Judd Solutions

Development, Mentoring and Training

Consuming and Producing Web Services with WST and JST

Christopher M. Judd

President/Consultant

Judd Solutions, LLC

Christopher M. Judd

Available Sept 14, 2005

Bearable Moments

Available Dec 1, 2005

Illustrated by Dale Herron

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House Keeping

- 201 – Interacting with Relational Databases
  - Tuesday 11:00 am – 12:30 pm
  - Chris Judd
- 501 – Developing Enterprise JavaBeans with J2EE Standard Tools
  - Wednesday 9:15 am – 10:45 am
  - Chris Judd
- 701 - Building with the Data Tools Project
  - Wednesday 2:00 pm – 3:30 pm
  - Der-Ping Chou and John Graham

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House Keeping

- 204 – Developing Web Services with Eclipse
  - Tuesday 11:00 am – 12:30 pm
  - Arthur Ryman
- 404 – Developing Web Services with the Web Tools Platform
  - Tuesday 3:30 pm – 5:00 pm
  - David Gallardo
- 502 – 602 – Web Application Development with Web Tools Platform
  - Wednesday 9:15 am – 10:45 am & 11:00 am – 12:30 pm
  - Tim Wagner

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Agenda

- WTP Overview
- Web Services Overview
- Producing Web Services (bottom up)
- Testing
- Consuming
- Conclusion

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Web Tools Platform Project (WTP)

- Top Level Eclipse Project
- www.eclipse.com/webtools/
- Development tools for web development
  - No runtime dependencies
  - Vendor extensible
- Subprojects
  - Web Standard Tools (WST)
  - J2EE Standard Tools (JST)
- Version 0.7 was released August 2, 2005.
- Dependencies
  - Eclipse 3.1
  - Eclipse Modeling Framework (EMF) 2.1.0
  - Graphic Editor Framework (GEF) 3.1
  - Java EMF Model (JEM) 1.1

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WTP Subprojects

- Web Standard Tools (WST)
  - Web artifacts
  - Defined by open standards bodies
- J2EE Standard Tools (JST)
  - J2EE components
  - Java Community Process (JSP)
  - Depends on WST
- JavaServer Faces Tools (JSF)

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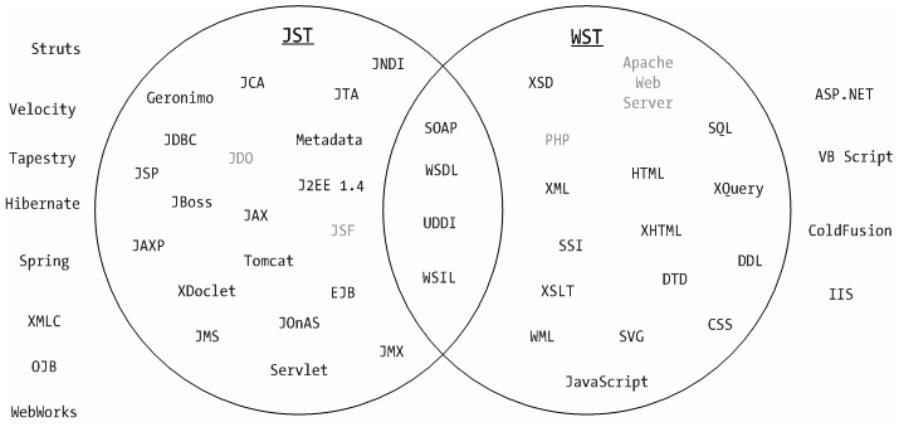
WTP Scope



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WTP Web Services Scope

- World Wide Web Consortium (W3C)
  - http://www.w3.org
  - HTML, XHTML, CSS, XML, XSLT, XML Schema, XML Query
- Organizations for Advancement of Structured Information Standards (OASIS)
  - http://www.oasis-open.org
  - e-Business standards for web services
- Web Services Interoperability Organizations (WS-I)
  - http://www.ws-i.org
  - Interoperable message exchange between web services
- Java Community Process (JCP)
  - http://www.jcp.org
  - Java Web Services APIs

