ORACLE®

How to Debug Oracle ADF Framework Applications

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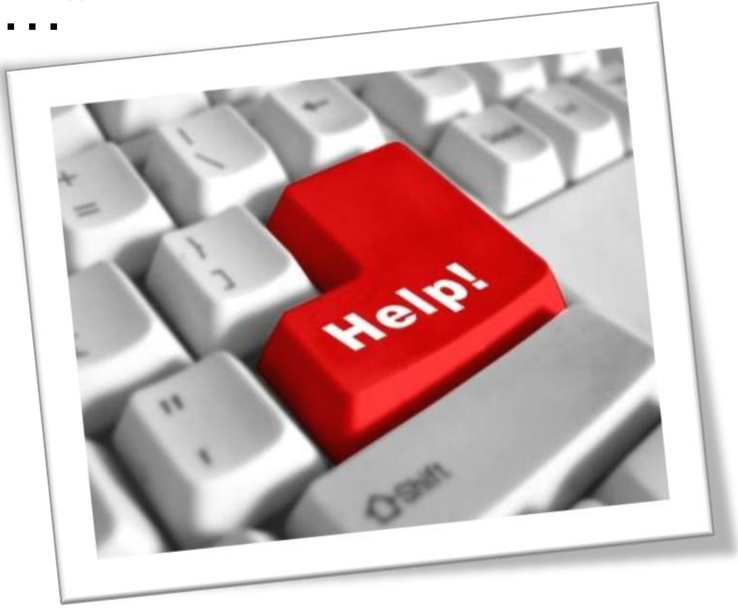
Oracle ADF Development Team

"My ADF Application's Not Working… Help!"

- "I see an *exception* stack trace…"
- "I get data, but it's the *wrong data*…"
- "I expect to see data, but *no rows* appear…"
- "My application is slow…"



Start by Getting More Contextual Information and Trying to Isolate the Problem

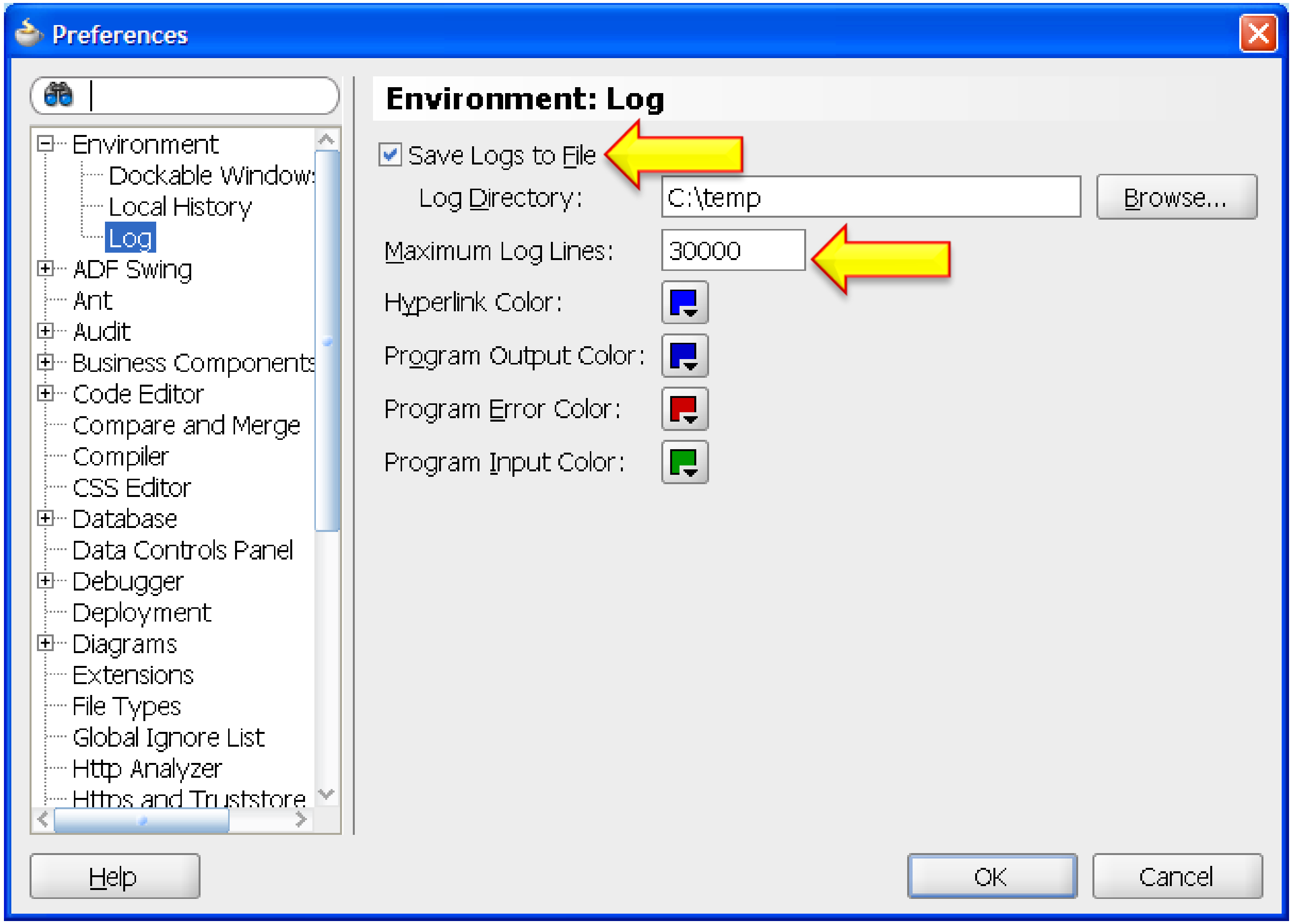
- Enable Debug Diagnostics
  - Verbose trace of what happens before problem occurs
- Try to reproduce using the BC Tester
  - Avoid web app restart delay as you narrow down the problem
- Try to reproduce using a standalone test client
  - No UI interaction required = fastest option of all

HOW TO…

Enable Diagnostic Logging

Enable Diagnostic Logging
► Increase Log Lines and/or Log to File

Main Menu: { *Tools* | *Preferences…* }



Environment: Log

☑ Save Logs to File

Log Directory: C:\temp

Maximum Log Lines: 30000

Hyperlink Color: 🟦

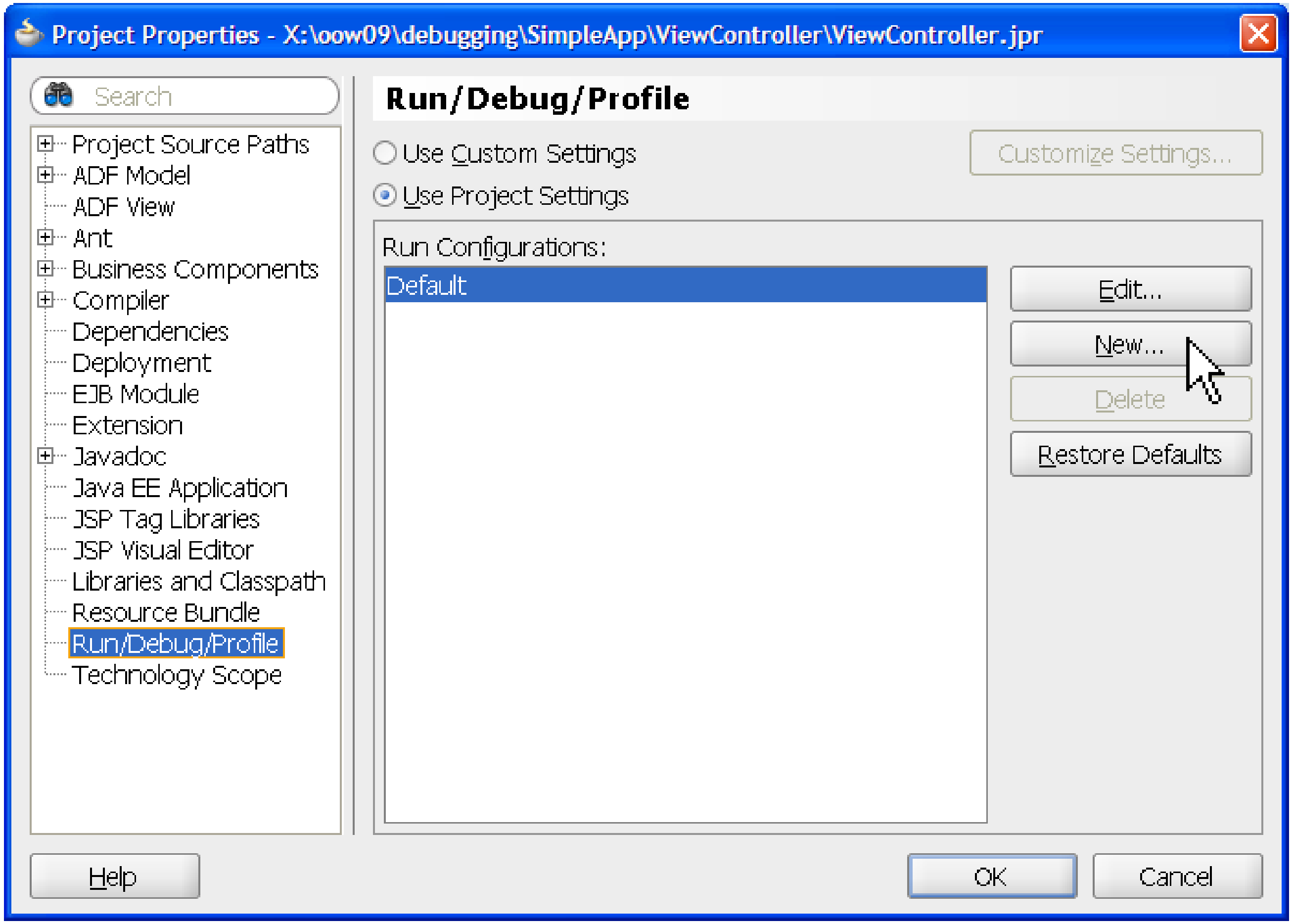
Program Output Color: 🟦

Program Error Color: 🟥

Program Input Color: 🟩

Enable Diagnostic Logging
► Create New Run Configuration

Main Menu: { *Application* | *Project Properties…* }



Project Properties - X:\oow09\debugging\SimpleApp\ViewController\ViewController.jpr

Run/Debug/Profile

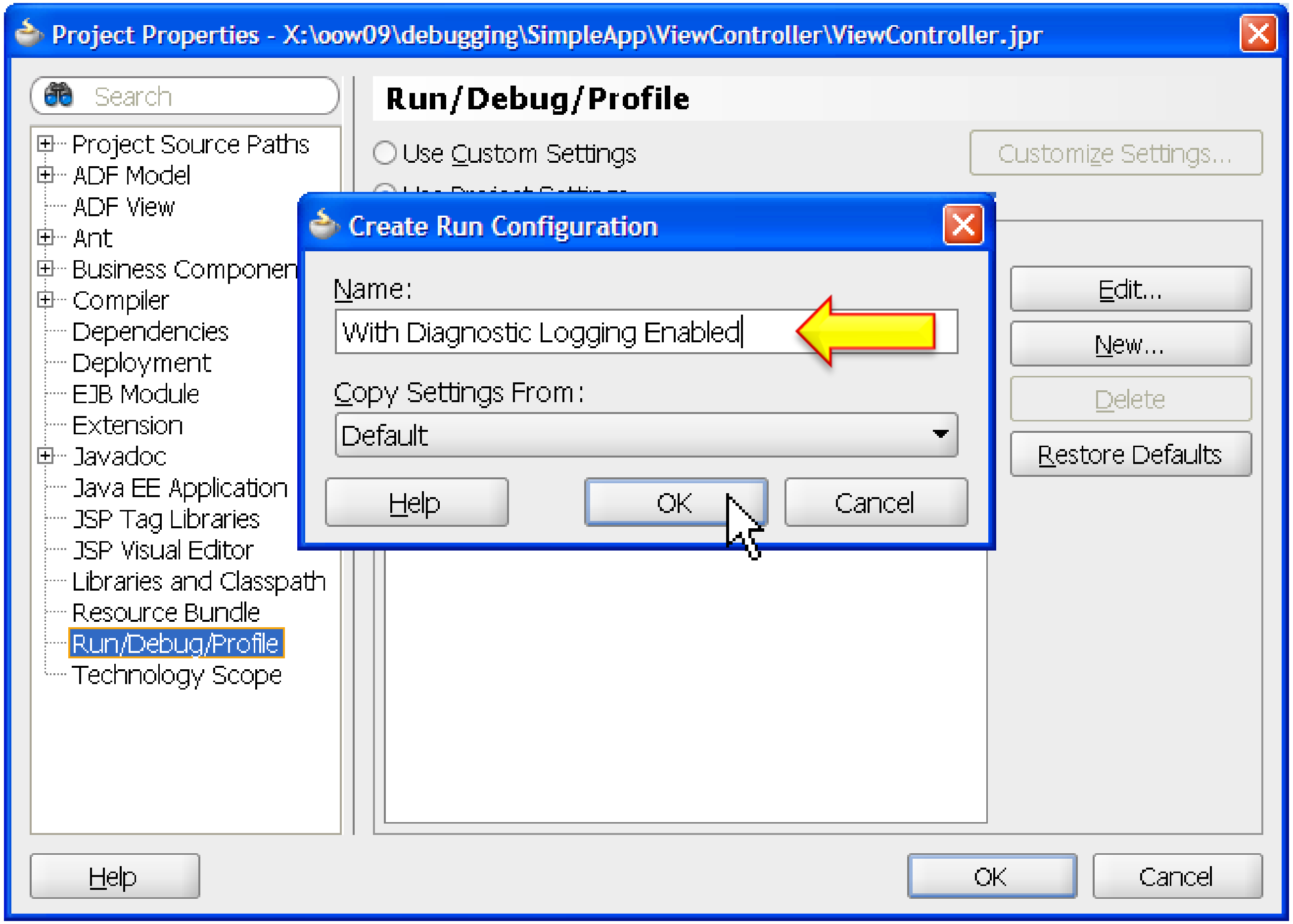
○ Use Custom Settings

● Use Project Settings

Run Configurations:

Default

Enable Diagnostic Logging
► Name New Run Configuration



Project Properties - X:\oow09\debugging\SimpleApp\ViewController\ViewController.jpr

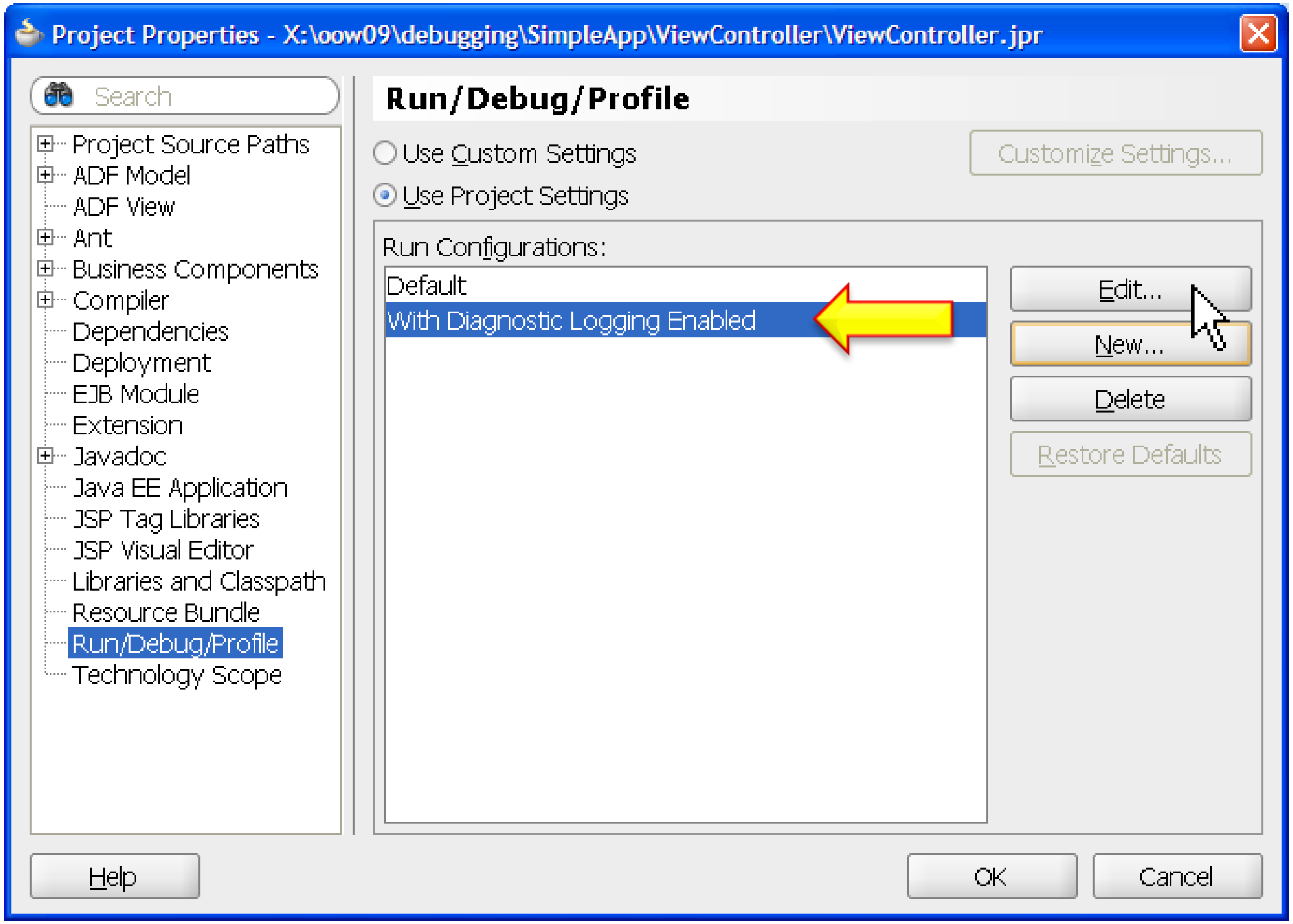
Run/Debug/Profile

Create Run Configuration

Name: With Diagnostic Logging Enabled

Copy Settings From: Default

Enable Diagnostic Logging
► Edit New Run Configuration



Project Properties - X:\oow09\debugging\SimpleApp\ViewController\ViewController.jpr

Run/Debug/Profile

○ Use Custom Settings

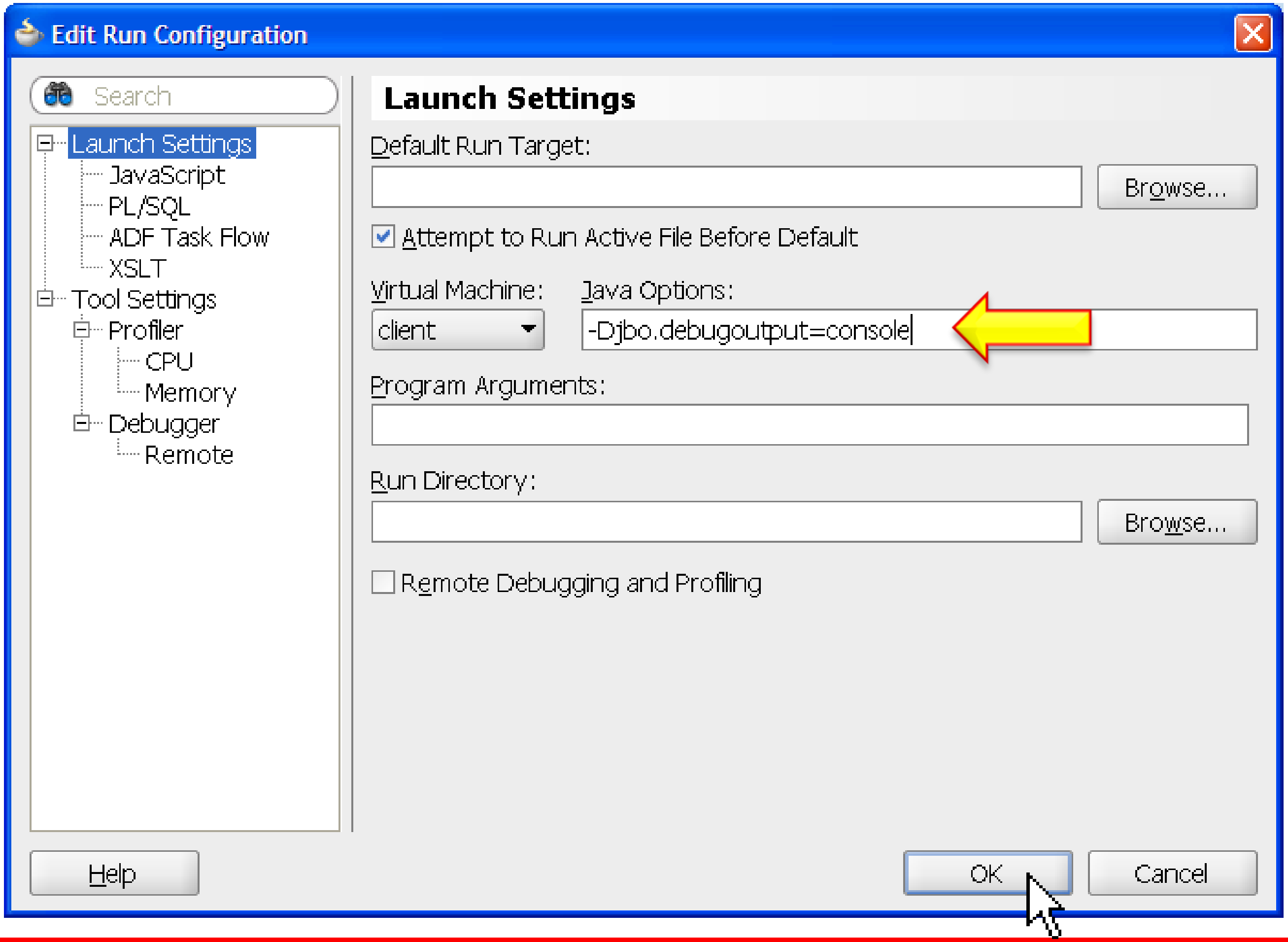
● Use Project Settings

Run Configurations:

- Default
- With Diagnostic Logging Enabled

Enable Diagnostic Logging

- ► Add `–Djbo.debugoutput=console` to Java Options



Edit Run Configuration

Launch Settings

Default Run Target:

☑ Attempt to Run Active File Before Default

Virtual Machine: client

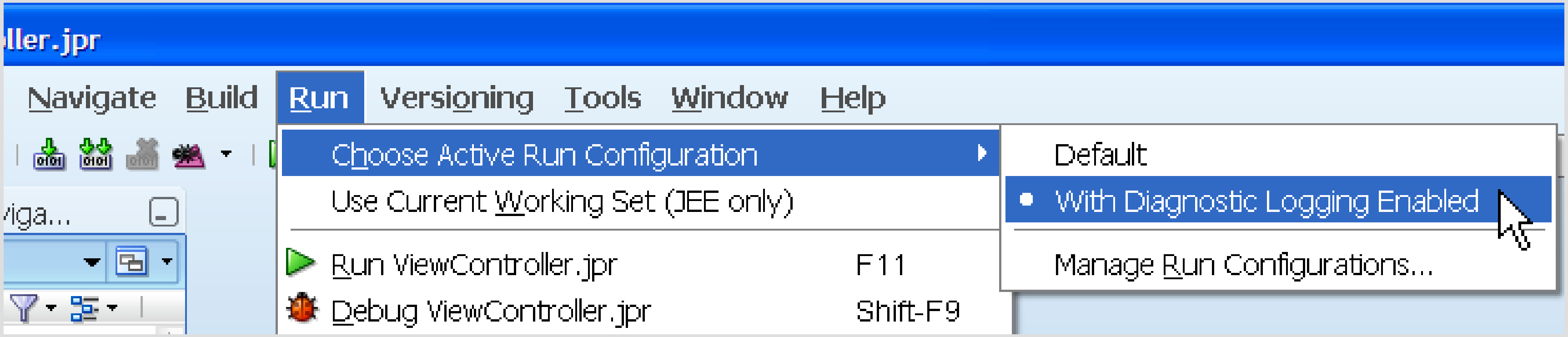
Java Options: -Djbo.debugoutput=console

Program Arguments:

Run Directory:

☐ Remote Debugging and Profiling

Enable Diagnostic Logging
► Choosing Active Run Configuration

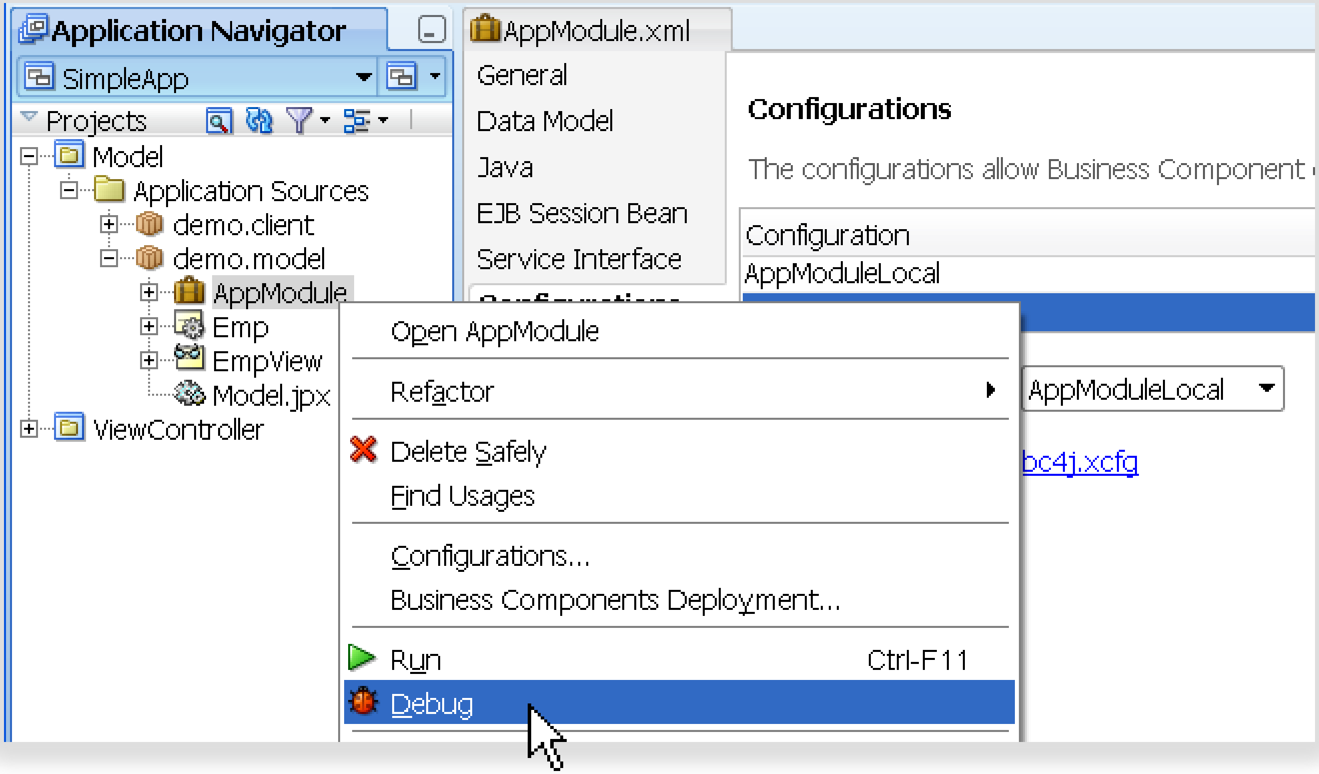


ller.jpr
Navigate
Build
Run
Versioning
Tools
Window
Help
viga...
Choose Active Run Configuration
Use Current Working Set (JEE only)
Run ViewController.jpr F11
Debug ViewController.jpr Shift-F9
Default
● With Diagnostic Logging Enabled
Manage Run Configurations...

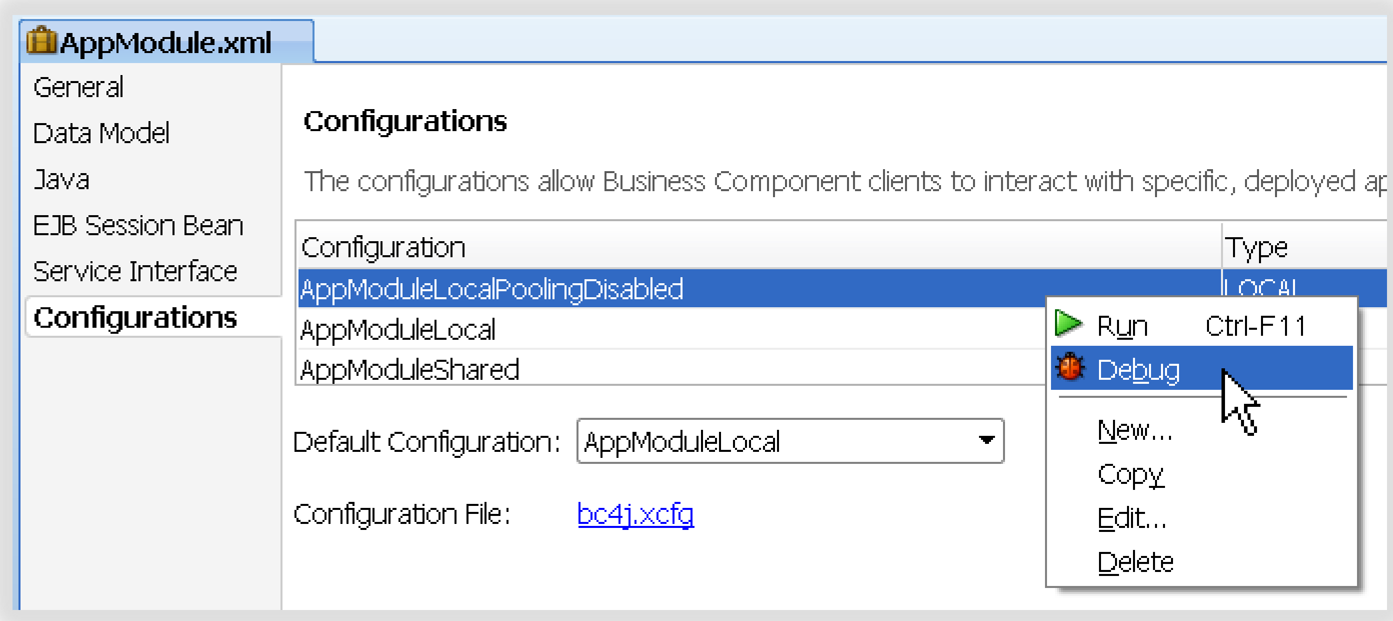
HOW TO

Debug with the Business Components Tester

Debug with the Business Components Tester ► Right-click Debug to Use Default Configuration



Debug with the Business Components Tester ► Debug Specific Configuration In AM Editor



Configurations

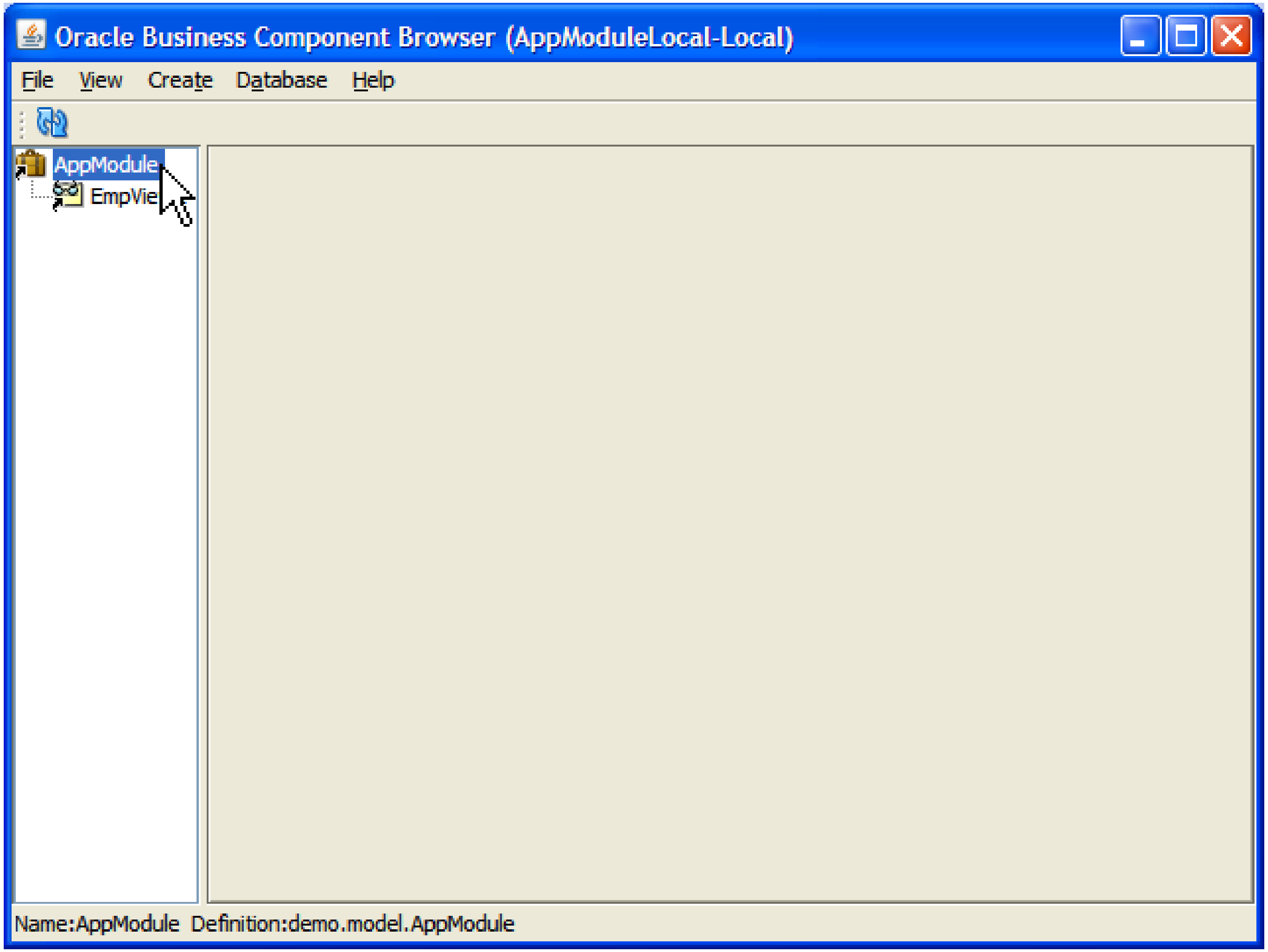
The configurations allow Business Component clients to interact with specific, deployed ap

Configuration	Type
AppModuleLocalPoolingDisabled	LOCAL
AppModuleLocal	
AppModuleShared	

Default Configuration: AppModuleLocal

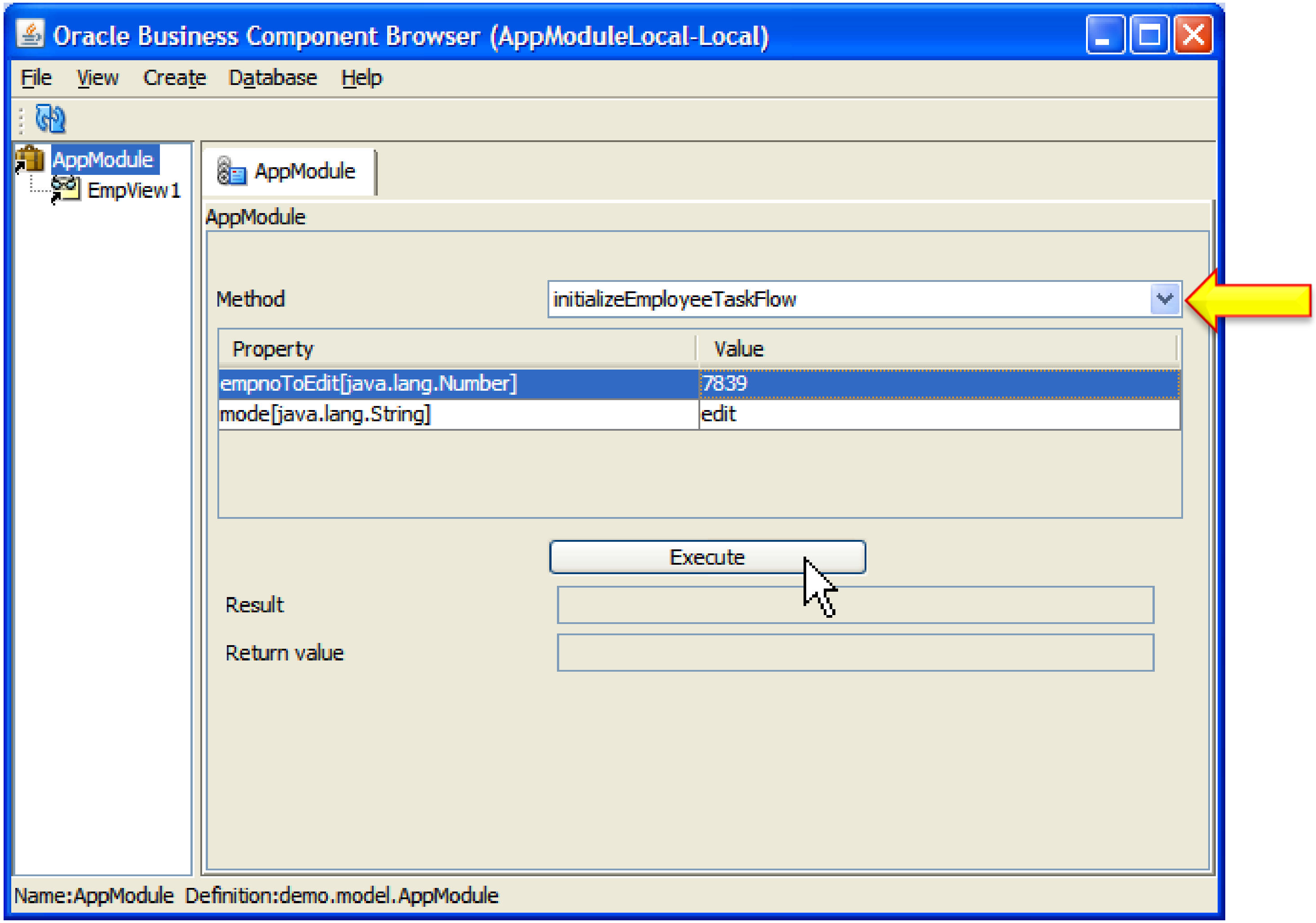
Configuration File: bc4j.xcfg

Debug with the Business Components Tester ► Double-click App Module to See Client Methods



Name:AppModule Definition:demo.model.AppModule

Debug with the Business Components Tester ► Choose Method, Enter Params, and Execute



AppModule

Method: initializeEmployeeTaskFlow

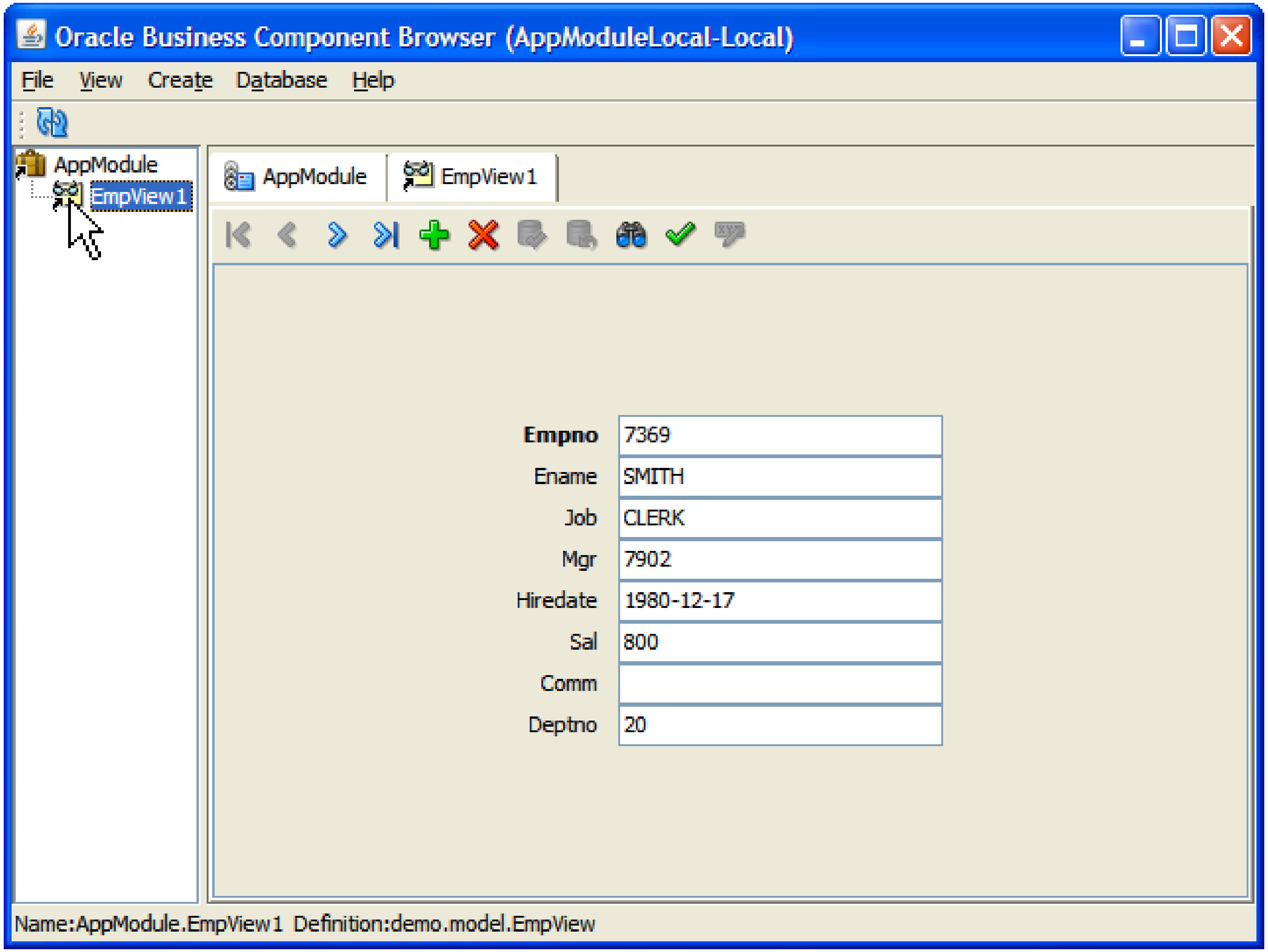
Property	Value
empnoToEdit[java.lang.Number]	7839
mode[java.lang.String]	edit

Result:

Return value:

Name:AppModule Definition:demo.model.AppModule

Debug with the Business Components Tester ► Double-click View Instance to See Data

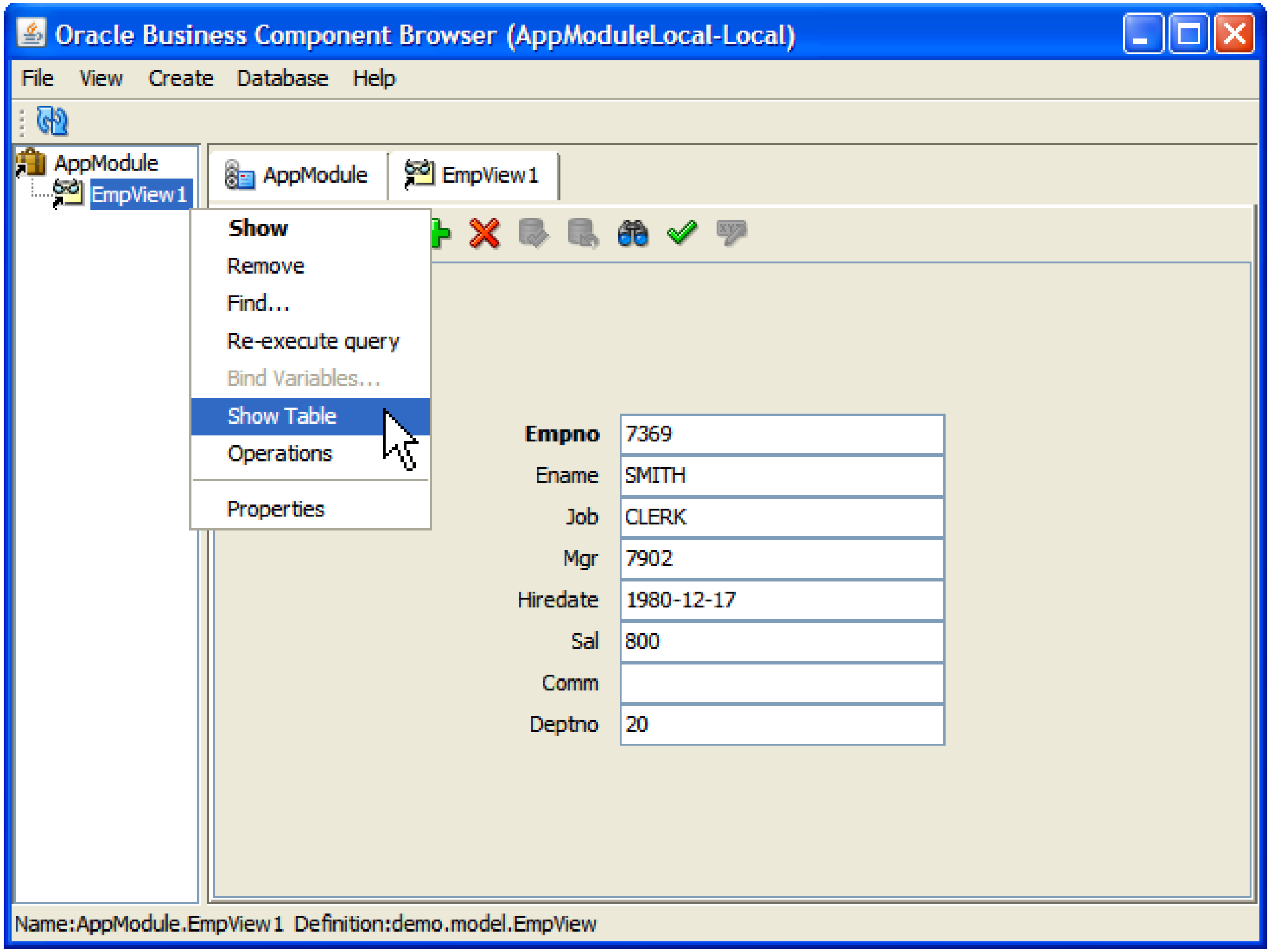


Oracle Business Component Browser (AppModuleLocal-Local)
File View Create Database Help
AppModule
EmpView1
AppModule
EmpView1

Empno	7369
Ename	SMITH
Job	CLERK
Mgr	7902
Hiredate	1980-12-17
Sal	800
Comm	
Deptno	20

Name:AppModule.EmpView1 Definition:demo.model.EmpView

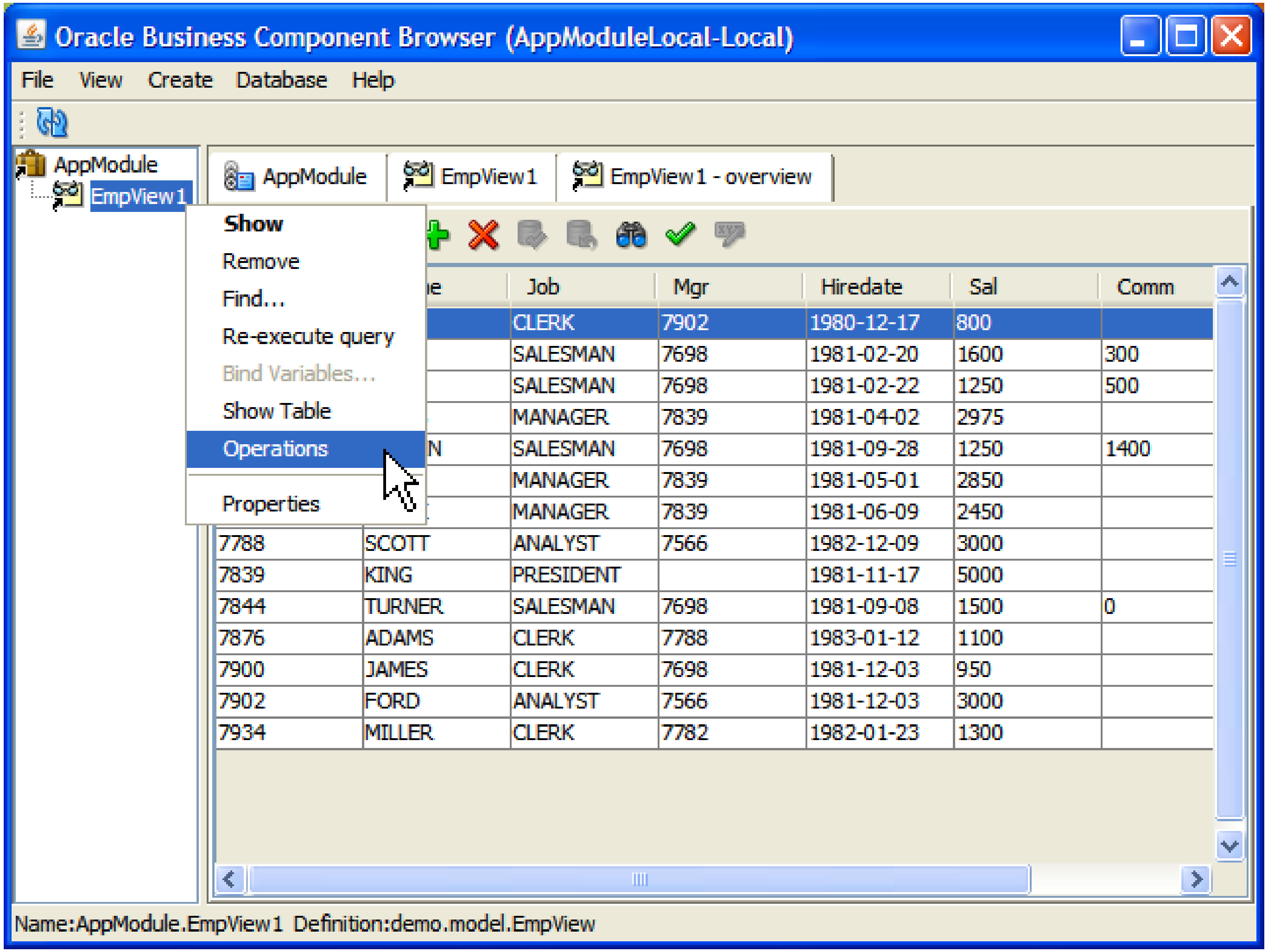
Debug with the Business Components Tester
► Alternatively, Show Data in Editable Table



Empno	7369
Ename	SMITH
Job	CLERK
Mgr	7902
Hiredate	1980-12-17
Sal	800
Comm	
Deptno	20

Name:AppModule.EmpView1 Definition:demo.model.EmpView

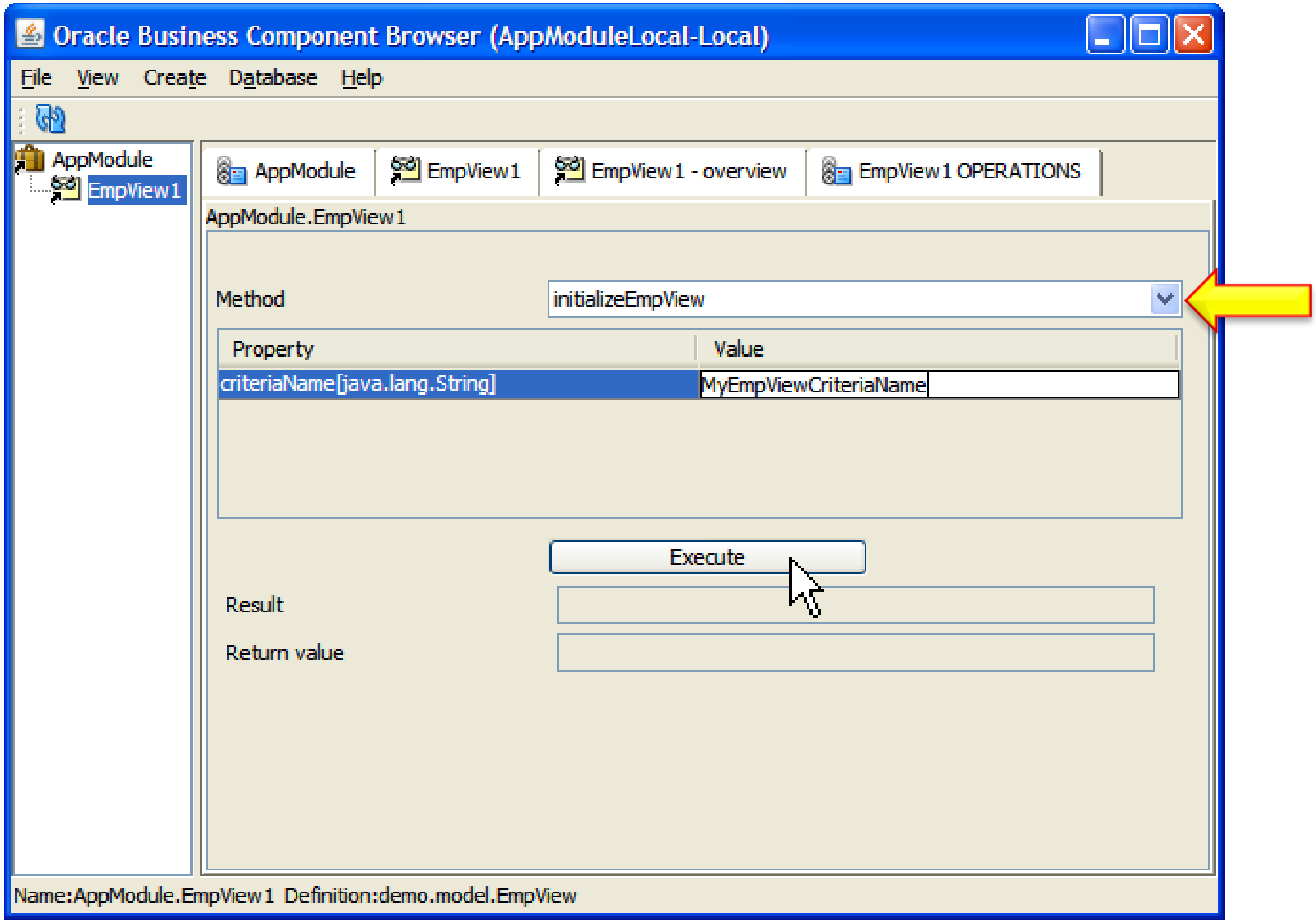
Debug with the Business Components Tester ► If Needed, View Object Operations Available



	e	Job	Mgr	Hiredate	Sal	Comm
		CLERK	7902	1980-12-17	800	
		SALESMAN	7698	1981-02-20	1600	300
		SALESMAN	7698	1981-02-22	1250	500
		MANAGER	7839	1981-04-02	2975	
	N	SALESMAN	7698	1981-09-28	1250	1400
		MANAGER	7839	1981-05-01	2850	
		MANAGER	7839	1981-06-09	2450	
7788	SCOTT	ANALYST	7566	1982-12-09	3000	
7839	KING	PRESIDENT		1981-11-17	5000	
7844	TURNER	SALESMAN	7698	1981-09-08	1500	0
7876	ADAMS	CLERK	7788	1983-01-12	1100	
7900	JAMES	CLERK	7698	1981-12-03	950	
7902	FORD	ANALYST	7566	1981-12-03	3000	
7934	MILLER	CLERK	7782	1982-01-23	1300	

Name:AppModule.EmpView1 Definition:demo.model.EmpView

Debug with the Business Components Tester ► Choose Method, Enter Params, and Execute



Oracle Business Component Browser (AppModuleLocal-Local)
File View Create Database Help
AppModule
EmpView1
AppModule
EmpView1
EmpView1 - overview
EmpView1 OPERATIONS
Execute

AppModule.EmpView1

Method: initializeEmpView

Property	Value
criteriaName[java.lang.String]	MyEmpViewCriteriaName

Result

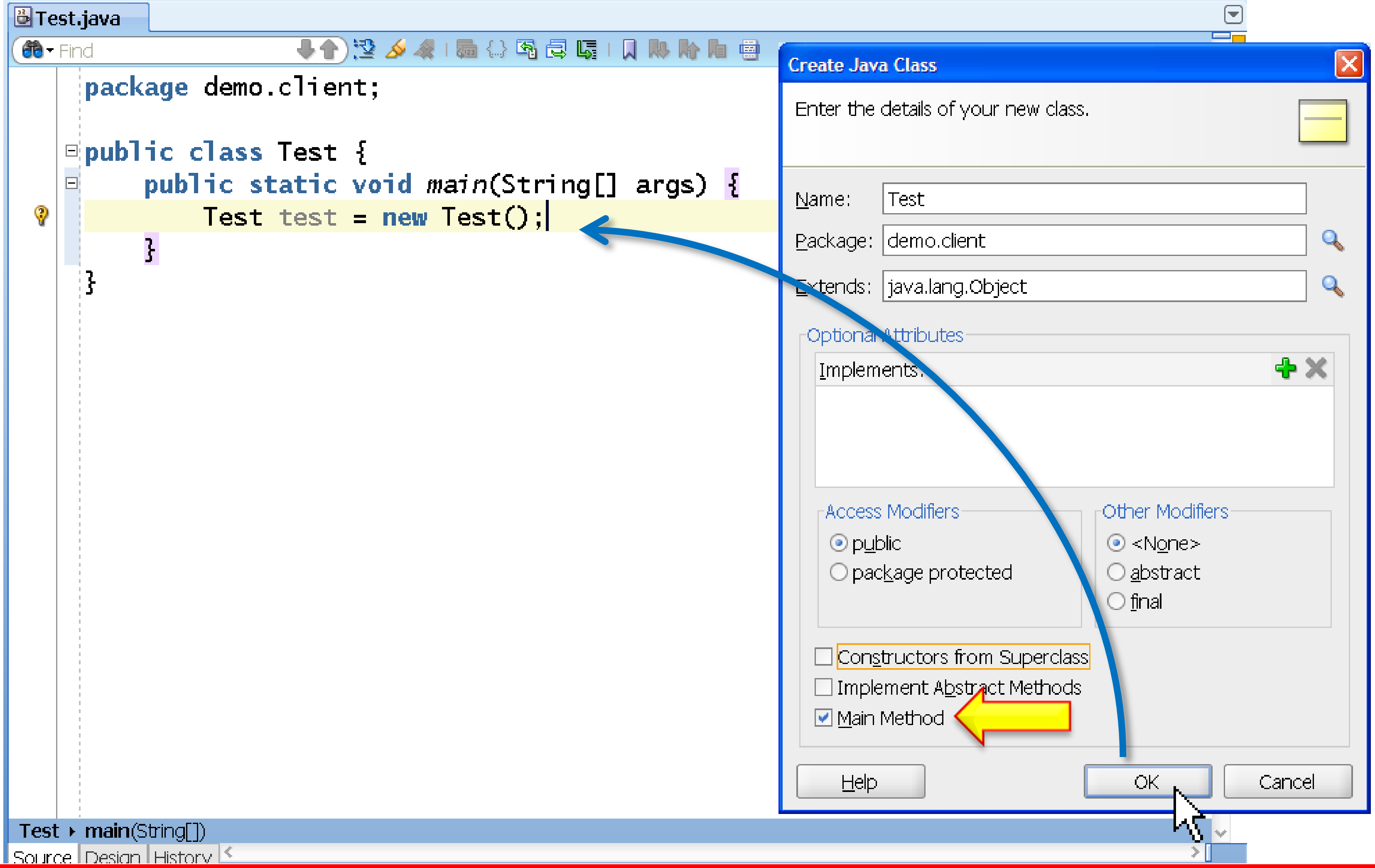
Return value

Name:AppModule.EmpView1 Definition:demo.model.EmpView

HOW TO

Create a Command-Line Test Client Program

Create a Command-Line Test Client Program ► Create a New Java Class with `main()` Method



Test.java

```
package demo.client;

public class Test {
    public static void main(String[] args) {
        Test test = new Test();
    }
}
```

Create Java Class

Enter the details of your new class.

