



# Simple, Open, Affordable BPEL

**Burr Sutter**  
**July 2009**



# Project Riftsaw: Available Today

- [www.jboss.org/riftsaw](http://www.jboss.org/riftsaw)
- Based on Apache Ode engine
  - [ode.apache.org](http://ode.apache.org)
- Eclipse-based Tools via JBoss Tools
  - Eclipse Galileo Java EE Edition
- Focus on WS-BPEL 2.0
  - Ode also has BPEL4WS 1.1



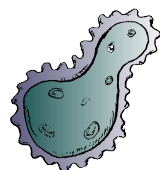
Galileo Packages (based on Eclipse 3.5) - [Compare Packages](#)



### Eclipse IDE for Java EE Developers (189 MB)

Tools for Java developers creating Java EE and Web applications, including a Java IDE, tools for Java EE, JPA, JSF, Mylyn and others. [More...](#)

Downloads: 464,749



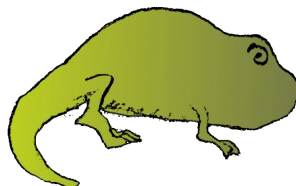
Service?



Enabled  
Via  
Java  
.NET



ESB



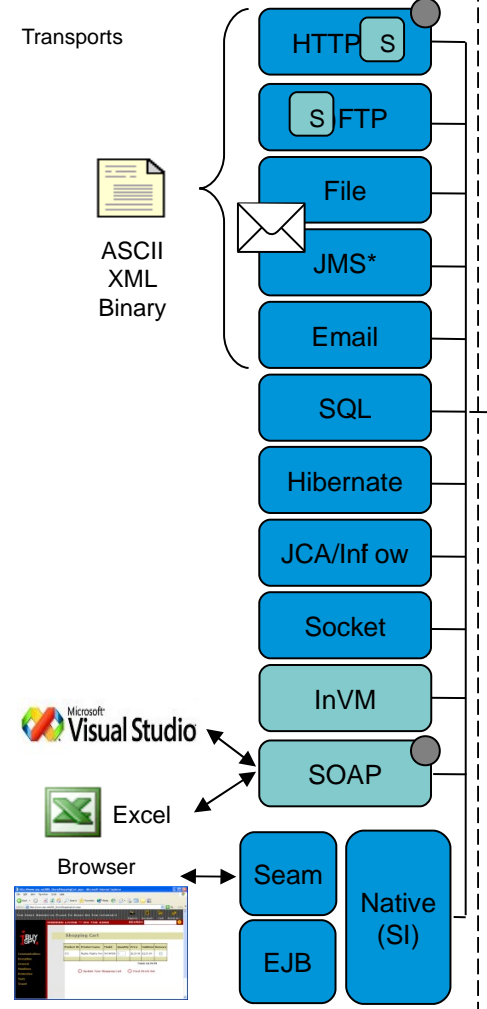
XML  
WSDL  
XPath  
XSD



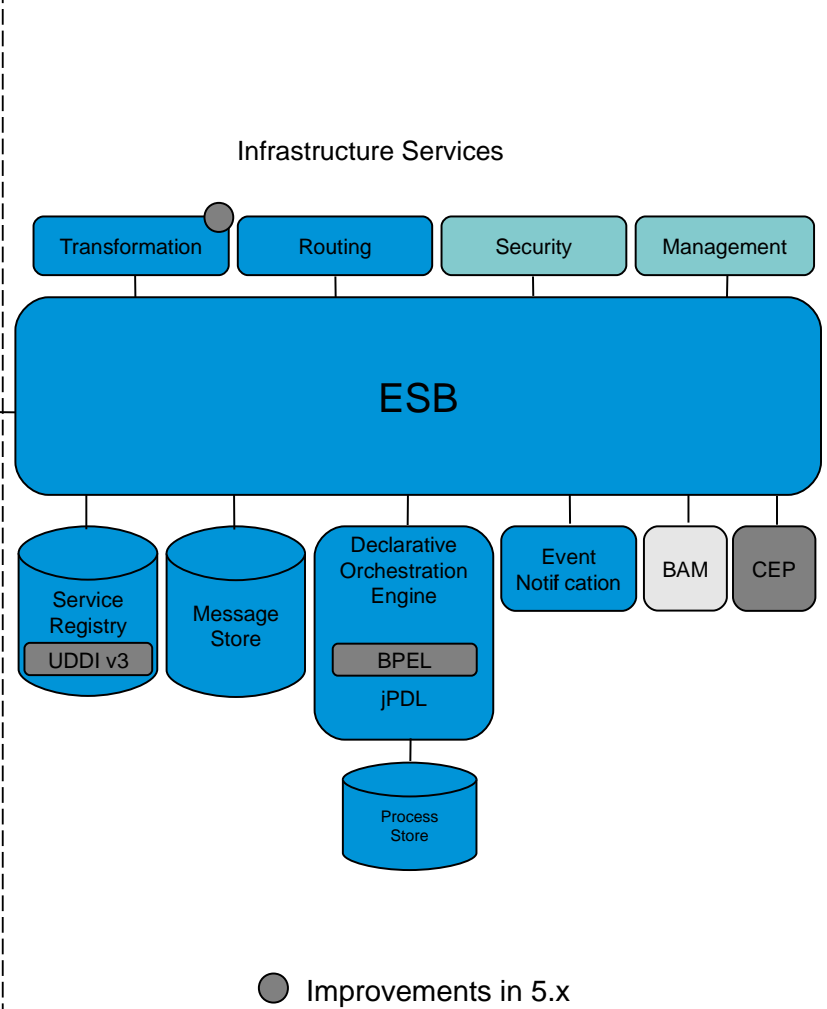
BPEL



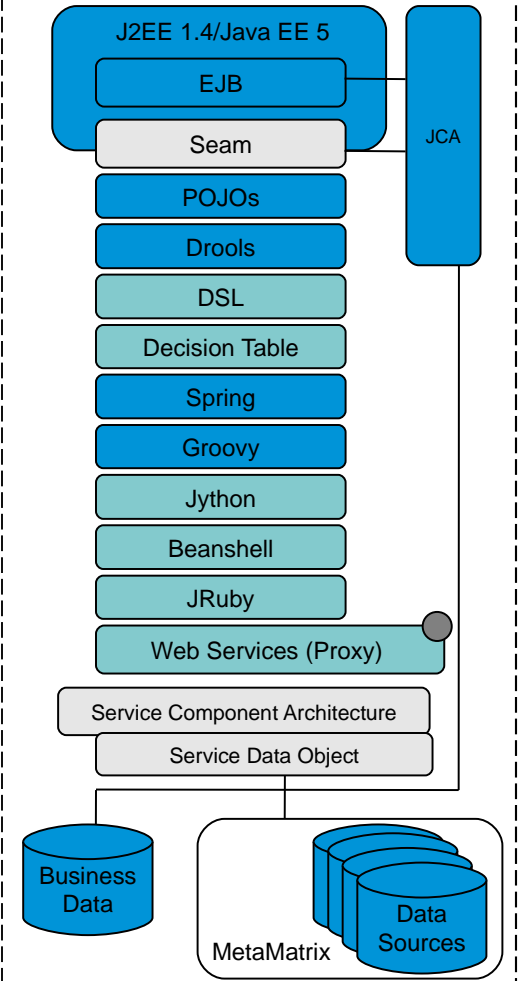
Event Listeners and Actions provide transport mediation