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WTP Installation Options

- All-in-one
  - Eclipse 3.1
  - Eclipse Modeling Framework (EMF) 2.1.0
  - Graphic Editor Framework (GEF) 3.1
  - Java EMF Model (JEM) 1.1
- Update Manager
  - Eclipse.org update site
- Piecemeal

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Simple Object Access Protocol

From the draft W3C specification:

> SOAP is a lightweight protocol for exchange of information in a decentralized, distributed environment. It is an XML based protocol that consists of three parts: an envelope that defines a framework for describing what is in a message and how to process it, a set of encoding rules for expressing instances of application-defined datatypes, and a convention for representing remote procedure calls and responses.

http://www.w3.org/TR/soap/

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WSDL

- Web Service Definition Language
- Describes
  - What the service can do
  - Where it resides
  - How to invoke it
- Elements
  - Types – data type definition
  - Message – definition of data being communicated
  - Port Type – abstract set of operations
  - Binding – concrete protocol and data format
  - Service – collection of related endpoints
  - Port – binding and a network address

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Apache Axis

- Apache Web Services Project
- Open Source
- SOAP implementation
- Version 1.2.1
- http://ws.apache.org/axis/

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Producing Web Services

- Bottom up
  - Start with Java code
  - Generate WSDL
- Top down
  - Start with WSDL
  - Generate Java code

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Bottom Up Steps

1. Create Dynamic Web Project
2. Create JavaBeans
3. Create Service
4. Generate Web Service

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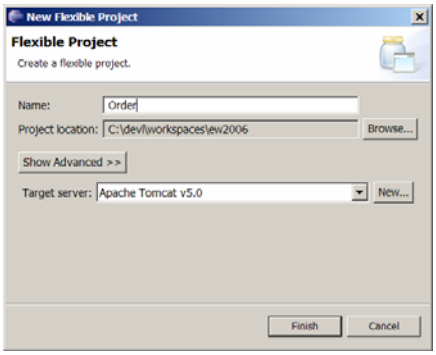
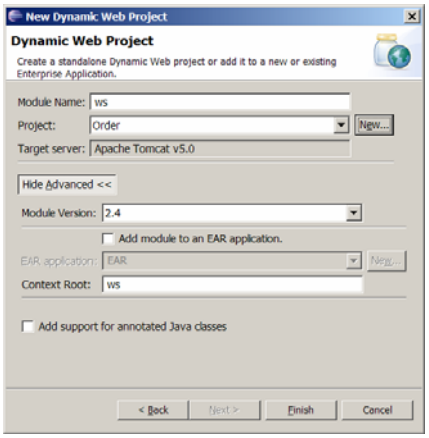
Create Dynamic Web Project

- File > New > Other > Dynamic Web Project





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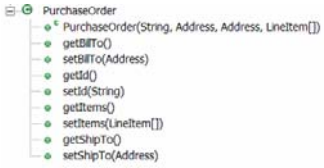
Create JavaBeans

- Data Transfer Objects
  - Purchase Order
  - LineItem
  - Address



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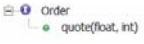
Create Service

```
public class Order {

  private static final float DISCOUNT =
  0.9f;

  public float quote(float price, int
  quantity) {
     if (quantity > 100) {
          price = price * DISCOUNT;
     }
     return price * quantity;
  }
}
```



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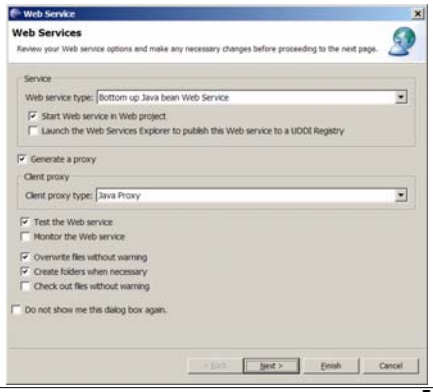
Generate Web Service

- New > File > Other > Web Services > Web Service
- Right click > Web Services > Create Web Services



