E85

IMS Connector for Java: Developing Web Application for Accessing IMS Transactions

Haley Fung

Anaheim, California October 23 - 27, 2000

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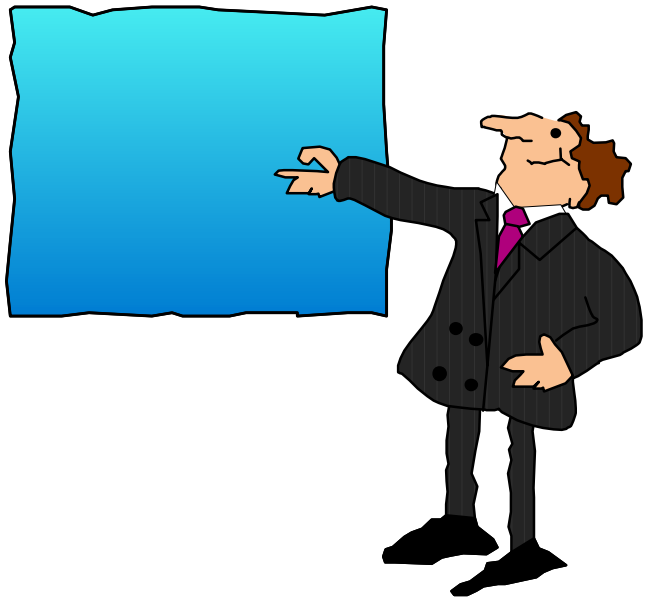
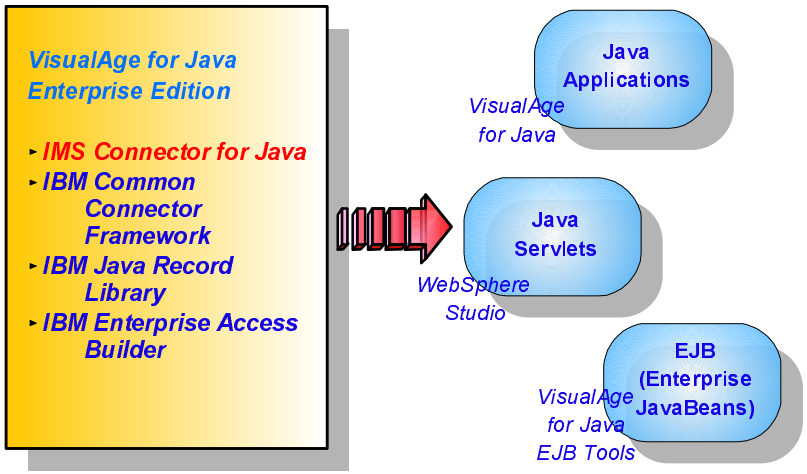
Agenda

- IMS Connector for Java
- Build, Test and Deploy a Web Application to access an IMS Transaction
- References

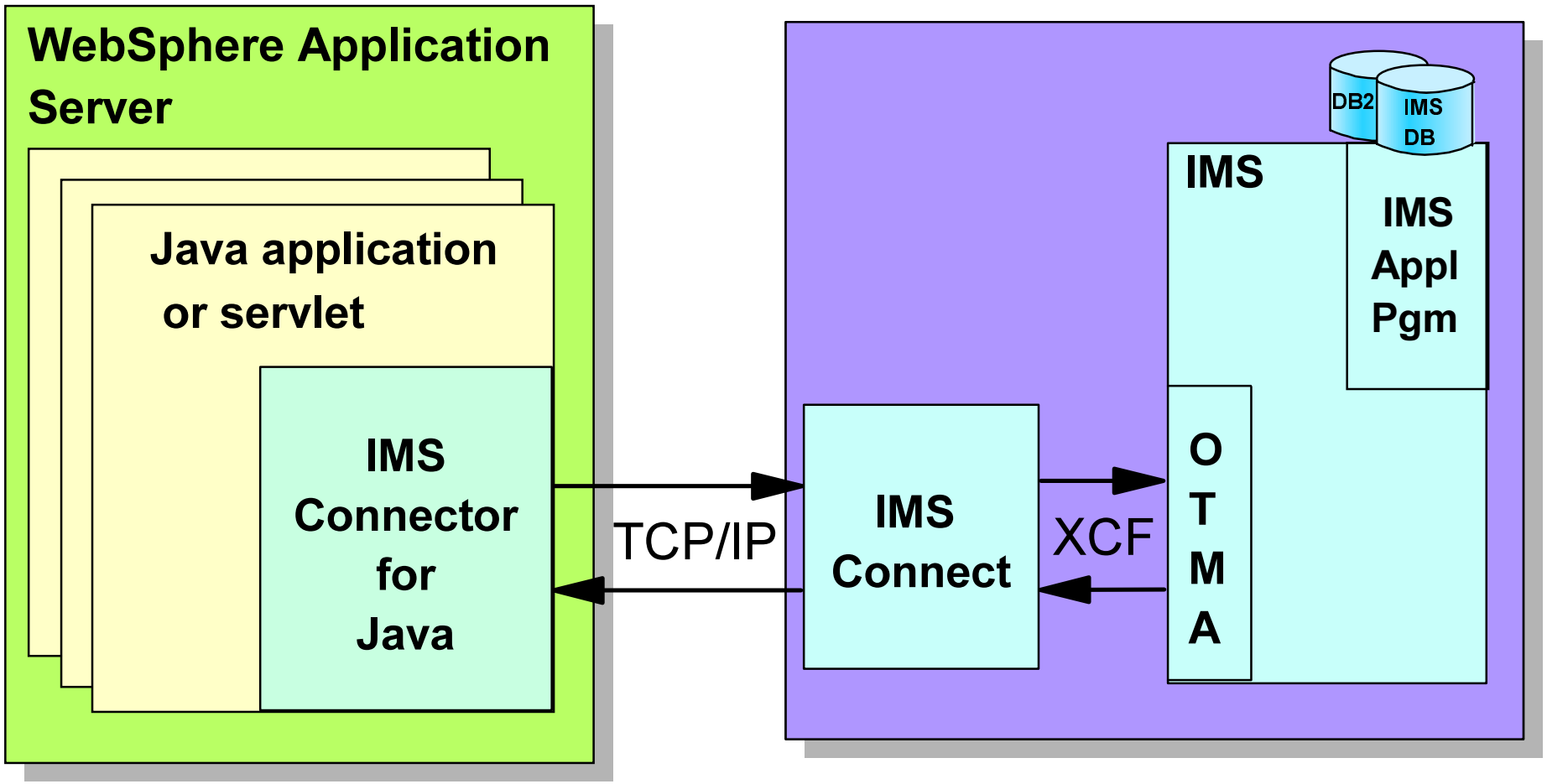


IMS Connector for Java

- One of the IBM e-business Connectors included in VisualAge for Java Enterprise Edition
- Allows Java applications and servlets to submit IMS transactions via IMS Connect
- Implements the Common Connector Framework architecture
- Consists of Java components and class libraries



IMS Connector for Java



Developing with IMS Connector

4 Easy Steps

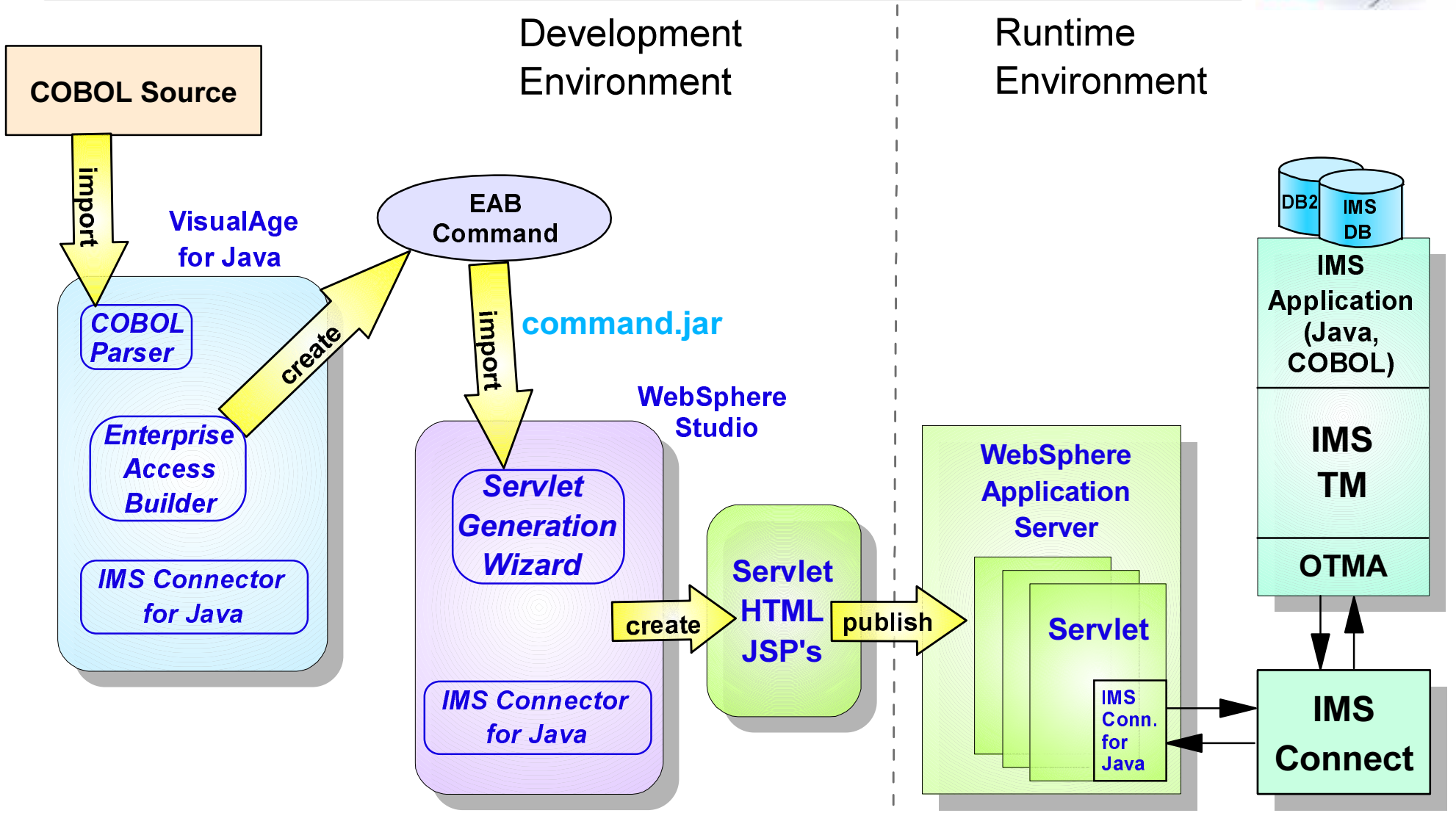
1. Create record beans representing the IMS transaction's input message and its output message(s)

