</td>
<td></td>
</tr>
<tr>
<td>Encryption Key Reference Mechanism</td>
<td>Mechanism used when encrypting the request. Valid values are the same as for Sign Key Reference Mechanism above.</td>
<td>thumbprint</td>
</tr>
<tr>
<td>Algorithm Suite</td>
<td>Algorithm suite used for message protection. See “Supported Algorithm Suites” on page C-55.</td>
<td>Basic128</td>
</tr>
<tr>
<td>Include Timestamp</td>
<td>Flag that specifies whether to include a timestamp. A timestamp can be used to prevent replay attacks by identifying an expiration time after which the message is no longer valid.</td>
<td>Enabled</td>
</tr>
<tr>
<td>Request Message Settings</td>
<td>See Table C–62.</td>
<td>N/A</td>
</tr>
<tr>
<td>Response Message Settings</td>
<td>See Table C–62.</td>
<td>N/A</td>
</tr>
<tr>
<td>Fault Message Settings</td>
<td>See Table C–62.</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Configurations

Table C–52 lists the identity store configurations for the wss11_x509_token_with_message_protection_client_template assertion template.
Predefined Assertion Templates

**oracle/wss11_x509_token_with_message_protection_service_template**

The wss11_x509_token_with_message_protection_service_template assertion template enforces message-level protection and certificate-based authentication for inbound SOAP requests in accordance with the WS-Security 1.1 standard. The certificate is extracted from the WS-Security binary security token header, and the credentials in the certificate are validated against the Oracle Platform Security Services identity store.

**Settings**

The settings for the wss11_x509_token_with_message_protection_service_template are identical to the client version of the assertion. See Table C–51 for information on the settings.

**Configurations**

Table C–53 lists the identity store configurations for the wss11_x509_token_with_message_protection_service_template assertion template.

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>role</td>
<td>SOAP role. Specifying properties:</td>
</tr>
<tr>
<td></td>
<td>- Value—Current value.</td>
</tr>
<tr>
<td></td>
<td>- Default—Default value. This value is used if Value field is not set.</td>
</tr>
<tr>
<td></td>
<td>Defaults to ultimateReceiver.</td>
</tr>
<tr>
<td></td>
<td>- Type—Specifies one of the following values:</td>
</tr>
<tr>
<td></td>
<td>- Constant—Property cannot be overridden.</td>
</tr>
<tr>
<td></td>
<td>- Required—Property is required and can be overridden.</td>
</tr>
<tr>
<td></td>
<td>- Optional—Property is optional and can be overridden.</td>
</tr>
<tr>
<td></td>
<td>This value defaults to constant. For information about overriding policies, see “Attaching Client Policies Permitting Overrides” on page 8-14.</td>
</tr>
<tr>
<td></td>
<td>- Description—Description of the property.</td>
</tr>
<tr>
<td>keystore.recipient.alias</td>
<td>Keystore alias associated with the peer certificate. The security runtime uses this alias to extract the peer certificate from the configured keystore and to encrypt messages to the peer. Specifying properties:</td>
</tr>
<tr>
<td></td>
<td>- Value—Current value.</td>
</tr>
<tr>
<td></td>
<td>- Default—Default value. This value is used if Value field is not set.</td>
</tr>
<tr>
<td></td>
<td>Defaults to orakey.</td>
</tr>
<tr>
<td></td>
<td>- Type—Specifies one of the following values:</td>
</tr>
<tr>
<td></td>
<td>- Constant—Property cannot be overridden.</td>
</tr>
<tr>
<td></td>
<td>- Required—Property is required and can be overridden.</td>
</tr>
<tr>
<td></td>
<td>- Optional—Property is optional and can be overridden.</td>
</tr>
<tr>
<td></td>
<td>This value defaults to required. For information about overriding policies, see “Attaching Client Policies Permitting Overrides” on page 8-14.</td>
</tr>
<tr>
<td></td>
<td>- Description—Description of the property.</td>
</tr>
</tbody>
</table>
Authorization Assertion Templates

Table C–54 summarizes assertion templates that are used for authorization. Each authorization assertion template must follow an authentication assertion template.

<table>
<thead>
<tr>
<th>Service Template</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>oracle/binding_authorization_template</td>
<td>Provides simple role-based authorization for the request based on the authenticated subject at the SOAP binding level.</td>
</tr>
<tr>
<td>oracle/binding_permission_authorization_template</td>
<td>Provides simple permission-based authorization for the request based on the authenticated subject at the SOAP binding level.</td>
</tr>
<tr>
<td>oracle/component_authorization_template</td>
<td>Provides simple role-based authorization for the request based on the authenticated subject at the SOA component level.</td>
</tr>
<tr>
<td>oracle/component_permission_authorization_template</td>
<td>Provides simple permission-based authorization for the request based on the authenticated subject at the SOA component level.</td>
</tr>
</tbody>
</table>

Oracle/binding_authorization_template

The binding_authorization_template assertion template provides simple role-based authorization for the request based on the authenticated subject at the SOAP binding level. It should follow an authentication assertion template.

Settings

Table C–55 lists the settings for the binding_authorization_template assertion template.
Predefined Assertion Templates

Configurations
None defined.

oracle/binding_permission_authorization_template
The binding_permission_authorization_template assertion provides simple permission-based authorization for the request based on the authenticated subject at the SOAP binding level. It should follow an authentication assertion.

Note: You should be careful when using permission-based policies with EJBs as the security permissions specified in system-jazn-data.xml will be relaxed beyond a single invocation of the service operation.
Settings

Table C–56 lists the settings for the binding_permission_authorization_template assertion template.

Table C–56  binding_permission_authorization_template Settings

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constraint Pattern</td>
<td>Reserved for future use.</td>
<td>N/A</td>
</tr>
<tr>
<td>Action Pattern</td>
<td>Action or Web service operation for which permission-based checks are performed. This value can be a comma-separated list of values. This field accepts wildcards. For example, validate, amountAvailable.</td>
<td>*</td>
</tr>
<tr>
<td>Resource Pattern</td>
<td>Name of the resource for which permission-based checks are performed. This field accepts wildcards. For example, if the namespace of the Web service is <a href="http://project11">http://project11</a> and the service name is CreditValidation, the resource name is <a href="http://project11/CreditValidation">http://project11/CreditValidation</a>.</td>
<td>*</td>
</tr>
<tr>
<td>Permission Check Class</td>
<td>Class used for the permission-based checking. For example, oracle.wsm.security.WSFuncPermission.</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Configurations

None defined.

oracle/component_authorization_template

The component_authorization_template assertion provides simple role-based authorization for the request based on the authenticated subject at the SOA component level. It should follow an authentication assertion.

Settings

Table C–57 lists the settings for the component_authorization_template assertion template.
Security Assertion Templates

Predefined Assertion Templates

C-53

Configurations
None defined.

oracle/component_permission_authorization_template
The component_permission_authorization_template assertion provides simple permission-based authorization for the request based on the authenticated subject at the SOA component level. It should follow an authentication assertion.

Note: You should be careful when using permission-based policies with EJBs as the security permissions specified in system-jazn-data.xml will be relaxed beyond a single invocation of the service operation.

Settings
Table C–58 lists the settings for the component_permission_authorization_template assertion template.

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authorization Setting</td>
<td>Specifies the roles that are authorized.</td>
<td>Selected Roles</td>
</tr>
<tr>
<td></td>
<td>The valid values are:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>■ Permit All—Permit users with any roles.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>■ Deny All—Deny all users with roles.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>■ Selected Roles—Permit selected roles.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>To add roles:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Click Add.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. To add roles, click the checkbox next to each role you want to add in the Roles Available column and click Move. To add all roles, click Move All.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>To remove roles, click the checkbox next to each role you want to remove in the Roles Selected to Add column, and click Remove. To remove all roles, click Remove All.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>To search for roles, enter a search string in the Role Name search box and click the go arrow. The Roles Available column is updated to include only those roles that match the search string.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Click OK.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>To delete roles:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Select the role that you want to delete in the Selected Roles list.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Click Delete.</td>
<td></td>
</tr>
</tbody>
</table>
Management Assertions

Table C–58  component_permission_authorization_template Settings

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constraint Pattern</td>
<td>Reserved for future use.</td>
<td>N/A</td>
</tr>
<tr>
<td>Action Pattern</td>
<td>Action or Web service operation for which permission-based checks are performed. This value can be a comma-separated list of values. This field accepts wildcards. For example, validate, amountAvailable.</td>
<td>*</td>
</tr>
<tr>
<td>Resource Pattern</td>
<td>Name of the resource for which permission-based checks are performed. This field accepts wildcards. For example, if the composite name of the Web service is HelloWorld and the service name is Hello, the resource name is HelloWorld/Hello.</td>
<td>*</td>
</tr>
<tr>
<td>Permission Check Class</td>
<td>Class used for the permission-based checking. For example, oracle.wsm.security.WSFunctionPermission.</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Configurations

None defined.

Management Assertions

Table C–59 summarizes the management assertion templates.

Table C–59  Management Assertion Templates

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>oracle/security_log_template</td>
<td>Provides simple role-based authorization for the request based on the authenticated subject.</td>
</tr>
</tbody>
</table>

oracle/security_log_template

The security_log_template assertion template provides a logging assertion template that can be attached to any binding or component.

Note: It is recommended that the logging assertion be used for debugging and auditing purposes only.

Settings

Table C–60 lists the settings for the security_log_template assertion template.
Message Signing and Encryption Settings for Request, Response, and Fault Messages

Table C–60  security_log_template Settings

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Request</td>
<td>Requirements for logging request messages.</td>
<td>all</td>
</tr>
<tr>
<td></td>
<td>The valid values are:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>■ all—Log the entire SOAP message.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>■ header—Log SOAP header information only.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>■ soap_body—Log SOAP body information only.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>■ soap_envelope—Log SOAP envelope information only.</td>
<td></td>
</tr>
<tr>
<td>Response</td>
<td>Requirements for logging response messages. The valid values are the same as for Request above.</td>
<td>soap_body</td>
</tr>
</tbody>
</table>

Configurations
None defined.

Supported Algorithm Suites
Table C–61 lists the algorithm suites that are supported for message protection. The algorithm suites enable you to control the cryptographic characteristics of the algorithms that are used when securing messages.