Name: Test

Package: demo.client

Extends: java.lang.Object

Optional Attributes

Implements:

Access Modifiers

● public

○ package protected

Other Modifiers

● <None>

○ abstract

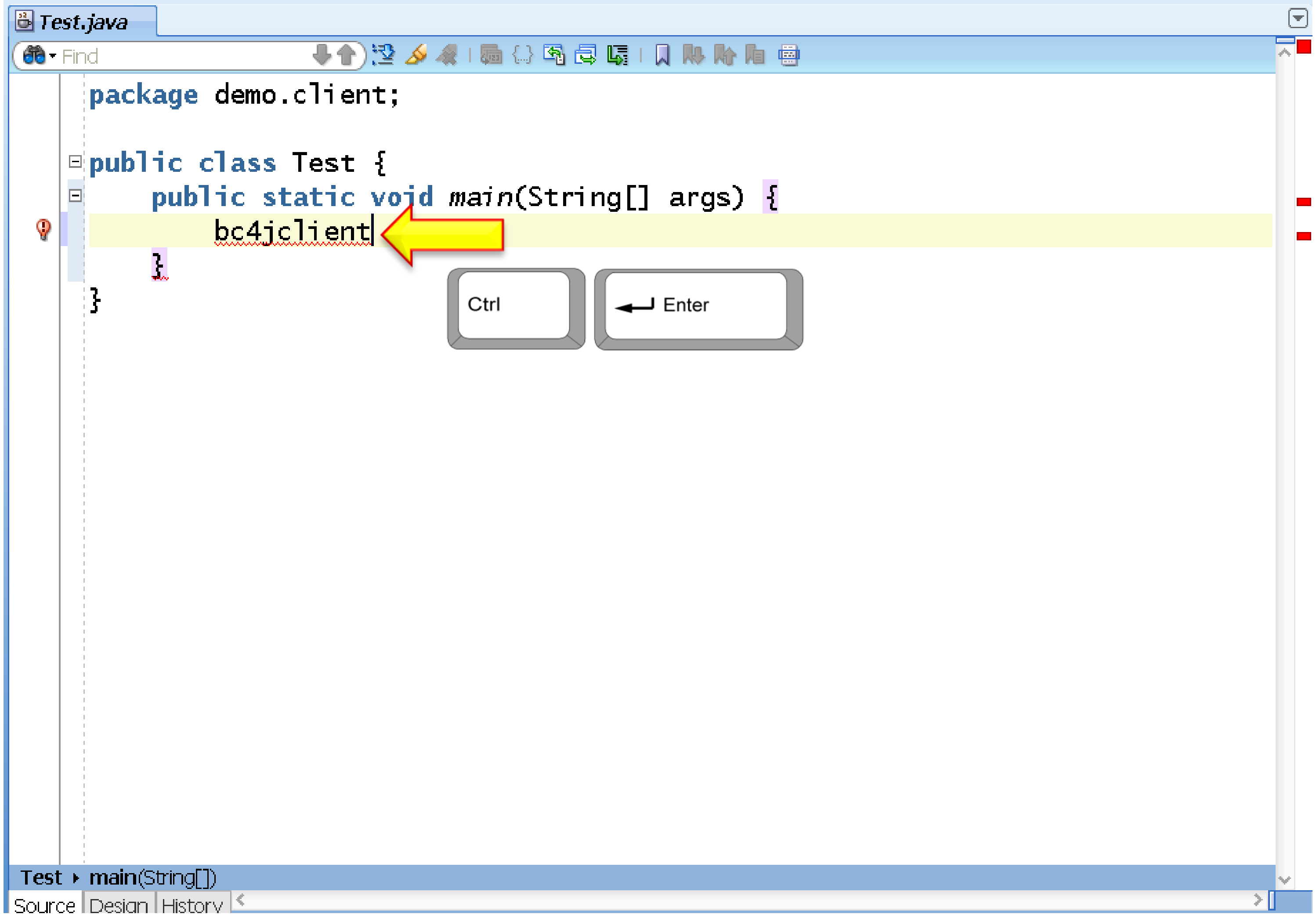
○ final

□ Constructors from Superclass

□ Implement Abstract Methods

☑ Main Method

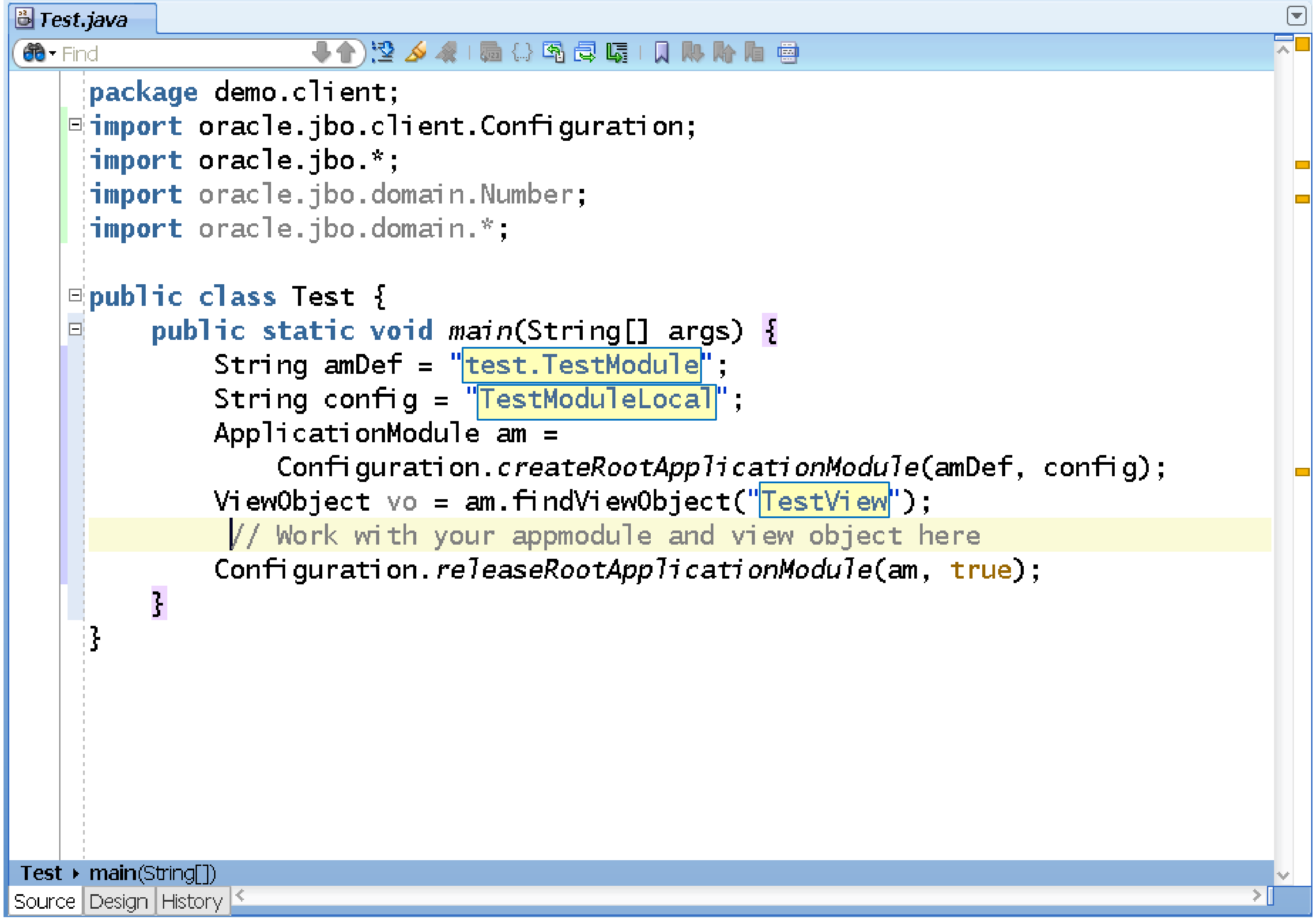
Create a Command-Line Test Client Program ► Use `bc4jclient` Code Template



```
package demo.client;

public class Test {
    public static void main(String[] args) {
        bc4jclient
    }
}
```

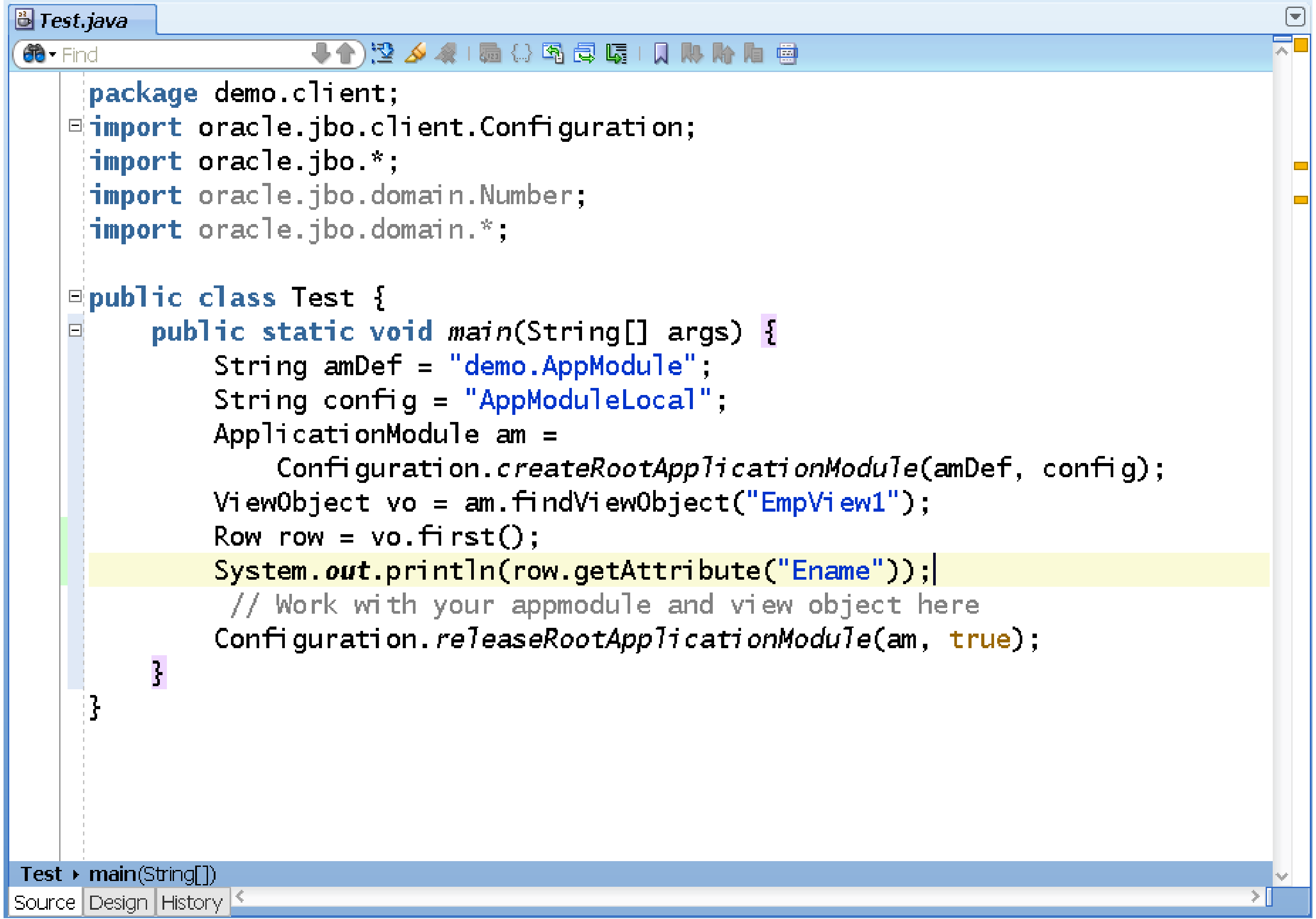
Create a Command-Line Test Client Program ► Replace AM, Config, VO Names Appropriately



```
package demo.client;
import oracle.jbo.client.Configuration;
import oracle.jbo.*;
import oracle.jbo.domain.Number;
import oracle.jbo.domain.*;

public class Test {
    public static void main(String[] args) {
        String amDef = "test.TestModule";
        String config = "TestModuleLocal";
        ApplicationModule am =
            Configuration.createRootApplicationModule(amDef, config);
        ViewObject vo = am.findViewObject("TestView");
        // Work with your appmodule and view object here
        Configuration.releaseRootApplicationModule(am, true);
    }
}
```

Create a Command-Line Test Client Program ► Write Code to Work with AM and/or VO



```java
package demo.client;
import oracle.jbo.client.Configuration;
import oracle.jbo.*;
import oracle.jbo.domain.Number;
import oracle.jbo.domain.*;

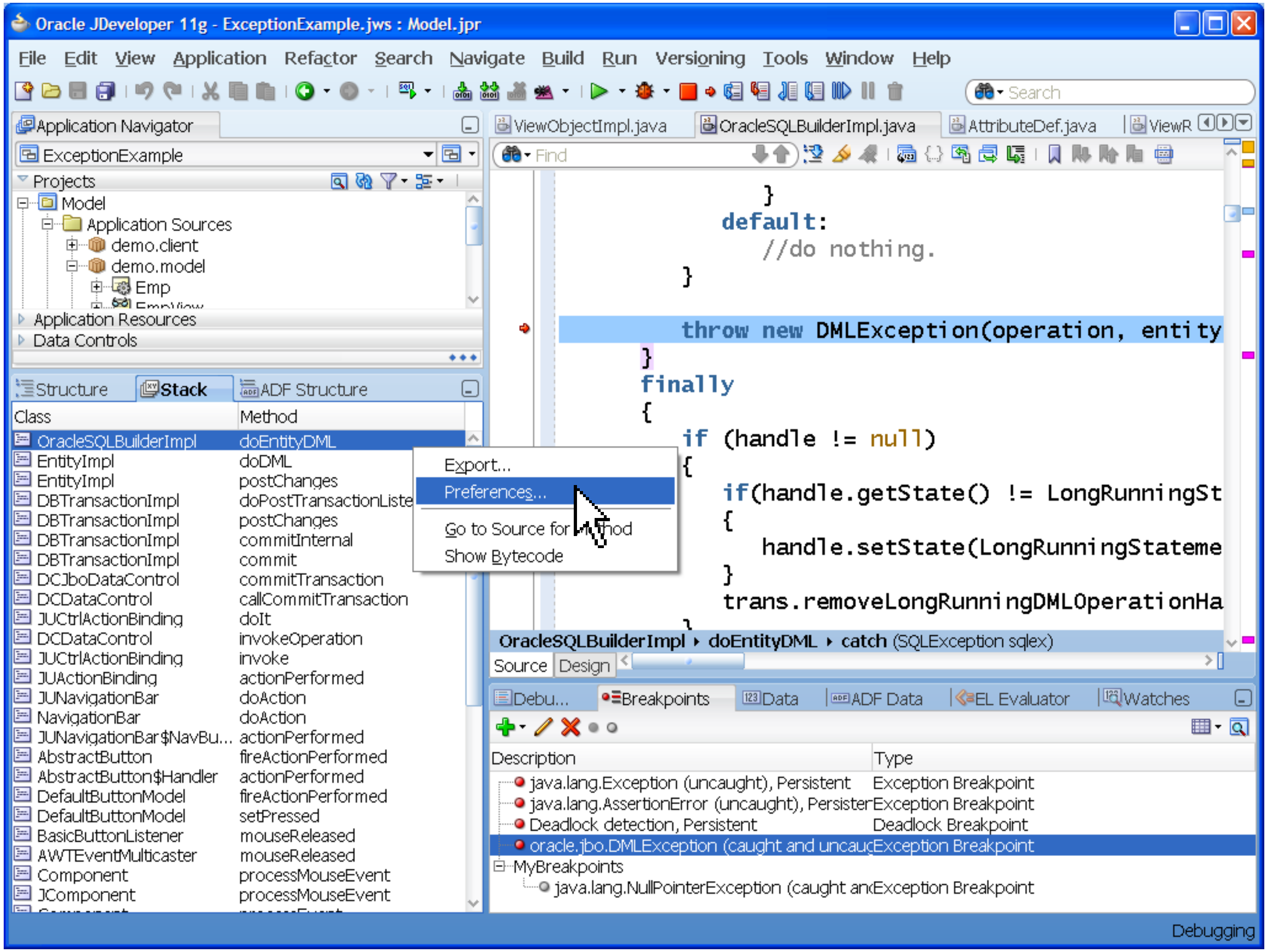
public class Test {
    public static void main(String[] args) {
        String amDef = "demo.AppModule";
        String config = "AppModuleLocal";
        ApplicationModule am =
            Configuration.createRootApplicationModule(amDef, config);
        ViewObject vo = am.findViewObject("EmpView1");
        Row row = vo.first();
        System.out.println(row.getAttribute("Ename"));
         // Work with your appmodule and view object here
        Configuration.releaseRootApplicationModule(am, true);
    }
}
```

HOW TO

Export Debugger Call Stack and Exact JDev/ADF Version

Export Debugger Call Stack

► Visit Stack Window Preferences



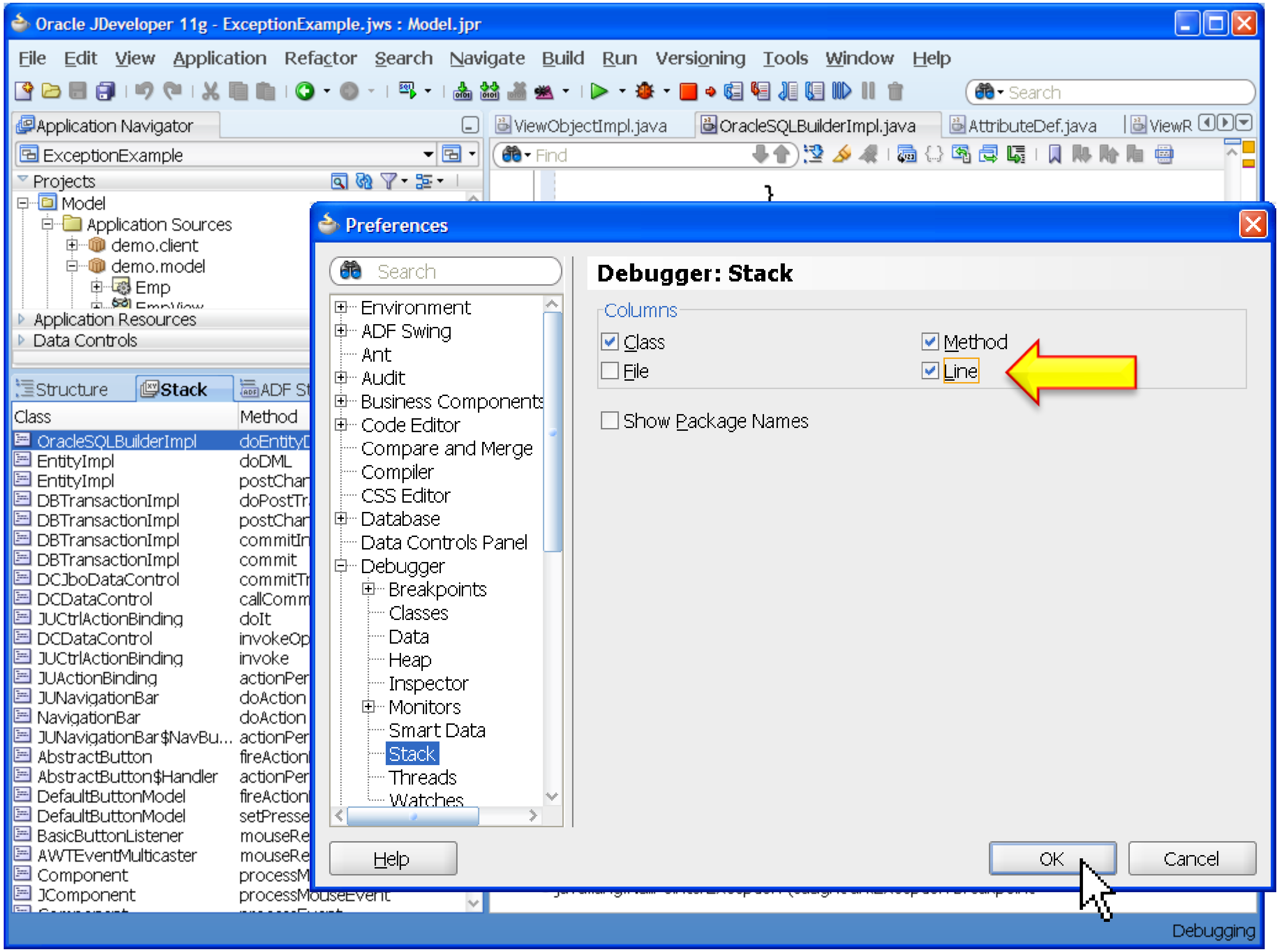
```
            }
         default:
            //do nothing.
      }

      throw new DMLException(operation, entity
   }
   finally
   {
      if (handle != null)
      {
         if(handle.getState() != LongRunningSt
         {
            handle.setState(LongRunningStateme
         }
         trans.removeLongRunningDMLOperationHa
```

Class	Method
OracleSQLBuilderImpl	doEntityDML
EntityImpl	doDML
EntityImpl	postChanges
DBTransactionImpl	doPostTransactionListe
DBTransactionImpl	postChanges
DBTransactionImpl	commitInternal
DBTransactionImpl	commit
DCJboDataControl	commitTransaction
DCDataControl	callCommitTransaction
JUCtrlActionBinding	doIt
DCDataControl	invokeOperation
JUCtrlActionBinding	invoke
JUActionBinding	actionPerformed
JUNavigationBar	doAction
NavigationBar	doAction
JUNavigationBar$NavBu...	actionPerformed
AbstractButton	fireActionPerformed
AbstractButton$Handler	actionPerformed
DefaultButtonModel	fireActionPerformed
DefaultButtonModel	setPressed
BasicButtonListener	mouseReleased
AWTEventMulticaster	mouseReleased
Component	processMouseEvent
JComponent	processMouseEvent

Description	Type
java.lang.Exception (uncaught), Persistent	Exception Breakpoint
java.lang.AssertionError (uncaught), Persister	Exception Breakpoint
Deadlock detection, Persistent	Deadlock Breakpoint
oracle.jbo.DMLException (caught and uncaug	Exception Breakpoint
MyBreakpoints	
java.lang.NullPointerException (caught an	Exception Breakpoint

Export Debugger Call Stack
► Enable Line Numbers in Stack Window



Class	Method
OracleSQLBuilderImpl	doEntityD
EntityImpl	doDML
EntityImpl	postChar
DBTransactionImpl	doPostTr
DBTransactionImpl	postChar
DBTransactionImpl	commitIn
DBTransactionImpl	commit
DCJboDataControl	commitTr
DCDataControl	callComm
JUCtrlActionBinding	doIt
DCDataControl	invokeOp
JUCtrlActionBinding	invoke
JUActionBinding	actionPer
JUNavigationBar	doAction
NavigationBar	doAction
JUNavigationBar$NavBu...	actionPer
AbstractButton	fireAction
AbstractButton$Handler	actionPer
DefaultButtonModel	fireAction
DefaultButtonModel	setPresse
BasicButtonListener	mouseRe
AWTEventMulticaster	mouseRe
Component	processM
JComponent	processMouseEvent

Debugger: Stack

Columns

☑ Class ☑ Method

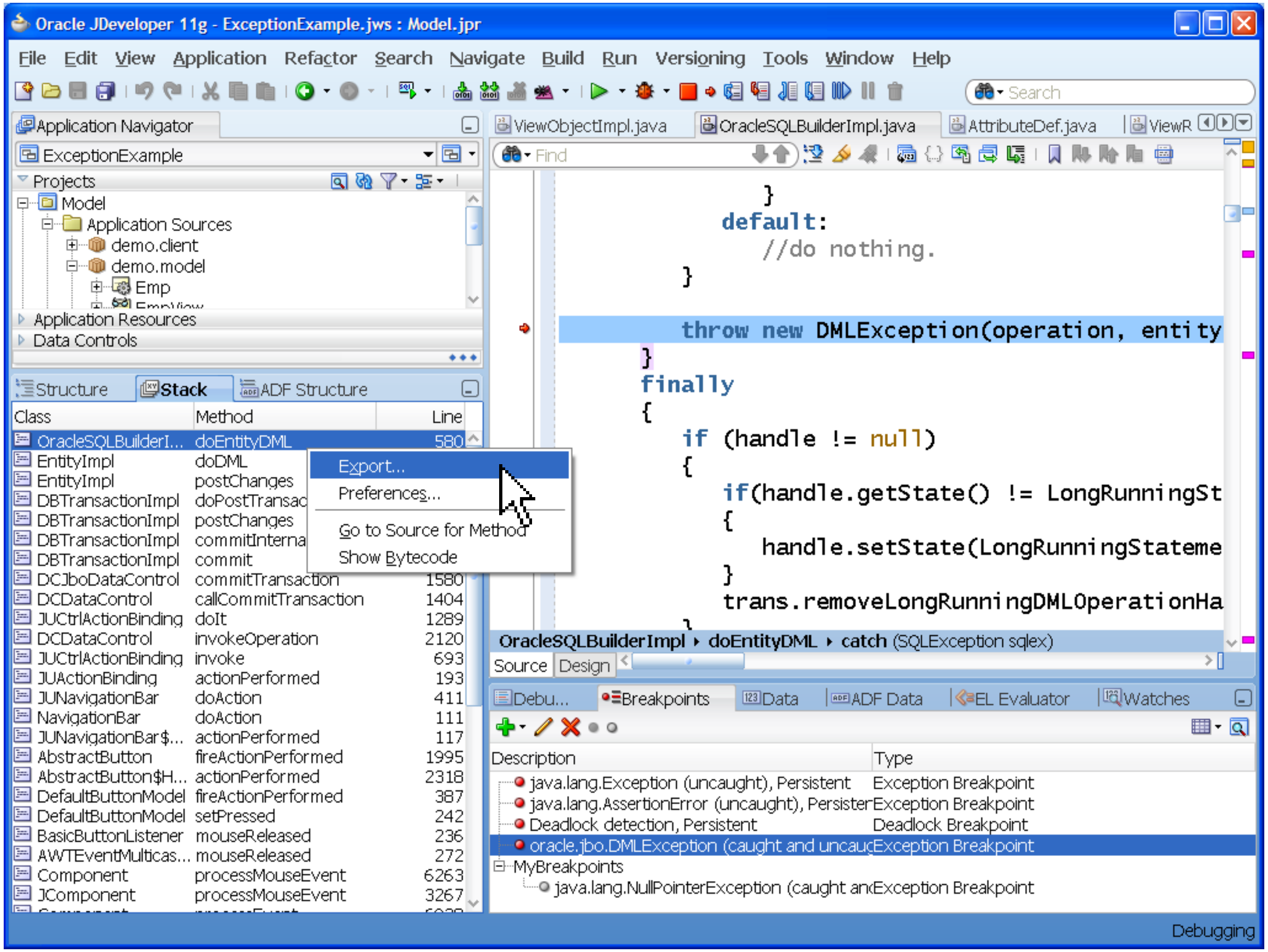
☐ File ☑ Line

☐ Show Package Names

ORACLE®

Export Debugger Call Stack

► Export the Stack to a Text File



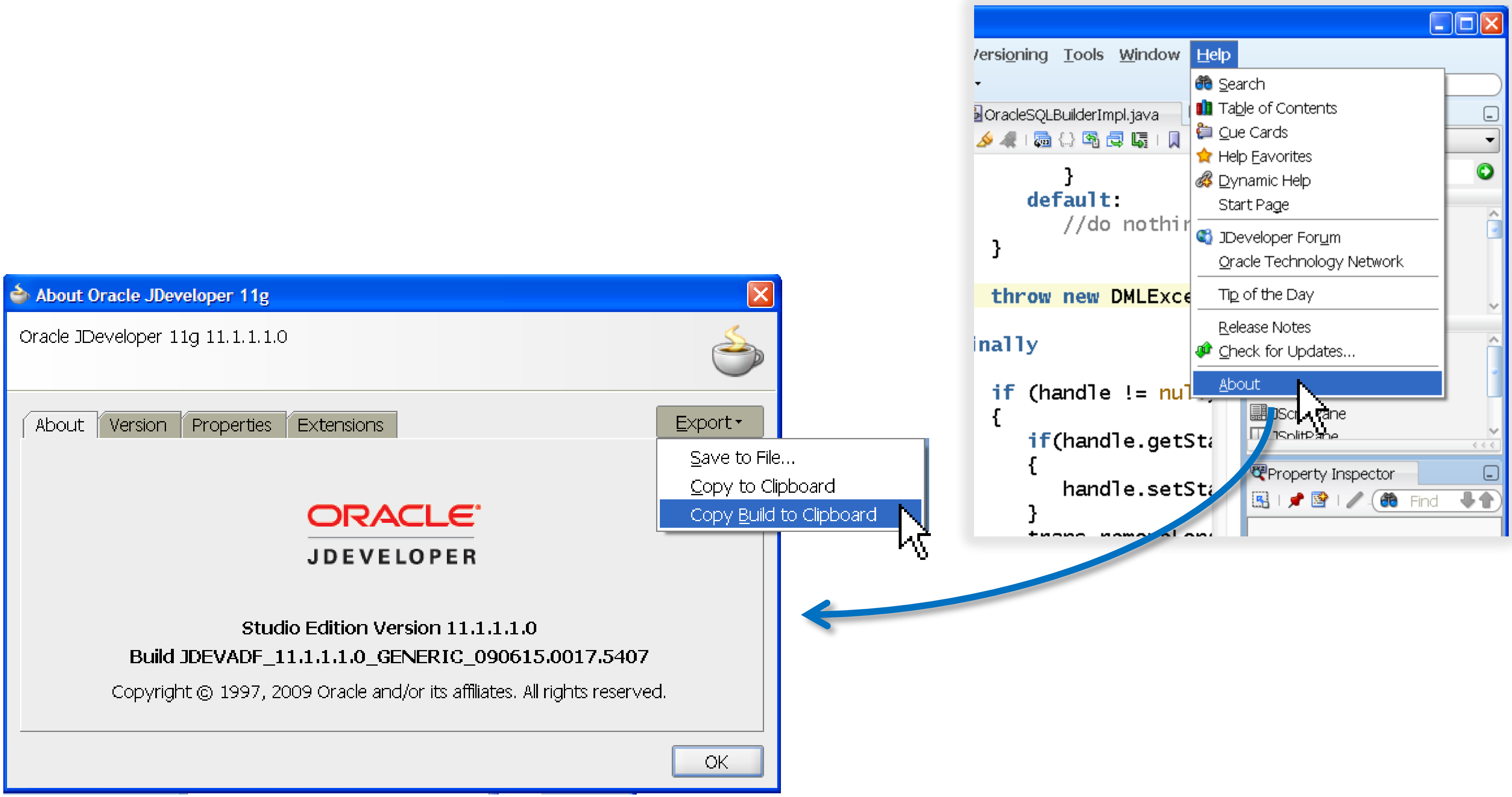
```
            }
        default:
            //do nothing.
    }

        throw new DMLException(operation, entity
    }
    finally
    {
        if (handle != null)
        {
            if(handle.getState() != LongRunningSt
            {
                handle.setState(LongRunningStateme
            }
            trans.removeLongRunningDMLOperationHa
```

Class	Method	Line
OracleSQLBuilderI...	doEntityDML	580
EntityImpl	doDML	
EntityImpl	postChanges	
DBTransactionImpl	doPostTransac	
DBTransactionImpl	postChanges	
DBTransactionImpl	commitInterna	
DBTransactionImpl	commit	
DCJboDataControl	commitTransaction	1580
DCDataControl	callCommitTransaction	1404
JUCtrlActionBinding	doIt	1289
DCDataControl	invokeOperation	2120
JUCtrlActionBinding	invoke	693
JUActionBinding	actionPerformed	193
JUNavigationBar	doAction	411
NavigationBar	doAction	111
JUNavigationBar$...	actionPerformed	117
AbstractButton	fireActionPerformed	1995
AbstractButton$H...	actionPerformed	2318
DefaultButtonModel	fireActionPerformed	387
DefaultButtonModel	setPressed	242
BasicButtonListener	mouseReleased	236
AWTEventMulticas...	mouseReleased	272
Component	processMouseEvent	6263
JComponent	processMouseEvent	3267

Description	Type
● java.lang.Exception (uncaught), Persistent	Exception Breakpoint
● java.lang.AssertionError (uncaught), Persister	Exception Breakpoint
● Deadlock detection, Persistent	Deadlock Breakpoint
● oracle.jbo.DMLException (caught and uncau	Exception Breakpoint
MyBreakpoints	
○ java.lang.NullPointerException (caught an	Exception Breakpoint

Copying Exact Build Information to the Clipboard



About Oracle JDeveloper 11g

Oracle JDeveloper 11g 11.1.1.1.0

Studio Edition Version 11.1.1.1.0

Build JDEVADF_11.1.1.1.0_GENERIC_090615.0017.5407

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```
        }
    default:
        //do nothi
}

throw new DMLExce

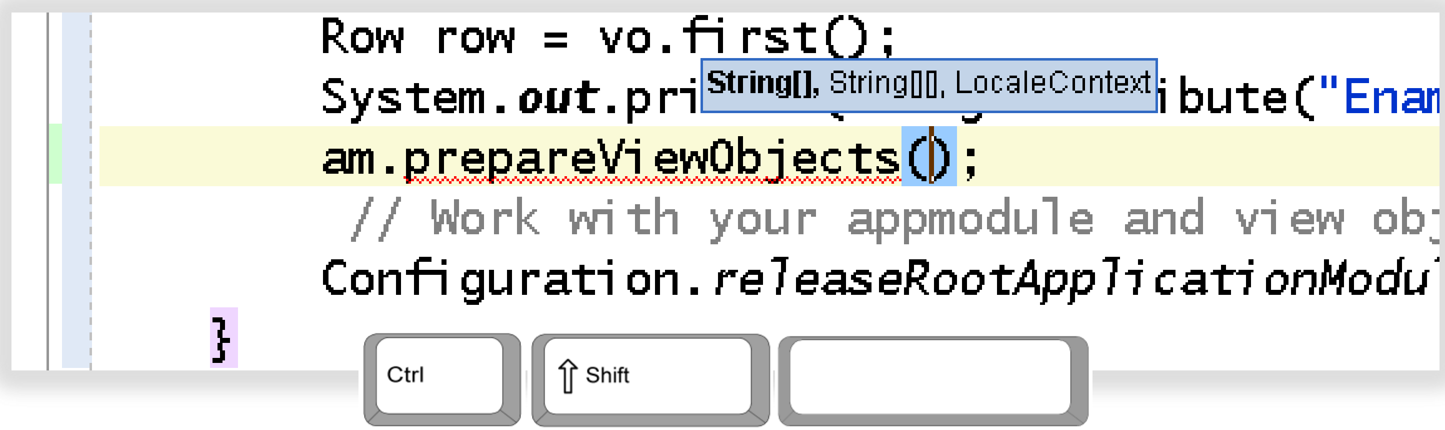
inally

 if (handle != nul
 {
     if(handle.getSta
     {
         handle.setSta
     }
```

TIP

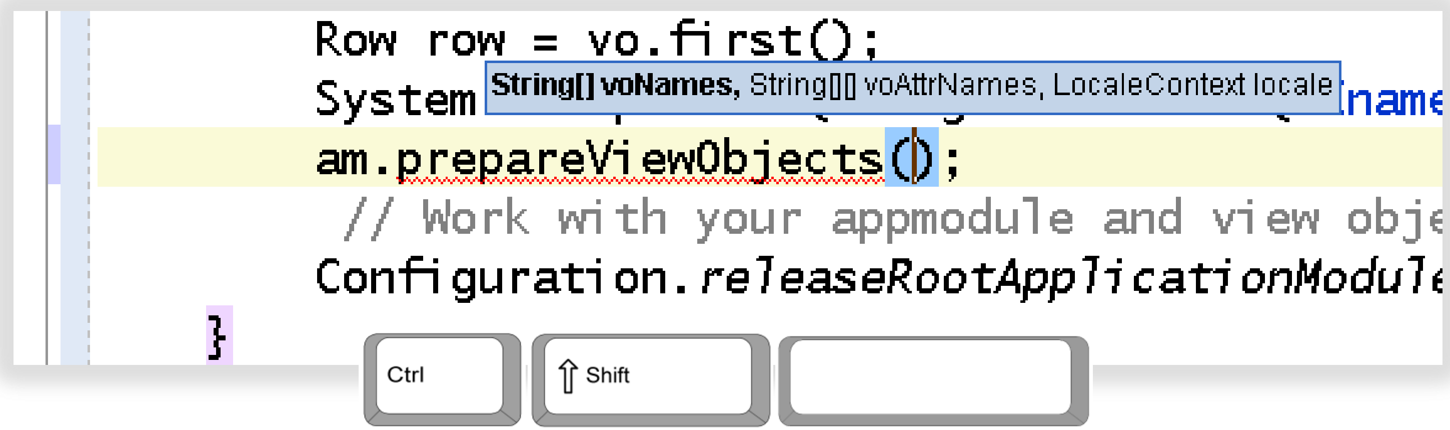
Having the ADF Source Code Makes a Big Difference

Without ADF Source…
Parameter Insight Only Gives Data Types



```
        Row row = vo.first();
        System.out.pri                                  ibute("Enam
        am.prepareViewObjects();
         // Work with your appmodule and view obj
        Configuration.releaseRootApplicationModu
    }
```

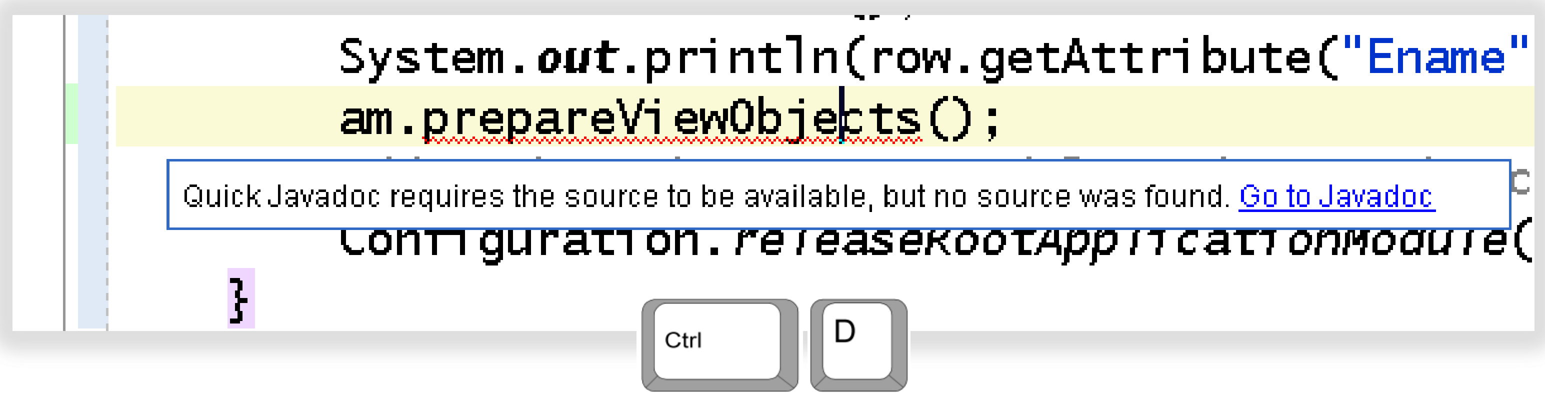
With ADF Source…
Parameter Insight Shows Parameter Names, Too



```
        Row row = vo.first();
        System                                                      name
        am.prepareViewObjects();
         // Work with your appmodule and view obje
        Configuration.releaseRootApplicationModule
    }
```

String[] voNames, String[][] voAttrNames, LocaleContext locale

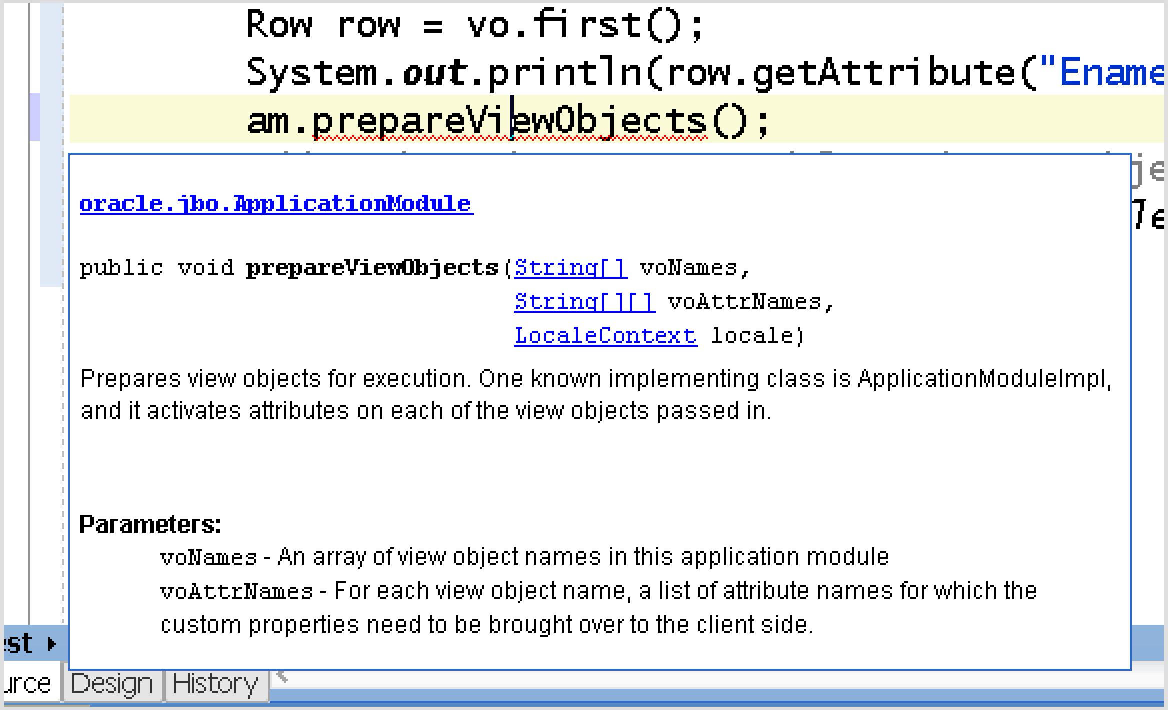
Without ADF Source…
Quick JavaDoc Does Not Work At All



```
        System.out.println(row.getAttribute("Ename"
        am.prepareViewObjects();
        Configuration.releaseRootApplicationModule(
    }
```

Quick Javadoc requires the source to be available, but no source was found. Go to Javadoc

With ADF Source…
Quick JavaDoc Gives You Instant Overviews



```
        Row row = vo.first();
        System.out.println(row.getAttribute("Ename
        am.prepareViewObjects();
```

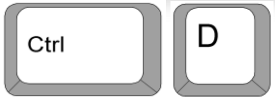
oracle.jbo.ApplicationModule

```
public void prepareViewObjects(String[] voNames,
                               String[][] voAttrNames,
                               LocaleContext locale)
```

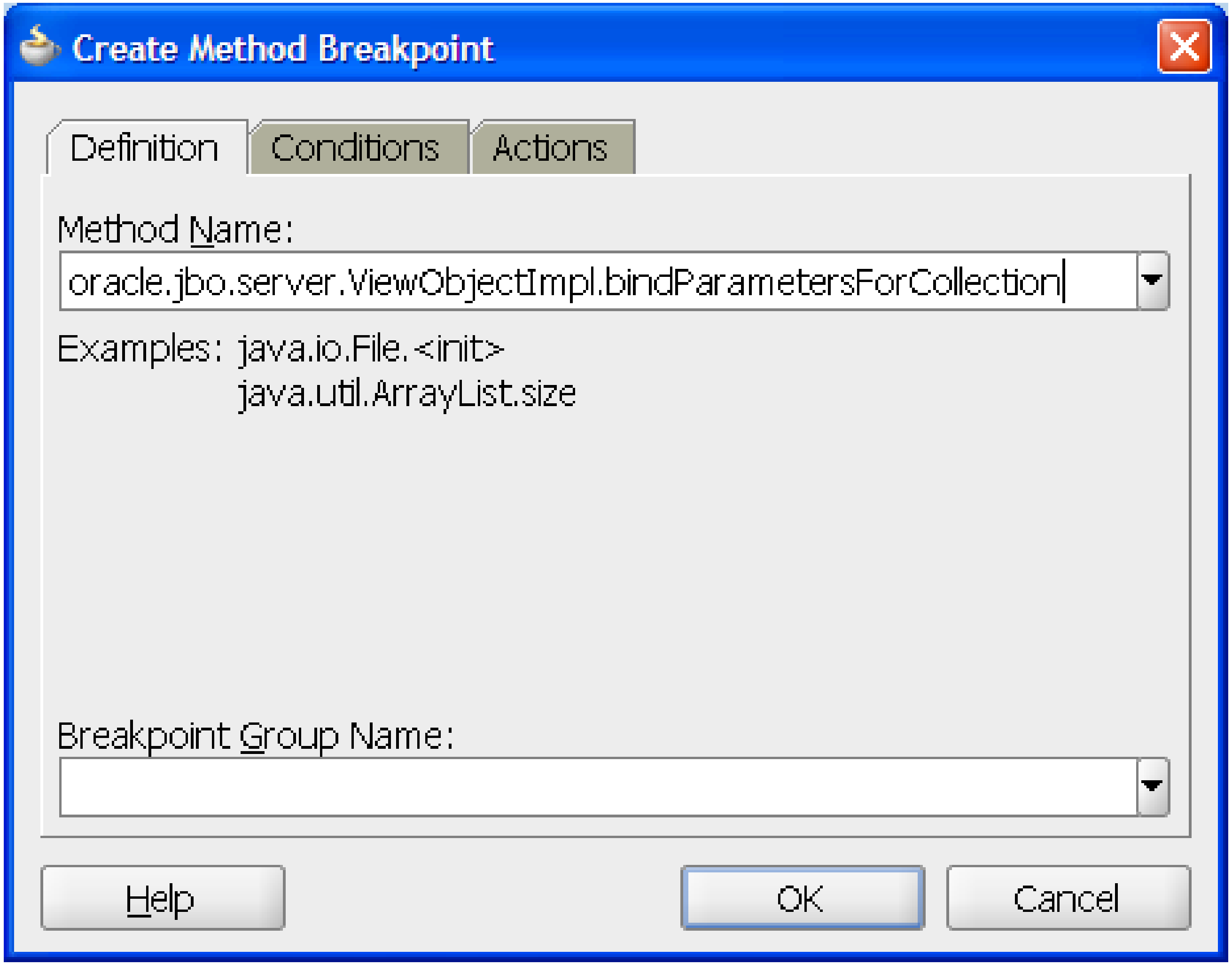
Prepares view objects for execution. One known implementing class is ApplicationModuleImpl, and it activates attributes on each of the view objects passed in.

Parameters:

- `voNames` - An array of view object names in this application module
- `voAttrNames` - For each view object name, a list of attribute names for which the custom properties need to be brought over to the client side.



Without ADF Source…
Only Method Breakpoints in Fwk, and No Stepping



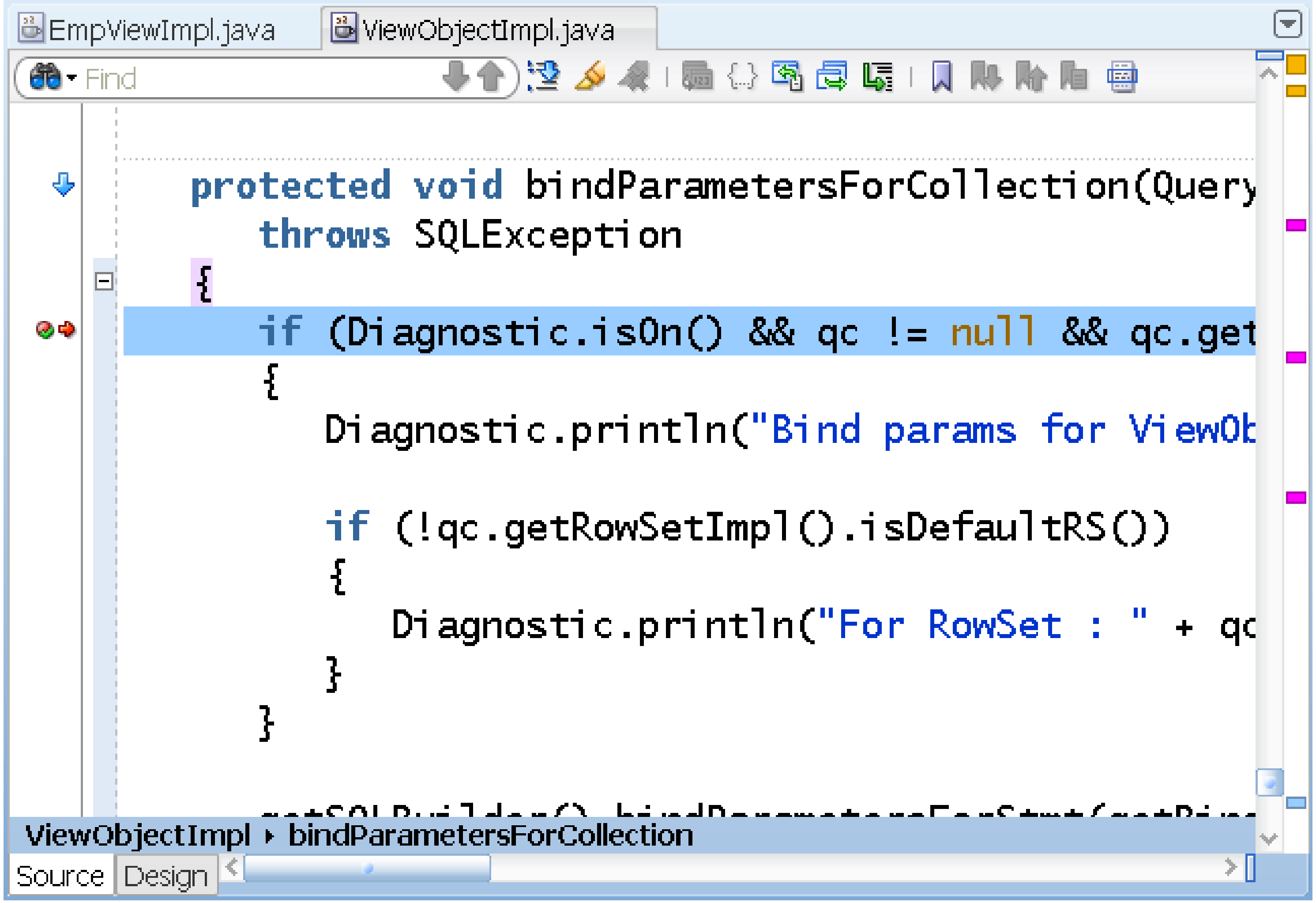
Create Method Breakpoint

Method Name: oracle.jbo.server.ViewObjectImpl.bindParametersForCollection

Examples: java.io.File.<init>
java.util.ArrayList.size

Breakpoint Group Name:

With ADF Source…
Break Anywhere, Step Into Anything

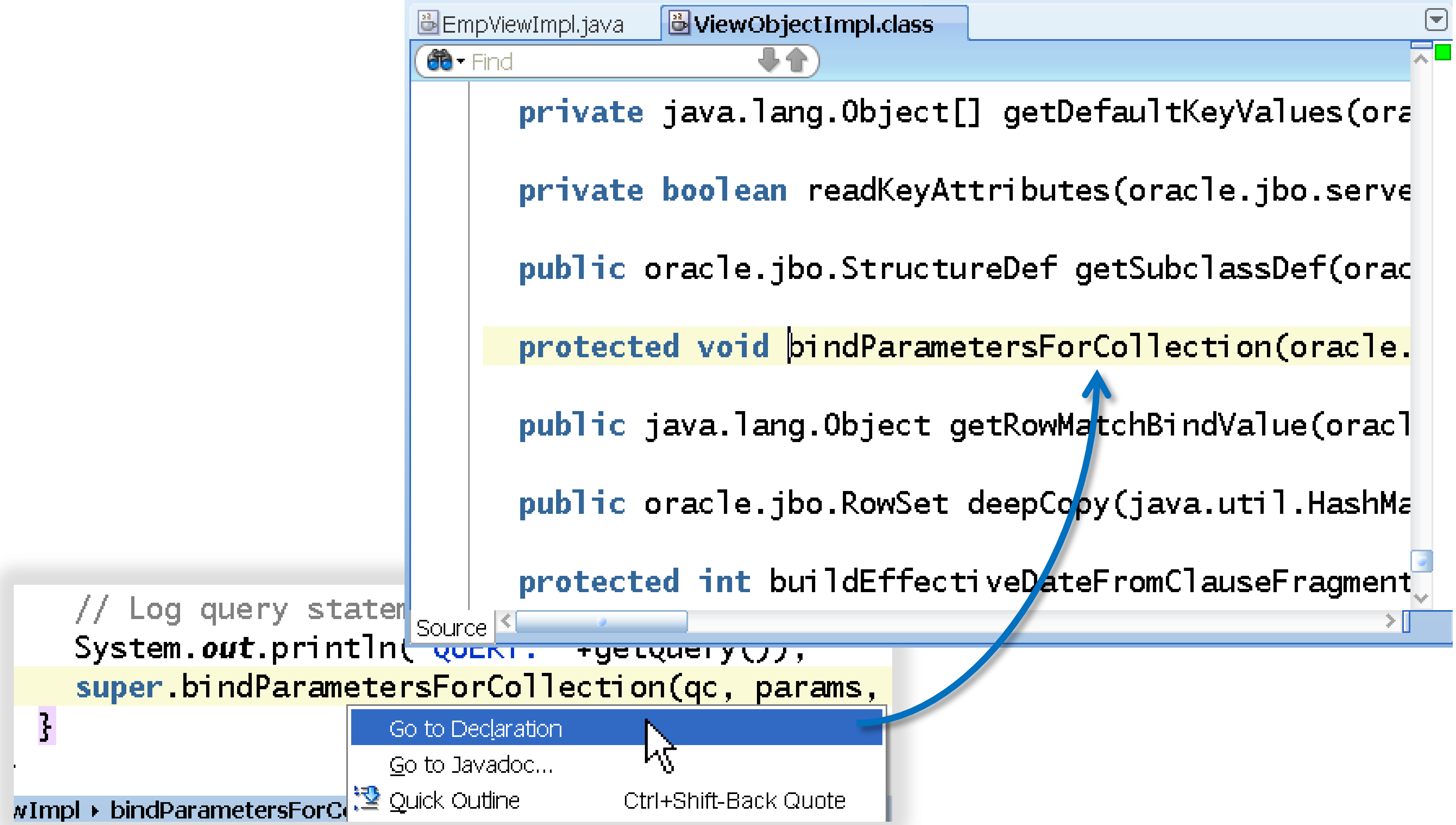


```
protected void bindParametersForCollection(Query
    throws SQLException
{
    if (Diagnostic.isOn() && qc != null && qc.get
    {
        Diagnostic.println("Bind params for ViewOb

        if (!qc.getRowSetImpl().isDefaultRS())
        {
            Diagnostic.println("For RowSet : " + qc
        }
    }

    getSQLBuilder().bindParametersForStmt(getBind
```

Without ADF Source…
Go To Declaration Shows Only Decompiled Stub



```
private java.lang.Object[] getDefaultKeyValues(ora

private boolean readKeyAttributes(oracle.jbo.serve

public oracle.jbo.StructureDef getSubclassDef(orac

protected void bindParametersForCollection(oracle.

public java.lang.Object getRowMatchBindValue(oracl

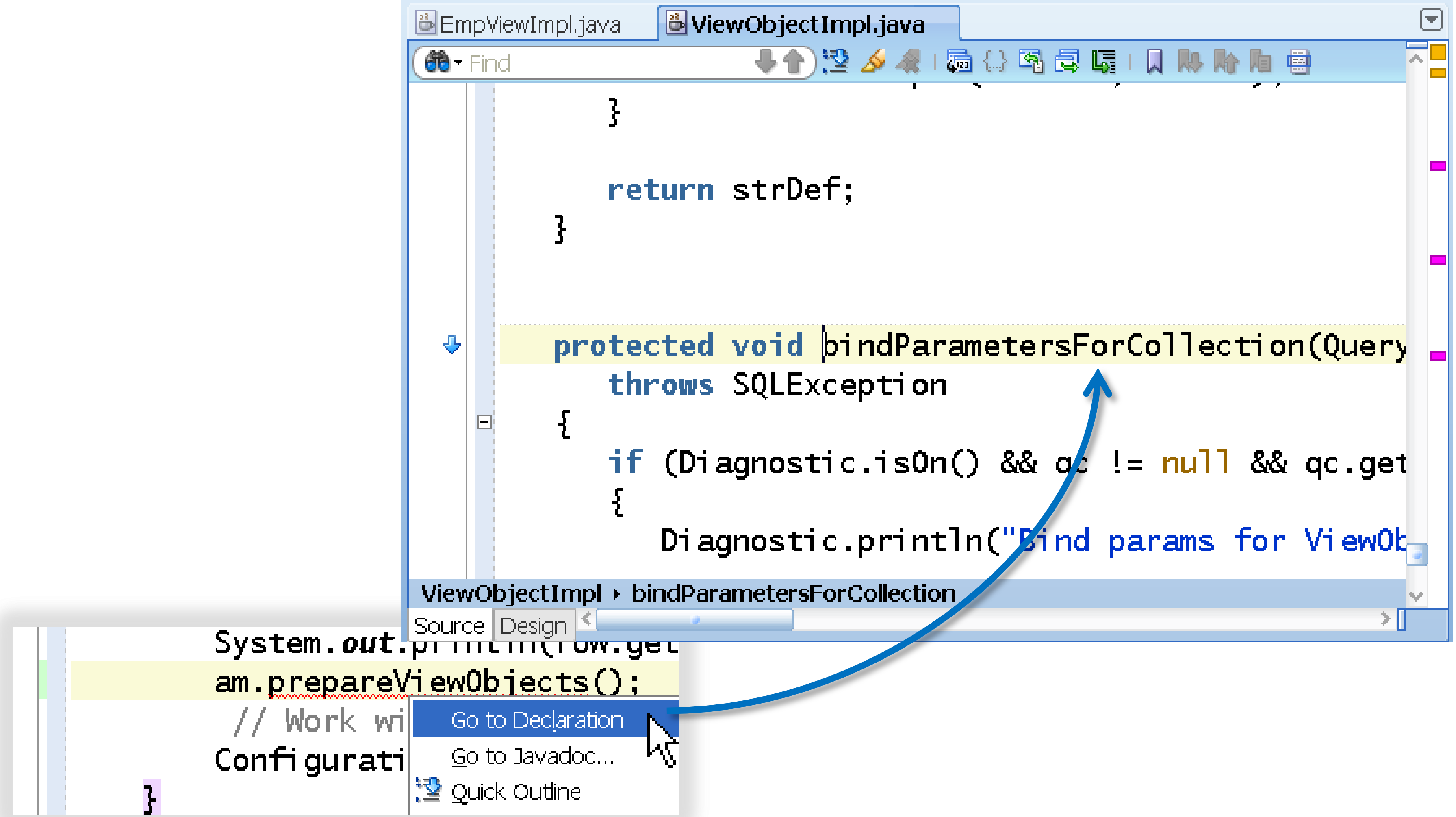
public oracle.jbo.RowSet deepCopy(java.util.HashMa

protected int buildEffectiveDateFromClauseFragment
```

```
    // Log query statem
    System.out.println( "QUERY: " +getQuery());
    super.bindParametersForCollection(qc, params,
}
```

wImpl ▸ bindParametersForC
Go to Declaration
Go to Javadoc...
Quick Outline   Ctrl+Shift-Back Quote

With ADF Source…
Go To Declaration Really Goes There



```
        }

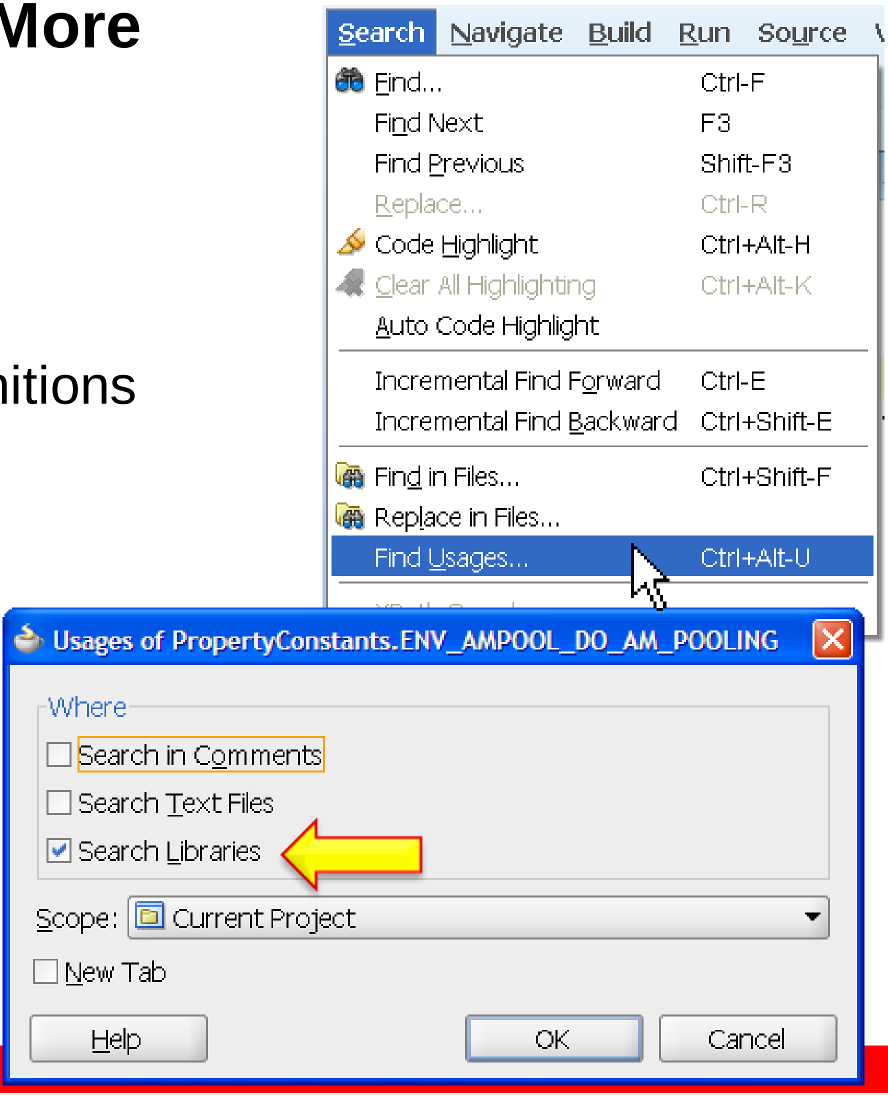
        return strDef;
    }


    protected void bindParametersForCollection(Query
        throws SQLException
    {
        if (Diagnostic.isOn() && qc != null && qc.get
        {
            Diagnostic.println("Bind params for ViewOb
```