2. Create an EAB command representing the IMS transaction

3. Use the EAB command to create a:
   - Java application
   - Web application using WebSphere Studio

4. Test and Deploy the web application to your WebSphere Application Server environment

Developing with IMS Connector



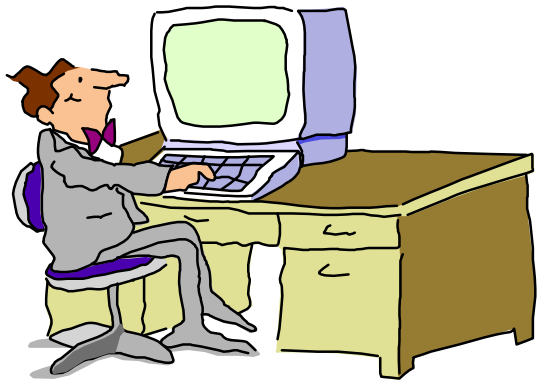
Building a Web Application

Create Input and Output Record Beans

Create EAB Command

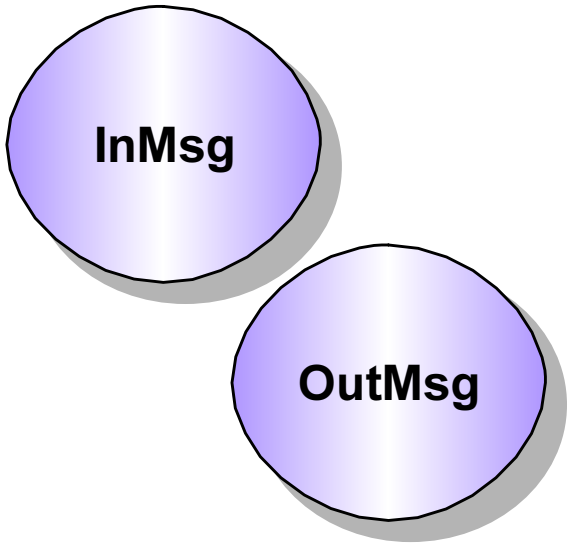
Generate Web Application

Test and Deploy Web Application

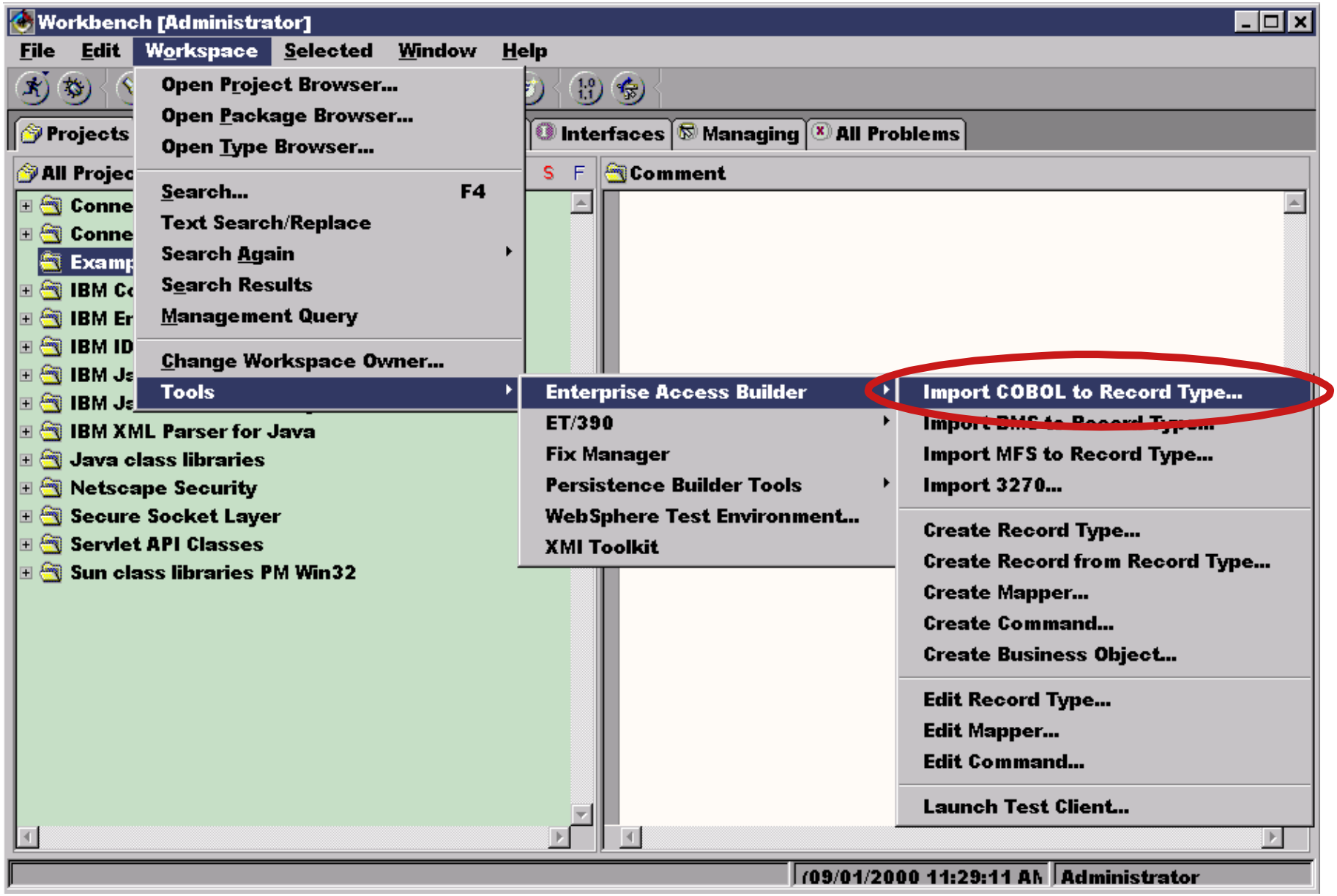


Step 1: Create IMS Transaction Message Beans

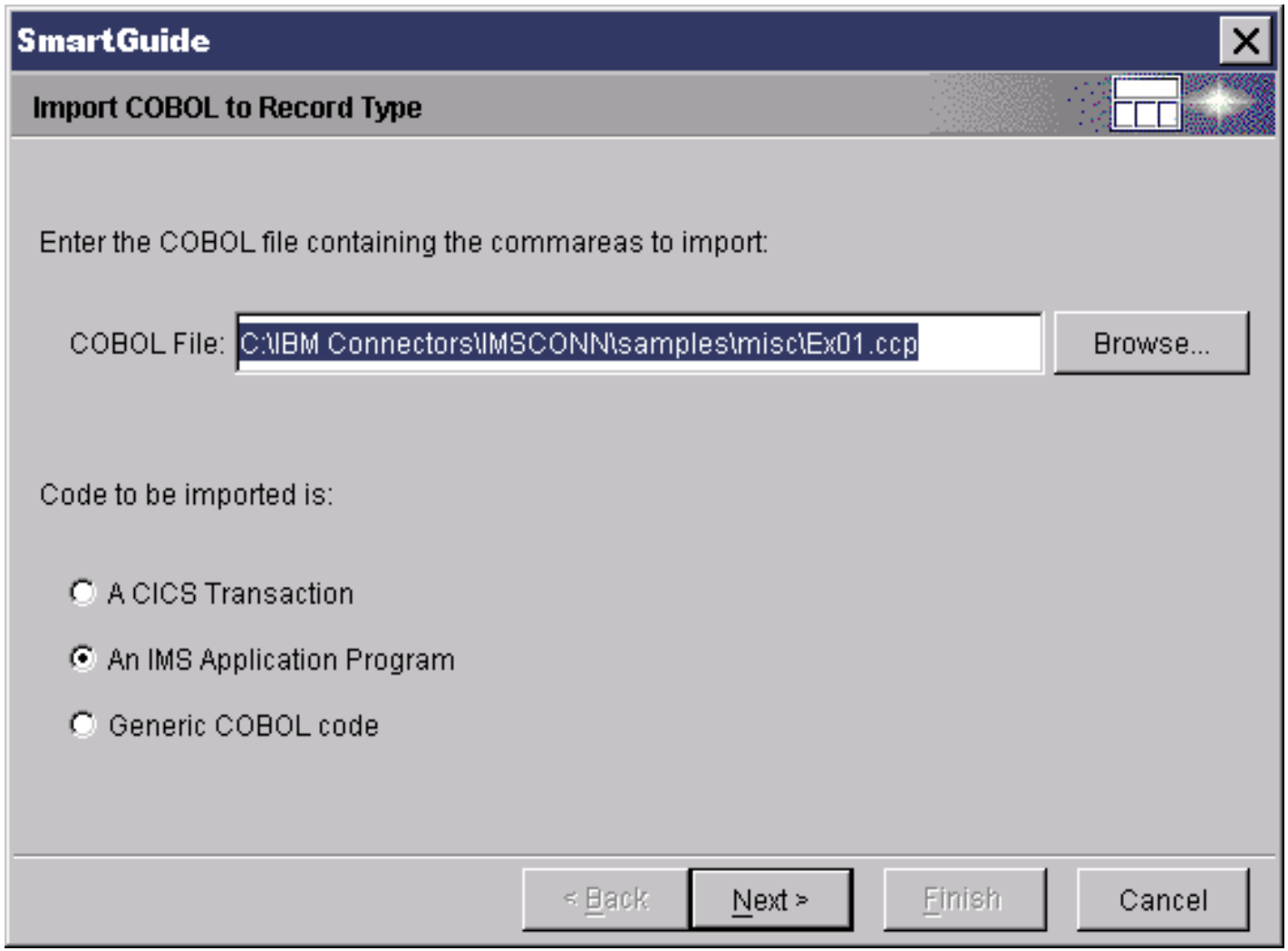
- Create Java Record beans representing the IMS transaction's input message and its output message(s)
- Created using VisualAge for Java's Enterprise Access Builder tool
- Create beans from COBOL data structures
  - Use the data structures (01 commareas) for the I/O PCB input/output area descriptors
- EAB tool uses a two-step process to create beans:
  - Import COBOL source to generate record type
  - Create record bean from record type



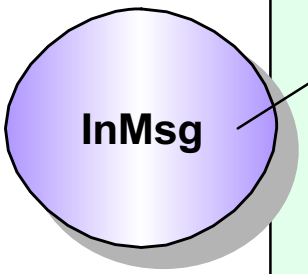
Create IMS Transaction Message Beans



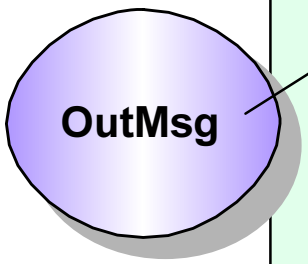
Create IMS Transaction Message Beans



Create IMS Transaction Message Beans

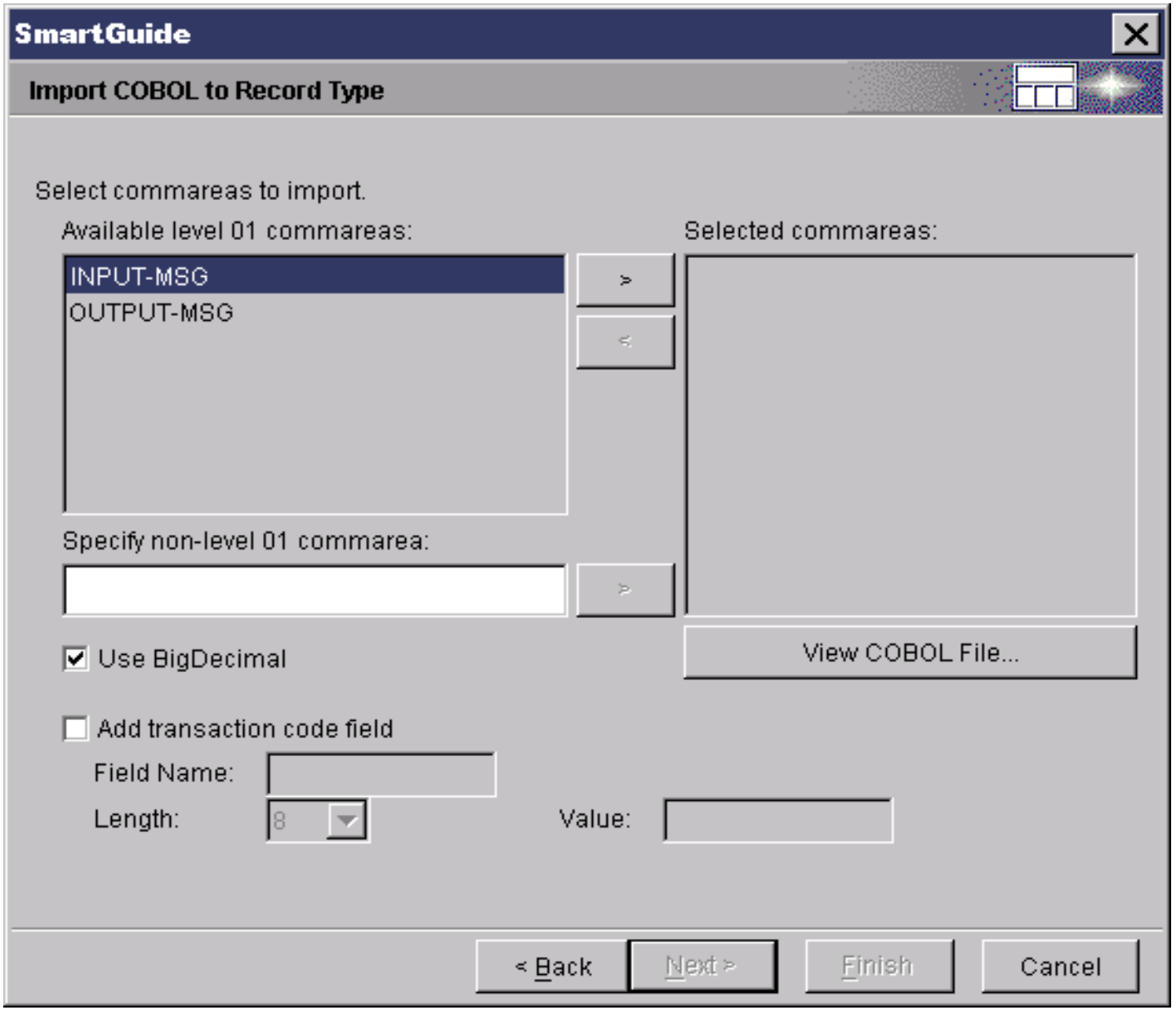



```
01  INPUT-MSG.
    02  IN-LL          PICTURE S9(3) COMP.
    02  IN-ZZ          PICTURE S9(3) COMP.
    02  IN-TRCD        PICTURE X(10).
    02  IN-CMD         PICTURE X(8).
    02  IN-NAME1       PICTURE X(10).
    02  IN-NAME2       PICTURE X(10).
    02  IN-EXTN        PICTURE X(10).
    02  IN-ZIP         PICTURE X(7).
```