Table C–61  Supported Algorithm Suites

<table>
<thead>
<tr>
<th>Algorithm Suite</th>
<th>Digest</th>
<th>Encryption</th>
<th>Symmetric Key Wrap</th>
<th>Asymmetric Key Wrap</th>
<th>Encrypted Key Derivation</th>
<th>Signature Key Derivation</th>
<th>Minimum Signature Key Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic256</td>
<td>Sha1</td>
<td>Aes256</td>
<td>KwAes256</td>
<td>KwRsaOaep</td>
<td>PSha1L256</td>
<td>PSha1L192</td>
<td>256</td>
</tr>
<tr>
<td>Basic192</td>
<td>Sha1</td>
<td>Aes192</td>
<td>KwAes192</td>
<td>KwRsaOaep</td>
<td>PSha1L192</td>
<td>PSha1L192</td>
<td>192</td>
</tr>
<tr>
<td>Basic128</td>
<td>Sha1</td>
<td>Aes128</td>
<td>KwAes128</td>
<td>KwRsaOaep</td>
<td>PSha1L128</td>
<td>PSha1L128</td>
<td>128</td>
</tr>
<tr>
<td>TripleDes</td>
<td>Sha1</td>
<td>TripleDes</td>
<td>KwTripleDes</td>
<td>KwRsaOaep</td>
<td>PSha1L192</td>
<td>PSha1L192</td>
<td>192</td>
</tr>
<tr>
<td>Basic256Rsa15</td>
<td>Sha1</td>
<td>Aes256</td>
<td>KwAes256</td>
<td>KwRsa15</td>
<td>PSha1L256</td>
<td>PSha1L192</td>
<td>256</td>
</tr>
<tr>
<td>Basic192Rsa15</td>
<td>Sha1</td>
<td>Aes192</td>
<td>KwAes192</td>
<td>KwRsa15</td>
<td>PSha1L192</td>
<td>PSha1L192</td>
<td>192</td>
</tr>
<tr>
<td>Basic128Rsa15</td>
<td>Sha1</td>
<td>Aes128</td>
<td>KwAes128</td>
<td>KwRsa15</td>
<td>PSha1L128</td>
<td>PSha1L128</td>
<td>128</td>
</tr>
<tr>
<td>TripleDesRsa15</td>
<td>Sha1</td>
<td>TripleDes</td>
<td>KwTripleDes</td>
<td>KwRsa15</td>
<td>PSha1L192</td>
<td>PSha1L192</td>
<td>192</td>
</tr>
</tbody>
</table>

Message Signing and Encryption Settings for Request, Response, and Fault Messages
Table C–62 lists the settings for the Request, Response, and Fault messages. You configure these settings for message signing and encryption.

Table C–62  Request, Response, and Fault Message Signing and Encryption Settings

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Include Entire Body</td>
<td>Sign or encrypt the entire body of the SOAP message. If false, you can add specific body elements using the Body Elements section.</td>
<td>True for Request and Response messages False for Fault messages</td>
</tr>
</tbody>
</table>
### Message Signing and Encryption Settings for Request, Response, and Fault Messages

#### Table C–62  (Cont.) Request, Response, and Fault Message Signing and Encryption Settings

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Default Value</th>
</tr>
</thead>
</table>
| Include SwA Attachment| Sign or encrypt SOAP messages with attachments.  
  *Note:* This field is not applicable to MTOM attachments. | False         |
| Include MIME Headers  | Sign or encrypt SOAP attachments with MIME headers.  
  *Note:* This field is enabled and applicable if Include SwA Attachment is enabled. It is not applicable to MTOM attachments. | False         |
| Header Elements       | Sign or encrypt the specified SOAP header elements.  
  To add a header element:  
  1. Click Add.  
  2. Enter the namespace URI.  
  3. Enter the local name for the header element.  
  4. Click OK.  
  To edit a header element:  
  1. Select the header element that you want to edit in the Header Elements list.  
  2. Click Edit.  
  3. Modify the values, as required.  
  4. Click OK.  
  To delete a header element:  
  1. Select the header element that you want to delete in the Header Elements list.  
  2. Click Delete.  
  3. When prompted to confirm, click OK. | None           |
| Body Elements         | *Note:* This field is available if Include Entire Body is disabled.  
  Sign or encrypt the specified body elements. This field is applicable if the Include Body field is disabled.  
  To add a body element:  
  1. Click Add.  
  2. Enter the namespace URI.  
  3. Enter the local name for the body element.  
  4. Click OK.  
  To edit a body element:  
  1. Select the bpdu element that you want to edit in the Body Elements list.  
  2. Click Edit.  
  3. Modify the values, as required.  
  4. Click OK.  
  To delete a body element:  
  1. Select the body element that you want to delete in the Body Elements list.  
  2. Click Delete.  
  3. When prompted to confirm, click OK. | None           |
This appendix provides the XML schema for reference when creating a WS-Policy file that contains Web service assertions. Sections include:

- Graphical Representation
- Element Descriptions

**Graphical Representation**

The following graphic describes the element hierarchy of the assertions in the WS-Policy file.
The following sections describe each element and their subelements in detail:

- `wsp:Policy`
- `wsp:ExactlyOne`
- `orasp:Assertion`
- `orawsp:bindings`
- `orawsp:Config`
- `orawsp:PropertySet`
- `orawsp:Property`
- `orawsp:Description`
- `orawsp:Value`

Element Descriptions

The following sections describe the elements in the assertion in more detail. The main elements are described up front. The subelements are described following the main elements and are organized in alphabetical order.
wsp:Policy

Groups nested policy assertions.

Attributes

The following table summarizes the WS-Policy attributes, including the Oracle extensions.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Name of the policy.</td>
</tr>
<tr>
<td>attachTo</td>
<td>Policy subjects to which the policy can be attached. Valid values include: binding.client, binding.server, binding.any.</td>
</tr>
<tr>
<td>category</td>
<td>Category of the policy. Valid values include: security, mtom, wsrm, addressing, and management.</td>
</tr>
<tr>
<td>description</td>
<td>Description of the policy.</td>
</tr>
<tr>
<td>displayName</td>
<td>Name displayed in the user interface.</td>
</tr>
</tbody>
</table>
| localOptimization | Flag that specifies whether local optimization is enabled. Oracle WSM supports a SOA local optimization feature for composite-to-composite invocations in which the reference of one composite specifies a Web service binding to a second composite. Valid values include:  
  - On—Local optimization is enabled  
  - Off—Local optimization is turned off. The request goes through the usual WS/SOAP/HTTP process  
  - Check Identity—Optimize only if a JAAS subject already exists in the current thread, indicating that authentication has already succeeded. Otherwise, go through the usual WS/SOAP/HTTP process. |
| status            | Status of the policy reference. Valid values include: enabled and disabled. |
| smartDigest       | Smart Digest.                                                               |
| oraSmartDigest    | Smart Digest.                                                               |
| subjectCount      | Number of subjects to which the policy is attached currently.              |
| versionCreator    | Author of the current version.                                             |
| versionNumber     | Number of the current version.                                             |
| versionTime       | Time the current version was created.                                      |
| id                | Policy ID.                                                                  |

Example

```xml
<wsp:Policy
 xmlns="http://schemas.xmlsoap.org/ws/2004/09/policy"
 xmlns:oralgp="http://schemas.oracle.com/ws/2006/01/loggingpolicy"
 xmlns:orasp="http://schemas.oracle.com/ws/2006/01/securitypolicy"
 xmlns:orawsp="http://schemas.oracle.com/ws/2006/01/policy"
 xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd"
 Name="oracle/wss11_x509_token_with_message_protection_client_policy"
 orawsp:attachTo="binding.client"
```
Optional element that defines an OR group. For more information about OR groups, see "Defining Multiple Policy Alternatives (OR Groups)" on page 3-8.

Attributes
The following table summarizes the attribute of the <wsp:ExactlyOne> element.

Table D–2 Attribute of <wsp:ExactlyOne> Element

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Set to OR to indicate that this is an OR group.</td>
</tr>
</tbody>
</table>

Example

<wsp:ExactlyOne orawsp:name="Or">
  <orasp:wsdl:saml-with-certificates orawsp:Enforced="true" orawsp:Silent="false"
    orawsp:category="security/msg-protection, security/authentication"
    orawsp:name="WS-Security 1.1 Saml with certificates">
    <orasp:saml-token orasp:confirmation-type="sender-vouches"
      orasp:is-encrypted="false" orasp:is-signed="true" orasp:version="1.1"/>
    <orasp:x509-token orasp:enc-key-ref-mech="thumbprint" orasp:is-encrypted="false"
      orasp:is-signed="true" orasp:sign-key-ref-mech="direct"/>
    <orasp:msg-security orasp:algorithm-suite="Basic128"
      orasp:confirm-signature="true" orasp:encrypt-signature="false"
      orasp:include-timestamp="true" orasp:sign-then-encrypt="true"
      orasp:use-derived-keys="false">
      ...
    </orasp:msg-security>
  </orasp:wsdl:saml-with-certificates>
  <orawsp:wsdl:username-with-certificates orawsp:Enforced="true"
    orawsp:Silent="false" orawsp:category="security/authentication, security/msg-protection"
    orawsp:name="WS-Security 1.1 username with certificates">
    <orasp:username-token orasp:add-created="false" orasp:add-nonce="false"
      orasp:is-encrypted="true" orasp:is-signed="true"
      orasp:password-type="plaintext"/>
    <orasp:x509-token orasp:enc-key-ref-mech="thumbprint" orasp:is-encrypted="false"
      orasp:is-signed="true" orasp:sign-key-ref-mech="thumbprint"/>
    <orasp:msg-security orasp:algorithm-suite="Basic128"
      orasp:confirm-signature="true" orasp:encrypt-signature="false"
      orasp:include-timestamp="true" orasp:sign-then-encrypt="true"
orasp:Assertion

Main element of the assertion. Valid assertion elements include:

- oralgp:Logging
- orasp:binding-authorization
- orasp:binding-permission-authorization
- orasp:coreid-security
- orasp:http-security
- orasp:kerberos-security
- orasp:sca-component-authorization
- orasp:sca-component-permission-authorization
- orasp:wss10-anonymous-with-certificates
- orasp:wss10-mutual-auth-with-certificates
- orasp:wss10-saml-hok-with-certificates
- orasp:wss10-saml-token
- orasp:wss10-saml-with-certificates
- orasp:wss10-username-with-certificates
- orasp:wss11-anonymous-with-certificates
- orasp:wss11-mutual-auth-with-certificates
- orasp:wss11-saml-with-certificates
- orasp:wss11-username-with-certificates
- orasp:wss-saml-token-bearer-over-ssl
- orasp:wss-saml-token-over-ssl
- orasp:wss-username-token
- orasp:wss-username-token-over-ssl
- rm:RMAssertion
- wsaw:UsingAddressing
- wsoma:OptimizedMimeSerialization

Attributes

The following table summarizes the attributes of the <orasp:Assertion> element.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optional</td>
<td>Flag that specifies whether the assertion is optional or required.</td>
</tr>
</tbody>
</table>
Table D–3 (Cont.) Attributes of `<orasp:Assertion>` Element

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silent</td>
<td>Flag that specifies whether the assertion is advertised. If set to true, the assertion is not advertised.</td>
</tr>
<tr>
<td>Enforced</td>
<td>Flag that specifies whether the assertion is currently enabled. Valid values are true or false.</td>
</tr>
<tr>
<td>name</td>
<td>Name of the assertion.</td>
</tr>
<tr>
<td>description</td>
<td>Description of the assertion.</td>
</tr>
<tr>
<td>category</td>
<td>Category to which the assertion applies. Valid values include: security/authentication, security/msg-protection, security/authorization, security/logging, mtom, wsrm, addressing, and management.</td>
</tr>
</tbody>
</table>

