



IMS Database Web Service Generation

Enabling IMS Data in a Service Oriented Architecture

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ON DEMAND BUSINESS™ = *Make it happen now*

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The State of the Modern Business World

- The *Speed of Business* is rapidly increasing
 - Must respond to market changes **more quickly**
 - Must respond to market changes **more cheaply**

- Business environments are becoming more distributed
 - Assets and business information need to be accessible from everywhere

- Business environments are becoming more complex
 - It seems developers need to know **EVERYTHING** in order to accomplish **ANYTHING**

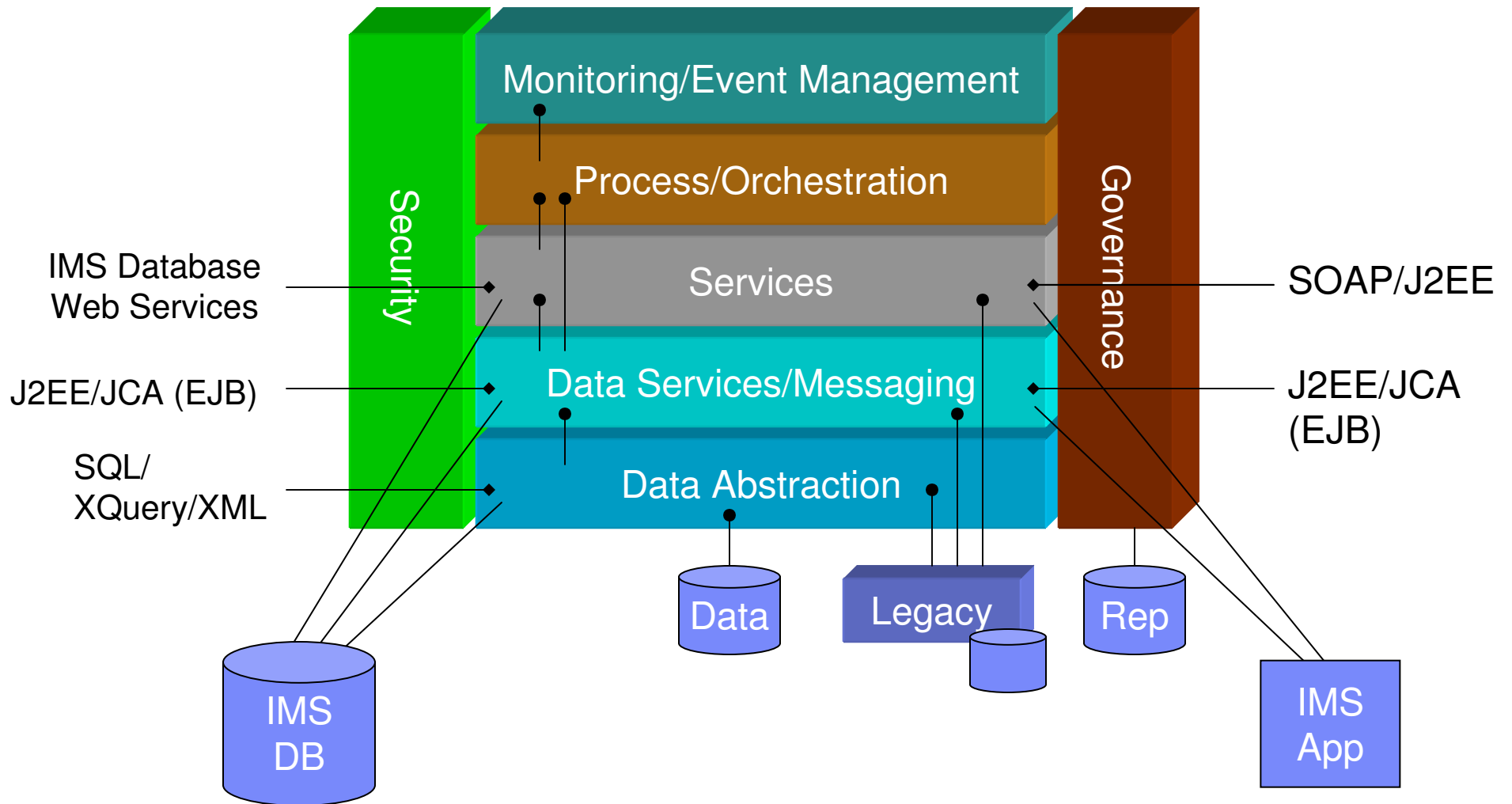
IMS and Service Oriented Architecture

- Software architecture **guidelines**
 - Defining the use of **loosely coupled** software services to support business processes
 - Resources made available as independent services
 - Services inter-operate based on a formal definition

- Directly addresses the challenges
 - Can help businesses respond **more quickly and cost-effectively** to changing market conditions
 - Promotes **reuse** at the service level rather than the object level
 - **Simplifies connection to and usage of existing IT assets**

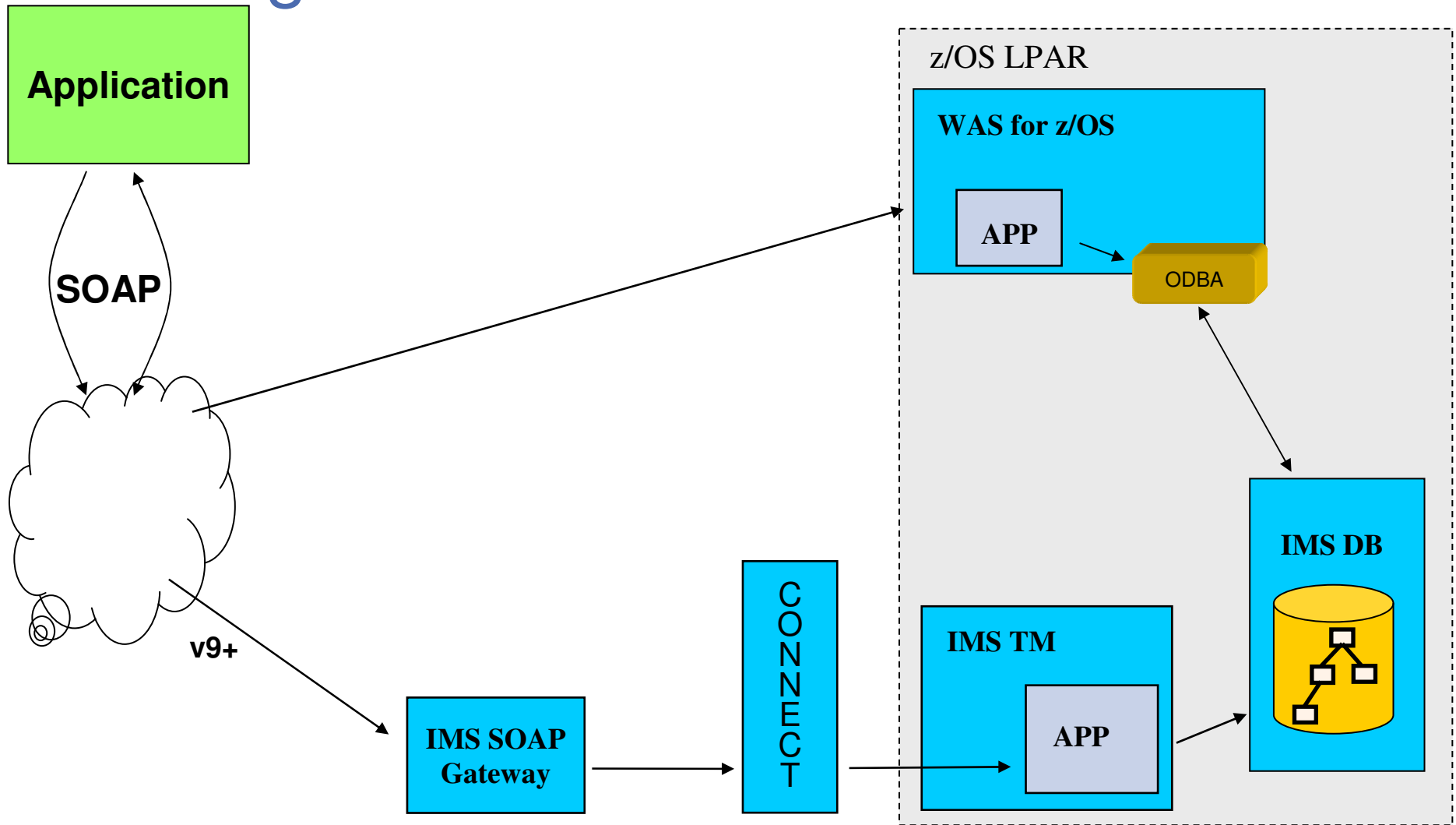
- Key point
 - **Independent services** with **defined interfaces** that are invoked in a **standard way**