Pluggable Architecture for integrating infrastructure mediation services



Business Services runs within a container or standalone

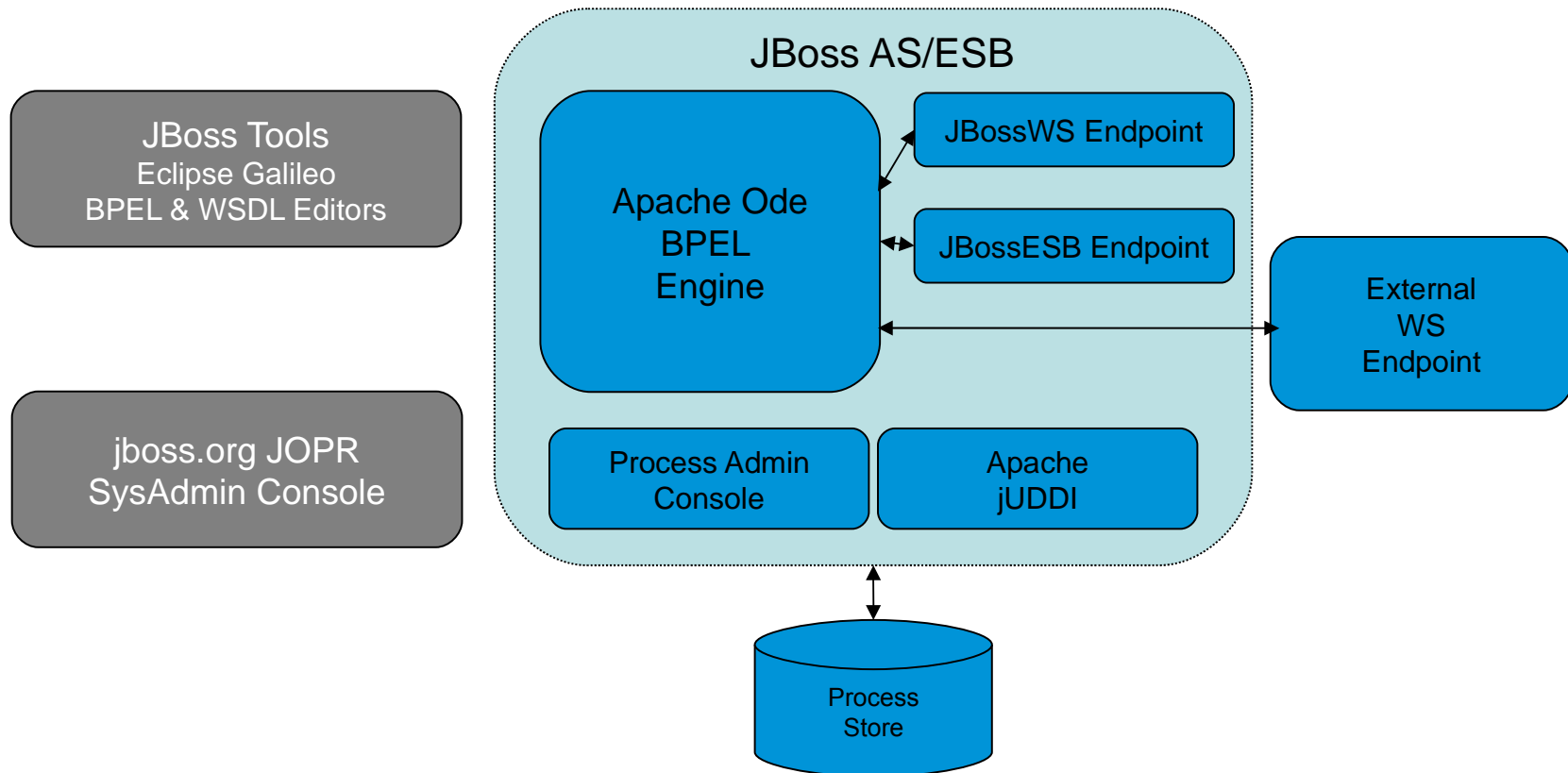


