



the  
**POWER**  
of  
**JAVA™**



# Create, Test, and Consume Web Services with the Eclipse Web Tools Platform

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<http://www.eclipse.org/webtools/>

TS-4160

# Develop Web Services Using WTP

Learn how to create, test and consume web services

Learn how to create, test, and consume Web services without knowing its gory details

# Agenda

Eclipse Web Tools Platform (WTP)

Web Service Tools

Call for Participation

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## Eclipse Web Tools Platform (WTP)

Web Service Tools

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# Eclipse Web Tools Platform Project

- <http://eclipse.org/webtools>
- Formally launched in June 2004, seed by contribution from ObjectWeb and IBM
- Provides Web and Java EE tools to end user, and a Web and Java EE platform to vendors
- Two subprojects and two incubation projects:
  - Web Standard Tools (WST)
  - Java EE Standard Tools (JST)
  - JavaServer™ Faces Tools
  - Enterprise JavaBeans™ (EJB™) 3.0 specification
- Includes tools for open standards defined by W3C, Oasis, WS-I, Java Community Process<sup>SM</sup> and others
- Includes tools for other open source project and commercial products (e.g., Apache Tomcat)

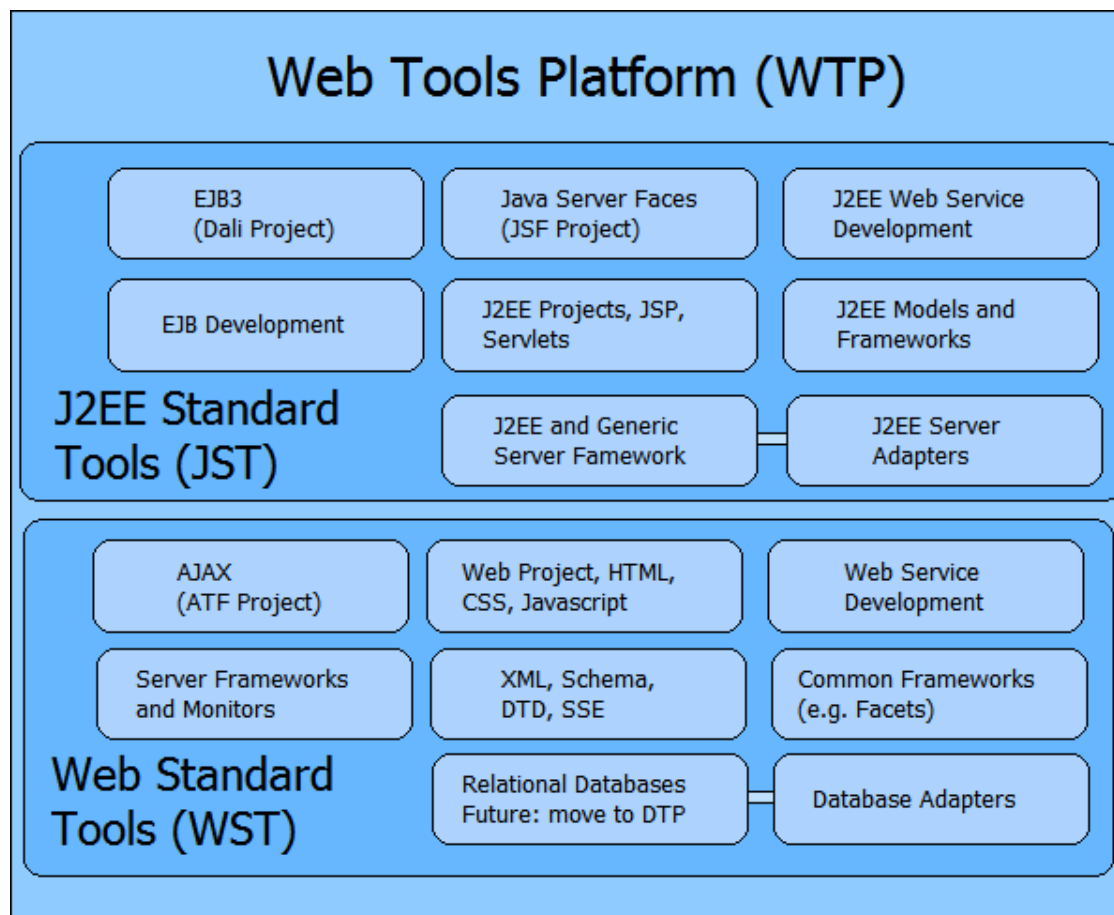
# Who's Involved?



# WTP Roadmap

- WTP 1.0, December 2005—Platform Quality APIs
- WTP 1.5, June 2006—Java EE 5.0

# WTP Architectural Diagram





# Agenda

Eclipse Web Tools Platform (WTP)