Service Oriented Architecture Model

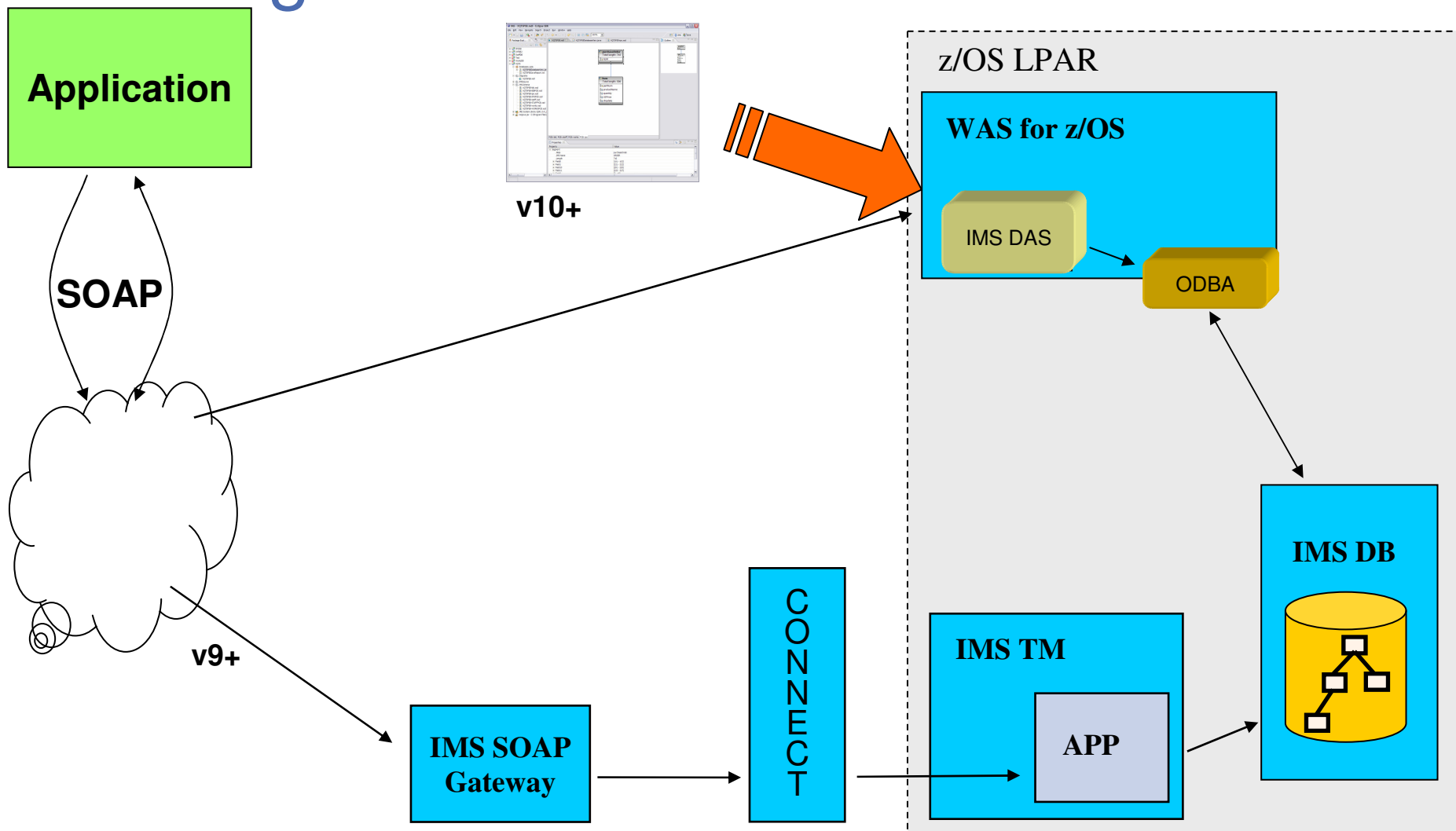


Source: Linthicum Group

Enabling IMS data for SOA



Enabling IMS data for SOA



Web Enabling IMS Data

- Something to handle the SOAP Stack
 - WebSphere z/OS (or SOAP Gateway)

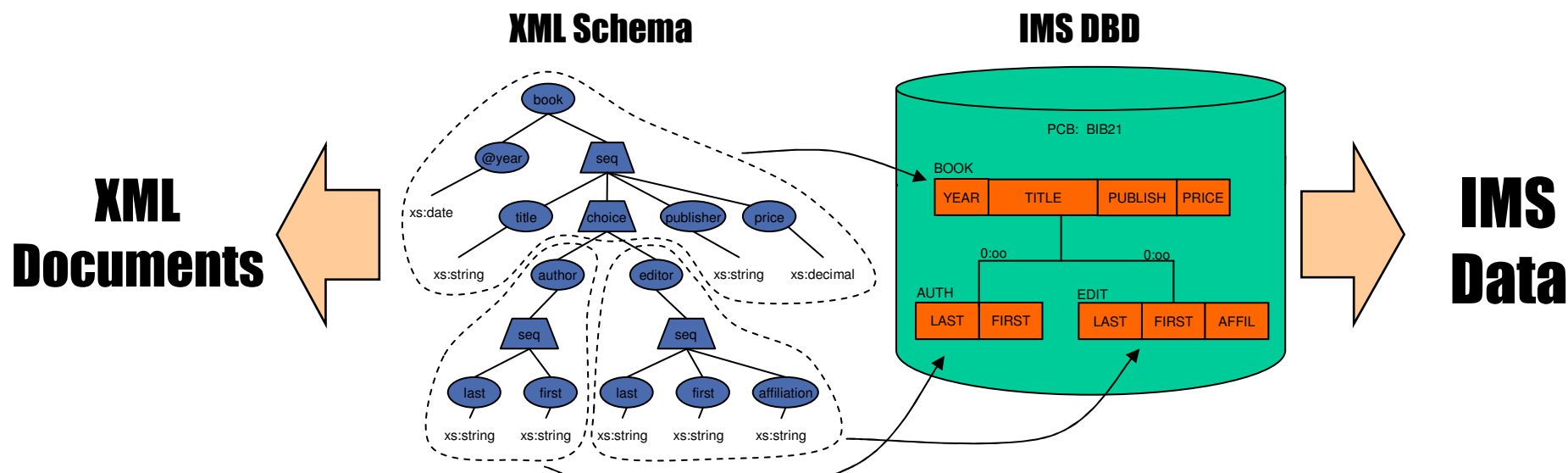
- Identify what to do (simple data operations)
 - RETRIEVE data
 - INSERT data
 - REPLACE data
 - DELETE data

- Identify which Data we are interested in
 - DLI (maybe SQL or even XQuery in the future)
 - Need for passed in parameters

- SOAP is XML in / XML out
 - XML Transformations
 - Simple Inbound parameters
 - A way to transform IMS Data into XML

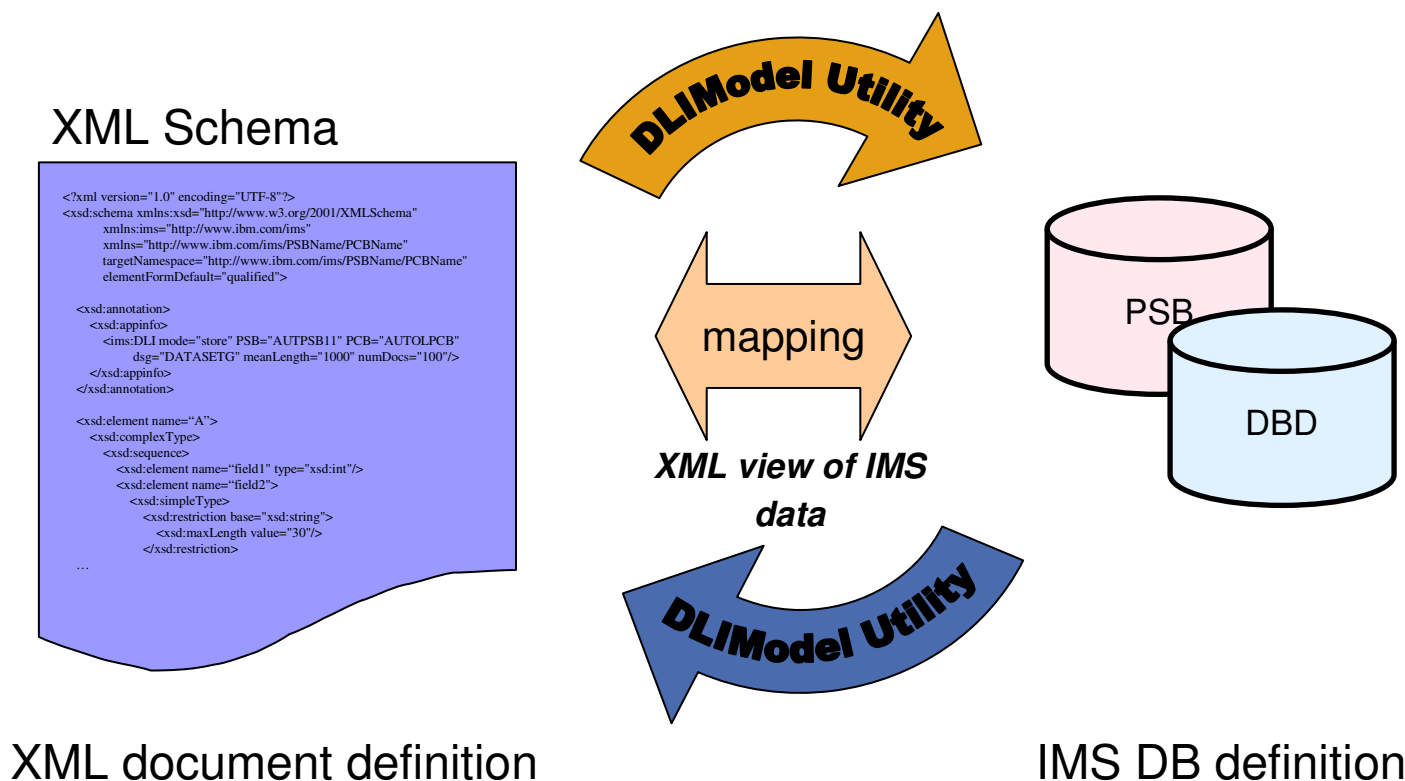
IMS XML Database

- Introduces a way to view/map *native* IMS hierarchical data to XML documents
- Aligns IMS Database (DBD) with XML Schema
- Allows the retrieval and storage of IMS Records as XML documents with ***no change*** to existing IMS databases



IMS XML-DB Metadata

- “Natural” mapping between hierarchic XML data and hierarchic IMS database definitions.