JMS\* - JBoss Messaging, IBM WebsphereMQ, TIBCO EMS

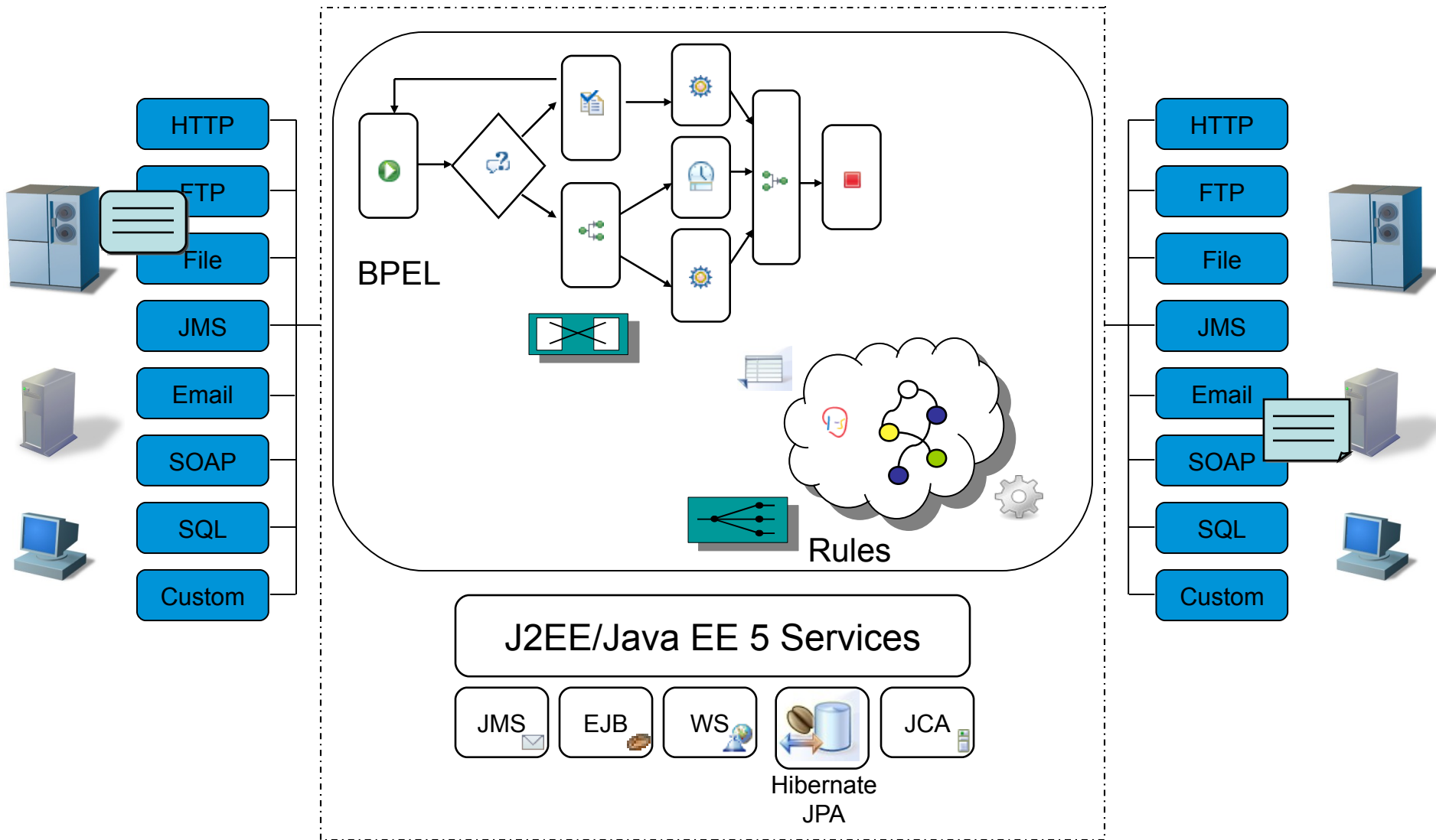


- + JBoss Hot Deployment
- + Admin Console
- + Examples
- + JBoss WS/Apache CXF
- + UDDI