```
        System.out.println(row.get
        am.prepareViewObjects();
         // Work wi
        Configurati
    }
```

With ADF Source, and *Find Usages*… Find Where Exceptions Thrown, Properties Used, Diagnostics Printed, and More

- `PropertyConstants`
  `PropertyMetadata`
  `(oracle.jbo.common)`
  – Configuration Property Definitions
- `CSMessageBundle`
  `(oracle.jbo.common)`
  – ADF Business Components Runtime Error Messages
- `ADFmMessage`
  `(oracle.adf.model)`
  – ADF Model Data Binding Runtime Error Messages


Search
Navigate
Build
Run
Source
Find... Ctrl-F
Find Next F3
Find Previous Shift-F3
Replace... Ctrl-R
Code Highlight Ctrl+Alt-H
Clear All Highlighting Ctrl+Alt-K
Auto Code Highlight
Incremental Find Forward Ctrl-E
Incremental Find Backward Ctrl+Shift-E
Find in Files... Ctrl+Shift-F
Replace in Files...
Find Usages... Ctrl+Alt-U

Usages of PropertyConstants.ENV_AMPOOL_DO_AM_POOLING

Where

☐ Search in Comments

☐ Search Text Files

☑ Search Libraries

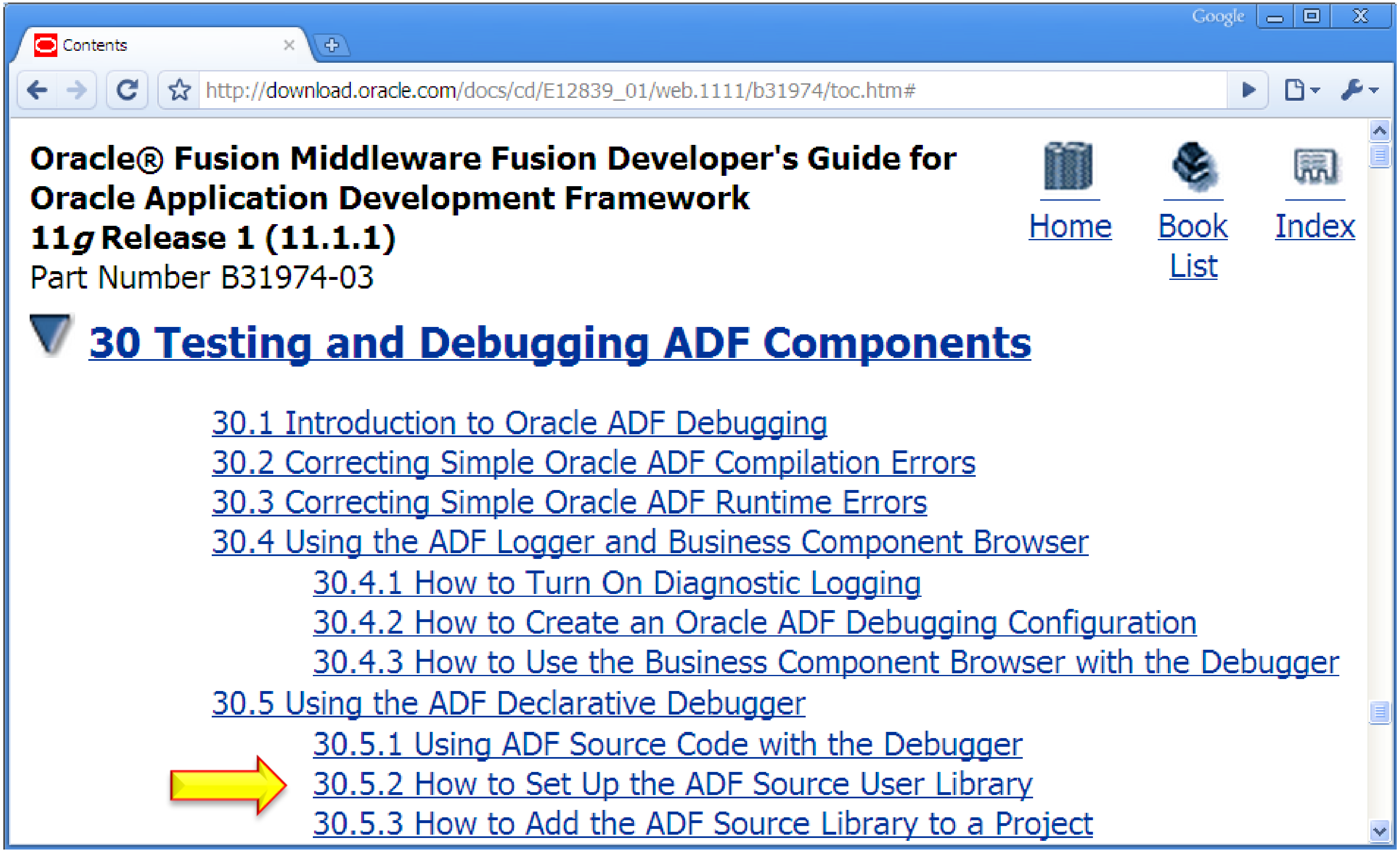
Scope: Current Project

☐ New Tab

Requesting the ADF Source Code Is Painless

1. Open a Service Request on Metalink
   - Indicate exactly the JDev/ADF release you are working with (for example, 11.1.1.3.0)
2. Have the Legal Agreement Signed
   - Typically VP or higher but depends on the company
   - Signer's company must be same as the CSI number
3. Return the Legal Agreement to Oracle
   - Scan the agreement and email it
4. Support Updates the SR with Download Link
   - Download the source

Dev Guide Explains How to Setup Source



Contents
Google
http://download.oracle.com/docs/cd/E12839_01/web.1111/b31974/toc.htm#
Home
Book List
Index

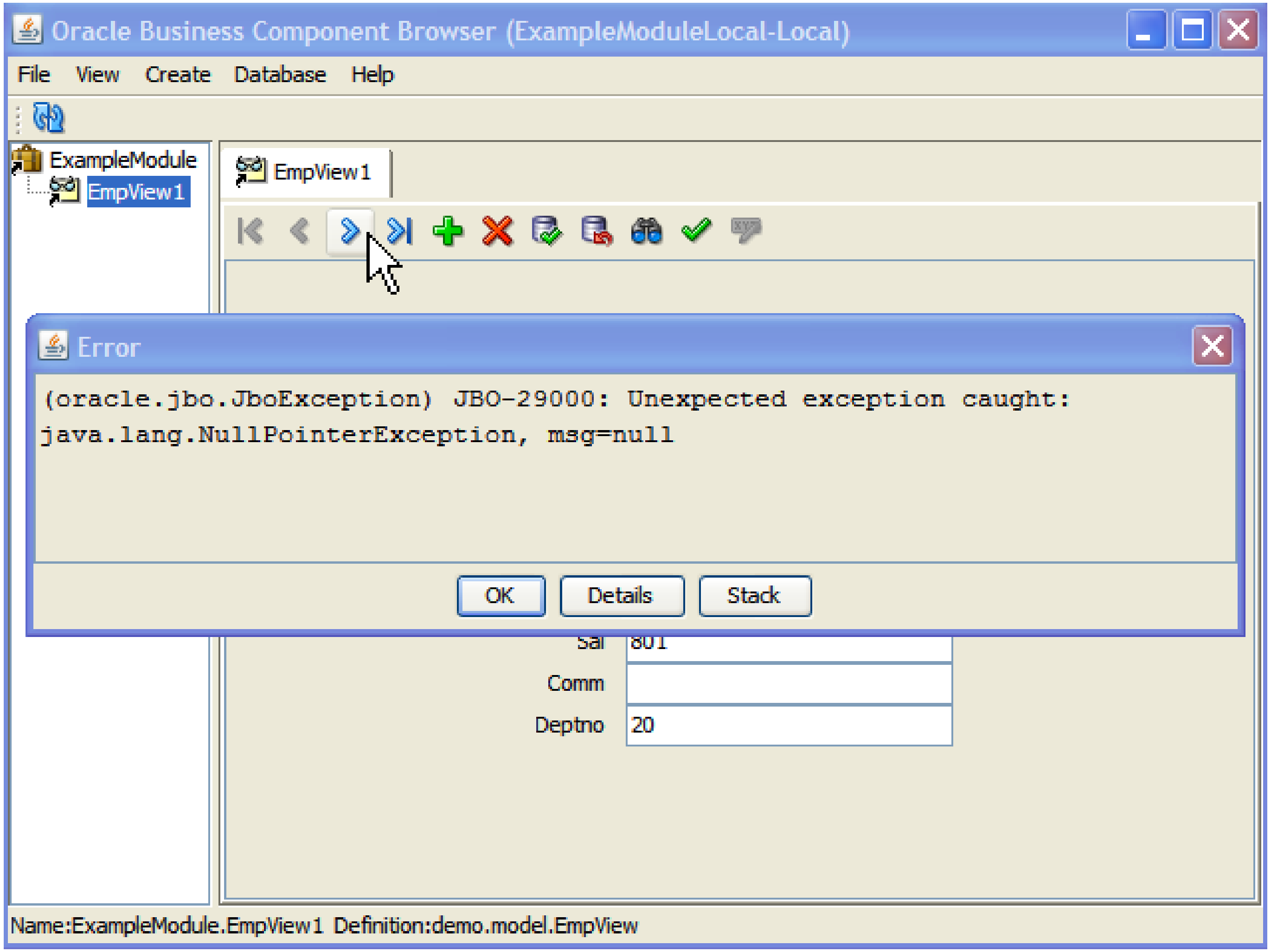
Oracle® Fusion Middleware Fusion Developer's Guide for Oracle Application Development Framework
11*g* Release 1 (11.1.1)
Part Number B31974-03

30 Testing and Debugging ADF Components

HOW TO DEBUG

Exception with Stack Trace

Symptom: NullPointerException on Navigation



```
(oracle.jbo.JboException) JBO-29000: Unexpected exception caught:
java.lang.NullPointerException, msg=null
```

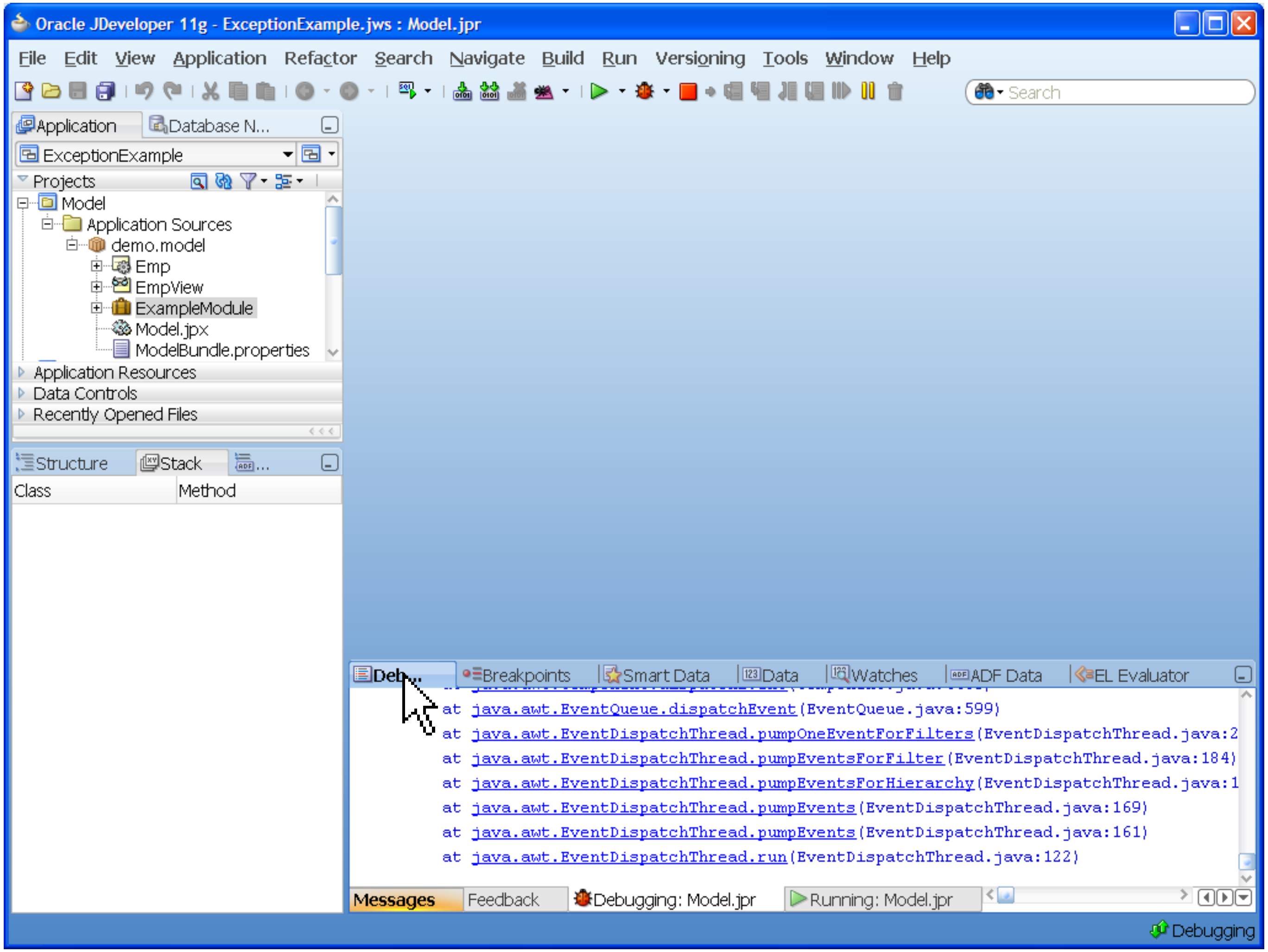
Sal: 801

Comm:

Deptno: 20

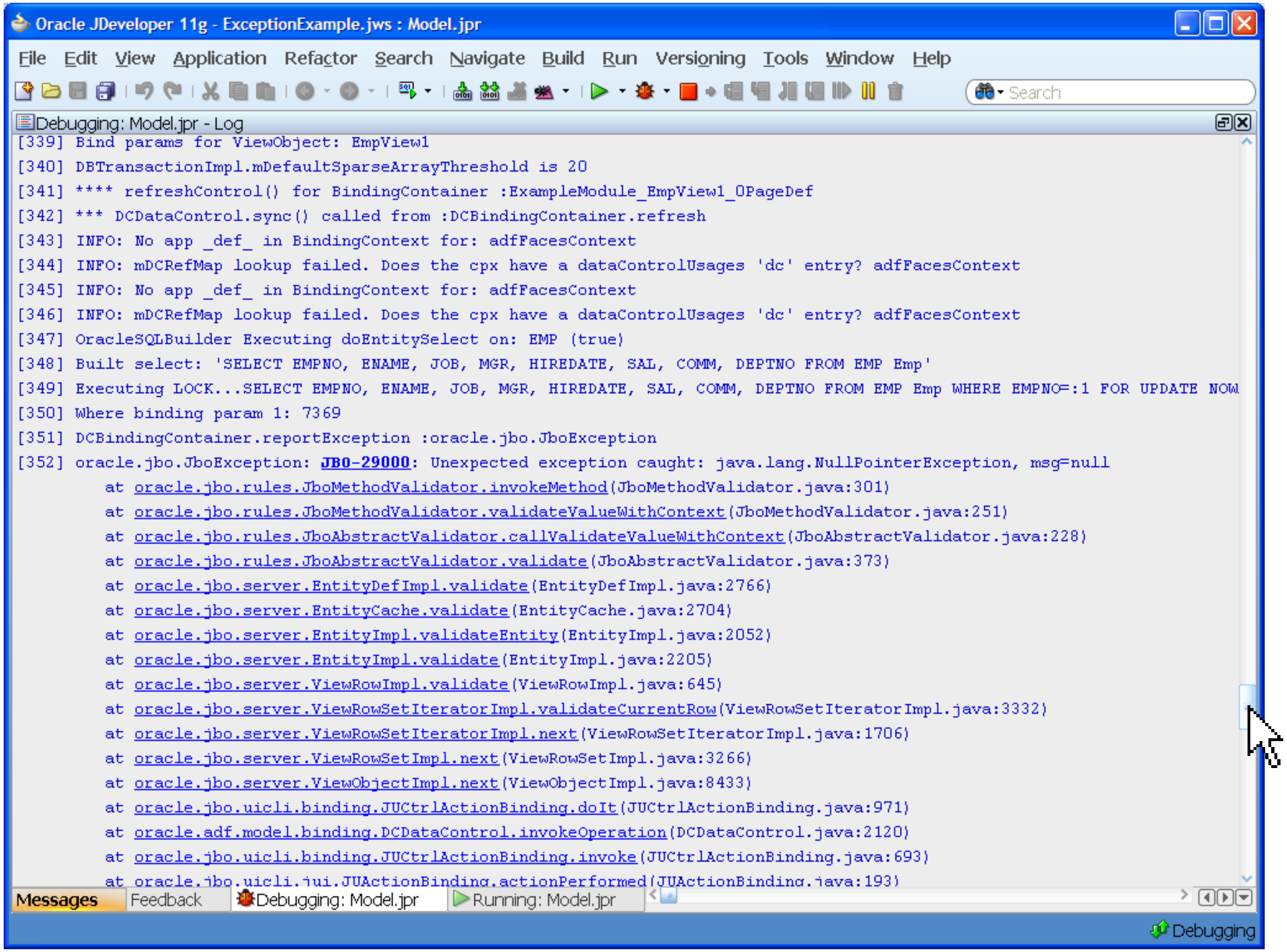
Name:ExampleModule.EmpView1 Definition:demo.model.EmpView

Log Window Gives More Info
Double-click To Maximize Tabbed Contents



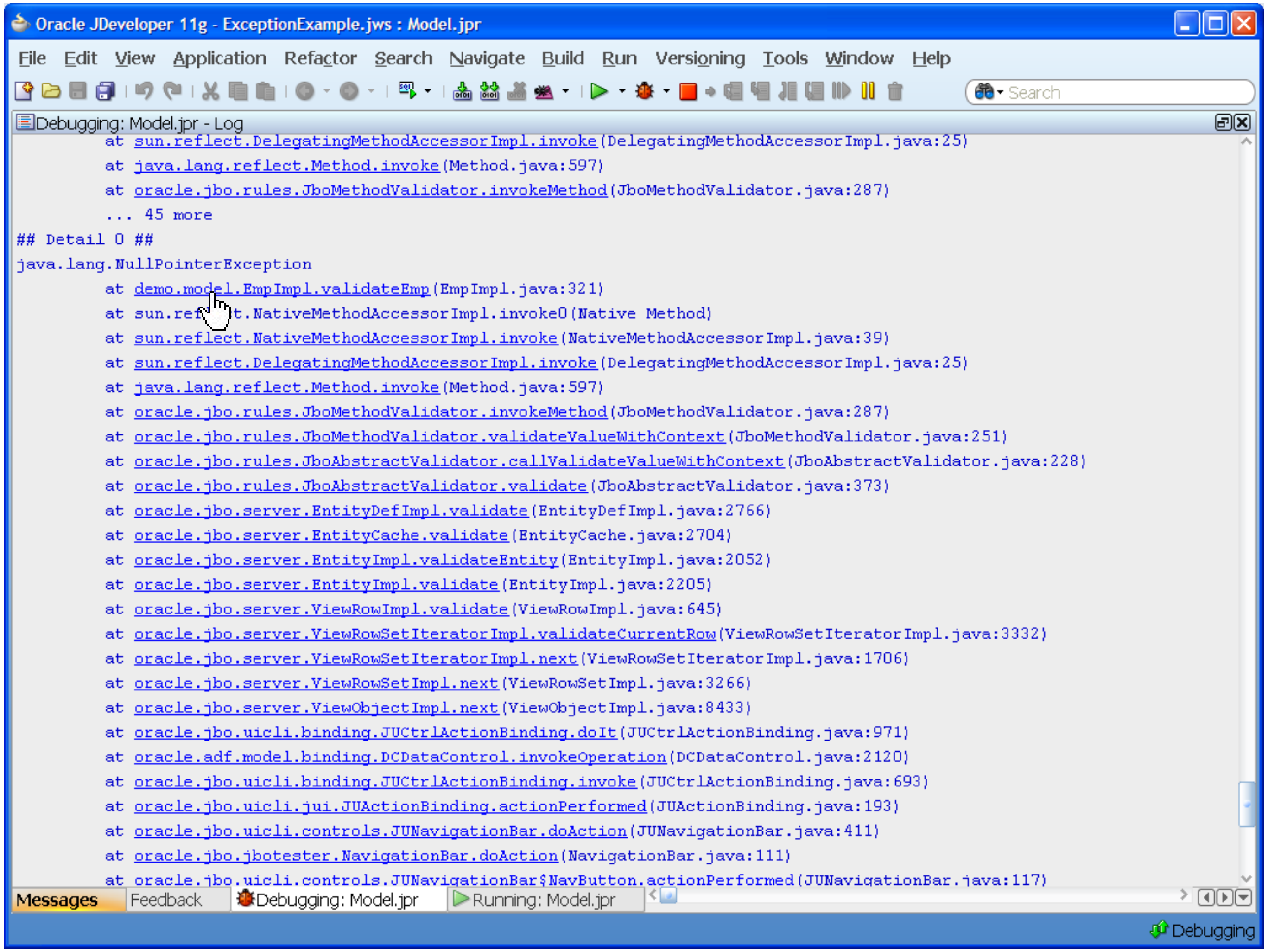
```
at java.awt.EventQueue.dispatchEvent(EventQueue.java:599)
at java.awt.EventDispatchThread.pumpOneEventForFilters(EventDispatchThread.java:2
at java.awt.EventDispatchThread.pumpEventsForFilter(EventDispatchThread.java:184)
at java.awt.EventDispatchThread.pumpEventsForHierarchy(EventDispatchThread.java:1
at java.awt.EventDispatchThread.pumpEvents(EventDispatchThread.java:169)
at java.awt.EventDispatchThread.pumpEvents(EventDispatchThread.java:161)
at java.awt.EventDispatchThread.run(EventDispatchThread.java:122)
```

Framework Caught Unexpected Exception Scroll Down to See Original Cause


Oracle JDeveloper 11g - ExceptionExample.jws : Model.jpr
File Edit View Application Refactor Search Navigate Build Run Versioning Tools Window Help
Search
Debugging: Model.jpr - Log
Messages
Feedback
Debugging: Model.jpr
Running: Model.jpr
Debugging

```
[339] Bind params for ViewObject: EmpView1
[340] DBTransactionImpl.mDefaultSparseArrayThreshold is 20
[341] **** refreshControl() for BindingContainer :ExampleModule_EmpView1_0PageDef
[342] *** DCDataControl.sync() called from :DCBindingContainer.refresh
[343] INFO: No app _def_ in BindingContext for: adfFacesContext
[344] INFO: mDCRefMap lookup failed. Does the cpx have a dataControlUsages 'dc' entry? adfFacesContext
[345] INFO: No app _def_ in BindingContext for: adfFacesContext
[346] INFO: mDCRefMap lookup failed. Does the cpx have a dataControlUsages 'dc' entry? adfFacesContext
[347] OracleSQLBuilder Executing doEntitySelect on: EMP (true)
[348] Built select: 'SELECT EMPNO, ENAME, JOB, MGR, HIREDATE, SAL, COMM, DEPTNO FROM EMP Emp'
[349] Executing LOCK...SELECT EMPNO, ENAME, JOB, MGR, HIREDATE, SAL, COMM, DEPTNO FROM EMP Emp WHERE EMPNO=:1 FOR UPDATE NOW
[350] Where binding param 1: 7369
[351] DCBindingContainer.reportException :oracle.jbo.JboException
[352] oracle.jbo.JboException: JBO-29000: Unexpected exception caught: java.lang.NullPointerException, msg=null
        at oracle.jbo.rules.JboMethodValidator.invokeMethod(JboMethodValidator.java:301)
        at oracle.jbo.rules.JboMethodValidator.validateValueWithContext(JboMethodValidator.java:251)
        at oracle.jbo.rules.JboAbstractValidator.callValidateValueWithContext(JboAbstractValidator.java:228)
        at oracle.jbo.rules.JboAbstractValidator.validate(JboAbstractValidator.java:373)
        at oracle.jbo.server.EntityDefImpl.validate(EntityDefImpl.java:2766)
        at oracle.jbo.server.EntityCache.validate(EntityCache.java:2704)
        at oracle.jbo.server.EntityImpl.validateEntity(EntityImpl.java:2052)
        at oracle.jbo.server.EntityImpl.validate(EntityImpl.java:2205)
        at oracle.jbo.server.ViewRowImpl.validate(ViewRowImpl.java:645)
        at oracle.jbo.server.ViewRowSetIteratorImpl.validateCurrentRow(ViewRowSetIteratorImpl.java:3332)
        at oracle.jbo.server.ViewRowSetIteratorImpl.next(ViewRowSetIteratorImpl.java:1706)
        at oracle.jbo.server.ViewRowSetImpl.next(ViewRowSetImpl.java:3266)
        at oracle.jbo.server.ViewObjectImpl.next(ViewObjectImpl.java:8433)
        at oracle.jbo.uicli.binding.JUCtrlActionBinding.doIt(JUCtrlActionBinding.java:971)
        at oracle.adf.model.binding.DCDataControl.invokeOperation(DCDataControl.java:2120)
        at oracle.jbo.uicli.binding.JUCtrlActionBinding.invoke(JUCtrlActionBinding.java:693)
        at oracle.jbo.uicli.jui.JUActionBinding.actionPerformed(JUActionBinding.java:193)
```

NullPointerException in EmpImpl.validateEmp()
Click on the Hyperlink to Open Source



```
         at sun.reflect.DelegatingMethodAccessorImpl.invoke(DelegatingMethodAccessorImpl.java:25)
         at java.lang.reflect.Method.invoke(Method.java:597)
         at oracle.jbo.rules.JboMethodValidator.invokeMethod(JboMethodValidator.java:287)
         ... 45 more
## Detail 0 ##
java.lang.NullPointerException
         at demo.model.EmpImpl.validateEmp(EmpImpl.java:321)
         at sun.reflect.NativeMethodAccessorImpl.invoke0(Native Method)
         at sun.reflect.NativeMethodAccessorImpl.invoke(NativeMethodAccessorImpl.java:39)
         at sun.reflect.DelegatingMethodAccessorImpl.invoke(DelegatingMethodAccessorImpl.java:25)
         at java.lang.reflect.Method.invoke(Method.java:597)
         at oracle.jbo.rules.JboMethodValidator.invokeMethod(JboMethodValidator.java:287)
         at oracle.jbo.rules.JboMethodValidator.validateValueWithContext(JboMethodValidator.java:251)
         at oracle.jbo.rules.JboAbstractValidator.callValidateValueWithContext(JboAbstractValidator.java:228)
         at oracle.jbo.rules.JboAbstractValidator.validate(JboAbstractValidator.java:373)
         at oracle.jbo.server.EntityDefImpl.validate(EntityDefImpl.java:2766)
         at oracle.jbo.server.EntityCache.validate(EntityCache.java:2704)
         at oracle.jbo.server.EntityImpl.validateEntity(EntityImpl.java:2052)
         at oracle.jbo.server.EntityImpl.validate(EntityImpl.java:2205)
         at oracle.jbo.server.ViewRowImpl.validate(ViewRowImpl.java:645)
         at oracle.jbo.server.ViewRowSetIteratorImpl.validateCurrentRow(ViewRowSetIteratorImpl.java:3332)
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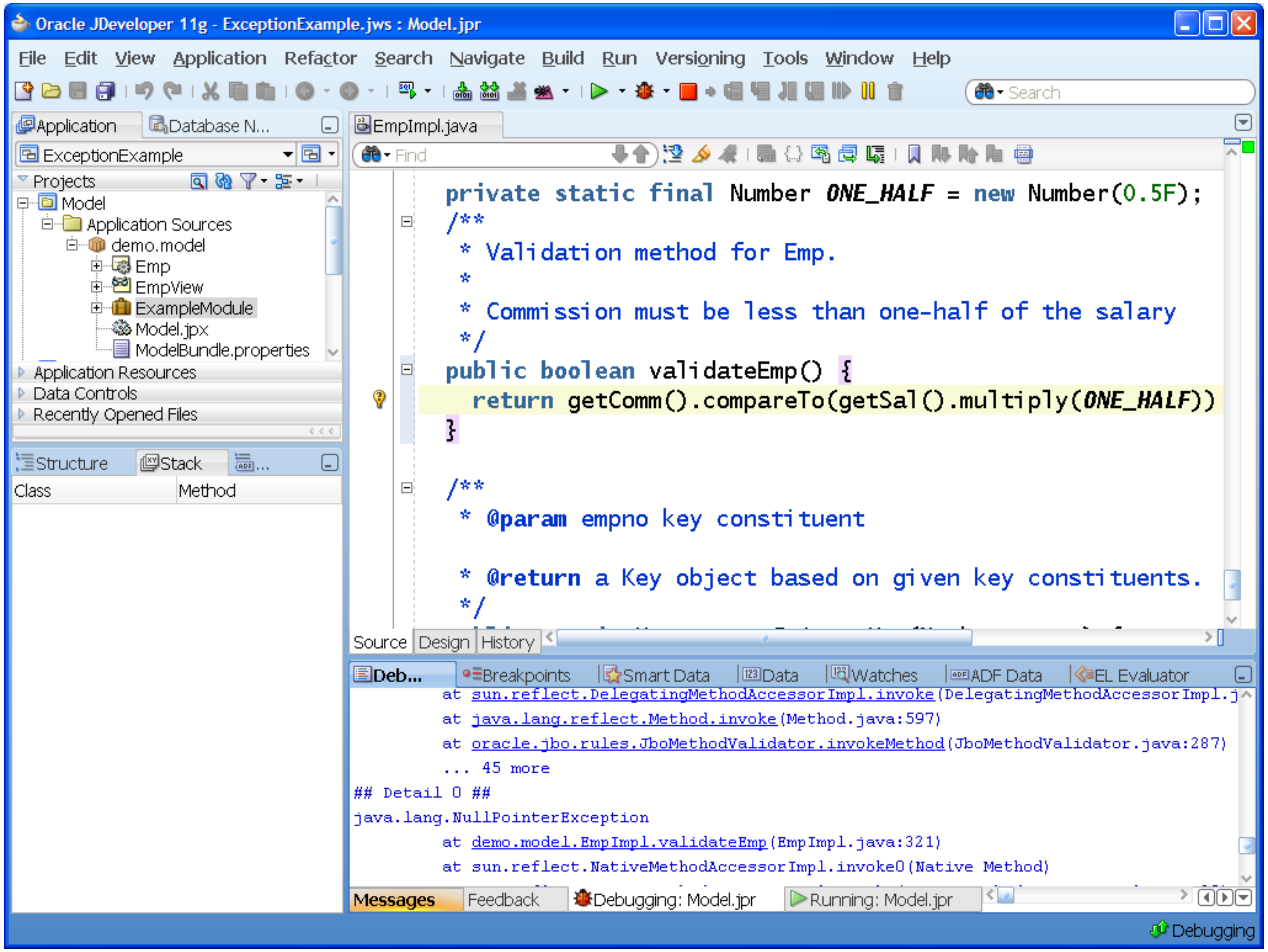
         at oracle.jbo.uicli.jui.JUActionBinding.actionPerformed(JUActionBinding.java:193)
         at oracle.jbo.uicli.controls.JUNavigationBar.doAction(JUNavigationBar.java:411)
         at oracle.jbo.jbotester.NavigationBar.doAction(NavigationBar.java:111)
         at oracle.jbo.uicli.controls.JUNavigationBar$NavButton.actionPerformed(JUNavigationBar.java:117)
```

If `getComm()` Returns `null`, We Have a Problem Verify Your Suspicion Using Exception Breakpoint



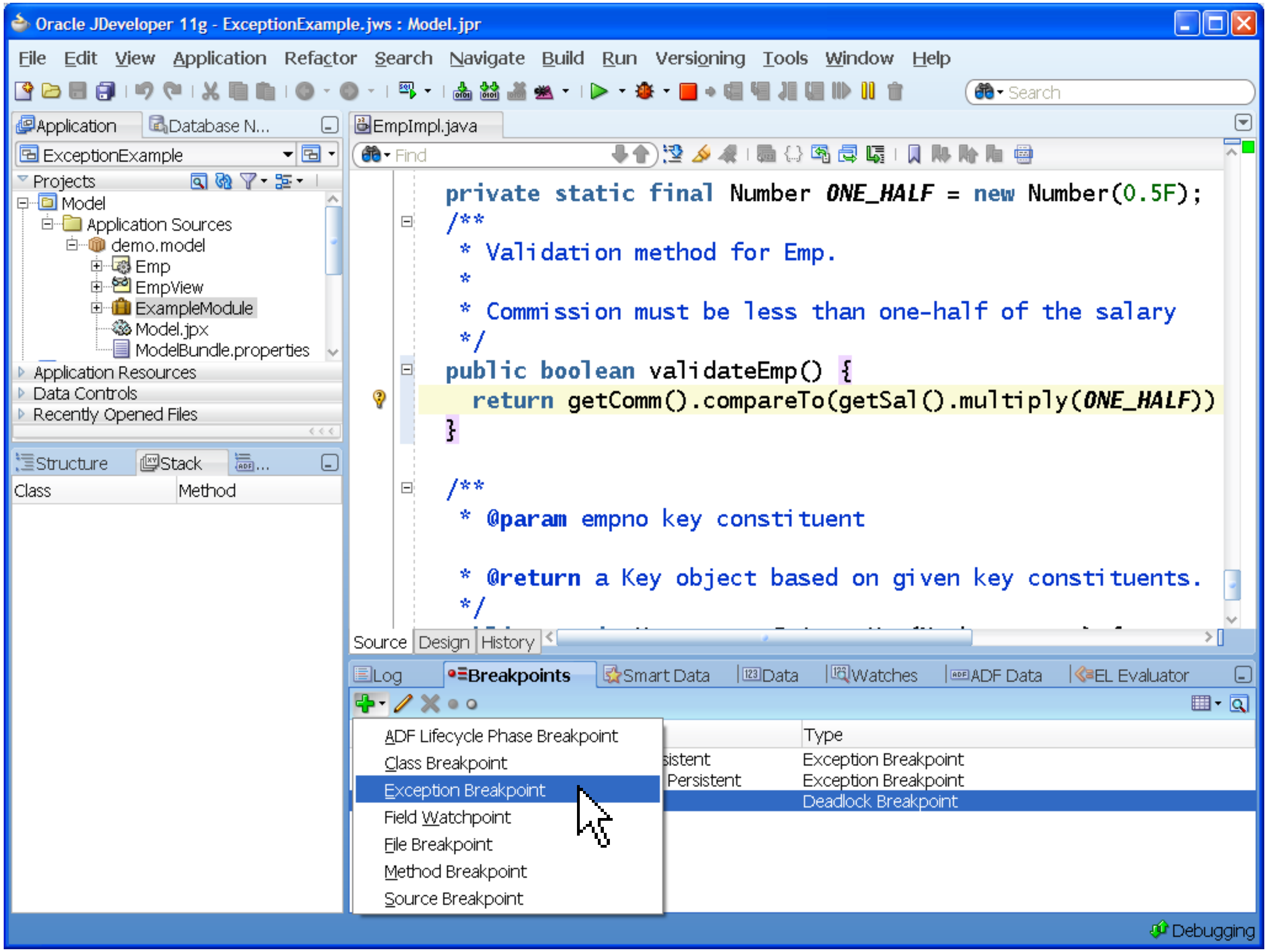
```
private static final Number ONE_HALF = new Number(0.5F);
/**
 * Validation method for Emp.
 *
 * Commission must be less than one-half of the salary
 */
public boolean validateEmp() {
  return getComm().compareTo(getSal().multiply(ONE_HALF))
}

/**
 * @param empno key constituent

 * @return a Key object based on given key constituents.
 */
```

```
        at sun.reflect.DelegatingMethodAccessorImpl.invoke(DelegatingMethodAccessorImpl.j
        at java.lang.reflect.Method.invoke(Method.java:597)
        at oracle.jbo.rules.JboMethodValidator.invokeMethod(JboMethodValidator.java:287)
        ... 45 more
## Detail 0 ##
java.lang.NullPointerException
        at demo.model.EmpImpl.validateEmp(EmpImpl.java:321)
        at sun.reflect.NativeMethodAccessorImpl.invoke0(Native Method)
```

In the Breakpoints Tab…
Create a New Exception Breakpoint



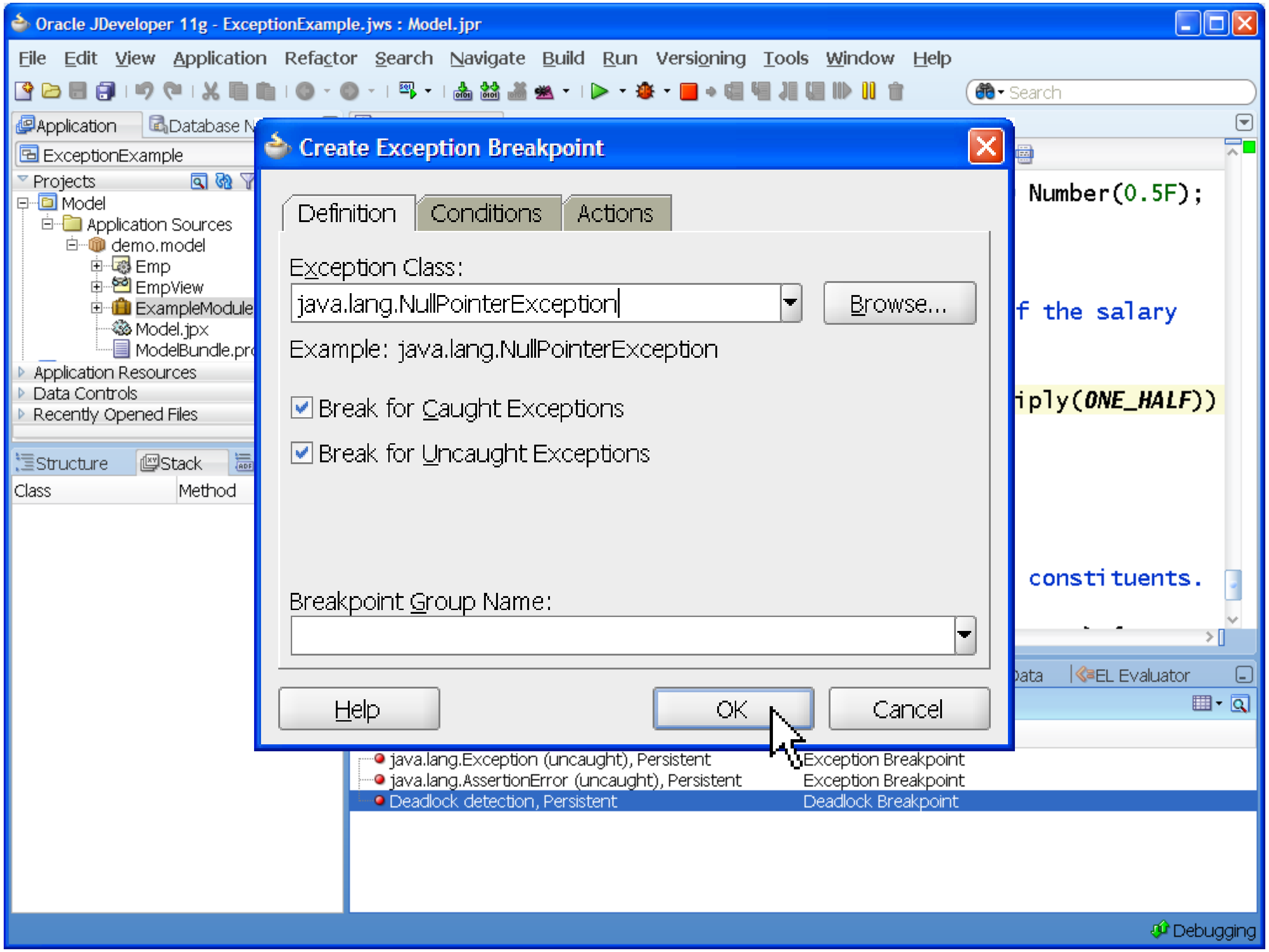
```
private static final Number ONE_HALF = new Number(0.5F);
/**
 * Validation method for Emp.
 *
 * Commission must be less than one-half of the salary
 */
public boolean validateEmp() {
  return getComm().compareTo(getSal().multiply(ONE_HALF));
}

/**
 * @param empno key constituent

 * @return a Key object based on given key constituents.
 */
```

	Type
sistent	Exception Breakpoint
Persistent	Exception Breakpoint
	Deadlock Breakpoint

Use In-Field Classname Insight or Dropdown to Specify Exception Class Name



Create Exception Breakpoint

Definition | Conditions | Actions

Exception Class: java.lang.NullPointerException [Browse...]

Example: java.lang.NullPointerException

☑ Break for Caught Exceptions

☑ Break for Uncaught Exceptions

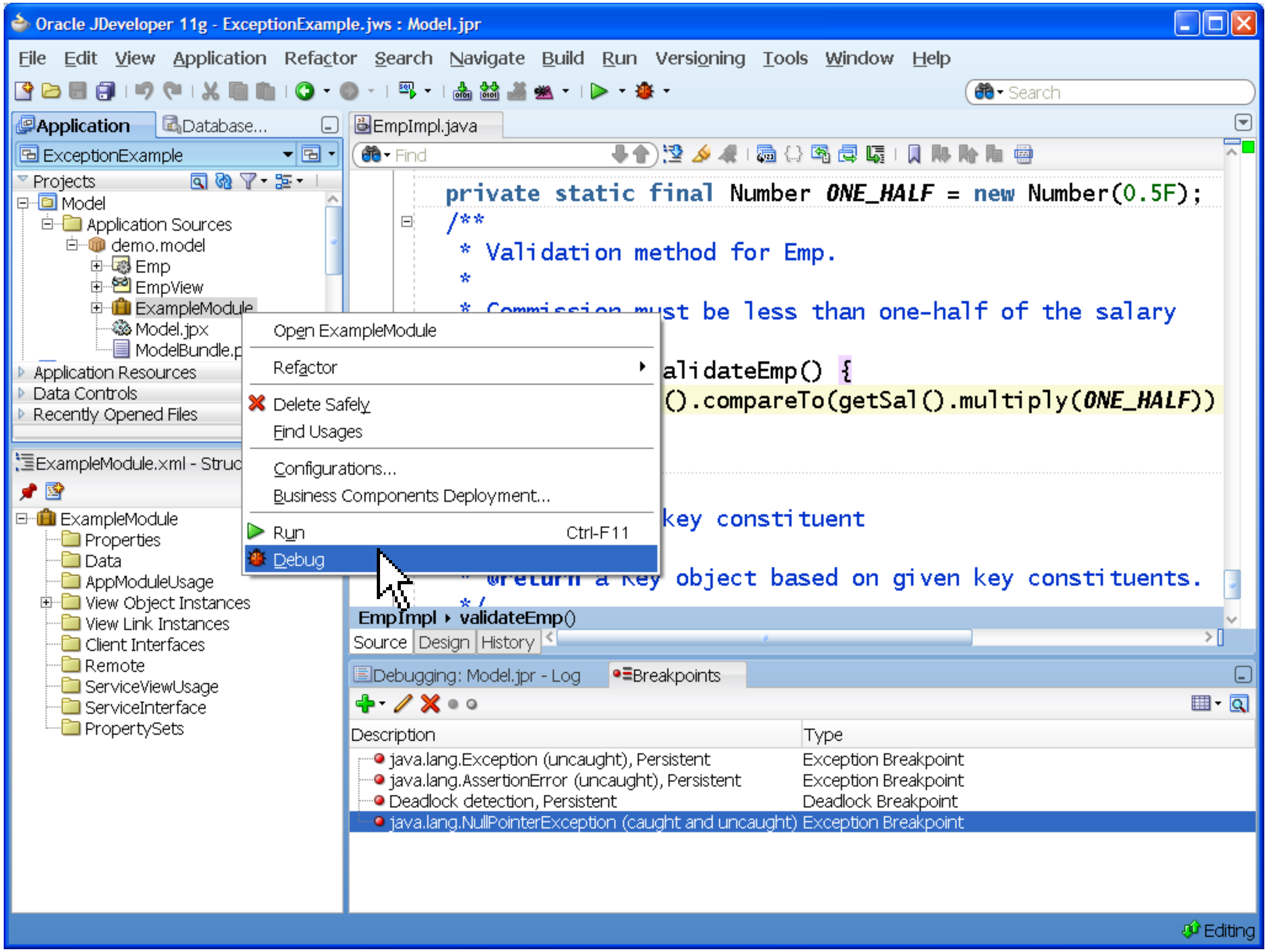
Breakpoint Group Name:

[Help] [OK] [Cancel]

```
Number(0.5F);
f the salary
iply(ONE_HALF))
constituents.
```

java.lang.Exception (uncaught), Persistent	Exception Breakpoint
java.lang.AssertionError (uncaught), Persistent	Exception Breakpoint
Deadlock detection, Persistent	Deadlock Breakpoint

Debug the Application Again Using the Business Components Browser



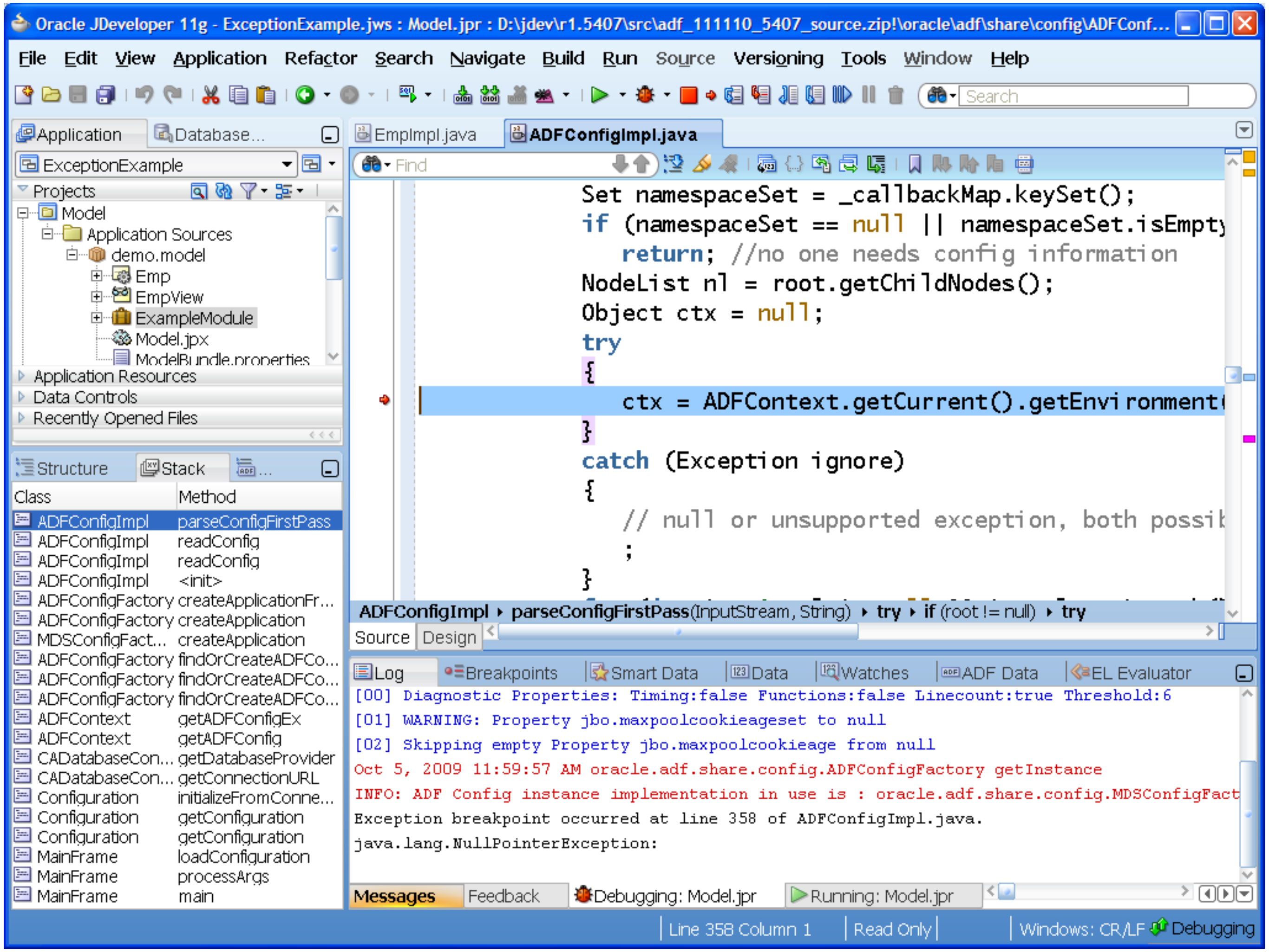
```
private static final Number ONE_HALF = new Number(0.5F);
/**
 * Validation method for Emp.
 *
 * Commission must be less than one-half of the salary
                        alidateEmp() {
                        ().compareTo(getSal().multiply(ONE_HALF))

                        key constituent

 * @return a key object based on given key constituents.
 */
```

Description	Type
java.lang.Exception (uncaught), Persistent	Exception Breakpoint
java.lang.AssertionError (uncaught), Persistent	Exception Breakpoint
Deadlock detection, Persistent	Deadlock Breakpoint
java.lang.NullPointerException (caught and uncaught)	Exception Breakpoint

Unrelated Code Also Throws NullPointerException! *Delay* Enabling Breakpoint to Avoid Stopping Here



```
Set namespaceSet = _callbackMap.keySet();
if (namespaceSet == null || namespaceSet.isEmpty
  return; //no one needs config information
NodeList nl = root.getChildNodes();
Object ctx = null;
try
{
  ctx = ADFContext.getCurrent().getEnvironment(
}
catch (Exception ignore)
{
  // null or unsupported exception, both possib
  ;
}
```

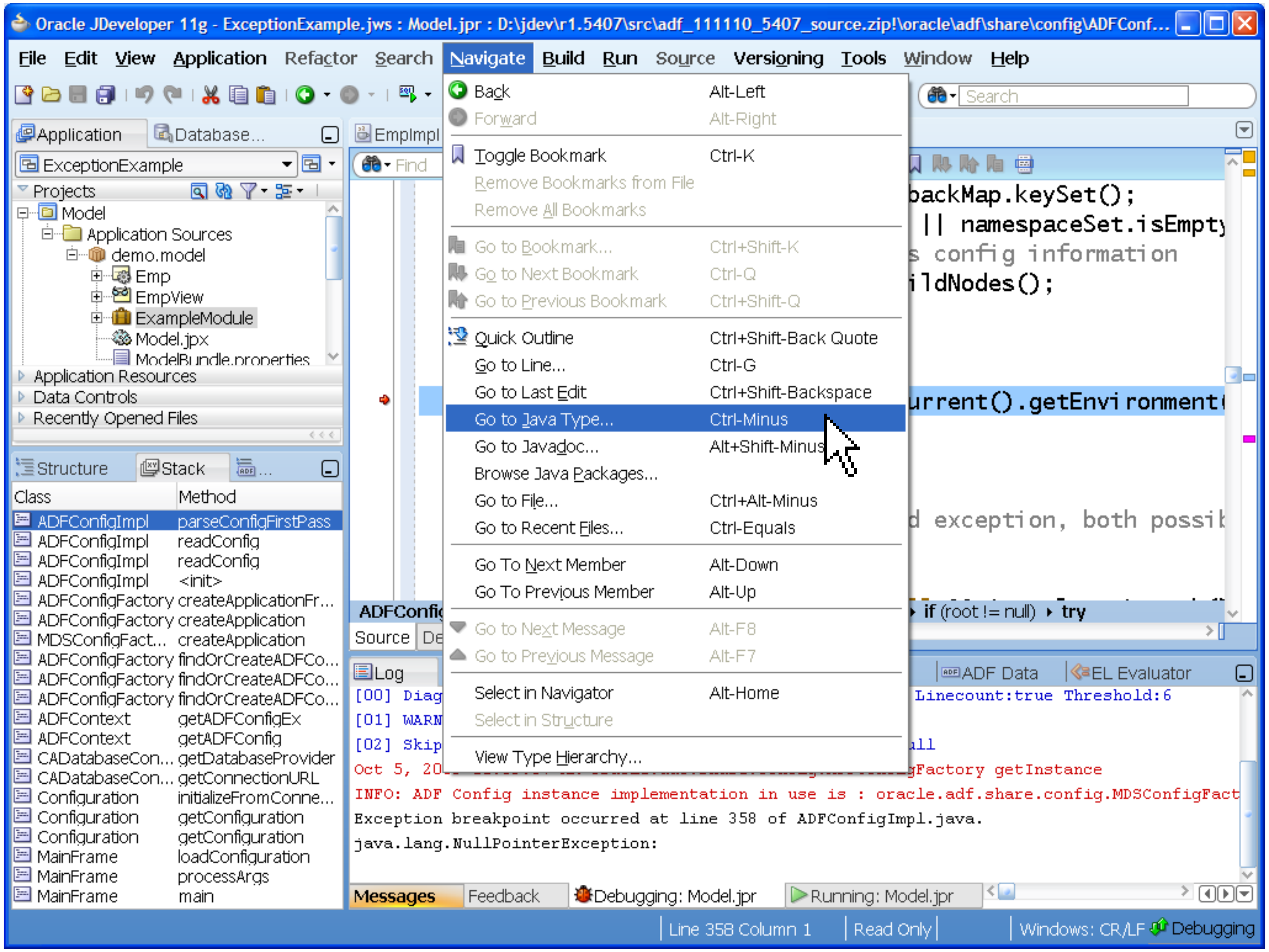
ADFConfigImpl ▸ parseConfigFirstPass(InputStream, String) ▸ try ▸ if (root != null) ▸ try

Class	Method
ADFConfigImpl	parseConfigFirstPass
ADFConfigImpl	readConfig
ADFConfigImpl	readConfig
ADFConfigImpl	<init>
ADFConfigFactory	createApplicationFr...
ADFConfigFactory	createApplication
MDSConfigFact...	createApplication
ADFConfigFactory	findOrCreateADFCo...
ADFConfigFactory	findOrCreateADFCo...
ADFConfigFactory	findOrCreateADFCo...
ADFContext	getADFConfigEx
ADFContext	getADFConfig
CADatabaseCon...	getDatabaseProvider
CADatabaseCon...	getConnectionURL
Configuration	initializeFromConne...
Configuration	getConfiguration
Configuration	getConfiguration
MainFrame	loadConfiguration
MainFrame	processArgs
MainFrame	main

```
[00] Diagnostic Properties: Timing:false Functions:false Linecount:true Threshold:6
[01] WARNING: Property jbo.maxpoolcookieageset to null
[02] Skipping empty Property jbo.maxpoolcookieage from null
Oct 5, 2009 11:59:57 AM oracle.adf.share.config.ADFConfigFactory getInstance
INFO: ADF Config instance implementation in use is : oracle.adf.share.config.MDSConfigFact
Exception breakpoint occurred at line 358 of ADFConfigImpl.java.
java.lang.NullPointerException:
```

Line 358 Column 1 | Read Only | Windows: CR/LF | Debugging

Navigate to Source of `ApplicationModuleImpl` Using *Go to Java Type...*



Oracle JDeveloper 11g - ExceptionExample.jws : Model.jpr : D:\jdev\r1.5407\src\adf_111110_5407_source.zip!\oracle\adf\share\config\ADFConf...
File Edit View Application Refactor Search Navigate Build Run Source Versioning Tools Window Help
Search
Application Database...
ExceptionExample
Projects
Model
Application Sources
demo.model
Emp
EmpView
ExampleModule
Model.jpx
ModelBundle.properties
Application Resources
Data Controls
Recently Opened Files
EmpImpl
Find
Back Alt-Left
Forward Alt-Right
Toggle Bookmark Ctrl-K
Remove Bookmarks from File
Remove All Bookmarks
Go to Bookmark... Ctrl+Shift-K
Go to Next Bookmark Ctrl-Q
Go to Previous Bookmark Ctrl+Shift-Q
Quick Outline Ctrl+Shift-Back Quote
Go to Line... Ctrl-G
Go to Last Edit Ctrl+Shift-Backspace
Go to Java Type... Ctrl-Minus
Go to Javadoc... Alt+Shift-Minus
Browse Java Packages...
Go to File... Ctrl+Alt-Minus
Go to Recent Files... Ctrl-Equals
Go To Next Member Alt-Down
Go To Previous Member Alt-Up
Go to Next Message Alt-F8
Go to Previous Message Alt-F7
Select in Navigator Alt-Home
Select in Structure
View Type Hierarchy...
Structure Stack
ADFConfig
Source De
if (root != null) try
Log
ADF Data EL Evaluator
Messages Feedback Debugging: Model.jpr Running: Model.jpr
Line 358 Column 1 Read Only Windows: CR/LF Debugging

Class	Method
ADFConfigImpl	parseConfigFirstPass
ADFConfigImpl	readConfig
ADFConfigImpl	readConfig
ADFConfigImpl	<init>
ADFConfigFactory	createApplicationFr...
ADFConfigFactory	createApplication
MDSConfigFact...	createApplication
ADFConfigFactory	findOrCreateADFCo...
ADFConfigFactory	findOrCreateADFCo...
ADFConfigFactory	findOrCreateADFCo...
ADFContext	getADFConfigEx
ADFContext	getADFConfig
CADatabaseCon...	getDatabaseProvider
CADatabaseCon...	getConnectionURL
Configuration	initializeFromConne...
Configuration	getConfiguration
Configuration	getConfiguration
MainFrame	loadConfiguration
MainFrame	processArgs
MainFrame	main

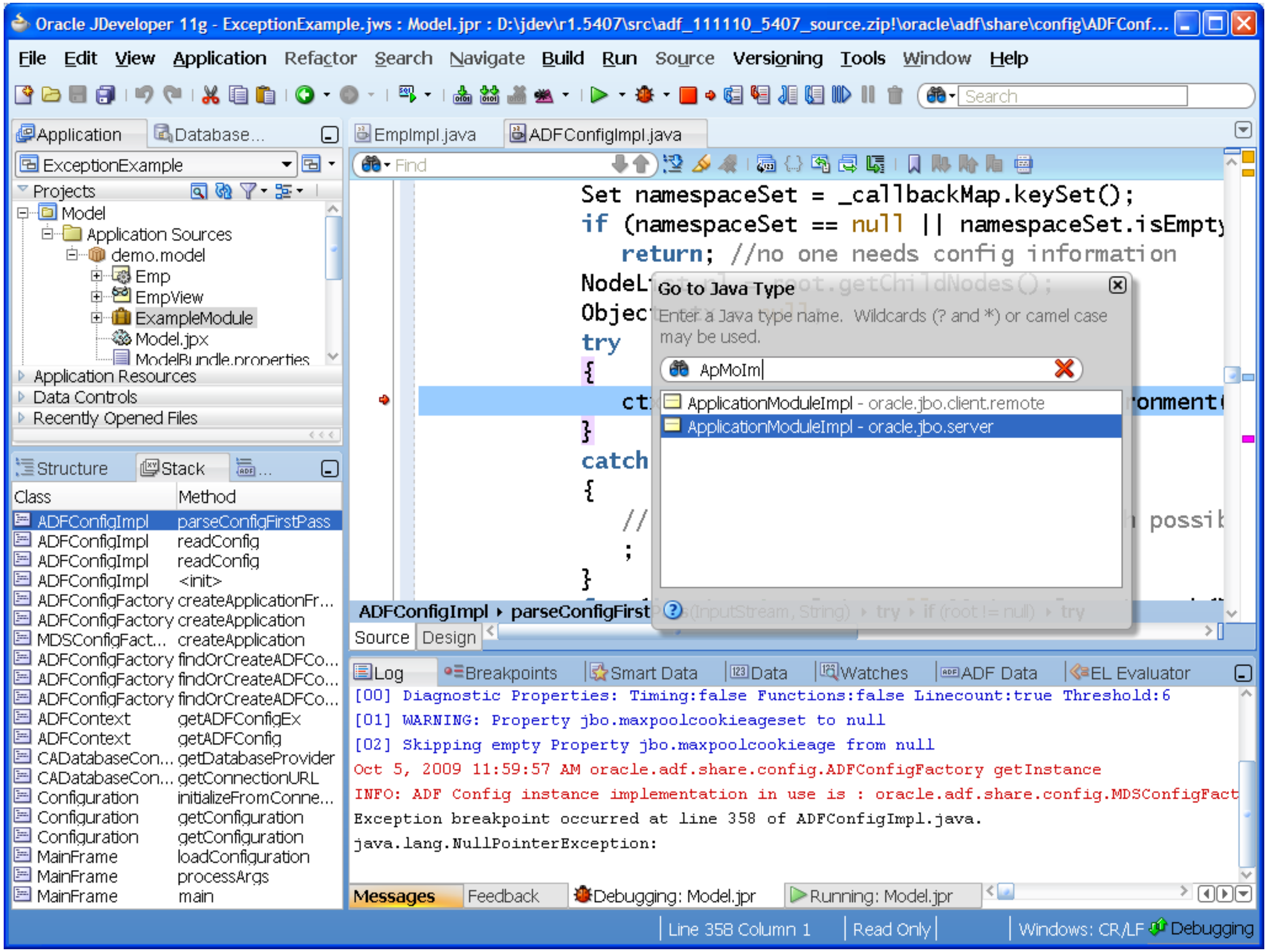
```
backMap.keySet();
 || namespaceSet.isEmpty
s config information
ildNodes();

urrent().getEnvironment(

d exception, both possib
```

```
[00] Diag                                 Linecount:true Threshold:6
[01] WARN
[02] Skip                                 ull
Oct 5, 20                                 Factory getInstance
INFO: ADF Config instance implementation in use is : oracle.adf.share.config.MDSConfigFact
Exception breakpoint occurred at line 358 of ADFConfigImpl.java.
java.lang.NullPointerException:
```

Type Enough of the Class to Narrow the List
Camelcase Matching Saves Keystrokes



Oracle JDeveloper 11g - ExceptionExample.jws : Model.jpr : D:\jdev\r1.5407\src\adf_111110_5407_source.zip!\oracle\adf\share\config\ADFConf...

