



IBM Software Group

## **IBM® WebSphere® Application Server V7 Feature Pack for Service Component Architecture**

### ***Quality of service - Web service policy sets***



@business on demand.

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This presentation covers the Web service policy set feature of the Quality of service for the SCA feature pack.

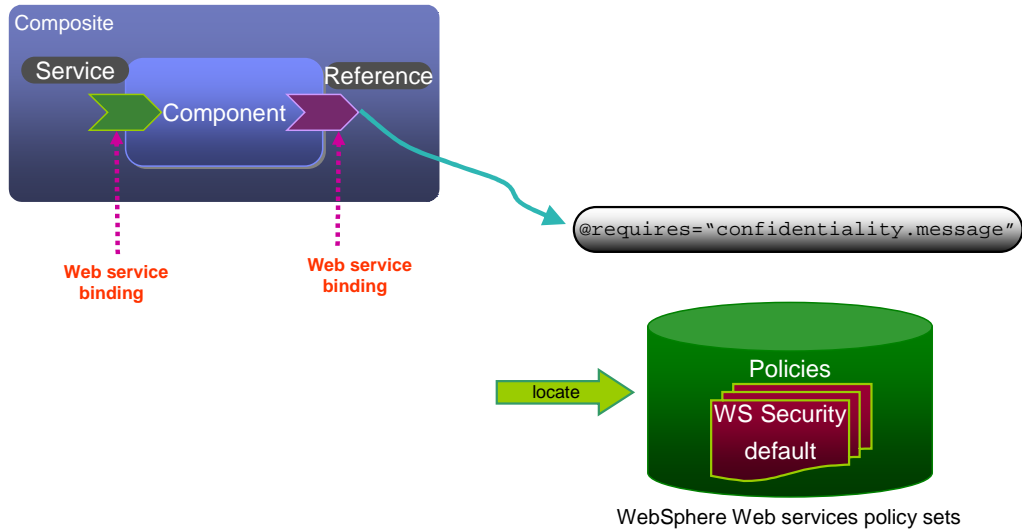
## Web services policy sets

- Used to simplify configuring the qualities of service for Web services
- Create policy set bindings that might be required to configure the policy sets
- Developer specifies the intents required for a service/reference using annotations or the requires attribute in the composite file.
- Attach the policy set and policy set binding
  - ▶ In the composite file using "wsPolicySet", "wsServicePolicySetBindings", "wsReferencePolicySetBindings"
- Assign/update policy set during the deployment process in the Policy set attachment panel



You can use policy sets to simplify configuring the qualities of service for Web services and clients. These policy sets are assertions about how Web services are defined and they are defined in WebSphere Application Server. WebSphere Application Server ships several default policy sets and a few more in the repository, which can be imported, or you can create new policy sets. You can also create any policy set bindings that might be required to configure the policy sets. A developer can specify the intents required for a service/reference using annotations or the requires attribute in the composite file, which are mapped to policy sets during deployment by the deployer. The policy set and policy set binding to be attached can be configured in several ways. You can specify them in the composite file using "wsPolicySet", "wsServicePolicySetBindings", and "wsReferencePolicySetBindings", they can be assigned or updated during the deployment process in the Policy set attachment panel, or they can be assigned or updated after deployment using the Web services administrative functionality.

## Web services policy set integration



Shown here is a quality of service picture with an emphasis on the Web service binding.

## Policy set attachment within composite

- A component service or reference can be configured to require a specific Web service policy set

```
<service name="AccountService">
  <binding.ws
    qos:wsPolicySet="LTPA WSSecurity default"
    qos:wsServicePolicySetBinding="Provider sample"
    ... />
</service>
```

```
<reference name="AccountService">
  <binding.ws
    qos:wsPolicySet="LTPA WSSecurity default"
    ... />
</reference>
```

As shown here, a component **service** or **reference** can be configured to require a specific Web service policy set. This particular example shows configuration to support LTPA authentication. Attaching the LTPA WSSecurity default policy set to a reference will by default propagate any existing LTPA tokens on the thread with the request. It is also possible to configure the policy set to create a token for a specific user and send that token with all requests. You can reference the Information Center for more details about the LTPA WSSecurity default policy set.

\* The QoS namespace must be defined in the composite definition

```
xmlns:qos="http://www.ibm.com/xmlns/prod/websphere/sca/1.0/2007/06"
```

## Attachment through wsadmin

- During SCA deployment Web services policy sets can be attached to the SCA services and references that have a Web service binding

```
$AdminTask addCompUnit {-blaID myBLA -cuSourceID helloworldws.jar ..... -  
attachPolicySet  
{ "<compositeName>/<componentName>/<serviceName>/binding.ws" .* .* .*  
<policySetName> <servicePolicySetBinding> <referencePolicySetBinding>}}
```



When an SCA application is deployed, Web services policy and policy binding can be attached to the SCA services and references that have a Web service binding. One way to do this is through wsadmin scripting as shown here. The other option is through the administrative console.

## Transport layer authentication

- A component service can be configured for transport authentication by specifying the "authentication.transport" intent on the <binding.ws> element.


```
<service name="AccountService">
  <binding.ws
    requires="authentication.transport"
    ... />
</service>
```

Transport layer authentication does not require a policy set



A component service can be configured for transport authentication by specifying the "authentication.transport" intent on the <binding.ws> element as shown. Transport layer authentication does not require a policy set.