Sample IMS DB WS Configuration File

```

<Config name="Dealer" targetNamespace="http://my.DealerServices.com"
  xmlns="http://www.ibm.com/ims/sdo/config" xmlns:xsd="http://www.w3.org/2001/XMLSchema">

  <Command name="getSimpleDealer" kind="SELECT" ←
    psb="AUTPSB11" pcb="DEALER" dbView ="AUTPSB11DatabaseView" dra="SYS1">

    <!-- Parameters -->
    <Parameter name="city" type="xsd:string"/>

    <!-- Establish Position -->
    <DLI>
      <SSA name="DealerSegment">
        <qualifier field="DealerCity" operator="EQ"><param name="city"/></qualifier>
      </SSA>
    </DLI>

    <!-- Define what to Return -->
    <xsd:import namespace="http://www.ibm.com/ims/AUTPSB11/Dealer" schemaLocation="AUTPSB11-Dealer.xsd"/>
    <return xmlns:dealer="http://www.ibm.com/ims/AUTPSB11/Dealer">
      <xsd:element ref="dealer:DealerSegment"/>
    </return>
  </Command>

</Config>

```

XML in

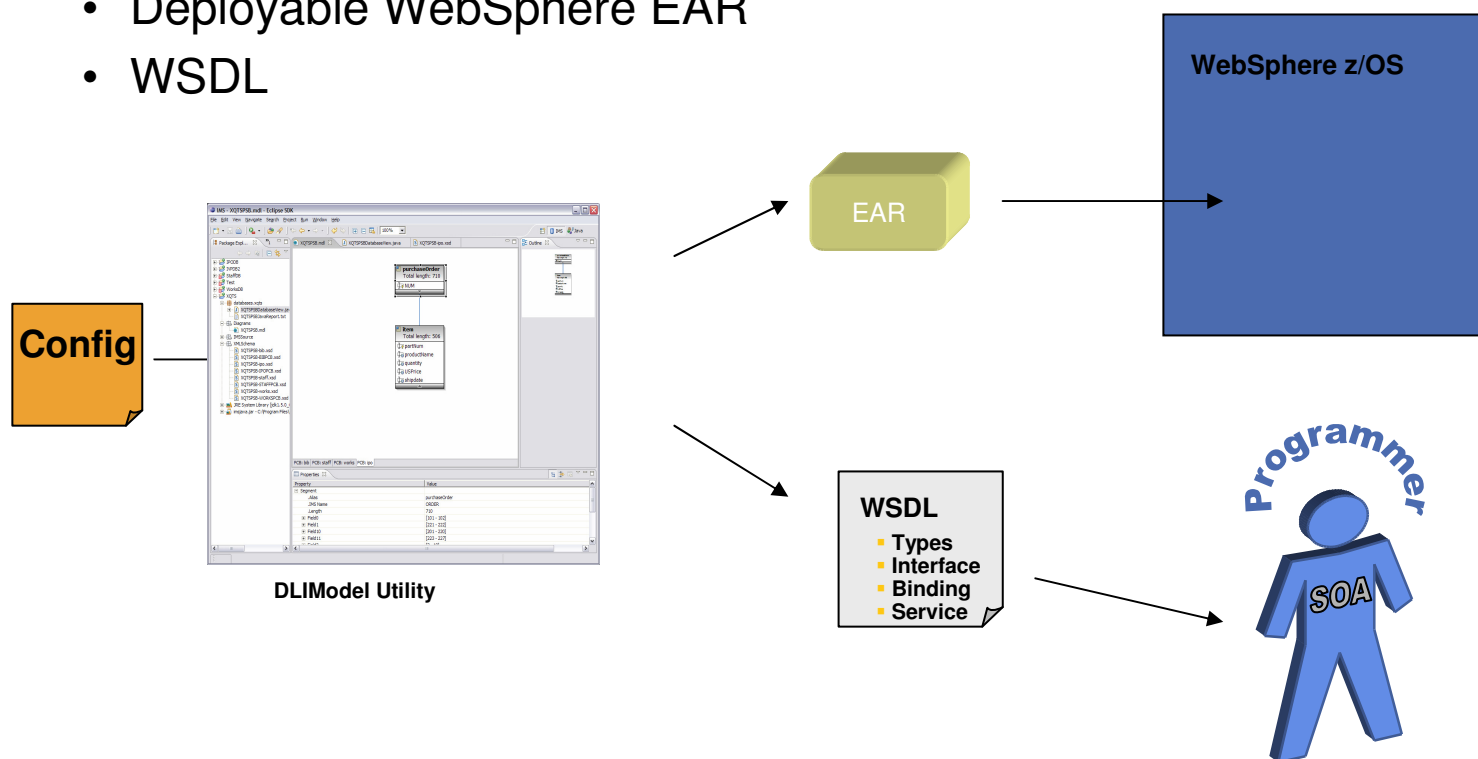
What
operation

Which
data

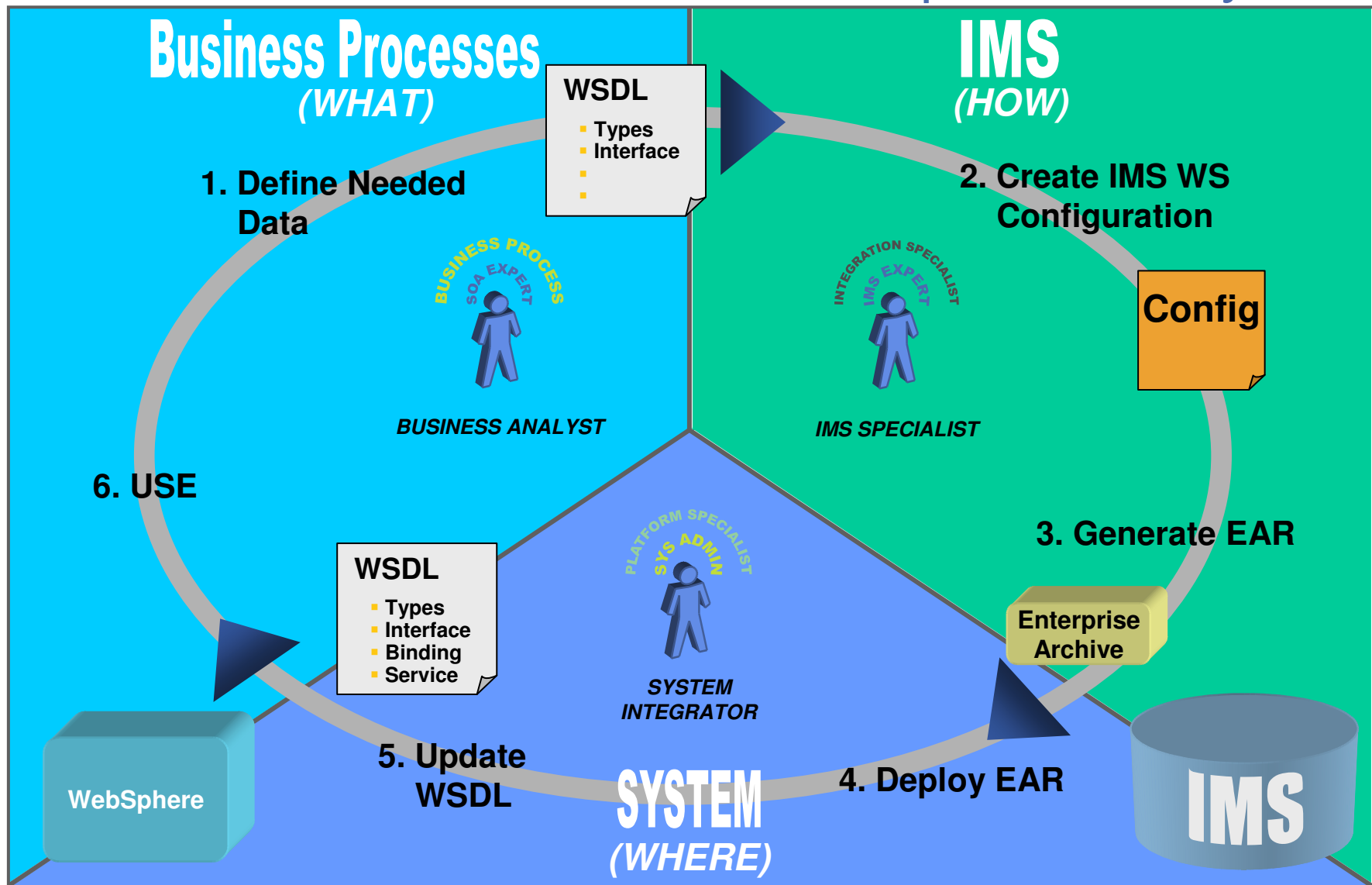
XML out

IMS Database Web Services

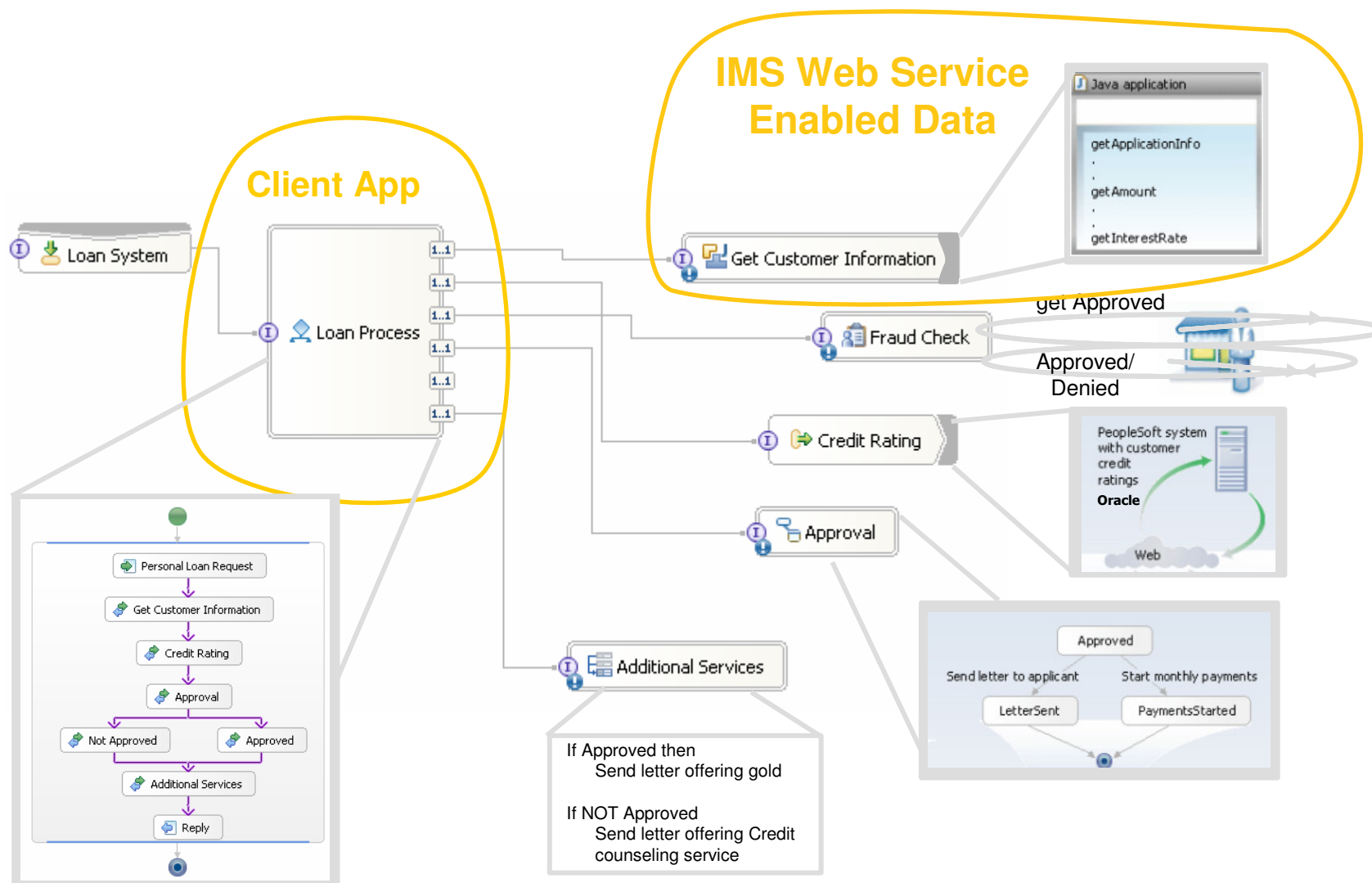
- Provides a way to *directly* enable IMS data as a web service
 - Without the need to write a proxy app
 - Tooling support automatically generates:
 - Deployable WebSphere EAR
 - WSDL



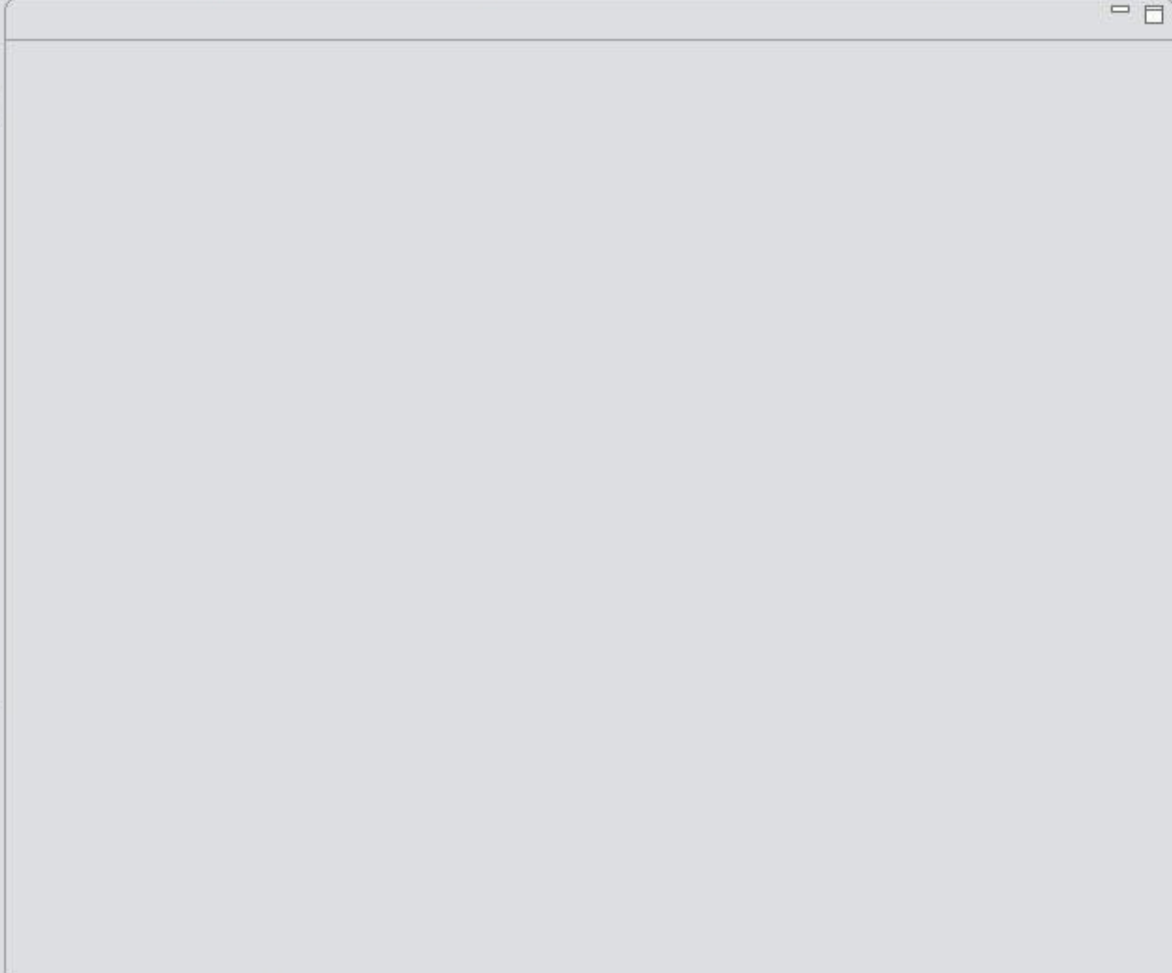
IMS Database Web Services Development Lifecycle



Use Case: WebSphere Process Server and IMS



- Package...
- Project ...
- .JETEmitters
- ALPHAWORKS
- AmEx
- base
- CommonUtil
- crs
- crsx
- crsx-jar
- Dealer
- DealerServices
- Dealership
 - dfdl
 - dom2-core-test
 - dom3-core-tests
 - exif
 - icu4j
 - ims
 - IMSConnectEmulator
- IMSDAS [holtz_IMSDataWebSer]
- IMSDASEJB
- IMSDASTest
- IMSDASToolbox [SDO_dev_strea]
- >imsemulator [cvs.opensource]
- IMSJava10 [holtz_IMSJava10]
- IMSJava9
- IMSJavaTest
- IMSSamples
- IMSSOAPDemo
- IMSSOAPHandler
- IMSTest
- IMXMLTestSuite
- IPurchaseOrder
- jtidy
- junite
- NameService



Outline

An outline is not available.

Properties Problems Console

Property	Value

Package Explorer

- .JET
- ALP
- AmE
- base