Example

```xml
<orasp:wss11-mutual-auth-with-certificates orawsp:Enforced="true"
 orawsp:Silent="false" orawsp:category="security/authentication,
 security/msg-protection"
 orawsp:name="WS-Security 1.1 Mutual Auth with certificates">
 ... 
</orasp:wss11-mutual-auth-with-certificates>
```

`orawsp:bindings`

The `<orawsp:bindings>` element defines the bindings in the assertion. This element contains the following subelement:

- `<orawsp:Config>`

Example

```xml
<orawsp:bindings>
  <orawsp:Config orawsp:configType="declarative"
  orawsp:name="Wss11SamlWithCertsConfig">
    <orawsp:PropertySet orawsp:name="standard-security-properties">
      <orawsp:Property orawsp:contentType="constant" orawsp:name="role"
        orawsp:type="string">
        <orawsp:Value>ultimateReceiver</orawsp:Value>
      </orawsp:Property>
    </orawsp:PropertySet>
  </orawsp:Config>
</orawsp:bindings>
```

`orawsp:Config`

The `<orawsp:Config>` element defines the configuration for the assertion. This element can contain the following subelement:

- `<orawsp:PropertySet>`

Attributes

The following table summarizes the attributes of the `<orawsp:Config>` element.
Table D–4  Attributes of <orawsp:Config> Element

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>name</td>
<td>Name of the configuration.</td>
</tr>
<tr>
<td>type</td>
<td>Category to which the configuration applies.</td>
</tr>
<tr>
<td>configType</td>
<td>Configuration type. Valid values include: declarative and programmatic.</td>
</tr>
<tr>
<td></td>
<td>■ declarative—Use deployment descriptors and configuration files to describe authentication and authorization requirements.</td>
</tr>
<tr>
<td></td>
<td>■ programmatic—Embed security enforcement within the application.</td>
</tr>
</tbody>
</table>

Example

```
<orawsp:Config orawsp:configType="declarative"
  orawsp:name="Wss11SamlWithCertsConfig">
  <orawsp:PropertySet orawsp:name="standard-security-properties">
    <orawsp:Property orawsp:contentType="constant" orawsp:name="role"
      orawsp:type="string">
      <orawsp:Value>ultimateReceiver</orawsp:Value>
    </orawsp:Property>
  </orawsp:PropertySet>
</orawsp:Config>
```

orawsp:PropertySet

The <orawsp:PropertySet> element groups nested properties. This element contains the following subelement:

- orawsp:Property

Attributes

The following table summarizes the attributes of the <orawsp:PropertySet> element.

Table D–5  Attributes of <orawsp:PropertySet> Element

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>name</td>
<td>Name of the property set.</td>
</tr>
</tbody>
</table>

Example

```
<orawsp:PropertySet orawsp:name="standard-security-properties">
  <orawsp:Property orawsp:contentType="constant" orawsp:name="role"
    orawsp:type="string">
    <orawsp:Value>ultimateReceiver</orawsp:Value>
  </orawsp:Property>
</orawsp:PropertySet>
```

orawsp:Property

The <orawsp:Property> element defines a single property. The following summarize valid properties used by the predefined assertions.

The <orawsp:Property> element can contain the following subelements:
orawsp:Value

Attributes
The following table summarizes the attributes of the <orawsp:Property> element.

Table D–6 Attributes of <orawsp:Property> Element

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>name</td>
<td>Name of the property. See Table D–7 for a list of property values used by the predefined assertions.</td>
</tr>
<tr>
<td>type</td>
<td>Type of the property. For example, string.</td>
</tr>
<tr>
<td>contentType</td>
<td>Specifies whether the property is required and can be overridden. Valid values include:</td>
</tr>
<tr>
<td></td>
<td>constant—Property is a constant value and cannot be overridden.</td>
</tr>
<tr>
<td></td>
<td>required—Property is required and can be overridden.</td>
</tr>
<tr>
<td></td>
<td>optional—Property is optional and can be overridden.</td>
</tr>
<tr>
<td></td>
<td>For information about overriding policies, see &quot;Attaching Client Policies Permitting Overrides&quot; on page 8-14.</td>
</tr>
</tbody>
</table>

The following table summarizes the properties used by the predefined assertions.

Table D–7 Properties Used by the Predefined Assertions

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>action</td>
<td>Action or Web service operation for which authorization checks are performed. This value can be a comma-separated list of values. This field accepts wildcards. For example, validate, amountAvailable.</td>
</tr>
<tr>
<td>BaseRetransmissionInterval</td>
<td>Interval, in milliseconds, that the source endpoint waits after transmitting a message and before it retransmits the message. If the source endpoint does not receive an acknowledgement for a given message within the interval specified by this element, the source endpoint retransmits the message. The source endpoint can modify this retransmission interval at any point during the lifetime of the sequence of messages. This assertion does not alter the formulation of messages as transmitted, only the timing of their transmission. This value defaults to 3000.</td>
</tr>
</tbody>
</table>
### Table D–7 (Cont.) Properties Used by the Predefined Assertions

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DeliveryAssurance</td>
<td>Delivery assurance. Valid values include:</td>
</tr>
<tr>
<td>- InOrder</td>
<td>Messages are delivered in the order they were sent. This is the default.</td>
</tr>
<tr>
<td>- AtLeastOnce</td>
<td>Every message is delivered at least once. It is possible that some messages are delivered more than once.</td>
</tr>
<tr>
<td>- AtLeastOnceInOrder</td>
<td>Every message is delivered at least once and in the order they were sent. It is possible that some messages are delivered more than once.</td>
</tr>
<tr>
<td>- ExactlyOnce</td>
<td>Every message is delivered exactly once, without duplication.</td>
</tr>
<tr>
<td>- ExactlyOnceInOrder</td>
<td>Every message is delivered exactly once, without duplication, and in the order they were sent.</td>
</tr>
<tr>
<td>- AtMostOnce</td>
<td>Messages are delivered at most once, without duplication.</td>
</tr>
<tr>
<td>- AtMostOnceInOrder</td>
<td>Messages are delivered at most once, without duplication and in the order received. It is possible that some messages may not be delivered at all.</td>
</tr>
<tr>
<td>jdbc-connection-name</td>
<td>JNDI reference to a JDBC data store. Valid when the StoreType is set to JDBC. This value defaults to jdbc/MessagesStore.</td>
</tr>
<tr>
<td>InactivityTimeout</td>
<td>Period of inactivity (in milliseconds) for a sequence of messages. A sequence of messages is defined as a set of messages, identified by a unique sequence number, for which a particular delivery assurance applies; typically a sequence originates from a single source endpoint. If, during the duration specified by this element, a destination endpoint has received no messages from the source endpoint, the destination endpoint may consider the sequence to have been terminated due to inactivity. The same applies to the source endpoint. This value defaults to 600000.</td>
</tr>
<tr>
<td>keystore.recipient.alias</td>
<td>Keystore alias associated with the peer certificate. The security runtime uses this alias to extract the peer certificate from the configured keystore and to encrypt messages to the peer. Can be superseded by &quot;Using Service Identity Certification Extension&quot;.</td>
</tr>
<tr>
<td>permission-class</td>
<td>Class used for the permission-based checking. For example, oracle.wsm.security.WSFuncPermission.</td>
</tr>
<tr>
<td>realm</td>
<td>HTTP realm. This value defaults to owsm.</td>
</tr>
<tr>
<td>resource</td>
<td>Name of the resource for which authorization checks are performed. This field accepts wildcards. For example, if the namespace of the Web service is <a href="http://project11">http://project11</a> and the service name is CreditValidation, the resource name is <a href="http://project11/CreditValidation">http://project11/CreditValidation</a>.</td>
</tr>
<tr>
<td>role</td>
<td>SOAP role. This value defaults to ultimateReceiver.</td>
</tr>
<tr>
<td>saml.assertion.filename</td>
<td>File containing SAML assertions. This value defaults to temp.</td>
</tr>
<tr>
<td>saml.issuer.name</td>
<td>Name of the issuer of the SAML token. This value defaults to <a href="http://www.oracle.com">www.oracle.com</a>.</td>
</tr>
<tr>
<td>StoreName</td>
<td>Name of the message store. This value defaults to oracle.</td>
</tr>
</tbody>
</table>
Table D–7 (Cont.) Properties Used by the Predefined Assertions

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>StoreType</td>
<td>Type of message store. Valid values include: &lt;ul&gt;&lt;li&gt;InMemory—Messages are stored in memory. This is the default.&lt;/li&gt;&lt;li&gt;JDBC—Messages are stored using JDBC.&lt;/li&gt;&lt;/ul&gt;</td>
</tr>
<tr>
<td>user.roles.include</td>
<td>SOAP roles to be included. This value defaults to false.</td>
</tr>
</tbody>
</table>

Example

<orawsp:PropertySet orawsp:name="standard-security-properties">
  <orawsp:Property orawsp:contentType="constant" orawsp:name="role" orawsp:type="string">
    <orawsp:Value>ultimateReceiver</orawsp:Value>
  </orawsp:Property>
</orawsp:PropertySet>

orawsp:Description

The <orawsp:Description> element provides a description of the property.

Example

<orawsp:Description>My description.</orawsp:Description>

orawsp:Value

The <orawsp:Value> element provides a list of valid values for the property.

Example

<orawsp:Value>ultimateReceiver</orawsp:Value>

oralgp:Logging

The <orasp:Logging> element defines the logging policy.

The <orasp:Logging> element contains the following subelements:

- oralgp:msg-log
- orawsp:bindings

Example

<oralgp:Logging orawsp:Enforced="false" orawsp:Silent="true" orawsp:category="security/logging" orawsp:name="Log Message1">
  <oralgp:msg-log>
    <oralgp:request>all</oralgp:request>
    <oralgp:response>all</oralgp:response>
    <oralgp:fault>all</oralgp:fault>
  </oralgp:msg-log>
  <orawsp:bindings>
    <orawsp:Config orawsp:name="added-from-em"/>
  </orawsp:bindings>
</oralgp:Logging>
**orasp:binding-authorization**

The `<orasp:binding-authorization>` element defines a simple role-based authorization for the request based on the authenticated subject at the SOAP binding level.

The `<orasp:binding-authorization>` element contains the following subelement:

- `<orawsp:bindings>`

It also contains one of the following subelements:

- `<orasp:denyAll>`
- `<orasp:permitAll>`
- `<orasp:role>`

**Example**

```xml
<orasp:binding-authorization orawsp:Enforced="true" orawsp:Silent="true" orawsp:category="security/authorization" orawsp:name="J2EE services Authorization">
  <orasp:denyAll/>
  <orawsp:bindings>
    <orawsp:Config orawsp:configType="declarative" orawsp:name="AuthzConfig"/>
  </orawsp:bindings>
</orasp:binding-authorization>
```

**orasp:binding-permission-authorization**

The `<orasp:binding-permission-authorization>` element defines simple permission-based authorization for the request based on the authenticated subject at the SOAP binding level.