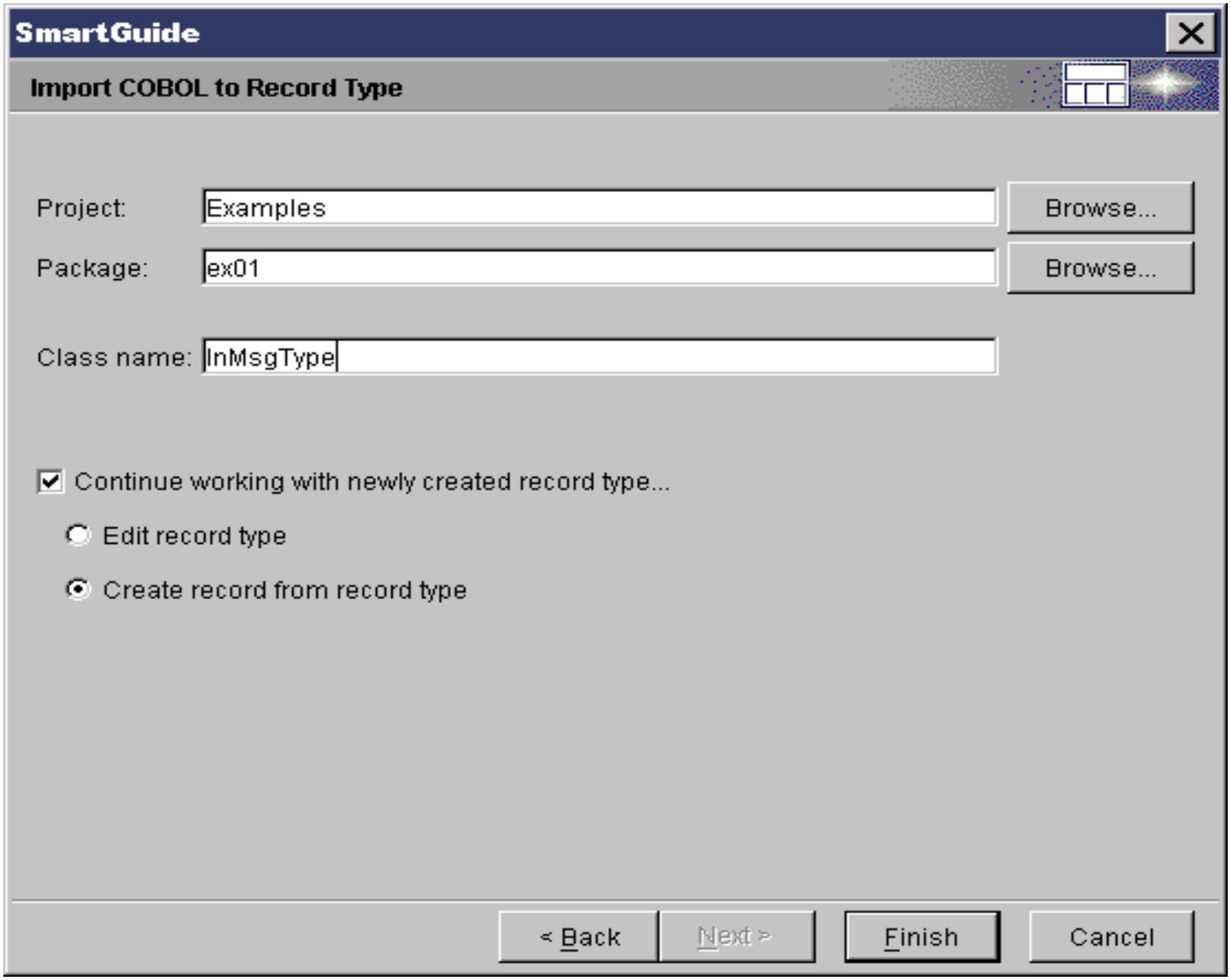



```
01  OUTPUT-MSG.
    02  OUT-LL         PICTURE S9(3) COMP VALUE +0.
    02  OUT-ZZ         PICTURE S9(3) COMP VALUE +0.
    02  OUT-MSG        PICTURE X(40) VALUE SPACES.
    02  OUT-CMD        PICTURE X(8) VALUE SPACES.
    02  OUT-NAME1      PICTURE X(10) VALUE SPACES.
    02  OUT-NAME2      PICTURE X(10) VALUE SPACES.
    02  OUT-EXTN       PICTURE X(10) VALUE SPACES.
    02  OUT-ZIP        PICTURE X(7) VALUE SPACES.
    02  OUT-SEGNO      PICTURE X(4) VALUE SPACES.
```