**Web Service Tools**

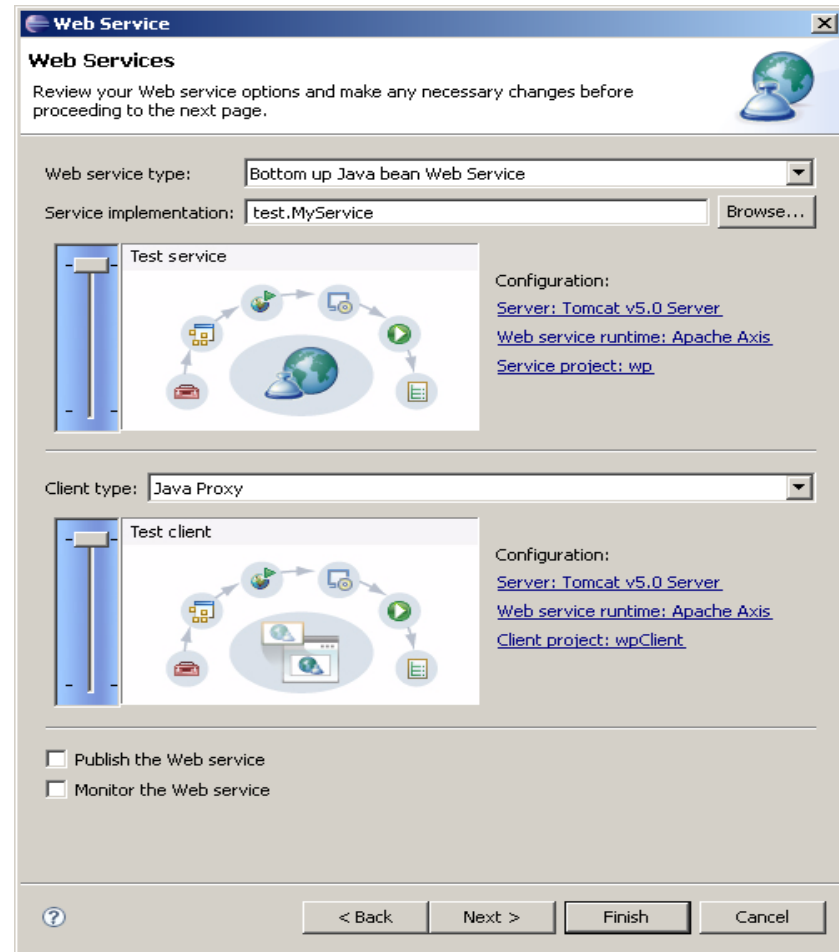
Call for Participation

# Creating a Web Service

- Wizard that guides the user through the generate/deploy/test/publish lifecycle of a Web service
- Supports bottom-up (from Java technology) and top-down (from WSDL) Web service creation
- Configures project, server, and SOAP engine
- Highly extensible
  - SOAP engines
  - Code generators
  - Test facilities

# Web Service Wizard

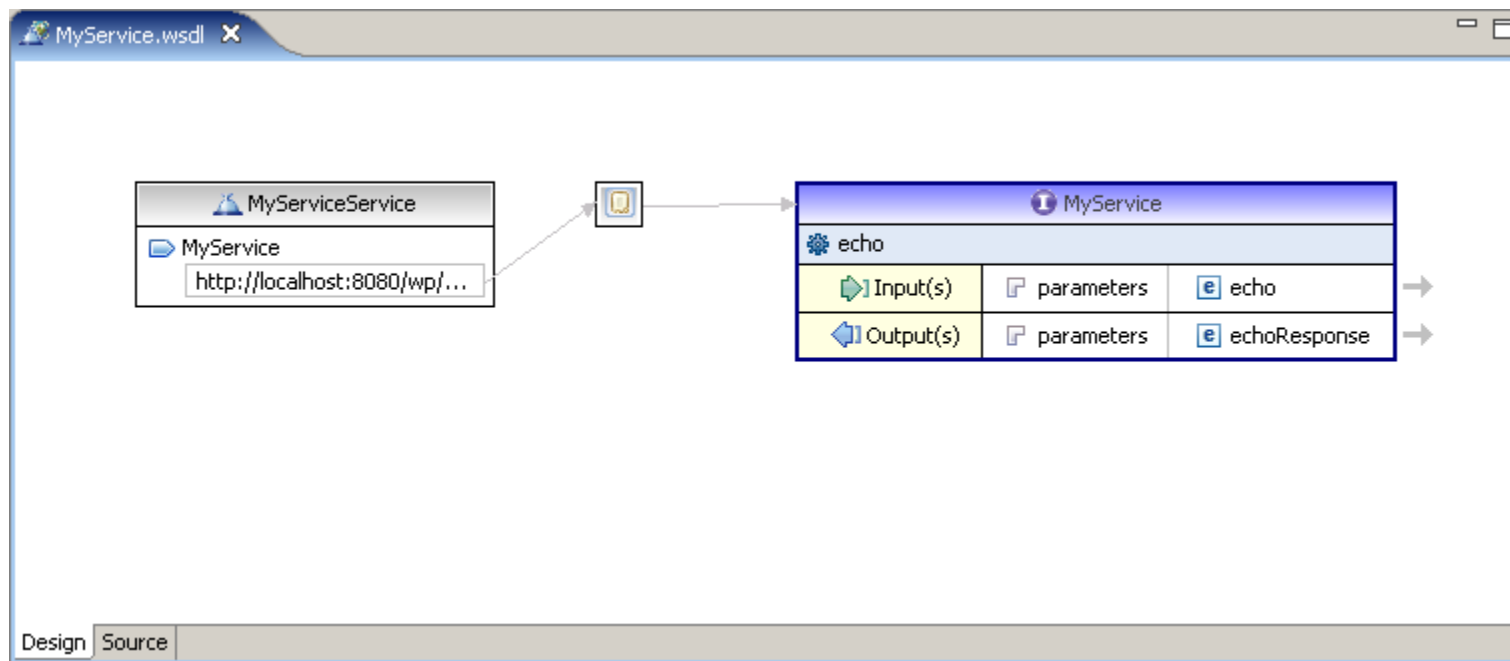
- Supported SOAP engines include Apache Axis 1.2.1
- Supported servers include Apache Tomcat