The `<orasp:binding-permission-authorization>` element contains the following subelements:

- `<orasp:check-permission>`
- `<orawsp:bindings>`
- `<orawsp:guard>`

**Example**

```xml
<orasp:binding-permission-authorization orawsp:Enforced="true" orawsp:Silent="true" orawsp:category="security/authorization" orawsp:name="J2EE Permission Based Authorization">
  <orasp:check-permission/>
  <orawsp:bindings>
    <orawsp:Config orawsp:configType="declarative" orawsp:name="BindingPermissionAuthzConfig">
      <orawsp:PropertySet orawsp:name="perms-authz-properties">
        <orawsp:Property orawsp:contentType="optional" orawsp:name="resource" orawsp:type="string">
          <orawsp:DefaultValue>*</orawsp:DefaultValue>
        </orawsp:Property>
        <orawsp:Property orawsp:contentType="optional" orawsp:name="action" orawsp:type="string">
          <orawsp:DefaultValue>*</orawsp:DefaultValue>
        </orawsp:Property>
      </orawsp:PropertySet>
    </orawsp:Config>
  </orawsp:bindings>
</orasp:binding-permission-authorization>
```
orasp:coreid-security

The `<orasp:coreid-security>` element uses the credentials in the WS-Security header's binary security token to authenticate users against the Oracle Access Manager identity store.

It contains the following subelements:

- `<orasp:coreid-token>`
- `<orawsp:bindings>`

Example

```xml
  <orasp:coreid-token orasp:is-encrypted="false" orasp:is-signed="false"/>
  <orawsp:bindings>
    <orawsp:Config orawsp:configType="declarative" orawsp:name="CoreIdConfig">
      <orawsp:PropertySet orawsp:name="standard-security-properties">
        <orawsp:Property orawsp:contentType="constant" orawsp:name="role" orawsp:type="string">
          <orawsp:Value>ultimateReceiver</orawsp:Value>
        </orawsp:Property>
      </orawsp:PropertySet>
    </orawsp:Config>
    <orawsp:Config orawsp:configType="declarative" orawsp:name="CoreIdConfig">
      <orawsp:PropertySet orawsp:name="standard-security-properties">
        <orawsp:Property orawsp:contentType="constant" orawsp:name="role" orawsp:type="string">
          <orawsp:Value>ultimateReceiver</orawsp:Value>
        </orawsp:Property>
      </orawsp:PropertySet>
    </orawsp:Config>
  </orawsp:bindings>
</orasp:coreid-security>
```

orasp:http-security

The `<orasp:http-security>` element uses the credentials in the HTTP header to authenticate users against the Oracle Platform Security Services identity store.

It contains the following subelements:

- `<orasp:auth-header>`
- `<orasp:require-tls>`
- `<orawsp:bindings>`
**Example**

```
<orasp:http-security orawsp:Enforced="true" orawsp:Silent="true"
orawsp:category="security/authentication, security/msg-protection"
orawsp:name="Http over SSL Security">
  <orasp:auth-header orasp:mechanism="basic"/>
  <orasp:require-tls orawsp:include-timestamp="true" orawsp:mutual-auth="false"/>
  <orawsp:bindings>
    <orawsp:Config orawsp:configType="declarative" orawsp:name="HttpConfig">
      <orawsp:PropertySet orawsp:name="standard-security-properties">
        <orawsp:Property orawsp:contentType="constant" orawsp:name="realm"
orawsp:type="string">
          <orawsp:Value>owsm</orawsp:Value>
        </orawsp:Property>
        <orawsp:Property orawsp:contentType="constant" orawsp:name="role"
orawsp:type="string">
          <orawsp:Value>ultimateReceiver</orawsp:Value>
        </orawsp:Property>
      </orawsp:PropertySet>
    </orawsp:Config>
  </orawsp:bindings>
</orasp:http-security>
```

**orasp:kerberos-security**

The `<orasp:kerberos-security>` element enforces in accordance with the WS-Security Kerberos Token Profile v1.1 standard.

It contains the following subelements:

- `<orasp:kerberos-token>`
- `<orawsp:bindings>`
- `<orasp:msg-security>`

**Example**

```
<orasp:kerberos-security orawsp:Enforced="true" orawsp:Silent="false"
orawsp:category="security/authentication" orawsp:name="WSS Kerberos Token">
  <orawsp:bindings>
    <orawsp:Config orawsp:configType="declarative" orawsp:name="KerberosSecurityConfig"/>
  </orawsp:bindings>
</orasp:kerberos-security>
```

**orasp:sca-component-authorization**

The `<orasp:sca-component-authorization>` element defines simple role-based authorization for the request based on the authenticated subject at the SOA component level.

The `<orasp:sca-component-authorization>` element contains the following subelement:

- `<orawsp:bindings>`

It also contains one of the following subelements:

- `<orasp:denyAll>`
Element Descriptions

- orasp:permitAll
- orasp:role

Example

```
<orasp:sca-component-authorization orawsp:Enforced="true" orawsp:Silent="true" orawsp:category="security/authorization" orawsp:name="Fabric Component Authorization">
  <orasp:denyAll/>
  <orawsp:bindings>
    <orawsp:Config orawsp:configType="declarative" orawsp:name="FabricAuthzConfig"/>
  </orawsp:bindings>
</orasp:sca-component-authorization>
```

orasp:sca-component-permission-authorization

The `<orasp:sca-component-permission-authorization>` element provides simple permission-based authorization for the request based on the authenticated subject at the SOA component level.

The `<orawsp:binding-permission-authorization>` element contains the following subelements:

- orasp:check-permission
- orawsp:bindings
- orawsp:guard

Example

```
<orasp:sca-component-permission-authorization orawsp:Enforced="true" orawsp:Silent="true" orawsp:category="security/authorization" orawsp:name="Fabric Component Authorization">
  <orasp:check-permission/>
  <orawsp:bindings>
    <orawsp:Config orawsp:configType="declarative" orawsp:name="FabricAuthzConfig">
      <orawsp:PropertySet orawsp:name="perms-authz-properties">
        <orawsp:Property orawsp:contentType="optional" orawsp:name="resource" orawsp:type="string">
          <orawsp:DefaultValue>*</orawsp:DefaultValue>
        </orawsp:Property>
        <orawsp:Property orawsp:contentType="optional" orawsp:name="action" orawsp:type="string">
          <orawsp:DefaultValue>*</orawsp:DefaultValue>
        </orawsp:Property>
        <orawsp:Property orawsp:contentType="optional" orawsp:name="permission-class" orawsp:type="string">
          <orawsp:DefaultValue>oracle.wsm.security.WSFunctionPermission</orawsp:DefaultValue>
        </orawsp:Property>
      </orawsp:PropertySet>
    </orawsp:Config>
  </orawsp:bindings>
  <orawsp:guard>
    <orawsp:resource-match>*</orawsp:resource-match>
    <orawsp:action-match>*</orawsp:action-match>
  </orawsp:guard>
</orasp:sca-component-permission-authorization>
```
The `<orasp:wss10-anonymous-with-certificates>` element provides message protection (integrity and confidentiality) for outbound SOAP requests in accordance with the WS-Security 1.0 standard.

It contains the following subelements:

- `<orasp:x509-token>`
- `<orasp:msg-security>`
- `<orawsp:bindings>`

**Example**

```xml
  <orasp:x509-token orasp:enc-key-ref-mech="direct" orasp:is-encrypted="false" orasp:is-signed="true" orasp:rcpt-enc-key-ref-mech="direct" orasp:rcpt-sign-key-ref-mech="direct" orasp:sign-key-ref-mech="direct"/>
  <orasp:msg-security orasp:algorithm-suite="Basic128" orasp:encrypt-signature="false" orasp:include-timestamps="true" orasp:sign-then-encrypt="true">
    <orasp:request>
      <orasp:signed-parts>
        <orasp:body/>
      </orasp:signed-parts>
      <orasp:encrypted-parts>
        <orasp:body/>
      </orasp:encrypted-parts>
    </orasp:request>
    <orasp:response>
      <orasp:signed-parts>
        <orasp:body/>
      </orasp:signed-parts>
      <orasp:encrypted-parts>
        <orasp:body/>
      </orasp:encrypted-parts>
    </orasp:response>
    <orasp:fault/>
  </orasp:msg-security>
  <orawsp:bindings>
    <orawsp:Config orawsp:configType="declarative" orawsp:name="Wss10AnonWithCertsConfig">
      <orawsp:PropertySet orawsp:name="standard-security-properties">
        <orawsp:Property orawsp:contentType="constant" orawsp:name="role" orawsp:type="string">
          <orawsp:Value>ultimateReceiver</orawsp:Value>
        </orawsp:Property>
      </orawsp:PropertySet>
    </orawsp:Config>
  </orawsp:bindings>
</orasp:wss10-anonymous-with-certificates>
```
**orasp:wss10-mutual-auth-with-certificates**

The `<orasp:wss10-mutual-auth-with-certificates>` element enforces message-level protection and certificate-based authentication for inbound SOAP requests in accordance with the WS-Security 1.1 standard.

It contains the following subelements:

- `orasp:x509-token`
- `orasp:msg-security`
- `orawsp:bindings`

**Example**

```xml
  <orawsp:Enforced "true" orawsp:Silent = "false" orawsp:category = "security/authentication,security/msg-protection" orawsp:name = "WS-Security 1.0 Mutual Auth with certificates">
    <orawsp:Config orawsp:configType="declarative" orawsp:name='Wss10AnonWithCertsConfig'>
      <orawsp:PropertySet orawsp:name='standard-security-properties'>
        <orawsp:Property orawsp:contentType='constant' orawsp:name='role' orawsp:type='string'>
          <orawsp:Value>ultimateReceiver</orawsp:Value>
        </orawsp:Property>
      </orawsp:PropertySet>
    </orawsp:Config>
  </orawsp:Enforced>
</orawsp:wss10-mutual-auth-with-certificates>
```
orasp:wss10-saml-hok-with-certificates

The `<orasp:wss10-saml-hok-with-certificates>` element provides message protection (integrity and confidentiality) and SAML holder of key based authentication for outbound SOAP messages in accordance with the WS-Security 1.0 standard.

It contains the following subelements:

- `orasp:saml-token`
- `orasp:x509-token`
- `orasp:msg-security`
- `orawsp:bindings`

Example

```xml
<orasp:wss10-saml-hok-with-certificates orawsp:Enforced="true" orawsp:category="security/authentication, security/msg-protection" orawsp:name="WS-Security 1.0 SAML Holder Of Key with certificates">
  <orasp:saml-token orasp:confirmation-type="holder-of-key" orasp:is-encrypted="false" orasp:is-signed="true" orasp:version="1.1"/>
  <orasp:x509-token orasp:enc-key-ref-mech="direct" orasp:is-encrypted="false" orasp:is-signed="true" orasp:rcpt-enc-key-ref-mech="direct" orasp:rcpt-sign-key-ref-mech="direct" orasp:sign-key-ref-mech="ski"/>
  <orasp:msg-security orasp:algorithm-suite="Basic128" orasp:encrypt-signature="false" orasp:include-timestamp="true" orasp:sign-then-encrypt="true">
    <orasp:request>
      <orasp:signed-parts>
        <orasp:body/>
      </orasp:signed-parts>
      <orasp:encrypted-parts>
        <orasp:body/>
      </orasp:encrypted-parts>
    </orasp:request>
    <orasp:response>
      <orasp:signed-parts>
        <orasp:body/>
      </orasp:signed-parts>
      <orasp:encrypted-parts>
        <orasp:body/>
      </orasp:encrypted-parts>
    </orasp:response>
    <orasp:fault/>
  </orasp:msg-security>
</orawsp:bindings>
```

```xml
<orawsp:Config orawsp:configType="declarative" orawsp:name="Wss10SamlHOKWithCertsConfig">
  <orawsp:PropertySet orawsp:name="standard-security-properties">
    <orawsp:Property orawsp:name="keystore.recipient.alias" orawsp:type="string">
      <orawsp:Value>orakey</orawsp:Value>
    </orawsp:Property>
    <orawsp:Property orawsp:name="saml.issuer.name" orawsp:type="string">
      <orawsp:Value>www.oracle.com</orawsp:Value>
    </orawsp:Property>
  </orawsp:PropertySet>
</orawsp:Config>
```
orasp:wss10-saml-token

The `<orasp:wss10-saml-token>` element authenticates users using credentials provided in SAML tokens in the WS-Security SOAP header.