```
Set namespaceSet = _callbackMap.keySet();
if (namespaceSet == null || namespaceSet.isEmpty
    return; //no one needs config information
NodeL
Objec
try
{
    ct                                          ronment(
}
catch
{
    //                                          possib
    ;
}
```

Go to Java Type

Enter a Java type name. Wildcards (? and *) or camel case may be used.

ApMoIm

- ApplicationModuleImpl - oracle.jbo.client.remote
- ApplicationModuleImpl - oracle.jbo.server

Class	Method
ADFConfigImpl	parseConfigFirstPass
ADFConfigImpl	readConfig
ADFConfigImpl	readConfig
ADFConfigImpl	<init>
ADFConfigFactory	createApplicationFr...
ADFConfigFactory	createApplication
MDSConfigFact...	createApplication
ADFConfigFactory	findOrCreateADFCo...
ADFConfigFactory	findOrCreateADFCo...
ADFConfigFactory	findOrCreateADFCo...
ADFContext	getADFConfigEx
ADFContext	getADFConfig
CADatabaseCon...	getDatabaseProvider
CADatabaseCon...	getConnectionURL
Configuration	initializeFromConne...
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Configuration	getConfiguration
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Oct 5, 2009 11:59:57 AM oracle.adf.share.config.ADFConfigFactory getInstance
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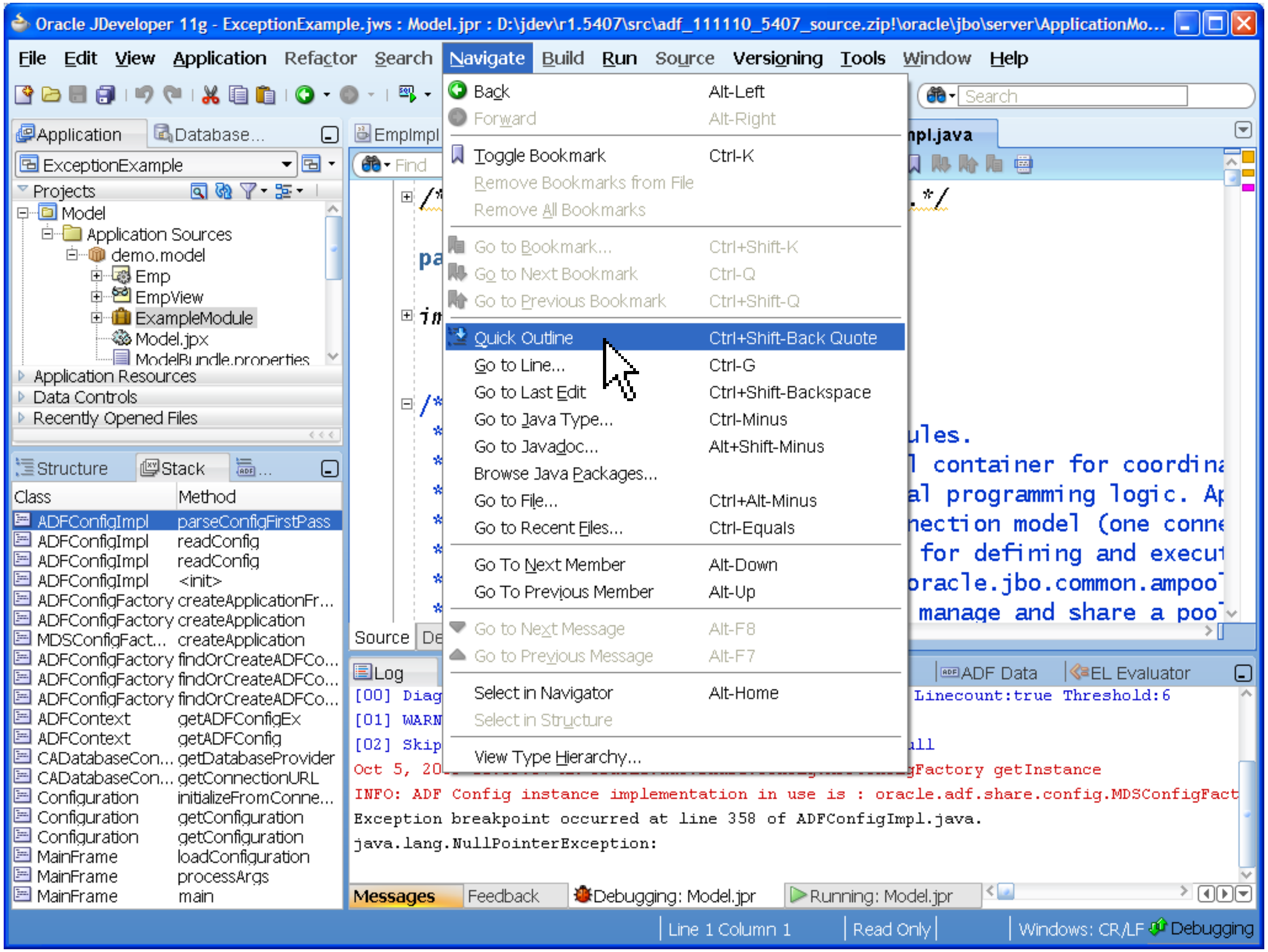
Exception breakpoint occurred at line 358 of ADFConfigImpl.java.
java.lang.NullPointerException:
```

Line 358 Column 1 | Read Only | Windows: CR/LF | Debugging

Navigate to `prepareSession()` Method Using *Quick Outline*


Oracle JDeveloper 11g - ExceptionExample.jws : Model.jpr : D:\jdev\r1.5407\src\adf_111110_5407_source.zip!\oracle\jbo\server\ApplicationMo...
File Edit View Application Refactor Search Navigate Build Run Source Versioning Tools Window Help
Search
Application
Database...
ExceptionExample
Projects
Model
Application Sources
demo.model
Emp
EmpView
ExampleModule
Model.jpx
ModelBundle.properties
Application Resources
Data Controls
Recently Opened Files
Structure
Stack
EmpImpl
Find
pl.java
Source
De
Log
ADF Data
EL Evaluator
Messages
Feedback
Debugging: Model.jpr
Running: Model.jpr
Line 1 Column 1
Read Only
Windows: CR/LF
Debugging
Back Alt-Left
Forward Alt-Right
Toggle Bookmark Ctrl-K
Remove Bookmarks from File
Remove All Bookmarks
Go to Bookmark... Ctrl+Shift-K
Go to Next Bookmark Ctrl-Q
Go to Previous Bookmark Ctrl+Shift-Q
Quick Outline Ctrl+Shift-Back Quote
Go to Line... Ctrl-G
Go to Last Edit Ctrl+Shift-Backspace
Go to Java Type... Ctrl-Minus
Go to Javadoc... Alt+Shift-Minus
Browse Java Packages...
Go to File... Ctrl+Alt-Minus
Go to Recent Files... Ctrl-Equals
Go To Next Member Alt-Down
Go To Previous Member Alt-Up
Go to Next Message Alt-F8
Go to Previous Message Alt-F7
Select in Navigator Alt-Home
Select in Structure
View Type Hierarchy...

Class	Method
ADFConfigImpl	parseConfigFirstPass
ADFConfigImpl	readConfig
ADFConfigImpl	readConfig
ADFConfigImpl	<init>
ADFConfigFactory	createApplicationFr...
ADFConfigFactory	createApplication
MDSConfigFact...	createApplication
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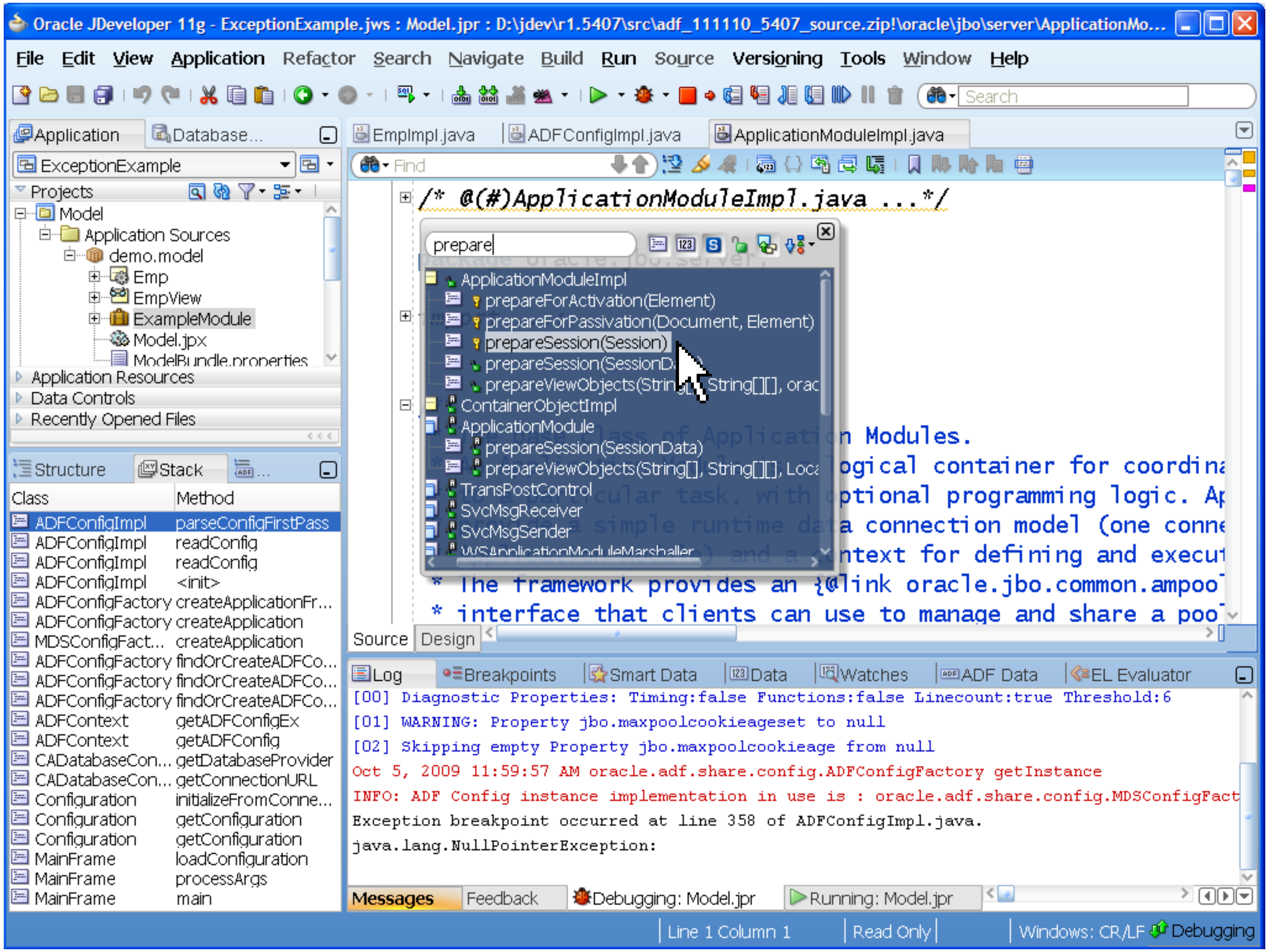
ADFConfigFactory	findOrCreateADFCo...
ADFContext	getADFConfigEx
ADFContext	getADFConfig
CADatabaseCon...	getDatabaseProvider
CADatabaseCon...	getConnectionURL
Configuration	initializeFromConne...
Configuration	getConfiguration
Configuration	getConfiguration
MainFrame	loadConfiguration
MainFrame	processArgs
MainFrame	main

```
/*                                  .*/
pa
im
/*
 *                                  ules.
 *                                  l container for coordina
 *                                  al programming logic. Ap
 *                                  nection model (one conne
 *                                   for defining and execut
 *                                  oracle.jbo.common.ampoo
 *                                   manage and share a poo
```

```
[00] Diag                           Linecount:true Threshold:6
[01] WARN
[02] Skip                           ull
Oct 5, 20                           Factory getInstance
INFO: ADF Config instance implementation in use is : oracle.adf.share.config.MDSConfigFact
Exception breakpoint occurred at line 358 of ADFConfigImpl.java.
java.lang.NullPointerException:
```

Type to Narrow the Method List
Use Arrows+[Enter] or Mouse to Navigate



```
/* @(#)ApplicationModuleImpl.java ...*/
package oracle.jbo.server;
...
                                        n Modules.
                                        ogical container for coordina
 *                    cular task, with  ptional programming logic. Ap
 *                   simple runtime da a connection model (one conne
 *                    ) and a  ntext for defining and execut
 * The framework provides an {@link oracle.jbo.common.ampoo
 * interface that clients can use to manage and share a poo
```

Class	Method
ADFConfigImpl	parseConfigFirstPass
ADFConfigImpl	readConfig
ADFConfigImpl	readConfig
ADFConfigImpl	<init>
ADFConfigFactory	createApplicationFr...
ADFConfigFactory	createApplication
MDSConfigFact...	createApplication
ADFConfigFactory	findOrCreateADFCo...
ADFConfigFactory	findOrCreateADFCo...
ADFConfigFactory	findOrCreateADFCo...
ADFContext	getADFConfigEx
ADFContext	getADFConfig
CADatabaseCon...	getDatabaseProvider
CADatabaseCon...	getConnectionURL
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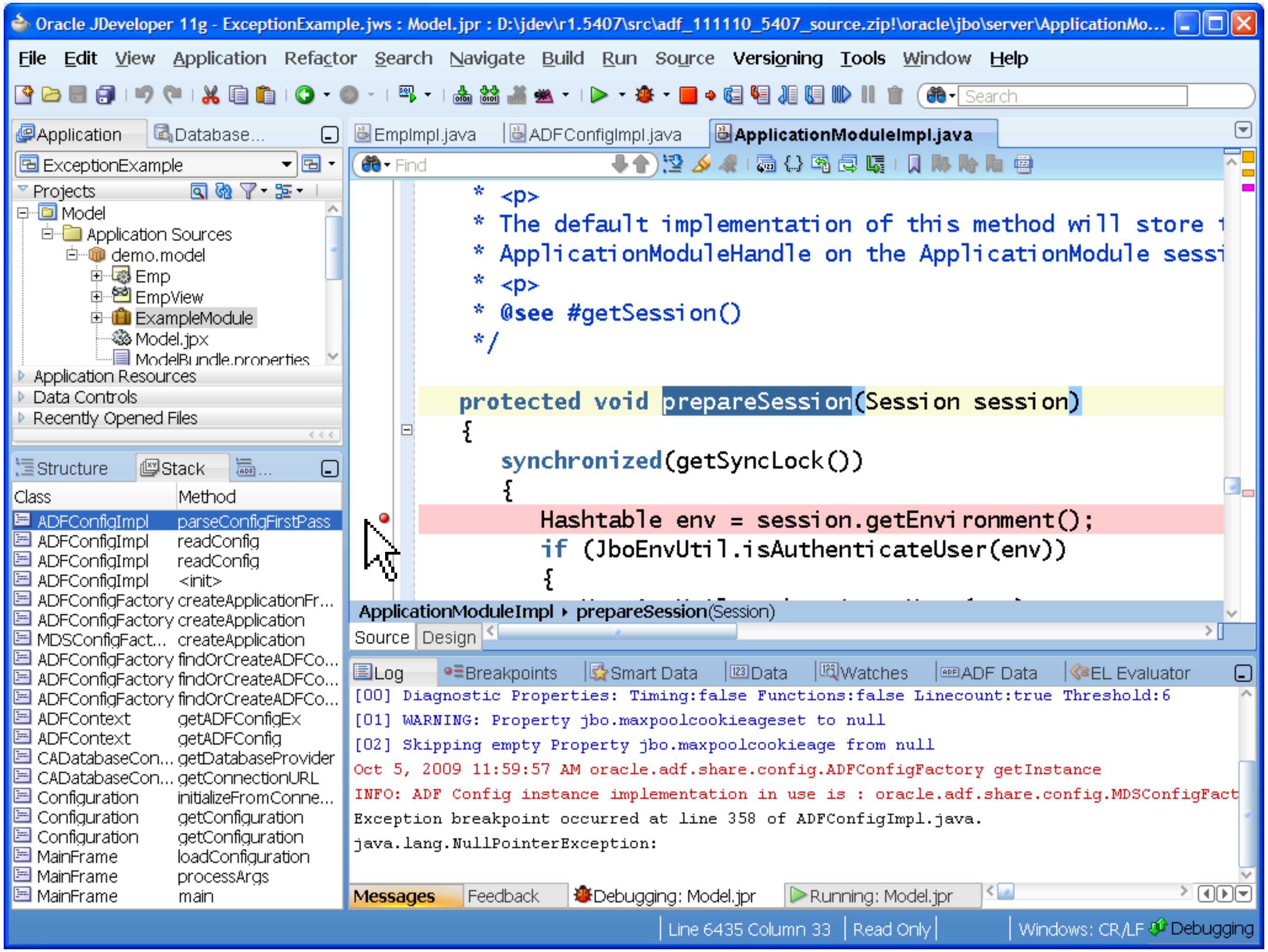
[00] Diagnostic Properties: Timing:false Functions:false Linecount:true Threshold:6
[01] WARNING: Property jbo.maxpoolcookieageset to null
[02] Skipping empty Property jbo.maxpoolcookieage from null
Oct 5, 2009 11:59:57 AM oracle.adf.share.config.ADFConfigFactory getInstance
INFO: ADF Config instance implementation in use is : oracle.adf.share.config.MDSConfigFact
Exception breakpoint occurred at line 358 of ADFConfigImpl.java.
java.lang.NullPointerException:
```

Set a Breakpoint in `prepareSession()`
This Occurs After AM is Checked Out of Pool



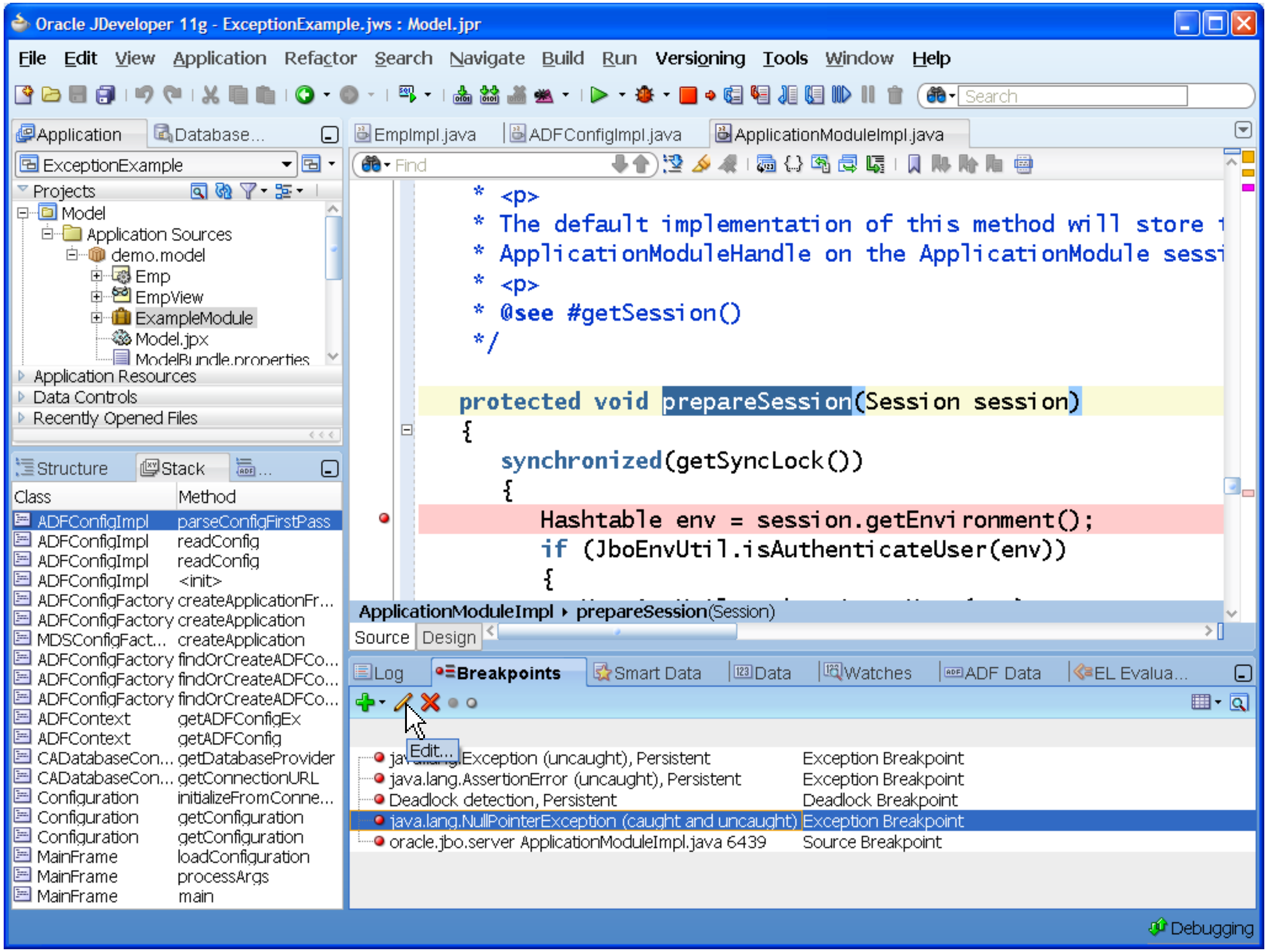
```
 * <p>
 * The default implementation of this method will store t
 * ApplicationModuleHandle on the ApplicationModule sessi
 * <p>
 * @see #getSession()
 */

protected void prepareSession(Session session)
{
   synchronized(getSyncLock())
   {
      Hashtable env = session.getEnvironment();
      if (JboEnvUtil.isAuthenticateUser(env))
      {
```

Class	Method
ADFConfigImpl	parseConfigFirstPass
ADFConfigImpl	readConfig
ADFConfigImpl	readConfig
ADFConfigImpl	<init>
ADFConfigFactory	createApplicationFr...
ADFConfigFactory	createApplication
MDSConfigFact...	createApplication
ADFConfigFactory	findOrCreateADFCo...
ADFConfigFactory	findOrCreateADFCo...
ADFConfigFactory	findOrCreateADFCo...
ADFContext	getADFConfigEx
ADFContext	getADFConfig
CADatabaseCon...	getDatabaseProvider
CADatabaseCon...	getConnectionURL
Configuration	initializeFromConne...
Configuration	getConfiguration
Configuration	getConfiguration
MainFrame	loadConfiguration
MainFrame	processArgs
MainFrame	main

```
[00] Diagnostic Properties: Timing:false Functions:false Linecount:true Threshold:6
[01] WARNING: Property jbo.maxpoolcookieageset to null
[02] Skipping empty Property jbo.maxpoolcookieage from null
Oct 5, 2009 11:59:57 AM oracle.adf.share.config.ADFConfigFactory getInstance
INFO: ADF Config instance implementation in use is : oracle.adf.share.config.MDSConfigFact
Exception breakpoint occurred at line 358 of ADFConfigImpl.java.
java.lang.NullPointerException:
```

Edit Exception Breakpoint to Add Group Name



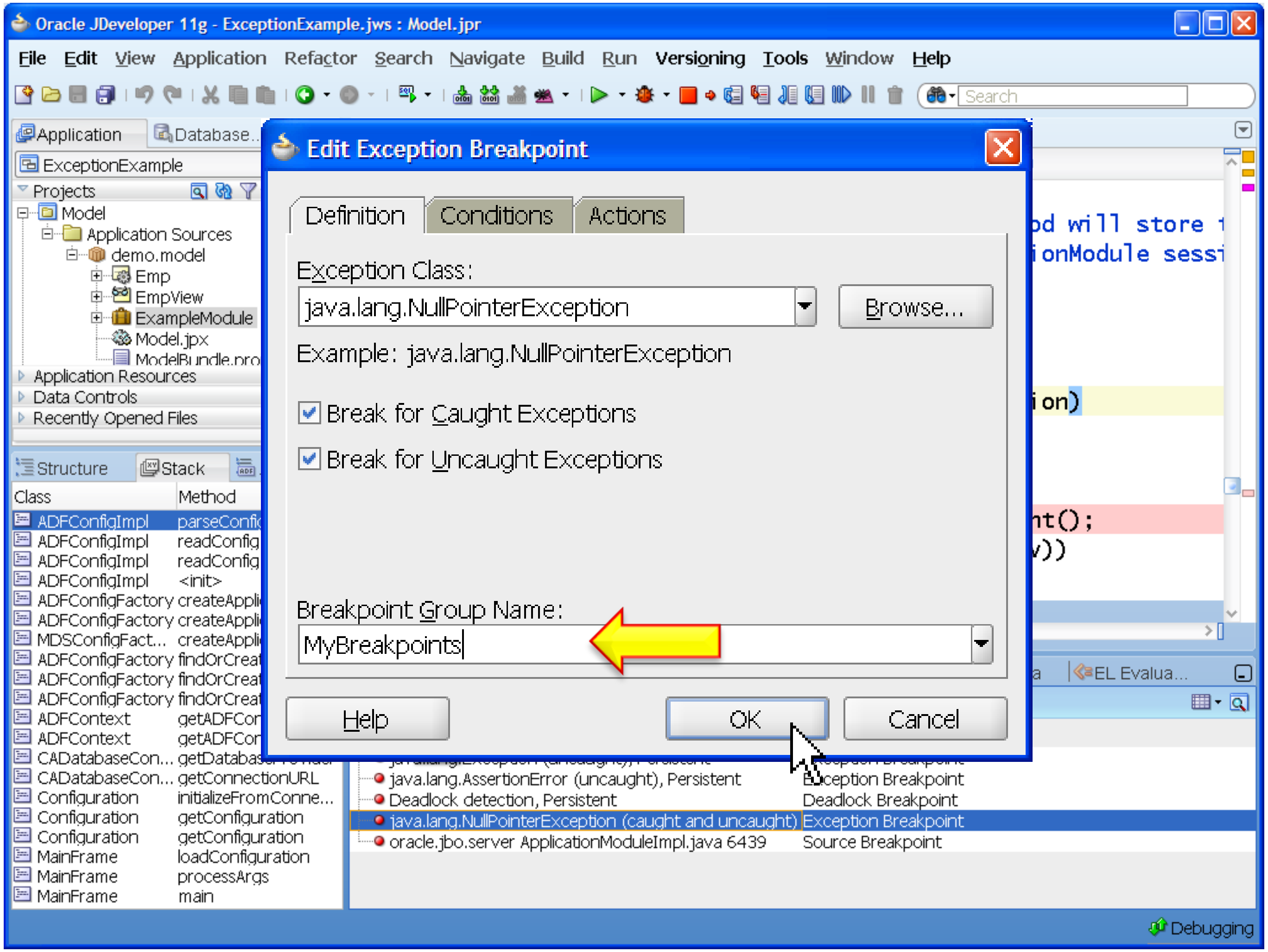
```
     * <p>
     * The default implementation of this method will store t
     * ApplicationModuleHandle on the ApplicationModule sessi
     * <p>
     * @see #getSession()
     */

    protected void prepareSession(Session session)
    {
       synchronized(getSyncLock())
       {
          Hashtable env = session.getEnvironment();
          if (JboEnvUtil.isAuthenticateUser(env))
          {
```

Class	Method
ADFConfigImpl	parseConfigFirstPass
ADFConfigImpl	readConfig
ADFConfigImpl	readConfig
ADFConfigImpl	<init>
ADFConfigFactory	createApplicationFr...
ADFConfigFactory	createApplication
MDSConfigFact...	createApplication
ADFConfigFactory	findOrCreateADFCo...
ADFConfigFactory	findOrCreateADFCo...
ADFConfigFactory	findOrCreateADFCo...
ADFContext	getADFConfigEx
ADFContext	getADFConfig
CADatabaseCon...	getDatabaseProvider
CADatabaseCon...	getConnectionURL
Configuration	initializeFromConne...
Configuration	getConfiguration
Configuration	getConfiguration
MainFrame	loadConfiguration
MainFrame	processArgs
MainFrame	main

ja Exception (uncaught), Persistent	Exception Breakpoint
java.lang.AssertionError (uncaught), Persistent	Exception Breakpoint
Deadlock detection, Persistent	Deadlock Breakpoint
java.lang.NullPointerException (caught and uncaught)	Exception Breakpoint
oracle.jbo.server ApplicationModuleImpl.java 6439	Source Breakpoint

Name the Breakpoint Group Anything You Like



Edit Exception Breakpoint

Definition | Conditions | Actions

Exception Class: java.lang.NullPointerException

Browse...

Example: java.lang.NullPointerException

☑ Break for Caught Exceptions

☑ Break for Uncaught Exceptions

Breakpoint Group Name: MyBreakpoints

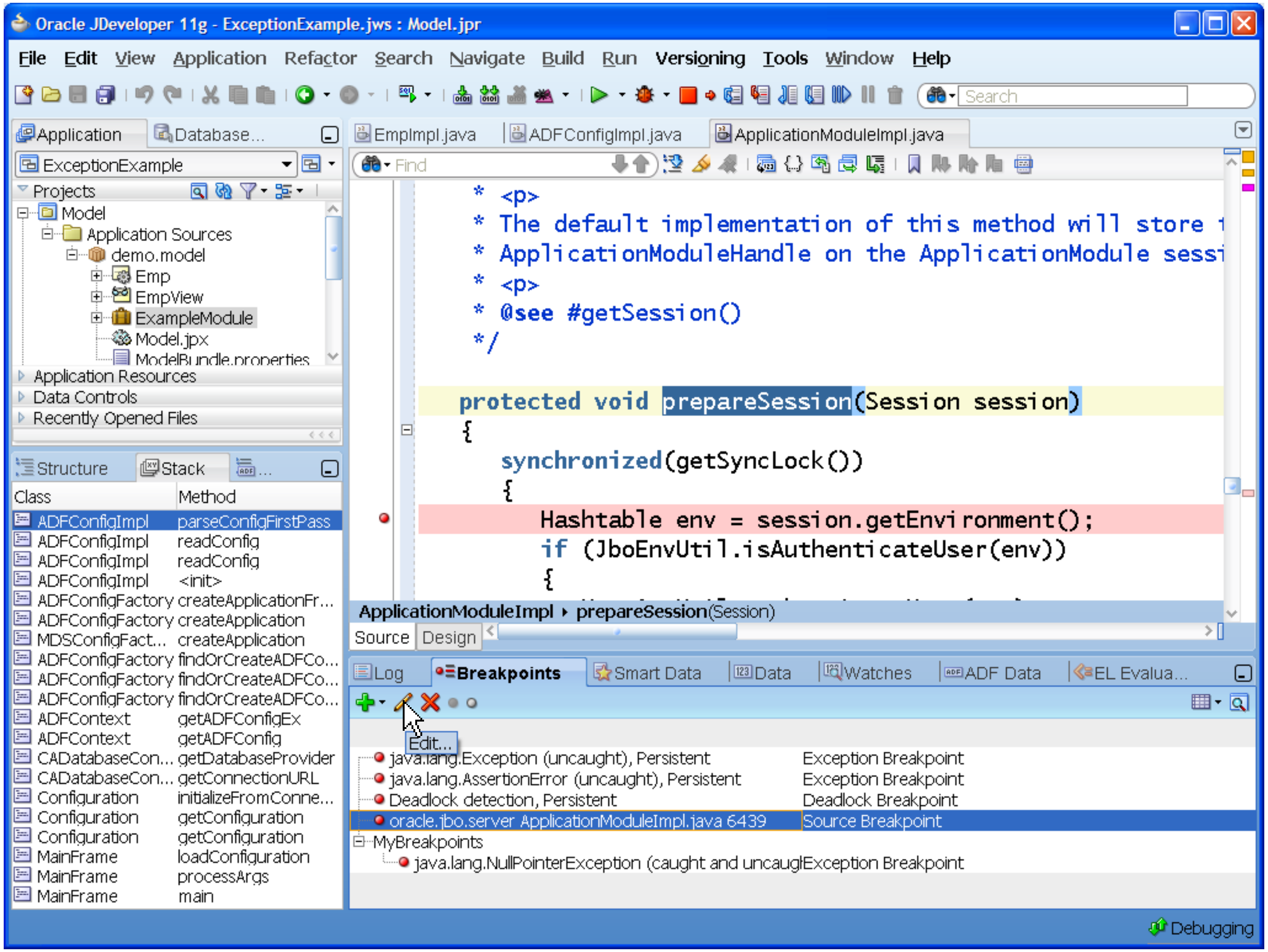
Help | OK | Cancel

java.lang.AssertionError (uncaught), Persistent	Exception Breakpoint
Deadlock detection, Persistent	Deadlock Breakpoint
java.lang.NullPointerException (caught and uncaught)	Exception Breakpoint
oracle.jbo.server ApplicationModuleImpl.java 6439	Source Breakpoint

Class	Method
ADFConfigImpl	parseConfig
ADFConfigImpl	readConfig
ADFConfigImpl	readConfig
ADFConfigImpl	<init>
ADFConfigFactory	createAppli
ADFConfigFactory	createAppli
MDSConfigFact...	createAppli
ADFConfigFactory	findOrCreat
ADFConfigFactory	findOrCreat
ADFConfigFactory	findOrCreat
ADFContext	getADFCon
ADFContext	getADFCon
CADatabaseCon...	getDatabas
CADatabaseCon...	getConnectionURL
Configuration	initializeFromConne...
Configuration	getConfiguration
Configuration	getConfiguration
MainFrame	loadConfiguration
MainFrame	processArgs
MainFrame	main

```
od will store t
ionModule sessi
ion)
nt();
v))
```

Edit the prepareSession() Breakpoint



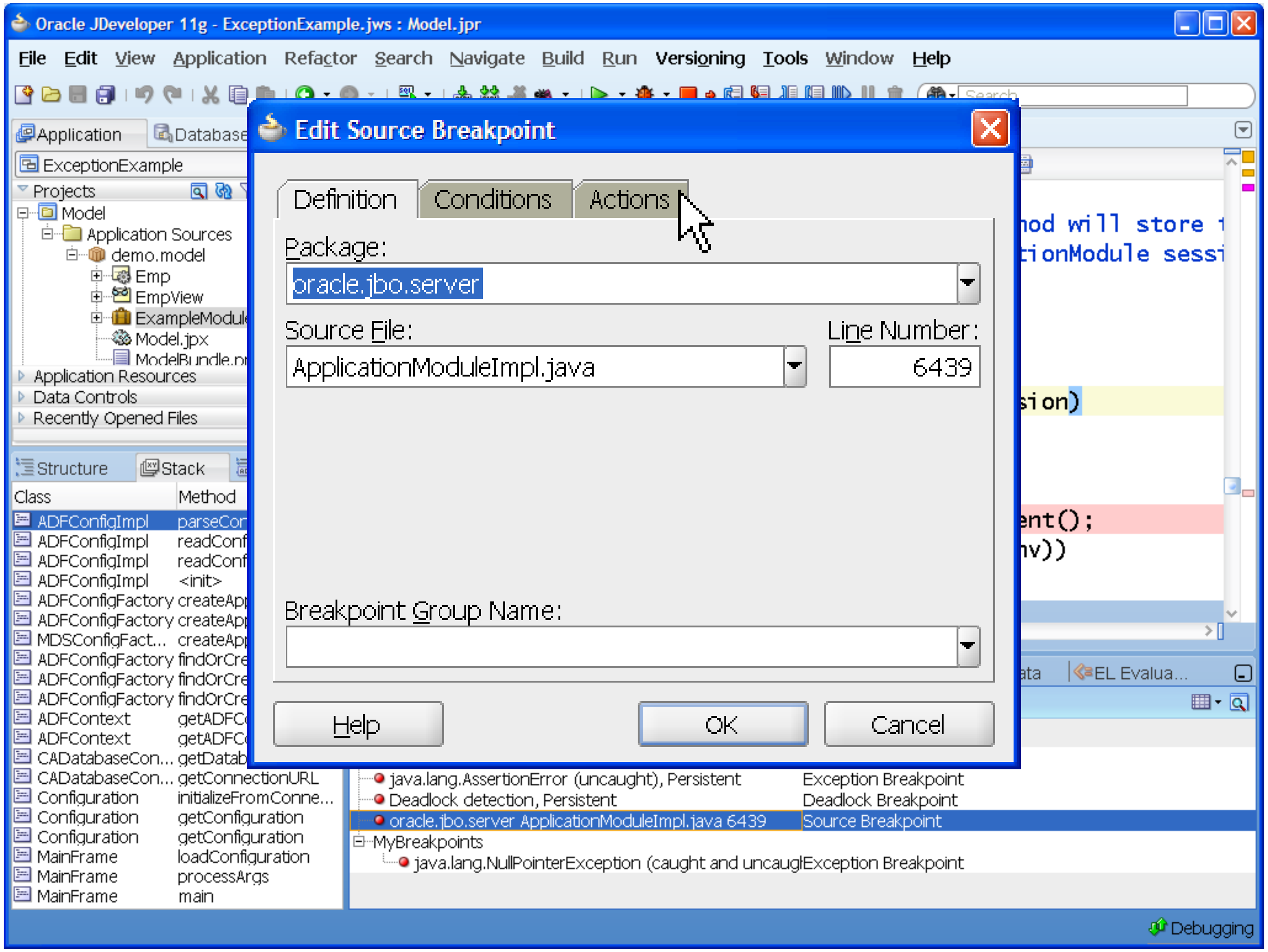
```
     * <p>
     * The default implementation of this method will store t
     * ApplicationModuleHandle on the ApplicationModule sessi
     * <p>
     * @see #getSession()
     */

    protected void prepareSession(Session session)
    {
       synchronized(getSyncLock())
       {
          Hashtable env = session.getEnvironment();
          if (JboEnvUtil.isAuthenticateUser(env))
          {
```

Class	Method
ADFConfigImpl	parseConfigFirstPass
ADFConfigImpl	readConfig
ADFConfigImpl	readConfig
ADFConfigImpl	<init>
ADFConfigFactory	createApplicationFr...
ADFConfigFactory	createApplication
MDSConfigFact...	createApplication
ADFConfigFactory	findOrCreateADFCo...
ADFConfigFactory	findOrCreateADFCo...
ADFConfigFactory	findOrCreateADFCo...
ADFContext	getADFConfigEx
ADFContext	getADFConfig
CADatabaseCon...	getDatabaseProvider
CADatabaseCon...	getConnectionURL
Configuration	initializeFromConne...
Configuration	getConfiguration
Configuration	getConfiguration
MainFrame	loadConfiguration
MainFrame	processArgs
MainFrame	main

java.lang.Exception (uncaught), Persistent	Exception Breakpoint
java.lang.AssertionError (uncaught), Persistent	Exception Breakpoint
Deadlock detection, Persistent	Deadlock Breakpoint
oracle.jbo.server ApplicationModuleImpl.java 6439	Source Breakpoint
MyBreakpoints	
java.lang.NullPointerException (caught and uncaug	Exception Breakpoint

Visit the *Actions* Tab



Edit Source Breakpoint

Package: oracle.jbo.server

Source File: ApplicationModuleImpl.java

Line Number: 6439

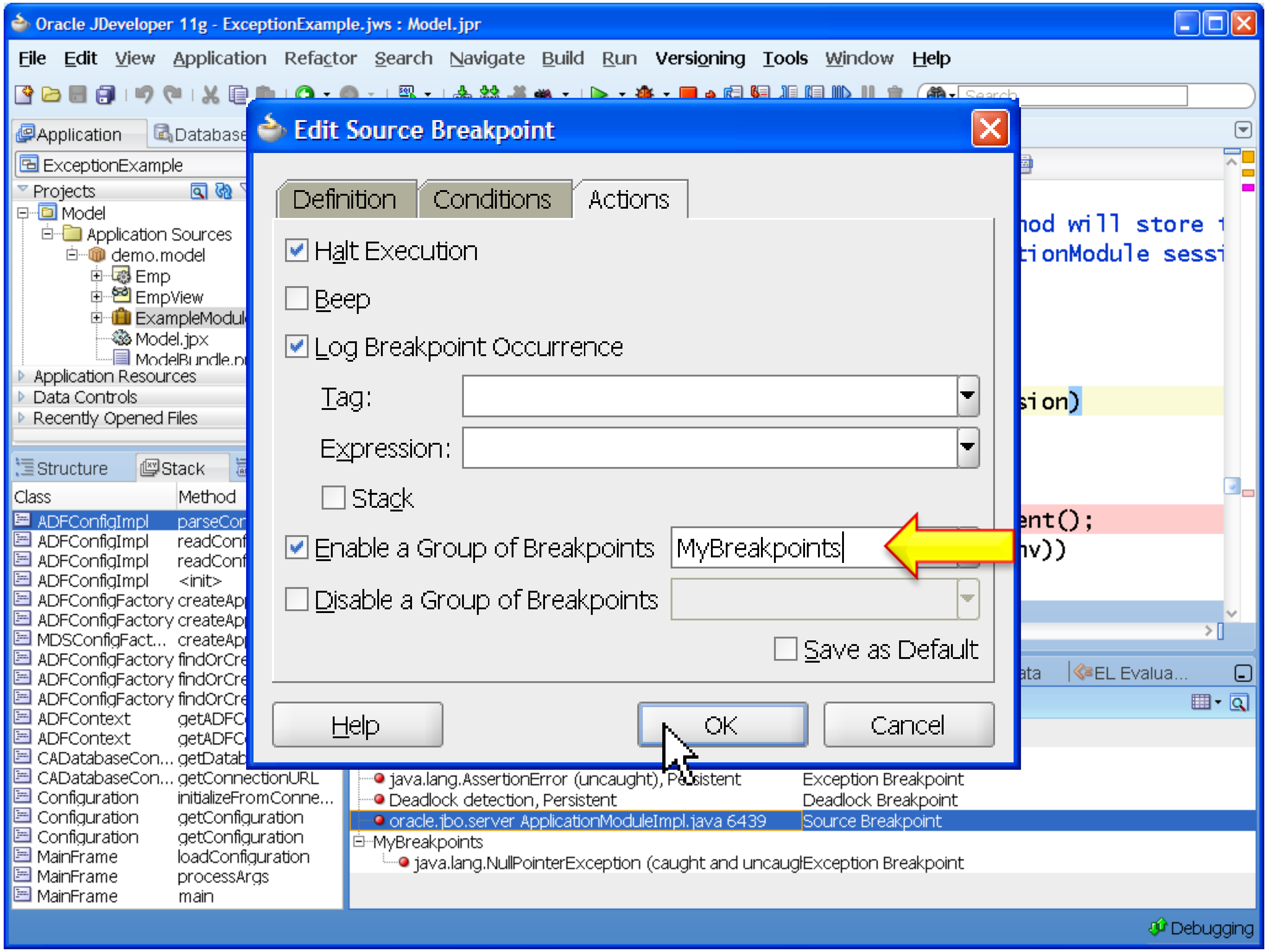
Breakpoint Group Name:

Class	Method
ADFConfigImpl	parseCon
ADFConfigImpl	readConf
ADFConfigImpl	readConf
ADFConfigImpl	<init>
ADFConfigFactory	createApp
ADFConfigFactory	createApp
MDSConfigFact...	createApp
ADFConfigFactory	findOrCre
ADFConfigFactory	findOrCre
ADFConfigFactory	findOrCre
ADFContext	getADFC
ADFContext	getADFC
CADatabaseCon...	getDatab
CADatabaseCon...	getConnectionURL
Configuration	initializeFromConne...
Configuration	getConfiguration
Configuration	getConfiguration
MainFrame	loadConfiguration
MainFrame	processArgs
MainFrame	main

```
hod will store t
tionModule sessi
sion)
ent();
nv))
```

java.lang.AssertionError (uncaught), Persistent	Exception Breakpoint
Deadlock detection, Persistent	Deadlock Breakpoint
oracle.jbo.server ApplicationModuleImpl.java 6439	Source Breakpoint
MyBreakpoints	
java.lang.NullPointerException (caught and uncaugl	Exception Breakpoint

Configure the Action to Enable a Breakpoint Group Choosing Yours from the List



Edit Source Breakpoint

Definition | Conditions | Actions

☑ Halt Execution

☐ Beep

☑ Log Breakpoint Occurrence

Tag:

Expression:

☐ Stack

☑ Enable a Group of Breakpoints: MyBreakpoints

☐ Disable a Group of Breakpoints

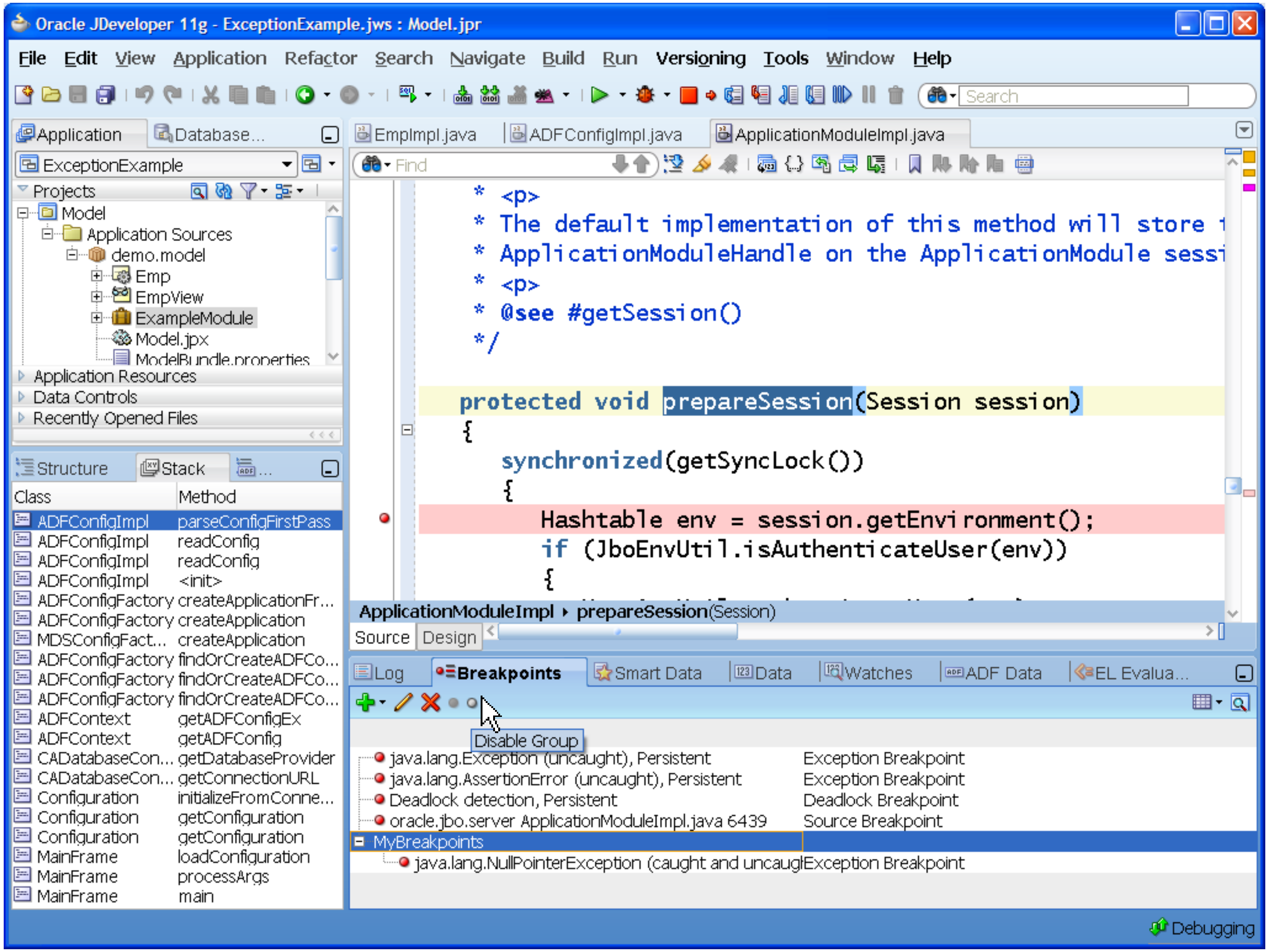
☐ Save as Default

```
hod will store t
tionModule sessi
sion)
ent();
nv))
```

Class	Method
ADFConfigImpl	parseCor
ADFConfigImpl	readConf
ADFConfigImpl	readConf
ADFConfigImpl	<init>
ADFConfigFactory	createAp
ADFConfigFactory	createAp
MDSConfigFact...	createAp
ADFConfigFactory	findOrCre
ADFConfigFactory	findOrCre
ADFConfigFactory	findOrCre
ADFContext	getADFC
ADFContext	getADFC
CADatabaseCon...	getDatab
CADatabaseCon...	getConnectionURL
Configuration	initializeFromConne...
Configuration	getConfiguration
Configuration	getConfiguration
MainFrame	loadConfiguration
MainFrame	processArgs
MainFrame	main

● java.lang.AssertionError (uncaught), Persistent	Exception Breakpoint
● Deadlock detection, Persistent	Deadlock Breakpoint
● oracle.jbo.server ApplicationModuleImpl.java 6439	Source Breakpoint
MyBreakpoints	
● java.lang.NullPointerException (caught and uncaug	Exception Breakpoint

Disable the Breakpoint Group By Default
Action Will Enable it at prepareSession() Time



```
 * <p>
 * The default implementation of this method will store t
 * ApplicationModuleHandle on the ApplicationModule sessi
 * <p>
 * @see #getSession()
 */

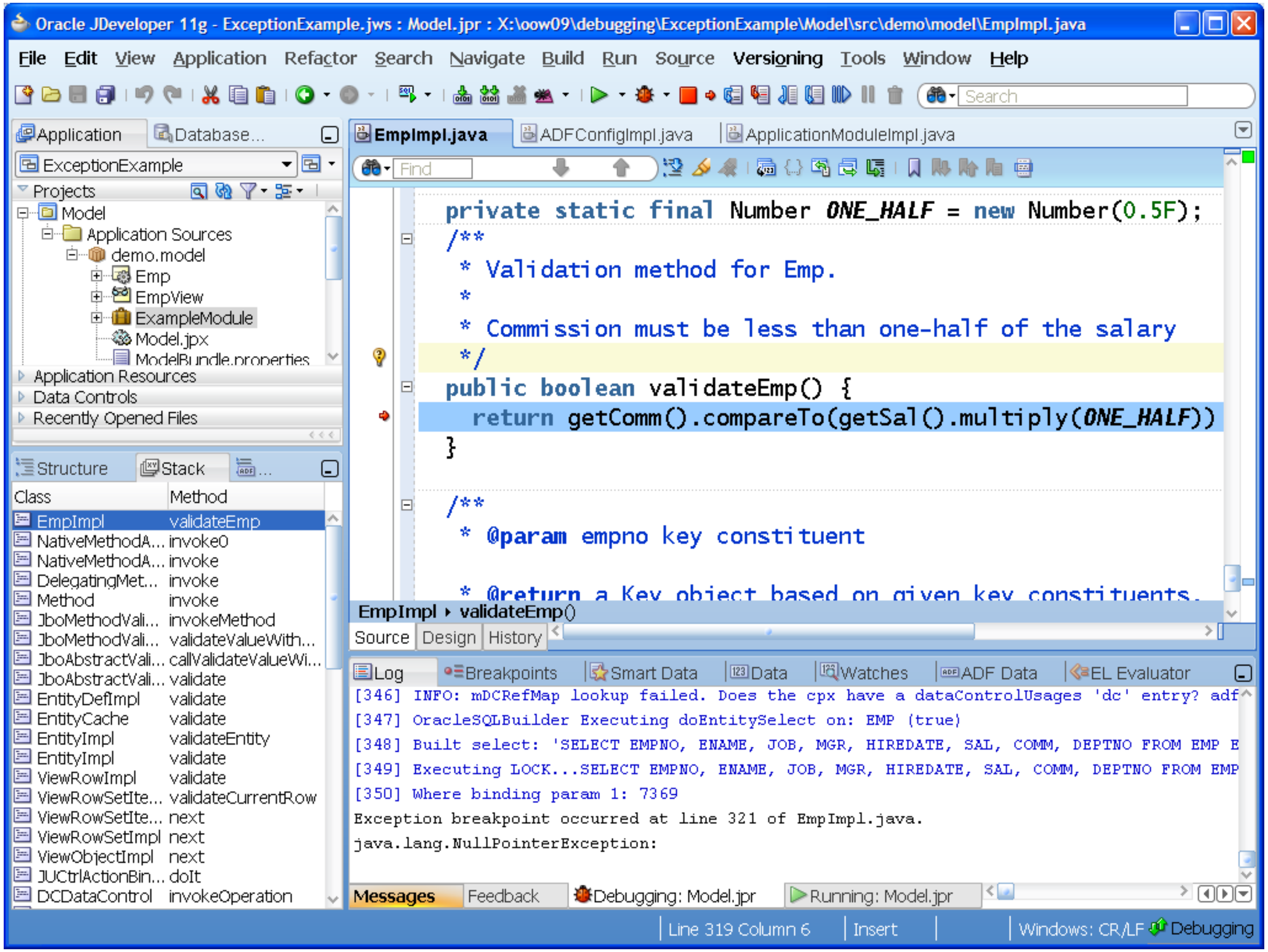
protected void prepareSession(Session session)
{
   synchronized(getSyncLock())
   {
      Hashtable env = session.getEnvironment();
      if (JboEnvUtil.isAuthenticateUser(env))
      {
```

ApplicationModuleImpl › prepareSession(Session)

Class	Method
ADFConfigImpl	parseConfigFirstPass
ADFConfigImpl	readConfig
ADFConfigImpl	readConfig
ADFConfigImpl	<init>
ADFConfigFactory	createApplicationFr...
ADFConfigFactory	createApplication
MDSConfigFact...	createApplication
ADFConfigFactory	findOrCreateADFCo...
ADFConfigFactory	findOrCreateADFCo...
ADFConfigFactory	findOrCreateADFCo...
ADFContext	getADFConfigEx
ADFContext	getADFConfig
CADatabaseCon...	getDatabaseProvider
CADatabaseCon...	getConnectionURL
Configuration	initializeFromConne...
Configuration	getConfiguration
Configuration	getConfiguration
MainFrame	loadConfiguration
MainFrame	processArgs
MainFrame	main

java.lang.Exception (uncaught), Persistent	Exception Breakpoint
java.lang.AssertionError (uncaught), Persistent	Exception Breakpoint
Deadlock detection, Persistent	Deadlock Breakpoint
oracle.jbo.server ApplicationModuleImpl.java 6439	Source Breakpoint
MyBreakpoints	
java.lang.NullPointerException (caught and uncaugl	Exception Breakpoint

Debug Again. Only Stop at NullPointerException After First Hitting the prepareSession() Breakpoint



Oracle JDeveloper 11g - ExceptionExample.jws : Model.jpr : X:\oow09\debugging\ExceptionExample\Model\src\demo\model\EmpImpl.java

```
private static final Number ONE_HALF = new Number(0.5F);
/**
 * Validation method for Emp.
 *
 * Commission must be less than one-half of the salary
 */
public boolean validateEmp() {
  return getComm().compareTo(getSal().multiply(ONE_HALF))
}

/**
 * @param empno key constituent

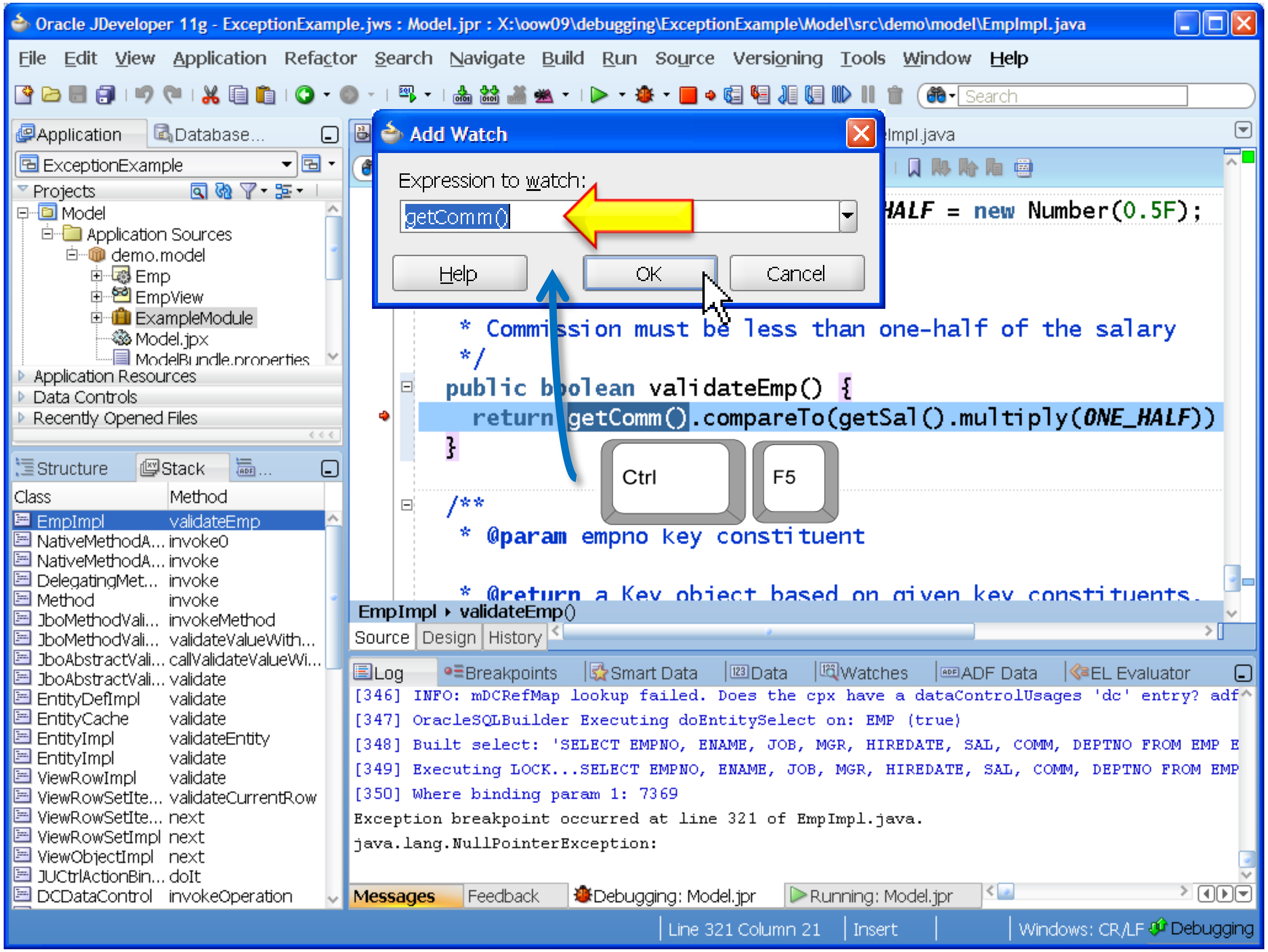
 * @return a Key object based on given key constituents.
```

Class	Method
EmpImpl	validateEmp
NativeMethodA...	invoke0
NativeMethodA...	invoke
DelegatingMet...	invoke
Method	invoke
JboMethodVali...	invokeMethod
JboMethodVali...	validateValueWith...
JboAbstractVali...	callValidateValueWi...
JboAbstractVali...	validate
EntityDefImpl	validate
EntityCache	validate
EntityImpl	validateEntity
EntityImpl	validate
ViewRowImpl	validate
ViewRowSetIte...	validateCurrentRow
ViewRowSetIte...	next
ViewRowSetImpl	next
ViewObjectImpl	next
JUCtrlActionBin...	doIt
DCDataControl	invokeOperation