- Com
- crs
- crsx
- crsx
- Dea
- Dea
- Dea
- dfdl
- dom
- dom
- exif
- icu4
- ims
- IMS
- IMS
- IMS
- IMS
- IMS
- IMS
- >ims
- IMS
- IMS
- IMS
- IMSSamples
- IMSSOAPDemo
- IMSSOAPHandler
- IMSTest
- IMXMLTestSuite
- IPurchaseOrder
- jtidy
- junit
- NameService

New DLIModel Utility Project

Create a new DLIModel utility project.

Project name:

Java package:

Project contents

Use default

Directory:

IMS J2EE

Outline

An outline is not available.

Properties Problems Console

Property	Value

New DLIModel Utility Project

Import IMS PSB and DBD Source

Click Finish to open the IMS perspective or Next to update your PSB source.

PSB source
From directory: E:\databases\IPODB\SOURCE Browse...

- IPOACBGN
- IPODB
- IPODBDGN
- IPOJBP
- IPOJMP
- IPOLOAD
- IPOPSB
- IPOPSBGN
- IPOPSBL

DBD source
 Same directory as above
From directory: E:\databases\IPODB\SOURCE Browse...

- IPOACBGN
- IPODB
- IPODBDGN
- IPOJBP
- IPOJMP
- IPOLOAD
- IPOPSB
- IPOPSBGN
- IPOPSBL

< Back Next > Finish Cancel

IMS J2EE

Outline ✕

An outline is not available.

Package... Project ...

- icu4j
- ims
- IMSConnectEmulator
- IMSDAS [holtz_IMSDataWebServ
- IMSDASEJB
- IMSDASTest
- IMSDASToolbox [SDO_dev_strea
- >imsemulator [cvs.opensource
- IMSJava10 [holtz_IMSJava10]
- IMSJava9
- IMSJavaTest
- IMSSamples
- IMSSOAPDemo
- IMSSOAPHandler
- IMSTest
- IMXMLTestSuite
- IPurchaseOrder
- jtidy
- junit
- NameService
- poi
- PSBOS
- PurchaseOrder
 - (default package)
 - Diagrams
 - .IPOPSB
 - IPOPSB.mdl
- IMSSource
- IPOPSB
- XMLSchema
- JRE System Library [jdk1.5.0
- imsjava.jar - C:\Program File
- WebServices

IPOPSBDatabaseView.java IPOPSB.mdl

Project: PurchaseOrder || PSB Name: IPOPSB || DBD Name: IPODB || Java package: IPOPSB

ORDER
Total length: 710

- NUM [e]
- DATE [e]
- BNAME [e]
- BSTREET [e]
- BCITY [e]
- SNAME [e]
- SSTREET [e]
- SCITY [e]

ITEM
Total length: 506

- NUM [e]
- NAME [e]
- QUANTITY [e]
- PRICE [e]
- SHIPDATE [e]

IPOPCB

Outline

Properties Problems Console

Property	Value
Segment	
.Alias	ITEM
.IMS Name	ITEM
.Length	506



Package... Project ...