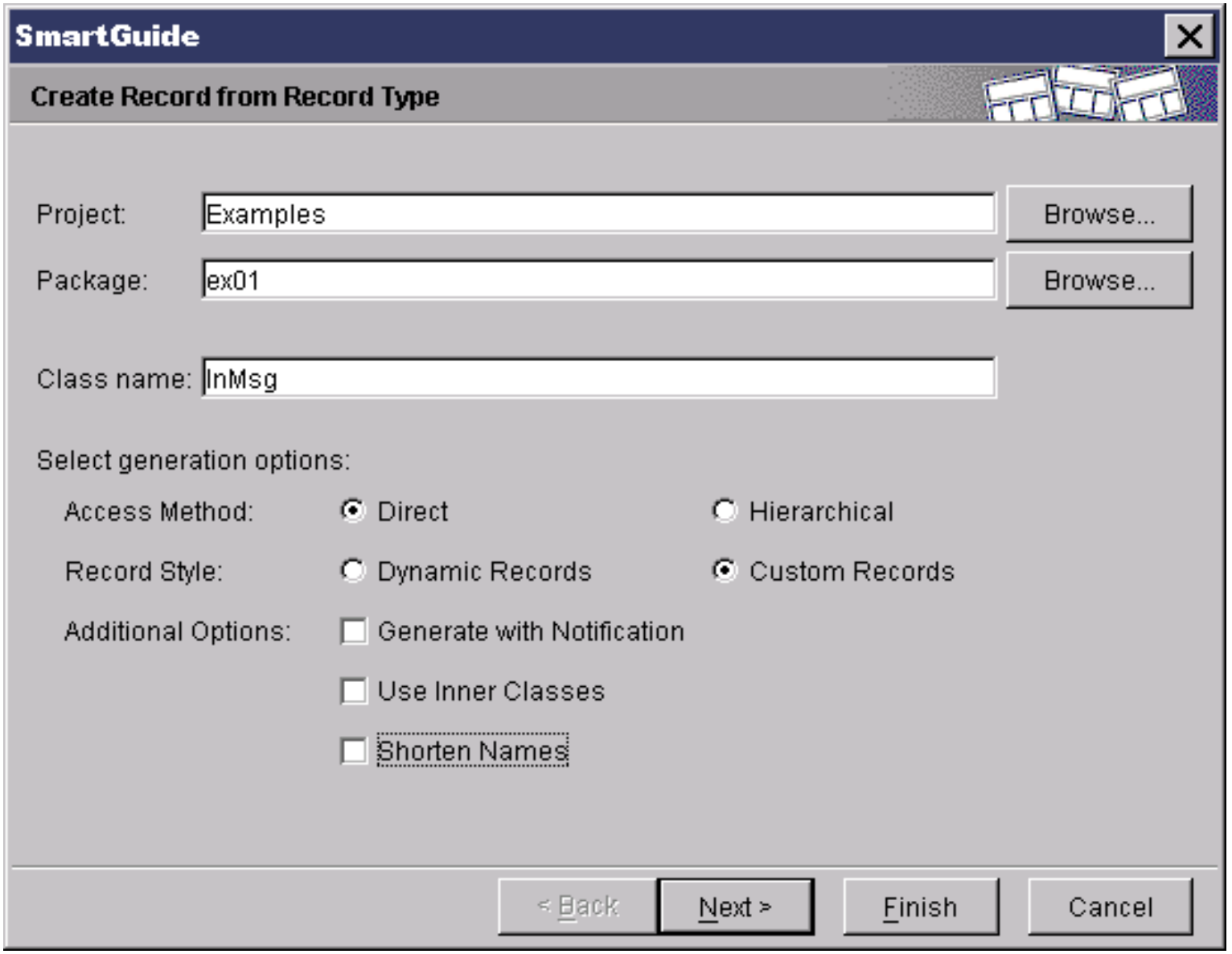
Create IMS Transaction Message Beans



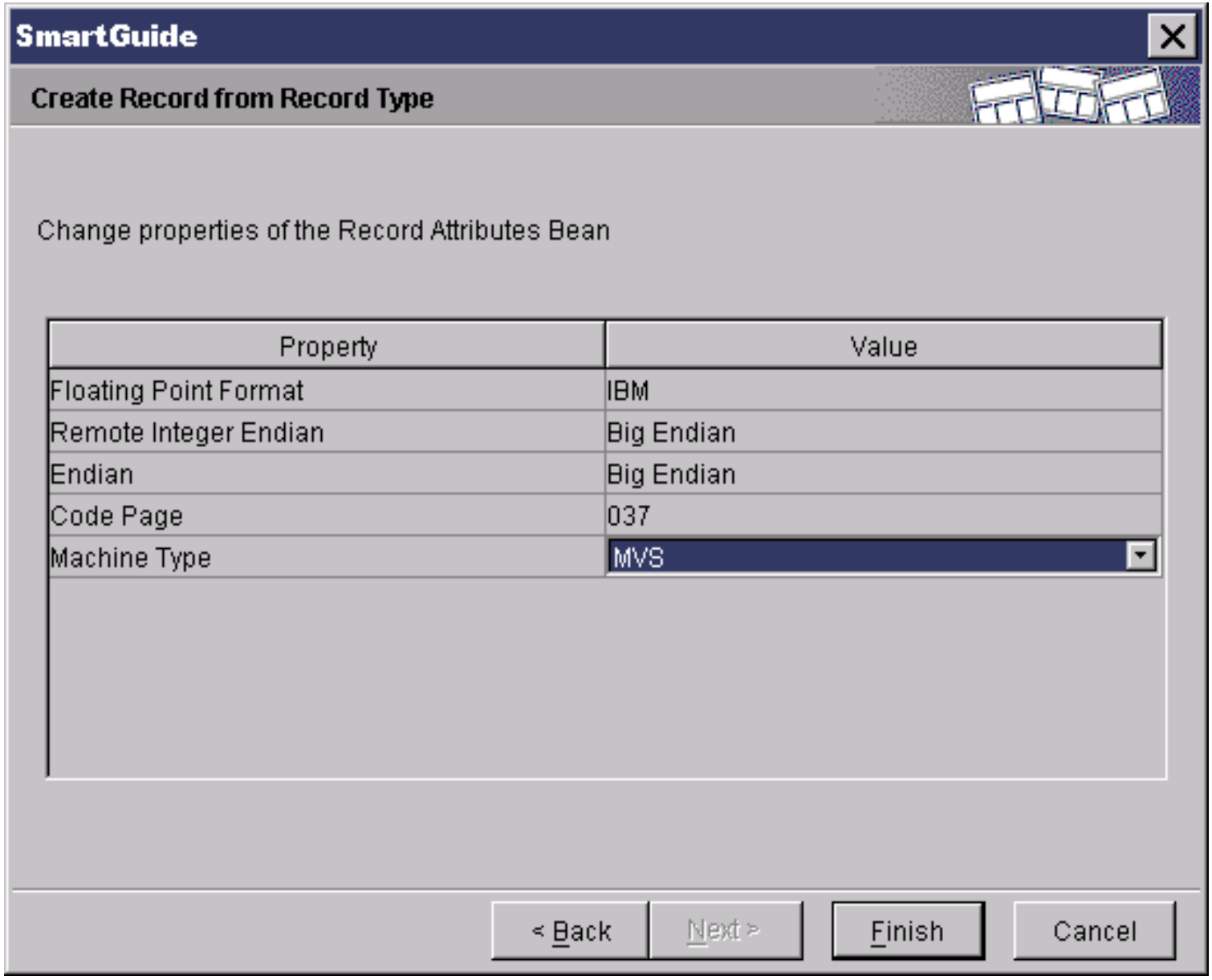
Create IMS Transaction Message Beans



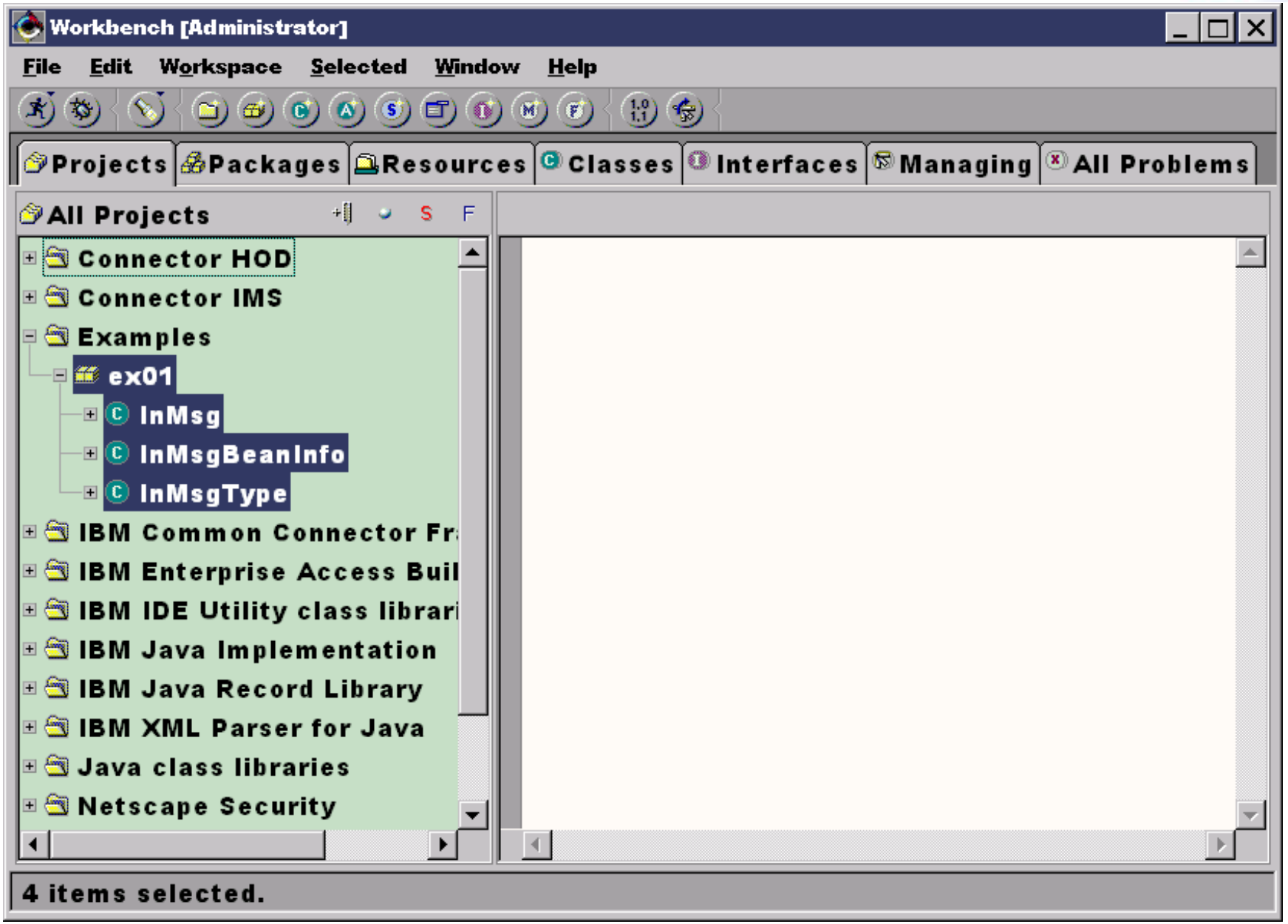
Create IMS Transaction Message Beans



Create IMS Transaction Message Beans



Create IMS Transaction Message Beans



Building a Web Application

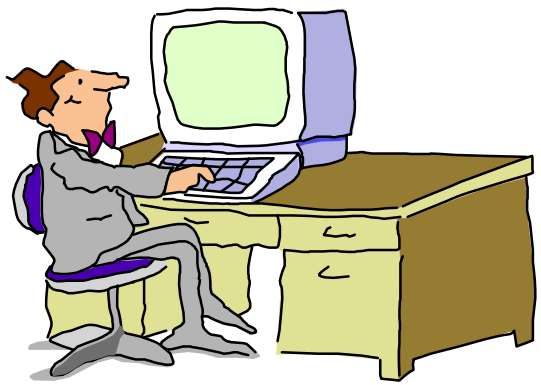
Create Input and Output Record Beans

Create EAB Command

Step2

Generate Web Application

Test and Deploy Web Application



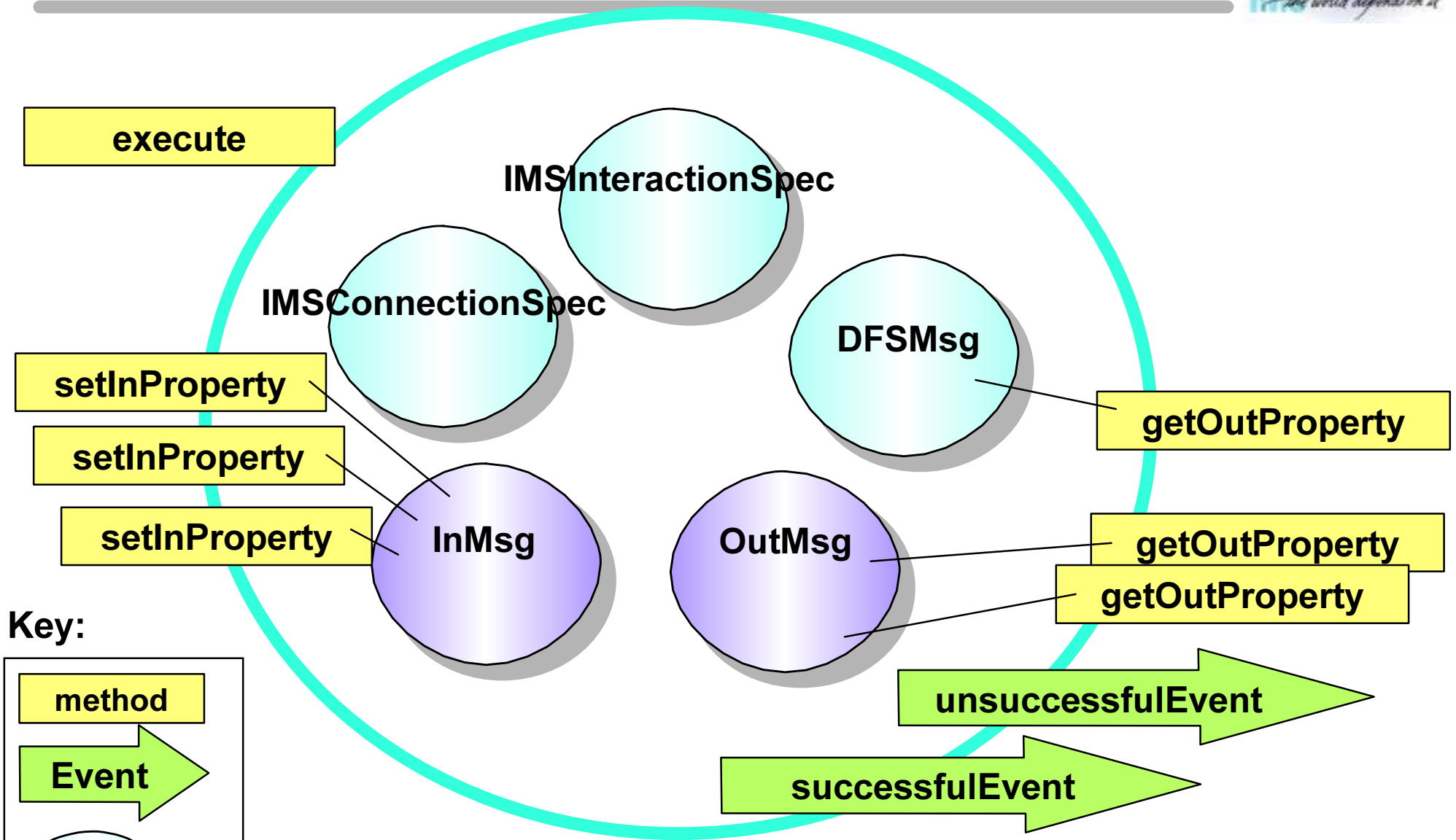
Step 2: Create EAB Command

- Create an EAB command representing the IMS transaction using Command Editor
- An EAB command represents an interaction with a back-end system such as IMS
  - A typical interaction would be to send transaction input data to an IMS application program and receive the transaction output data back from IMS
- An EAB command is a composite Java bean made up of other Java beans

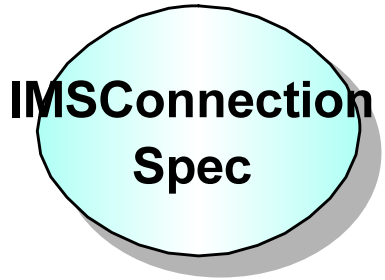
EAB Command

- EAB Command contains:
  - Connection beans
    - IMSConnectionSpec
    - IMSInteractionSpec
  - Input record bean
    - A record bean representing IMS transaction input message