It contains the following subelements:

- `orasp:saml-token`
- `orawsp:bindings`

Example

```xml
<orasp:wss10-saml-token orawsp:Enforced="true" orawsp:Silent="false"
orawsp:category="security/authentication" orawsp:name="WSSecurity SAML Token">
  <orasp:saml-token orasp:confirmation-type="sender-vouches"
orasp:is-encrypted="false" orasp:is-signed="false" orasp:version="1.1"/>
  <orawsp:bindings>
    <orawsp:Config orawsp:configType="declarative"
orawsp:name="WssSamlTokenConfig">
      <orawsp:PropertySet orawsp:name="standard-security-properties">
        <orawsp:Property orawsp:contentType="constant" orawsp:name="role"
orawsp:type="string">
          <orawsp:Value>ultimateReceiver</orawsp:Value>
        </orawsp:Property>
      </orawsp:PropertySet>
    </orawsp:Config>
  </orawsp:bindings>
</orasp:wss10-saml-token>
```

orasp:wss10-saml-with-certificates

The `<orasp:wss10-saml-with-certificates>` element enforces message protection (integrity and confidentiality) and SAML-based authentication for inbound SOAP requests in accordance with the WS-Security 1.0 standard.

It contains the following subelements:

- `orasp:saml-token`
- `orasp:x509-token`
- `orasp:msg-security`
- `orawsp:bindings`

Example

```xml
<orasp:wss10-saml-with-certificates orawsp:Enforced="true"
orawsp:category="security/authentication" orawsp:name="WSSecurity SAML With Certificates">
  <orasp:saml-token orasp:confirmation-type="sender-vouches"
orawsp:crypto-alg="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-sec-spec-v1.1#RSA-Signer"
orawsp:is-encrypted="true" orawsp:is-signed="true" orawsp:version="1.1"/>
  <orawsp:bindings>
    <orawsp:Config orawsp:configType="declarative"
orawsp:name="WssSamlTokenConfig">
      <orawsp:PropertySet orawsp:name="standard-security-properties">
        <orawsp:Property orawsp:contentType="constant" orawsp:name="role"
orawsp:type="string">
          <orawsp:Value>ultimateReceiver</orawsp:Value>
        </orawsp:Property>
      </orawsp:PropertySet>
    </orawsp:Config>
  </orawsp:bindings>
</orasp:wss10-saml-with-certificates>
```
orawsp:Silent="false" orawsp:category="security/authentication,
security/msg-protection" orawsp:name="WS-Security 1.0 SAML with certificates">
<orasp:saml-token orasp:confirmation-type="sender-vouches"
orawsp:Silent="false" orawsp:category="security/authentication,
security/msg-protection" orawsp:name="WS-Security 1.0 SAML with certificates">
<orawsp:Config orawsp:configType="declarative"
orawsp:name="Wss10SamlWithCertsConfig">
<orawsp:PropertySet orawsp:name="standard-security-properties">
<orawsp:Property orawsp:contentType="constant" orawsp:name="role"
orawsp:type="string">
<orawsp:Value>ultimateReceiver</orawsp:Value>
</orawsp:Property>
</orawsp:PropertySet>
</orawsp:Config>
</orawsp:bindings>
</orawsp:wss10-saml-with-certificates>

orawsp:wss10-username-with-certificates

The <orawsp:wss10-username-with-certificates> element enforces message protection (integrity and confidentiality) and authentication for inbound SOAP requests in accordance with the WS-Security 1.0 standard.

It contains the following subelements:
- orasp:username-token
- orawsp:x509-token
- orawsp:msg-security
- orawsp:bindings

Example
<orawsp:wss10-username-with-certificates orawsp:Enforced="true"
orawsp:Silent="false"
The `<orasp:wss11-anonymous-with-certificates>` element provides message protection (integrity and confidentiality) for outbound SOAP requests in accordance with the WS-Security 1.1 standard.

It contains the following subelements:

- `<orasp:x509-token`
- `<orasp:msg-security`
- `<orawsp:bindings`

**Example**

```xml
<orasp:wss11-anonymous-with-certificates orawsp:Enforced="true" orawsp:Silent="false" orawsp:category="security/msg-protection"
```
orawsp:name="WS-Security 1.0 Anonymous with certificates">
  <orawsp:x509-token orawsp:enc-key-ref-mech="direct" orawsp:is-encrypted="false"
    orawsp:is-signed="true" orawsp:rcpt-enc-key-ref-mech="direct"
    orawsp:rcpt-sign-key-ref-mech="direct" orawsp:sign-key-ref-mech="direct"/>
  <orawsp:msg-security orawsp:algorithm-suite="Basic128"
    orawsp:encrypt-signature="false" orawsp:include-timestamp="true"
    orawsp:sign-then-encrypt="true">
    <orawsp:request>
      <orawsp:signed-parts>
        <orawsp:body/>
      </orawsp:signed-parts>
      <orawsp:encrypted-parts>
        <orawsp:body/>
      </orawsp:encrypted-parts>
    </orawsp:request>
    <orawsp:response>
      <orawsp:signed-parts>
        <orawsp:body/>
      </orawsp:signed-parts>
      <orawsp:encrypted-parts>
        <orawsp:body/>
      </orawsp:encrypted-parts>
    </orawsp:response>
    <orawsp:fault/>
  </orawsp:msg-security>
  <orawsp:bindings>
    <orawsp:Config orawsp:configType="declarative"
      orawsp:name="Wss11AnonWithCertsConfig">
      <orawsp:PropertySet orawsp:name="standard-security-properties">
        <orawsp:Property orawsp:contentType="constant" orawsp:name="role"
          orawsp:type="string">
          <orawsp:Value>ultimateReceiver</orawsp:Value>
        </orawsp:Property>
      </orawsp:PropertySet>
    </orawsp:Config>
  </orawsp:bindings>
</orawsp:wss11-anonymous-with-certificates>

orawsp:wss11-mutual-auth-with-certificates

The <orawsp:wss11-mutual-auth-with-certificates> element enforces message-level protection and certificate-based authentication for inbound SOAP requests in accordance with the WS-Security 1.1 standard.

It contains the following subelements:

- orawsp:x509-token
- orawsp:msg-security
- orawsp:bindings

Example

<orawsp:wss11-mutual-auth-with-certificates orawsp:Enforced="true"
  orawsp:Silent="false" orawsp:category="security/authentication,
    security/msg-protection"
  orawsp:name="WS-Security 1.1 Mutual Auth with certificates">
  <orawsp:x509-token orawsp:enc-key-ref-mech="thumbprint"
    orawsp:is-encrypted="false" orawsp:is-signed="true"
The `<orasp:wss11-saml-with-certificates>` element enforces message protection (integrity and confidentiality) and SAML-based authentication for inbound SOAP requests in accordance with the WS-Security 1.1 standard.

It contains the following subelements:

- `<orasp:saml-token>`
- `<orasp:x509-token>`
- `<orasp:msg-security>`
- `<orawsp:bindings>`

**Example**

```
<orasp:wss11-saml-with-certificates orawsp:Enforced="true"
orawsp:Silent="false" orawsp:category="security/authentication,
security/msg-protection" orawsp:name="WS-Security 1.1 SAML with certificates">
  <orasp:saml-token orasp:confirmation-type="sender-vouches"
orasp:is-encrypted="false" orasp:is-signed="true" orasp:version="1.1"/>
  <orasp:x509-token orasp:enc-key-ref-mech="direct" orasp:is-encrypted="false"
orasp:is-signed="true" orasp:rcpt-enc-key-ref-mech="direct"/>
</orasp:wss11-saml-with-certificates>
```
orasp:wss11-username-with-certificates

The <orasp:wss11-username-with-certificates> element enforces message protection (integrity and confidentiality) and authentication for inbound SOAP requests in accordance with the WS-Security 1.1 standard.

It contains the following subelements:

- orasp:username-token
- orasp:x509-token
- orasp:msg-security
- orawsp:bindings

Example
  <orasp:username-token orasp:add-created="false" orasp:add-nonce="false" orasp:is-encrypted="true" orasp:is-signed="true" orasp:password-type="plaintext"/>
  <orasp:x509-token orasp:enc-key-ref-mech="direct" orasp:is-encrypted="false"/>
The `<orasp:wss-saml-token-bearer-over-ssl>` element authenticates users using credentials provided in SAML tokens with confirmation method 'Bearer' in the WS-Security SOAP header.

It contains the following subelements:

- `<orasp:saml-token>`
- `<orasp:require-tls>`
- `<orawsp:bindings>`

**Example**

```xml
    <orasp:saml-token orasp:confirmation-type="bearer" orasp:is-encrypted="false" orasp:is-signed="false" orasp:version="1.1"/>
    <orasp:require-tls orasp:include-timestamp="true" orasp:mutual-auth="false"/>
    <orawsp:bindings/>
</orasp:wss-saml-token-bearer-over-ssl>
```
The `<orasp:wss-saml-token-over-ssl>` element enforces the authentication of credentials provided via a SAML token within WS-Security SOAP header using the sender-vouches confirmation type.