- IMSSOAPDemo
- IMSSOAPHandler
- IMSTest
- IMXMLTestSuite
- IPurchaseOrder
 - jtidy
 - junit
 - NameService
 - poi
 - PSBOS
 - PurchaseOrder
 - (default package)
 - Diagrams
 - .IPOPSB
 - IPOPSB.mdl
 - IMSSource
 - IPODB.dbd
 - IPODB.xml
 - IPOPSB.psb
 - IPOPSB.xmi
 - IPOPSB
 - XMLSchema
 - JRE System Library [jdk1.5.0]
 - imsjava.jar - C:\Program File
 - WebServices
 - .classpath
 - .project
 - Repository
 - sdo
 - sdo-apache
 - SDO-api [SDO_dev_stream]
 - sdo-interface
 - SDO-tuscany [SDO_dev_stream]

```

IPOPSBDatabaseView.java  IPOPSB.mdl  IPODB.dbd
-----*-----*
*
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*
* (C) Copyright IBM Corp. 1993, 2006. All Rights Reserved.
*
* US Government Users Restricted Rights - Use, duplication or
* disclosure restricted by GSA ADP Schedule Contract with IBM Corp
* The source code for this program is not published or otherwise
* divested of its trade secrets, irrespective of what has been
* deposited with the U.S. Copyright Office
*
*-----*-----*
*
*      DBD      NAME=IPODB,ACCESS=(PHIDAM,OSAM)
*
*      SEGM     NAME=ORDER,PARENT=0,BYTES=(710,260),PTR=TB
*      FIELD    NAME=(NUM,SEQ,U),BYTES=8,START=3,TYPE=X
*      FIELD    NAME=DATE,BYTES=10,START=11,TYPE=C
*      FIELD    NAME=BNAME,BYTES=30,START=21,TYPE=C
*      FIELD    NAME=BSTREET,BYTES=30,START=51,TYPE=C
*      FIELD    NAME=BCITY,BYTES=20,START=81,TYPE=C
*      FIELD    NAME=SNAME,BYTES=30,START=141,TYPE=C
*      FIELD    NAME=SSTREET,BYTES=30,START=171,TYPE=C
*      FIELD    NAME=SCITY,BYTES=20,START=201,TYPE=C
*
*      SEGM     NAME=ITEM,PARENT=ORDER,BYTES=(506,56),PTR=TB
*      FIELD    NAME=(NUM,SEQ,U).BYTES=6.START=3.TYPE=X
*

```

Outline

An outline is not available.

Properties Problems Console

Property	Value
Info	
derived	false
editable	true
last modified	5/19/08 3:11 PM

File Edit Source Refactor Navigate Search Project Data Run Window Help



IMS J2EE

Package... Project ...

- IMSSOAPDemo
- IMSSOAPHandler
- IMSTest
- IMXMLTestSuite
- IPurchaseOrder
 - jtidy
 - junit
 - NameService
 - poi
 - PSBOS
 - PurchaseOrder
 - (default package)
 - Diagrams
 - .IPOPSB
 - IPOPSB.mdl
 - IMSSource
 - IPODB.dbd
 - IPODB.xml
 - IPOPSB.psb
 - IPOPSB.xml
 - IPOPSB
 - IPOPSBDatabaseView.java
 - IPOPSBJavaReport.txt
 - XMLSchema
 - IPOPSB-IPOPCB.xsd
 - JRE System Library [jdk1.5.0]
 - imsjava.jar - C:\Program File
 - WebServices
 - .classpath
 - .project
 - Repository
 - sdo
 - sdo-apache

```
package IPOPSB;

import com.ibm.ims.db.*;
import com.ibm.ims.base.*;

public class IPOPSBDatabaseView extends DLIDatabaseView {

    // This class describes the data view of PSB: IPOPSB
    // PSB IPOPSB has database PCBs with 8-char PCBNAME or label:
    //     IPOPCB

    // The following describes Segment: ORDER ("ORDER") in PCB: IPOPCB
    static DLTypeInfo[] IPOPCBORDERArray= {
        new DLTypeInfo("NUM", DLTypeInfo.CHAR, 3, 8, "NUM", DLTypeInfo.CHAR),
        new DLTypeInfo("DATE", DLTypeInfo.CHAR, 11, 10, "DATE"),
        new DLTypeInfo("BNAME", DLTypeInfo.CHAR, 21, 30, "BNAME"),
        new DLTypeInfo("BSTREET", DLTypeInfo.CHAR, 51, 30, "BSTREET"),
        new DLTypeInfo("BCITY", DLTypeInfo.CHAR, 81, 20, "BCITY"),
        new DLTypeInfo("SNAME", DLTypeInfo.CHAR, 141, 30, "SNAME"),
        new DLTypeInfo("SSTREET", DLTypeInfo.CHAR, 171, 30, "SSTREET"),
        new DLTypeInfo("SCITY", DLTypeInfo.CHAR, 201, 20, "SCITY")
    };

    static DLISegment IPOPCBORDERSegment= new DLISegment
        ("ORDER", "ORDER", IPOPCBORDERArray, 710);

    // The following describes Segment: ITEM ("ITEM") in PCB: IPOPCB (
    static DLTypeInfo[] IPOPCBITEMArray= {
```

Outline

- IPOPSB
 - import declarations
 - IPOPSBDatabaseView
 - IPOPCBArray
 - IPOPCBITEMA
 - IPOPCBITEMS
 - IPOPCBORDEF
 - IPOPCBORDEF
 - IPOPSBDatabaseView

Properties Problems Console

Property	Value
Info	
derived	false
editable	true
last modified	5/19/08 3:12 PM

File Edit Source Navigate Search Project Data XSD Run Window Help

100%

Package... Project ...

IPOPSBDatabaseView... IPODB.dbd IPOPSB.psb IPOPSB-IPOPCB.xsd

Outline

- Elements
- Types

```
<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema"
            xmlns:ims="http://www.ibm.com/ims"
            xmlns="http://www.ibm.com/ims/IPOPSB/IPOPCB"
            targetNamespace="http://www.ibm.com/ims/IPOPSB/IPOPCB"
            elementFormDefault="qualified">

  <xsd:annotation>
    <xsd:appinfo>
      <ims:DLI version="2.0" mode="retrieve" topLevelElement="IPOPCB"/>
    </xsd:appinfo>
  </xsd:annotation>

  <!-- IPOPCB -->
  <xsd:element name="IPOPCB">
    <xsd:annotation>
      <xsd:appinfo>
        <ims:pcb name="IPOPCB" alias="IPOPCB"/>
      </xsd:appinfo>
    </xsd:annotation>
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element ref="ORDER" minOccurs="0" maxOccurs="unbounded"/>
      </xsd:sequence>
    </xsd:complexType>
  </xsd:element>

</xsd:schema>
```

Design Source

Properties Problems Console

General **S schema**

Documentation

Extensions

Prefix:

Target namespace:

Advanced...

Writable Smart Insert 2 : 1

File Edit View Navigate Search Project Data Run Window Help

IMS J2EE

Package... Project ...

IPOPSBDatabaseView... *IPOPSB.mdl IPOPSB.psb IPOPSB-IPOPCB.xsd

Project: PurchaseOrder PSB Name: IPOPSB DBD Name: IPODB Java package: IPOPSB

ORDER
Total length: 710

Edit Metadata Field

Modify information for the field you want to edit in the metadata.

IMS name: PRICE

Alias: PRICE XML node: element

Data type: PACKEDDECIMAL Type qualifier: S9(9)V99

Start (byte): 41 Length (bytes): 6

Finish Cancel

IM To

QUANTITY PRICE SHIPDATE

IPOPCB

Properties Problems Console

Property	Value
Field	
Alias	PRICE
Data type	CHAR
IMS name	PRICE

Package... Project ...

- IMSSOAPDemo
- IMSSOAPHandler
- IMSTest
- IMXMLTestSuite
- IPurchaseOrder
- jtidy
- junit
- NameService
- poi
- PSBOS
- PurchaseOrder
 - (default package)
 - Diagrams
 - .IPOPSB
 - IPOPSB.mdl
 - IMSSource
 - IPODB.dbd
 - IPODB.xmi
 - IPOPSB.psb
 - IPOPSB.xmi
 - IPOPSB
 - IPOPSBDatabaseView.ja
 - IPOPSBJavaReport.txt
 - XMLSchema
 - IPOPSB-IPOPCB.xsd
 - JRE System Library [jdk1.5.0
 - imsjava.jar - C:\Program File
 - WebServices
 - .classpath
 - .project
 - Repository
 - sdo
 - sdo-apache

IPOPSBDatabaseView... *IPOPSB.mdl IPOPSB.psb IPOPSB-IPOPCB.xsd

Project: PurchaseOrder PSB Name: IPOPSB DBD Name: IPODB Java package: IPOPSB

ORDER
Total length: 710

- NUM
- DATE
- billTo_Name
- BSTREET
- BCITY
- shipTo_Name
- SSTREET
- SCITY

ITEM
Total length: ...

- NUM
- NAME
- QUANTITY
- PRICE
- SHIPDATE

IPOPCB

- Undo Edit Field
- Redo
- Save
- Edit
- Import COBOL Fields
- Add Field**
- Print
- Expand All
- Collapse All
- Reset Layout
- Properties
- Trace Switch
- Preferences...
- Run As
- Debug As
- Profile As
- Validate
- Analysis
- Team
- Compare With
- Replace With
- Link Utilities

Outline

Properties

Property	Value
Segment	
.Alias	ORDER
.IMS Name	ORDER
.Length	710

IPOPSB.mdl - Rational Application Developer

File Edit Source Refactor View Navigate Search Project Data Run Window Help

IMS J2EE

Package... Project ...