## Security policy example – SCA intent



The screenshot shows an IDE window titled 'exa1.composite' displaying XML code for an SCA composite. The code defines a component named 'BasicBusinessComponent' with an implementation class 'com.exa.impl.BusinessServiceVanilla'. A service named 'BusinessService' is defined, which implements the 'com.exa.BusinessService' interface. A binding is specified for this service with the attribute 'requires="authentication"', which is highlighted by a red dashed box and a red arrow pointing to the word 'intent'. The binding also specifies a wsdl:element pointing to a WSDL port.

```
<?xml version="1.0" encoding="UTF-8"?>
<composite xmlns="http://www.osoa.org/xmlns/sca/1.0"
  xmlns:t="http://tuscany.apache.org/xmlns/sca/1.0"
  targetNamespace="http://exa.com/soa/business/business-composition"
  name="example1">

  <component name="BasicBusinessComponent">

    <implementation.java class="com.exa.impl.BusinessServiceVanilla" />

    <service name="BusinessService">
      <interface.java interface="com.exa.BusinessService"/>
      <binding.ws requires="authentication" wsdl:element="http://exa.com/soa/business/business-services#wsdl.port" />
    </service>

  </component>

</composite>
```

This example shows an SCA security policy intent (**authentication**) specified in a service, which is the first step. The next step is to map the intent to the policy set, which can be done through code or through the administrative console.

## Security policy example – Map to policy set

Business Level Applications Close page

**Create new business level application**

Use this page to create a new business level application.

→ Step 1: Attach policyset  
 Step 2: Set options  
 Step 3: Map composition unit to a target  
 Step 4: Summary

**Attach policyset**

Specify policy set for the composite defined in this SCA application.

Include default policy sets. Default PolicySets specify common QoS behavior for generic message format. Evaluate whether they provide adequate QoS characteristics for your services before applying Default PolicySets.

Attach - Detach	Service/Reference/Binding	Type	Intents	Matched policy sets	Attached policy set
<input type="checkbox"/> LTPA SecureConversation					
<input type="checkbox"/> Username RAMP default					
<input type="checkbox"/> Username WSSecurity default					
<input type="checkbox"/> WSHTTPS default					
<input type="checkbox"/> WSTransaction					
<input type="checkbox"/> RAMP default					
<input type="checkbox"/> WSReliableMessaging default		Composite			
<input type="checkbox"/> WSReliableMessaging persistent	intent	Component			
<input type="checkbox"/> WSSecurity default		Component/Service			
<input type="checkbox"/> Username SecureConversation					
<input type="checkbox"/> LTPA WSSecurity default					
<input type="checkbox"/> WSAddressing default					
<input type="checkbox"/> LTPA RAMP default					
<input type="checkbox"/> WSReliableMessaging 1_0					
<input type="checkbox"/> SSL WSTransaction					
<input type="checkbox"/> SecureConversation		Component/Service/Web Services Binding	authentication	LTPA SecureConversation, Username RAMP default, Username WSSecurity default, WSTHTPS default, Username SecureConversation, LTPA WSSecurity default, LTPA RAMP default	

Next Cancel

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This example shows how the intent is mapped to the policy set on the administrative console using the **“Attach”** button



## Security policy example – Service providers

The screenshot shows the IBM Service Providers configuration console. The main content area displays the configuration for **BusinessService1**. The **Policy set attachments** section is highlighted with a red dashed box, showing a table of attached policy sets and their bindings.

Select	Service/Endpoint/Operation	Attached policy set	Binding
<input type="checkbox"/>	BusinessService1	WSSecurity default	Default
<input type="checkbox"/>	BusinessService1SoapPort	WSSecurity default (inherited)	Default (inherited)

Total 2

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You can also see from the service providers the policy set that was attached to the service component.

## Summary

- Web service policy sets are used to simplify configuring the qualities of service for Web services



Web service policy sets are used to simplify configuring the qualities of service for Web services. The following appendix contains lists of supported intents.

## Section

# *Appendix*

## Intents supported by each binding

Intent	binding.ws	binding.ejb binding.sca
authentication.message	Requires the attachment of a WebSphere policy set and policy binding that contains the WS-Security policy type	Not supported; CSiv2 can be configured to use basic auth and security token (LTPA, Kerberos)
confidentiality.message integrity.message	Requires the attachment of a WebSphere policy set and policy binding that contains the Security policy type	Not supported

Intents supported by each binding.

## Intents supported by each binding

Intent	binding.ws	binding.ejb binding.sca
authentication.transport	Basic auth only. Reference requires the attachment of a WebSphere policy set that contains the HTTPTransport policy type. Service does not require any attachments.	Intent is not supported. CSiv2 can be configured to use client certificates for authentication.
confidentiality.transport integrity.transport	Requires the attachment of a WebSphere policy set that contains the SSLTransport policy type	Intent is not supported. CSiv2 can be configured to require SSL.



## Intents supported by each binding

Intent	binding.ws	binding.ejb binding.sca
propagatesTransaction	Requires the attachment of a Web services policy set that contains the WS-Transaction policy type	Supported; no configuration required

## References

- SCA specifications

<http://www.osoa.org/display/Main/Service+Component+Architecture+Specifications>

- SCA policy framework

[http://www.osoa.org/download/attachments/35/SCA\\_Policy\\_Framework\\_V100.pdf?version=1](http://www.osoa.org/download/attachments/35/SCA_Policy_Framework_V100.pdf?version=1)

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