

SOAP Web Services in NetBeans

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The Setup

● Software needed

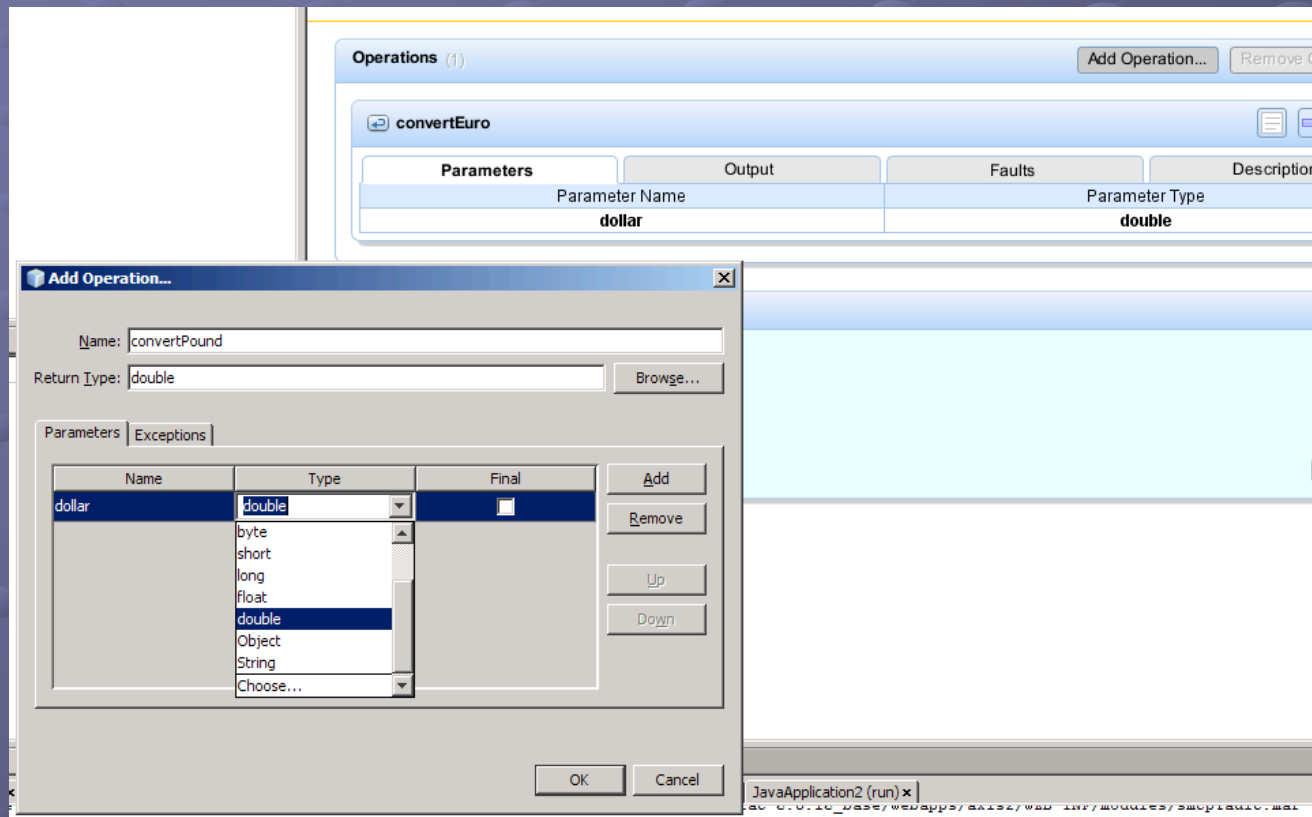
- NetBeans IDE (6.1)
- JDK (1.6)
- Apache Axis2 (1.4)
 - Implementation of SOAP
 - Supports SOAP 1.1, 1.2 and RESTful web services
- Tomcat web server (6.0)