  - Output record bean(s)
    - Record bean(s) representing IMS transaction output message(s)
    - DFSMsg

EAB Command



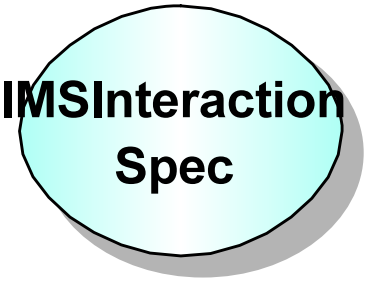
IMSConnectionSpec



- Defines properties of the connection between the Java application or servlet and IMS Connect
- IMS Connector specific properties are:
  - TCP/IP host name of machine running IMS Connect
  - TCP/IP port number of IMS Connect
- Additional IMSConnectionSpec properties are defined by the Common Connector Framework
  - Connection management properties

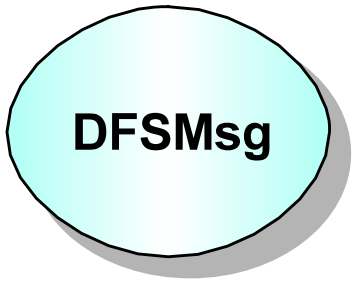
IMSInteractionSpec

- Defines interaction between Java application or servlet and IMS accessed via IMS Connect and OTMA
- IMS Connector for Java specific properties are:
  - Type of interaction
    - MODE_SEND_RECEIVE
    - SYNC_LEVEL_CONFIRM
  - Name of IMS datastore

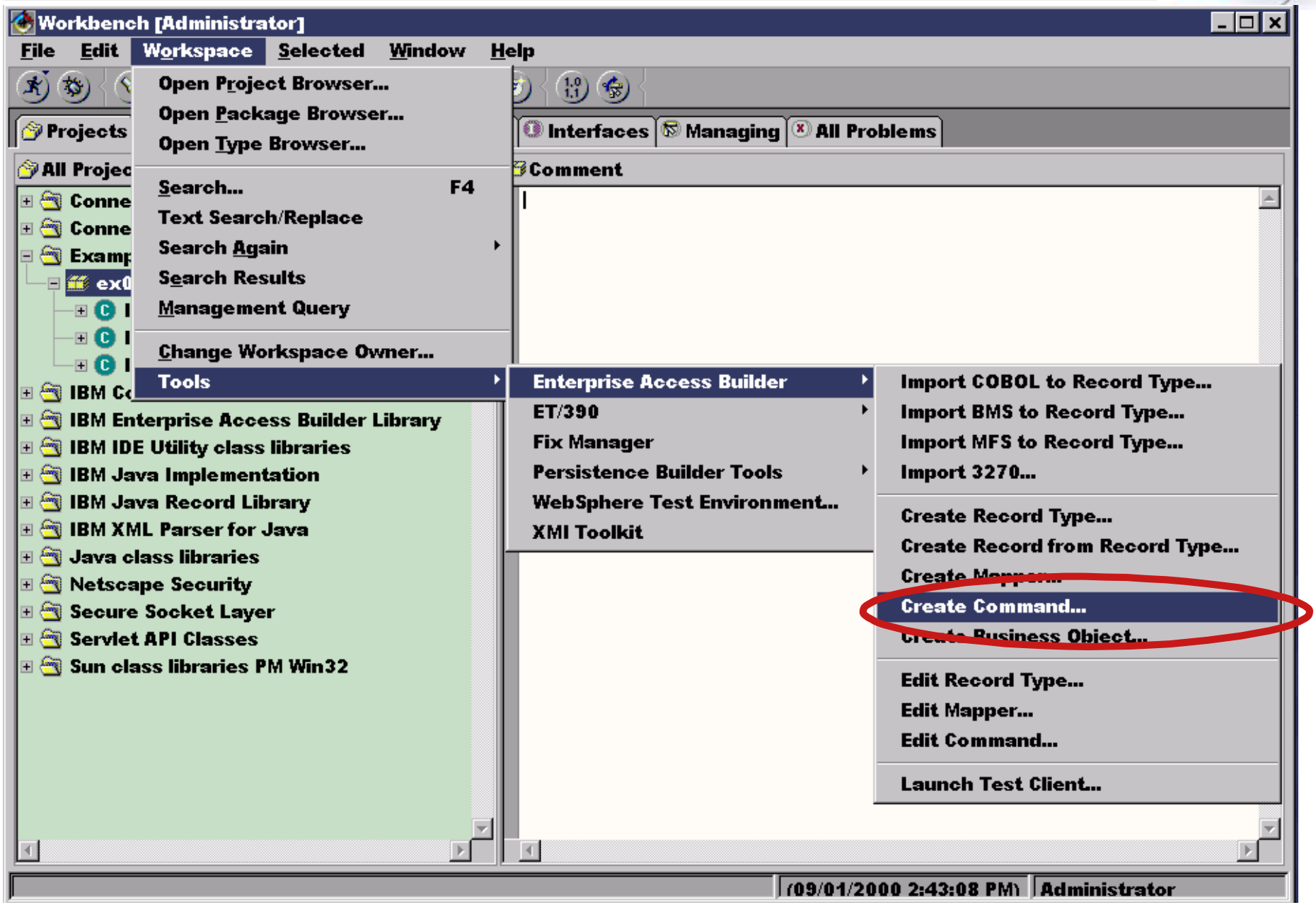


DFSMsg

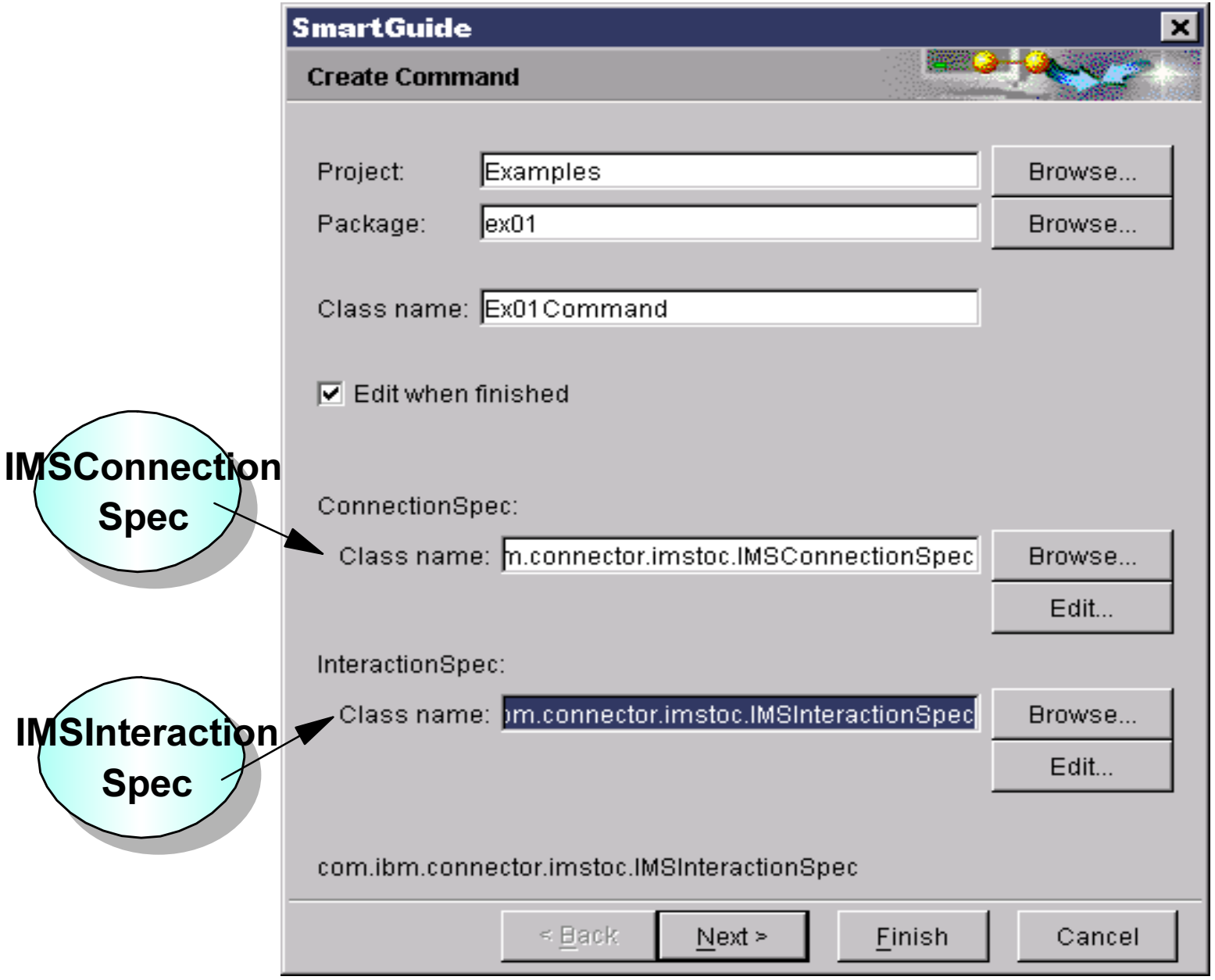
- Represents IMS "DFS" messages
- "DFS" messages are always a possibility instead of transaction output
- At runtime, the Enterprise Access Builder populates either the EAB command's DFSMsg bean or (one of) the transaction output bean(s)