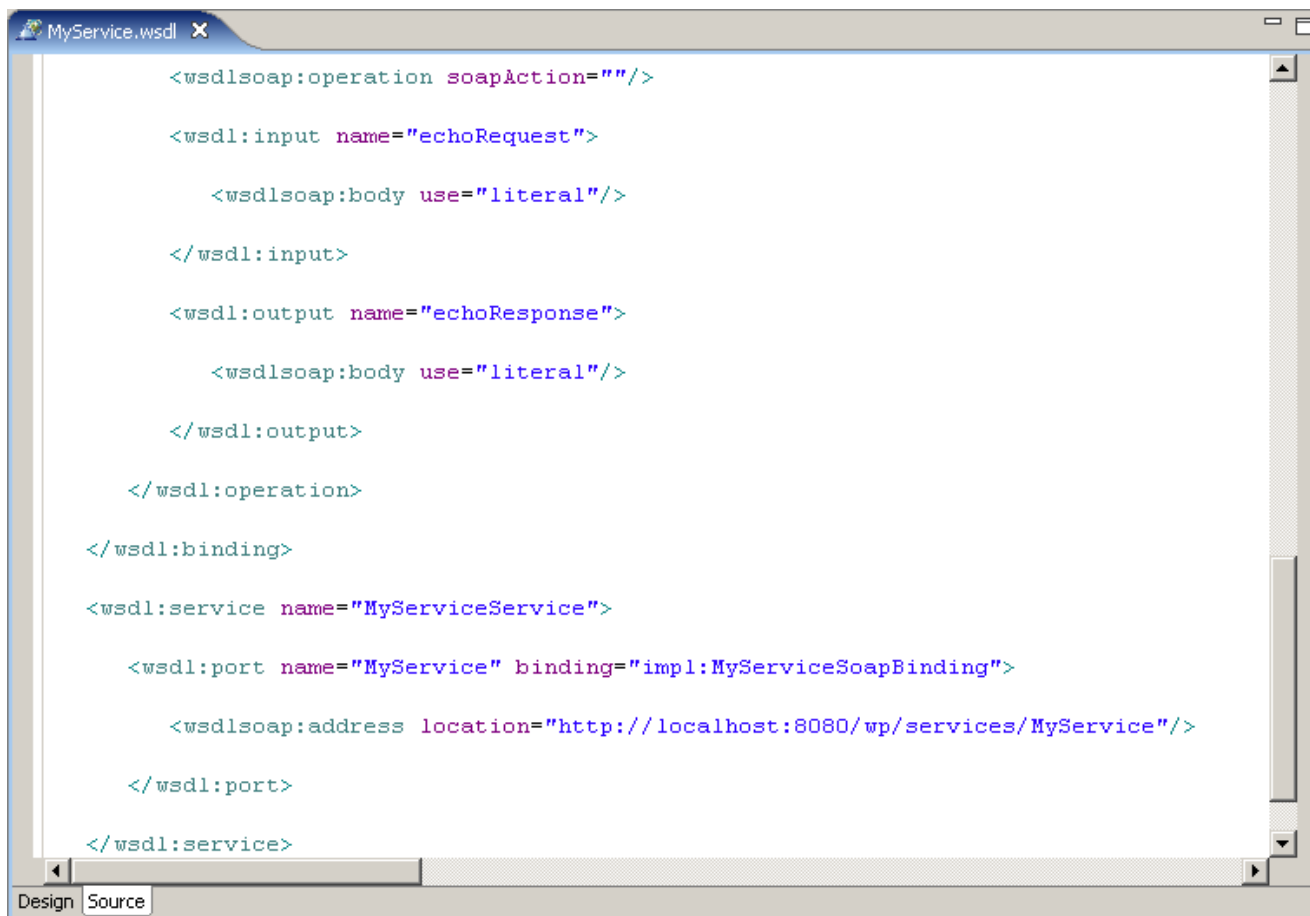
# WSDL and XML Schema Editors

- Design your Web service using WSDL and XML schema editors
- Support both graphical and source editing modes
- Seamless integration for editing inline XSD
- Content Assist
- Extensible for WSDL extension elements