● Make it all work together

- <http://www.netbeans.org/kb/61/websvc/gs-axis.html>

Create Server

- New Project > Web Application
 - New > Web Service



Create Methods

```
index.jsp x CurrencyConverter.java x
Source Design

import javax.ws.rs.WebMethod;
import javax.ws.rs.WebParam;
import javax.ws.rs.WebService;

/**
 *
 * @author Nirav
 */
@WebService()
public class CurrencyConverter {

    /**
     * Web service operation
     */
    @WebMethod(operationName = "convertEuro")
    public double convertEuro(@WebParam(name = "dollar")
    double dollar) {
        //TODO write your implementation code here:
        return 0.0;
    }

    /**
     * Web service operation
     */
    @WebMethod(operationName = "convertPound")
    public double convertPound(@WebParam(name = "dollar")
    double dollar) {
        //TODO write your implementation code here:
        return 0.0;
    }

    /**
     * Web service operation
     */
    @WebMethod(operationName = "convertYen")
    public double convertYen(@WebParam(name = "dollar")
    double dollar) {
```

```
@WebMethod(operationName = "convertEuro")
public double convertEuro(@WebParam(name = "dollar")
double dollar) {
    return dollar*EURO;
}

/**
 * Web service operation
 */
@WebMethod(operationName = "convertPound")
public double convertPound(@WebParam(name = "dollar")
double dollar) {
    return dollar*POUND;
}

/**
 * Web service operation
 */
@WebMethod(operationName = "convertYen")
public double convertYen(@WebParam(name = "dollar")
double dollar) {
    return dollar*YEN;
}

/**
 * Web service operation
 */
@WebMethod(operationName = "convertCDNDollar")
public double convertCanDollar (@WebParam(name = "dollar")
double dollar) {
    return dollar*CDN_DOLLAR;
}

private static final double POUND = .56094;
private static final double EURO = .7061;
private static final double CDN_DOLLAR = 1.06957;
private static final double YEN = 106.386;
```

Running the Server

```
<!--
  Published by JAX-WS RI at http://jax-ws.dev.java.net. RI's version is JAX-WS RI 2.1.2-b05-RC1.
-->
<!--
  Generated by JAX-WS RI at http://jax-ws.dev.java.net. RI's version is JAX-WS RI 2.1.2-b05-RC1.
-->
<definitions targetNamespace="http://currency.thiseye.com" name="CurrencyConverterService">
  <types>
    <xsd:schema>
      <xsd:import namespace="http://currency.thiseye.com" schemaLocation="http://localhost:8084/CurrencyConverter/CurrencyConverter?xsd=1"/>
    </xsd:schema>
  </types>
  <message name="convertEuro">
    <part name="parameters" element="tns:convertEuro"/>
  </message>
  <message name="convertEuroResponse">
    <part name="parameters" element="tns:convertEuroResponse"/>
  </message>
  <message name="convertPound">
    <part name="parameters" element="tns:convertPound"/>
  </message>
  <message name="convertPoundResponse">
    <part name="parameters" element="tns:convertPoundResponse"/>
  </message>
  <message name="convertYen">
    <part name="parameters" element="tns:convertYen"/>
  </message>
  <message name="convertYenResponse">
    <part name="parameters" element="tns:convertYenResponse"/>
  </message>
  <message name="convertCDNDollar">
    <part name="parameters" element="tns:convertCDNDollar"/>
  </message>
  <message name="convertCDNDollarResponse">
    <part name="parameters" element="tns:convertCDNDollarResponse"/>
  </message>
  <portType name="CurrencyConverter">
    <operation name="convertEuro">
      <input message="tns:convertEuro"/>
      <output message="tns:convertEuroResponse"/>
    </operation>
    <operation name="convertPound">
      <input message="tns:convertPound"/>
      <output message="tns:convertPoundResponse"/>
    </operation>
    <operation name="convertYen">
      <input message="tns:convertYen"/>
      <output message="tns:convertYenResponse"/>
    </operation>
    <operation name="convertCDNDollar">
      <input message="tns:convertCDNDollar"/>

```

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5:
ent

```
<binding name="CurrencyConverterPortBinding" type="tns:CurrencyConverter">
  <soap:binding transport="http://schemas.xmlsoap.org/soap/http" style="document"/>
  <operation name="convertEuro">
    <soap:operation soapAction=""/>
    <input>
      <soap:body use="literal"/>
    </input>
    <output>
      <soap:body use="literal"/>
    </output>
  </operation>
  <operation name="convertPound">
    <soap:operation soapAction=""/>
    <input>
      <soap:body use="literal"/>
    </input>
    <output>
      <soap:body use="literal"/>
    </output>
  </operation>
  <operation name="convertYen">
    <soap:operation soapAction=""/>
    <input>
      <soap:body use="literal"/>
    </input>
    <output>
      <soap:body use="literal"/>
    </output>
  </operation>
  <operation name="convertCDNDollar">
    <soap:operation soapAction=""/>
    <input>
      <soap:body use="literal"/>
    </input>
    <output>
      <soap:body use="literal"/>
    </output>
  </operation>
</binding>
<service name="CurrencyConverterService">
  <port name="CurrencyConverterPort" binding="tns:CurrencyConverterPortBinding">
    <soap:address location="http://localhost:8084/CurrencyConverter/CurrencyConverter"/>
  </port>
</service>
</definitions>
```

Create the Client

- New Project > Java Application
 - New > Web Service Client

New Web Service Client

Steps

1. Choose File Type
2. **WSDL and Client Location**

WSDL and Client Location

Specify the WSDL file of the Web Service.