It contains the following subelements:

- `<orasp:saml-token>`
- `<orasp:require-tls>`
- `<orawsp:bindings>`

**Example**

```xml
<orasp:wss-saml-token-over-ssl orawsp:Enforced="true" orawsp:Silent="false"
orawsp:category="security/authentication, security/msg-protection"
orawsp:name="WSSecurity SAML Token Over SSL">
  <orasp:saml-token orasp:confirmation-type="sender-vouches"
orasp:is-encrypted="false" orasp:is-signed="true" orasp:version="1.1"/>
  <orasp:require-tls orasp:include-timestamp="true" orasp:mutual-auth="true"/>
  <orawsp:bindings>
    <orawsp:Config orawsp:configType="declarative"
orawsp:name="WssSamlTokenOverSSLCfg">
      <orawsp:PropertySet orawsp:name="standard-security-properties">
        <orawsp:Property orawsp:contentType="optional"
orawsp:name="saml.issuer.name" orawsp:type="string">
          <orawsp:Value>www.oracle.com</orawsp:Value>
        </orawsp:Property>
        <orawsp:Property orawsp:contentType="optional"
orawsp:name="user.roles.include" orawsp:type="string">
          <orawsp:Value>false</orawsp:Value>
        </orawsp:Property>
      </orawsp:PropertySet>
    </orawsp:Config>
  </orawsp:bindings>
</orasp:wss-saml-token-over-ssl>
```

The `<orasp:wss-username-token>` element enforces authentication with username and password credentials in the WS-Security UsernameToken SOAP header.
It contains the following subelements:

- `orasp:username-token`
- `orawsp:bindings`

**Example**

```xml
<orasp:wss-username-token orawsp:Enforced="true" orawsp:Silent="false"
orawsp:category="security/authentication"
orawsp:name="WSSecurity UserName Token">
    <orawsp:bindings>
        <orawsp:Config orawsp:configType="declarative"
orawsp:name="WssUsernameTokenConfig">
            <orawsp:PropertySet orawsp:name="standard-security-properties">
                <orawsp:Property orawsp:contentType="constant" orawsp:name="role"
orawsp:type="string">
                    <orawsp:Value>ultimateReceiver</orawsp:Value>
                </orawsp:Property>
            </orawsp:PropertySet>
        </orawsp:Config>
    </orawsp:bindings>
</orawsp:wss-username-token>
```

**orasp:wss-username-token-over-ssl**

The `<orasp:wss-username-token-over-ssl>` element uses the credentials in the UsernameToken WS-Security SOAP header to authenticate users against the Oracle Platform Security Services configured identity store.

It contains the following subelements:

- `orasp:username-token`
- `orasp:require-tls`
- `orawsp:bindings`

**Example**

```xml
<orasp:wss-username-token-over-ssl orawsp:Enforced="true" orawsp:Silent="false"
orawsp:category="security/authentication, security/msg-protection"
orawsp:name="WSSecurity UserName Token Over SSL">
    <orawsp:bindings>
        <orawsp:Config orawsp:configType="declarative"
orawsp:name="WssUsernameTokenOverSSLConfig">
            <orawsp:PropertySet orawsp:name="standard-security-properties">
                <orawsp:Property orawsp:contentType="constant" orawsp:name="role"
orawsp:type="string">
                    <orawsp:Value>ultimateReceiver</orawsp:Value>
                </orawsp:Property>
            </orawsp:PropertySet>
        </orawsp:Config>
    </orawsp:bindings>
</orawsp:wss-username-token-over-ssl>
```
The `<rm:RMAssertion>` element provides support for version 1.0 and version 1.1 of the Web Services Reliable Messaging protocol. The version supported depends on the XML schema namespace value used:

- WS-ReliableMessaging 1.1: http://docs.oasis-open.org/ws-rx/wsrmp/200702
- WS-ReliableMessaging 1.0: http://schemas.xmlsoap.org/ws/2005/02/rm/policy

This policy can be attached to any SOAP-based client or endpoint. Full support for this feature may require additional programming.

The `<rm:RMAssertion>` element contains the following subelement:

- `<orawsp:bindings>`

Example

```xml
<rm:RMAssertion xmlns:rm="http://schemas.xmlsoap.org/ws/2005/02/rm/policy" orawsp:Enforced="true" orawsp:Silent="false" orawsp:category="wsrm" orawsp:description="i18n:oracle.wsm.resources.policydescription.PolicyDescriptionBundle_oracle/wsrm10_policy_RMAssertion_AssertionDescKey" orawsp:name="RM 1.0">
  <wsp:Policy/>
  <orawsp:bindings>
    <orawsp:Config orawsp:name="RMConfig">
      <orawsp:Property orawsp:name="DeliveryAssurance" orawsp:type="string">
        <orawsp:Description>Delivery Assurance. Possible values (case-insensitive) are InOrder, AtLeastOnce, AtLeastOnceInOrder, ExactlyOnce, ExactlyOnceInOrder, AtMostOnce, AtMostOnceInOrder.</orawsp:Description>
        <orawsp:Value>inorder</orawsp:Value>
        <orawsp:DefaultValue>inorder</orawsp:DefaultValue>
      </orawsp:Property>
      <orawsp:Property orawsp:name="StoreType" orawsp:type="string">
        <orawsp:Description>The type of message store used. Possible values (case-insensitive) are InMemory, JDBC.</orawsp:Description>
        <orawsp:Value>inmemory</orawsp:Value>
        <orawsp:DefaultValue>inmemory</orawsp:DefaultValue>
      </orawsp:Property>
      <orawsp:Property orawsp:name="StoreName" orawsp:type="string">
        <orawsp:Description>The name of the message store.</orawsp:Description>
        <orawsp:Value>oracle</orawsp:Value>
      </orawsp:Property>
      <orawsp:Property orawsp:name="jdbc-connection-name" orawsp:type="string">
        <orawsp:Description>The JNDI reference to a JDBC data source, when the store type is JDBC.</orawsp:Description>
        <orawsp:Value>jdbc/MessagesStore</orawsp:Value>
      </orawsp:Property>
      <orawsp:Property orawsp:name="InactivityTimeout" orawsp:type="int">
        <orawsp:Description>The inactivity timeout duration, specified in milliseconds.</orawsp:Description>
        <orawsp:Value>600000</orawsp:Value>
      </orawsp:Property>
    </orawsp:Config>
  </orawsp:bindings>
</rm:RMAssertion>
```
wsaw:UsingAddressing

The <wsaw:UsingAddressing> element causes the platform to check inbound messages for the presence of WS-Addressing headers conforming to the W3C 2005 Final WS-Addressing Policy standard. In addition, it causes the platform to include a WS-Addressing header in outbound SOAP messages.

The <wsaw:UsingAddressing> element contains the following subelement:

- orawsp:bindings

Example

```xml
<wsaw:UsingAddressing xmlns:wsaw="http://www.w3.org/2006/05/addressing/wsdl"
   orawsp:Enforced='true' orawsp:Silent='false' orawsp:category='addressing"
   orawsp:name='WS-Addressing 2005'>
   <orawsp:bindings>
     <orawsp:Config orawsp:name='added-from-em'/>
   </orawsp:bindings>
</wsaw:UsingAddressing>
```

wsoma:OptimizedMimeSerialization

The <wsoma:OptimizedMimeSerialization> element rejects inbound messages that are not in MTOM format and verifies that outbound messages are in MTOM format. MTOM refers to specifications http://www.w3.org/TR/2005/REC-soap12-mtom-20050125 and http://www.w3.org/Submission/2006/SUBM-soap11mtom10-20060405 for SOAP 1.2 and SOAP 1.1 bindings, respectively.

The <wsoma:OptimizedMimeSerialization> element contains the following subelement:

- orawsp:bindings

Example

```xml
<wsoma:OptimizedMimeSerialization
   orawsp:Enforced='true' orawsp:Silent='false' orawsp:category='mtom"
   orawsp:name='MTOM'>
   <orawsp:bindings>
     <orawsp:Config orawsp:name='added-from-em'/>
   </orawsp:bindings>
</wsoma:OptimizedMimeSerialization>
```
oralgp:fault

The <oralgp:fault> element configures logging for the fault message. Valid values include:

- all—Log the entire SOAP message.
- header—Log SOAP header information only.
- soap_body—Log SOAP body information only.
- soap_envelope—Log SOAP envelope information only.

Example

```xml
<oralgp:msg-log>
    <oralgp:request>all</oralgp:request>
    <oralgp:response>all</oralgp:response>
    <oralgp:fault>all</oralgp:fault>
</oralgp:msg-log>
```

oralgp:request

The <oralgp:request> element configures logging for the request message. Valid values include:

- all—Log the entire SOAP message.
- header—Log SOAP header information only.
- soap_body—Log SOAP body information only.
- soap_envelope—Log SOAP envelope information only.

Example

```xml
<oralgp:msg-log>
    <oralgp:request>all</oralgp:request>
    <oralgp:response>all</oralgp:response>
    <oralgp:fault>all</oralgp:fault>
</oralgp:msg-log>
```

oralgp:response

The <oralgp:response> element configures logging for the response message. Valid values include:

- all—Log the entire SOAP message.
- header—Log SOAP header information only.
- soap_body—Log SOAP body information only.
- soap_envelope—Log SOAP envelope information only.

Example

```xml
<oralgp:msg-log>
    <oralgp:request>all</oralgp:request>
    <oralgp:response>all</oralgp:response>
    <oralgp:fault>all</oralgp:fault>
</oralgp:msg-log>
```
**oralgp:msg-log**

The `<oralgp:msg-log>` element configures logging for the request, response, and fault messages. The `<oralgp:msg-log>` element contains the following subelements:

- `<oralgp:request>`
- `<oralgp:response>`
- `<oralgp:fault>`

**Example**

```xml
<oralgp:msg-log>
  <oralgp:request>all</oralgp:request>
  <oralgp:response>all</oralgp:response>
  <oralgp:fault>all</oralgp:fault>
</oralgp:msg-log>
```

**orasp:attachment**

The `<orasp:attachment>` element defines the attachment information.

**Attributes**

The following table summarizes the attributes of the `<orasp:attachment>` element.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>include-mime-headers</td>
<td>Flag that specifies whether or include MIME headers. Valid values include true or false.</td>
</tr>
</tbody>
</table>

**Example**

```xml
<orasp:signed-parts>
  <orasp:header orasp:name="From"
      orasp:namespace="http://www.w3.org/2005/08/addressing"/>
  <orasp:attachment orasp:include-mime-headers="false"/>
</orasp:signed-parts>
```

**orasp:auth-header**

The `<orasp:auth-header>` element specifies the name of the authentication header.

**Attributes**

The following table summarizes the attribute of the `<orasp:auth-header>` element.
The `<orasp:body>` element defines the message body elements that are signed and encrypted. To include the entire body, specify the body element as follows: `<orasp:body/>`.

**Example**

```xml
<orasp:request>
  <orasp:signed-parts>
    <orasp:body/>
  </orasp:signed-parts>
  <orasp:encrypted-parts>
    <orasp:body/>
  </orasp:encrypted-parts>
</orasp:request>
```

The `<orasp:check-permission>` element specifies that permissions are to be checked.

**Example**

```xml
<orasp:binding-permission-authorization orawsp:Enforced="true"
orawsp:Silent="true" orawsp:category="security/authorization"
orawsp:name="J2EE Permission Based Authorization">
  <orasp:check-permission/>
  ...
</orasp:binding-permission-authorization>
```

The `<orasp:coreid-token>` element defines the OAM token.

**Attributes**

The following table summarizes the attributes of the `<orasp:coreid-token>` element.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>mechanism</td>
<td>Authentication mechanism.</td>
</tr>
<tr>
<td></td>
<td>Valid values include:</td>
</tr>
<tr>
<td></td>
<td>- basic—Client authenticates itself by transmitting the username and password.</td>
</tr>
<tr>
<td></td>
<td>- digest—<strong>Not supported in this release.</strong> Client authenticates itself by transmitting an encrypted password through the use of an MD5 digest.</td>
</tr>
<tr>
<td></td>
<td>- cert—Client authenticates itself by transmitting a certificate.</td>
</tr>
<tr>
<td></td>
<td>- custom—Custom authentication mechanism.</td>
</tr>
</tbody>
</table>
### orasp:denyAll

The `<orasp:denyAll>` element denies all users with any roles.