# WSDL Editor



# WSDL Editor



```

MyService.wsdl x
<wsdlsoap:operation soapAction=""/>

<wsdl:input name="echoRequest">
  <wsdlsoap:body use="literal"/>
</wsdl:input>

<wsdl:output name="echoResponse">
  <wsdlsoap:body use="literal"/>
</wsdl:output>

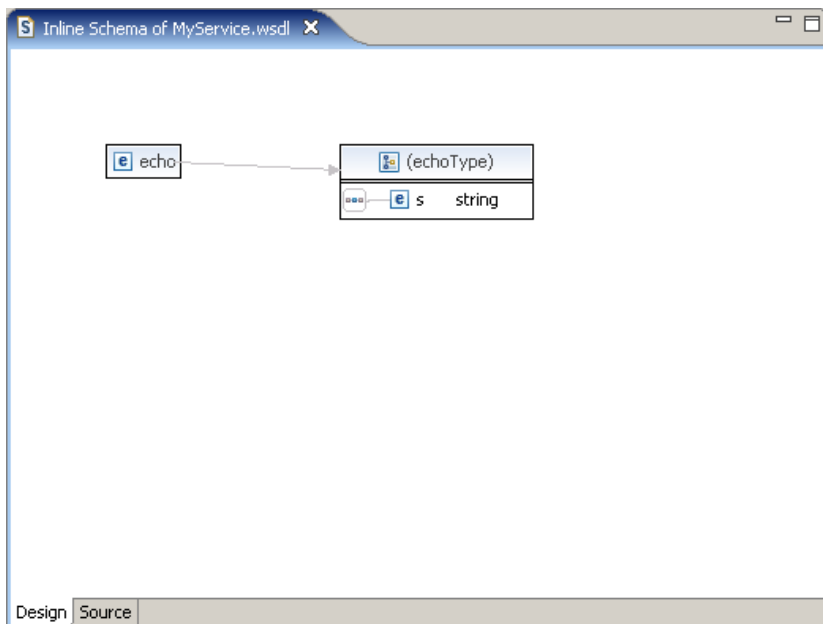
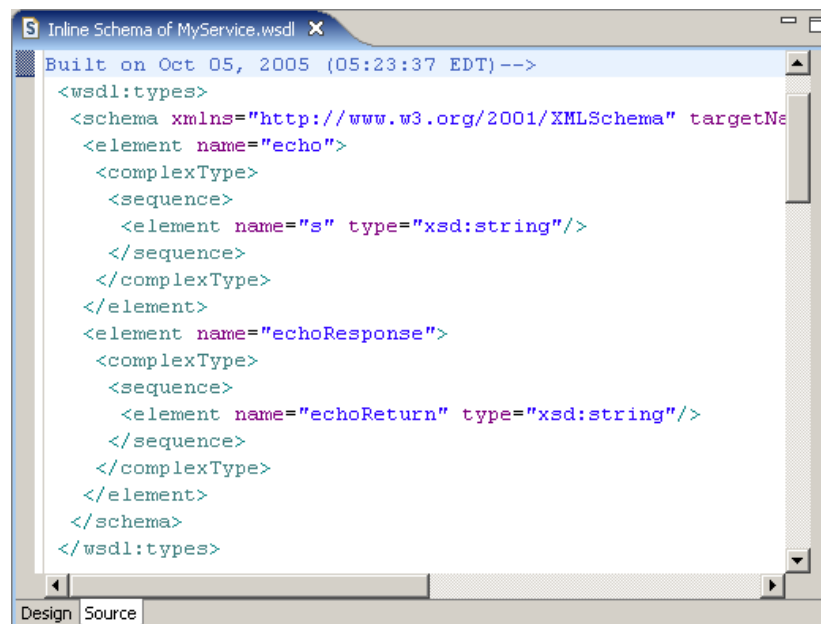
</wsdl:operation>

</wsdl:binding>

<wsdl:service name="MyServiceService">
  <wsdl:port name="MyService" binding="impl:MyServiceSoapBinding">
    <wsdlsoap:address location="http://localhost:8080/wp/services/MyService"/>
  </wsdl:port>
</wsdl:service>
  
```

Design Source

# XML Schema Editor

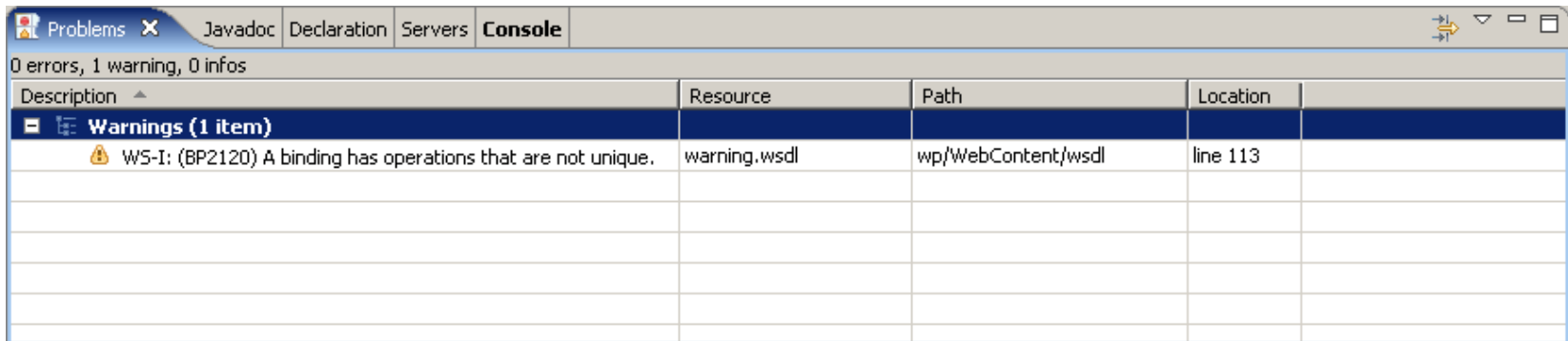
```

Built on Oct 05, 2005 (05:23:37 EDT) -->
<wsdl:types>
  <schema xmlns="http://www.w3.org/2001/XMLSchema" targetNamespace="http://www.w3.org/2001/XMLSchema" >
    <element name="echo">
      <complexType>
        <sequence>
          <element name="s" type="xsd:string"/>
        </sequence>
      </complexType>
    </element>
    <element name="echoResponse">
      <complexType>
        <sequence>
          <element name="echoReturn" type="xsd:string"/>
        </sequence>
      </complexType>
    </element>
  </schema>
</wsdl:types>
    
```

Design Source

# WSDL, XML Schema, WS-I Validators

- Validators to verify the correctness of your WSDLs and XML schemas
- Ensure your WSDLs are WS-I compliant



0 errors, 1 warning, 0 infos

Description	Resource	Path	Location
<b>Warnings (1 item)</b>			
⚠ WS-I: (BP2120) A binding has operations that are not unique.	warning.wsdl	wp/WebContent/wsdl	line 113