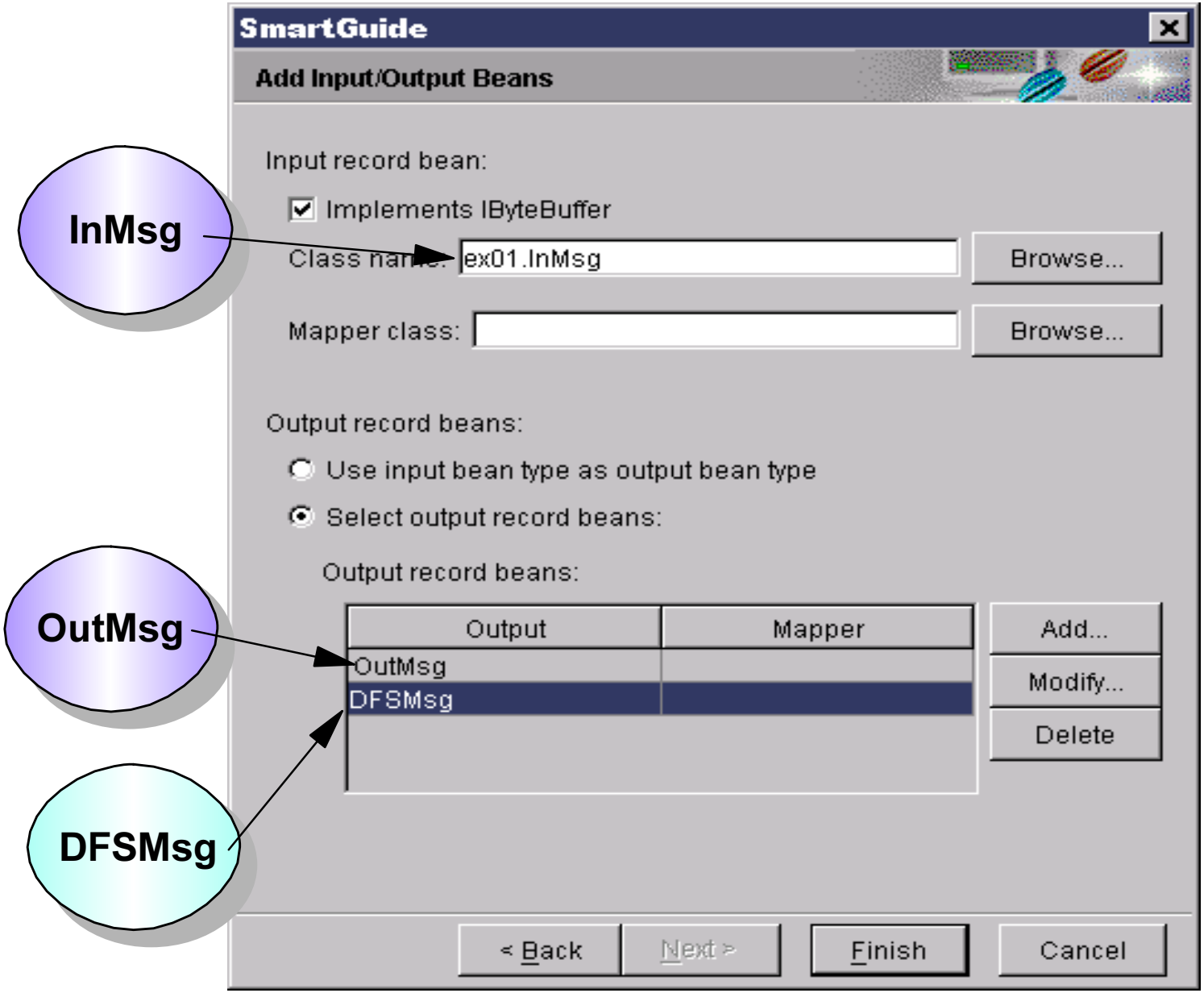
Create EAB Command



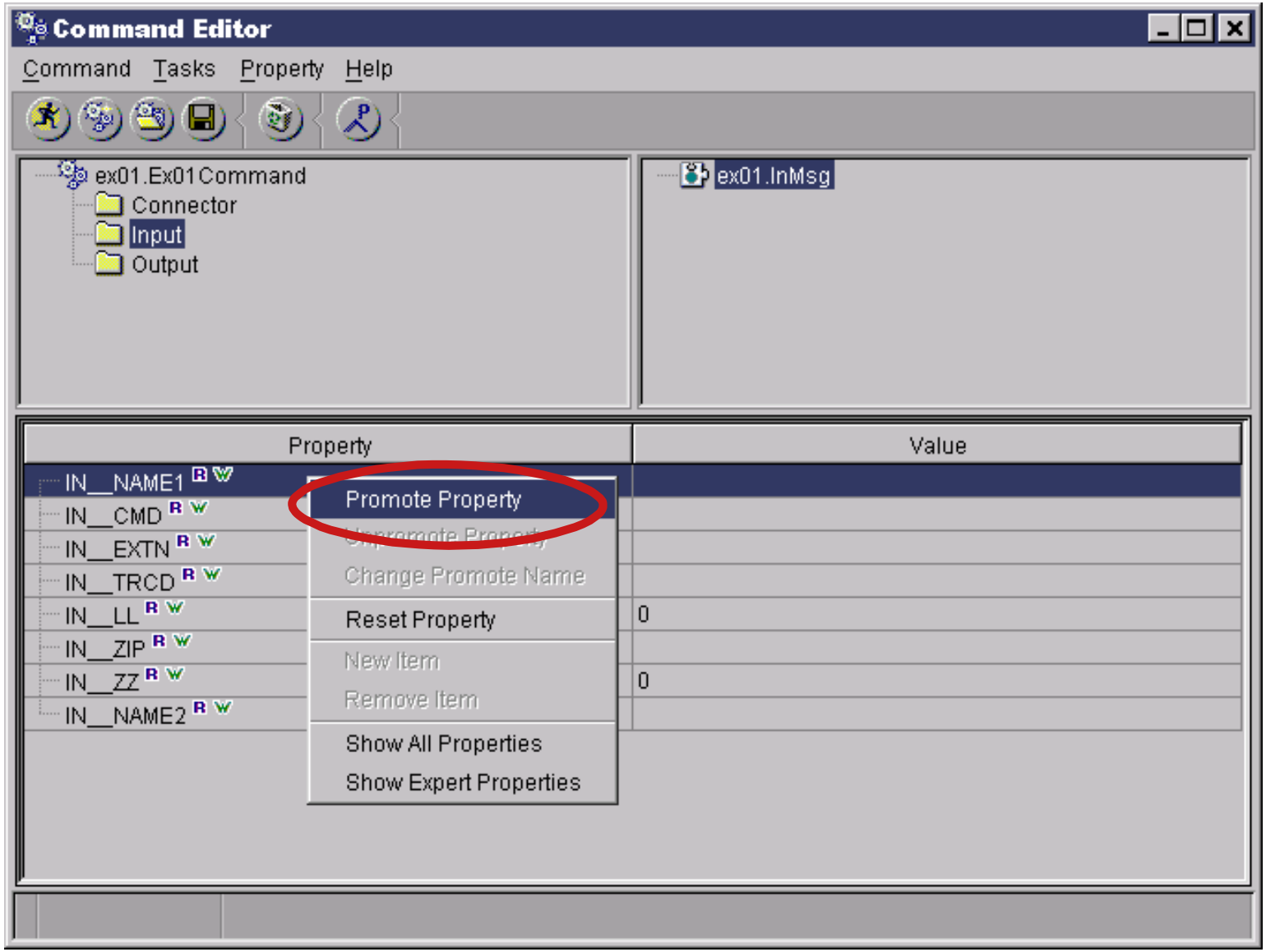
Create EAB Command



Create EAB Command



Create EAB Command



Building a Web Application

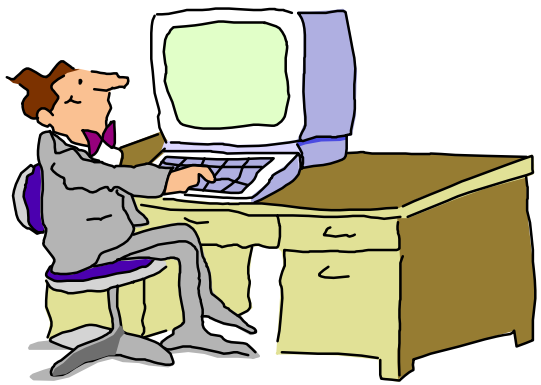
Create Input and Output Record Beans

Create EAB Command

Step3

Generate Web Application

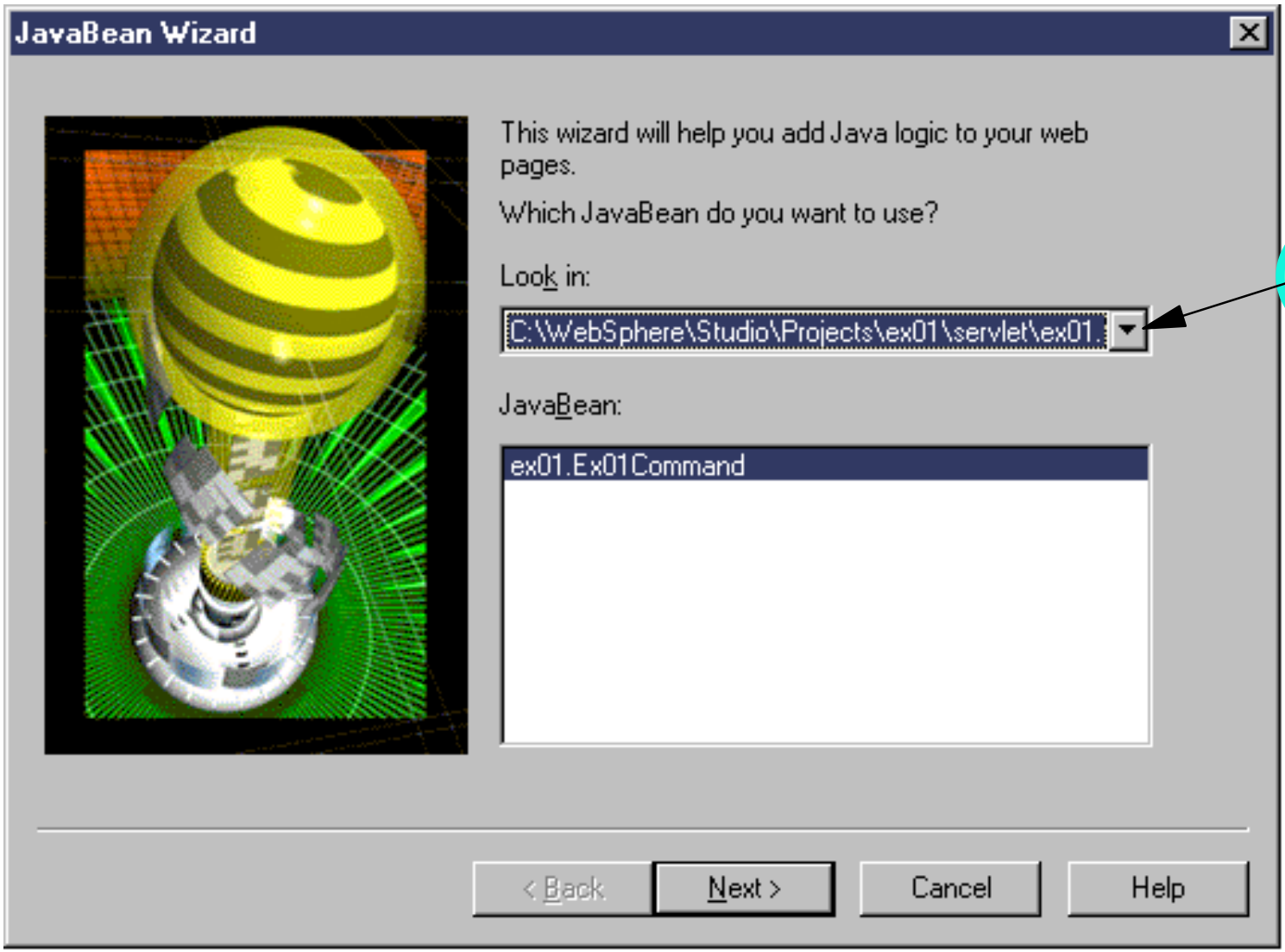
Test and Deploy Web Application



Step 3: Generate Web Application

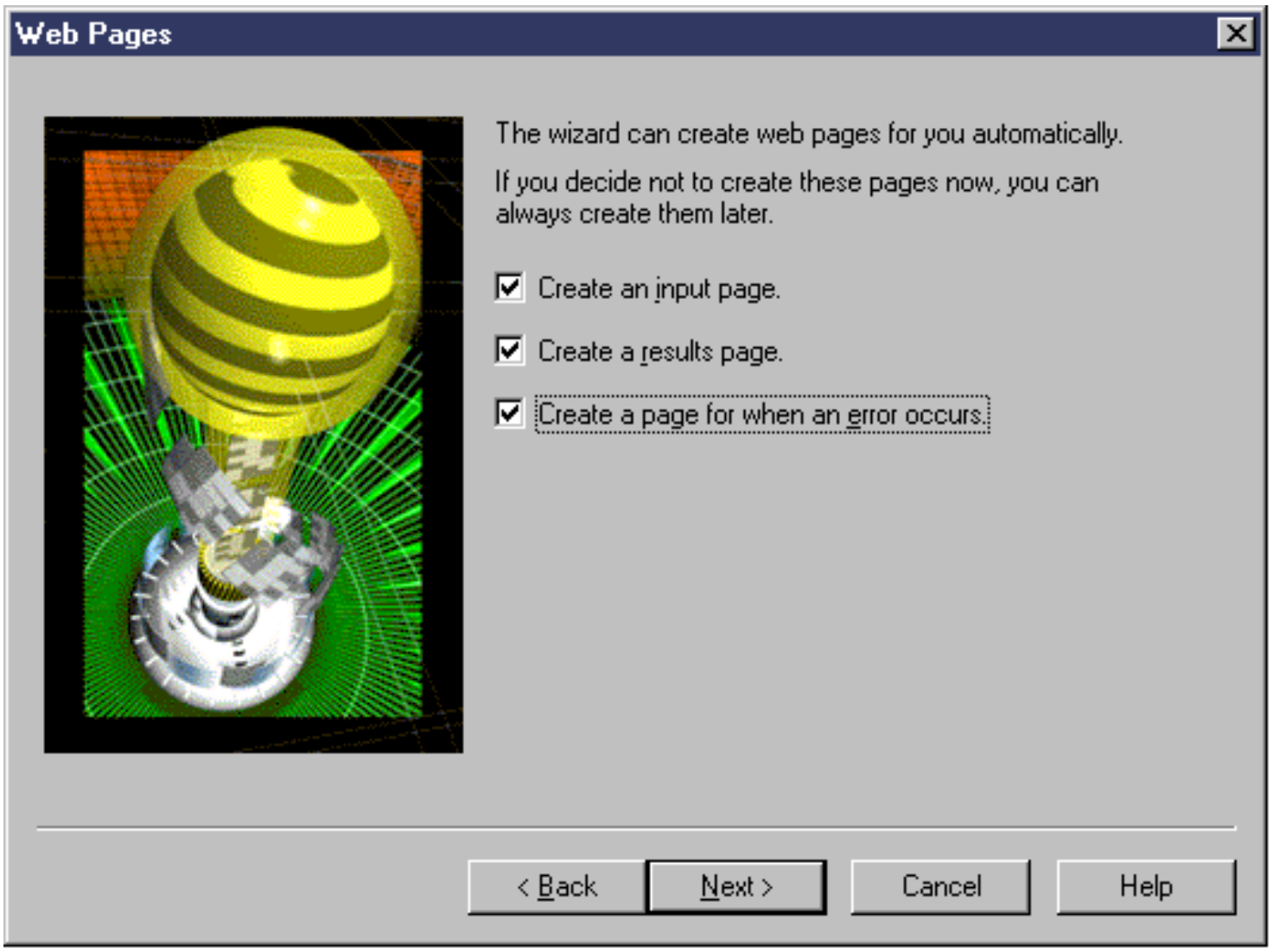
- Use the EAB command to generate the Web application using WebSphere Studio's Javabean Wizard
- Generated Web application files:
  - Input HTML page (.html) for input of IMS transaction data
  - Output JavaServer page (.jsp) for dynamic output of IMS transaction data
  - Output JavaServer page (.jsp) for dynamic output of error data
  - Java source (.java) for the servlet
  - Servlet configuration file (.servlet)
  - Style sheet (Master.css)

Generate Web Application



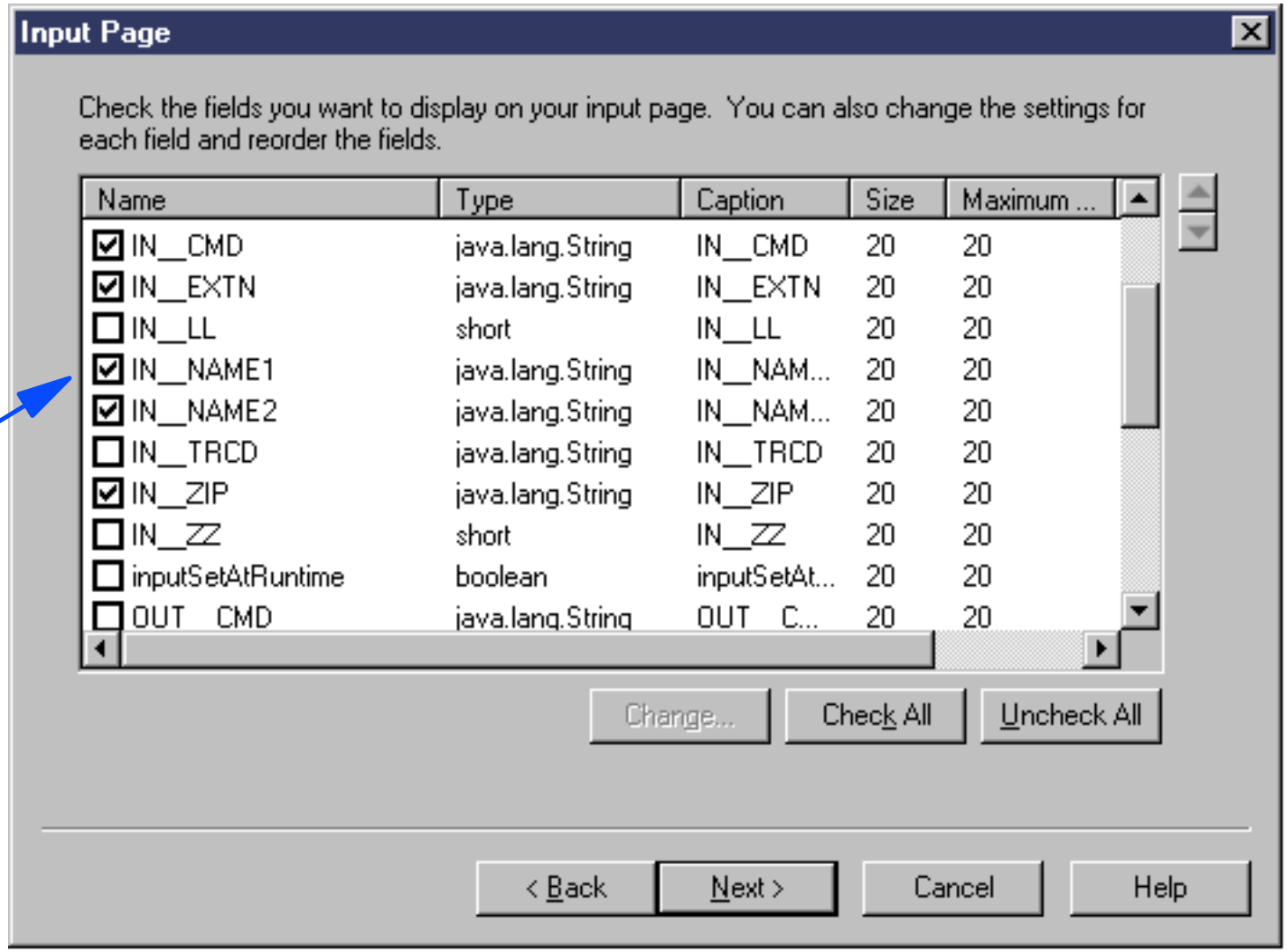
EAB Command

Generate Web Application



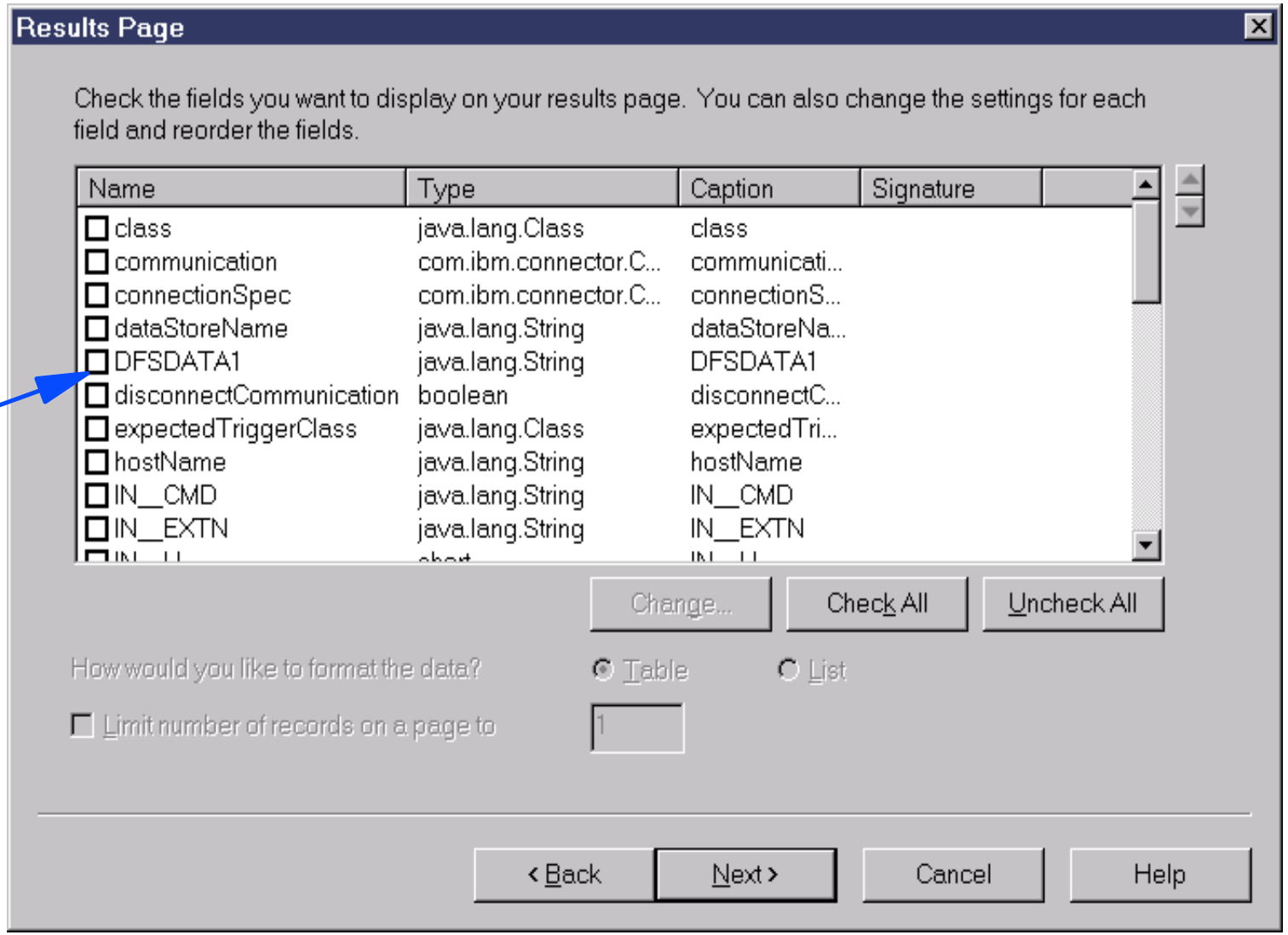
Generate Web Application

Select the promoted input properties of the EAB command to be displayed on the input HTML page