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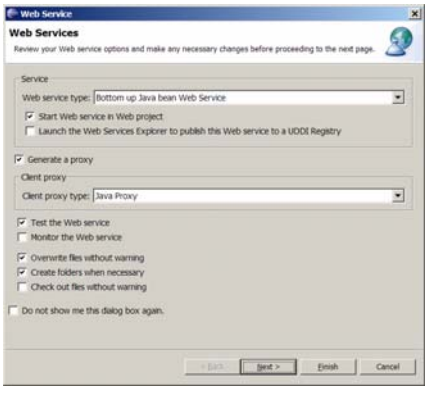
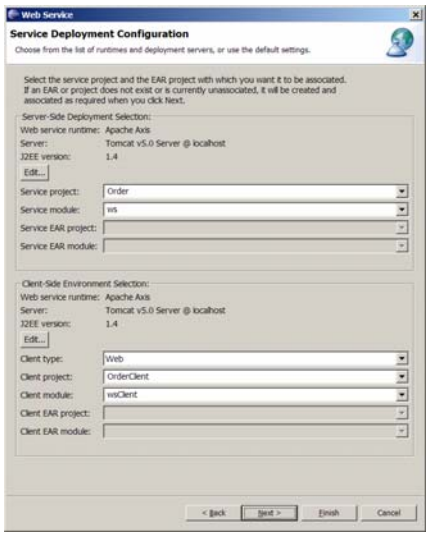
Generate Web Service





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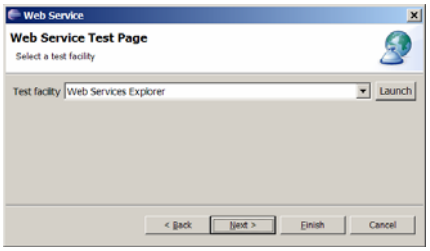
Generate Web Service



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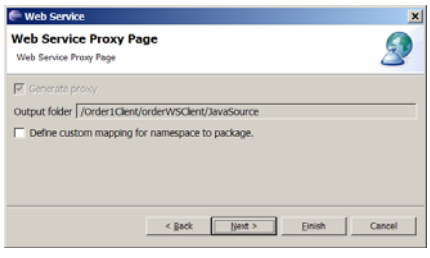
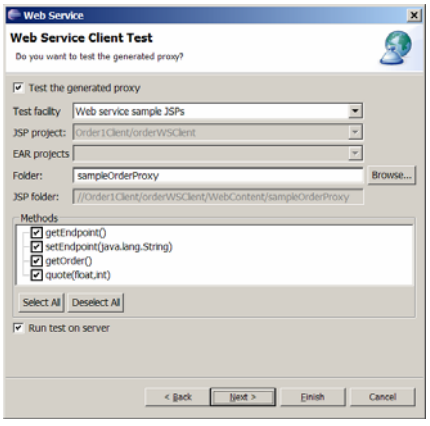
Generate Web Service





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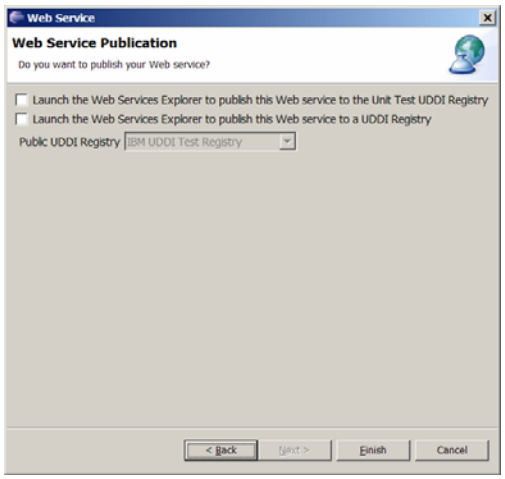
Generate Web Service