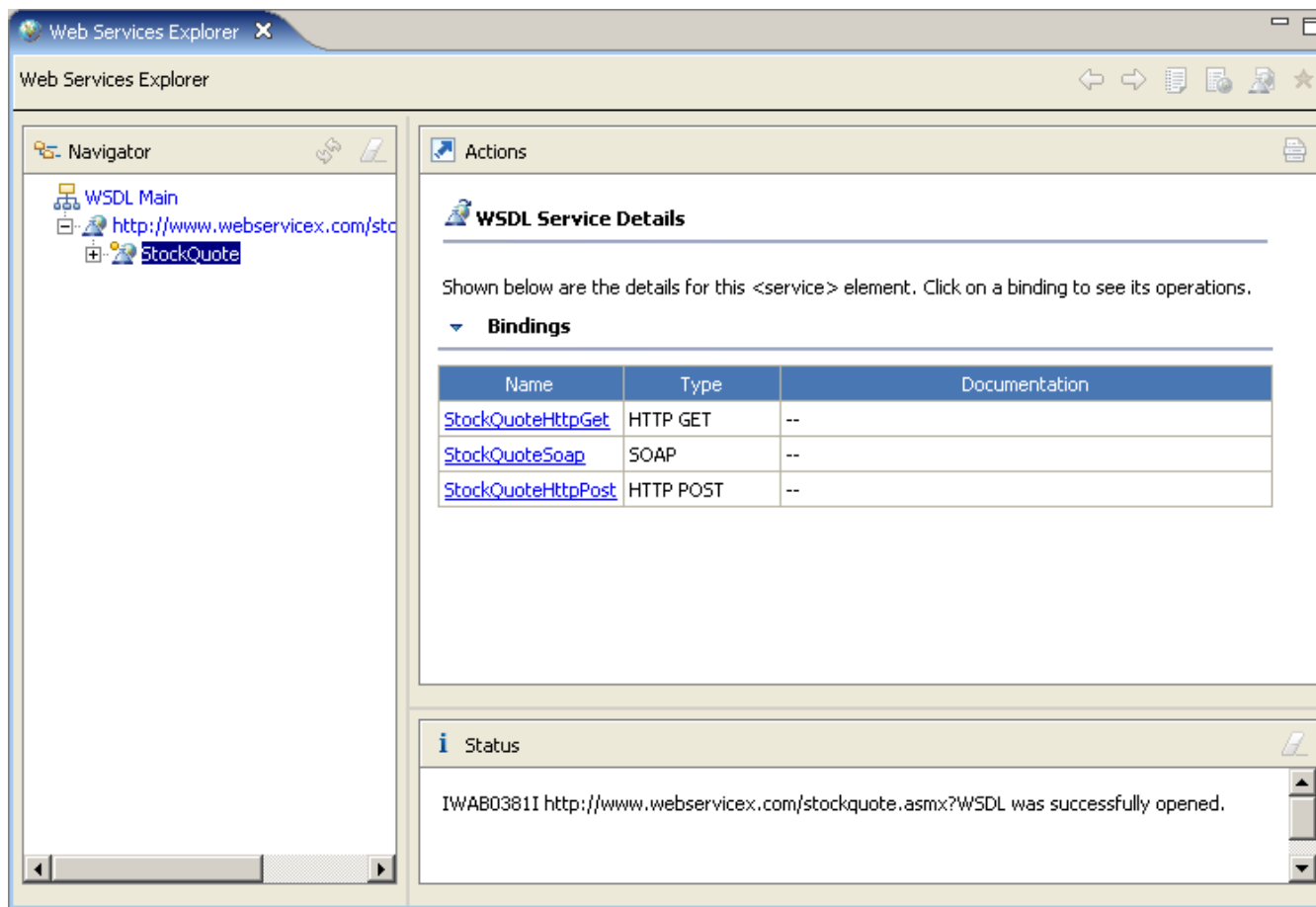
# DEMO

Create a Web Service

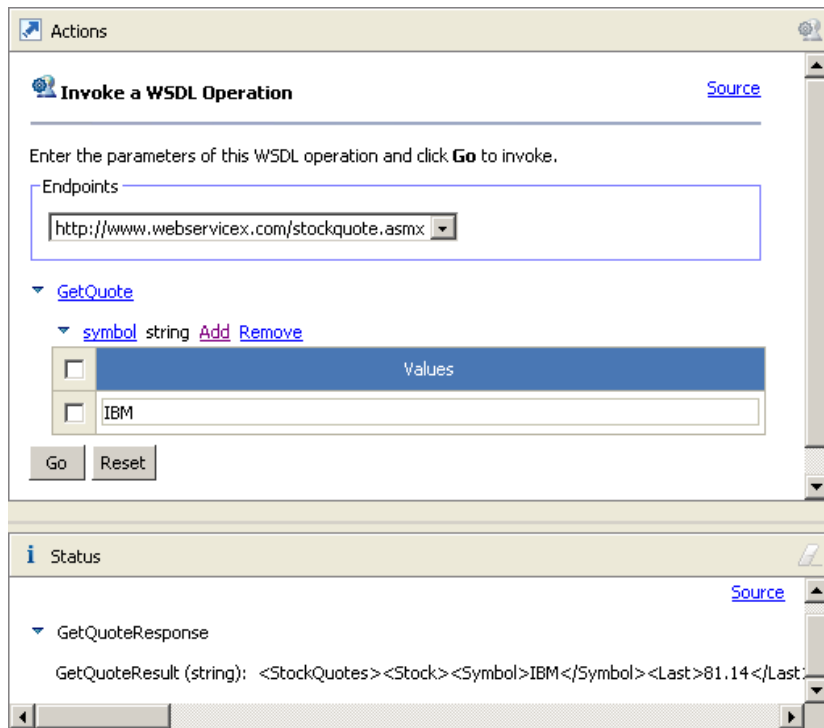
# Unit Testing a Web Service

- Web Services Explorer
  - Dynamic invocation based on WSDL
  - Inspect and edit SOAP messages
  - WS-I compliant
  - Publish Web services to UDDI registries
  - Discover Web services from UDDI registries and WSIL documents

# Web Service Explorer



# Web Service Explorer



**Invoke a WSDL Operation** [Source](#)

Enter the parameters of this WSDL operation and click **Go** to invoke.