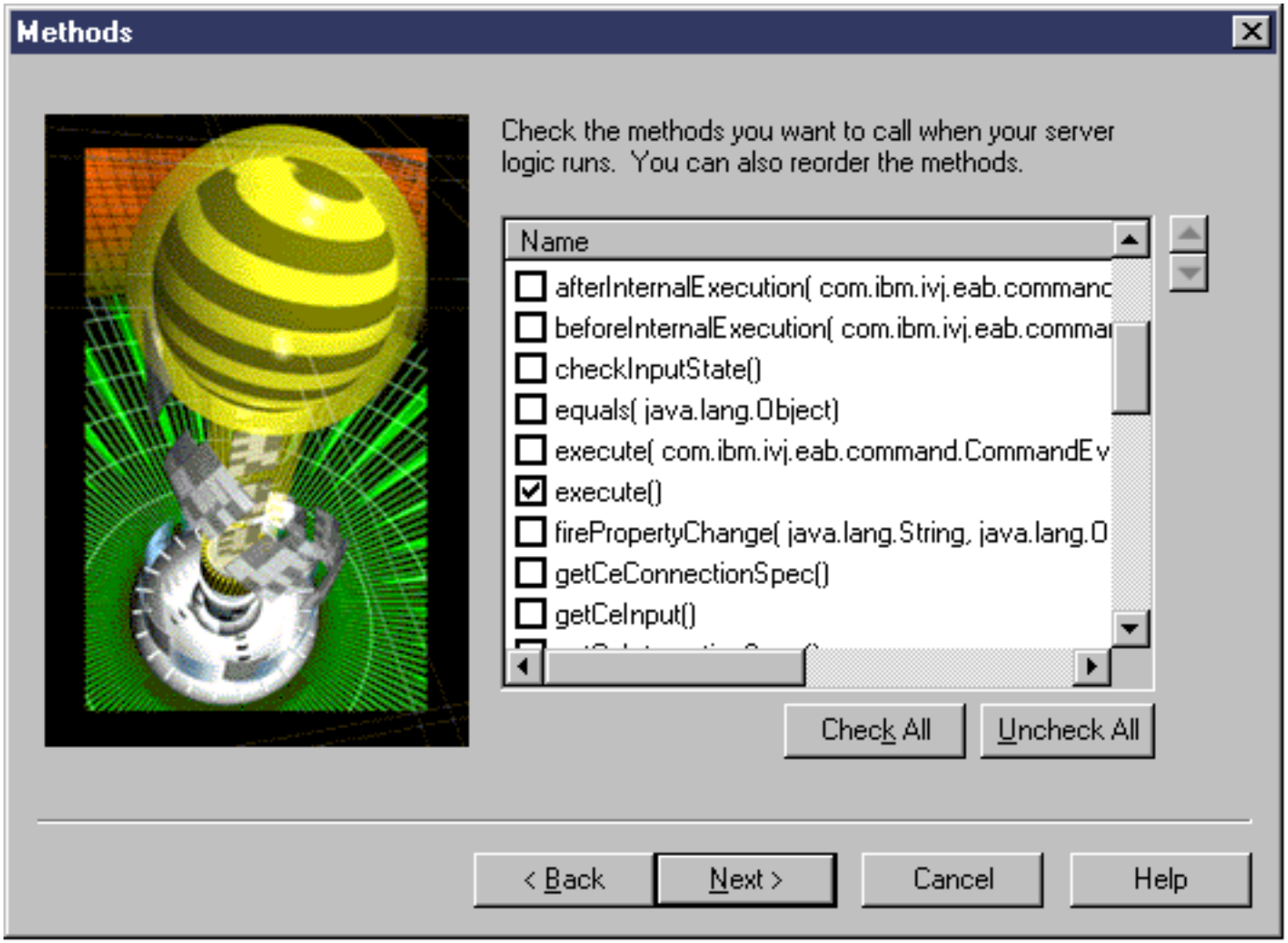


Generate Web Application

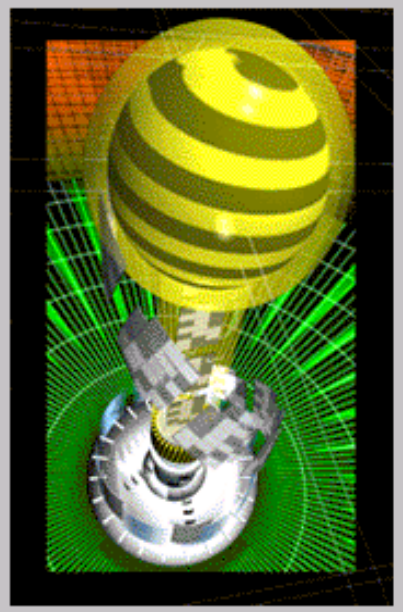
Select the promoted output properties of the EAB command to be displayed on the output JSP page



Generate Web Application



Generate Web Application



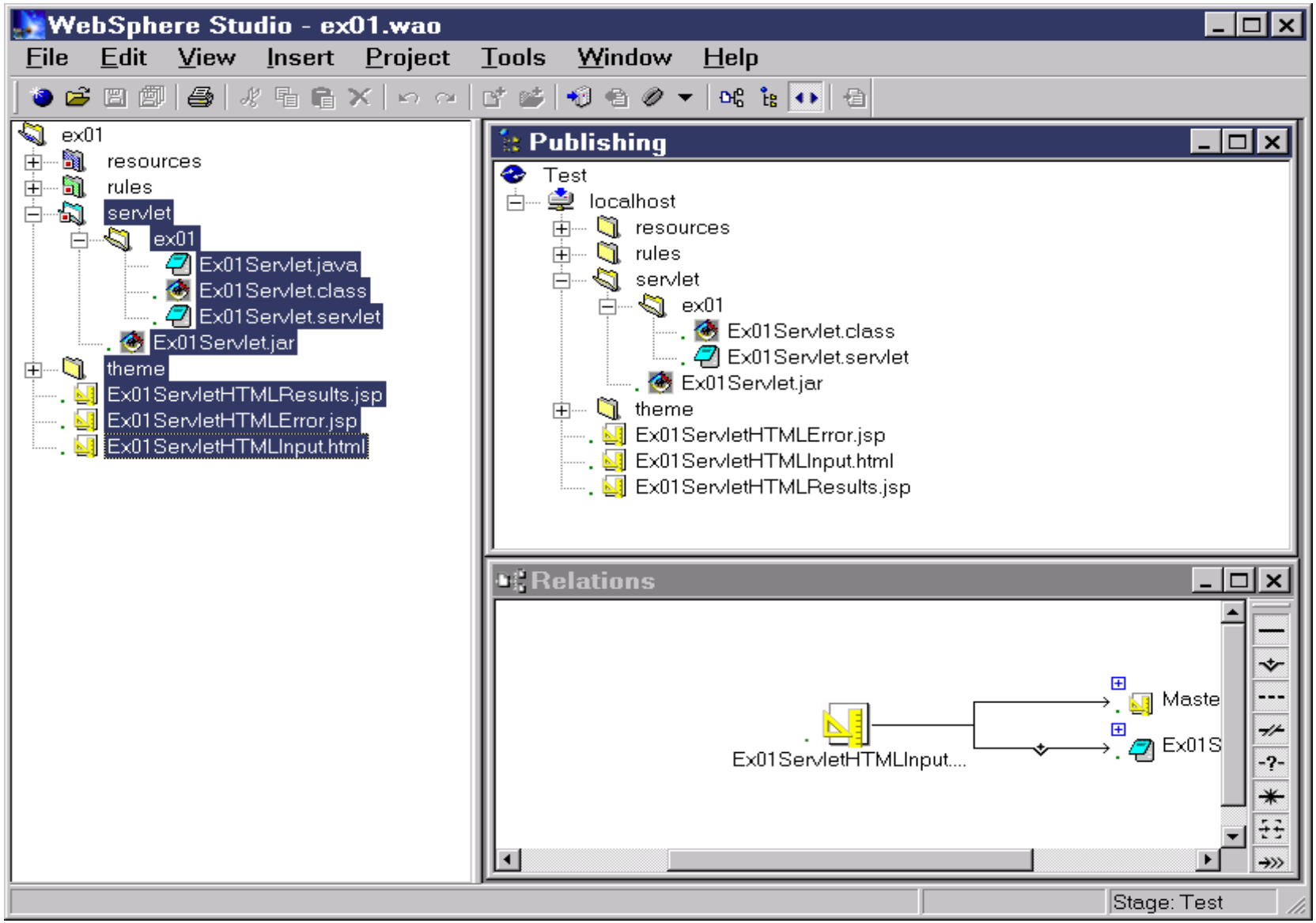
That's it. When you click finish, the following files will be created for you.

Description	File Names
Input Page	Ex01ServletHTMLInput.h...
Results Page	Ex01ServletHTMLResult...
Standard Error Page	Ex01ServletHTMLError.j...
Servlet Source	Ex01Servlet.java
Servlet Configuration	Ex01Servlet.servlet

Rename...

< Back | Finish | Cancel | Help

Generate Web Application



Building a Web Application

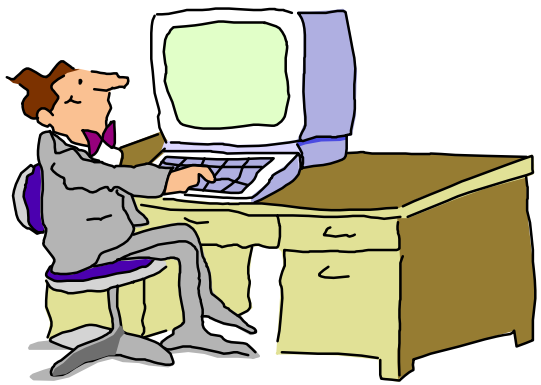
Create Input and Output Record Beans

Create EAB Command

Generate Web Application

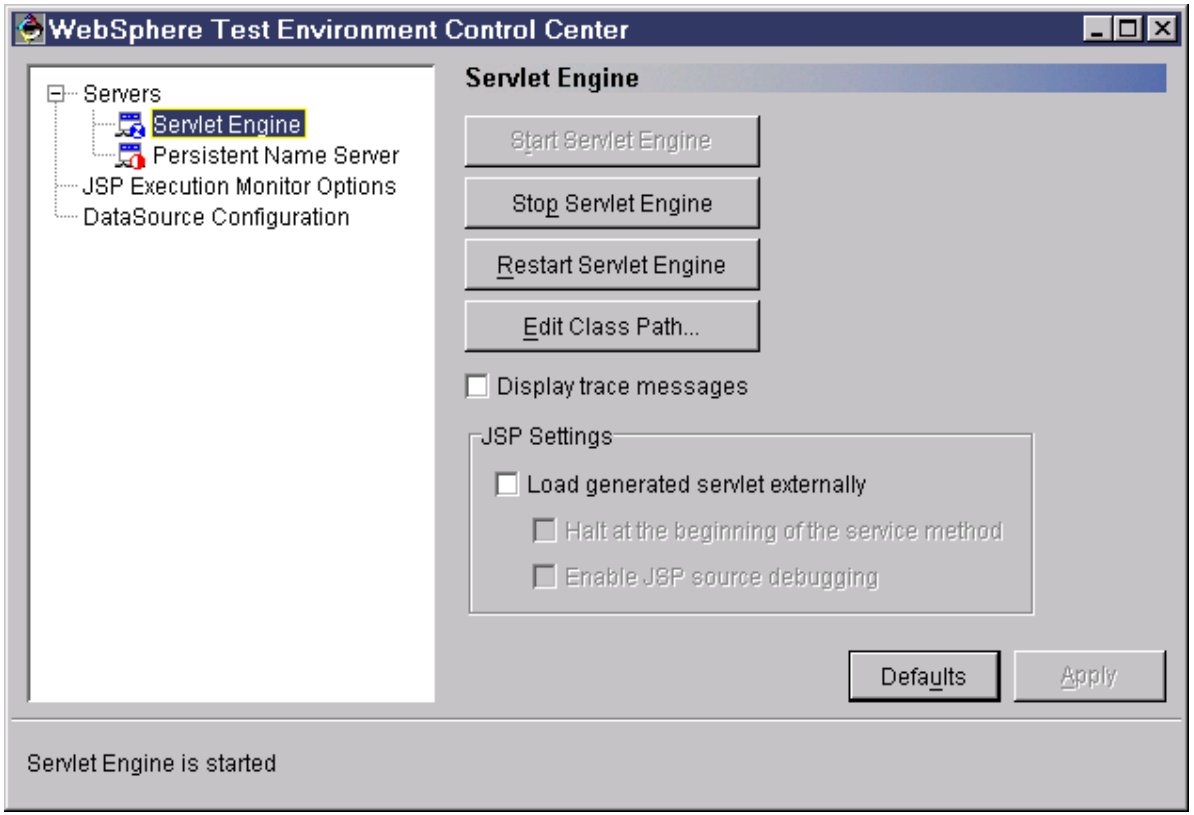
Step4

Test and Deploy Web Application



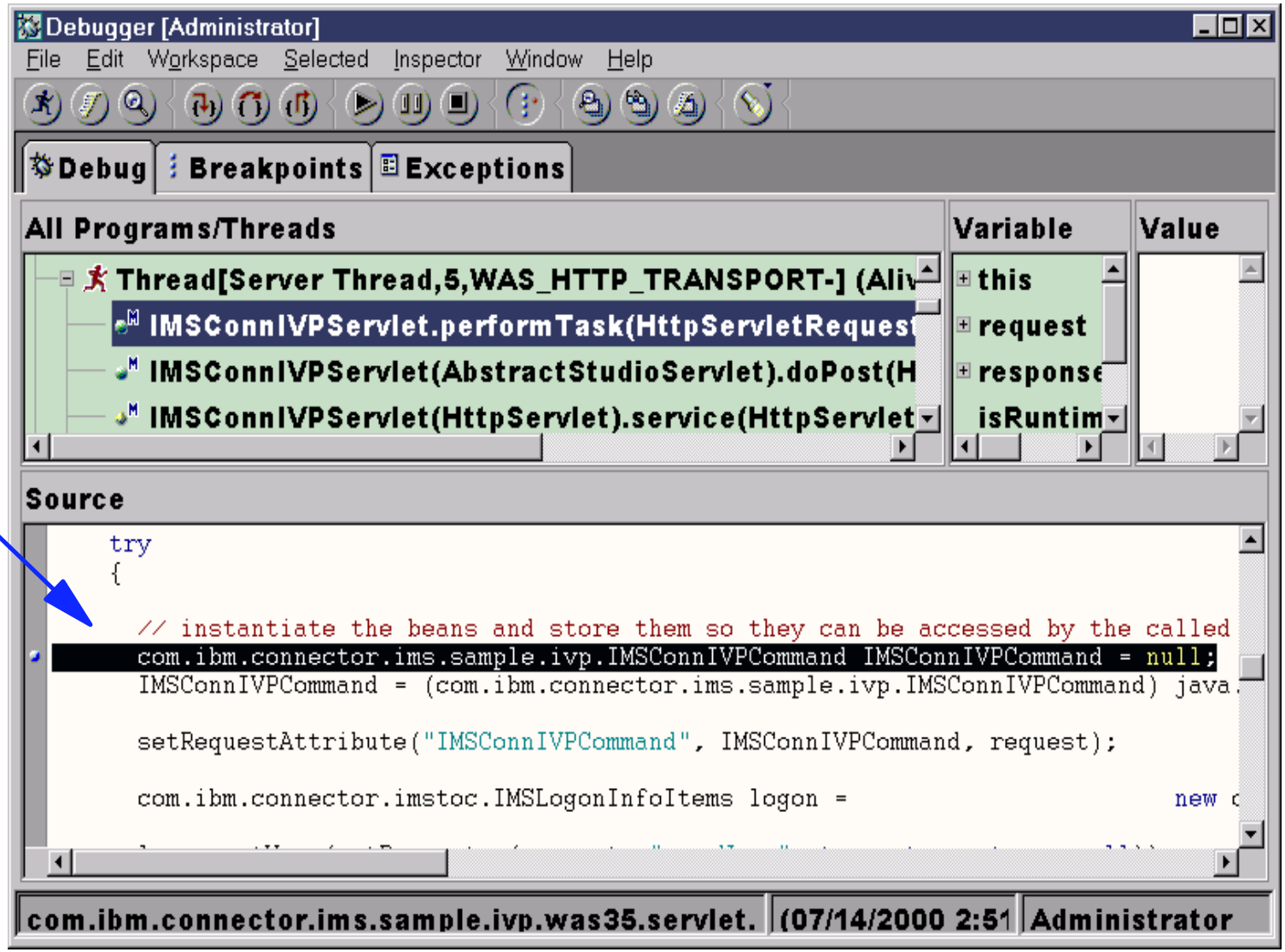
Step 4: Test and Deploy Web Application

- Test the web application using VisualAge for Java's WebSphere Test Environment
- Enable easy testing and debugging as the web application executes