# Major Components



# ESB+BPEL+Rules+EE Scenario



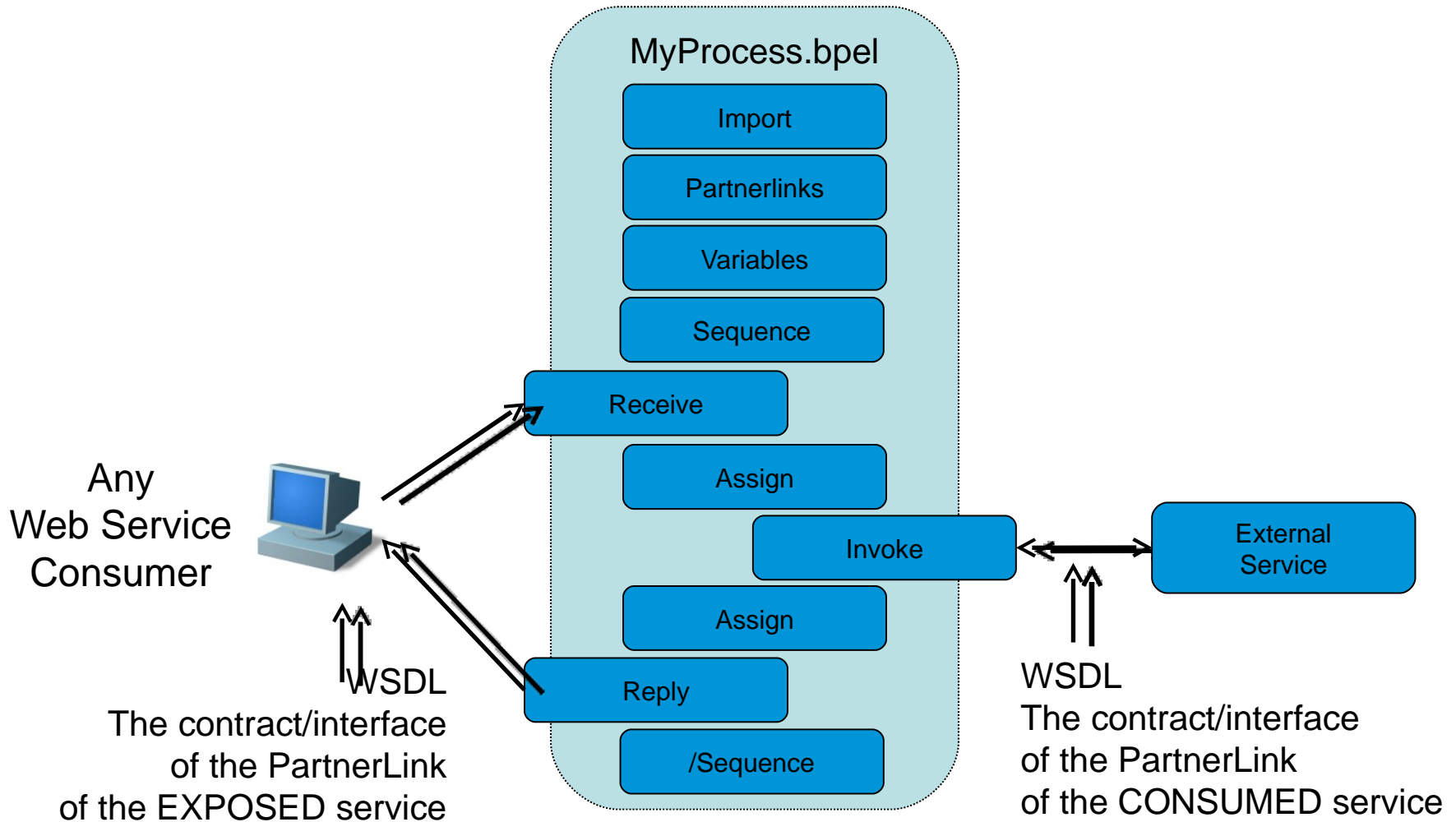


# BPEL Getting Started Recipe

1. Download jboss.org AS 5.1
2. Download jboss.org Riftsaw
3. Download soapUI
4. Unzip Riftsaw
5. Update  
riftsaw-2.0-M1\install\deployment.properties
6. “ant deploy” in install directory  
creates riftsaw.sar in AS deploy directory
7. “ant deploy”  
in samples\quickstarts\hello\_world
8. AS\bin\run.sh/run.bat
9. Hit: <http://localhost:8080/bpel/processes/helloWorld?wsdl>
10. Test with soapUI



# Simple BPEL Process Structure





# BPEL Helloworld Part 1

```
<process name="HelloWorld"
  targetNamespace="http://www.jboss.org/bpel/examples"
  xmlns="http://docs.oasis-open.org/wsbpel/2.0/process/executable"
  xmlns:tns="http://www.jboss.org/bpel/examples"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:intf="http://www.jboss.org/bpel/examples/wsdl"
  queryLanguage="urn:oasis:names:tc:wsbpel:2.0:sublang:xpath2.0"
  expressionLanguage="urn:oasis:names:tc:wsbpel:2.0:sublang:xpath2.0">
  <import location="HelloWorld.wsdl"
    namespace="http://www.jboss.org/bpel/examples/wsdl"
    importType="http://schemas.xmlsoap.org/wsdl/" />
  <partnerLinks>
  <partnerLink name="helloPartnerLink"
    partnerLinkType="intf:HelloPartnerLinkType" myRole="me" />
  </partnerLinks>
  <variables>
  <variable name="myVar" messageType="intf:HelloMessage"/>
  <variable name="mesgVar" type="xsd:string"/>
  </variables>
```



# BPEL Helloworld Part 2

```
<sequence>
  <receive name="start"
    partnerLink="helloPartnerLink" portType="intf:HelloPortType"
    operation="hello" variable="myVar" createInstance="yes"/>
  <assign name="assignHelloMesg">
    <copy> <from variable="myVar" part="TestPart"/>
      <to variable="mesgVar"/> </copy>
    <copy> <from>concat($mesgVar, ' World')</from>
      <to variable="myVar" part="TestPart"/> </copy>
  </assign>
  <reply name="end"
    partnerLink="helloPartnerLink" portType="intf:HelloPortType"
    operation="hello" variable="myVar"/>
</sequence>
</process>
```



# Demo One



# Ode WS-BPEL 2.0 Enhancements

- **Failure & Recovery**
- **XPath 2.0**
- **Implicit Correlations**
- **External Variables**
- **Headers Handling**
- **Iterable ForEach**
- **Flexible Assigns**