**Example**

```xml
<orasp:binding-authorization orawsp:Enforced="true" orawsp:Silent="true"
orawsp:category="security/authorization"
orawsp:name="J2EE services Authorization">
  <orasp:denyAll/>
  <orawsp:bindings>
    <orawsp:Config orawsp:configType="declarative" orawsp:name="AuthzConfig"/>
  </orawsp:bindings>
</orasp:binding-authorization>
```

### orasp:element

The `<orasp:element>` element defines a header or body element that is signed or encrypted.

#### Attributes

The following table summarizes the attributes of the `<orasp:element>` element.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>name</td>
<td>Name of the header or body element.</td>
</tr>
<tr>
<td>namespace</td>
<td>Namespace.</td>
</tr>
</tbody>
</table>

**Example**

```xml
<orasp:signed-elements>
  <orasp:element orasp:name="BodyElement"
orasp:namespace="http://www.w3.org/2005/08/addressing">n/a</orasp:element>
</orasp:signed-elements>
```

### orasp:encrypted-elements

The `<orasp:encrypted-elements>` element defines the message body elements that are signed. This element is valid if `<orasp:encrypted-parts>` is not set to `<orasp:body/>`.

The `<orasp:encrypted-parts>` element contains the following subelement:
orasp:element

Example

```xml
<orasp:encrypted-elements>
  <orasp:element orasp:name="Myhead"
      orasp:namespace="http://www.w3.org/2005/08/addressing">n/a</orasp:element>
</orasp:encrypted-elements>
```

orasp:encrypted-parts

The `<orasp:encrypted-parts>` element defines the message parts that are encrypted. The `<orasp:encrypted-parts>` element contains one or more of the following subelements:

- orasp:body
- orasp:header
- orasp:attachment

Example

```xml
<orasp:request>
  <orasp:signed-parts>
    <orasp:body/>
  </orasp:signed-parts>
  <orasp:encrypted-parts>
    <orasp:body/>
  </orasp:encrypted-parts>
</orasp:request>
```

orasp:fault

The `<orasp:fault>` element defines the message body elements that are signed and encrypted in the fault message. The `<orasp:fault>` element contains the following subelements:

- orasp:signed-parts
- orasp:encrypted-parts

Example

```xml
<orasp:response>
  <orasp:signed-parts>
    <orasp:body/>
  </orasp:signed-parts>
  <orasp:encrypted-parts>
    <orasp:body/>
  </orasp:encrypted-parts>
</orasp:response>
```

orasp:header

The `<orasp:header>` element defines a header element.
Attributes
The following table summarizes the attributes of the `<orasp:header>` element.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>name</td>
<td>Name of the header element. The default header elements in the predefined namespace include: To, From, FaultTo, ReplyTo, MessageID, RelatesTo, and Action.</td>
</tr>
<tr>
<td>namespace</td>
<td>Namespace. The predefined namespace is as follows: <a href="http://www.w3.org/2005/08/addressing">http://www.w3.org/2005/08/addressing</a>.</td>
</tr>
</tbody>
</table>

Example
```xml
<orasp:signed-parts>
  <orasp:header orasp:name="From"
               orasp:namespace="http://www.w3.org/2005/08/addressing"/>
  <orasp:attachment orasp:include-mime-headers="false"/>
</orasp:signed-parts>
```

 `<orasp:kerberos-token>`
The `<orasp:kerberos-token>` element defines the kerberos token.

Attributes
The following table summarizes the attributes of the `<orasp:kerberos-token>` element.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>is-encrypted</td>
<td>Flag that specifies whether the assertion is encrypted. Valid values include true or false.</td>
</tr>
<tr>
<td>is-signed</td>
<td>Flag that specifies whether the assertion is signed. Valid values include true or false.</td>
</tr>
<tr>
<td>type</td>
<td>Type of Kerberos token. The only valid value is gss-apreq-v5 (Kerberos Version 5 GSS-API).</td>
</tr>
</tbody>
</table>

Example
```xml
<orasp:kerberos-token orasp:is-encrypted="false" orasp:is-signed="false"
orasp:type="gss-apreq-v5"/>
```

 `<orasp:msg-security>`
The `<orasp:msg-security>` element defines message security for the policy. You define the body elements that are signed and encrypted for the request, response, and fault.

The `<orasp:msg-security>` element contains the following subelements:

- `<orasp:request>`
- `<orasp:response>`
- `<orasp:fault>`
Attributes

The following table summarizes the attributes of the `<orasp:msg-security>` element.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>algorithm-suite</td>
<td>Defines the algorithm suite that is used for message protection. For example, Basic128. For more information, see &quot;Supported Algorithm Suites&quot; on page C-55.</td>
</tr>
<tr>
<td>confirm-signature</td>
<td>Flag that specifies whether to send a signature confirmation back to the client. Valid values include true or false.</td>
</tr>
<tr>
<td>encrypt-signature</td>
<td>Flag that specifies whether to send an encryption confirmation back to the client. Valid values include true or false.</td>
</tr>
<tr>
<td>include-timestamp</td>
<td>Flag that specifies whether to include a timestamp. A timestamp can be used to prevent replay attacks by identifying an expiration time after which the message is no longer valid.</td>
</tr>
<tr>
<td>sign-then-encrypt</td>
<td>Flag that specifies whether to sign the message before encrypting the message.</td>
</tr>
<tr>
<td>use-derived-keys</td>
<td>Flag that specifies whether to use derived keys.</td>
</tr>
</tbody>
</table>

Example

```xml
<orasp:msg-security orasp:algorithm-suite="Basic128"
orasp:confirm-signature="false" orasp:encrypt-signature="false"
orasp:include-timestamp="true" orasp:sign-then-encrypt="true"
orasp:use-derived-keys="false">
<orasp:request>
  <orasp:signed-parts>
    <orasp:body/>
  </orasp:signed-parts>
  <orasp:encrypted-parts>
    <orasp:body/>
  </orasp:encrypted-parts>
</orasp:request>
<orasp:response>
  <orasp:signed-parts>
    <orasp:body/>
  </orasp:signed-parts>
  <orasp:encrypted-parts>
    <orasp:body/>
  </orasp:encrypted-parts>
</orasp:response>
<orasp:msg-security/>
```

**orasp:permitAll**

The `<orasp:permitAll>` element permits all users with any roles.

Example

```xml
<orasp:binding-authorization orawsp:Enforced="true" orawsp:Silent="true"
orawsp:category="security/authorization"
orawsp:name='J2EE services Authorization'>
orasp:permitAll/>
orawsp:bindings>
```
orasp:request

The <orasp:request> element defines the message body elements that are signed and encrypted in the request message. The <orasp:request> element contains the following subelements:

- orasp:signed-parts
- orasp:encrypted-parts

Example

```
<orasp:request>
  <orasp:signed-parts>
    <orasp:body/>
  </orasp:signed-parts>
  <orasp:encrypted-parts>
    <orasp:body/>
  </orasp:encrypted-parts>
</orasp:request>
```

orasp:require-tls

The <orasp:require-tls> element specifies whether two-way authentication is required.

Attributes

The following table summarizes the attributes of the <orasp:require-tls> element.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>include-timestamp</td>
<td>Flag that specifies whether to include a timestamp. A timestamp can be used to prevent replay attacks by identifying an expiration time after which the message is no longer valid.</td>
</tr>
<tr>
<td>mutual-auth</td>
<td>Flag that specifies whether two-way authentication is required. Valid values include true or false.</td>
</tr>
</tbody>
</table>

Examples

```
<orasp:require-tls orasp:include-timestamp="true" orasp:mutual-auth="false"/>
```

orawsp:resource-match

The <orawsp:resource-match> element specifies the name of the resource for which authorization checks are performed. This field accepts wildcards.

For example, if the namespace of the Web service is `http://project11` and the service name is `CreditValidation`, the resource name is `http://project11/CreditValidation`. 
Examples

<br/>&lt;orawsp:guard&gt;
&lt;orawsp:resource-match&gt;
  http://project11/CreditValidation
&lt;/orawsp:resource-match&gt;
&lt;orawsp:action-match&gt;validate,amountAvailable&lt;/orawsp:action-match&gt;
&lt;/orawsp:guard&gt;

&lt;orawsp:guard&gt;
  &lt;orawsp:resource-match&gt;*&lt;/orawsp:resource-match&gt;
  &lt;orawsp:action-match&gt;validate,amountAvailable&lt;/orawsp:action-match&gt;
&lt;/orawsp:guard&gt;

orasp:response

The &lt;orasp:response&gt; element defines the message body elements that are signed and encrypted in the response message. The &lt;orawsp:response&gt; element contains the following subelements:

- &lt;orasp:signed-parts&gt;
- &lt;orasp:encrypted-parts&gt;

Example

&lt;orasp:response&gt;
  &lt;orasp:signed-parts&gt;
    &lt;orasp:body/&gt;
  &lt;/orasp:signed-parts&gt;
  &lt;orasp:encrypted-parts&gt;
    &lt;orasp:body/&gt;
  &lt;/orasp:encrypted-parts&gt;
&lt;/orasp:response&gt;

orasp:role

The &lt;orasp:role&gt; element defines the roles that are permitted access.

Attribute

The following table summarizes the attribute of the &lt;orasp:role&gt; element.

<table>
<thead>
<tr>
<th>Table D–16 Attributes of &lt;orasp:role&gt; Element</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attribute</td>
</tr>
<tr>
<td>name</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
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</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
**Example**

```xml
<orasp:binding-authorization orawsp:Enforced="true" orawsp: Silent="true"
orawsp:category="security/authorization" orawsp:description=""
orawsp:name="J2EE services Authorization">
<orasp:role orasp:name="Monitors"/>
<orasp:role orasp:name="AdminChannelUsers"/>
<orawsp:bindings>
<orawsp:Config orawsp:configType="declarative" orawsp:name="AuthzConfig"/>
</orawsp:bindings>
</orasp:binding-authorization>
```

**orasp:saml-token**

The `<orasp:saml-token>` element configures the SAML token.

**Attributes**

The following table summarizes the attributes of the `<orasp:saml-token>` element.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>confirmation-type</td>
<td>Confirmation type. Valid values include: sender-vouches and holder-of-key.</td>
</tr>
<tr>
<td>is-encrypted</td>
<td>Flag that specifies whether the assertion is encrypted. Valid values include true or false.</td>
</tr>
<tr>
<td>is-signed</td>
<td>Flag that specifies whether the assertion is signed. Valid values include true or false.</td>
</tr>
<tr>
<td>version</td>
<td>SAML version. Valid values include: 1.1.</td>
</tr>
</tbody>
</table>

**Example**

```xml
<orasp:saml-token orasp:confirmation-type="holder-of-key"
orasp:is-encrypted='false' orasp:is-signed='true' orasp:version="1.1"/>
```

**orasp:signed-elements**

The `<orasp:signed-elements>` element defines the message body elements that are signed. This element is valid if `<orasp:signed-parts>` is not set to `<orasp:body/>`

The `<orasp:signed-elements>` element contains the following subelement:

- `<orasp:element>`

**Example**

```xml
<orasp:signed-elements>
<orasp:element orasp:name="Myhead"
orasp:namespace="http://www.w3.org/2005/08/addressing">n/a</orasp:element>
</orasp:signed-elements>
```
orasp:signed-parts

The <orasp:signed-parts> element defines the message parts that are signed.
The <orasp:signed-parts> element contains one or more of the following subelements:

- orasp:body
- orasp:header
- orasp:attachment

Example

```xml
<orasp:request>
  <orasp:signed-parts>
    <orasp:body/>
  </orasp:signed-parts>
  <orasp:encrypted-parts>
    <orasp:body/>
  </orasp:encrypted-parts>
</orasp:request>
```

orasp:username-token

The <orasp:username-token> element configures the SAML token.