Endpoints

**GetQuote**

- symbol** string [Add](#) [Remove](#)

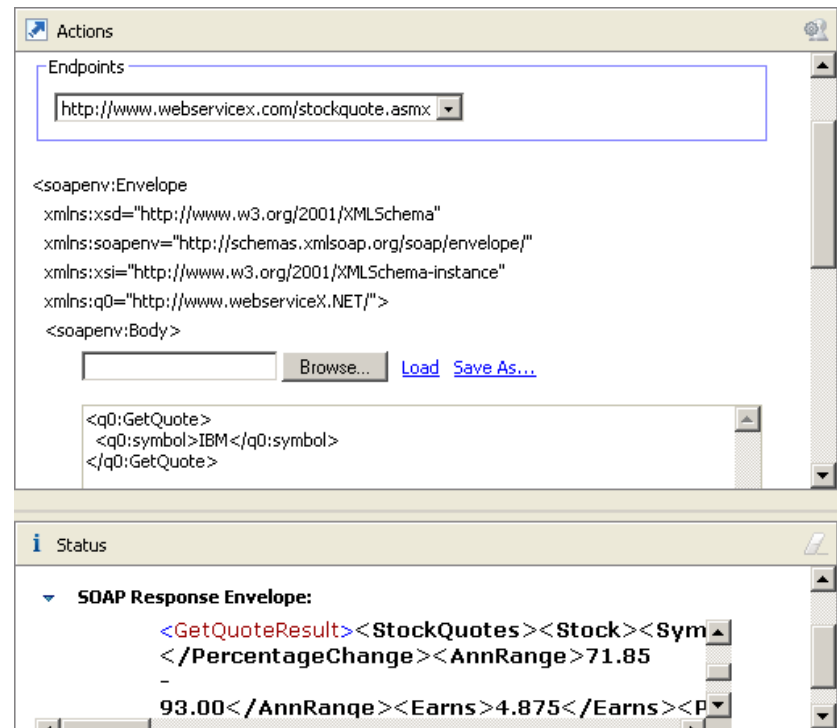
Values
<input type="checkbox"/> IBM

---

**Status** [Source](#)

**GetQuoteResponse**

GetQuoteResult (string): <StockQuotes><Stock><Symbol>IBM</Symbol><Last>81.14</Last>



**SOAP Response Envelope:**

```

<?xml version='1.0' encoding='utf-8'>
<soap:Envelope
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:q0="http://www.webserviceX.NET">
  <soapenv:Body>
    <q0:GetQuote>
      <q0:symbol>IBM</q0:symbol>
    </q0:GetQuote>
  </soapenv:Body>
</soap:Envelope>

```

[Load](#) [Save As...](#)

---

**Status**

**SOAP Response Envelope:**

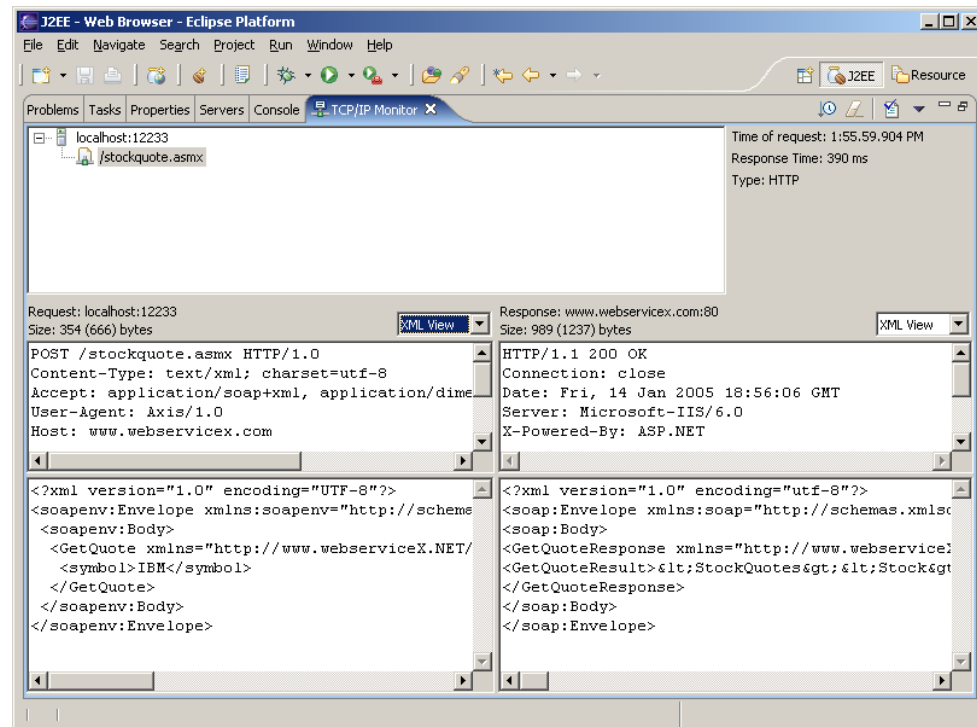
```

<GetQuoteResult><StockQuotes><Stock><Sym
</PercentageChange><AnnRange>71.85
-
93.00</AnnRange><Earnings>4.875</Earnings><P