Project:

Local File:

WSDL URL:

Specify a location for the client.

Project:

Package:

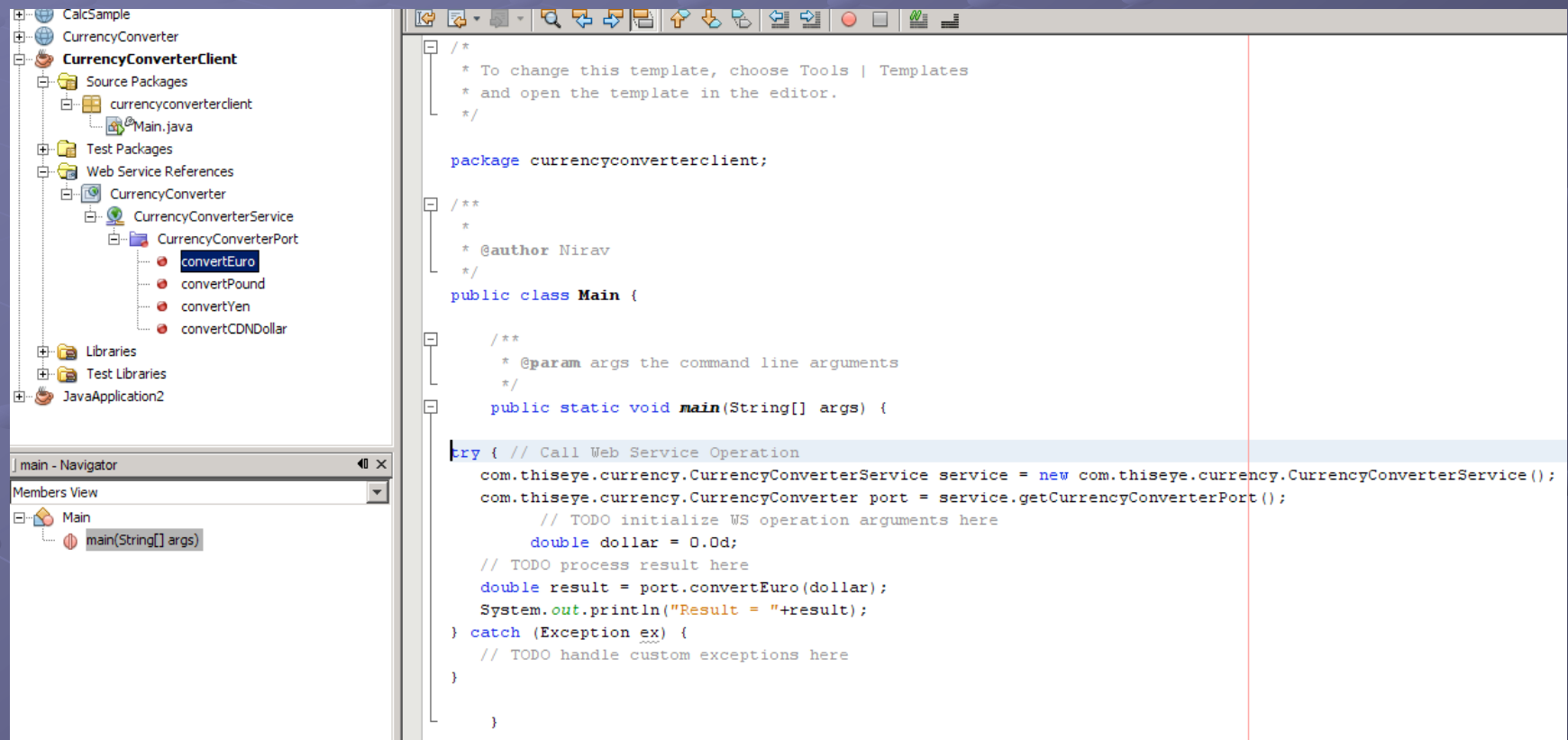
Client Style:

Generate Dispatch code

✘ Enter the URL of the service you wish to use.

Consuming the Web Service

● Drag & Drop



```
/*
 * To change this template, choose Tools | Templates
 * and open the template in the editor.
 */

package currencyconverterclient;

/**
 *
 * @author Nirav
 */
public class Main {

    /**
     * @param args the command line arguments
     */
    public static void main(String[] args) {

        try { // Call Web Service Operation
            com.thiseye.currency.CurrencyConverterService service = new com.thiseye.currency.CurrencyConverterService();
            com.thiseye.currency.CurrencyConverter port = service.getCurrencyConverterPort();
            // TODO initialize WS operation arguments here
            double dollar = 0.0d;
            // TODO process result here
            double result = port.convertEuro(dollar);
            System.out.println("Result = "+result);
        } catch (Exception ex) {
            // TODO handle custom exceptions here
        }

    }

}
```