Attributes

The following table summarizes the attributes of the <orasp:username-token> element.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>add-created</td>
<td>Flag that specifies whether a time stamp for the creation of the username token is required.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> If Password Type is set to digest, then this attribute must be set to true. Otherwise, the policy to which it is attached will not validate.</td>
</tr>
<tr>
<td>add-nonce</td>
<td>Flag that specifies whether a nonce must be included with the username to prevent replay attacks.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> If Password Type is set to digest, then this attribute must be set to true. Otherwise, the policy to which it is attached will not validate.</td>
</tr>
<tr>
<td>is-encrypted</td>
<td>Flag that specifies whether the username is encrypted. Valid values include true or false.</td>
</tr>
<tr>
<td>is-signed</td>
<td>Flag that specifies whether the username is signed. Valid values include true or false.</td>
</tr>
<tr>
<td>password-type</td>
<td>Type of password required. Valid values are: &lt;ul&gt;&lt;li&gt;none—No password.&lt;/li&gt;&lt;li&gt;plaintext—Unencrypted password in clear text.&lt;/li&gt;&lt;li&gt;digest—<strong>Not supported in this release.</strong> Client authenticates itself by transmitting an encrypted password through the use of an MD5 digest.&lt;/li&gt;&lt;/ul&gt;</td>
</tr>
</tbody>
</table>
orasp:x509-token
The <orasp:x509-token> element defines the x.509 digital certificate.

Attributes
The following table summarizes the attributes of the <orasp:x509-token> element.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>sign-key-ref-mech</td>
<td>Mechanism used when signing the request. Valid values include:</td>
</tr>
<tr>
<td></td>
<td>■ direct—X.509 Token is included in the request.</td>
</tr>
<tr>
<td></td>
<td>■ ski—Subject Key Identifier (SKI) extension value of the X.509 certificate used to reference the certificate. (Some certificates may not have this extension.) The recipient of the message looks up its keystore for a certificate corresponding to the SKI and validates the signature against it.</td>
</tr>
<tr>
<td></td>
<td>■ issuerserial—Composite key of issuer name and serial number attributes used to reference the X.509 certificate. The recipient of the message looks up its keystore for a certificate corresponding to Issuer name and Serial Number and validates the signature using it.</td>
</tr>
<tr>
<td></td>
<td>■ thumbprint—Fingerprint (SHA1 hash) of the contents of the certificate. Provides a method to store certificates that is low overhead. This value is valid for Encryption Key Reference Mechanism only (described below.)</td>
</tr>
<tr>
<td>enc-key-ref-mech</td>
<td>Mechanism used when encrypting the request. Valid values are the same as for Sign Key Reference Mechanism above.</td>
</tr>
<tr>
<td>rcpt-sign-key-ref-mech</td>
<td>Mechanism used when signing the receipt. Valid values are the same as for Sign Key Reference Mechanism above.</td>
</tr>
<tr>
<td>rcpt-enc-key-ref-mech</td>
<td>Mechanism used when encrypting the receipt. Valid values are the same as for Sign Key Reference Mechanism above.</td>
</tr>
<tr>
<td>is-encrypted</td>
<td>Flag that specifies whether the assertion is encrypted. Valid values include true or false.</td>
</tr>
<tr>
<td>is-signed</td>
<td>Flag that specifies whether the assertion is signed. Valid values include true or false.</td>
</tr>
</tbody>
</table>

Example
<orasp:x509-token orasp:enc-key-ref-mech='thumbprint' orasp:is-encrypted='false' orasp:is-signed='true' orasp:sign-key-ref-mech='direct'/>
orawsp:action-match

The `<orawsp:resource-match>` element specifies the action or Web service operation for which authorization checks are performed. This value can be a comma-separated list of values. This field accepts wildcards.

Examples

```xml
<orawsp:guard>
  <orawsp:resource-match>
    http://project11/CreditValidation
  </orawsp:resource-match>
  <orawsp:action-match>validate,amountAvailable</orawsp:action-match>
</orawsp:guard>

<orawsp:guard>
  <orawsp:resource-match>*</orawsp:resource-match>
  <orawsp:action-match>validate,amountAvailable</orawsp:action-match>
</orawsp:guard>
```

orawsp:Description

The `<orawsp:Description>` element provides a description of the property.

Example

```xml
<orawsp:Description>Valid IP Values</orawsp:Description>
```

orawsp:guard

The `<orawsp:guard>` element defines the resource and action match values.

Examples

```xml
<orawsp:guard>
  <orawsp:resource-match>
    http://project11/CreditValidation
  </orawsp:resource-match>
  <orawsp:action-match>validate,amountAvailable</orawsp:action-match>
</orawsp:guard>

<orawsp:guard>
  <orawsp:resource-match>*</orawsp:resource-match>
  <orawsp:action-match>validate,amountAvailable</orawsp:action-match>
</orawsp:guard>
```
This appendix provides the XML schema for reference when creating a WS-Policy file that contains custom Web service assertions. Sections include:

- Graphical Representation
- Element Descriptions

Graphical Representation
The following graphic describes the element hierarchy of the custom assertions in the WS-Policy file.

*Figure E–1  Element Hierarchy of Custom Assertion*

```
Policy
  Assertion
    | orawsp:bindings
    |   | orawsp:Implementation
    |   | orawsp:Config
    |   | orawsp:PropertySet
    |     | orawsp:Property
        | orawsp:Description
        | orawsp:Value
```

Element Descriptions
The following sections describe the elements in the custom assertion in more detail.

**wsp:Policy**
Groups nested policy assertions.
Attributes
The following table summarizes the Oracle extensions to the WS-Policy attributes.

Table E–1 Oracle Extensions to WS-Policy Attributes

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>attachTo</td>
<td>Policy subjects to which the policy can be attached. Valid values include: binding.client, binding.server, binding.any.</td>
</tr>
<tr>
<td>category</td>
<td>Category of the policy. Valid values include: security, mtom, wsrm, addressing, and management.</td>
</tr>
<tr>
<td>description</td>
<td>Description of the policy.</td>
</tr>
<tr>
<td>status</td>
<td>Status of the policy reference. Valid values include: enabled and disabled.</td>
</tr>
</tbody>
</table>

Example

xmlns:orasp="http://schemas.oracle.com/ws/2006/01/securitypolicy"
orawsp:status="enabled"
xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
orawsp:category="security"
orawsp:attachTo="binding.server"
wsu:Id="ip ASSERTION policy"
xmlns:orawsp="http://schemas.oracle.com/ws/2006/01/policy"
wsp:Name=" oracle/ip ASSERTION policy">

orasp:Assertion

Main element of the custom assertion.

Attributes
The following table summarizes the attributes of the orasp:Assertion element.

Table E–2 Attributes of <orasp:Assertion> Element

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optional</td>
<td>Flag that specifies whether the assertion is optional or required.</td>
</tr>
<tr>
<td>Silent</td>
<td>Flag that specifies whether the assertion is advertised. If set to true, the assertion is not advertised.</td>
</tr>
<tr>
<td>Enforced</td>
<td>Flag that specifies whether the assertion is currently enabled.</td>
</tr>
<tr>
<td>name</td>
<td>Name of the assertion.</td>
</tr>
<tr>
<td>description</td>
<td>Description of the assertion.</td>
</tr>
<tr>
<td>category</td>
<td>Category to which the assertion applies. Valid values include: security/authentication, security/msg-protection, security/authorization, security/logging, mtom, wsrm, addressing, and management.</td>
</tr>
</tbody>
</table>

Example

<orasp:ipAssertion orawsp:Silent='true' orawsp:Enforced='true'
orawsp:name="WSSecurity IpAssertion Validator"
The `<orawsp:bindings>` element defines the bindings in the custom assertion.

**Example**

```xml
<orawsp:bindings>
...
</orawsp:bindings>
```

The `<orawsp:Implementation>` element defines the custom assertion implementation class.

**Example**

```xml
<orawsp:Implementation>acme.security.wss.executor.WssUsernameTokenExecutor</orawsp:Implementation>
```

The `<orawsp:Config>` element defines the configuration for the custom assertion.

**Attributes**

The following table summarizes the attributes of the `<orawsp:Config>` element.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>name</td>
<td>Name of the configuration.</td>
</tr>
<tr>
<td>type</td>
<td>Category to which the configuration applies.</td>
</tr>
<tr>
<td>configType</td>
<td>Configuration type. Valid values include: declarative and programmatic.</td>
</tr>
<tr>
<td></td>
<td>- declarative—Use deployment descriptors and configuration files to describe authentication and authorization requirements.</td>
</tr>
<tr>
<td></td>
<td>- programmatic—Embed security enforcement within the application.</td>
</tr>
</tbody>
</table>

**Example**

```xml
<orawsp:Config orawsp:name="ipassertion" orawsp:configType="declarative"/>
```

The `<orawsp:PropertySet>` element groups nested properties.
### Attributes
The following table summarizes the attributes of the `orawsp:PropertySet` element.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>name</td>
<td>Name of the property set.</td>
</tr>
</tbody>
</table>

**Example**

```xml
<orawsp:PropertySet orawsp:name="valid_ips">
```

### `orawsp:Property`

The `<orawsp:Property>` element defines a single property.

#### Attributes

The following table summarizes the attributes of the `orawsp:Property` element.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>name</td>
<td>Name of the property.</td>
</tr>
<tr>
<td>type</td>
<td>Type of the property. For example, string.</td>
</tr>
</tbody>
</table>
| contentType | Specifies whether the property is required and can be overridden. Valid values include:  
  - constant—Property is a constant value and cannot be overridden.  
  - required—Property is required and can be overridden.  
  - optional—Property is optional and can be overridden.  
  For information about overriding policies, see "Attaching Client Policies Permitting Overrides" on page 8-14. |

**Example**

```xml
<orawsp:Property orawsp:name="valid_ips" orawsp:type="string" orawsp:contentType="constant">
```

### `orawsp:Description`

The `<orawsp:Description>` element provides a description of the property.

**Example**

```xml
<orawsp:Description>Valid IP Values</orawsp:Description>
```

### `orawsp:Value`

The `<orawsp:Value>` element provides a list of valid values for the property.

**Example**

```xml
<orawsp:Value>140.87.6.143,10.178.93.107</orawsp:Value>
```