IPurchaseOrder

- IMSSOAPDemo
- IMSSOAPHandler
- IMSTest
- IMXMLTestSuite
- IPurchaseOrder
 - (default package)
 - bin
 - Diagrams
 - .IPOPSB
 - .IPOPSBmodelu
 - IPOPSB.mdl**
 - IMSSource
 - test
 - test.ipo
 - XMLSchema
 - IPOPSB-IPOPCB.xsd
- JRE System Library [jdk1.5.0...]
- imsjava.jar - C:\Program File...
- WebServices
 - .classpath
 - .project
- jtidy
- junit
- NameService
- poi
- PSBOS
- PurchaseOrder
- Repository
- sdo
- sdo-apache
- SDO-api [SDO_dev_stream]
- sdo-interface
- SDO-tuscany [SDO_dev_stream]

Project: IPurchaseOrder || PSB Name: IPOPSB || DBD Name: IPODB || Java package: test.ipo

purchaseOrder
Total length: 710

- size
- orderNumber
- orderDate
- billTo_name
- billTo_street
- billTo_city
- billTo_state
- billTo_zip
- shipTo_name
- shipTo_street
- shipTo_city
- shipTo_state
- shipTo_zip
- comment

item
Total length: 506

- size

IPOPCB

Outline

Properties Problems Console

Property	Value
Info	
derived	false
editable	true
last modified	4/21/08 6:09 PM

IPOPSB.mdl - IPurchaseOrder/Diagrams

Package... Project ...

- IMSSOAPDemo
- IMSSOAPHandler
- IMSTest
- IMXMLTestSuite
- IPurchaseOrder
 - (default package)
 - bin
 - Diagrams
 - .IPOPSB
 - .IPOPSBmodelu
 - IPOPSB.mdl
 - IMSSource
 - test
 - test.ipo
 - XMLSchema
 - IPOPSB-IPOPCB.xsd
 - JRE System Library [jdk1.5.0...]
 - imsjava.jar - C:\Program File...
 - WebServices
 - .classpath
 - .project
 - jtidy
 - junit
 - NameService
 - poi
 - PSBOS
 - PurchaseOrder
 - Repository
 - sdo
 - sdo-apache
 - SDO-api [SDO_dev_stream]
 - sdo-interface
 - SDO-tuscany [SDO_dev_stream]

IPOPSB.mdl IPOPSB-IPOPCB.xsd

View: Simplified

Schema : http://www.ibm.com/ims/IPOPSB/IPOPCB

Elements	Types
<ul style="list-style-type: none">IPOPCBitempurchaseOrder	

Outline

- Elements
- Types

Design Source

Properties Problems Console

General **schema**

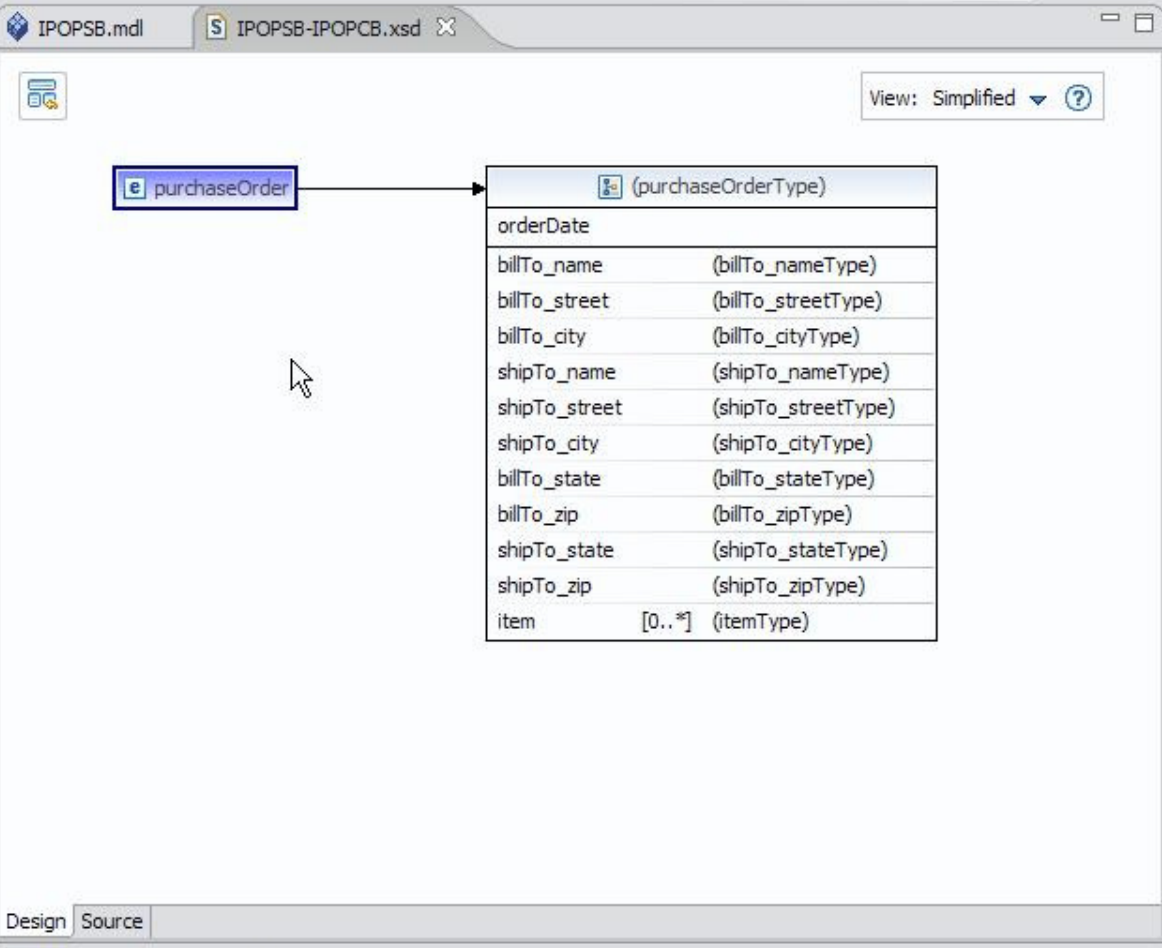
Documentation Prefix:

Extensions Target namespace:

Advanced...

Package... Project ...

- IMSSOAPDemo
- IMSSOAPHandler
- IMSTest
- IMXMLTestSuite
- IPurchaseOrder
 - (default package)
 - bin
 - Diagrams
 - .IOPSB
 - .IOPSBmodelu
 - IPOPSB.mdl
 - IMSSource
 - test
 - test.ipo
 - XMLSchema
 - IPOPSB-IPOPCB.xsd
 - JRE System Library [jdk1.5.0...]
 - imsjava.jar - C:\Program File...
 - WebServices
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 - Repository
 - sdo
 - sdo-apache
 - SDO-api [SDO_dev_stream]
 - sdo-interface
 - SDO-tuscany [SDO_dev_stream]



Outline

- Elements
- Types

Design Source

Properties Problems Console

General

element

Name: purchaseOrder

Type: **Anonymous**

Minimum Occurrence:

The screenshot shows an IDE window titled "Slide 59" and "IPPOPSB-IPOPCB.xsd - Rational Application Developer". A context menu is open over the "WebServices" folder in the left-hand Package Explorer. The menu items include "New IMS DB Web Service", "New", "Open in New Window", "Copy", "Copy Qualified Name", "Paste", "Delete", "Build Path", "Refactor", "Import...", "Export...", "Refresh", "Validate", "Analysis", "Run As", "Debug As", "Profile As", "Team", "Compare With", "Restore from Local History...", "Link Utilities", "Source", and "Properties".

The main editor area displays a table for the "purchaseOrderType" element. The table has the following structure:

purchaseOrderType	
orderDate	
billTo_name	(billTo_nameType)
billTo_street	(billTo_streetType)
billTo_city	(billTo_cityType)
shipTo_name	(shipTo_nameType)
shipTo_street	(shipTo_streetType)
shipTo_city	(shipTo_cityType)
billTo_state	(billTo_stateType)
billTo_zip	(billTo_zipType)
shipTo_state	(shipTo_stateType)
shipTo_zip	(shipTo_zipType)
item	[0..*] (itemType)

At the bottom of the IDE, the Properties view is open, showing the following information:

Property	Value
Info	
derived	false
editable	true
last modified	5/19/08 3:40 PM

New Web Service

Web Service

Create a new web service

Service name:

Namespace:

Finish Cancel

purchaseOrderType)		
	(billTo_nameType)	
	(billTo_streetType)	
	(billTo_cityType)	
	(shipTo_nameType)	
	(shipTo_streetType)	
	(shipTo_cityType)	
snipTo_city	(billTo_stateType)	
billTo_state	(billTo_zipType)	
billTo_zip	(shipTo_stateType)	
shipTo_state	(shipTo_zipType)	
shipTo_zip	(itemType)	[0..*]

- .IPOPSB
- .IPOPSBmodelu
- IPOPSB.mdl
- IMSSource
- test
- test.ipo
- XMLSchema
 - IPOPSB-IPOPCB.xsd
- JRE System Library [jdk1.5.0...]
- imsjava.jar - C:\Program File...
- WebServices
 - .classpath
 - .project
- jtidy
- junit
- NameService
- poi
- PSBOS
- PurchaseOrder
- Repository
- sdo
- sdo-apache

Design Source

Properties Problems Console

Property	Value
Info	
derived	false
editable	true
last modified	5/19/08 3:40 PM

File Edit Navigate Search Project Data Run Window Help

Package... Project... IPOPSB.mdl IPOPSB-IPOPCB.xsd *PurchaseOrderInfo.config Outline