Final Client Code

```
*/
public class Main {

    /**
     * @param args the command line arguments
     */
    public static void main(String[] args) {

        try { // Call Web Service Operation
            com.thiseye.currency.CurrencyConverterService service =
                new com.thiseye.currency.CurrencyConverterService();
            com.thiseye.currency.CurrencyConverter port =
                service.getCurrencyConverterPort();

            double dollars = Double.valueOf(args[0]);

            DecimalFormat dec = new DecimalFormat("#.###");

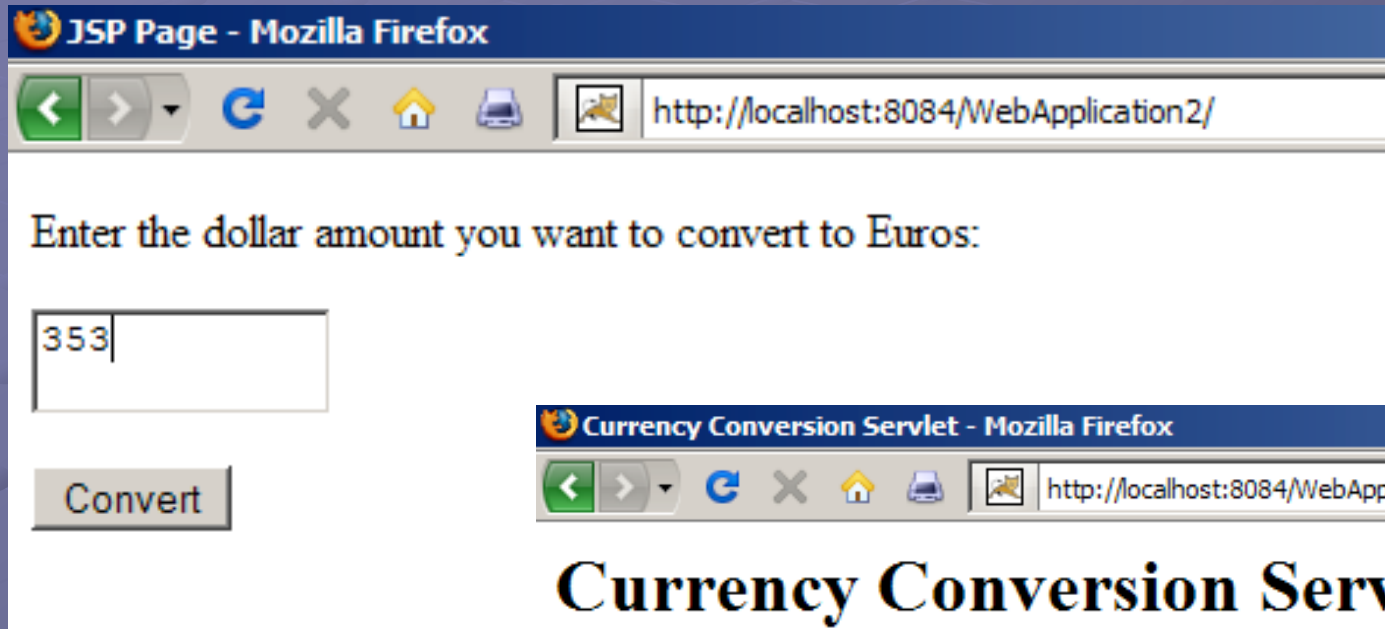
            System.out.println(dec.format(port.convertEuro(dollars)) + " Euros");
            System.out.println(dec.format(port.convertPound(dollars)) + " Pounds");
            System.out.println(dec.format(port.convertCDNDollar(dollars)) + " Canadian Dollars");
            System.out.println(dec.format(port.convertYen(dollars)) + " Yen");
        }
        catch (Exception ex) {
            System.out.println("Exception: " + ex);
        }
    }
}
```


Bringing it all together

```
C:\Documents and Settings\Nirav\My Documents\NetBeansProjects\CurrencyConverterClient\build\classes>java currencyconverterclient/Main 27  
19.06 Euros  
15.15 Pounds  
28.88 Canadian Dollars  
2872.42 Yen
```

```
C:\Documents and Settings\Nirav\My Documents\NetBeansProjects\CurrencyConverterClient\build\classes>
```

... or make it web-based



JSP Page - Mozilla Firefox

http://localhost:8084/WebApplication2/

Enter the dollar amount you want to convert to Euros:

Convert



Currency Conversion Servlet - Mozilla Firefox

http://localhost:8084/WebApplication2/ClientServlet

Currency Conversion Servlet

\$353 = 249.25 Euros
\$353 = 37554.26 Yen
\$353 = 377.56 Canadian Dollars
\$353 = 198.01 Pounds

Questions?