```

# TCP/IP Monitor

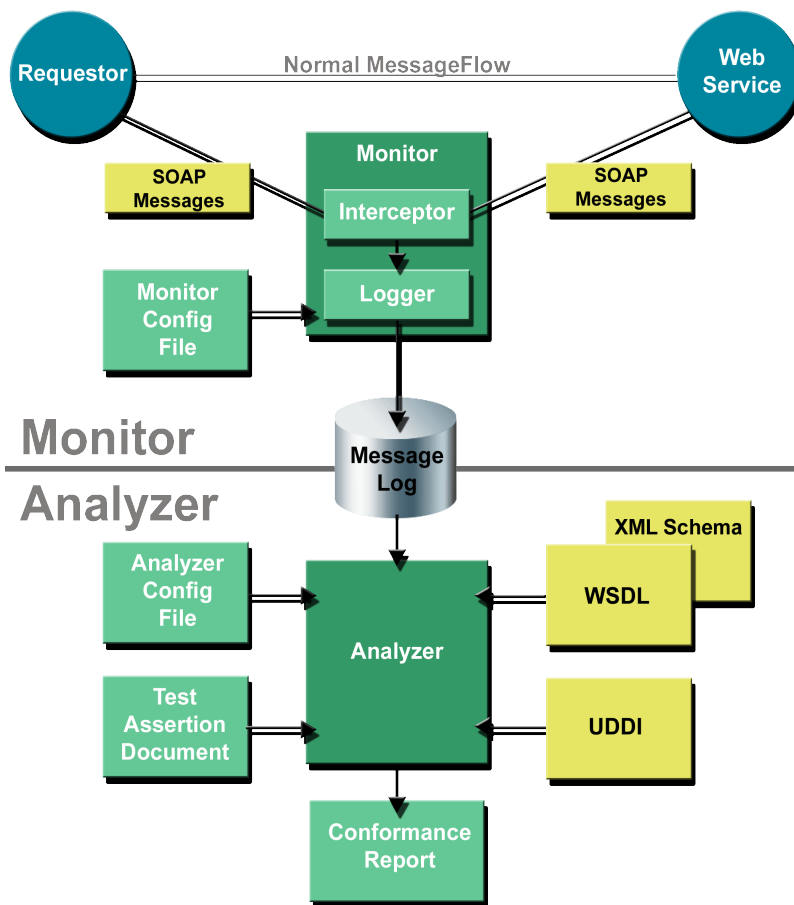
- View HTTP-based SOAP messages using the TCP/IP monitor



# WS-I Test Tools

- Support WS-I Basic Profile 1.0/1.1, Simple SOAP Binding Profile 1.0, Attachments Profile 1.0
- SOAP 1.1 Message Monitor/Analyzer