- IMSJava9
- IMSJavaTest
- IMSSamples
 - IMSSOAPDemo
 - IMSSOAPHandler
 - IMSTest
 - IMXMLTestSuite
- IPurchaseOrder
 - (default package)
 - bin
 - Diagrams
 - .IPOPSB
 - .IPOPSBmodelu
 - IPOPSB.mdl
 - IMSSource
 - test
 - test.ipo
 - XMLSchema
 - IPOPSB-IPOPCB.xsd
 - JRE System Library [jdk1.5.0...]
 - imsjava.jar - C:\Program File...
 - WebServices
 - PurchaseOrderInfo
 - PurchaseOrderInfo.c...
 - .classpath
 - .project
- jtidy
- junit
- NameService
- poi
- PSBOS
- PurchaseOrder
- Repository
- sdo
- sdo-anache

```
<?xml version="1.0" encoding="UTF-8"?>  
<Config name="PurchaseOrderInfo" targetNamespace="http://www.ibm.com/P...  
< <cc></cc>  
</Con <Command name="" kind="" psb="" pcb="" dbView="" dra=  
<Config name="" targetNamespace="" xmlns="" xmlns:xsd=  
<DLI occurrences="" </DLI>  
<field name="" </field>  
<insert></insert>  
<Parameter name="" type="" />  
<param name="" />  
<qualifier field="" operator="" </qualifier >  
<segment name="" </segment>
```

Outline

- Config PurchaseOrder

Properties Problems Console

Property	Value
Info	
derived	false
editable	true
last modified	5/19/08 3:40 PM

Package Explorer

- IMSJava9
- IMSJavaTest
- IMSSamples
- IMSSOAPDemo
- IMSSOAPHandler
- IMSTest
- IMXMLTestSuite
- IPurchaseOrder
 - (default package)
 - bin
 - Diagrams
 - .IPOPSB
 - .IPOPSBmodelu
 - IPOPSB.mdl
 - IMSSource
 - test
 - test.ipa
 - XMLSchema
 - IPOPSB-IPOPCB.xsd
- JRE System Library [jdk1.5.0]
- imsjava.jar - C:\Program File
- WebServices
 - PurchaseOrderInfo
 - PurchaseOrderInfo.config
- .classpath
- .project
- jtidy
- junit
- NameService
- poi
- PSBOS
- PurchaseOrder
- Repository
- sdo
- sdo-anache

```
<?xml version="1.0" encoding="UTF-8"?>
<Config name="PurchaseOrderInfo" targetNamespace="http://www.ibm.com/P...
  <Command name="getPurchaseOrder" kind="SELECT" psb="IPOPSB" pcb="IPO...
    <Parameter name="orderNumber" type="xsd:string" />

    <DLI occurrences="1">
      <SSA name="purchaseOrder">
        <qualifier field="orderNumber" operator="EQ">
          <param name="orderNumber"/>
        </qualifier>
      </SSA>
    </DLI>

    <xsd:import schemaLocation="IPOPSB-IPOPCB.xsd" namespace="http:,
    <return xmlns:pcb="http://www.ibm.com/ims/IPOPSB/IPOPCB">
      <xsd:element ref="pcb:purchaseOrder" />
    </return>
  </Command>
</Config>
```

Outline

- Config PurchaseOrder
 - Command getPurc
 - Parameter orc
 - DLI
 - SSA purch
 - qualifi
 - pa
 - xsd:import IPC
 - return
 - xsd:eleme

Properties

Property	Value
Info	
derived	false
editable	true
last modified	5/19/08 3:42 PM

File Edit Navigate Search Project Data Run Window Help

Package... Project... IPOPSB.mdl IPOPSB-IPOPCB...

```
<?xml version="1.0" encoding="UTF-8" ?>
<Config name="PurchaseOrderInfo" psb="IPOPSB" pcb="IPOPCB" ?>
  <Command name="getPurchaseOrder" psb="IPOPSB" pcb="IPOPCB" ?>
    <Parameter name="purchaseOrderID" type="xsd:string" />
    <DLI occurrences="1" ?>
      <SSA name="purchaseOrder" ?>
        <qualifier name="purchaseOrderID" />
        <parameter name="purchaseOrderID" />
      </SSA>
    </DLI>
    <xsd:import schema="http://www.ibm.com/PurchaseOrderInfo/IPOPSB/IPOPCB.xsd" namespace="http://www.ibm.com/PurchaseOrderInfo/IPOPSB/IPOPCB" />
    <return xmlns:purchaseOrder="http://www.ibm.com/PurchaseOrderInfo/IPOPSB/IPOPCB" ?>
      <xsd:element name="purchaseOrder" type="purchaseOrderPurchaseOrder" />
    </return>
  </Command>
</Config>
```

Build Ctrl+B

Cut Ctrl+X

Copy Ctrl+C

Paste Ctrl+V

Shift Right

Shift Left

Add to Snippets...

Run As

Debug As

Profile As

Validate

Analysis

Team

Compare With

Replace With

Link Utilities

Preferences...

Outline

- Config PurchaseOrderInfo
- Command getPurchaseOrder
- Parameter purchaseOrderID
- DLI
- SSA purchaseOrder
- qualifier purchaseOrderID
- parameter purchaseOrderID
- xsd:import IPOPSB/IPOPCB.xsd
- return
- xsd:element purchaseOrder

Property	Value
Info	
derived	false
editable	true
last modified	5/19/08 3:50 PM

CommandMode: CommandBuffer = Empty

Writable Insert 19 : 10

Project Explorer showing a tree structure of packages and files:

- IMSJava9
 - IMSJavaTest
 - IMSSamples
 - IMSSOAPDemo
 - IMSSOAPHandler
 - IMSTest
 - IMXMLTestSuite
 - IPurchaseOrder
 - (default package)
 - bin
 - Diagrams
 - .IPOPSB
 - .IPOPSBmodelu
 - IPOPSB.mdl
 - IMSSource
 - test
 - test.ipso
 - XMLSchema
 - IPOPSB-IPOPCB.xsd
 - JRE System Library [jdk1.5.0_10]
 - imsjava.jar - C:\Program Files\IBM\St
 - WebServices
 - PurchaseOrderInfo
 - IPOPSB-IPOPCB.xsd
 - PurchaseOrderInfo.config
 - PurchaseOrderInfo.ear
 - PurchaseOrderInfo.wsdl
 - .classpath
 - .project
 - jtidy
 - junit
 - NameService
 - poi
 - PSBOS
 - PurchaseOrder

```

<?xml version="1.0" encoding="UTF-8"?>
<wsdl:definitions xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/" xm
<!--Types-->
<wsdl:types>
<xsd:schema targetNamespace="http://www.ibm.com/PurchaseOrderInfo"
<xsd:import xmlns="http://www.ibm.com/ims/das/config" schemaLocati
<xsd:element name="getPurchaseOrder">
<xsd:complexType>
<xsd:sequence>
<xsd:element name="orderNumber" type="xsd:string"/>
</xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="getPurchaseOrderResponse">
<xsd:complexType>
<xsd:sequence>
<xsd:element xmlns="http://www.ibm.com/ims/das/config" xmlns:pcb="
</xsd:sequence>
</xsd:complexType>
</xsd:element>
</xsd:schema>
</wsdl:types>
<!--Messages-->
<wsdl:message name="getPurchaseOrderRequest">
<wsdl:part name="parameters" element="getPurchaseOrder"/>
</wsdl:message>
<wsdl:message name="getPurchaseOrderResponse">
    
```

Outline view showing a tree structure of WSDL components:

- Imports
- Types
- Services
- Bindings
- Port Type
- Messages

Properties view for the selected WSDL element:

General

definition

Name:

Prefix:

File Edit Source Navigate Search Project Data WSDL Editor Run Window Help

Package Exp... Project Expl... IPOPSB-IPOPCB.xsd PurchaseOrderInfo... PurchaseOrderInfo... »1 Outline

View: Detailed ?

PurchaseOrderInfo			
getPurchaseOrder	parameters	getPurchaseOrder	→
getPurchaseOrderResponse	parameters	getPurchaseOrderResponse	→

Imports
Types
Services
Bindings
Port Type
Messages

Design Source

Properties Problems Console

General **definition**

Documentation Name:

Extensions Prefix:

Writable Smart Insert 1 : 1

Package Explorer

- IMSJava9
 - IMSJavaTest
 - IMSSamples
 - IMSSOAPDemo
 - IMSSOAPHandler
 - IMSTest
 - IMXMLTestSuite
 - IPurchaseOrder
 - (default package)
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 - .IOPSB
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 - IOPSB.mdl
 - IMSSource
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 - test.ipo
 - XMLSchema
 - IOPSB-IOPCB.xsd
 - JRE System Library [jdk1.5.0_10]
 - imsjava.jar - C:\Program Files\IBM\SI
 - WebServices
 - PurchaseOrderInfo
 - IOPSB-IOPCB.xsd
 - PurchaseOrderInfo.config
 - PurchaseOrderInfo.ear
 - PurchaseOrderInfo.wsdl
 - .classpath
 - .project
 - jtidy
 - junit
 - NameService
 - poi

Project Explorer

Inline Schema of ...

View: Simplified

(getPurchaseOrderResponseType)

purchaseOrder [0..1] (purchaseOrderType)

(purchaseOrderType)

orderDate	
billTo_name	(billTo_name)
billTo_street	(billTo_street)
billTo_city	(billTo_city)
shipTo_name	(shipTo_name)
shipTo_street	(shipTo_street)
shipTo_city	(shipTo_city)
billTo_state	(billTo_state)
billTo_zip	(billTo_zip)
shipTo_state	(shipTo_state)
shipTo_zip	(shipTo_zip)
item	[0..*] (itemType)

Design Source

Outline

- Elements
- Types

Properties

complexType

General

Name:

Inherit From:

Inherit By:

Integrated Solutions Console **Welcome**



View: All tasks

- Welcome
- Guided Activities
- Servers
- Applications
 - Enterprise Applications
 - Install New Application
- Resources
- Security
- Environment
- Services
- System administration
- Users and Groups
- Monitoring and Tuning
- Troubleshooting
- Service integration
- UDDI

Welcome

Welcome

Integrated Solutions Console provides a common administration console for multiple products. The table lists the product suites that can be administered through this installation. Select a product suite to view more information.