<http://ode.apache.org/bpel-extensions.html>

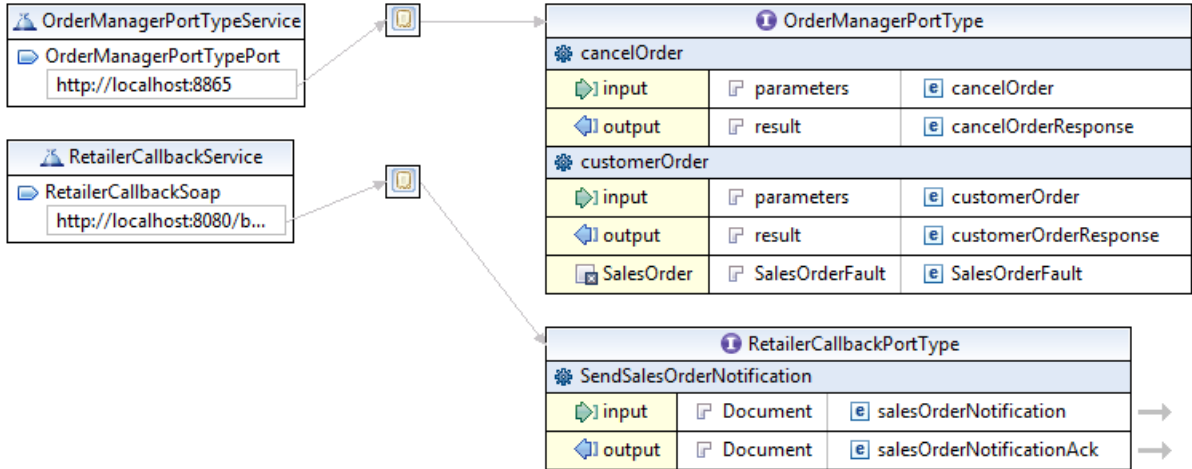
# JBoss® Tools – BPEL Editor

The screenshot displays the JBoss Tools BPEL Editor interface. The main workspace shows a BPEL process diagram for "OrderProcess.bpel". The process starts with a "Sequence" activity containing "ReceiveCustomerOrder", "AssignDataForNormalReply", and "AcknowledgeReceiptOfOrder". This is followed by another "Sequence" activity containing "AssignDataForSalesOrder", "CreateSalesOrder", "WaitForNotificationFromOrderManager", "AssignDataForOrderManagerAcknowledgement", "AcknowledgeOrderManager", "AssignDataForShipOrder", "ShipOrder", and "AssignDataForOrderConfirmation".

The interface includes several panels:

- Palette:** Contains various BPEL activities and tools such as Selection Tool, Marquee Tool, Empty, Invoke, Receive, Reply, Opaque Activity, Assign, Control2, If, Pick, While, For Each, Repeat Until, Wait, Exit, Throw, Rethrow, Compensate, CompensateSc..., Zoom In, and Zoom Out.
- Outline:** Shows the structure of the BPEL process, including Partner Links (Customer, OrderManager, Shipper), Variables, Correlation Sets, Message Exchanges, and Flow (Sequence, ReceiveCustomerOrder, AssignDataForNormalReply, AcknowledgeReceiptOfC).
- Properties:** Shows the properties for the selected "ReceiveCustomerOrder" activity, including Partner Link (Customer) and Operation (SubmitOrder).
- Quick Pick:** A list of available activities and variables for the selected activity, including Customer, RetailerPortType, SubmitOrder, OrderManager, RetailerCallbackPortType, and SendSalesOrderNotification.

OrderProcess.bpel | BPELRetailer.wsdl | Customer.wsdl | OrderManager.wsdl



**OrderManagerPortTypeService**  
OrderManagerPortTypePort  
http://localhost:8865

**RetailerCallbackService**  
RetailerCallbackSoap  
http://localhost:8080/b...

**OrderManagerPortType**

cancelOrder			
input	parameters	e	cancelOrder
output	result	e	cancelOrderResponse

**customerOrder**

input	parameters	e	customerOrder
output	result	e	customerOrderResponse
SalesOrder	SalesOrderFault	e	SalesOrderFault

**RetailerCallbackPortType**

SendSalesOrderNotification			
input	Document	e	salesOrderNotification
output	Document	e	salesOrderNotificationAck

**Outline**

- Imports
- Types
  - http://org.jboss.esb/quickst...
- Services
  - RetailerCallbackService
  - OrderManagerPortTypeServi...
- Bindings
  - RetailerCallbackSoap
  - OrderManagerPortTypeBind...
- Port Type
  - OrderManagerPortType
  - RetailerCallbackPortType
- Messages
  - OrderManagerPortType\_cus...
  - SendSalesOrderNotificationF...
  - OrderManagerPortType\_can...
  - SendSalesOrderNotificationF...
  - OrderManagerPortType\_cus...
  - SalesOrderFault
  - OrderManagerPortType\_can...