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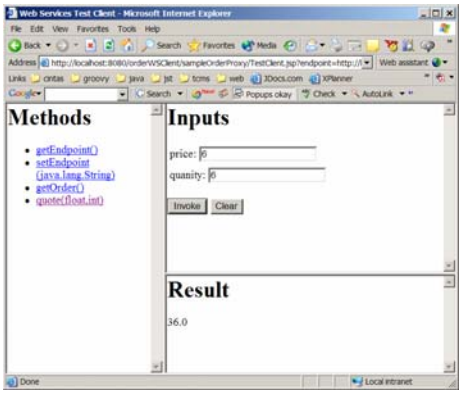
Test Client

- http://localhost:8080/orderWSClient/sampleOrderProxy/TestClient.jsp?endpoint=http://localhost:8209/orderWS/services/Order



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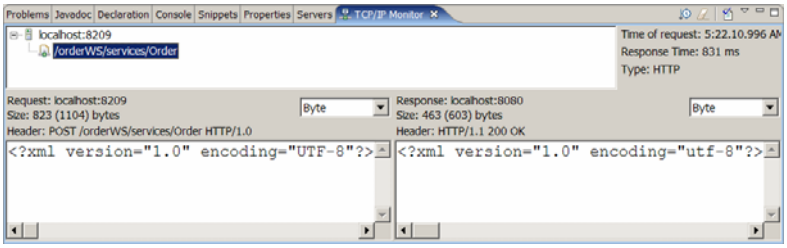
TCP/IP Monitoring

- View SOAP request and response



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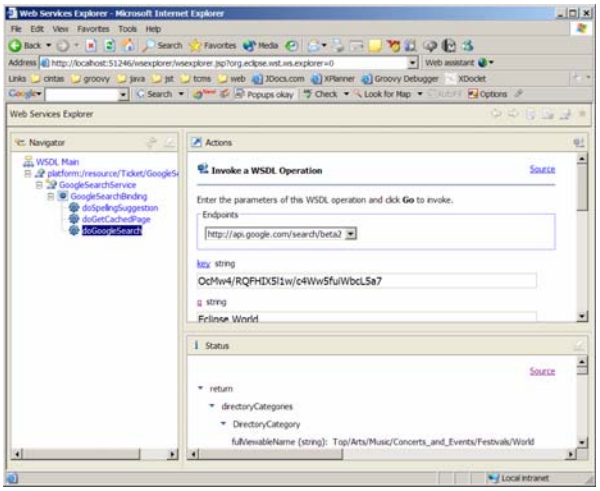
Web Service Explorer Testing

- Test any Web Services



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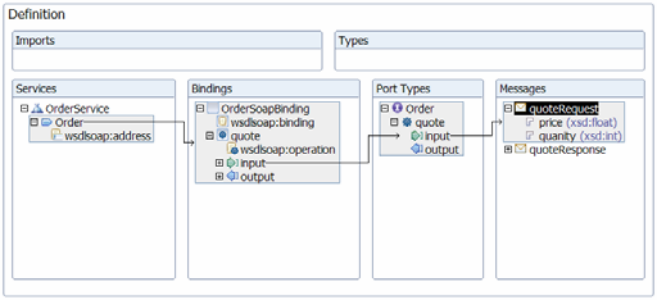
WSDL Editor

- Graphically edit WSDL



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Consuming steps

1. Create Java Project
2. Generate Web Service Client

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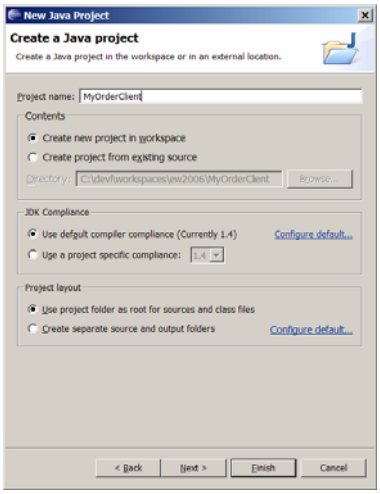
Create Project