```
[346] INFO: mDCRefMap lookup failed. Does the cpx have a dataControlUsages 'dc' entry? adf
[347] OracleSQLBuilder Executing doEntitySelect on: EMP (true)
[348] Built select: 'SELECT EMPNO, ENAME, JOB, MGR, HIREDATE, SAL, COMM, DEPTNO FROM EMP E
[349] Executing LOCK...SELECT EMPNO, ENAME, JOB, MGR, HIREDATE, SAL, COMM, DEPTNO FROM EMP
[350] Where binding param 1: 7369
Exception breakpoint occurred at line 321 of EmpImpl.java.
java.lang.NullPointerException:
```

Line 319 Column 6 | Insert | Windows: CR/LF | Debugging

Add a Watch Expression for getComm() to Inspect Value of the Comm Attribute



Oracle JDeveloper 11g - ExceptionExample.jws : Model.jpr : X:\oow09\debugging\ExceptionExample\Model\src\demo\model\EmpImpl.java

Add Watch

Expression to watch: getComm()

Help | OK | Cancel

```
HALF = new Number(0.5F);

 * Commission must be less than one-half of the salary
 */
public boolean validateEmp() {
  return getComm().compareTo(getSal().multiply(ONE_HALF))
}

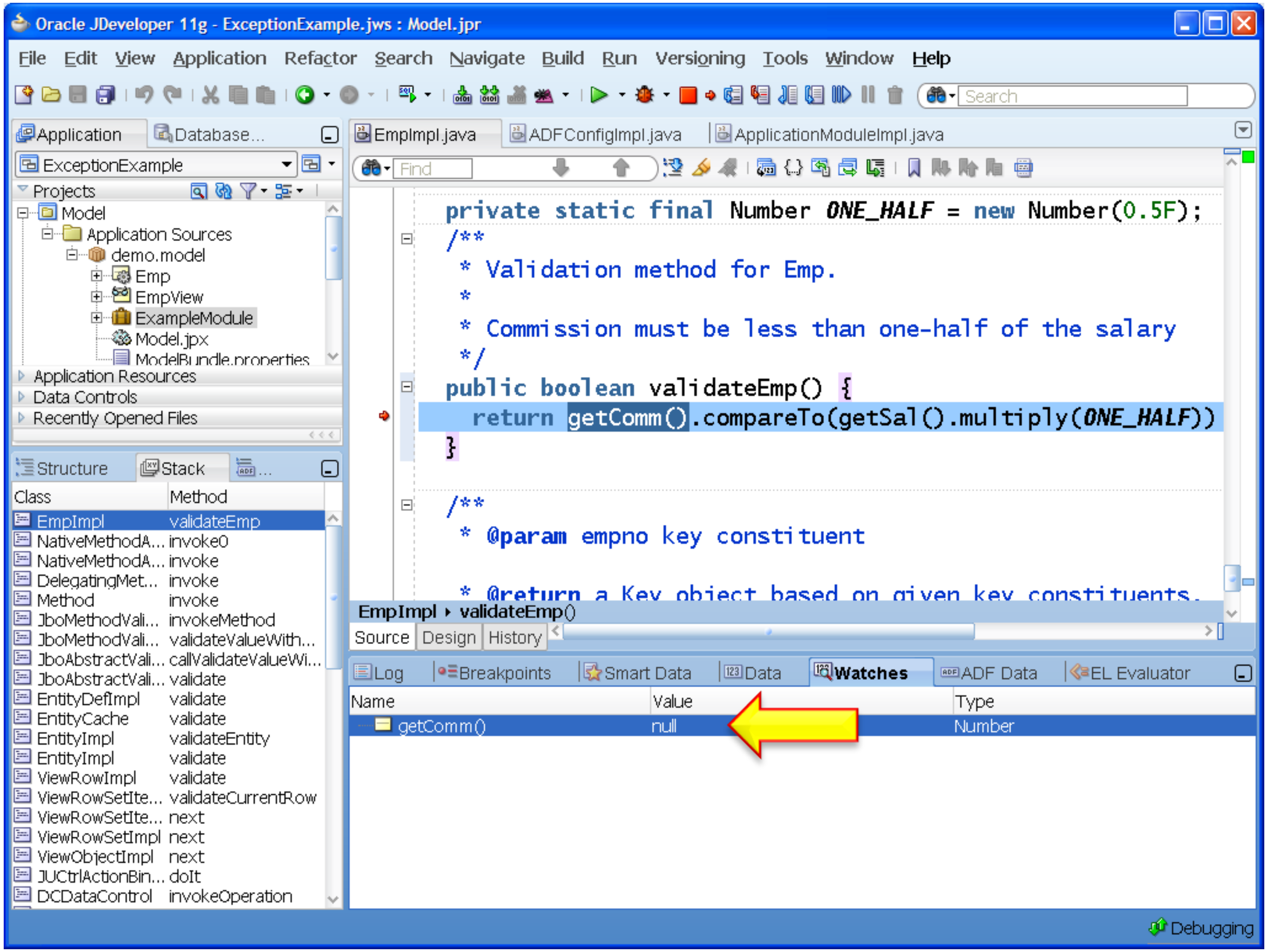
/**
 * @param empno key constituent

 * @return a Key object based on given key constituents.
```

Class	Method
EmpImpl	validateEmp
NativeMethodA...	invoke0
NativeMethodA...	invoke
DelegatingMet...	invoke
Method	invoke
JboMethodVali...	invokeMethod
JboMethodVali...	validateValueWith...
JboAbstractVali...	callValidateValueWi...
JboAbstractVali...	validate
EntityDefImpl	validate
EntityCache	validate
EntityImpl	validateEntity
EntityImpl	validate
ViewRowImpl	validate
ViewRowSetIte...	validateCurrentRow
ViewRowSetIte...	next
ViewRowSetImpl	next
ViewObjectImpl	next
JUCtrlActionBin...	doIt
DCDataControl	invokeOperation

```
[346] INFO: mDCRefMap lookup failed. Does the cpx have a dataControlUsages 'dc' entry? adf
[347] OracleSQLBuilder Executing doEntitySelect on: EMP (true)
[348] Built select: 'SELECT EMPNO, ENAME, JOB, MGR, HIREDATE, SAL, COMM, DEPTNO FROM EMP E
[349] Executing LOCK...SELECT EMPNO, ENAME, JOB, MGR, HIREDATE, SAL, COMM, DEPTNO FROM EMP
[350] Where binding param 1: 7369
Exception breakpoint occurred at line 321 of EmpImpl.java.
java.lang.NullPointerException:
```

Suspicion is Confirmed, It's Null



```
private static final Number ONE_HALF = new Number(0.5F);
/**
 * Validation method for Emp.
 *
 * Commission must be less than one-half of the salary
 */
public boolean validateEmp() {
  return getComm().compareTo(getSal().multiply(ONE_HALF))
}

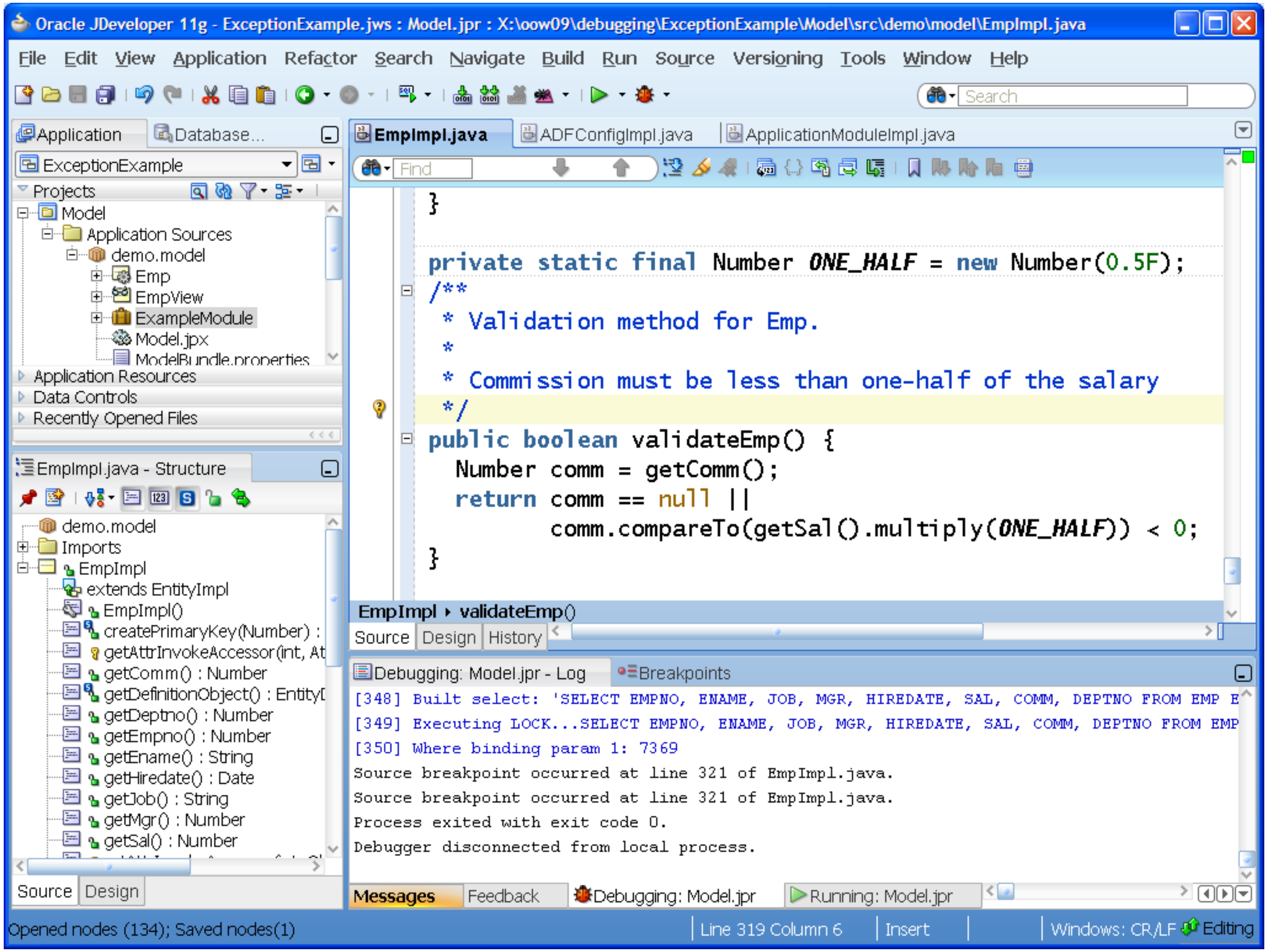
/**
 * @param empno key constituent

 * @return a Key object based on given key constituents.
```

Class	Method
EmpImpl	validateEmp
NativeMethodA...	invoke0
NativeMethodA...	invoke
DelegatingMet...	invoke
Method	invoke
JboMethodVali...	invokeMethod
JboMethodVali...	validateValueWith...
JboAbstractVali...	callValidateValueWi...
JboAbstractVali...	validate
EntityDefImpl	validate
EntityCache	validate
EntityImpl	validateEntity
EntityImpl	validate
ViewRowImpl	validate
ViewRowSetIte...	validateCurrentRow
ViewRowSetIte...	next
ViewRowSetImpl	next
ViewObjectImpl	next
JUCtrlActionBin...	doIt
DCDataControl	invokeOperation

Name	Value	Type
getComm()	null	Number

Add Null Protection to Fix the Bug
Debug and Test to Verify Your Fix

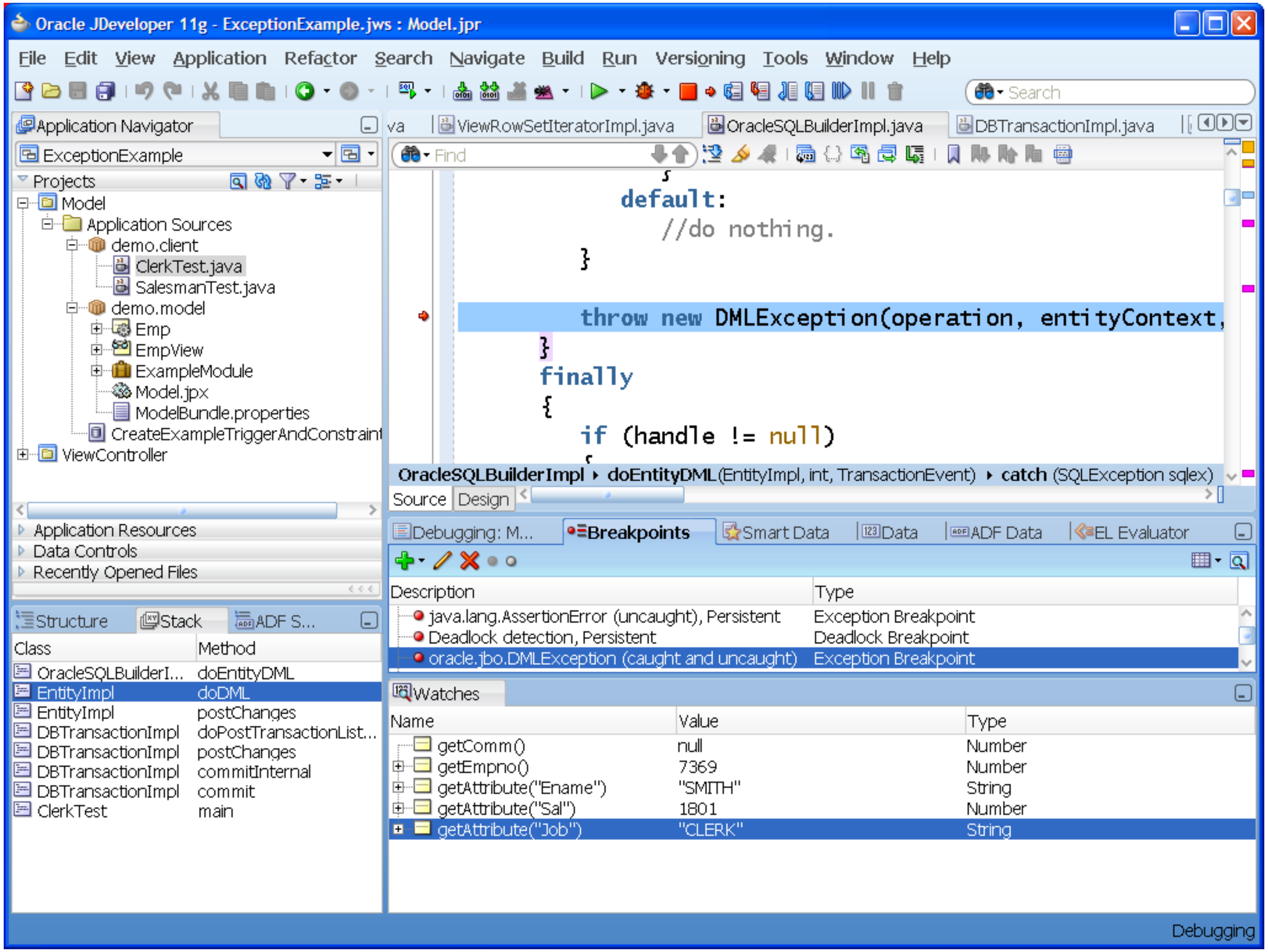


```
}

private static final Number ONE_HALF = new Number(0.5F);
/**
 * Validation method for Emp.
 *
 * Commission must be less than one-half of the salary
 */
public boolean validateEmp() {
  Number comm = getComm();
  return comm == null ||
         comm.compareTo(getSal().multiply(ONE_HALF)) < 0;
}
```

```
[348] Built select: 'SELECT EMPNO, ENAME, JOB, MGR, HIREDATE, SAL, COMM, DEPTNO FROM EMP E
[349] Executing LOCK...SELECT EMPNO, ENAME, JOB, MGR, HIREDATE, SAL, COMM, DEPTNO FROM EMP
[350] Where binding param 1: 7369
Source breakpoint occurred at line 321 of EmpImpl.java.
Source breakpoint occurred at line 321 of EmpImpl.java.
Process exited with exit code 0.
Debugger disconnected from local process.
```

Symptom: DMLException After Committing Data



```
            default:
                //do nothing.
        }

        throw new DMLException(operation, entityContext,
    }
    finally
    {
        if (handle != null)
```

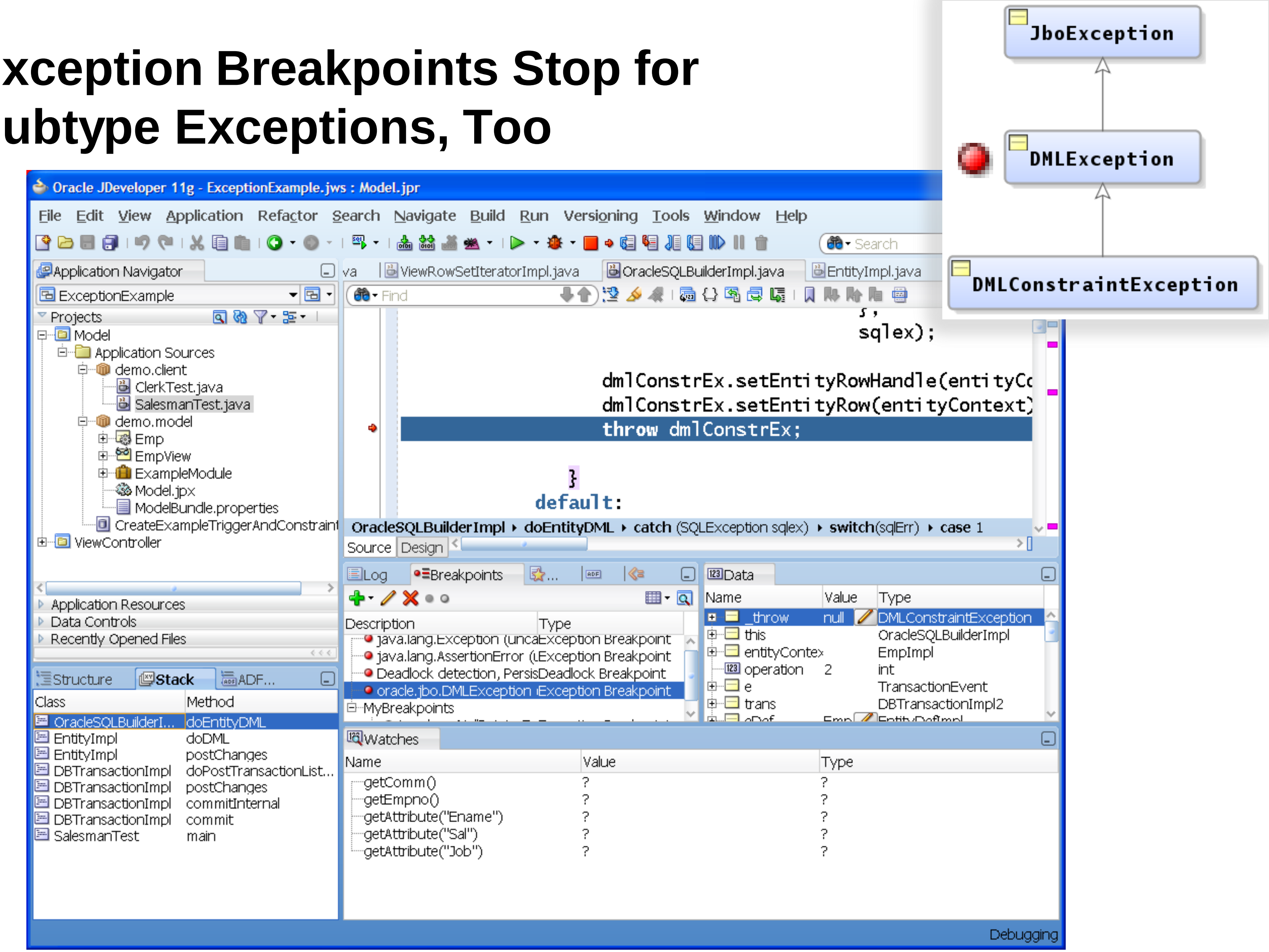
OracleSQLBuilderImpl › doEntityDML(EntityImpl, int, TransactionEvent) › catch (SQLException sqlex)

Class	Method
OracleSQLBuilderI...	doEntityDML
EntityImpl	doDML
EntityImpl	postChanges
DBTransactionImpl	doPostTransactionList...
DBTransactionImpl	postChanges
DBTransactionImpl	commitInternal
DBTransactionImpl	commit
ClerkTest	main

Description	Type
java.lang.AssertionError (uncaught), Persistent	Exception Breakpoint
Deadlock detection, Persistent	Deadlock Breakpoint
oracle.jbo.DMLException (caught and uncaught)	Exception Breakpoint

Name	Value	Type
getComm()	null	Number
getEmpno()	7369	Number
getAttribute("Ename")	"SMITH"	String
getAttribute("Sal")	1801	Number
getAttribute("Job")	"CLERK"	String

Exception Breakpoints Stop for Subtype Exceptions, Too



```
                                    ;
                                    sqlex);

                    dmlConstrEx.setEntityRowHandle(entityCo
                    dmlConstrEx.setEntityRow(entityContext)
                    throw dmlConstrEx;

                }
            default:
```

OracleSQLBuilderImpl › doEntityDML › catch (SQLException sqlex) › switch(sqlErr) › case 1

Description	Type
java.lang.Exception (unca	Exception Breakpoint
java.lang.AssertionError (	Exception Breakpoint
Deadlock detection, Persis	Deadlock Breakpoint
oracle.jbo.DMLException	Exception Breakpoint
MyBreakpoints	

Name	Value	Type
_throw	null	DMLConstraintException
this		OracleSQLBuilderImpl
entityContex		EmpImpl
operation	2	int
e		TransactionEvent
trans		DBTransactionImpl2

Class	Method
OracleSQLBuilderI...	doEntityDML
EntityImpl	doDML
EntityImpl	postChanges
DBTransactionImpl	doPostTransactionList...
DBTransactionImpl	postChanges
DBTransactionImpl	commitInternal
DBTransactionImpl	commit
SalesmanTest	main

Name	Value	Type
getComm()	?	?
getEmpno()	?	?
getAttribute("Ename")	?	?
getAttribute("Sal")	?	?
getAttribute("Job")	?	?

Summary of Techniques Used in the Example

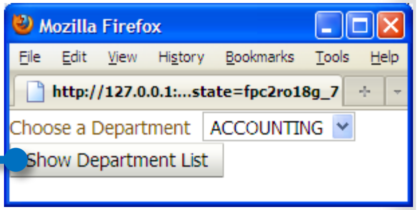
- Exception breakpoints
  - To stop when exception is thrown
  - Use more generic or more specific exception type as needed
- Breakpoint Groups and Actions
  - To avoid stopping at uninteresting occurrences
- Watch Expressions
  - To easily inspect the value of attributes or other expressions
    - getYourAttrName() – if you have generated row class
    - getAttribute("YourAttrName") – works always

HOW TO DEBUG

"Wrong Data" Problems

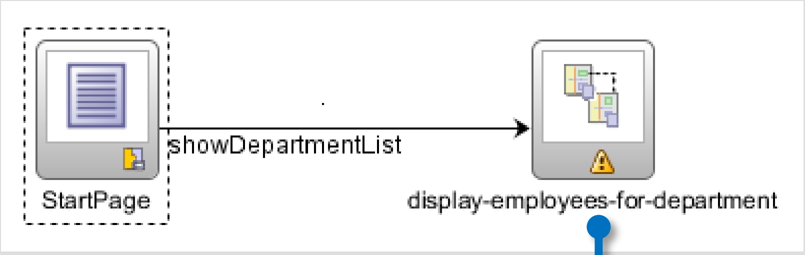
Overview of Application to Debug

```
<af:setActionListener
   from="#{bindings.Deptno.inputValue}"
     to="#{requestScope.deptno}"
```



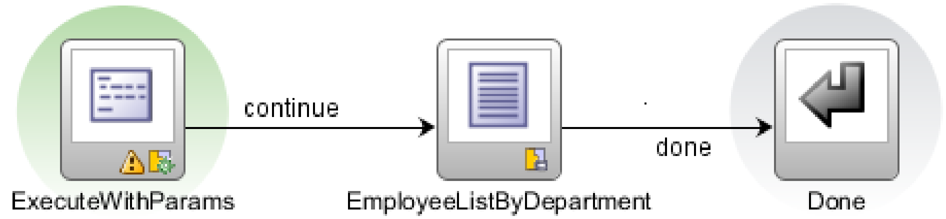
http://127.0.0.1:...state=fpc2ro18g_7

Choose a Department: ACCOUNTING

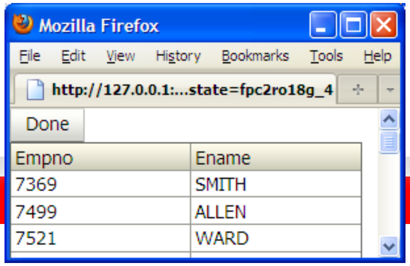


```
tfParam_deptno =
#{requestScope.deptno}
```

```
tfParam_deptno => #{pageFlowScope.deptno}
```



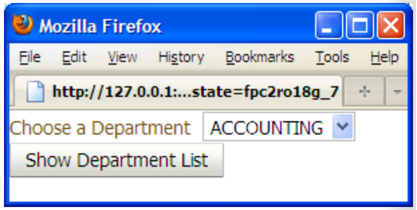
```
VarDeptno =
#{pageFlowScope.deptno}
```



http://127.0.0.1:...state=fpc2ro18g_4

Empno	Ename
7369	SMITH
7499	ALLEN
7521	WARD

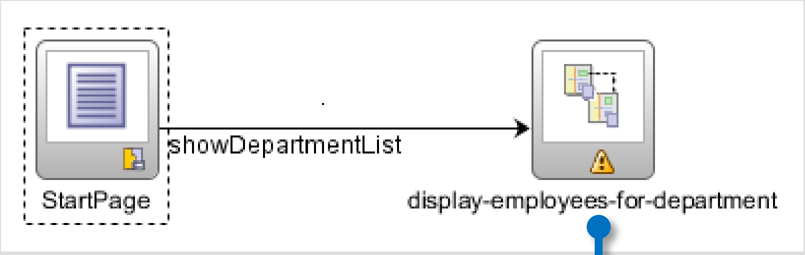
Symptom: Choose Department "ACCOUNTING" (10) But See Employees for All Departments

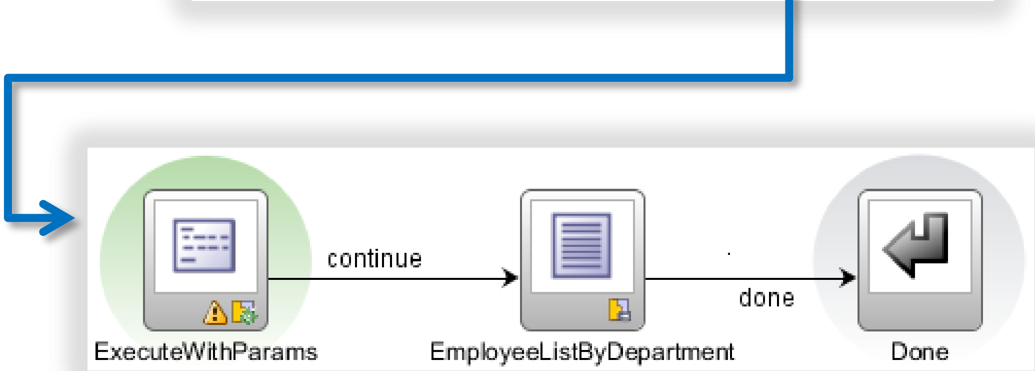


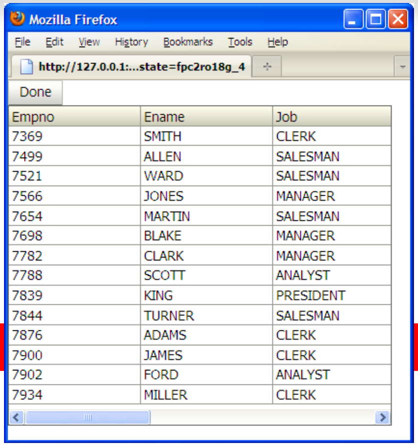
Mozilla Firefox

http://127.0.0.1:...state=fpc2ro18g_7

Choose a Department: ACCOUNTING





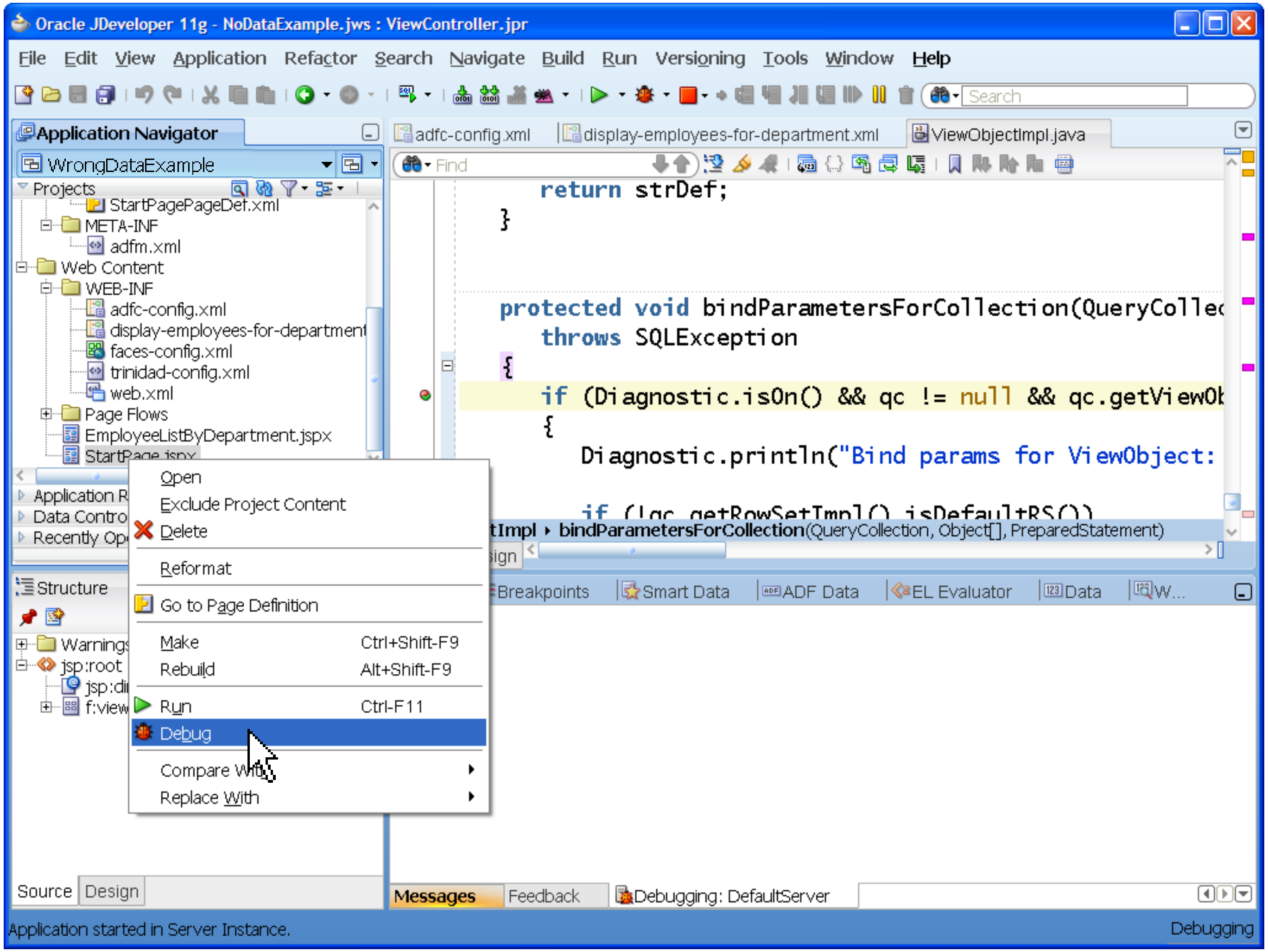


Mozilla Firefox

http://127.0.0.1:...state=fpc2ro18g_4

Empno	Ename	Job
7369	SMITH	CLERK
7499	ALLEN	SALESMAN
7521	WARD	SALESMAN
7566	JONES	MANAGER
7654	MARTIN	SALESMAN
7698	BLAKE	MANAGER
7782	CLARK	MANAGER
7788	SCOTT	ANALYST
7839	KING	PRESIDENT
7844	TURNER	SALESMAN
7876	ADAMS	CLERK
7900	JAMES	CLERK
7902	FORD	ANALYST
7934	MILLER	CLERK

Set a Breakpoint in ViewObjectImpl `bindParametersForCollection()` Method & Debug



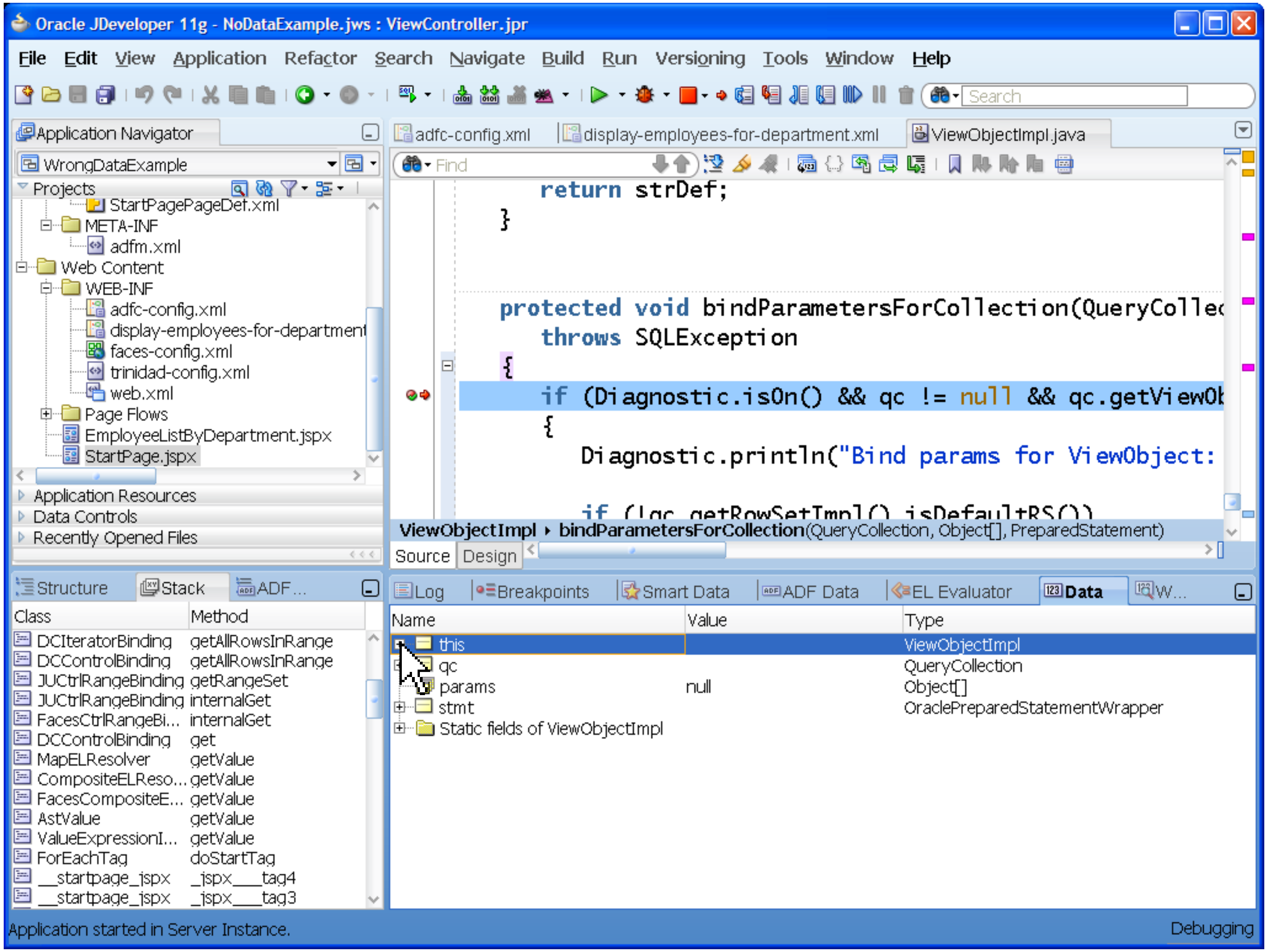
```
        return strDef;
    }

    protected void bindParametersForCollection(QueryCollec
        throws SQLException
    {
        if (Diagnostic.isOn() && qc != null && qc.getViewOb
        {
            Diagnostic.println("Bind params for ViewObject:

            if (!qc.getRowSetImpl().isDefaultRS())
```

Application started in Server Instance.

Breakpoint Hit: View Object Query is Executing, But Which One?



```
        return strDef;
    }

    protected void bindParametersForCollection(QueryCollec
        throws SQLException
    {
        if (Diagnostic.isOn() && qc != null && qc.getViewOb
        {
            Diagnostic.println("Bind params for ViewObject:

            if (!qc.getRowSetImpl().isDefaultRS())
```

ViewObjectImpl › bindParametersForCollection(QueryCollection, Object[], PreparedStatement)

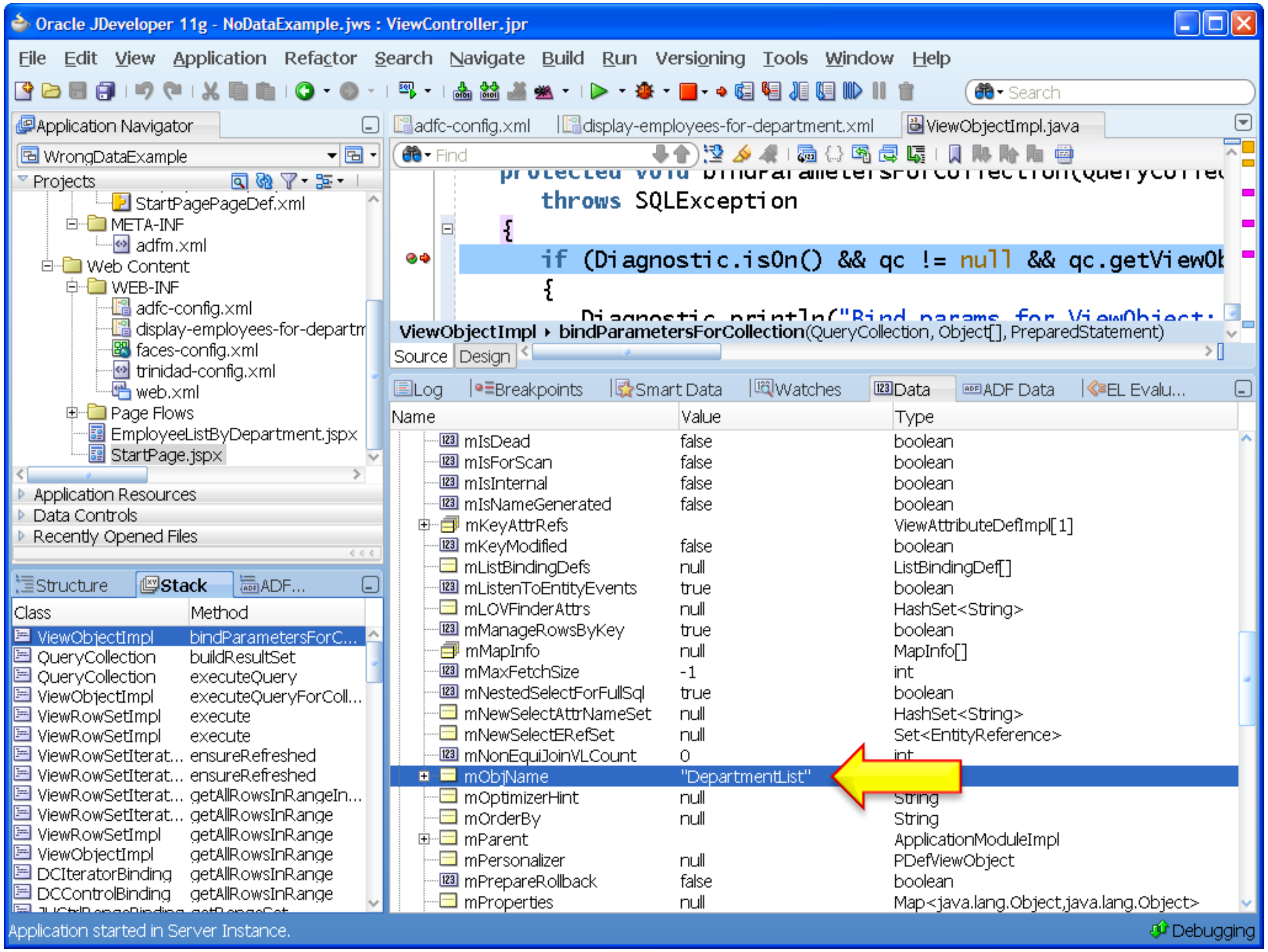
Class	Method
DCIteratorBinding	getAllRowsInRange
DCControlBinding	getAllRowsInRange
JUCtrlRangeBinding	getRangeSet
JUCtrlRangeBinding	internalGet
FacesCtrlRangeBi...	internalGet
DCControlBinding	get
MapELResolver	getValue
CompositeELReso...	getValue
FacesCompositeE...	getValue
AstValue	getValue
ValueExpressionI...	getValue
ForEachTag	doStartTag
__startpage_jspx	_jspx___tag4
__startpage_jspx	_jspx___tag3

Name	Value	Type
this		ViewObjectImpl
qc		QueryCollection
params	null	Object[]
stmt		OraclePreparedStatementWrapper
Static fields of ViewObjectImpl		

Application started in Server Instance.

Debugging

This Query Execution is for VO Instance Named "DepartmentList" (for Dropdown List)



```
    protected void bindParametersForCollection(QueryCollection qc
        throws SQLException
    {
        if (Diagnostic.isOn() && qc != null && qc.getViewOb
        {
            Diagnostic.println("Bind params for ViewObject:
```

ViewObjectImpl ▸ bindParametersForCollection(QueryCollection, Object[], PreparedStatement)

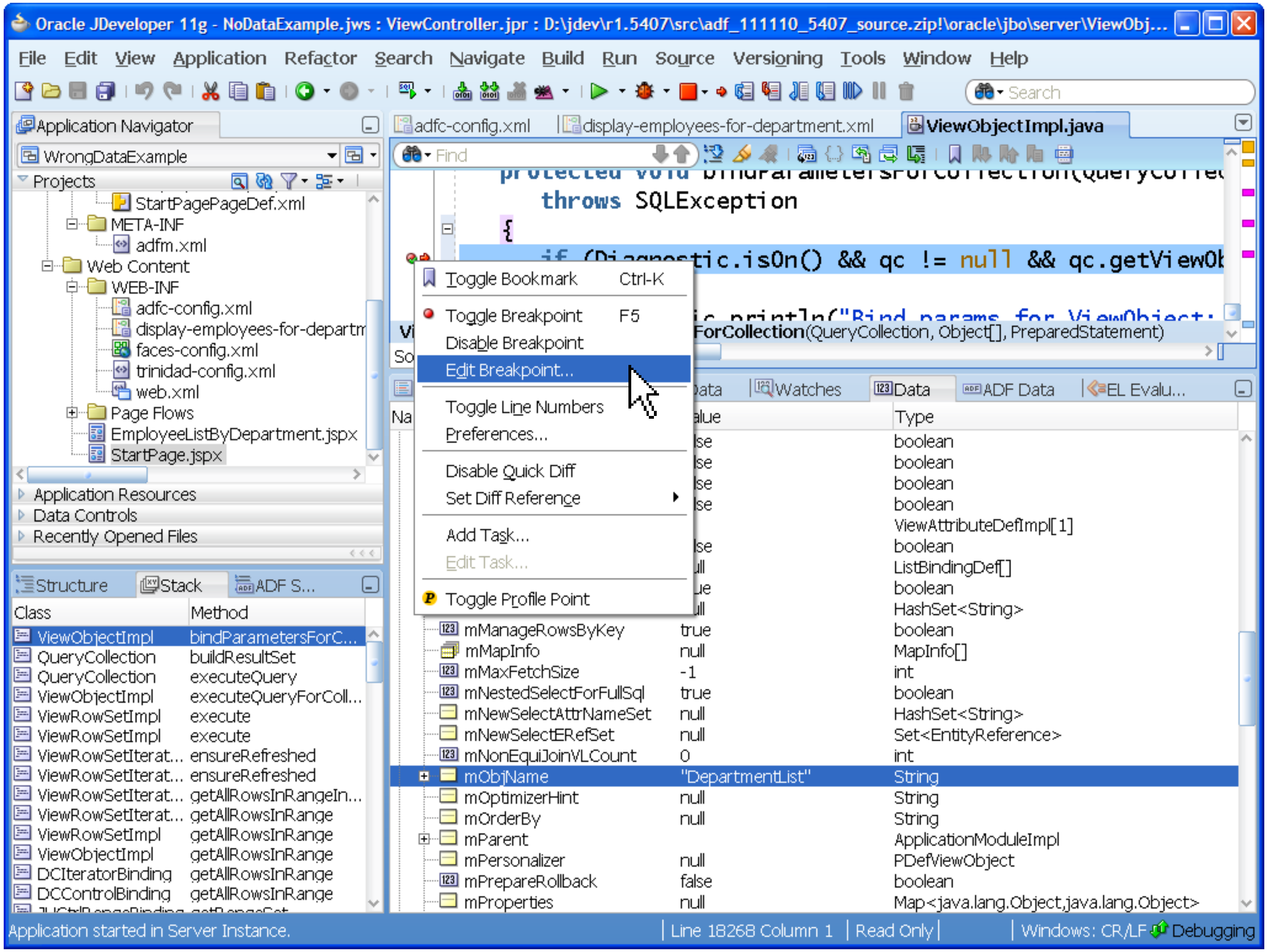
Name	Value	Type
mIsDead	false	boolean
mIsForScan	false	boolean
mIsInternal	false	boolean
mIsNameGenerated	false	boolean
mKeyAttrRefs		ViewAttributeDefImpl[1]
mKeyModified	false	boolean
mListBindingDefs	null	ListBindingDef[]
mListenToEntityEvents	true	boolean
mLOVFinderAttrs	null	HashSet<String>
mManageRowsByKey	true	boolean
mMapInfo	null	MapInfo[]
mMaxFetchSize	-1	int
mNestedSelectForFullSql	true	boolean
mNewSelectAttrNameSet	null	HashSet<String>
mNewSelectERefSet	null	Set<EntityReference>
mNonEquiJoinVLCount	0	int
mObjName	"DepartmentList"	
mOptimizerHint	null	String
mOrderBy	null	String
mParent		ApplicationModuleImpl
mPersonalizer	null	PDefViewObject
mPrepareRollback	false	boolean
mProperties	null	Map<java.lang.Object,java.lang.Object>

Class	Method
ViewObjectImpl	bindParametersForC...
QueryCollection	buildResultSet
QueryCollection	executeQuery
ViewObjectImpl	executeQueryForColl...
ViewRowSetImpl	execute
ViewRowSetImpl	execute
ViewRowSetIterat...	ensureRefreshed
ViewRowSetIterat...	ensureRefreshed
ViewRowSetIterat...	getAllRowsInRangeIn...
ViewRowSetIterat...	getAllRowsInRange
ViewRowSetImpl	getAllRowsInRange
ViewObjectImpl	getAllRowsInRange
DCIteratorBinding	getAllRowsInRange
DCControlBinding	getAllRowsInRange
JUCtrlRangeBinding	getRangeSet

Application started in Server Instance.

Debugging

Edit the Breakpoint to Make it Break Only For the "EmpView1" View Object We're Interested In



Oracle JDeveloper 11g - NoDataExample.jws : ViewController.jpr : D:\jdev\r1.5407\src\adf_111110_5407_source.zip!\oracle\jbo\server\ViewObj...

```
    protected void bindParametersForCollection(QueryCollec
        throws SQLException
    {
        if (Diagnostic.isOn() && qc != null && qc.getViewOb
            ...c.println("Bind params for ViewObject:
```

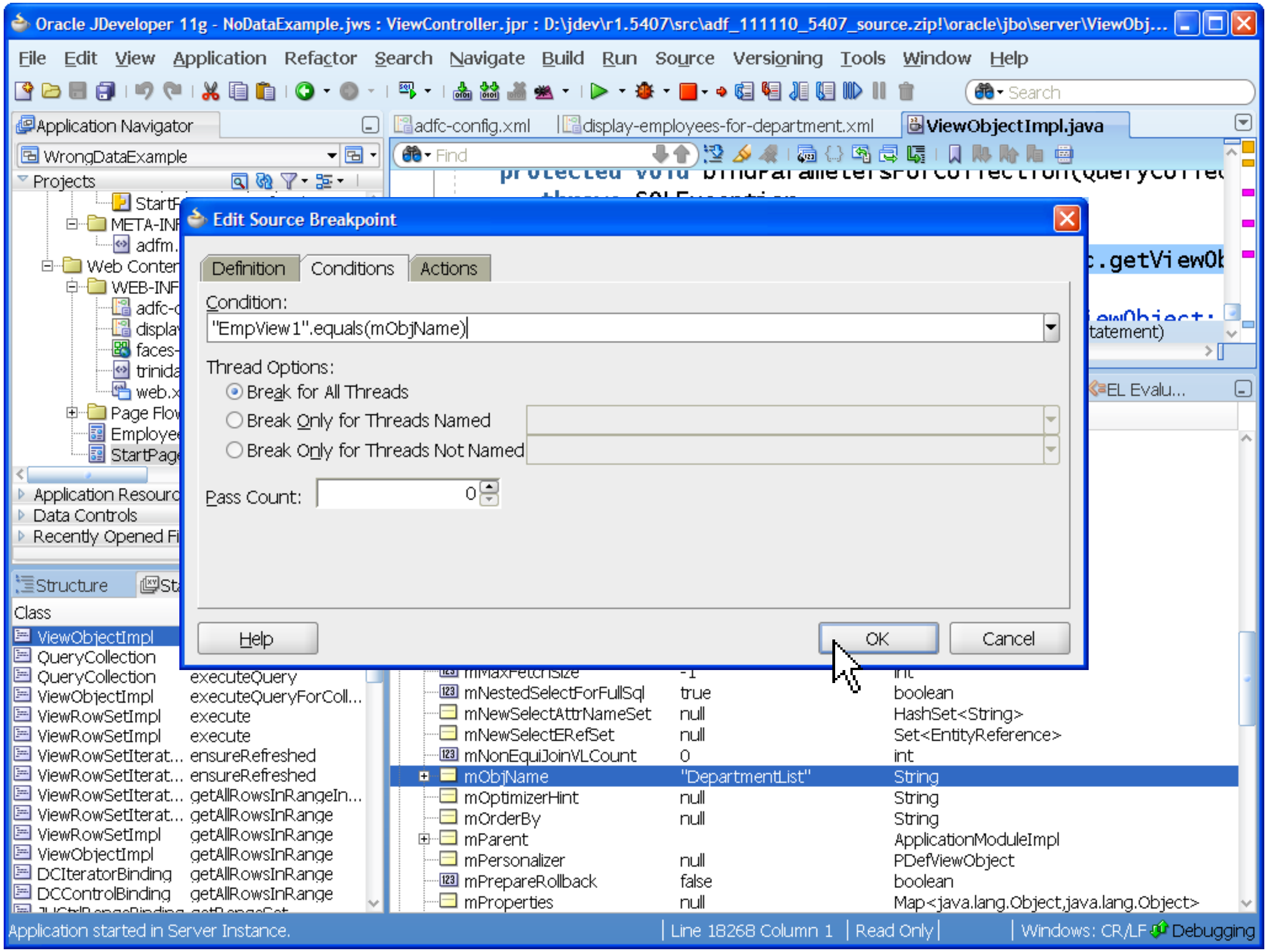
...ForCollection(QueryCollection, Object[], PreparedStatement)

Class	Method
ViewObjectImpl	bindParametersForC...
QueryCollection	buildResultSet
QueryCollection	executeQuery
ViewObjectImpl	executeQueryForColl...
ViewRowSetImpl	execute
ViewRowSetImpl	execute
ViewRowSetIterat...	ensureRefreshed
ViewRowSetIterat...	ensureRefreshed
ViewRowSetIterat...	getAllRowsInRangeIn...
ViewRowSetIterat...	getAllRowsInRange
ViewRowSetImpl	getAllRowsInRange
ViewObjectImpl	getAllRowsInRange
DCIteratorBinding	getAllRowsInRange
DCControlBinding	getAllRowsInRange

Na...	...alue	Type
	...lse	boolean
	...lse	boolean
	...lse	boolean
	...lse	boolean
		ViewAttributeDefImpl[1]
	...lse	boolean
	...ll	ListBindingDef[]
	...ue	boolean
	...ll	HashSet<String>
mManageRowsByKey	true	boolean
mMapInfo	null	MapInfo[]
mMaxFetchSize	-1	int
mNestedSelectForFullSql	true	boolean
mNewSelectAttrNameSet	null	HashSet<String>
mNewSelectERefSet	null	Set<EntityReference>
mNonEquiJoinVLCount	0	int
mObjName	"DepartmentList"	String
mOptimizerHint	null	String
mOrderBy	null	String
mParent		ApplicationModuleImpl
mPersonalizer	null	PDefViewObject
mPrepareRollback	false	boolean
mProperties	null	Map<java.lang.Object,java.lang.Object>

Application started in Server Instance. | Line 18268 Column 1 | Read Only | Windows: CR/LF Debugging

Edit Breakpoint, Add Conditional Expression to Stop Only For "EmpView1" VO Instance



Oracle JDeveloper 11g - NoDataExample.jws : ViewController.jpr : D:\jdev\r1.5407\src\adf_111110_5407_source.zip!\oracle\jbo\server\ViewObj...
File Edit View Application Refactor Search Navigate Build Run Source Versioning Tools Window Help
Search
Application Navigator
WrongDataExample
Projects
adfc-config.xml
display-employees-for-department.xml
ViewObjectImpl.java
Find
Application Resources
Data Controls
Recently Opened Files
Structure
EL Evalu...

Edit Source Breakpoint

Definition | Conditions | Actions

Condition: "EmpView1".equals(mObjName)

Thread Options:

● Break for All Threads

○ Break Only for Threads Named

○ Break Only for Threads Not Named

Pass Count: 0

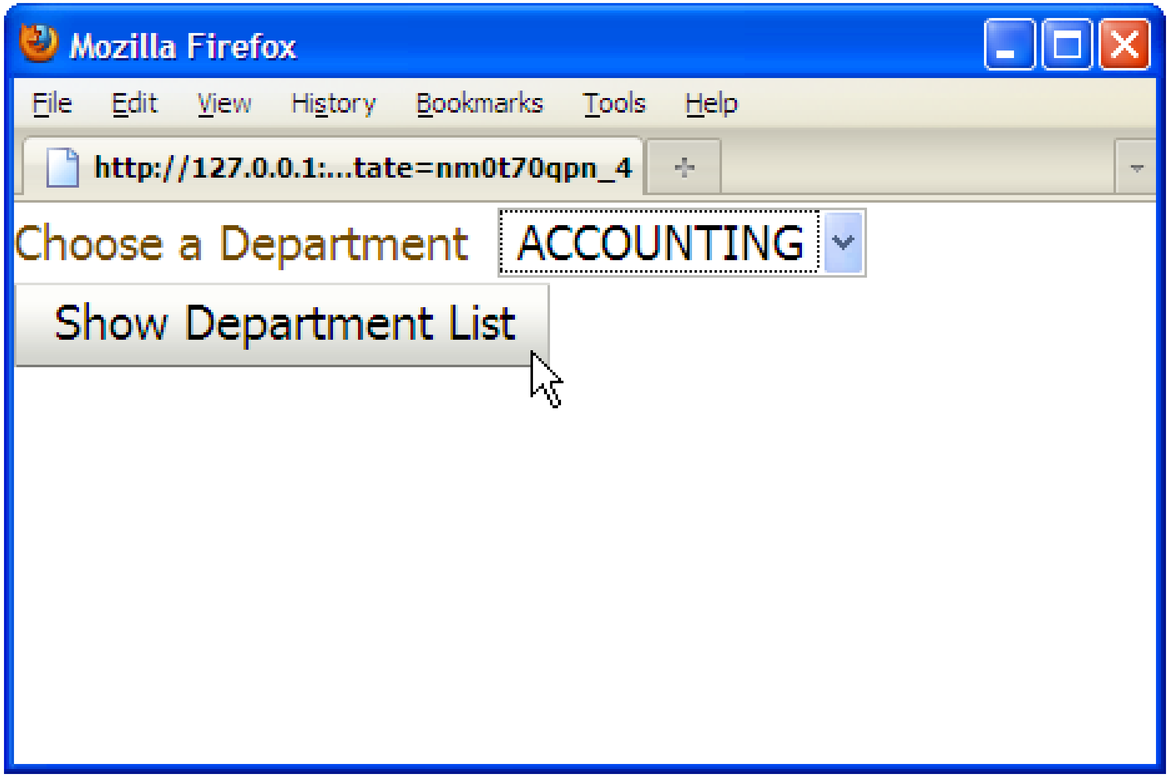
Help | OK | Cancel

Class	
ViewObjectImpl	
QueryCollection	
QueryCollection	executeQuery
ViewObjectImpl	executeQueryForColl...
ViewRowSetImpl	execute
ViewRowSetImpl	execute
ViewRowSetIterat...	ensureRefreshed
ViewRowSetIterat...	ensureRefreshed
ViewRowSetIterat...	getAllRowsInRangeIn...
ViewRowSetIterat...	getAllRowsInRange
ViewRowSetImpl	getAllRowsInRange
ViewObjectImpl	getAllRowsInRange
DCIteratorBinding	getAllRowsInRange
DCControlBinding	getAllRowsInRange

mMaxFetchSize	-1	int
mNestedSelectForFullSql	true	boolean
mNewSelectAttrNameSet	null	HashSet<String>
mNewSelectERefSet	null	Set<EntityReference>
mNonEquiJoinVLCount	0	int
mObjName	"DepartmentList"	String
mOptimizerHint	null	String
mOrderBy	null	String
mParent		ApplicationModuleImpl
mPersonalizer	null	PDefViewObject
mPrepareRollback	false	boolean
mProperties	null	Map<java.lang.Object,java.lang.Object>

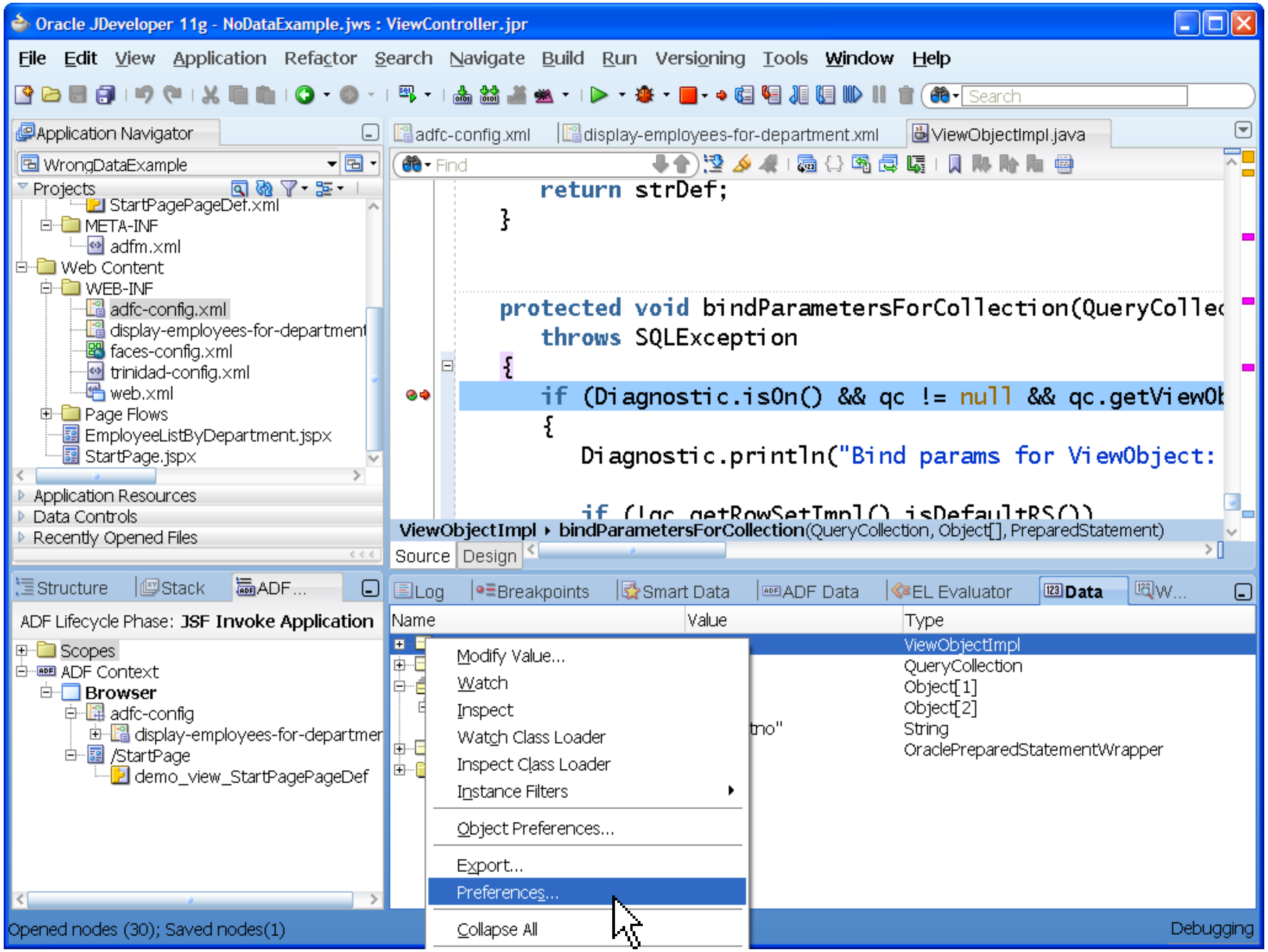
Application started in Server Instance. | Line 18268 Column 1 | Read Only | Windows: CR/LF Debugging

Choose a Department, Click Button to Call the Task Flow



Choose a Department ACCOUNTING

Suppress Hiding Null Array Elements Using Debugger Data Window Preferences

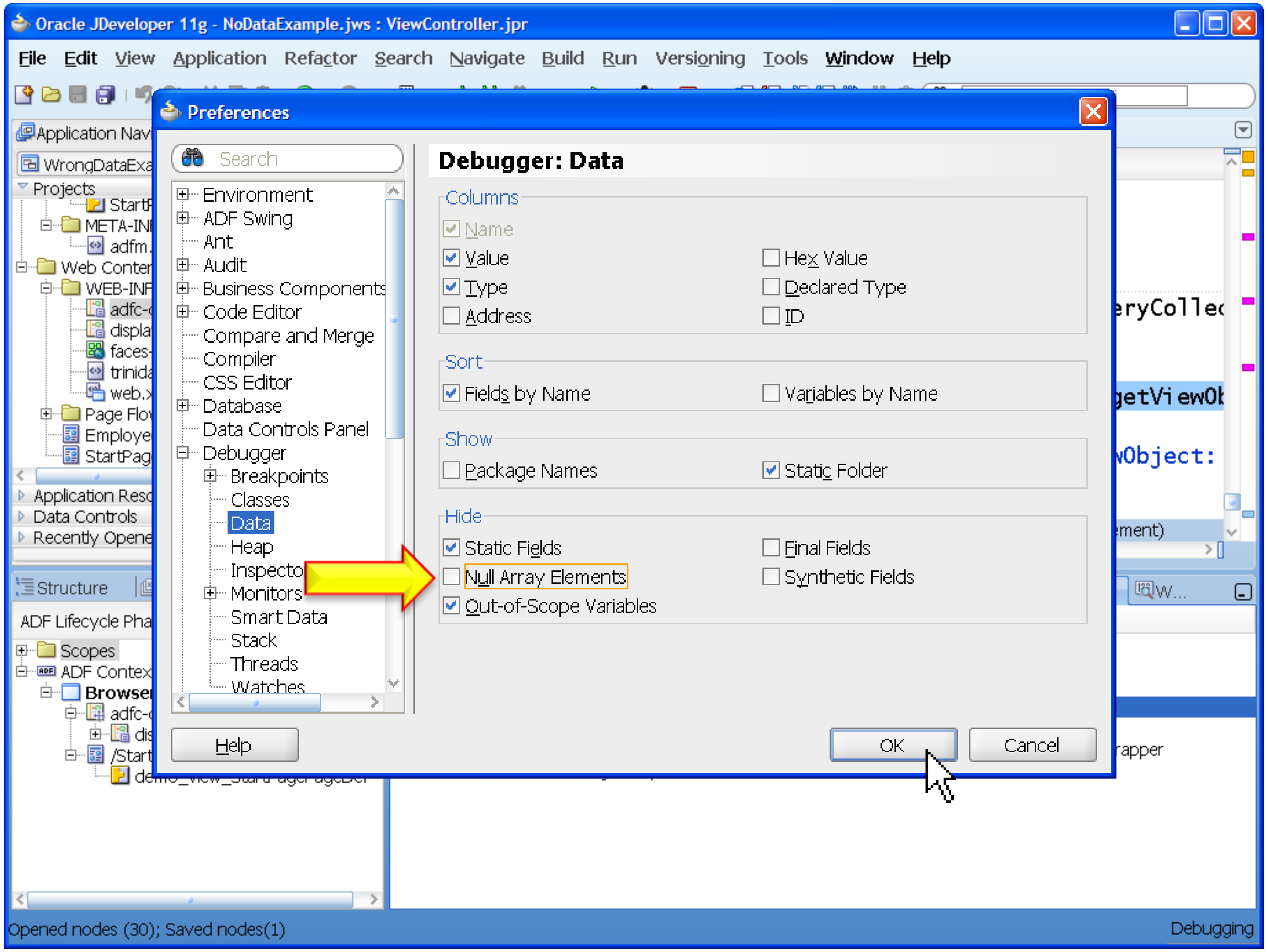