Design | Source

Problems | Javadoc | Declaration | Properties

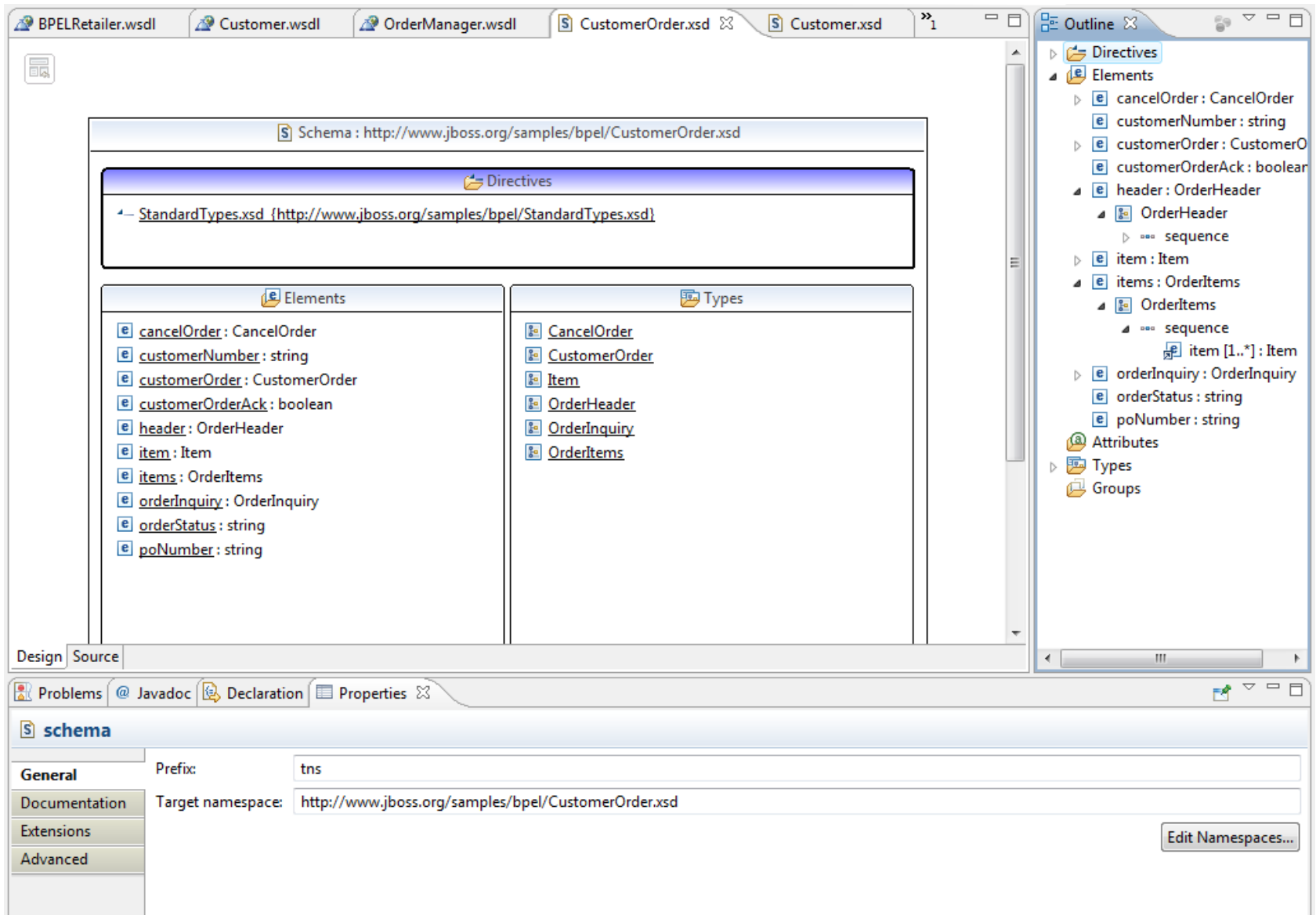
**Messages**

**General** Name: OrderManagerPortTypeService

**Documentation** Prefix: tns

**Extensions** Target namespace: http://org.jboss.esb/quickstarts/bpel/ABI\_OrderManager

Advanced...