Suite Name	Version
WebSphere Application Server	6.1.0.9

About this Integrated Solutions Console

Integrated Solutions Console, 6.1.0.9
Build Number: cf90722.41
Build Date: 6/9/07

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View: All tasks

- Welcome
- Guided Activities
- Servers
- Applications
 - Enterprise Applications
 - Install New Application
- Resources
- Security
- Environment
- Services
- System administration
- Users and Groups
- Monitoring and Tuning
- Troubleshooting
- Service integration
- UDDI

Enterprise Applications

Close page

Enterprise Applications

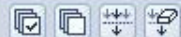
Help

Enterprise Applications

Use this page to manage installed applications. A single application can be deployed onto multiple servers.

Preferences

Start Stop Install Uninstall Update Rollout Update Remove File Export Export DDL



Select	Name	Application Status
<input type="checkbox"/>	DefaultApplication	➔
<input type="checkbox"/>	IBMUTC	➔
<input type="checkbox"/>	IMSDealershipEAR	➔
<input type="checkbox"/>	Warehouse	➔
<input type="checkbox"/>	ivtApp	➔
<input type="checkbox"/>	query	➔

Total 6

Field help
For field help, select a field marker with the cursor and click the field help icon.

Page help
[More info](#)
[this page](#)

Command
[View administrative action](#)



View: All tasks

- Welcome
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- UDDI

Enterprise Applications

Close page

Install New Application

Specify options for installing enterprise applications and modules.

Step 1: Select installation options

Step 2 Map modules to servers

Step 3 Provide JNDI names for beans

Step 4 Map resource references to resources

Step 5 Map virtual hosts for Web modules

Step 6 Summary

Select installation options

Specify the various options that are available to prepare and install your application.

Precompile JavaServer Pages files

Directory to install application

Distribute application

Use Binary Configuration

Deploy enterprise beans

Application name

Create MBeans for resources

Enable class reloading

Reload interval in seconds

Deploy Web services

Validate Input off/warn/fail

Process embedded configuration

File Permission

Field help
For field help informat select a field label or I marker when the help cursor appears.

Page help
[More information about this page](#)



View: All tasks

- Welcome
- Guided Activities
- Servers
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- Monitoring and Tuning
- Troubleshooting
- Service integration
- UDDI

Enterprise Applications

Close page

Install New Application

Help

Specify options for installing enterprise applications and modules.

Step 1 Select installation options

Step 2 Map modules to servers

→ Step 3: Provide JNDI names for beans

Step 4 Map resource references to resources

Step 5 Map virtual hosts for Web modules

Step 6 Summary

Provide JNDI names for beans

Each non-message-driven enterprise bean in your application or module must be bound to a Java Naming and Directory Interface (JNDI) name.

EJB module	EJB	URI	Target Resource JNDI Name
IMSDASEJB	IMSDAS	IMSDASEJB.jar,META-INF/ejb-jar.xml	<input type="text" value="PurchaseOrderInfo"/>

Previous Next Cancel

Field help
For field help in select a field list marker when the cursor appears.

Page help
[More information this page](#)



View: All tasks

- Welcome
- Guided Activities
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 - Install New Application
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- Troubleshooting
- Service integration
- UDDI

Step 5 Map virtual hosts for Web modules

Step 6 Summary

- if 'custom login configuration' is selected:
 - select a custom login configuration from the dropdown menu
 - Click Apply
 - To edit the properties of the custom login configuration, click Mapping Properties

Specify authentication method:

- None
- Use default method (many-to-one mapping)

Authentication data entry

Select...

- Use custom login configuration

Application login configuration

Select...

Apply

Select	Module	EJB	URI	Resource Reference	Target Resource JNDI Name
<input type="checkbox"/>	IMSDASEJB	IMSDAS	IMSDASEJB.jar,META-INF/ejb-jar.xml	imsDAS	imsDas

Previous Next Cancel



View: All tasks

- Welcome
- Guided Activities
- Servers
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- Users and Groups
- Monitoring and Tuning
- Troubleshooting
- Service integration
- UDDI

Enterprise Applications

Close page

Enterprise Applications

Messages

Application PurchaseOrderInfo on server server1 and node GoBlueNode02 started successfully.

Enterprise Applications

Use this page to manage installed applications. A single application can be deployed onto multiple servers.

Preferences

Start Stop Install Uninstall Update Rollout Update Remove File Export Export DDL

Icons for selection and actions

Select	Name	Application Status
<input type="checkbox"/>	DefaultApplication	➔
<input type="checkbox"/>	IBMUTC	➔
<input type="checkbox"/>	IMSDealershipEAR	➔
<input type="checkbox"/>	PurchaseOrderInfo	➔
<input type="checkbox"/>	Warehouse	➔
<input type="checkbox"/>	ivtApp	➔
<input type="checkbox"/>	query	➔

Total 7

Field help

Page help

Command

File Edit Navigate Search

Project Explorer

- IMSSOAPDemo
- IMSSOAPHandler
- IMSTest
- IMXMLTestSuite
- IPurchaseOrder
 - bin
 - Diagrams
 - IMSSource
 - test.ipo
 - XMLSchema
 - JRE System Library
 - imsjava.jar - C:\Pro
 - WebServices
 - PurchaseOrderI
 - IPOPSB-IPO
 - PurchaseOr
 - PurchaseOr
 - PurchaseOr
- jtidy
- junit
- NameService
- poi
- PSBOS
- PurchaseOrder
- Repository
- sdo
- sdo-apache
- SDO-api [SDO_dev_stream]
- sdo-interface
- SDO-tuscany [SDO_dev_stream]
- SDOCompanyTest
- SDOTestClientRPC
- SDOTestWSClient

Copy Qualified Name

Paste Ctrl+V

Delete Delete

Build Path

Refactor Alt+Shift+T

Import...

Export...

Refresh F5

Validate

Analysis

Run As

Debug As

Profile As

Team

Compare With

Replace With

Web Services

- Test with Web Services Explorer
- Publish WSDL file
- Generate Java bean skeleton
- Generate Client
- Generate WSIL

Link Utilities

Source

Generate

Properties Alt+Enter

Visualize

Enterprise Applications

WelcomeHelp | Logout

Enterprise Applications

Messages

Application PurchaseOrderInfo on server server started successfully.

Enterprise Applications

Test with Web Services Explorer

Publish WSDL file

Generate Java bean skeleton

Generate Client

Generate WSIL

Select	Name	Applicat
<input type="checkbox"/>	DefaultApplication	➔
<input type="checkbox"/>	IBMUTC	➔
<input type="checkbox"/>	IMSDealershipEAR	➔

Problems Tasks Properties Servers Database Explorer Snippets Console TCP/IP Monitor

WebSphere v6.1 Server _localhost (2) [WebSphere v6.1 Server] WebSphere v6.1 Server @ localhost (WebSphere v6.1)

```
[5/19/08 16:12:06:803 PDT] 0000001d SystemOut O WWS3576I: Info: Changed java name com.ibm.j
[5/19/08 16:12:06:803 PDT] 0000001d SystemOut O WWS3576I: Info: Changed java name PurchaseO
[5/19/08 16:12:06:850 PDT] 0000001d EJBContainerI I WSVR0057I: EJB jar started: IMSDASEJB.jar
[5/19/08 16:12:07:006 PDT] 0000001d WebGroup A SRVE0169I: Loading Web Module: PurchaseOrc
[5/19/08 16:12:09:396 PDT] 0000001d VirtualHost I SRVE0250I: Web Module PurchaseOrderInfoSer
[5/19/08 16:12:09:428 PDT] 0000001d ApplicationMg A WSVR0221I: Application started: PurchaseO
```

Navigator

- WSDL Main
 - file:/E:/eclipse/xq-stan/IPurchaseOrder/WebServ
 - PurchaseOrderInfo_Services
 - PurchaseOrderInfoSoapBinding
 - getPurchaseOrder**

Actions

Invoke a WSDL Operation [Source](#)

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

Endpoints

getPurchaseOrder

orderNumber string

Status

[Source](#)

getPurchaseOrderResponse

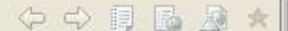
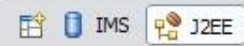
purchaseOrder

billTo_name (string): Stewart G. Griffin

i Status

[Source](#)

- ▼ getPurchaseOrderResponse
 - ▼ purchaseOrder
 - billTo_name (string): Stewart G. Griffin
 - billTo_street (string): 31 Spooner St.
 - billTo_city (string): Quahog
 - shipTo_name (string): Stewart G. Griffin
 - shipTo_street (string): 31 Spooner St.
 - shipTo_city (string): Quahog
 - billTo_state (string): RI
 - billTo_zip (string): 02913
 - shipTo_state (string): RI
 - shipTo_zip (string): 02913
 - ▼ item
 - productName (string): Crumpits
 - quantity (string): 8
 - price (decimal): 19.99
 - shipDate (string):
 - ▼ item
 - productName (string): World Domination Ray
 - quantity (string): 1



i Status

▼ SOAP Request Envelope:

```
<?xml version="1.0" encoding="UTF-8" ?>
- <soapenv:Envelope xmlns:q0="http://www.ibm.com/PurchaseOrderInfo"
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
  instance">
- <soapenv:Body>
  - <q0:getPurchaseOrder>
    <orderNumber>00000123</orderNumber>
  </q0:getPurchaseOrder>
  </soapenv:Body>
</soapenv:Envelope>
```

Form

▼ SOAP Response Envelope:

```
- <soapenv:Envelope xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
  instance">
  <soapenv:Header />
- <soapenv:Body>
  - <q0:getPurchaseOrderResponse xmlns:q0="http://www.ibm.com/PurchaseOrderInfo">
    - <purchaseOrder xmlns="http://www.ibm.com/ims/IPOPSB/IPOPCB" orderDate="2005-09-07">
      <billTo_name>Stewart G. Griffin</billTo_name>
      <billTo_street>31 Spooner St.</billTo_street>
      <billTo_city>Owensboro</billTo_city>
```

Summary

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- ▶ Replay this teleconference
- ▶ Replay previously broadcast teleconferences
- ▶ Register for upcoming events