```
        return strDef;
    }

    protected void bindParametersForCollection(QueryCollec
        throws SQLException
    {
        if (Diagnostic.isOn() && qc != null && qc.getViewOb
        {
            Diagnostic.println("Bind params for ViewObject:

            if (!qc.getRowSetImpl().isDefaultRS())
```

Suppress Hiding Null Array Elements Using Debugger Data Window Preferences



Debugger: Data

Columns

- ☑ Name
- ☑ Value
- ☐ Hex Value
- ☑ Type
- ☐ Declared Type
- ☐ Address
- ☐ ID

Sort

- ☑ Fields by Name
- ☐ Variables by Name

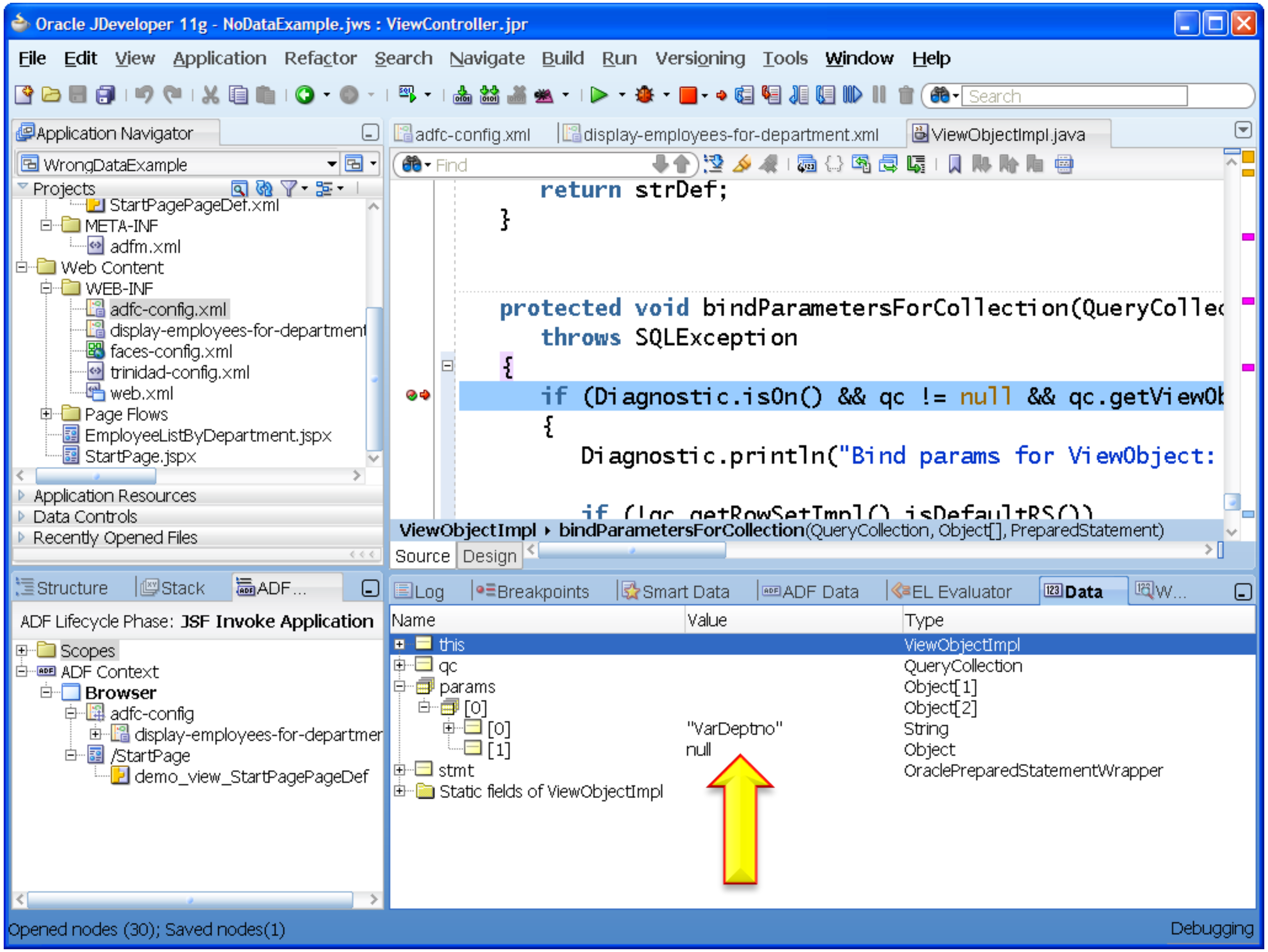
Show

- ☐ Package Names
- ☑ Static Folder

Hide

- ☑ Static Fields
- ☐ Final Fields
- ☐ Null Array Elements
- ☐ Synthetic Fields
- ☑ Out-of-Scope Variables

Bind Variable VarDeptno has null value
Next, Need to Figure Out Why


Oracle JDeveloper 11g - NoDataExample.jws : ViewController.jpr
File Edit View Application Refactor Search Navigate Build Run Versioning Tools Window Help
Search
Application Navigator
WrongDataExample
Projects
StartPagePageDef.xml
META-INF
adfm.xml
Web Content
WEB-INF
adfc-config.xml
display-employees-for-department
faces-config.xml
trinidad-config.xml
web.xml
Page Flows
EmployeeListByDepartment.jspx
StartPage.jspx
Application Resources
Data Controls
Recently Opened Files
adfc-config.xml
display-employees-for-department.xml
ViewObjectImpl.java
Find
ViewObjectImpl ▸ bindParametersForCollection(QueryCollection, Object[], PreparedStatement)
Source
Design
Structure
Stack
ADF ...
ADF Lifecycle Phase: JSF Invoke Application
Scopes
ADF Context
Browser
adfc-config
display-employees-for-departmer
/StartPage
demo_view_StartPagePageDef
Log
Breakpoints
Smart Data
ADF Data
EL Evaluator
Data
W...
Opened nodes (30); Saved nodes(1)
Debugging

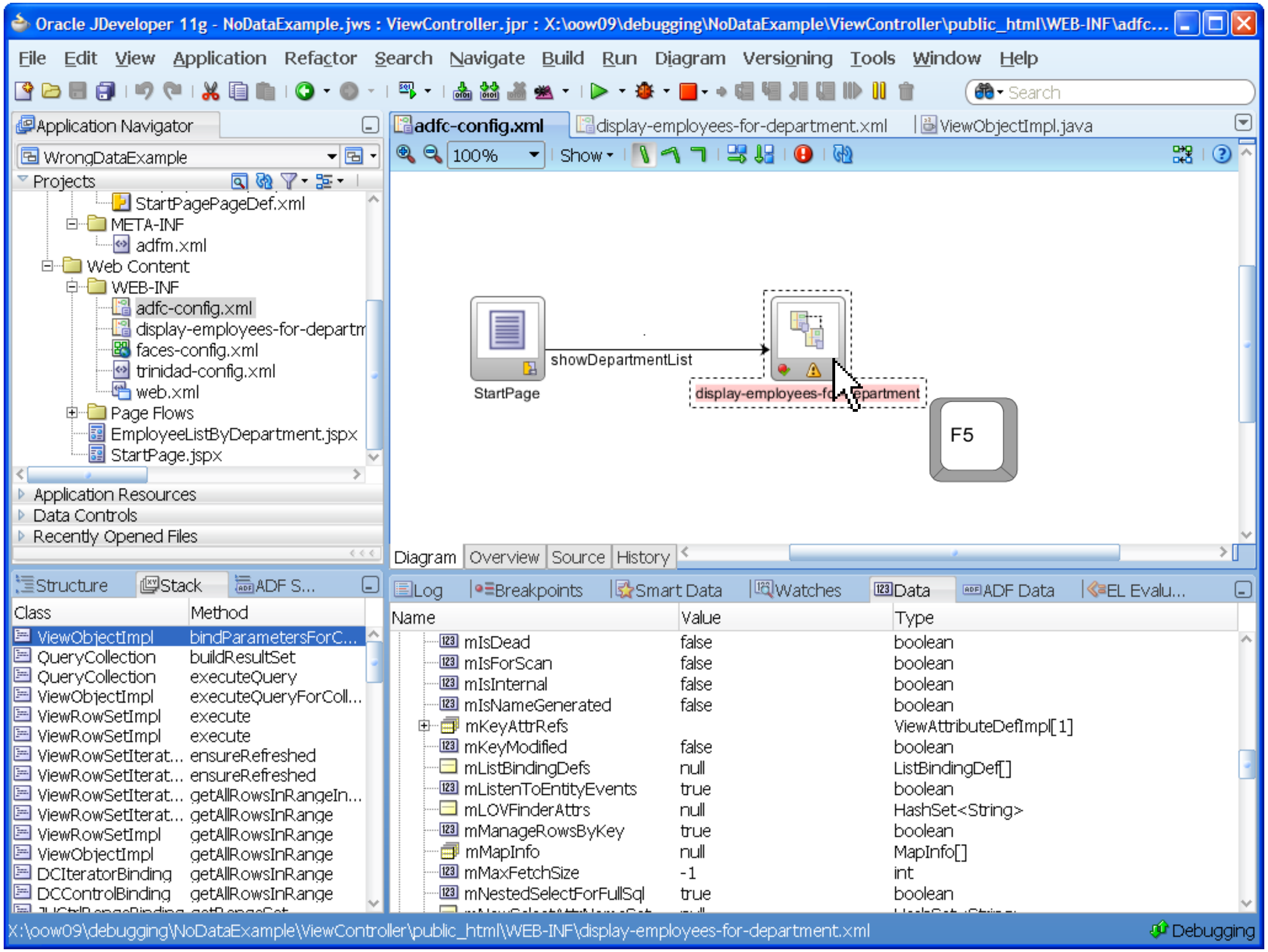
```
      return strDef;
   }


   protected void bindParametersForCollection(QueryCollec
      throws SQLException
   {
      if (Diagnostic.isOn() && qc != null && qc.getViewOb
      {
         Diagnostic.println("Bind params for ViewObject:

         if (!qc.getRowSetImpl().isDefaultRS())
```

Name	Value	Type
this		ViewObjectImpl
qc		QueryCollection
params		Object[1]
[0]		Object[2]
[0]	"VarDeptno"	String
[1]	null	Object
stmt		OraclePreparedStatementWrapper
Static fields of ViewObjectImpl		

Toggle Breakpoint on TaskFlow Call Activity and Repeat the Test



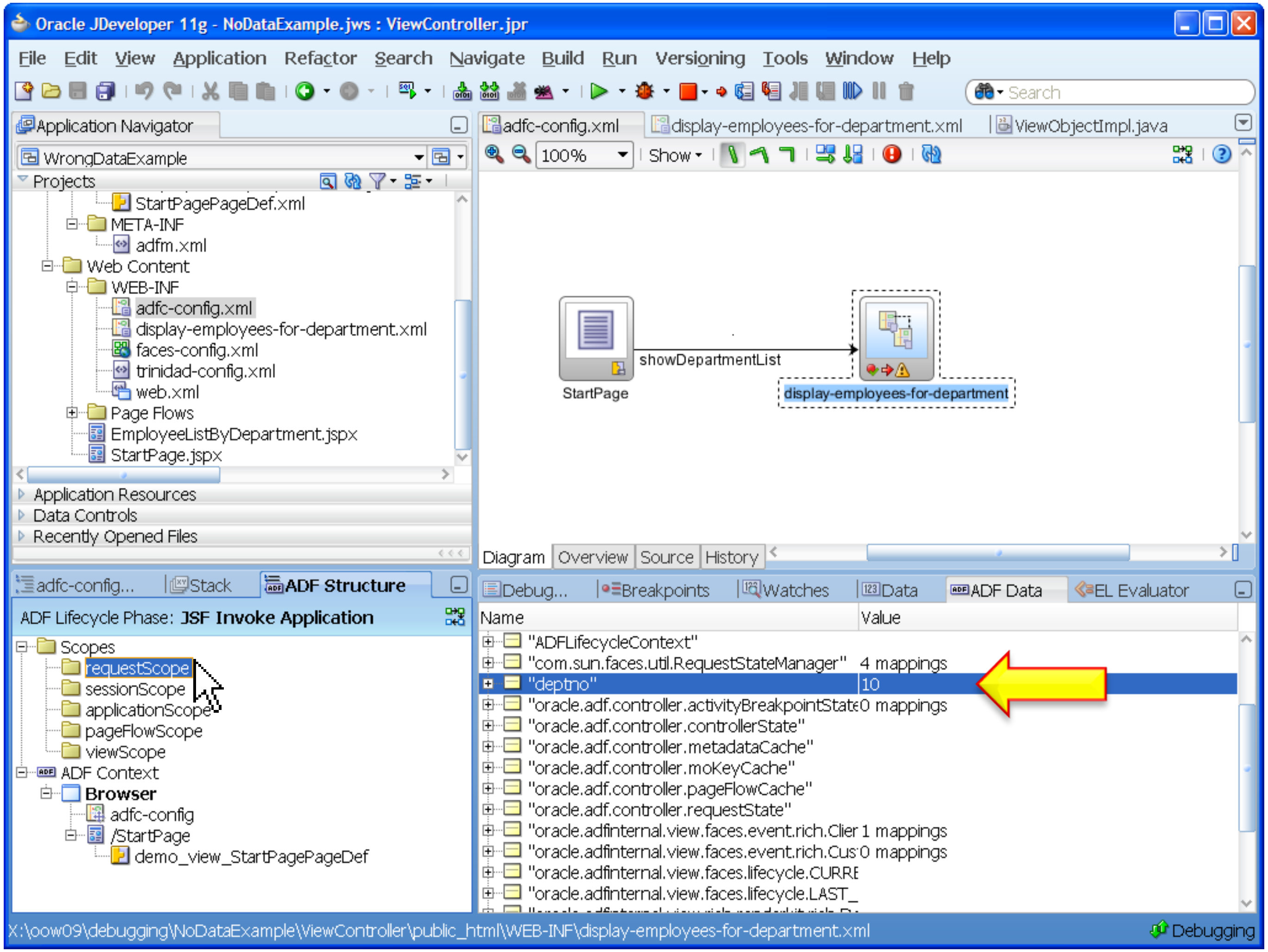
Class	Method
ViewObjectImpl	bindParametersForC...
QueryCollection	buildResultSet
QueryCollection	executeQuery
ViewObjectImpl	executeQueryForColl...
ViewRowSetImpl	execute
ViewRowSetImpl	execute
ViewRowSetIterat...	ensureRefreshed
ViewRowSetIterat...	ensureRefreshed
ViewRowSetIterat...	getAllRowsInRangeIn...
ViewRowSetIterat...	getAllRowsInRange
ViewRowSetImpl	getAllRowsInRange
ViewObjectImpl	getAllRowsInRange
DCIteratorBinding	getAllRowsInRange
DCControlBinding	getAllRowsInRange
JUCtrlRangeBinding	getRangeSet

Name	Value	Type
mIsDead	false	boolean
mIsForScan	false	boolean
mIsInternal	false	boolean
mIsNameGenerated	false	boolean
mKeyAttrRefs		ViewAttributeDefImpl[1]
mKeyModified	false	boolean
mListBindingDefs	null	ListBindingDef[]
mListenToEntityEvents	true	boolean
mLOVFinderAttrs	null	HashSet<String>
mManageRowsByKey	true	boolean
mMapInfo	null	MapInfo[]
mMaxFetchSize	-1	int
mNestedSelectForFullSql	true	boolean
mNewSelectAttrNameSet	null	HashSet<String>

X:\oow09\debugging\NoDataExample\ViewController\public_html\WEB-INF\display-employees-for-department.xml

Debugging

At Breakpoint, Use ADF Structure to Inspect the Request Scope: deptno Attribute Set Correctly



- StartPagePageDef.xml
- META-INF
  - adfm.xml
- Web Content
  - WEB-INF
    - adfc-config.xml
    - display-employees-for-department.xml
    - faces-config.xml
    - trinidad-config.xml
    - web.xml
  - Page Flows
  - EmployeeListByDepartment.jspx
  - StartPage.jspx

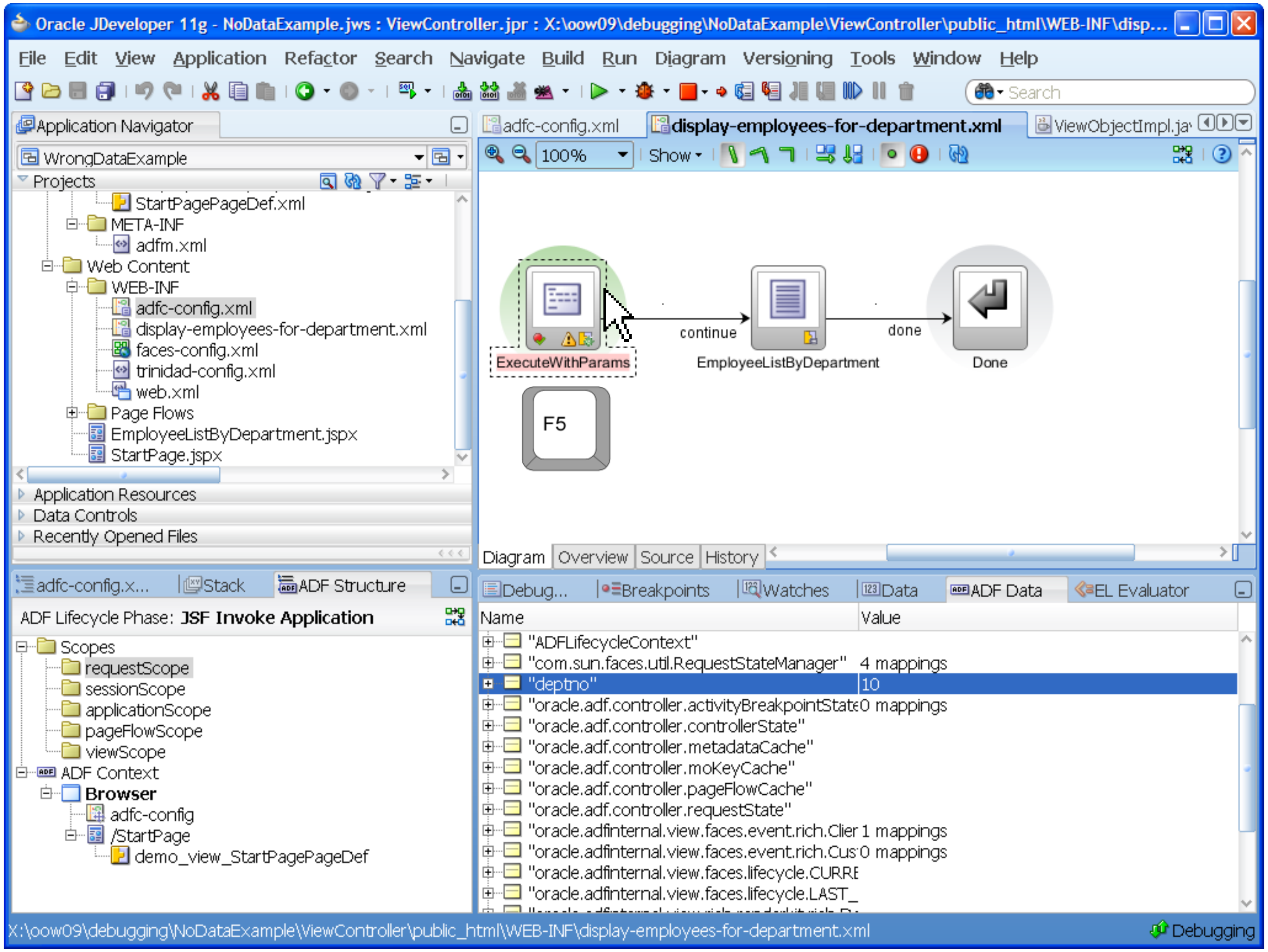
ADF Lifecycle Phase: **JSF Invoke Application**

- Scopes
  - requestScope
  - sessionScope
  - applicationScope
  - pageFlowScope
  - viewScope
- ADF Context
  - **Browser**
    - adfc-config
    - /StartPage
      - demo_view_StartPagePageDef

Name	Value
"ADFLifecycleContext"	
"com.sun.faces.util.RequestStateManager"	4 mappings
"deptno"	10
"oracle.adf.controller.activityBreakpointStat	0 mappings
"oracle.adf.controller.controllerState"	
"oracle.adf.controller.metadataCache"	
"oracle.adf.controller.moKeyCache"	
"oracle.adf.controller.pageFlowCache"	
"oracle.adf.controller.requestState"	
"oracle.adfinternal.view.faces.event.rich.Clier	1 mappings
"oracle.adfinternal.view.faces.event.rich.Cus	0 mappings
"oracle.adfinternal.view.faces.lifecycle.CURRE	
"oracle.adfinternal.view.faces.lifecycle.LAST_	

X:\oow09\debugging\NoDataExample\ViewController\public_html\WEB-INF\display-employees-for-department.xml

Drilldown to Task Flow, Toggle Breakpoint on Default MethodCall Activitity, then Continue

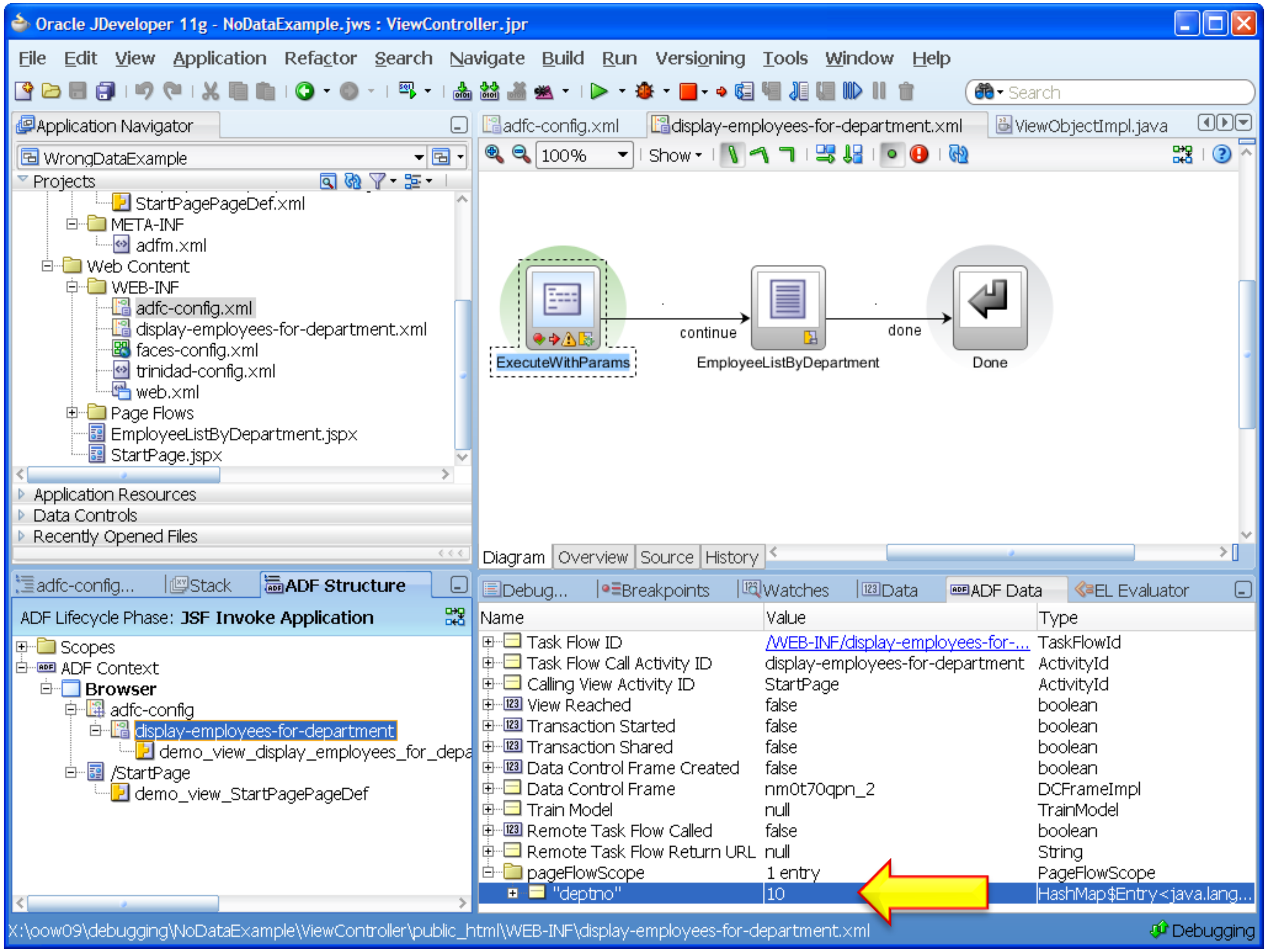


ADF Lifecycle Phase: **JSF Invoke Application**

Name	Value
"ADFLifecycleContext"	
"com.sun.faces.util.RequestStateManager"	4 mappings
"deptno"	10
"oracle.adf.controller.activityBreakpointStat	0 mappings
"oracle.adf.controller.controllerState"	
"oracle.adf.controller.metadataCache"	
"oracle.adf.controller.moKeyCache"	
"oracle.adf.controller.pageFlowCache"	
"oracle.adf.controller.requestState"	
"oracle.adfinternal.view.faces.event.rich.Clier	1 mappings
"oracle.adfinternal.view.faces.event.rich.Cus	0 mappings
"oracle.adfinternal.view.faces.lifecycle.CURRE	
"oracle.adfinternal.view.faces.lifecycle.LAST_	

X:\oow09\debugging\NoDataExample\ViewController\public_html\WEB-INF\display-employees-for-department.xml

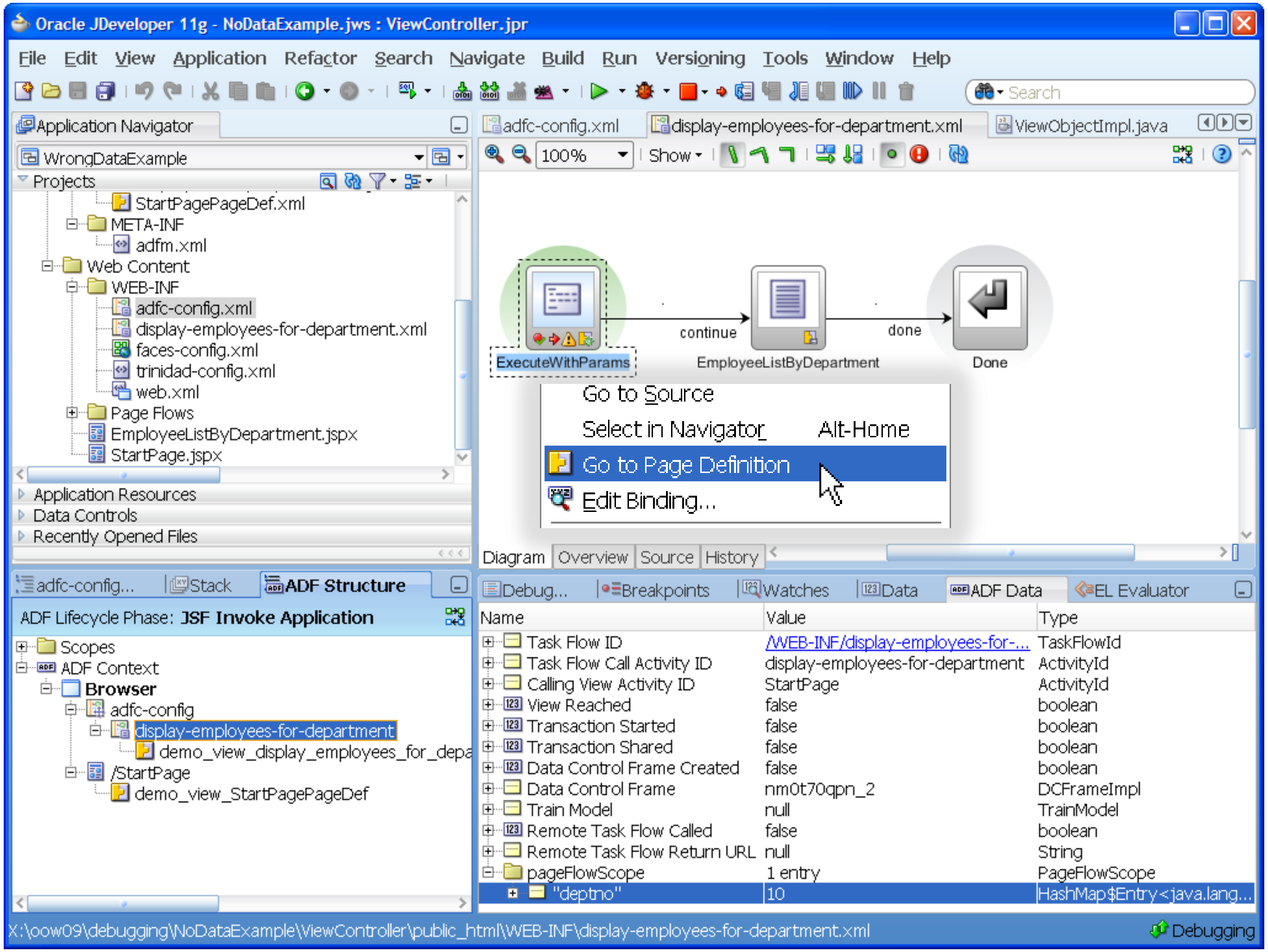
At the Breakpoint, Use ADF Structure to Inspect the Task Flow: `pageFlowScope.deptno` Set OK



Name	Value	Type
Task Flow ID	/WEB-INF/display-employees-for-...	TaskFlowId
Task Flow Call Activity ID	display-employees-for-department	ActivityId
Calling View Activity ID	StartPage	ActivityId
View Reached	false	boolean
Transaction Started	false	boolean
Transaction Shared	false	boolean
Data Control Frame Created	false	boolean
Data Control Frame	nm0t70qpn_2	DCFrameImpl
Train Model	null	TrainModel
Remote Task Flow Called	false	boolean
Remote Task Flow Return URL	null	String
pageFlowScope	1 entry	PageFlowScope
"deptno"	10	HashMap$Entry<java.lang...

X:\oow09\debugging\NoDataExample\ViewController\public_html\WEB-INF\display-employees-for-department.xml
Debugging

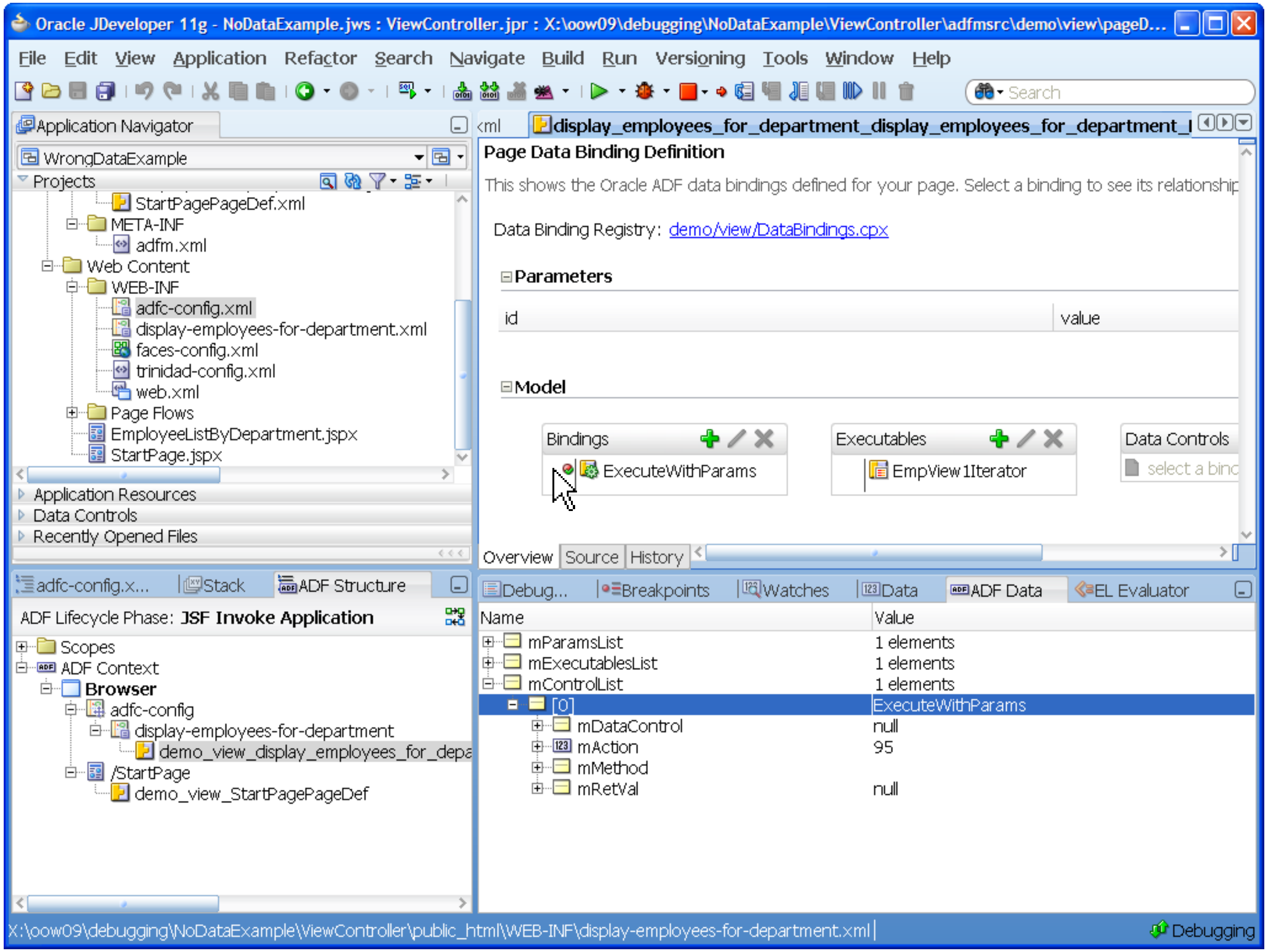
Navigate to the Method Call Activity's Page Def



Name	Value	Type
Task Flow ID	/WEB-INF/display-employees-for-...	TaskFlowId
Task Flow Call Activity ID	display-employees-for-department	ActivityId
Calling View Activity ID	StartPage	ActivityId
View Reached	false	boolean
Transaction Started	false	boolean
Transaction Shared	false	boolean
Data Control Frame Created	false	boolean
Data Control Frame	nm0t70qpn_2	DCFrameImpl
Train Model	null	TrainModel
Remote Task Flow Called	false	boolean
Remote Task Flow Return URL	null	String
pageFlowScope	1 entry	PageFlowScope
"deptno"	10	HashMap$Entry<java.lang...

X:\oow09\debugging\NoDataExample\ViewController\public_html\WEB-INF\display-employees-for-department.xml

Toggle Breakpoint on ExecuteWithParams Action, Then Continue Execution


Oracle JDeveloper 11g - NoDataExample.jws : ViewController.jpr : X:\oow09\debugging\NoDataExample\ViewController\adfmsrc\demo\view\pageD...
File Edit View Application Refactor Search Navigate Build Run Versioning Tools Window Help
Search
Application Navigator
WrongDataExample
Projects
StartPagePageDef.xml
META-INF
adfm.xml
Web Content
WEB-INF
adfc-config.xml
display-employees-for-department.xml
faces-config.xml
trinidad-config.xml
web.xml
Page Flows
EmployeeListByDepartment.jspx
StartPage.jspx
Application Resources
Data Controls
Recently Opened Files
xml
display_employees_for_department_display_employees_for_department_I
Overview
Source
History
adfc-config.x...
Stack
ADF Structure
Scopes
ADF Context
Browser
adfc-config
display-employees-for-department
demo_view_display_employees_for_depa
/StartPage
demo_view_StartPagePageDef
Debug...
Breakpoints
Watches
Data
ADF Data
EL Evaluator
X:\oow09\debugging\NoDataExample\ViewController\public_html\WEB-INF\display-employees-for-department.xml
Debugging

Page Data Binding Definition

This shows the Oracle ADF data bindings defined for your page. Select a binding to see its relationshir

Data Binding Registry: demo/view/DataBindings.cpx

⊟Parameters

id	value

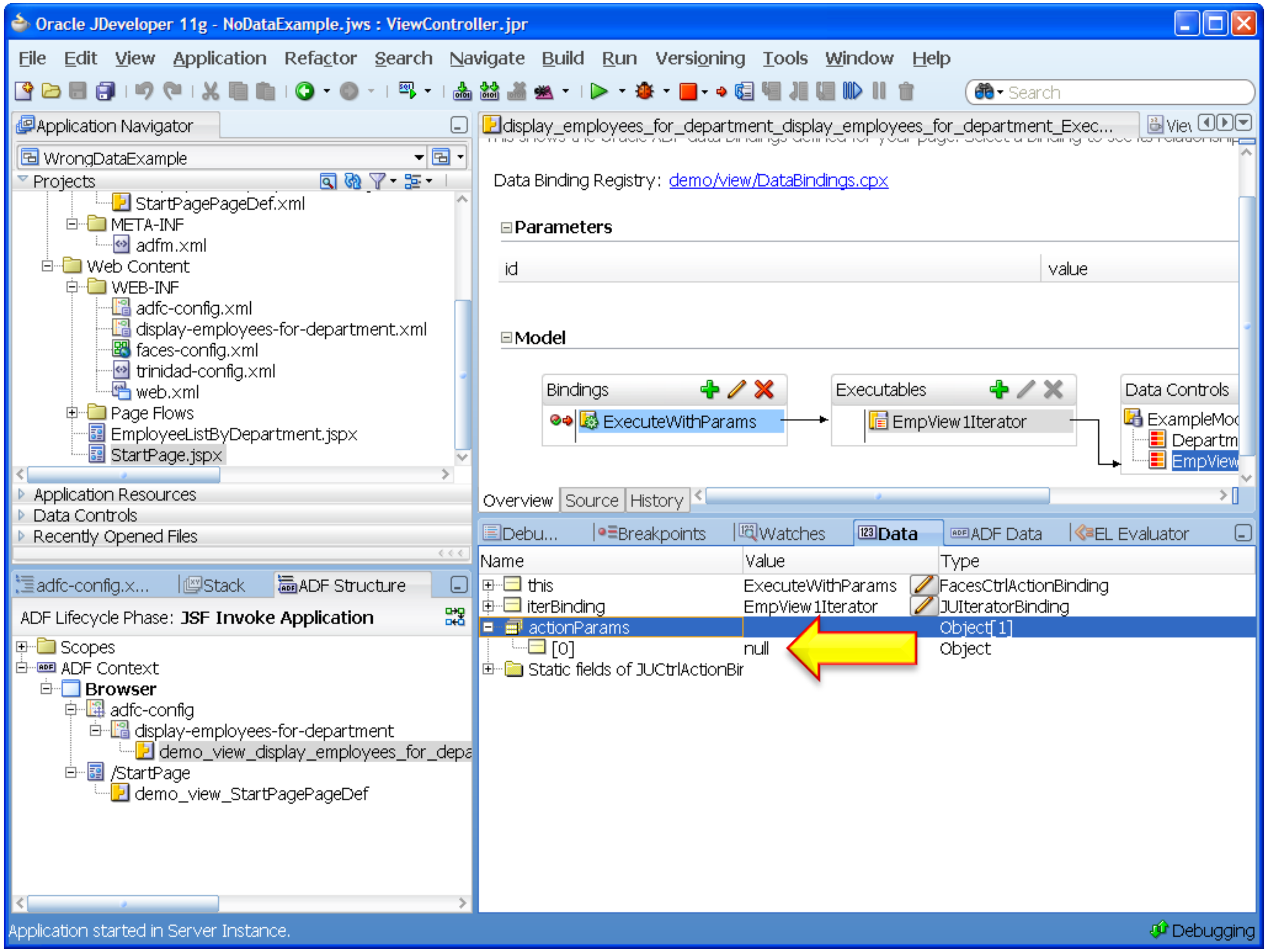
⊟Model

Bindings	Executables	Data Controls
ExecuteWithParams	EmpView1Iterator	select a binc

ADF Lifecycle Phase: **JSF Invoke Application**

Name	Value
mParamsList	1 elements
mExecutablesList	1 elements
mControlList	1 elements
[0]	ExecuteWithParams
mDataControl	null
mAction	95
mMethod	
mRetVal	null

At the Breakpoint, Explore the Value of Method Action's Arguments: `VarDeptno` is `null` Incorrectly!



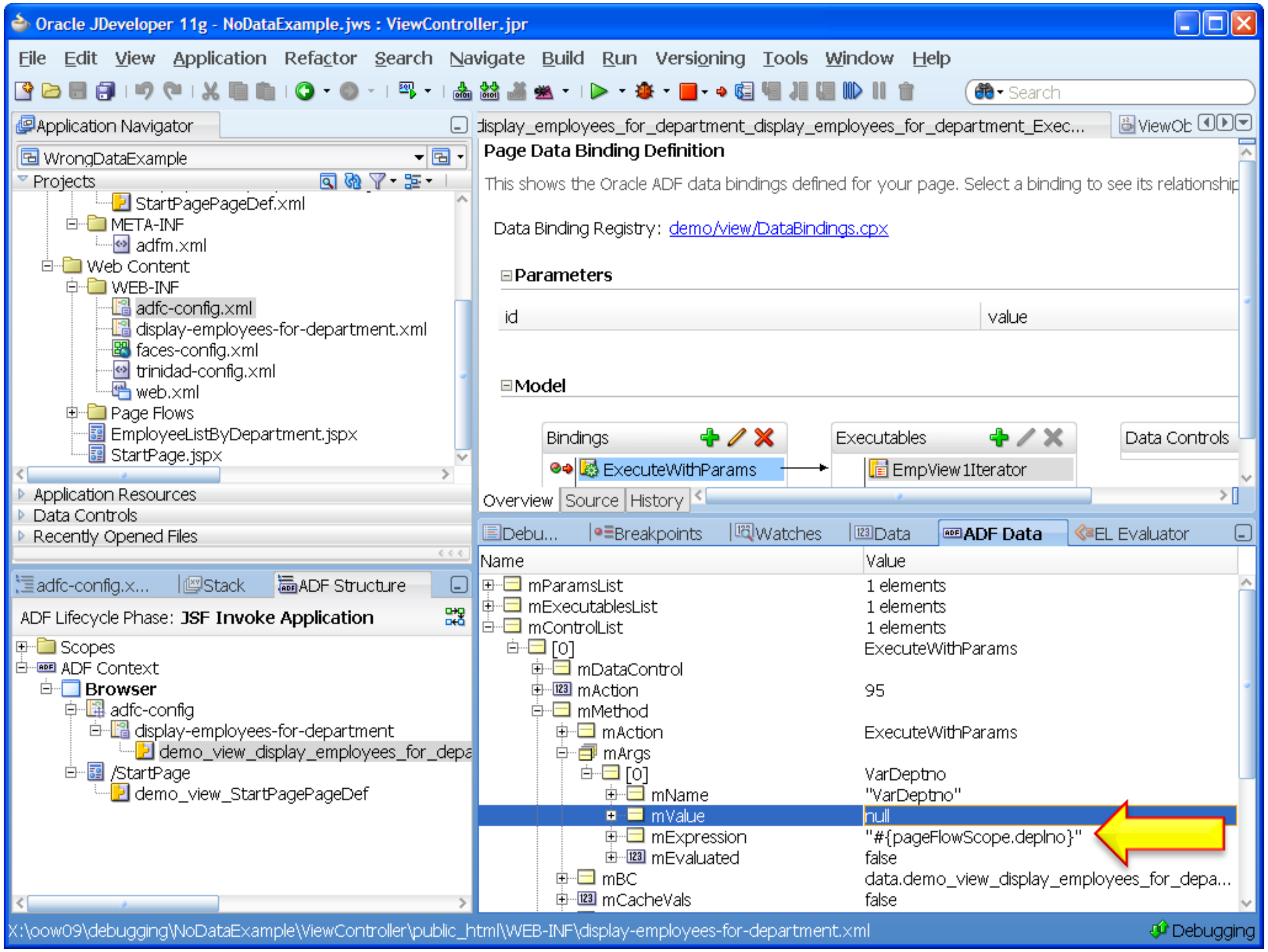
Data Binding Registry: demo/view/DataBindings.cpx

ADF Lifecycle Phase: JSF Invoke Application

Name	Value	Type
this	ExecuteWithParams	FacesCtrlActionBinding
iterBinding	EmpView1Iterator	JUIteratorBinding
actionParams		Object[1]
[0]	null	Object
Static fields of JUCtrlActionBir		

Application started in Server Instance.

Explore Action Binding Runtime Metadata in ADF Data Window to See EL Expression Used



```
StartPagePageDef.xml
META-INF
  adfm.xml
Web Content
  WEB-INF
    adfc-config.xml
    display-employees-for-department.xml
    faces-config.xml
    trinidad-config.xml
    web.xml
  Page Flows
  EmployeeListByDepartment.jspx
  StartPage.jspx
```

Page Data Binding Definition

This shows the Oracle ADF data bindings defined for your page. Select a binding to see its relationship

Data Binding Registry: demo/view/DataBindings.cpx

Parameters

id	value

Model

Bindings		Executables
ExecuteWithParams	→	EmpView1Iterator

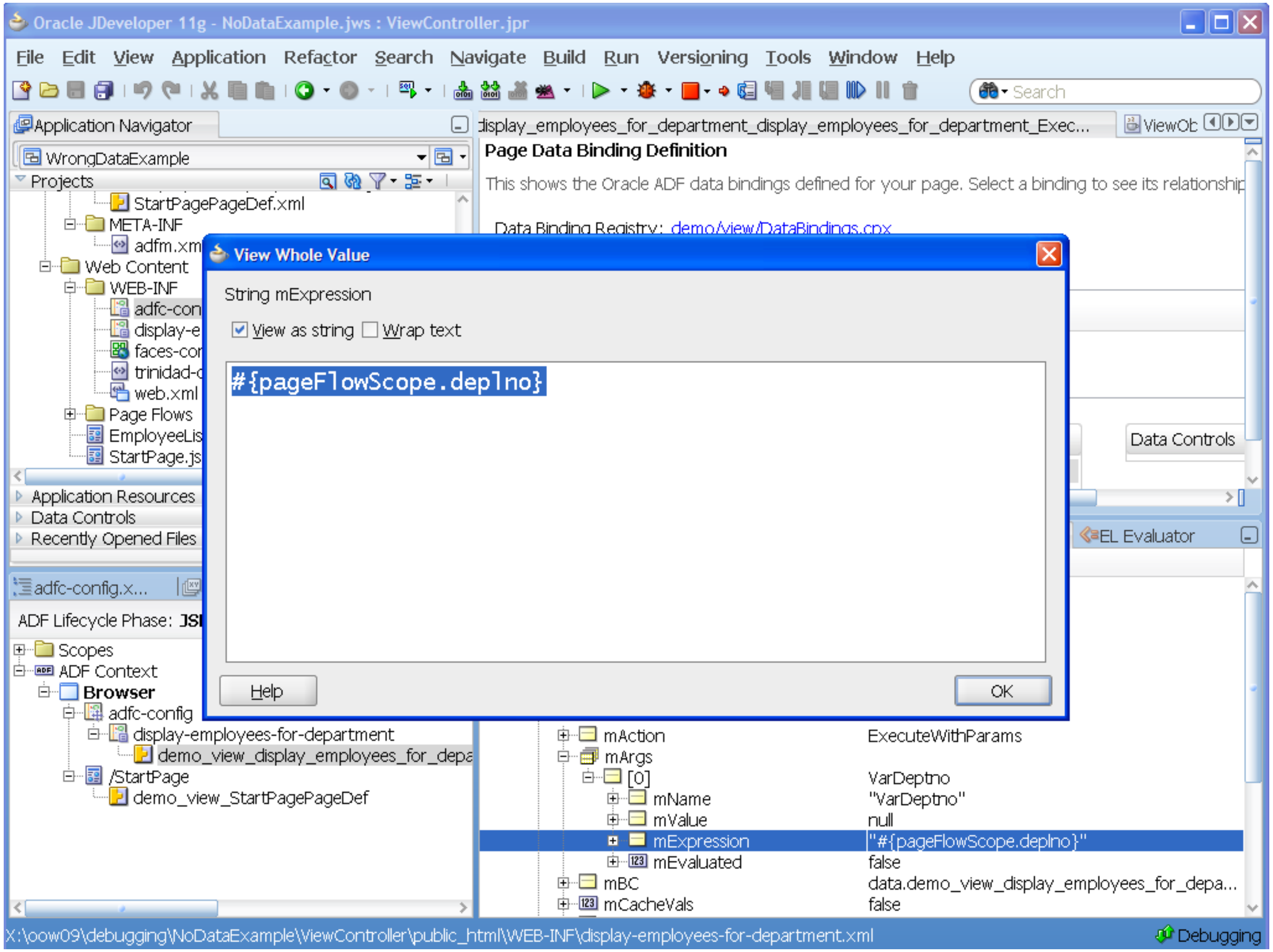
ADF Lifecycle Phase: **JSF Invoke Application**

```
Scopes
ADF Context
  Browser
    adfc-config
      display-employees-for-department
        demo_view_display_employees_for_depa
    /StartPage
      demo_view_StartPagePageDef
```

Name	Value
mParamsList	1 elements
mExecutablesList	1 elements
mControlList	1 elements
[0]	ExecuteWithParams
mDataControl	
mAction	95
mMethod	
mAction	ExecuteWithParams
mArgs	
[0]	VarDeptno
mName	"VarDeptno"
mValue	null
mExpression	"#{pageFlowScope.deplno}"
mEvaluated	false
mBC	data.demo_view_display_employees_for_depa...
mCacheVals	false

X:\oow09\debugging\NoDataExample\ViewController\public_html\WEB-INF\display-employees-for-department.xml

View the Whole EL Expression Value, Copy it to Clipboard



Page Data Binding Definition

This shows the Oracle ADF data bindings defined for your page. Select a binding to see its relationship

Data Binding Registry: demo/view/DataBindings.cpx

ADF Lifecycle Phase: JSI

View Whole Value

String mExpression

☑ View as string □ Wrap text

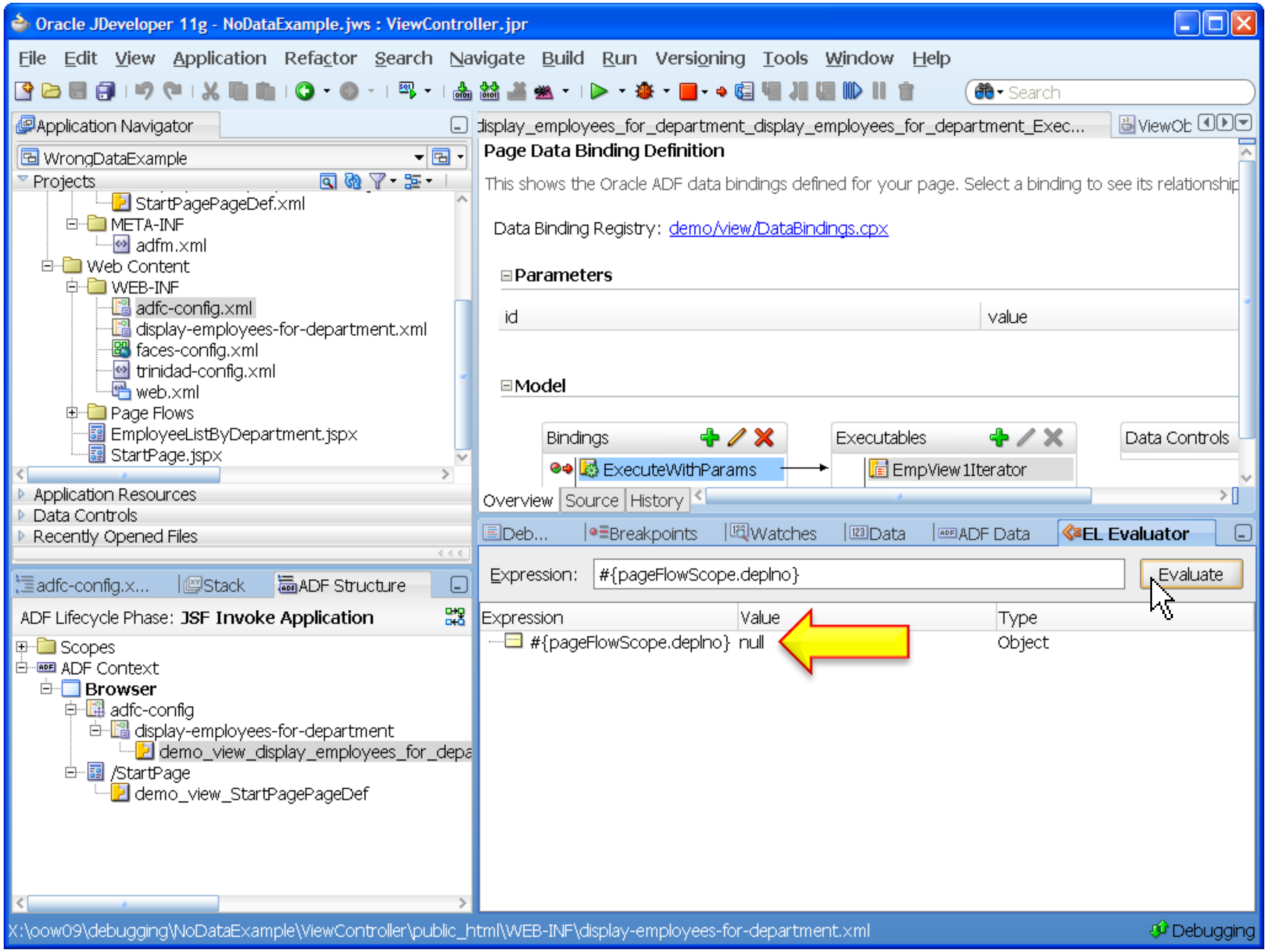
```
#{pageFlowScope.deplno}
```

Help OK