The screenshot displays the JBoss Schema Editor interface for editing a BPEL schema file. The main workspace shows the schema structure with a 'Directives' section containing a reference to 'StandardTypes.xsd' and two panels: 'Elements' and 'Types'. The 'Elements' panel lists various elements like 'cancelOrder: CancelOrder', 'customerNumber: string', and 'header: OrderHeader'. The 'Types' panel lists types like 'CancelOrder', 'CustomerOrder', and 'OrderHeader'. On the right, an 'Outline' pane provides a hierarchical view of the schema's structure. At the bottom, a 'Properties' pane shows the 'General' information for the schema, including the prefix 'tns' and the target namespace 'http://www.jboss.org/samples/bpel/CustomerOrder.xsd'.

Schema: <http://www.jboss.org/samples/bpel/CustomerOrder.xsd>

Directives

- StandardTypes.xsd (<http://www.jboss.org/samples/bpel/StandardTypes.xsd>)

Elements

- cancelOrder: CancelOrder
- customerNumber: string
- customerOrder: CustomerOrder
- customerOrderAck: boolean
- header: OrderHeader
- item: Item
- items: OrderItems
- orderInquiry: OrderInquiry
- orderStatus: string
- poNumber: string

Types

- CancelOrder
- CustomerOrder
- Item
- OrderHeader
- OrderInquiry
- OrderItems

Outline

- Directives
- Elements
  - cancelOrder: CancelOrder
  - customerNumber: string
  - customerOrder: CustomerOrder
  - customerOrderAck: boolean
  - header: OrderHeader
    - OrderHeader
      - sequence
  - item: Item
  - items: OrderItems
    - OrderItems
      - sequence
        - item [1..\*]: Item
  - orderInquiry: OrderInquiry
  - orderStatus: string
  - poNumber: string
- Attributes
- Types
- Groups

Design Source

Problems Javadoc Declaration Properties

schema

General Prefix: tns

Documentation Target namespace: <http://www.jboss.org/samples/bpel/CustomerOrder.xsd>

Extensions

Advanced

Edit Namespaces...





# Demo Two

- **Tools, Tools, Tools**
- **Examples**
- **Documentation**
- **JBossWS/CXF**
- **Publish endpoints in UDDI**
- **GWT-based Process Admin Console**
- **Robust Process Versioning**
- **Tested within a JBoss AS Cluster**

<http://www.jboss.org/riftsaw/roadmap.html>

- <http://www.jboss.org/riftsaw>
- **Riftsaw Forums**
- **WS-BPEL Primer:**  
<http://docs.oasis-open.org/wsbpel/2.0/Primer/wsbpel-v2.0-Primer.pdf>
- **WS-BPEL 2.0 Specification:**  
<http://docs.oasis-open.org/wsbpel/2.0/OS/wsbpel-v2.0-OS.html>
- **Apache Ode**  
<http://ode.apache.org/>



# How YOU can help

- **Download and give it a try, TODAY!**
- **Develop more examples**
- **Help improve the documentation**
- **BPEL “best practices”**
- **Integration Tests (based on examples)**
- **Filing a bug and/or feature enhancement in Jira**
- **Tweet & Blog**
- **Participate in the [jboss.org](http://jboss.org) forums**



**WE WANT YOU!**



# Questions



# JBoss World 2009



## LEARN. NETWORK. EXPERIENCE OPEN SOURCE.

The Red Hat Summit and JBoss World are for anyone interested in Red Hat and open source solutions. Meet, network with, and learn from Red Hat and JBoss developers and executives as well as your peers in the industry. Attend sessions, workshops, and hands-on labs in multiple tracks to find new ways to improve your business, and hear from Red Hat about the technology you'll have tomorrow.

## TWO EVENTS. ONE PASS. MORE VALUE.

For the first time, we'll be hosting the Summit and JBoss World together. No matter which event you choose to register for, whether it is the Red Hat Summit or JBoss World, your conference pass will allow you to access anything and everything included in both events, such as sessions, keynotes, exhibitors and parties. Tracks for both events include: Carving out Costs, Open Source for IT Leaders, Decoding the Code, What's Next and What's New.

REGISTER NOW ▶ [redhat.com/summit](http://redhat.com/summit) ▶ [jbossworld.com](http://jbossworld.com)

Presented by