# SOAP 1.1 Message Monitor/Analyzer



# DEMO

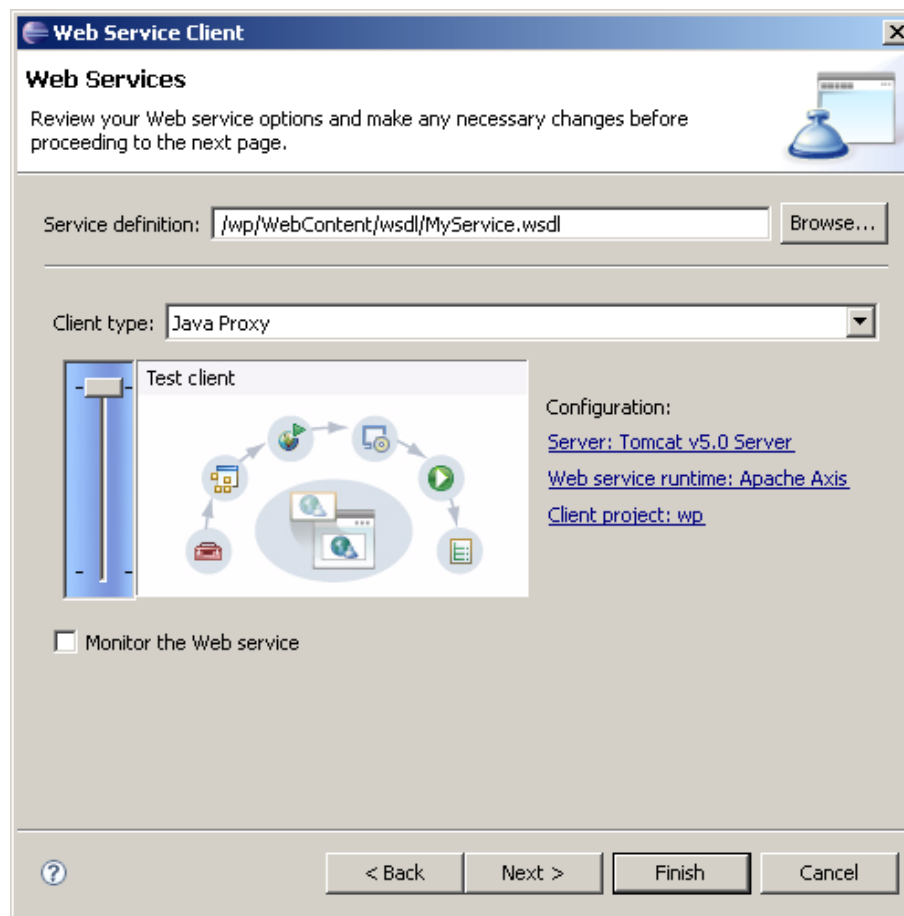
Unit Test a Web Service



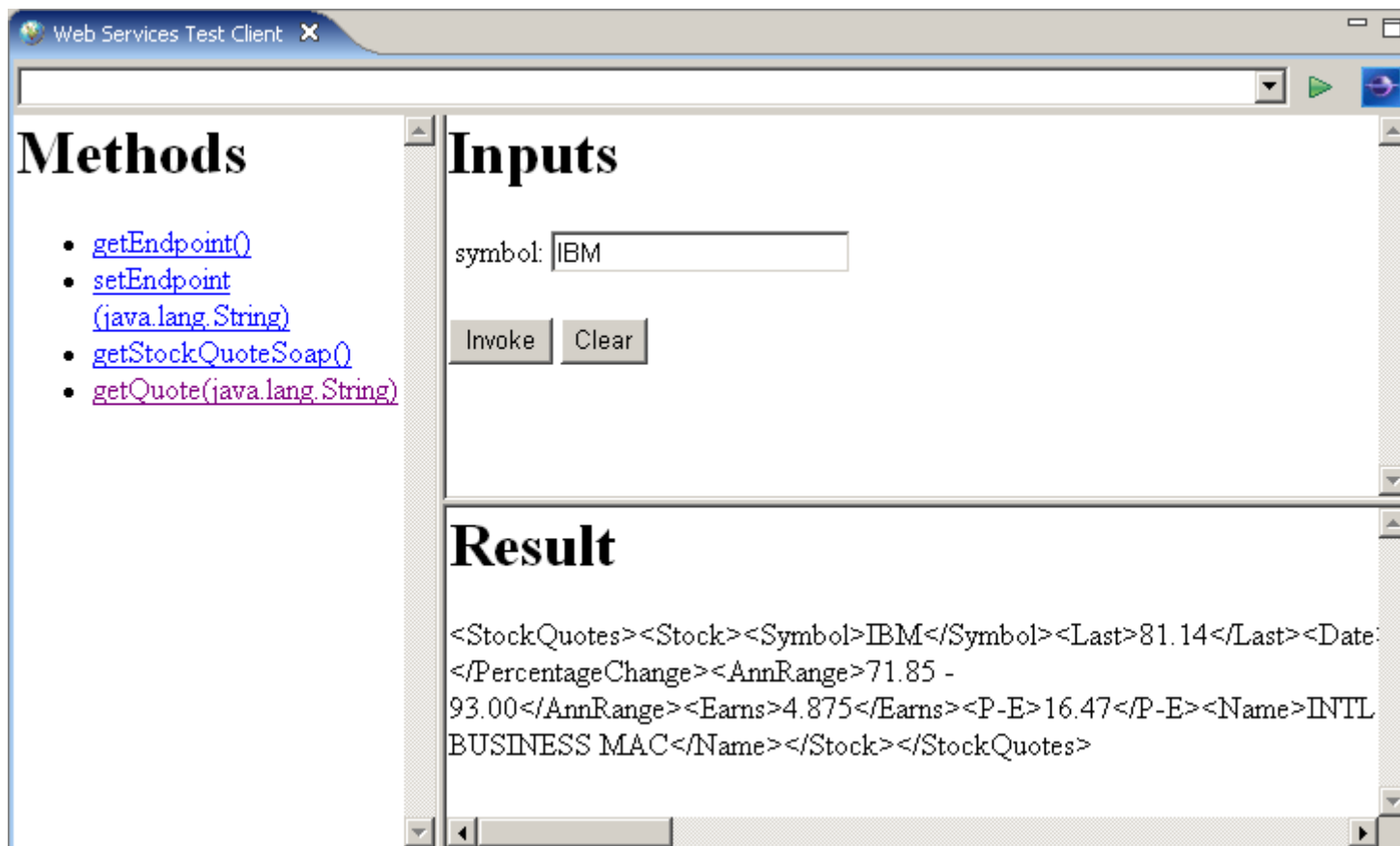
# Consuming a Web Service

- Wizard that guides users to create a Java-based stub that binds to a Web service
- Generate JSP™ syntax to visually invoke the Java-based stub

# Web Service Client Wizard



# Sample JSPs



The screenshot shows the 'Web Services Test Client' window. On the left, under 'Methods', there is a list of available operations:

- [getEndpoint\(\)](#)
- [setEndpoint \(java.lang.String\)](#)
- [getStockQuoteSoap\(\)](#)
- [getQuote\(java.lang.String\)](#)

In the 'Inputs' section, the 'symbol' field is set to 'IBM'. Below the input field are 'Invoke' and 'Clear' buttons.

The 'Result' section displays the following XML response:

```
<StockQuotes><Stock><Symbol>IBM</Symbol><Last>81.14</Last><Date:
</PercentageChange><AnnRange>71.85 -
93.00</AnnRange><Earnings>4.875</Earnings><P-E>16.47</P-E><Name>INTL
BUSINESS MAC</Name></Stock></StockQuotes>
```



# DEMO

Consume a Web Service

# Agenda

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Web Service Tools

**Call for Participation**

# Call for Participation

- Try it out yourself
- Test and report bugs
- Write tutorials, articles
- Present WTP in a conference
- Participate in the discussion of design of new tools
- Fix bugs
- Contribute enhancements
- Become a committer
- Build tools on top of WTP

# References

- WTP website  
<http://www.eclipse.org/webtools>
- WTP newsgroup  
<news://news.eclipse.org/eclipse.webtools>
- Lawrence Mandel  
[lmandel@ca.ibm.com](mailto:lmandel@ca.ibm.com)
- Jeffrey Liu  
[jeffliu@ca.ibm.com](mailto:jeffliu@ca.ibm.com)

# Q&A





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