```
mAction          ExecuteWithParams
mArgs
  [0]            VarDeptno
    mName        "VarDeptno"
    mValue       null
    mExpression  "#{pageFlowScope.deplno}"
    mEvaluated   false
mBC              data.demo_view_display_employees_for_depa...
mCacheVals       false
```

X:\oow09\debugging\NoDataExample\ViewController\public_html\WEB-INF\display-employees-for-department.xml

Use EL Evaluator to Test Pasted Expression
It Evaluates to `null`. Notice Typo `deplno`



Oracle JDeveloper 11g - NoDataExample.jws : ViewController.jpr

Page Data Binding Definition

This shows the Oracle ADF data bindings defined for your page. Select a binding to see its relationshi

Data Binding Registry: demo/view/DataBindings.cpx

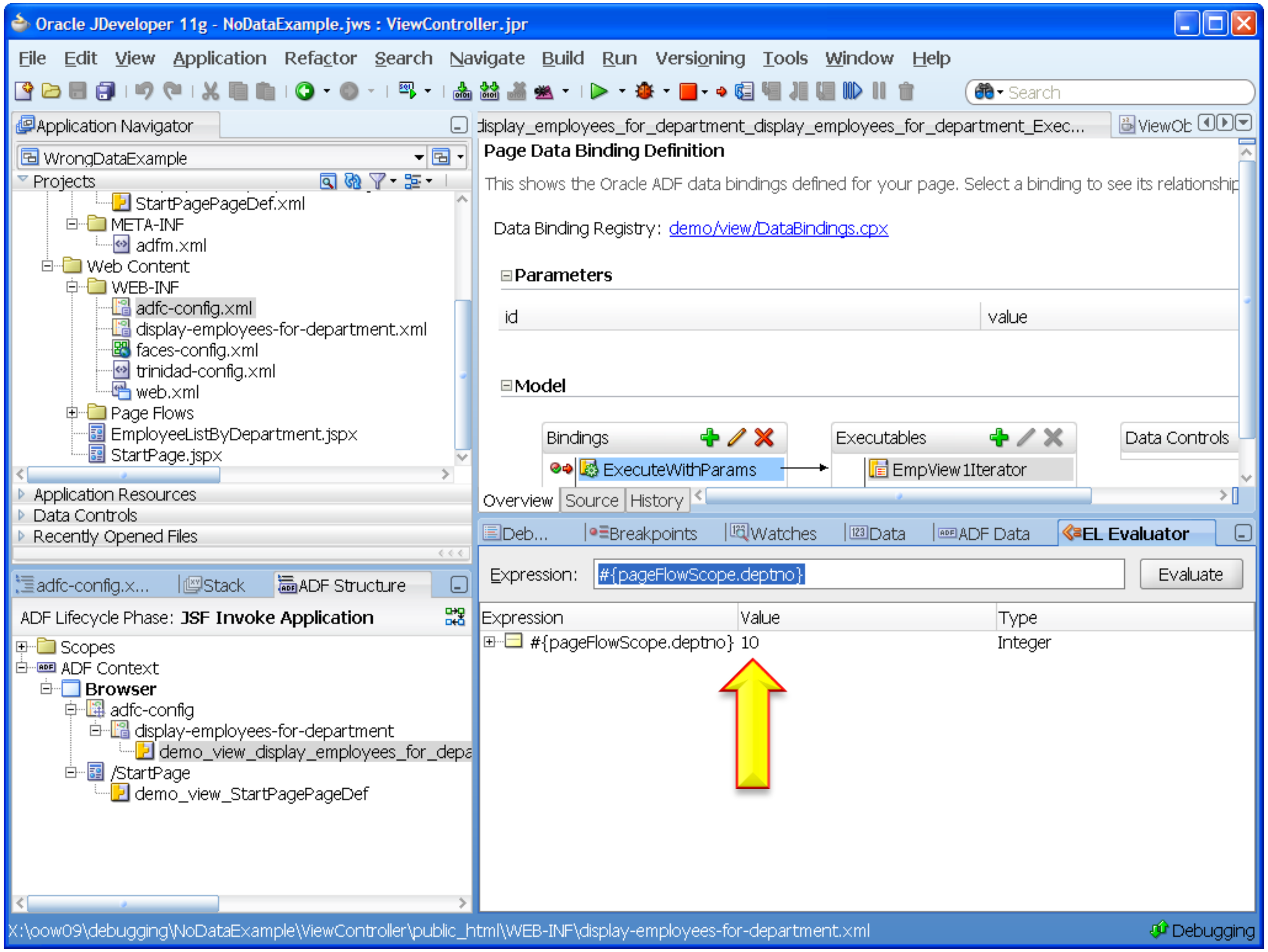
ADF Lifecycle Phase: JSF Invoke Application

Expression: #{pageFlowScope.deplno}

Expression	Value	Type
#{pageFlowScope.deplno}	null	Object

X:\oow09\debugging\NoDataExample\ViewController\public_html\WEB-INF\display-employees-for-department.xml

Fix Typo, Test Expression, Copy to Clipboard

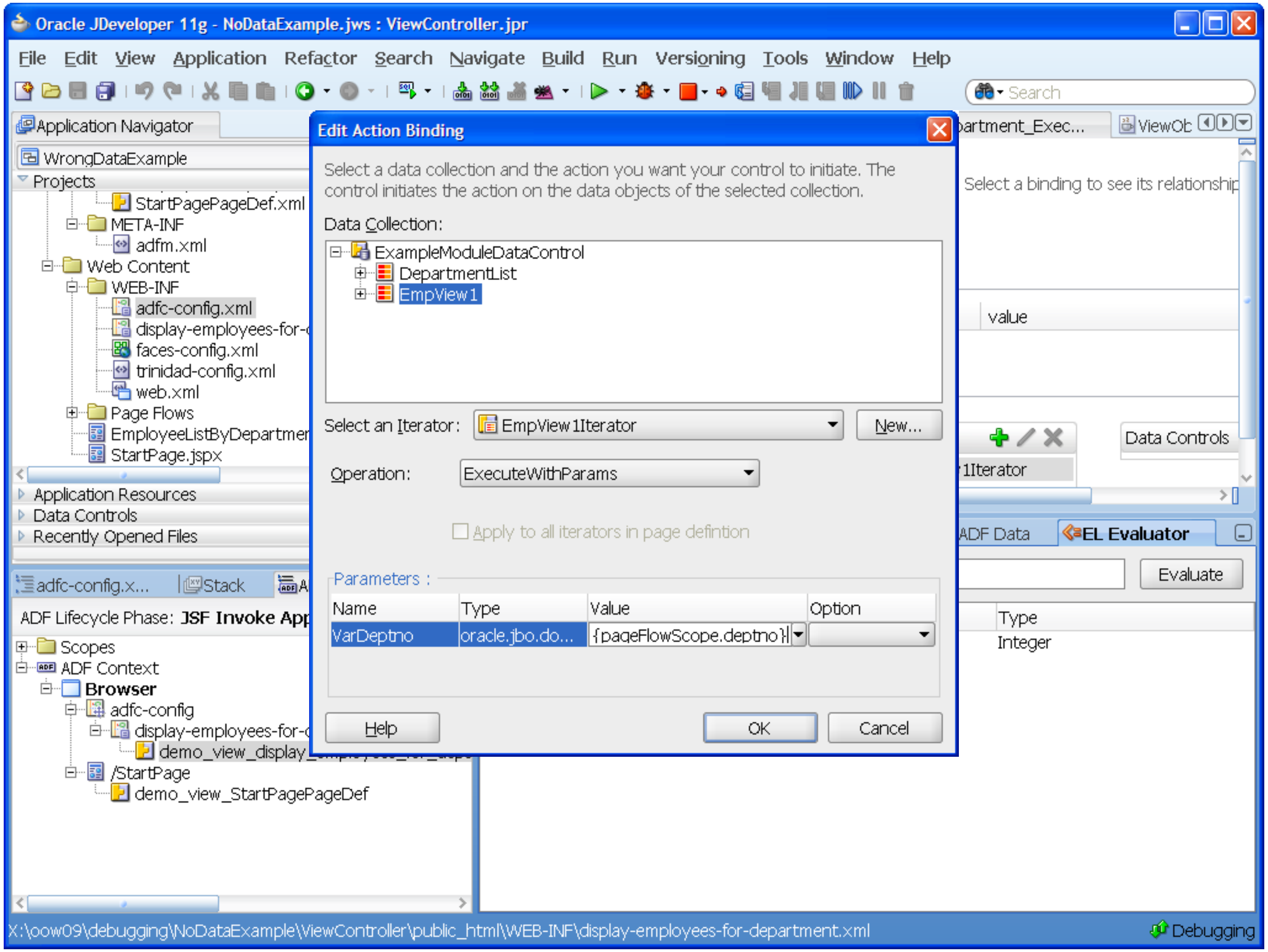


Oracle JDeveloper 11g - NoDataExample.jws : ViewController.jpr
File Edit View Application Refactor Search Navigate Build Run Versioning Tools Window Help
Search
Application Navigator
WrongDataExample
Projects
StartPagePageDef.xml
META-INF
adfm.xml
Web Content
WEB-INF
adfc-config.xml
display-employees-for-department.xml
faces-config.xml
trinidad-config.xml
web.xml
Page Flows
EmployeeListByDepartment.jspx
StartPage.jspx
Application Resources
Data Controls
Recently Opened Files
display_employees_for_department_display_employees_for_department_Exec...
ViewOb
Page Data Binding Definition
This shows the Oracle ADF data bindings defined for your page. Select a binding to see its relationship
Data Binding Registry: demo/view/DataBindings.cpx
Parameters
id
value
Model
Bindings
ExecuteWithParams
Executables
EmpView1Iterator
Data Controls
Overview Source History
Deb... Breakpoints Watches Data ADF Data EL Evaluator
adfc-config.x... Stack ADF Structure
ADF Lifecycle Phase: JSF Invoke Application
Scopes
ADF Context
Browser
adfc-config
display-employees-for-department
demo_view_display_employees_for_depa
/StartPage
demo_view_StartPagePageDef
Evaluate
X:\oow09\debugging\NoDataExample\ViewController\public_html\WEB-INF\display-employees-for-department.xml
Debugging

Expression: #{pageFlowScope.deptno}

Expression	Value	Type
#{pageFlowScope.deptno}	10	Integer

Edit Action Binding, Paste in Correct Expression Rerun Application to Verify the Fix



Oracle JDeveloper 11g - NoDataExample.jws : ViewController.jpr

Edit Action Binding

Select a data collection and the action you want your control to initiate. The control initiates the action on the data objects of the selected collection.

Data Collection:

- ExampleModuleDataControl
  - DepartmentList
  - EmpView1

Select an Iterator: EmpView1Iterator

Operation: ExecuteWithParams

□ Apply to all iterators in page defintion

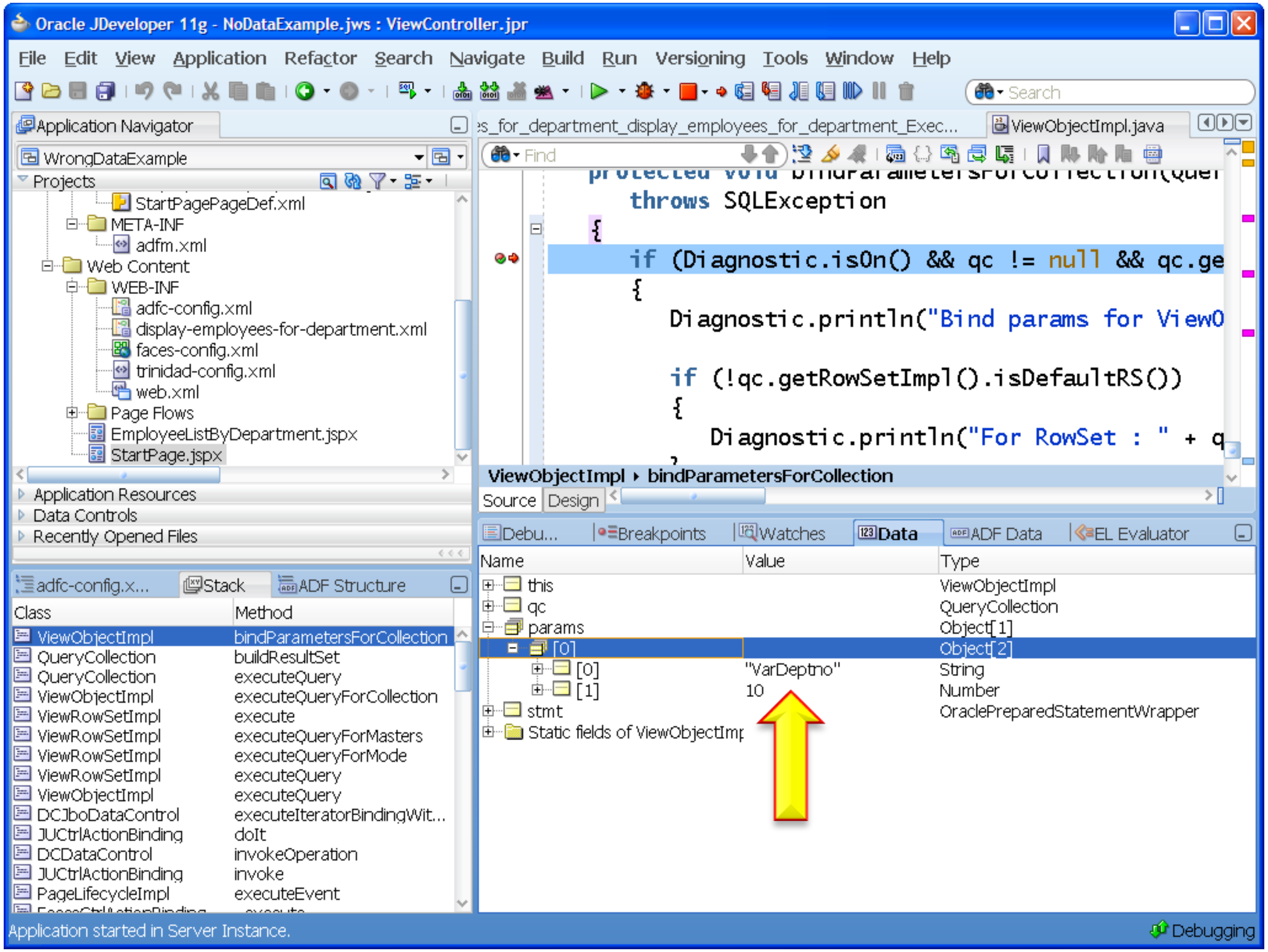
Parameters :

Name	Type	Value	Option
VarDeptno	oracle.jbo.do...	{pageFlowScope.deptno}|	

ADF Lifecycle Phase: JSF Invoke App

X:\oow09\debugging\NoDataExample\ViewController\public_html\WEB-INF\display-employees-for-department.xml

Now, EmpView1's `VarDeptno` Bind Variable Gets Correctly Set to the Selected Department Id



```
protected void bindParametersForCollection(Quer
    throws SQLException
{
    if (Diagnostic.isOn() && qc != null && qc.ge
    {
        Diagnostic.println("Bind params for ViewO

        if (!qc.getRowSetImpl().isDefaultRS())
        {
            Diagnostic.println("For RowSet : " + q
```

Class	Method
ViewObjectImpl	bindParametersForCollection
QueryCollection	buildResultSet
QueryCollection	executeQuery
ViewObjectImpl	executeQueryForCollection
ViewRowSetImpl	execute
ViewRowSetImpl	executeQueryForMasters
ViewRowSetImpl	executeQueryForMode
ViewRowSetImpl	executeQuery
ViewObjectImpl	executeQuery
DCJboDataControl	executeIteratorBindingWit...
JUCtrlActionBinding	doIt
DCDataControl	invokeOperation
JUCtrlActionBinding	invoke
PageLifecycleImpl	executeEvent
FacesCtrlActionBinding	execute

Name	Value	Type
this		ViewObjectImpl
qc		QueryCollection
params		Object[1]
[0]		Object[2]
[0]	"VarDeptno"	String
[1]	10	Number
stmt		OraclePreparedStatementWrapper
Static fields of ViewObjectImp		

Application started in Server Instance.

Debugging

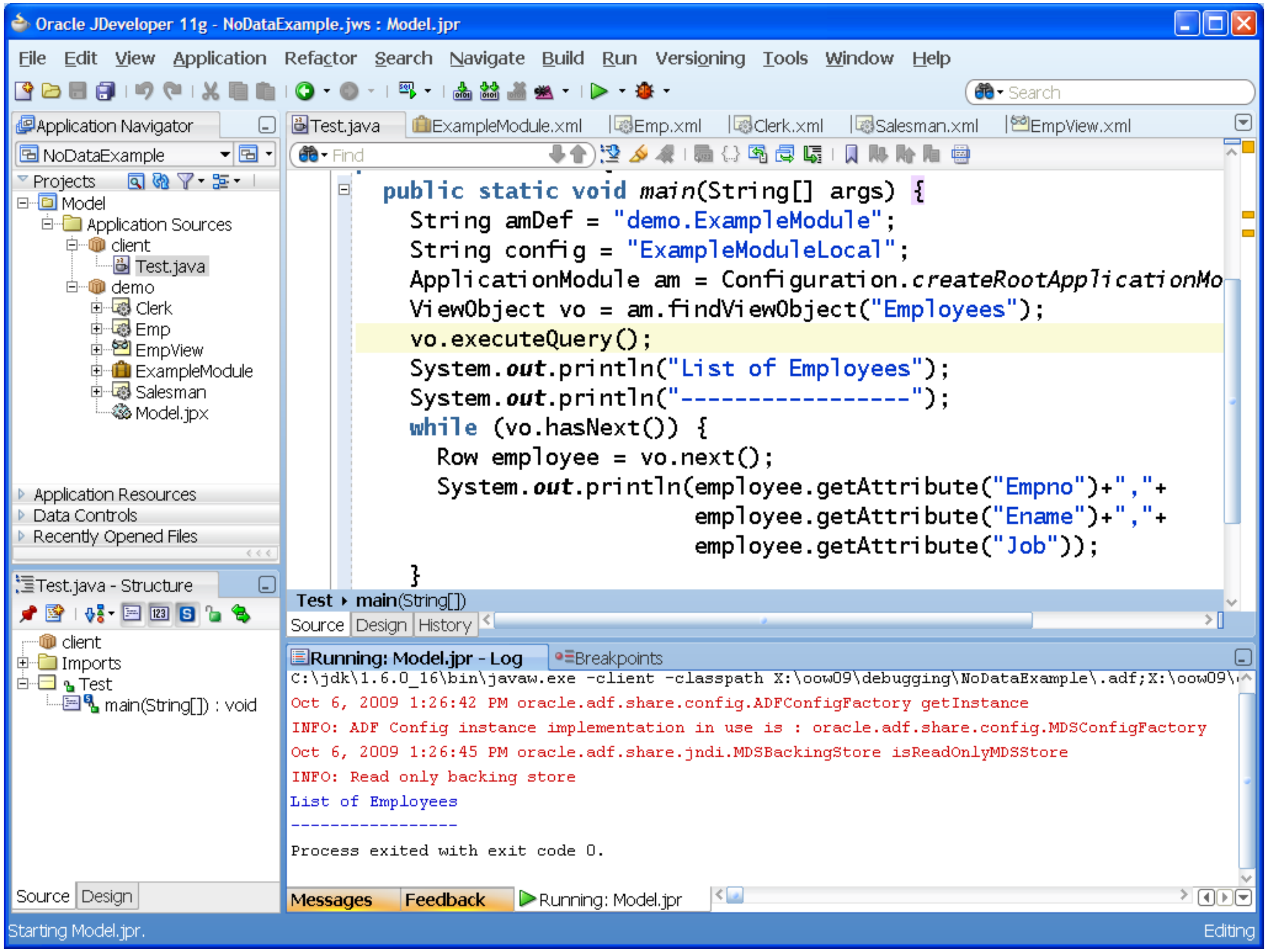
Summary of Techniques Used in the Example

- Breakpoint in `bindParametersForCollection()`
  - To break whenever a View Object's query executes
- Conditional breakpoint expressions
  - To break only for the EmpView1 VO instance
- Breakpoints on Task Flow Activities
  - To break on task flow call and method call (among others)
- ADF Structure and ADF Data Windows
  - To Inspect ADF context, scopes, task flow artifacts
- Breakpoint on Action Bindings in Page Definition
  - To break just before action occurs
- EL Evaluator Window
  - To test EL expressions in correct runtime context

HOW TO DEBUG

"No Data" Problems

Symptom: No Data Appears

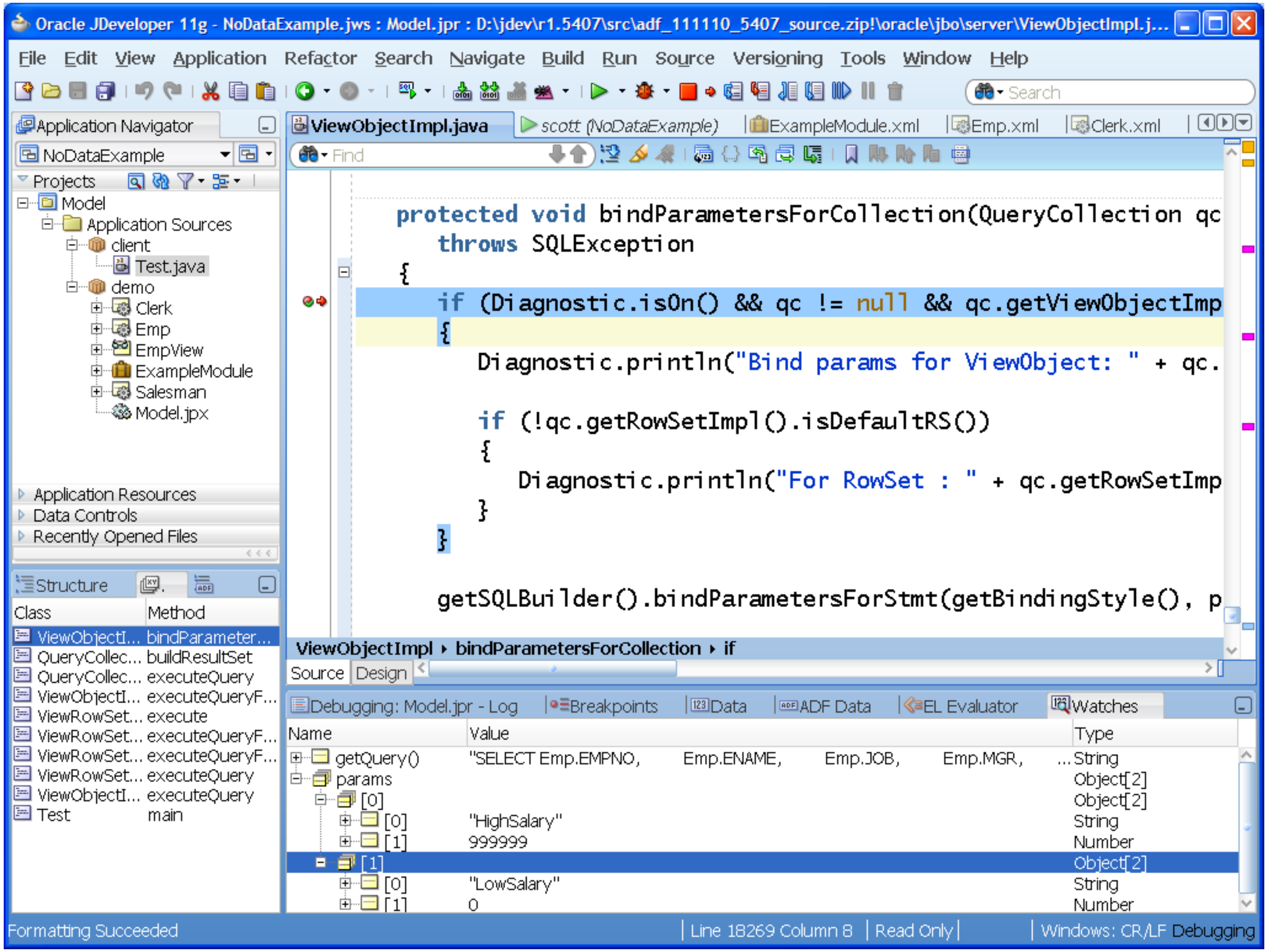


```
public static void main(String[] args) {
  String amDef = "demo.ExampleModule";
  String config = "ExampleModuleLocal";
  ApplicationModule am = Configuration.createRootApplicationMo
  ViewObject vo = am.findViewObject("Employees");
  vo.executeQuery();
  System.out.println("List of Employees");
  System.out.println("-----------------");
  while (vo.hasNext()) {
    Row employee = vo.next();
    System.out.println(employee.getAttribute("Empno")+","+
                       employee.getAttribute("Ename")+","+
                       employee.getAttribute("Job"));
  }
```

```
C:\jdk\1.6.0_16\bin\javaw.exe -client -classpath X:\oow09\debugging\NoDataExample\.adf;X:\oow09\
Oct 6, 2009 1:26:42 PM oracle.adf.share.config.ADFConfigFactory getInstance
INFO: ADF Config instance implementation in use is : oracle.adf.share.config.MDSConfigFactory
Oct 6, 2009 1:26:45 PM oracle.adf.share.jndi.MDSBackingStore isReadOnlyMDSStore
INFO: Read only backing store
List of Employees
-----------------

Process exited with exit code 0.
```

At `bindParametersForCollection()` Breakpoint, Add Watches for `getQuery()` and `params`



```
protected void bindParametersForCollection(QueryCollection qc
   throws SQLException
{
   if (Diagnostic.isOn() && qc != null && qc.getViewObjectImp
   {
      Diagnostic.println("Bind params for ViewObject: " + qc.

      if (!qc.getRowSetImpl().isDefaultRS())
      {
         Diagnostic.println("For RowSet : " + qc.getRowSetImp
      }
   }

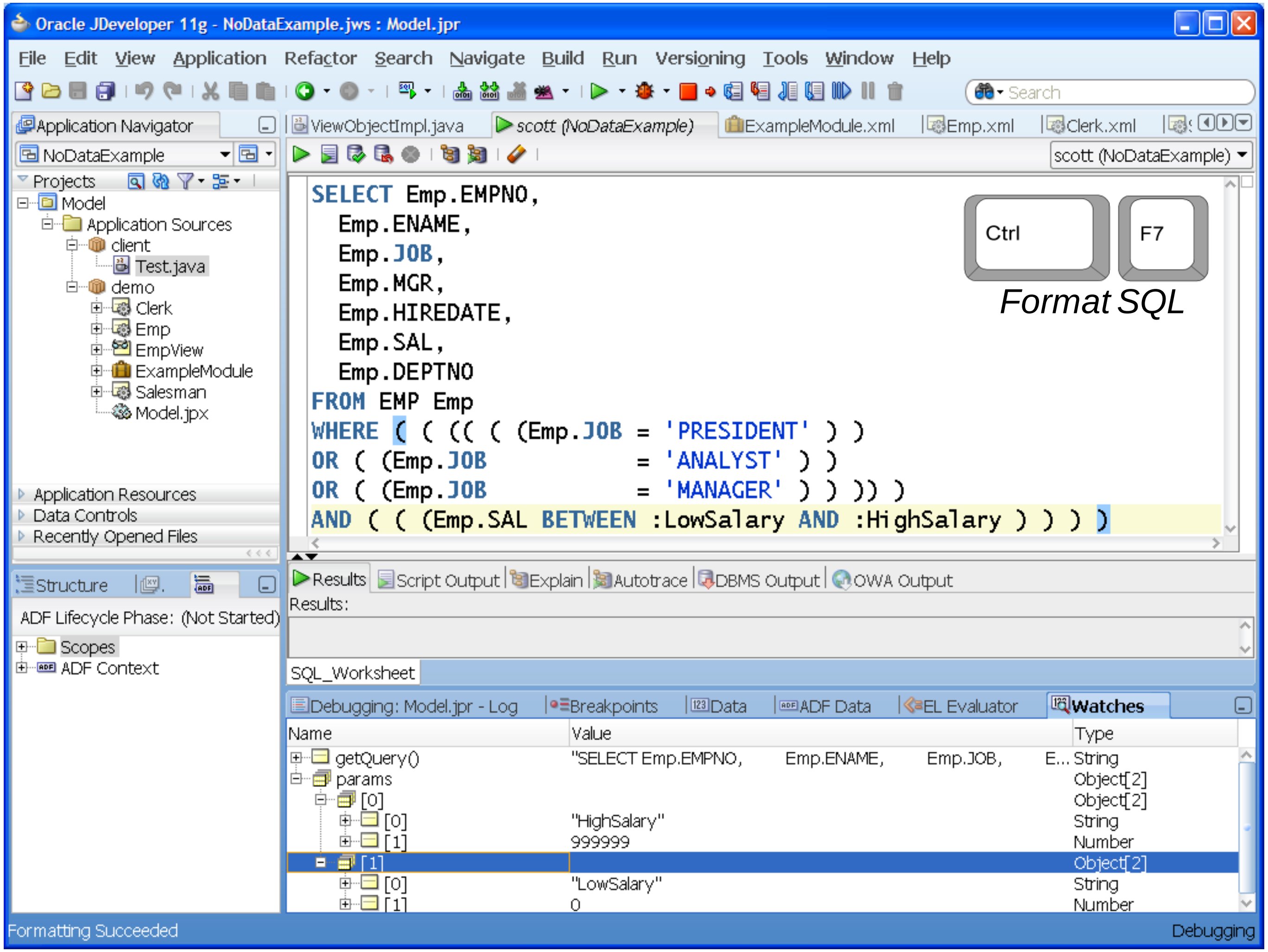
   getSQLBuilder().bindParametersForStmt(getBindingStyle(), p
```

ViewObjectImpl ▸ bindParametersForCollection ▸ if

Class	Method
ViewObjectI...	bindParameter...
QueryCollec...	buildResultSet
QueryCollec...	executeQuery
ViewObjectI...	executeQueryF...
ViewRowSet...	execute
ViewRowSet...	executeQueryF...
ViewRowSet...	executeQueryF...
ViewRowSet...	executeQuery
ViewObjectI...	executeQuery
Test	main

Name	Value	Type
getQuery()	"SELECT Emp.EMPNO, Emp.ENAME, Emp.JOB, Emp.MGR, ...	String
params		Object[2]
[0]		Object[2]
[0]	"HighSalary"	String
[1]	999999	Number
[1]		Object[2]
[0]	"LowSalary"	String
[1]	0	Number

Use *View Whole Value...* to Copy/Paste Query Into SQL Worksheet, Then Format SQL



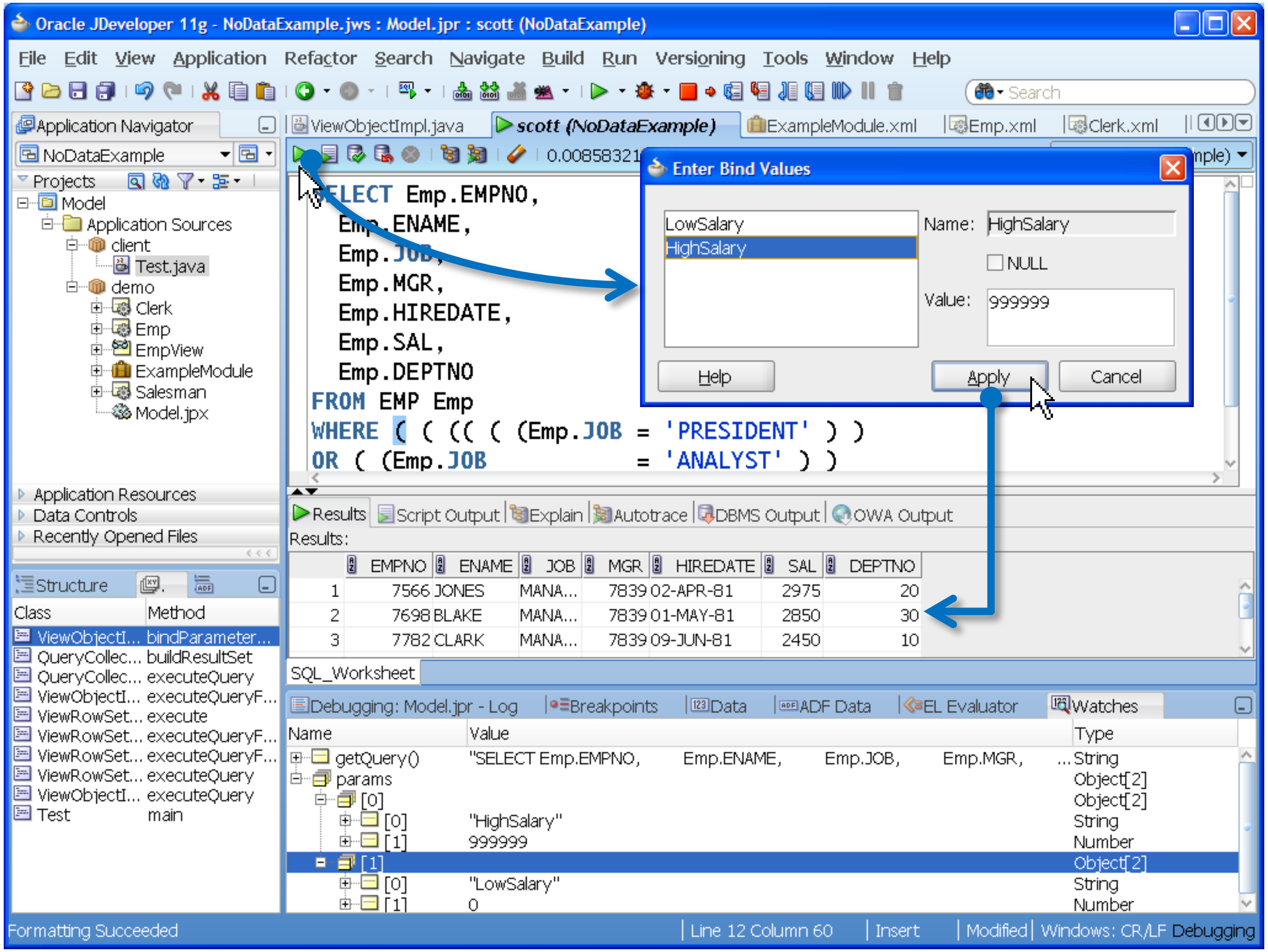
```
SELECT Emp.EMPNO,
  Emp.ENAME,
  Emp.JOB,
  Emp.MGR,
  Emp.HIREDATE,
  Emp.SAL,
  Emp.DEPTNO
FROM EMP Emp
WHERE ( ( (( ( (Emp.JOB = 'PRESIDENT' ) )
OR ( (Emp.JOB           = 'ANALYST' ) )
OR ( (Emp.JOB           = 'MANAGER' ) ) )) )
AND ( ( (Emp.SAL BETWEEN :LowSalary AND :HighSalary ) ) ) )
```

Ctrl F7

Format SQL

Name	Value	Type
getQuery()	"SELECT Emp.EMPNO, Emp.ENAME, Emp.JOB, E...	String
params		Object[2]
[0]		Object[2]
[0]	"HighSalary"	String
[1]	999999	Number
[1]		Object[2]
[0]	"LowSalary"	String
[1]	0	Number

Execute SQL Using Same Bind Variable Values As in the Watches Window. Data OK



```
SELECT Emp.EMPNO,
  Emp.ENAME,
  Emp.JOB,
  Emp.MGR,
  Emp.HIREDATE,
  Emp.SAL,
  Emp.DEPTNO
FROM EMP Emp
WHERE ( ( (( ( (Emp.JOB = 'PRESIDENT' ) )
OR ( (Emp.JOB            = 'ANALYST' ) )
```

Enter Bind Values:

- LowSalary
- HighSalary

Name: HighSalary

□ NULL

Value: 999999

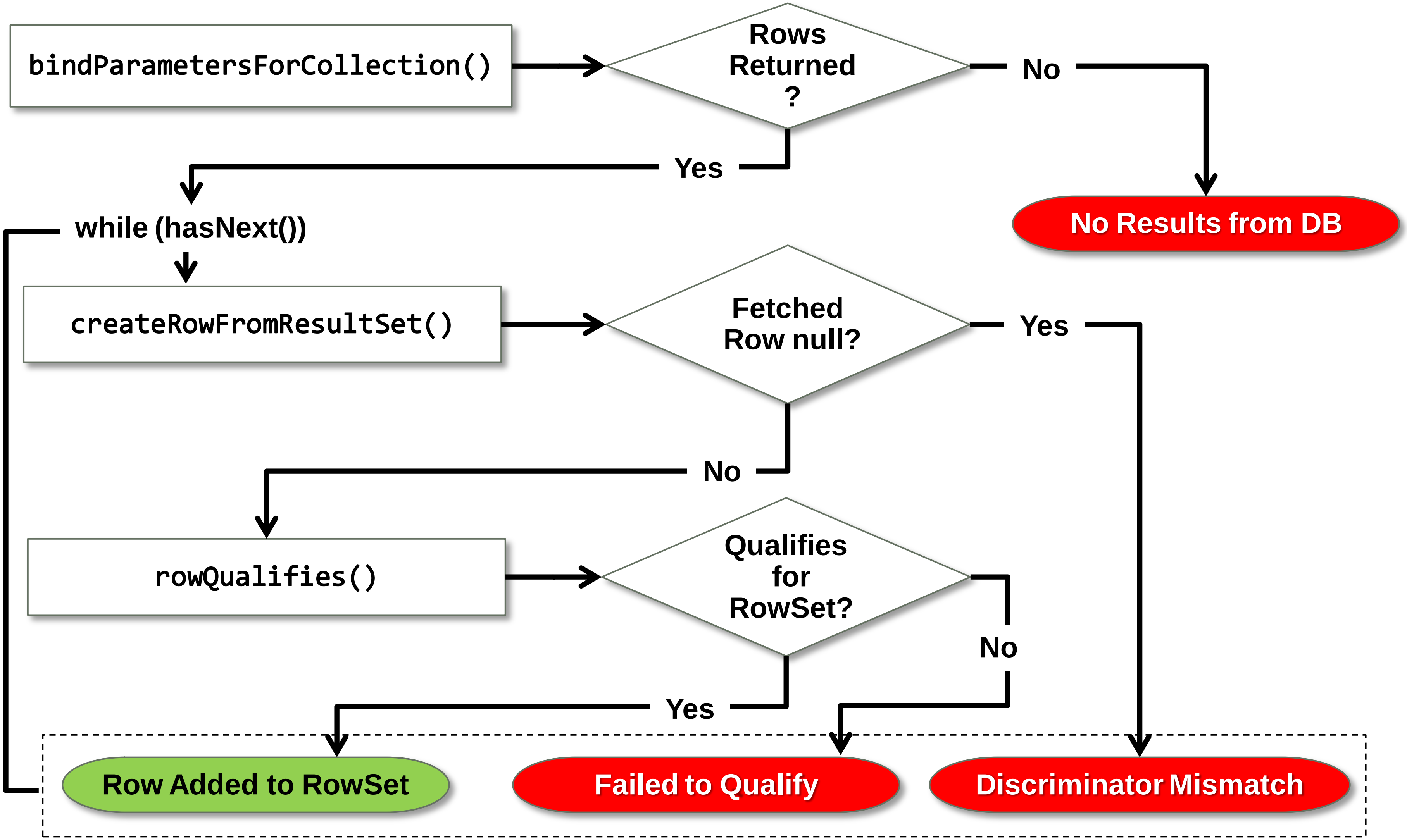
Results:

	EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	DEPTNO
1	7566	JONES	MANA...	7839	02-APR-81	2975	20
2	7698	BLAKE	MANA...	7839	01-MAY-81	2850	30
3	7782	CLARK	MANA...	7839	09-JUN-81	2450	10

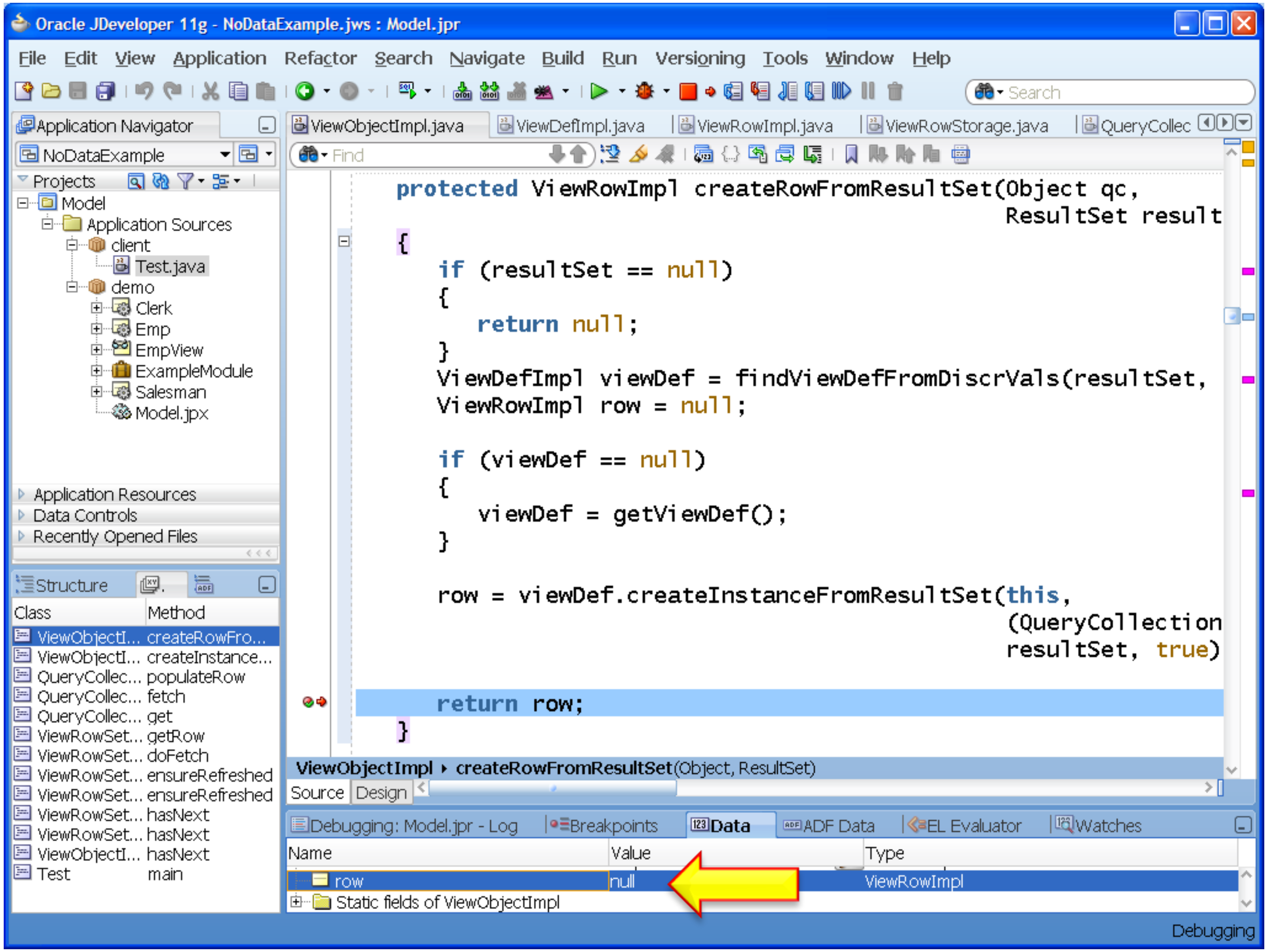
Class	Method
ViewObjectI...	bindParameter...
QueryCollec...	buildResultSet
QueryCollec...	executeQuery
ViewObjectI...	executeQueryF...
ViewRowSet...	execute
ViewRowSet...	executeQueryF...
ViewRowSet...	executeQueryF...
ViewRowSet...	executeQuery
ViewObjectI...	executeQuery
Test	main

Name	Value	Type
getQuery()	"SELECT Emp.EMPNO, Emp.ENAME, Emp.JOB, Emp.MGR, ...	String
params		Object[2]
[0]		Object[2]
[0]	"HighSalary"	String
[1]	999999	Number
[1]		Object[2]
[0]	"LowSalary"	String
[1]	0	Number

ViewObject FlowChart for "No Data" Problems



createRowFromResultSet() Shows Null Row Points to Discriminator Mismatch Problem



```
protected ViewRowImpl createRowFromResultSet(Object qc,
                                             ResultSet result
{
    if (resultSet == null)
    {
        return null;
    }
    ViewDefImpl viewDef = findViewDefFromDiscrVals(resultSet,
    ViewRowImpl row = null;

    if (viewDef == null)
    {
        viewDef = getViewDef();
    }

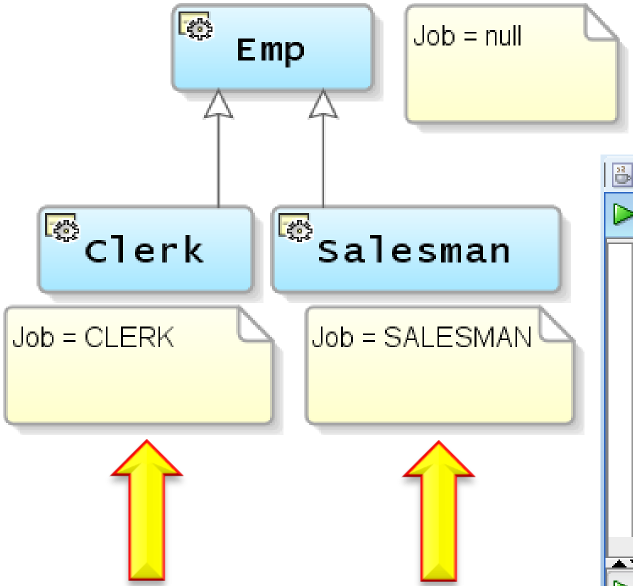
    row = viewDef.createInstanceFromResultSet(this,
                                             (QueryCollection
                                             resultSet, true)

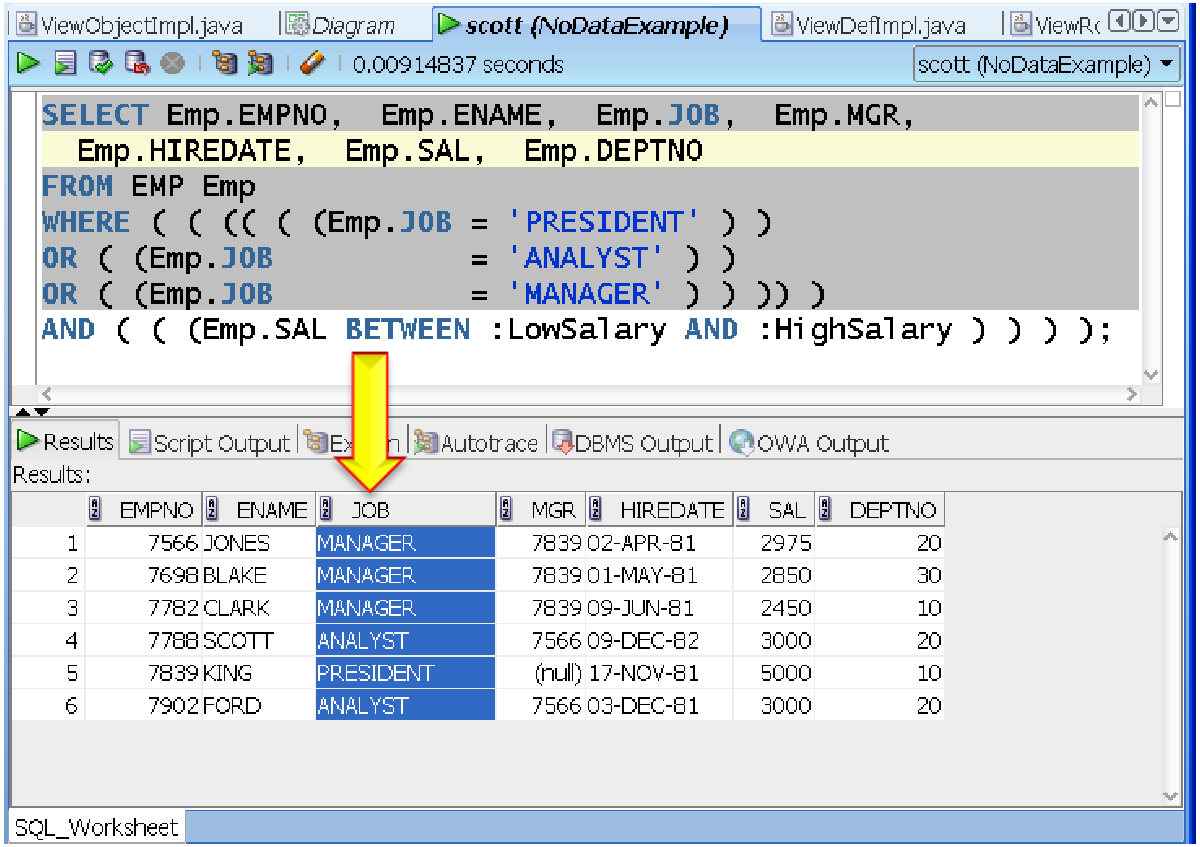
    return row;
}
```

Class	Method
ViewObjectI...	createRowFro...
ViewObjectI...	createInstance...
QueryCollec...	populateRow
QueryCollec...	fetch
QueryCollec...	get
ViewRowSet...	getRow
ViewRowSet...	doFetch
ViewRowSet...	ensureRefreshed
ViewRowSet...	ensureRefreshed
ViewRowSet...	hasNext
ViewRowSet...	hasNext
ViewObjectI...	hasNext
Test	main

Name	Value	Type
row	null	ViewRowImpl
Static fields of ViewObjectImpl		

Query Retrieves JOB Column Values Different From the Defined Discriminator Values!



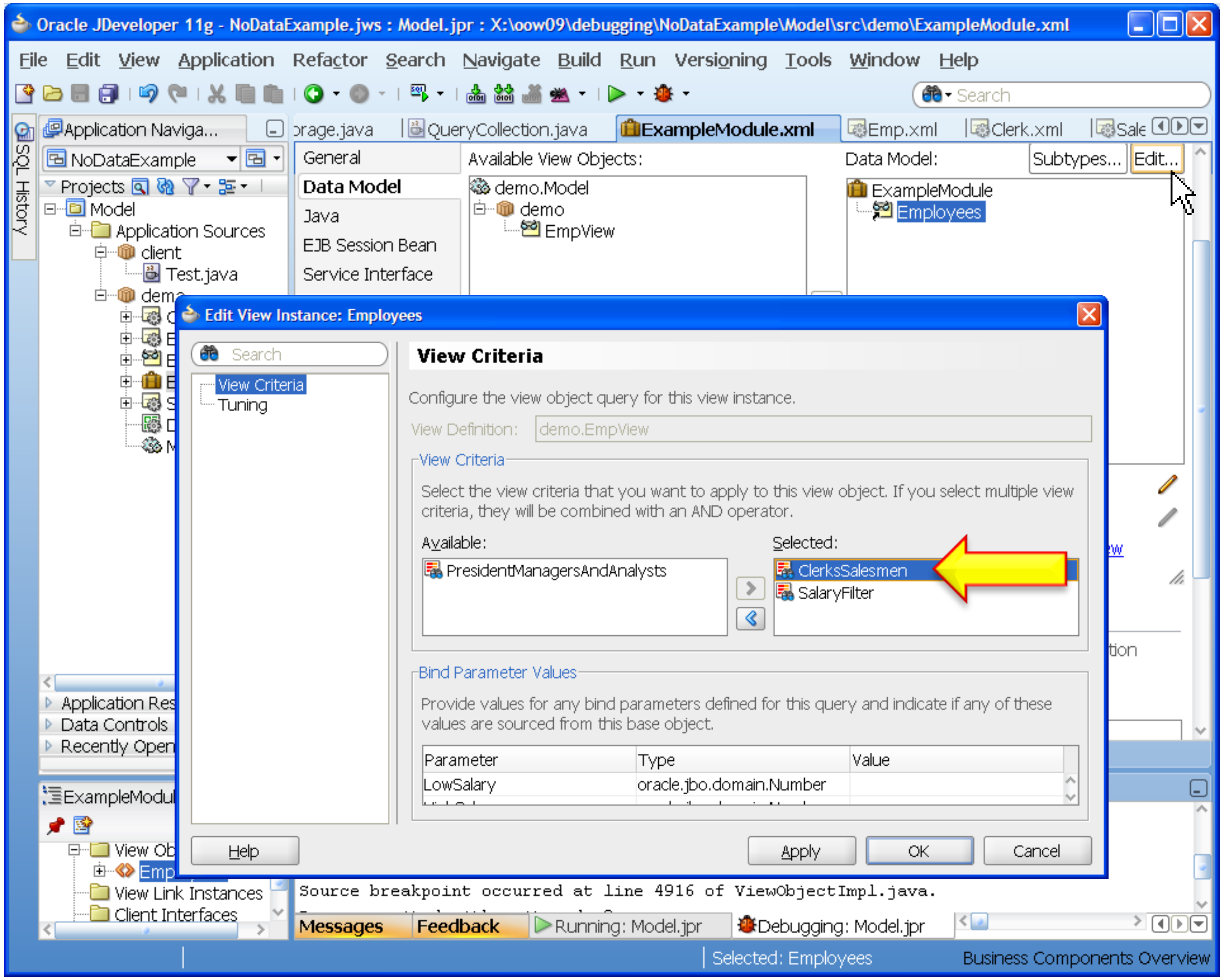


```
SELECT Emp.EMPNO,  Emp.ENAME,  Emp.JOB,  Emp.MGR,
  Emp.HIREDATE,  Emp.SAL,  Emp.DEPTNO
FROM EMP Emp
WHERE ( ( (( ( (Emp.JOB = 'PRESIDENT' ) )
OR ( (Emp.JOB            = 'ANALYST' ) )
OR ( (Emp.JOB            = 'MANAGER' ) ) )) )
AND ( ( (Emp.SAL BETWEEN :LowSalary AND :HighSalary ) ) ) );
```

Results:

	EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	DEPTNO
1	7566	JONES	MANAGER	7839	02-APR-81	2975	20
2	7698	BLAKE	MANAGER	7839	01-MAY-81	2850	30
3	7782	CLARK	MANAGER	7839	09-JUN-81	2450	10
4	7788	SCOTT	ANALYST	7566	09-DEC-82	3000	20
5	7839	KING	PRESIDENT	(null)	17-NOV-81	5000	10
6	7902	FORD	ANALYST	7566	03-DEC-81	3000	20

Changing the Applied View Criteria to Limit Results to Only Include Clerks and Salesmen Fixes Problem



Edit View Instance: Employees

View Criteria

Tuning

View Criteria

Configure the view object query for this view instance.

View Definition: demo.EmpView

View Criteria

Select the view criteria that you want to apply to this view object. If you select multiple view criteria, they will be combined with an AND operator.

Available: PresidentManagersAndAnalysts

Selected: ClerksSalesmen, SalaryFilter

Bind Parameter Values

Provide values for any bind parameters defined for this query and indicate if any of these values are sourced from this base object.

Parameter	Type	Value
LowSalary	oracle.jbo.domain.Number	

Help | Apply | OK | Cancel

```
Source breakpoint occurred at line 4916 of ViewObjectImpl.java.
```

Summary of Techniques Used in the Example

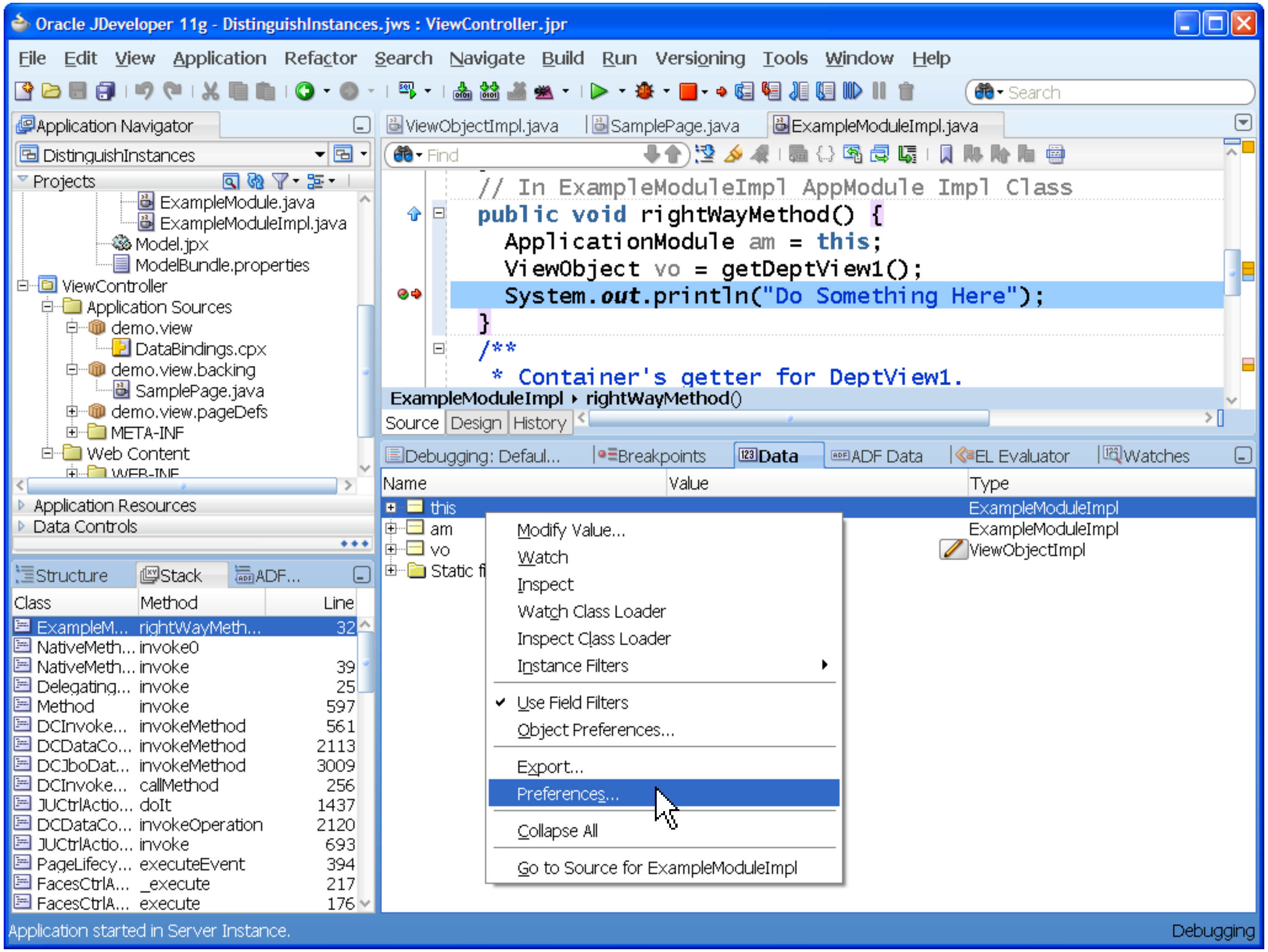
- Breakpoint in `bindParametersForCollection()`
  - To examine query statement and bind variable values
- SQL Worksheet
  - To test query against same database as the application
- Breakpoint in `createRowFromResultSet()`
  - To test whether database row is retrieved without error

TIP

Show *Id* in Data and Watches Windows to Distinguish Instances

Use *Id* in Data/Watch Windows to Distinguish Objs

► Open Data or Watch Window Preferences