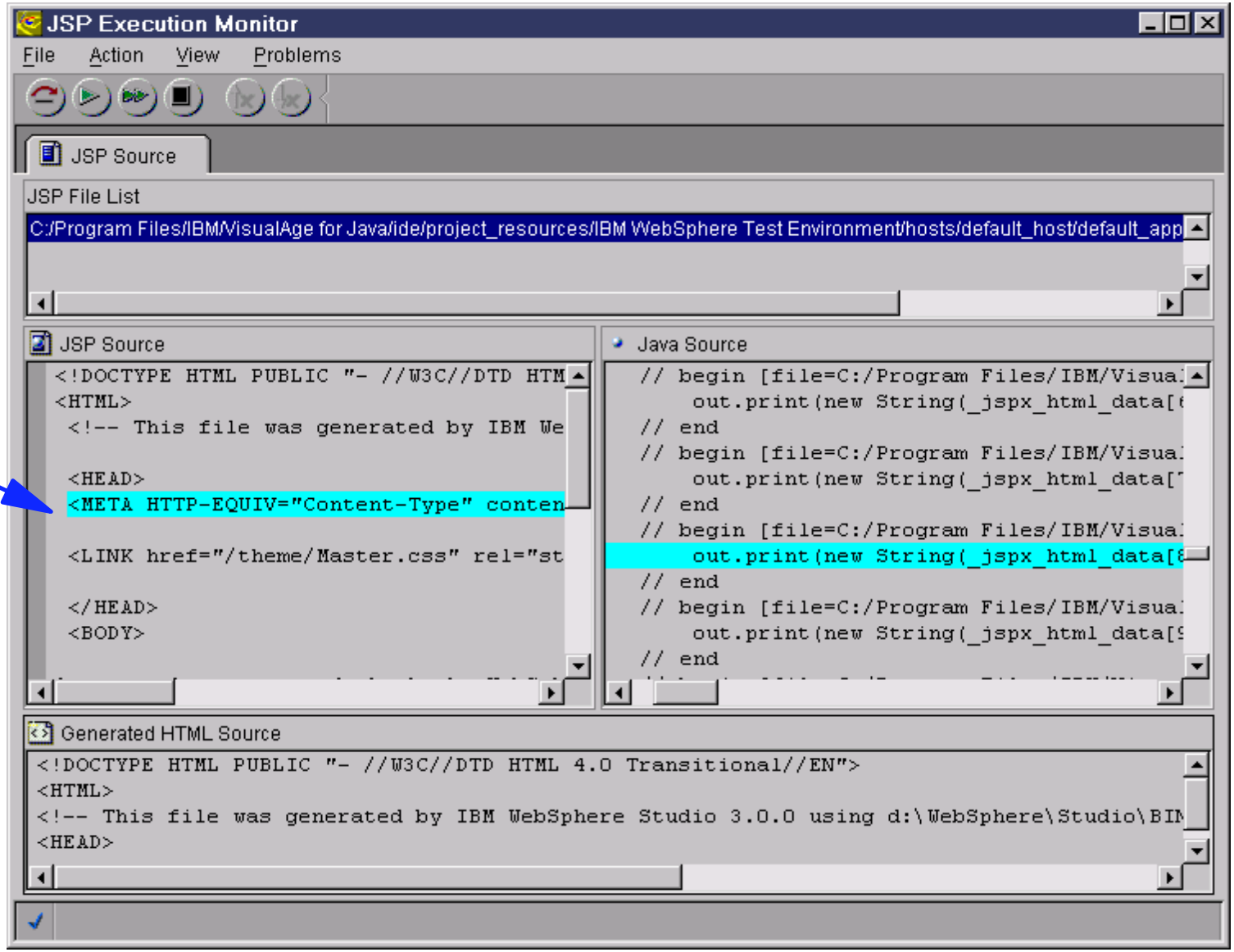
Test Web Application

Test/debug servlets as they execute



Test Web Application

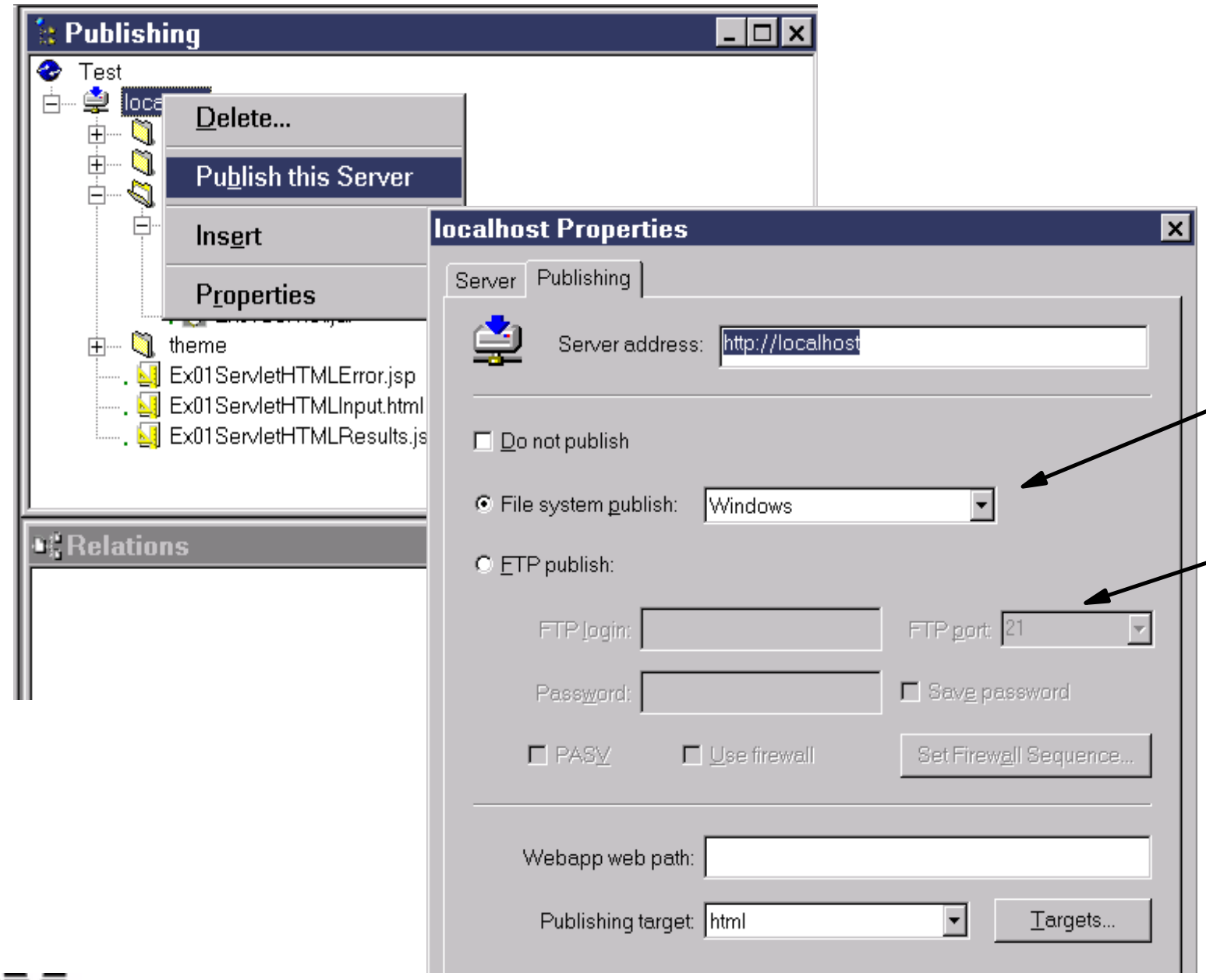
Test/debug JSP as they execute



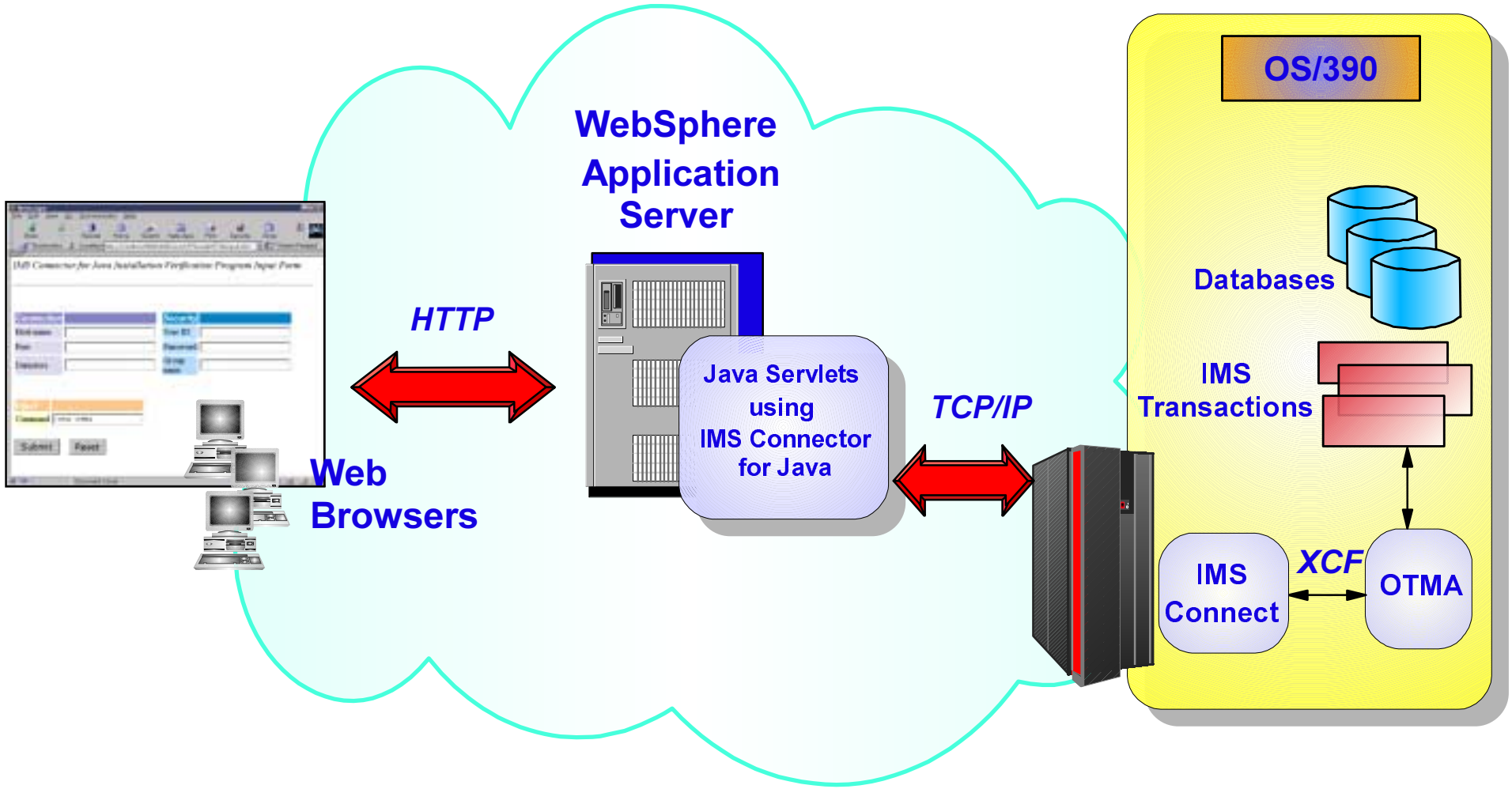
Deploy Web Application

- Deploy the web application
  - Use WebSphere Studio's Publish facility to move web application files to WebSphere Application Server environment
- Invoke input HTML page from Web browser to run IMS transaction, for example:
  - http://<servername>/yourServletInput.html

Deploy Web Application



Running Web Application



IMS Connector Documentation

- Online Help
  - Under Help->Task->Accessing the Enterprise
    - User's Guide
      - ->Accessing transactions with the IMS Connector
    - Diagnosis Guide
      - ->Building IMS Applications
- Softcopy books
  - User's Guide and Reference PDF is accessible in VisualAge for Java Help:
    - Help->PDF Index->PDF Documents->IMS Connector for Java
- Javadoc for IMS Connector for Java classes
  - Help->Reference->IBM APIs->Connectors-> IMS Connector->Package com.ibm.connector.imstoc

Related Web Sites

e-business powered by IMS

- **IMS, IMS Connect, IMS Connector for Java**
  - http://www.ibm.com/ims
- **VisualAge for Java**
  - http://www.ibm.com/software/vajava
- **WebSphere Application Server**
  - http://www.ibm.com/software/webservers
- **WebSphere Studio**
  - http://www.ibm.com/software/webservers/studio

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