- File > New > Project > Java Project



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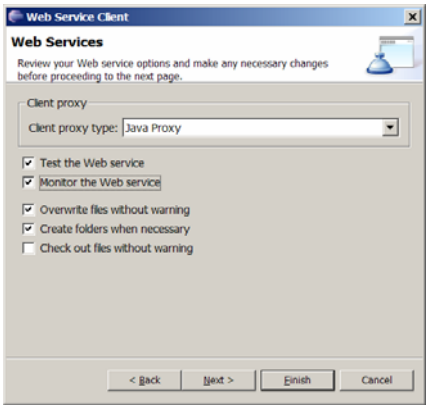
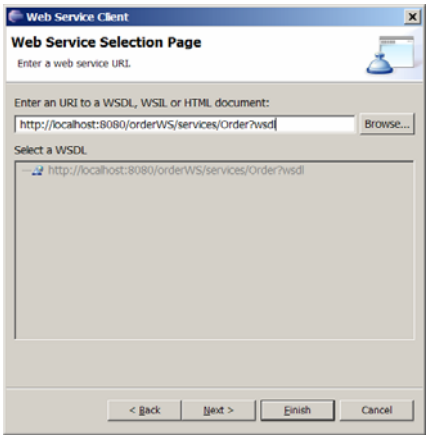
Generate Web Service Client

- File > New > Other > Web Services > Web Service Client





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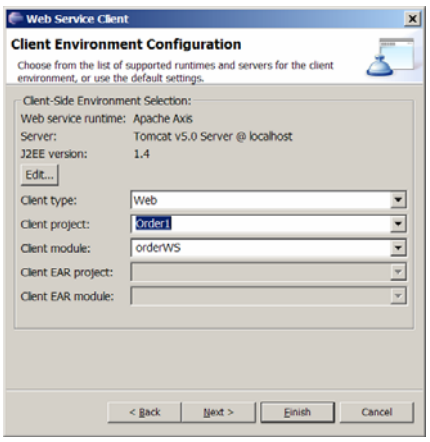
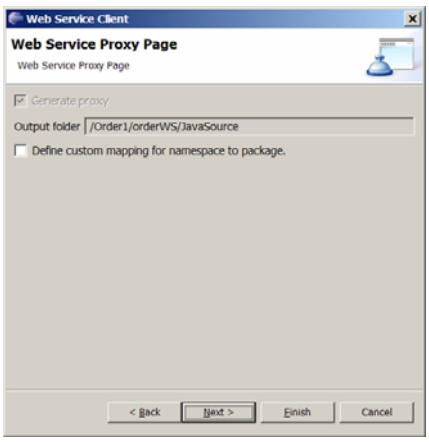
Generate Web Service Client





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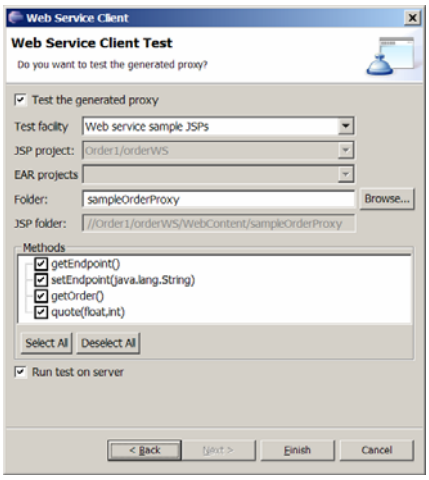
Generate Web Service Client



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Using Generate Classes

```
public static void main(String[] args) throws
  RemoteException {
      OrderProxy proxy = new OrderProxy();
      float quote = proxy.quote(5,5);
      System.out.println("Quote is " + quote);

      System.out.println("\nDONE");
}
```

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WTP Resources

- www.eclipse.org/webtools/
- www.projst.com
- Tutorials
  - http://www.eclipse.org/webtools/community/communityresources.html#tutorials
- Articles
  - http://www.eclipse.org/webtools/community/communityresources.html#articles
- New Group
  - news://news.eclipse.org/eclipse.webtools

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  - http://www.projst.com
  - http://www.apress.com/book/bookDisplay.html?bID=447
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Questions ?

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