```
// In ExampleModuleImpl AppModule Impl Class
public void rightWayMethod() {
  ApplicationModule am = this;
  ViewObject vo = getDeptView1();
  System.out.println("Do Something Here");
}
/**
 * Container's getter for DeptView1.
```

Class	Method	Line
ExampleM...	rightWayMeth...	32
NativeMeth...	invoke0	
NativeMeth...	invoke	39
Delegating...	invoke	25
Method	invoke	597
DCInvoke...	invokeMethod	561
DCDataCo...	invokeMethod	2113
DCJboDat...	invokeMethod	3009
DCInvoke...	callMethod	256
JUCtrlActio...	doIt	1437
DCDataCo...	invokeOperation	2120
JUCtrlActio...	invoke	693
PageLifecy...	executeEvent	394
FacesCtrlA...	_execute	217
FacesCtrlA...	execute	176

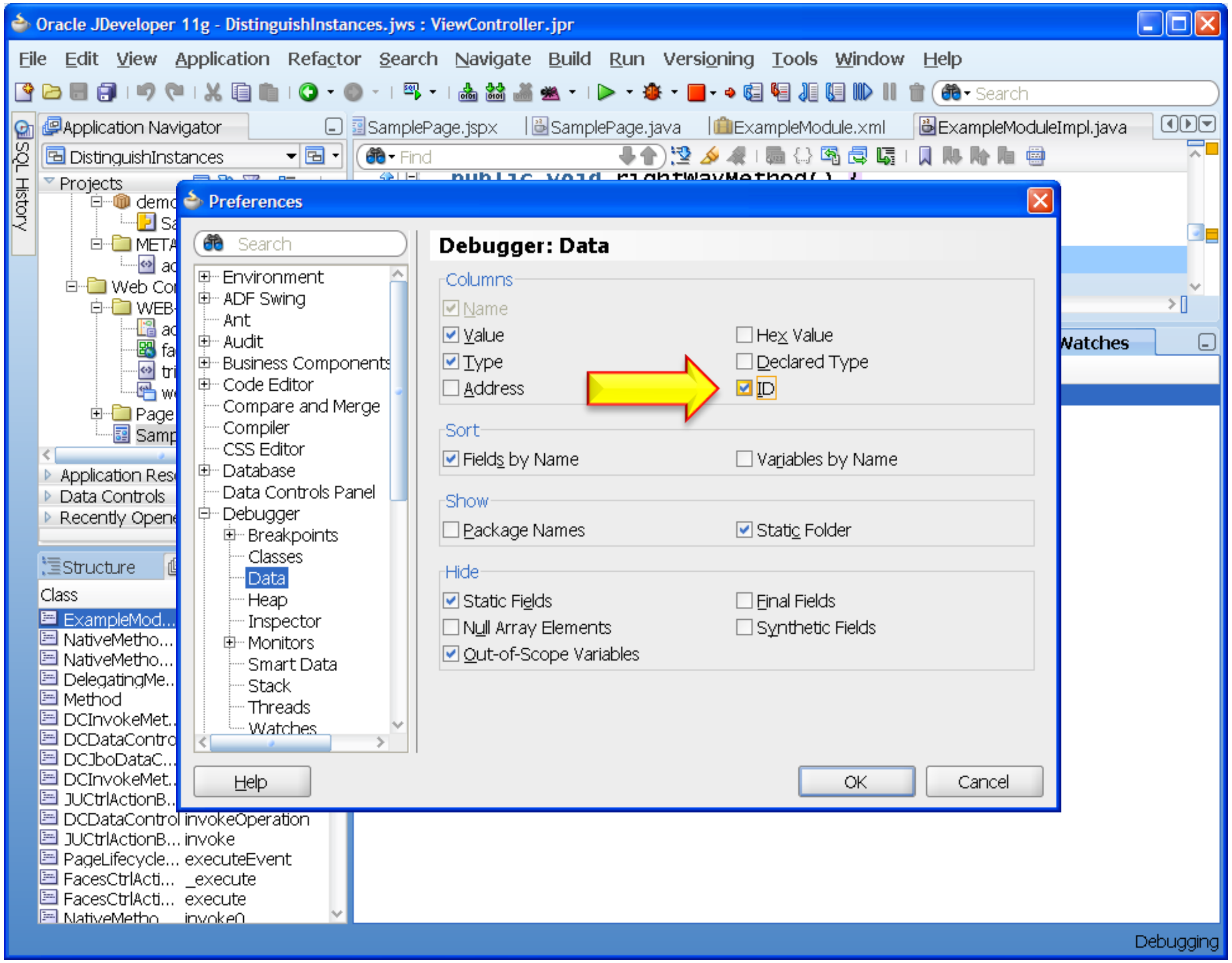
Name	Value	Type
this		ExampleModuleImpl
am		ExampleModuleImpl
vo		ViewObjectImpl
Static fi		

Application started in Server Instance.

Debugging

Use *Id* in Data/Watch Windows to Distinguish Objs

► Enable Id Column



Debugger: Data

Columns

☑ Name
☑ Value
☑ Type
□ Address
□ Hex Value
□ Declared Type
☑ ID

Sort

☑ Fields by Name
□ Variables by Name

Show

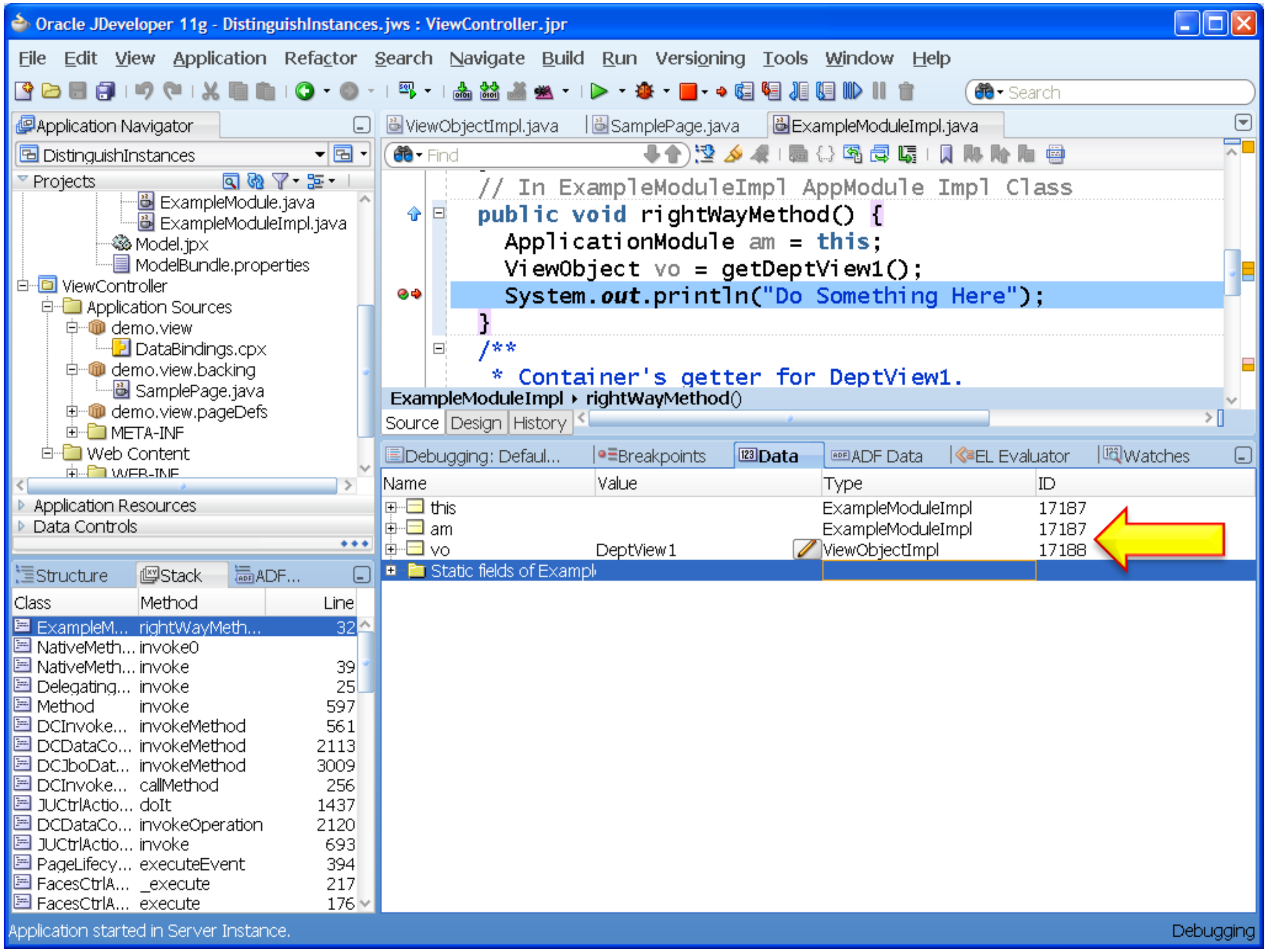
□ Package Names
☑ Static Folder

Hide

☑ Static Fields
□ Final Fields
□ Null Array Elements
□ Synthetic Fields
☑ Out-of-Scope Variables

Use *Id* in Data/Watch Windows to Distinguish Objs

► Jot Down Id of Objects at One Breakpoint



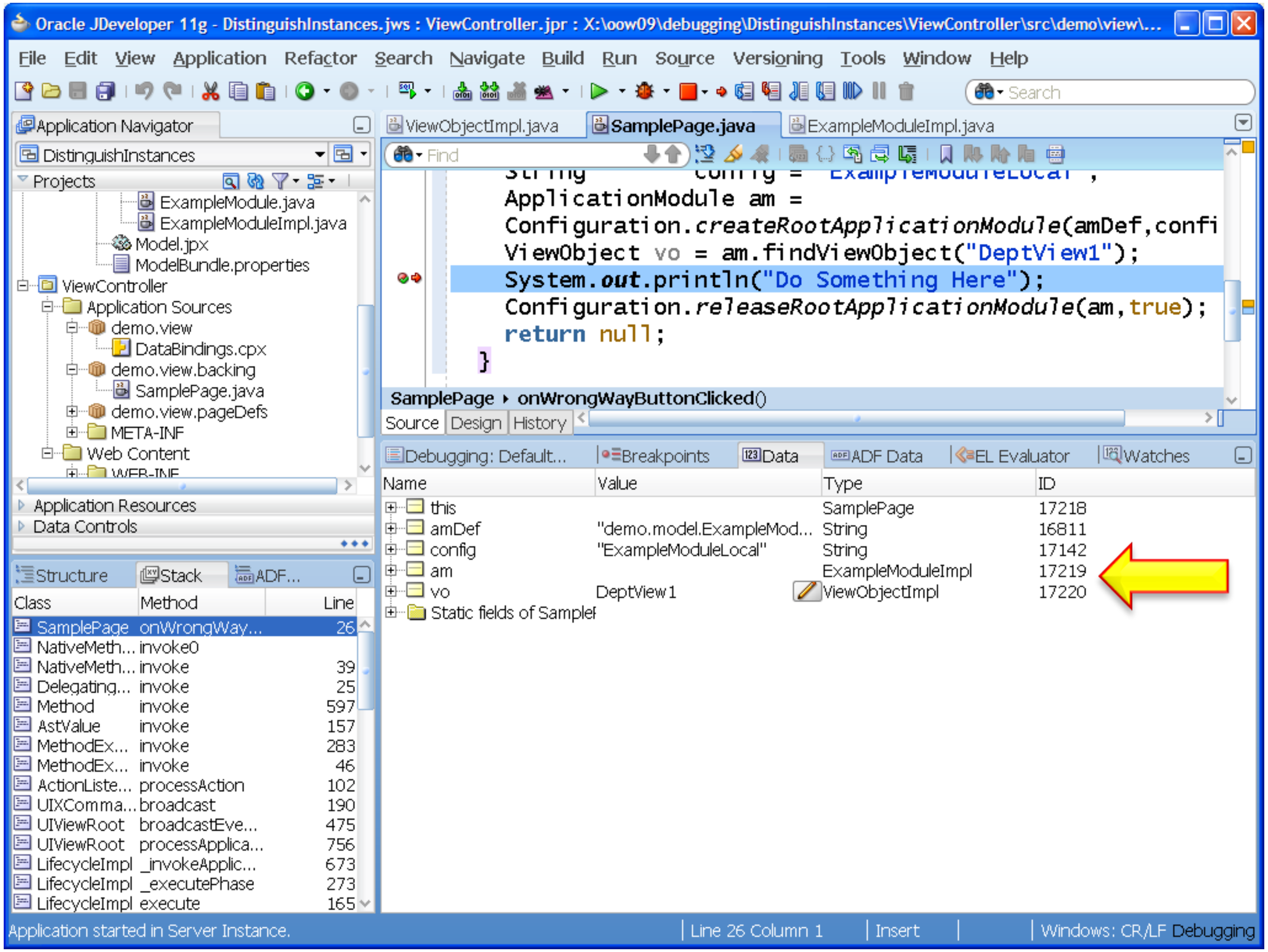
```
// In ExampleModuleImpl AppModule Impl Class
public void rightWayMethod() {
  ApplicationModule am = this;
  ViewObject vo = getDeptView1();
  System.out.println("Do Something Here");
}
/**
 * Container's getter for DeptView1.
```

Name	Value	Type	ID
this		ExampleModuleImpl	17187
am		ExampleModuleImpl	17187
vo	DeptView1	ViewObjectImpl	17188
Static fields of Exampl			

Class	Method	Line
ExampleM...	rightWayMeth...	32
NativeMeth...	invoke0	
NativeMeth...	invoke	39
Delegating...	invoke	25
Method	invoke	597
DCInvoke...	invokeMethod	561
DCDataCo...	invokeMethod	2113
DCJboDat...	invokeMethod	3009
DCInvoke...	callMethod	256
JUCtrlActio...	doIt	1437
DCDataCo...	invokeOperation	2120
JUCtrlActio...	invoke	693
PageLifecy...	executeEvent	394
FacesCtrlA...	_execute	217
FacesCtrlA...	execute	176

Use *Id* in Data/Watch Windows to Distinguish Objs

► Compare to Object Id at Other Breakpoint



Oracle JDeveloper 11g - DistinguishInstances.jws : ViewController.jpr : X:\oow09\debugging\DistinguishInstances\ViewController\src\demo\view\...

```
    String       config =   "ExampleModuleLocal";
    ApplicationModule am =
    Configuration.createRootApplicationModule(amDef,confi
    ViewObject vo = am.findViewObject("DeptView1");
    System.out.println("Do Something Here");
    Configuration.releaseRootApplicationModule(am,true);
    return null;
}
```

SamplePage ▸ onWrongWayButtonClicked()

Name	Value	Type	ID
this		SamplePage	17218
amDef	"demo.model.ExampleMod...	String	16811
config	"ExampleModuleLocal"	String	17142
am		ExampleModuleImpl	17219
vo	DeptView1	ViewObjectImpl	17220
Static fields of SampleP			

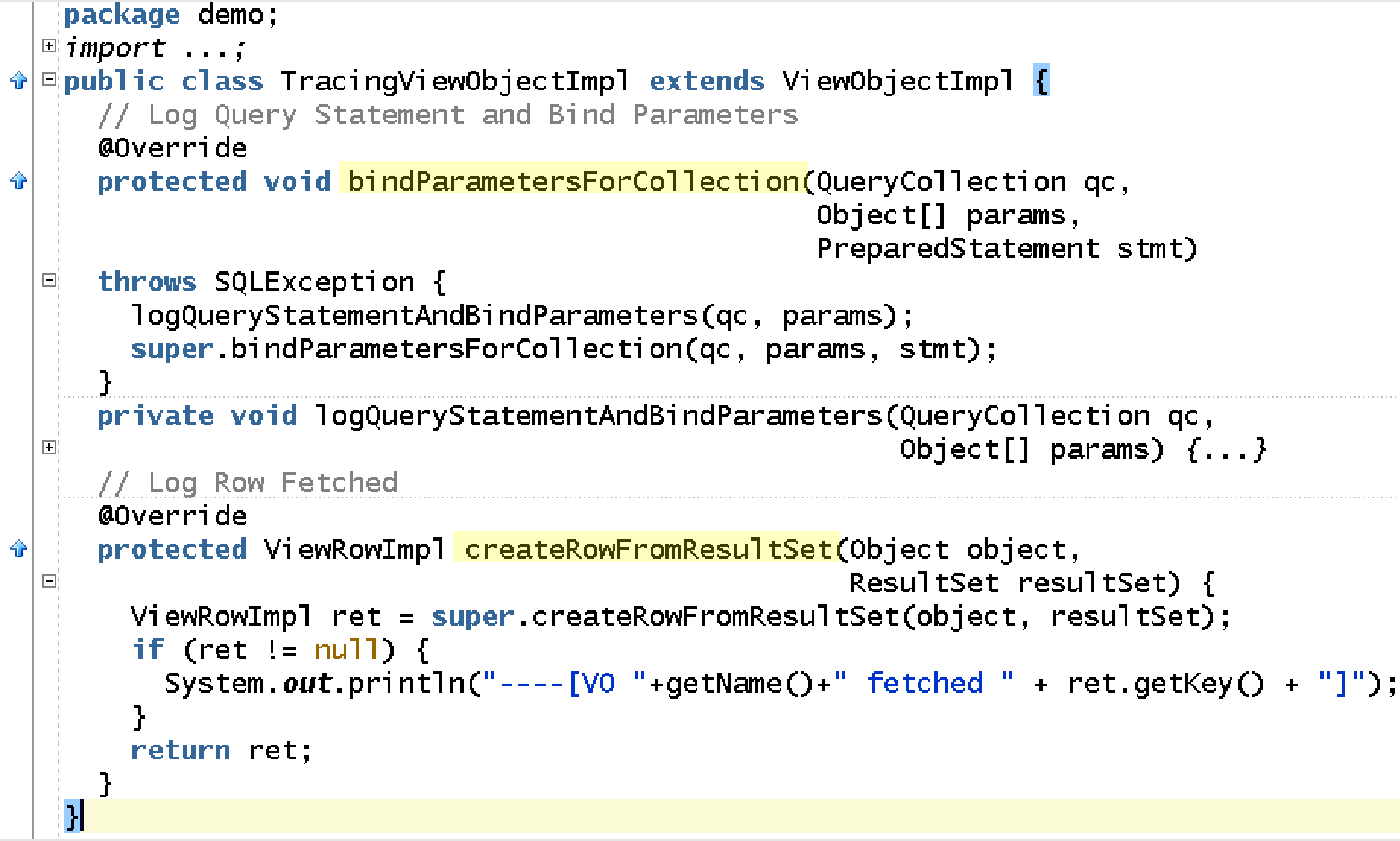
Class	Method	Line
SamplePage	onWrongWay...	26
NativeMeth...	invoke0	
NativeMeth...	invoke	39
Delegating...	invoke	25
Method	invoke	597
AstValue	invoke	157
MethodEx...	invoke	283
MethodEx...	invoke	46
ActionListe...	processAction	102
UIXComma...	broadcast	190
UIViewRoot	broadcastEve...	475
UIViewRoot	processApplica...	756
LifecycleImpl	_invokeApplic...	673
LifecycleImpl	_executePhase	273
LifecycleImpl	execute	165

Application started in Server Instance. | Line 26 Column 1 | Insert | Windows: CR/LF Debugging

HOW TO DEBUG

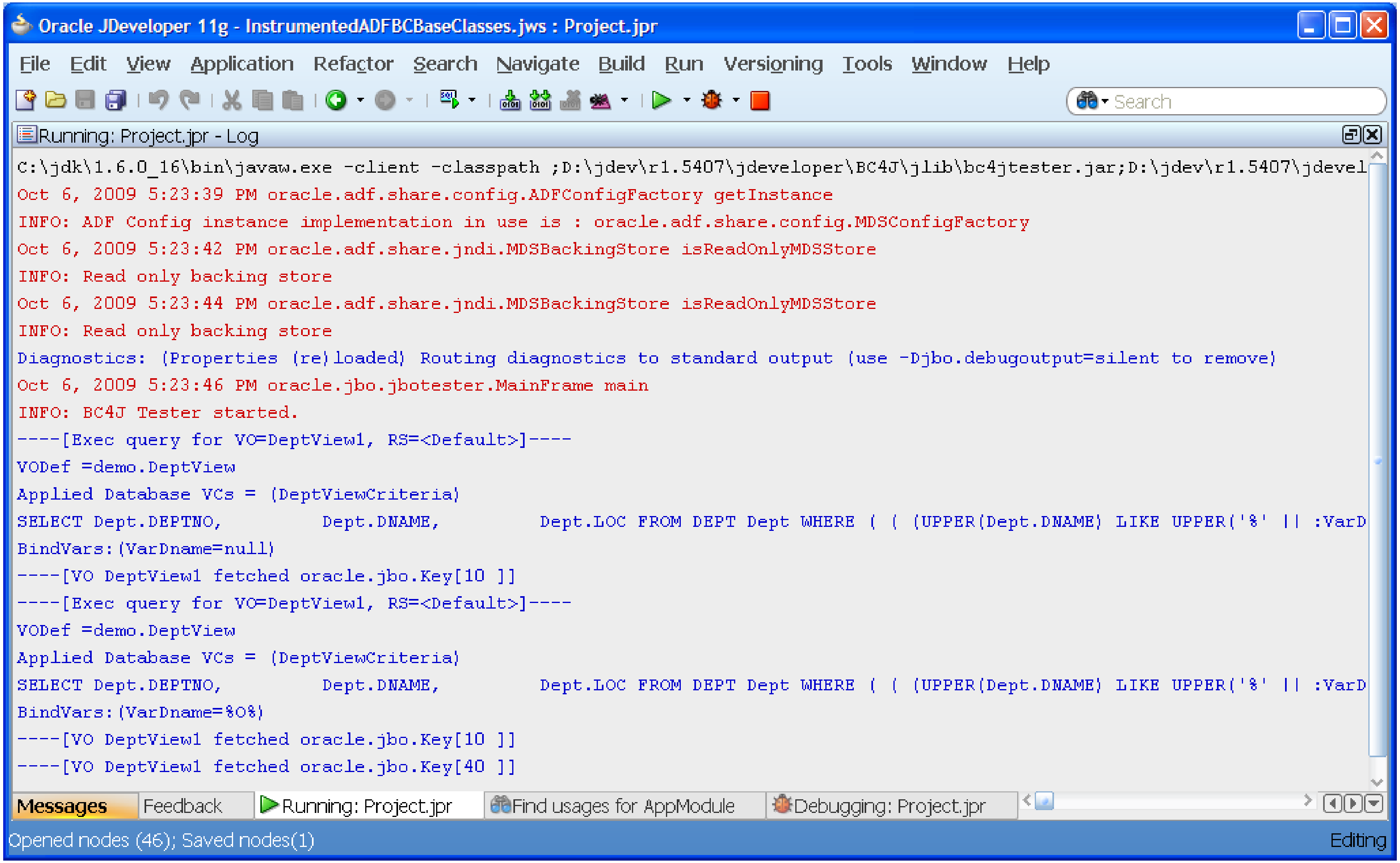
"Slow Application" Problems

Logging Executed Queries and Fetched Rows



```
package demo;
import ...;
public class TracingViewObjectImpl extends ViewObjectImpl {
  // Log Query Statement and Bind Parameters
  @Override
  protected void bindParametersForCollection(QueryCollection qc,
                                             Object[] params,
                                             PreparedStatement stmt)
  throws SQLException {
    logQueryStatementAndBindParameters(qc, params);
    super.bindParametersForCollection(qc, params, stmt);
  }
  private void logQueryStatementAndBindParameters(QueryCollection qc,
                                                  Object[] params) {...}
  // Log Row Fetched
  @Override
  protected ViewRowImpl createRowFromResultSet(Object object,
                                               ResultSet resultSet) {
    ViewRowImpl ret = super.createRowFromResultSet(object, resultSet);
    if (ret != null) {
      System.out.println("----[VO "+getName()+" fetched " + ret.getKey() + "]");
    }
    return ret;
  }
}
```

Logging Executed Queries and Fetched Rows


Oracle JDeveloper 11g - InstrumentedADFBCBaseClasses.jws : Project.jpr
File Edit View Application Refactor Search Navigate Build Run Versioning Tools Window Help
Search
Running: Project.jpr - Log
Messages
Feedback
Running: Project.jpr
Find usages for AppModule
Debugging: Project.jpr
Opened nodes (46); Saved nodes(1)
Editing

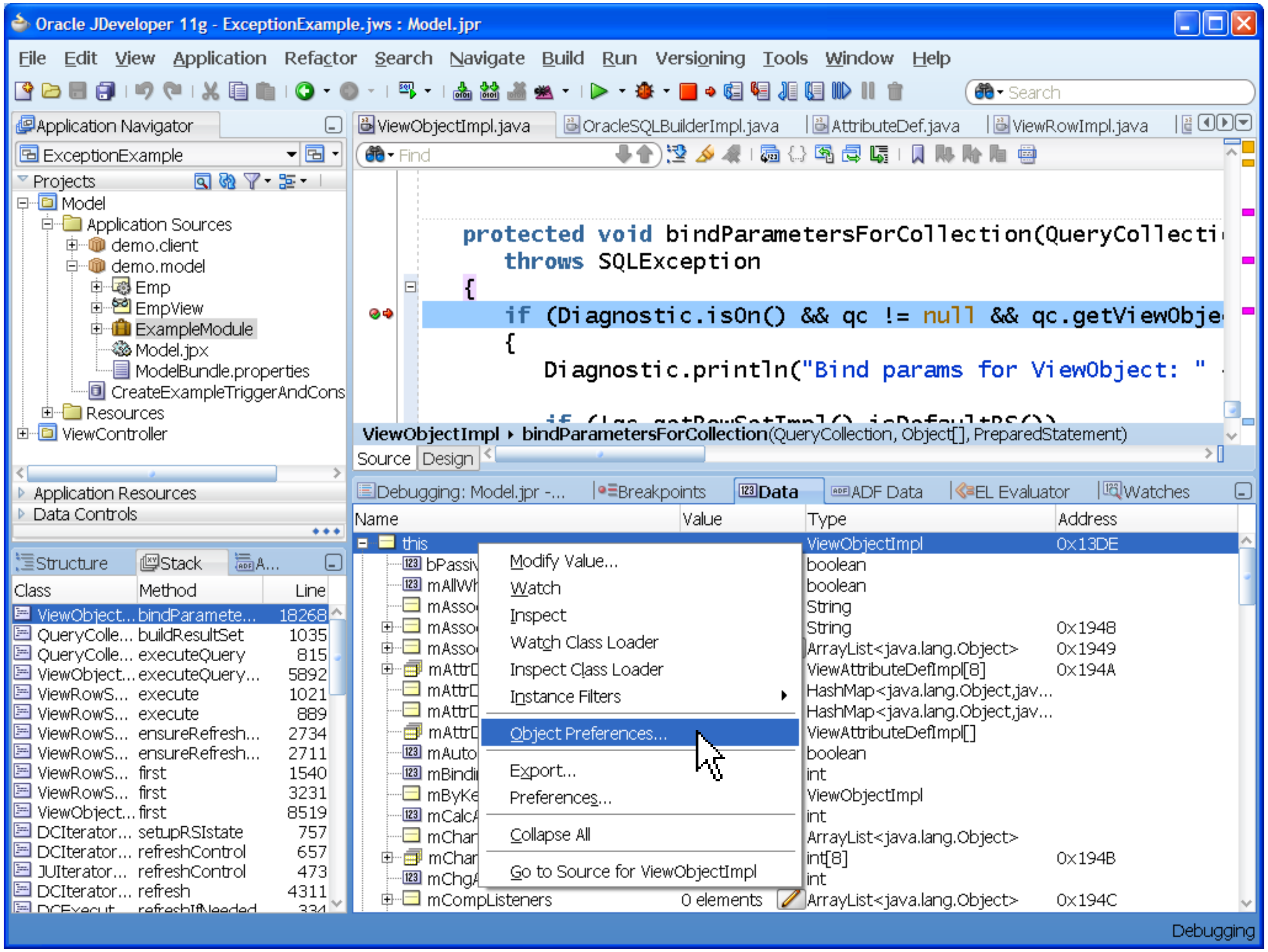
```
C:\jdk\1.6.0_16\bin\javaw.exe -client -classpath ;D:\jdev\r1.5407\jdeveloper\BC4J\jlib\bc4jtester.jar;D:\jdev\r1.5407\jdevel
Oct 6, 2009 5:23:39 PM oracle.adf.share.config.ADFConfigFactory getInstance
INFO: ADF Config instance implementation in use is : oracle.adf.share.config.MDSConfigFactory
Oct 6, 2009 5:23:42 PM oracle.adf.share.jndi.MDSBackingStore isReadOnlyMDSStore
INFO: Read only backing store
Oct 6, 2009 5:23:44 PM oracle.adf.share.jndi.MDSBackingStore isReadOnlyMDSStore
INFO: Read only backing store
Diagnostics: (Properties (re)loaded) Routing diagnostics to standard output (use -Djbo.debugoutput=silent to remove)
Oct 6, 2009 5:23:46 PM oracle.jbo.jbotester.MainFrame main
INFO: BC4J Tester started.
----[Exec query for VO=DeptView1, RS=<Default>]----
VODef =demo.DeptView
Applied Database VCs = (DeptViewCriteria)
SELECT Dept.DEPTNO,         Dept.DNAME,         Dept.LOC FROM DEPT Dept WHERE ( ( (UPPER(Dept.DNAME) LIKE UPPER('%' || :VarD
BindVars:(VarDname=null)
----[VO DeptView1 fetched oracle.jbo.Key[10 ]]
----[Exec query for VO=DeptView1, RS=<Default>]----
VODef =demo.DeptView
Applied Database VCs = (DeptViewCriteria)
SELECT Dept.DEPTNO,         Dept.DNAME,         Dept.LOC FROM DEPT Dept WHERE ( ( (UPPER(Dept.DNAME) LIKE UPPER('%' || :VarD
BindVars:(VarDname=%O%)
----[VO DeptView1 fetched oracle.jbo.Key[10 ]]
----[VO DeptView1 fetched oracle.jbo.Key[40 ]]
```

TIP

Customize Debugger Display of Any Object Type

Customize Debugger Display of Any Object Type

► Select *Object Preferences* for a Given Entry



```
protected void bindParametersForCollection(QueryCollecti
    throws SQLException
{
    if (Diagnostic.isOn() && qc != null && qc.getViewObje
    {
        Diagnostic.println("Bind params for ViewObject: "
```

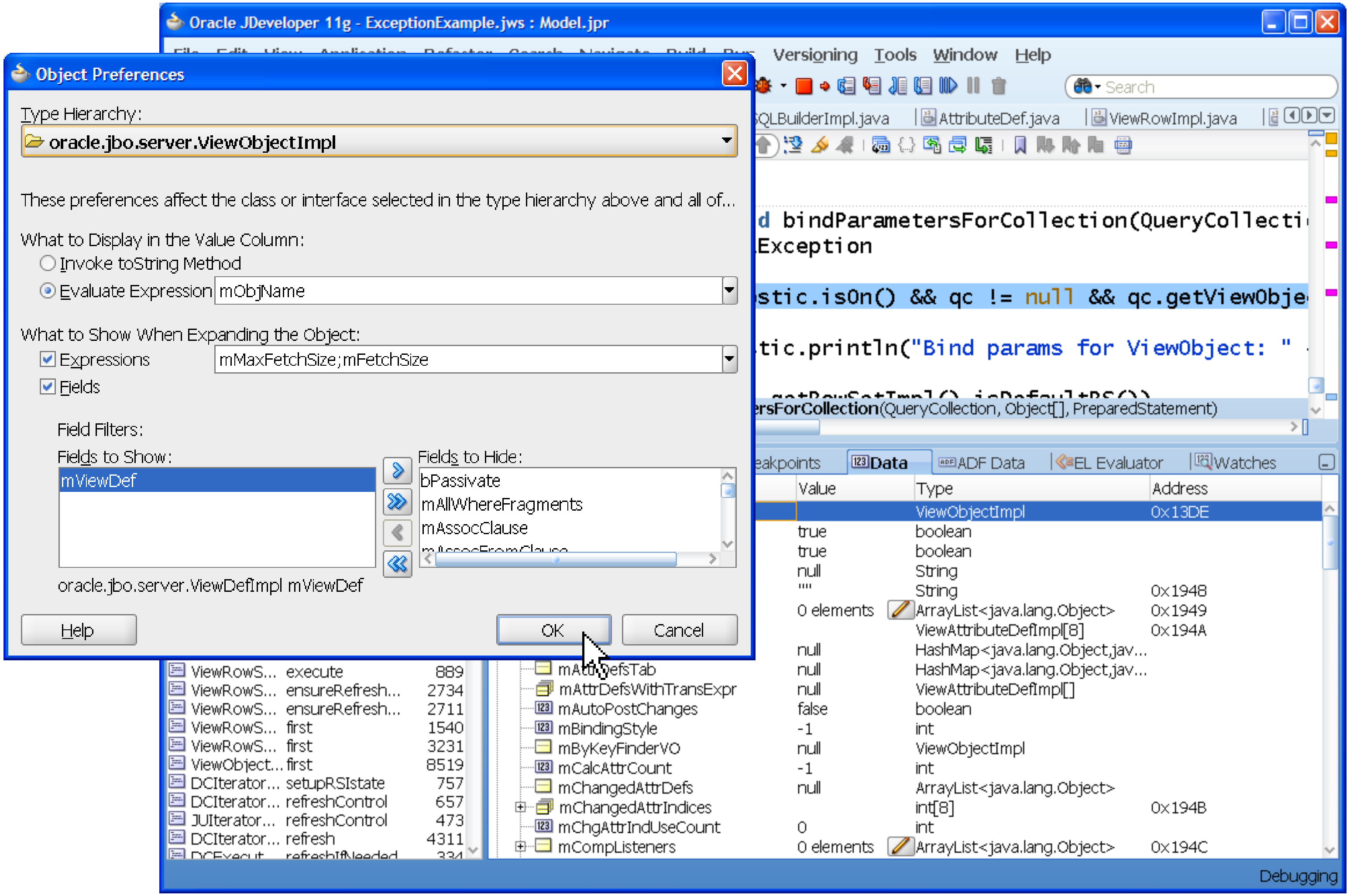
ViewObjectImpl ▸ bindParametersForCollection(QueryCollection, Object[], PreparedStatement)

Class	Method	Line
ViewObject...	bindParamete...	18268
QueryColle...	buildResultSet	1035
QueryColle...	executeQuery	815
ViewObject...	executeQuery...	5892
ViewRowS...	execute	1021
ViewRowS...	execute	889
ViewRowS...	ensureRefresh...	2734
ViewRowS...	ensureRefresh...	2711
ViewRowS...	first	1540
ViewRowS...	first	3231
ViewObject...	first	8519
DCIterator...	setupRSIstate	757
DCIterator...	refreshControl	657
JUIterator...	refreshControl	473
DCIterator...	refresh	4311
DCExecut...	refreshIfNeeded	334

Name	Value	Type	Address
this		ViewObjectImpl	0x13DE
bPassi		boolean	
mAllWh		boolean	
mAsso		String	
mAsso		String	0x1948
mAsso		ArrayList<java.lang.Object>	0x1949
mAttrD		ViewAttributeDefImpl[8]	0x194A
mAttrD		HashMap<java.lang.Object,jav...	
mAttrD		HashMap<java.lang.Object,jav...	
mAttrD		ViewAttributeDefImpl[]	
mAuto		boolean	
mBindi		int	
mByKe		ViewObjectImpl	
mCalcA		int	
mChar		ArrayList<java.lang.Object>	
mChar		int[8]	0x194B
mChgA		int	
mCompListeners	0 elements	ArrayList<java.lang.Object>	0x194C

Customize Debugger Display of Any Object Type

► Decide What Fields/Expressions To Show



```
d bindParametersForCollection(QueryCollecti
Exception

stic.isOn() && qc != null && qc.getViewObje

tic.println("Bind params for ViewObject: "
```

ersForCollection(QueryCollection, Object[], PreparedStatement)

Object Preferences

Type Hierarchy: oracle.jbo.server.ViewObjectImpl

These preferences affect the class or interface selected in the type hierarchy above and all of...

What to Display in the Value Column:

○ Invoke toString Method

● Evaluate Expression: mObjName

What to Show When Expanding the Object:

☑ Expressions: mMaxFetchSize;mFetchSize

☑ Fields

Field Filters:

Fields to Show:	Fields to Hide:
mViewDef	bPassivate mAllWhereFragments mAssocClause

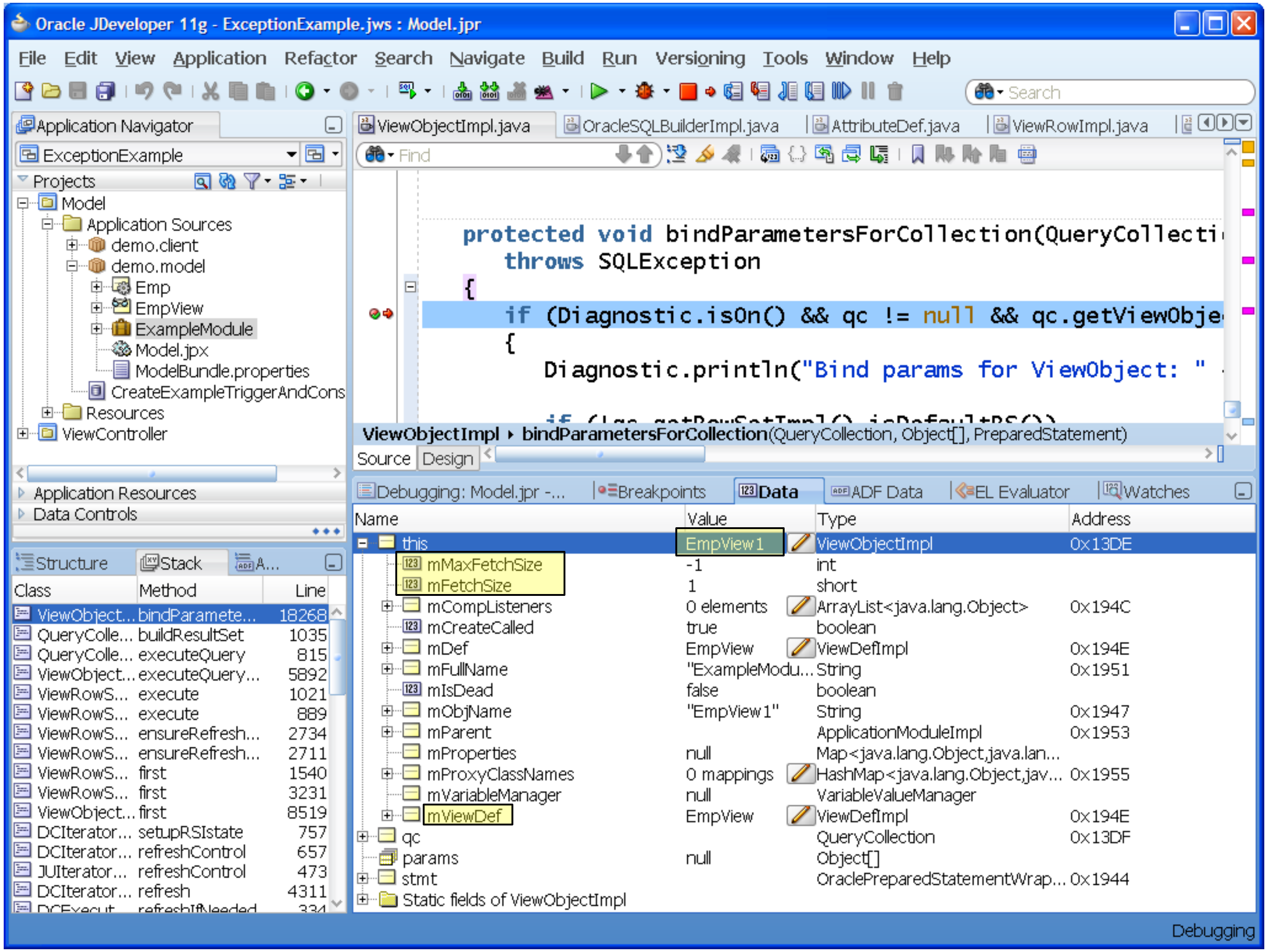
oracle.jbo.server.ViewDefImpl mViewDef

```
ViewRowS...   execute            889
ViewRowS...   ensureRefresh...  2734
ViewRowS...   ensureRefresh...  2711
ViewRowS...   first             1540
ViewRowS...   first             3231
ViewObject... first             8519
DCIterator... setupRSIstate      757
DCIterator... refreshControl     657
JUIterator... refreshControl     473
DCIterator... refresh           4311
```

```
                          Value        Type                           Address
                                       ViewObjectImpl                 0x13DE
                          true         boolean
                          true         boolean
                          null         String
                          ""           String                         0x1948
                          0 elements   ArrayList<java.lang.Object>    0x1949
                                       ViewAttributeDefImpl[8]        0x194A
                          null         HashMap<java.lang.Object,jav...
mAttrDefsTab              null         HashMap<java.lang.Object,jav...
mAttrDefsWithTransExpr    null         ViewAttributeDefImpl[]
mAutoPostChanges          false        boolean
mBindingStyle             -1           int
mByKeyFinderVO            null         ViewObjectImpl
mCalcAttrCount            -1           int
mChangedAttrDefs          null         ArrayList<java.lang.Object>
mChangedAttrIndices                    int[8]                         0x194B
mChgAttrIndUseCount       0            int
mCompListeners            0 elements   ArrayList<java.lang.Object>    0x194C
```

Customize Debugger Display of Any Object Type

► Four Changes Are Showing, But Others, Too



```
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{
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ViewObjectImpl ▸ bindParametersForCollection(QueryCollection, Object[], PreparedStatement)

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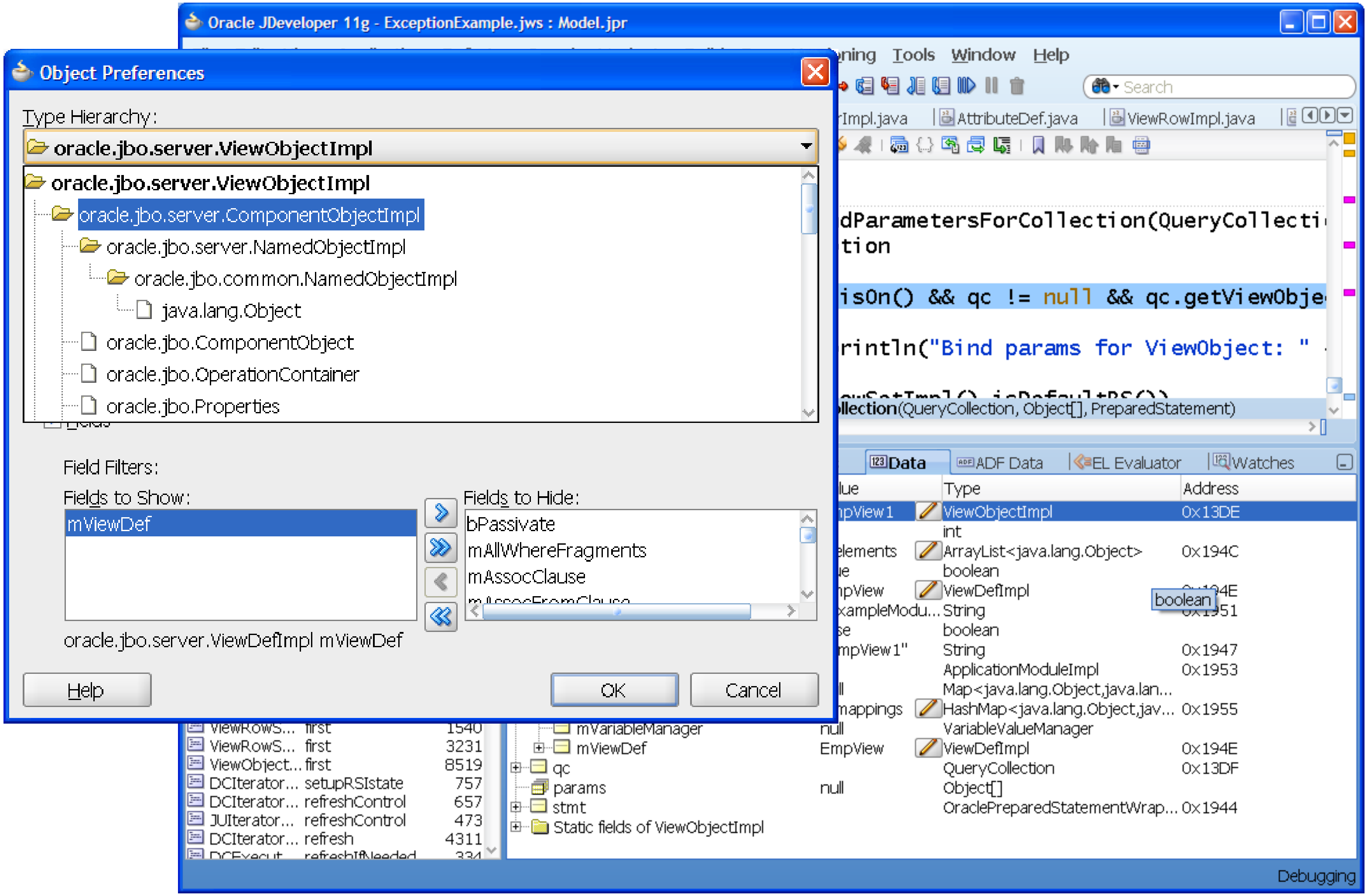
DCIterator...	setupRSIstate	757
DCIterator...	refreshControl	657
JUIterator...	refreshControl	473
DCIterator...	refresh	4311
DCExecut...	refreshIfNeeded	334

Name	Value	Type	Address
this	EmpView1	ViewObjectImpl	0x13DE
mMaxFetchSize	-1	int	
mFetchSize	1	short	
mCompListeners	0 elements	ArrayList<java.lang.Object>	0x194C
mCreateCalled	true	boolean	
mDef	EmpView	ViewDefImpl	0x194E
mFullName	"ExampleModu...	String	0x1951
mIsDead	false	boolean	
mObjName	"EmpView1"	String	0x1947
mParent		ApplicationModuleImpl	0x1953
mProperties	null	Map<java.lang.Object,java.lan...	
mProxyClassNames	0 mappings	HashMap<java.lang.Object,jav...	0x1955
mVariableManager	null	VariableValueManager	
mViewDef	EmpView	ViewDefImpl	0x194E
qc		QueryCollection	0x13DF
params	null	Object[]	
stmt		OraclePreparedStatementWrap...	0x1944
Static fields of ViewObjectImpl			

Customize Debugger Display of Any Object Type ► Customize Supertype Members, Too, If Needed



Type Hierarchy: oracle.jbo.server.ViewObjectImpl

- oracle.jbo.server.ViewObjectImpl
  - oracle.jbo.server.ComponentObjectImpl
    - oracle.jbo.server.NamedObjectImpl
      - oracle.jbo.common.NamedObjectImpl
        - java.lang.Object
  - oracle.jbo.ComponentObject
  - oracle.jbo.OperationContainer
  - oracle.jbo.Properties

Field Filters:

Fields to Show:

- mViewDef

Fields to Hide:

- bPassivate
- mAllWhereFragments
- mAssocClause
- mAssocFromClause

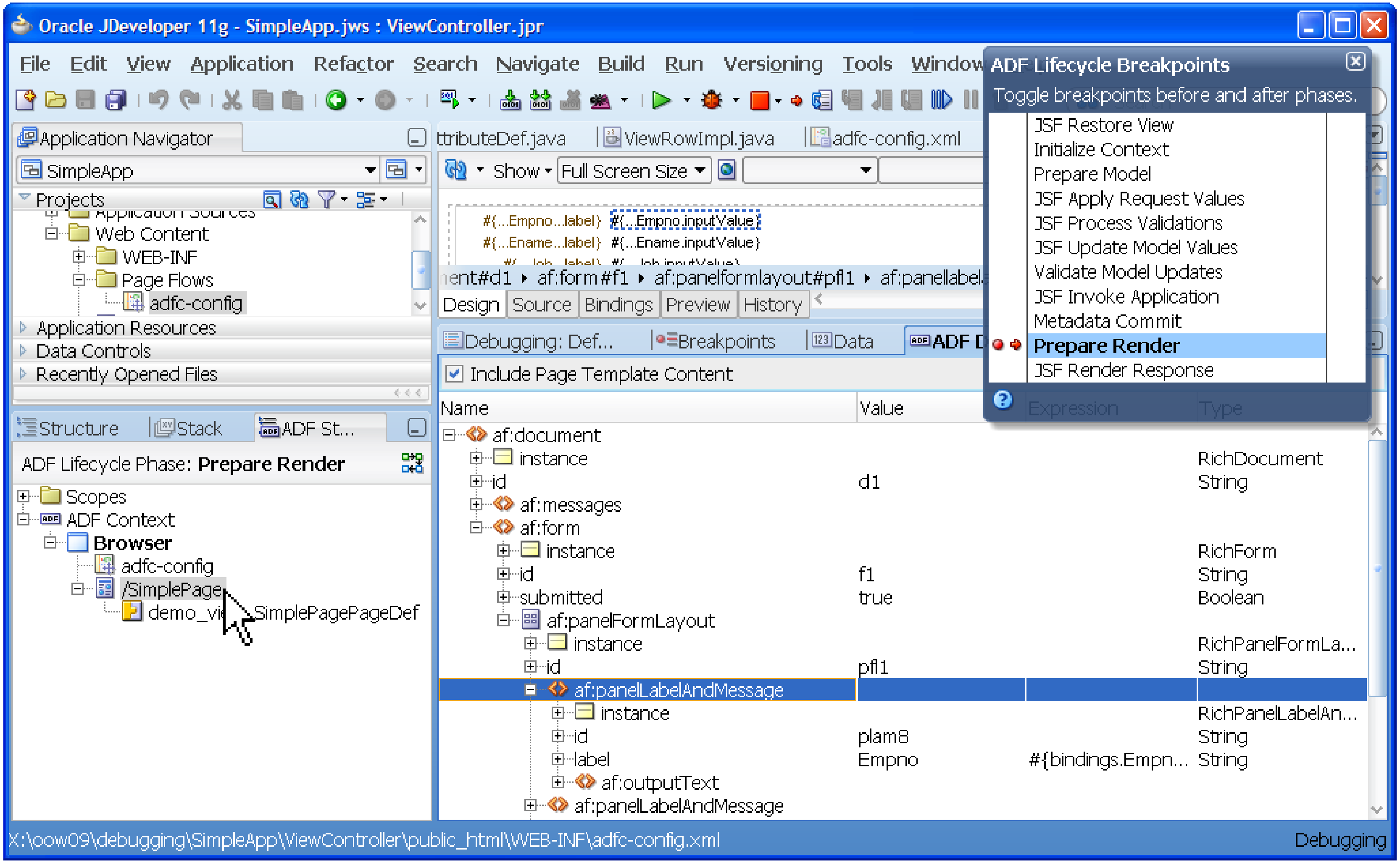
oracle.jbo.server.ViewDefImpl mViewDef

```
dParametersForCollection(QueryCollecti
tion
isOn() && qc != null && qc.getViewObje
rintln("Bind params for ViewObject: "
llection(QueryCollection, Object[], PreparedStatement)
```

```
lue              Type                                Address
npView1          ViewObjectImpl                      0x13DE
                 int
elements         ArrayList<java.lang.Object>         0x194C
le               boolean
npView           ViewDefImpl                         0x194E
xampleModu...    String                              0x1951
se               boolean
mpView1"         String                              0x1947
                 ApplicationModuleImpl               0x1953
ll               Map<java.lang.Object,java.lan...
nappings         HashMap<java.lang.Object,jav...     0x1955
   mVariableManager   null    VariableValueManager
   mViewDef           EmpView ViewDefImpl            0x194E
qc                           QueryCollection         0x13DF
params               null    Object[]
stmt                         OraclePreparedStatementWrap... 0x1944
Static fields of ViewObjectImpl
```

```
ViewRowS...   first          1540
ViewRowS...   first          3231
ViewObject... first          8519
DCIterator... setupRSIstate   757
DCIterator... refreshControl  657
JUIterator... refreshControl  473
DCIterator... refresh        4311
DCExecut...   refreshIfNeeded 334
```

Other Interesting Info in ADF Structure / ADF Data Lifecycle Breakpoints and Page UI Component Tree



ADF Lifecycle Breakpoints

Toggle breakpoints before and after phases.

- JSF Restore View
- Initialize Context
- Prepare Model
- JSF Apply Request Values
- JSF Process Validations
- JSF Update Model Values
- Validate Model Updates
- JSF Invoke Application
- Metadata Commit
- ● **Prepare Render**
- JSF Render Response

ADF Lifecycle Phase: **Prepare Render**

- Scopes
- ADF Context
  - **Browser**
    - adfc-config
    - /SimplePage
      - demo_vi SimplePagePageDef

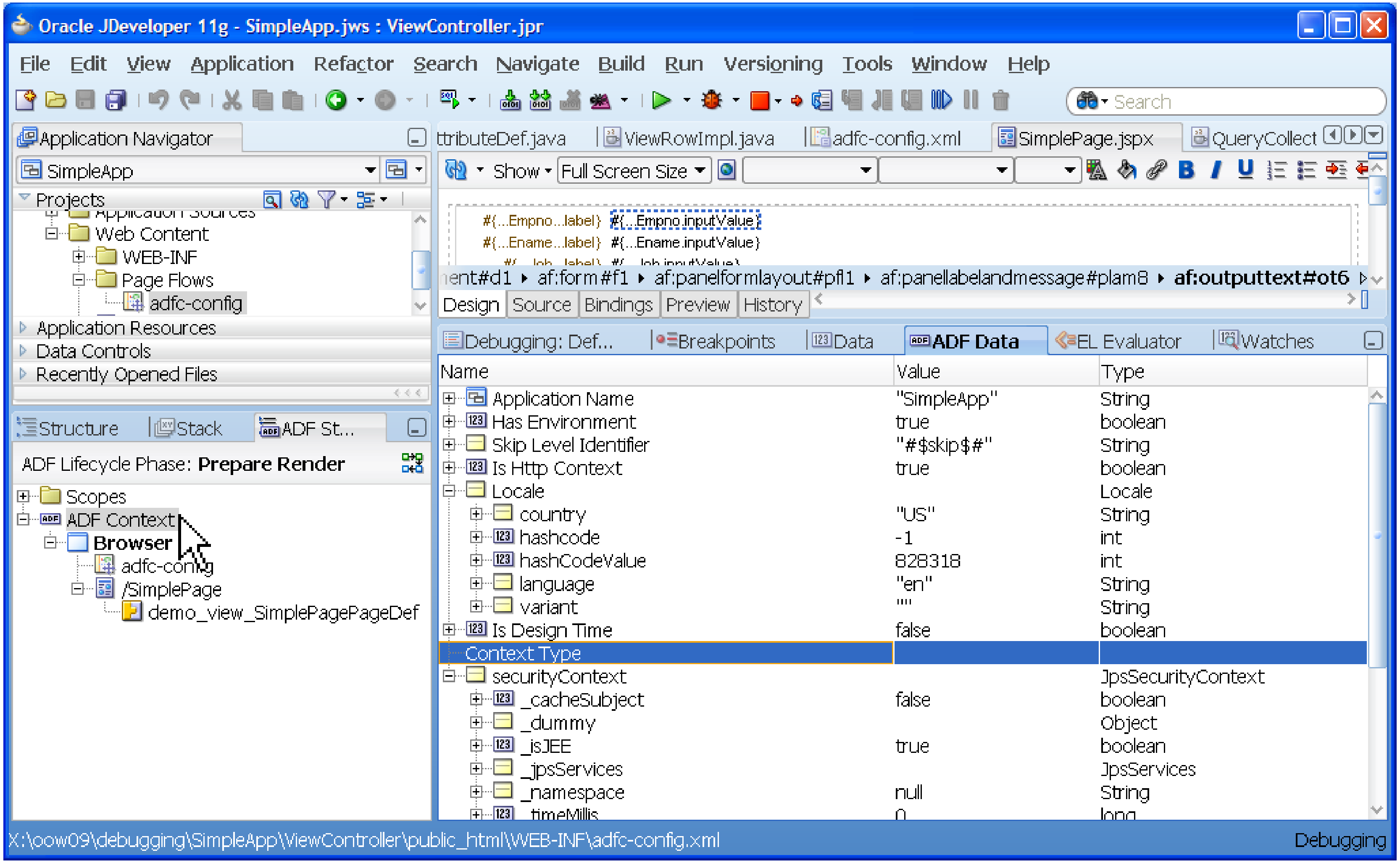
☑ Include Page Template Content

Name	Value		Type
af:document			
instance			RichDocument
id	d1		String
af:messages			
af:form			
instance			RichForm
id	f1		String
submitted	true		Boolean
af:panelFormLayout			
instance			RichPanelFormLa...
id	pfl1		String
af:panelLabelAndMessage			
instance			RichPanelLabelAn...
id	plam8		String
label	Empno	#{bindings.Empn...	String
af:outputText			
af:panelLabelAndMessage			

X:\oow09\debugging\SimpleApp\ViewController\public_html\WEB-INF\adfc-config.xml

Debugging

Other Interesting Info in ADF Structure / ADF Data
ADF Context



ADF Lifecycle Phase: **Prepare Render**

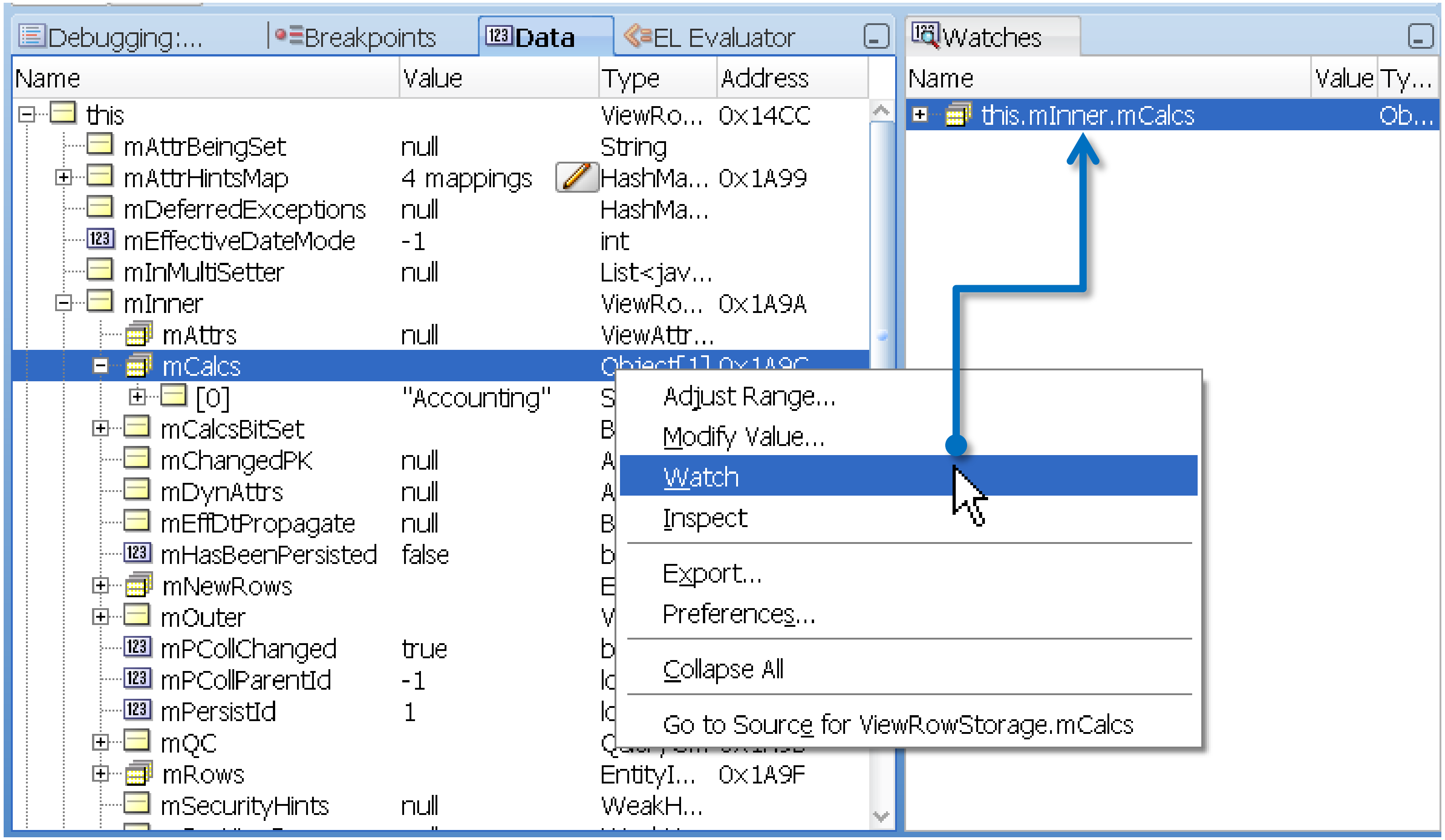
Name	Value	Type
Application Name	"SimpleApp"	String
Has Environment	true	boolean
Skip Level Identifier	"#$skip$#"	String
Is Http Context	true	boolean
Locale		Locale
country	"US"	String
hashcode	-1	int
hashCodeValue	828318	int
language	"en"	String
variant	""	String
Is Design Time	false	boolean
Context Type		
securityContext		JpsSecurityContext
_cacheSubject	false	boolean
_dummy		Object
_isJEE	true	boolean
_jpsServices		JpsServices
_namespace	null	String
_timeMillis	0	long

X:\oow09\debugging\SimpleApp\ViewController\public_html\WEB-INF\adfc-config.xml

TIP

Watches Can Evaluate Most Java Expressions

Not Sure What Watch Expression to Use? Find Member in Data Window, Then Watch It

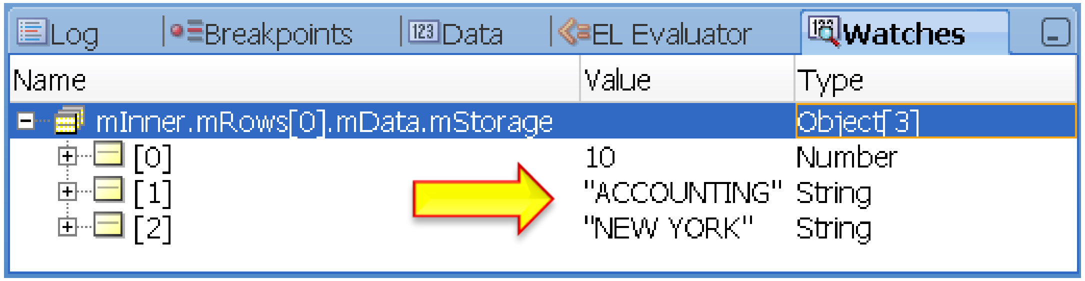


Name	Value	Type	Address
this		ViewRo...	0x14CC
mAttrBeingSet	null	String	
mAttrHintsMap	4 mappings	HashMa...	0x1A99
mDeferredExceptions	null	HashMa...	
mEffectiveDateMode	-1	int	
mInMultiSetter	null	List<jav...	
mInner		ViewRo...	0x1A9A
mAttrs	null	ViewAttr...	
mCalcs		Object[1]	0x1A9C
[0]	"Accounting"	S	
mCalcsBitSet		B	
mChangedPK	null	A	
mDynAttrs	null	A	
mEffDtPropagate	null	B	
mHasBeenPersisted	false	b	
mNewRows		E	
mOuter		V	
mPCollChanged	true	b	
mPCollParentId	-1	lo	
mPersistId	1	lo	
mQC		Q	
mRows		EntityI...	0x1A9F
mSecurityHints	null	WeakH...	

Name	Value	Ty...
this.mInner.mCalcs		Ob...

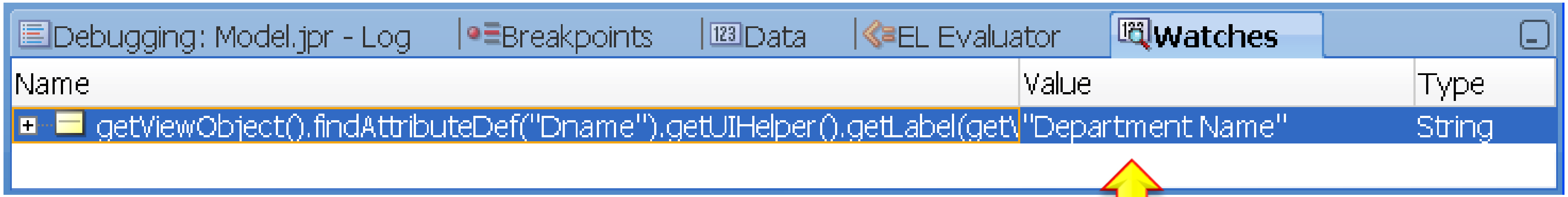
Debugger Watch Expressions Can Do Many Things For Example, At a Breakpoint in ViewRowImpl…

- Navigate Members Regardless of Access Mode
  - `mInner.mRows[0].mData.mStorage`



Name	Value	Type
mInner.mRows[0].mData.mStorage		Object[3]
[0]	10	Number
[1]	"ACCOUNTING"	String
[2]	"NEW YORK"	String

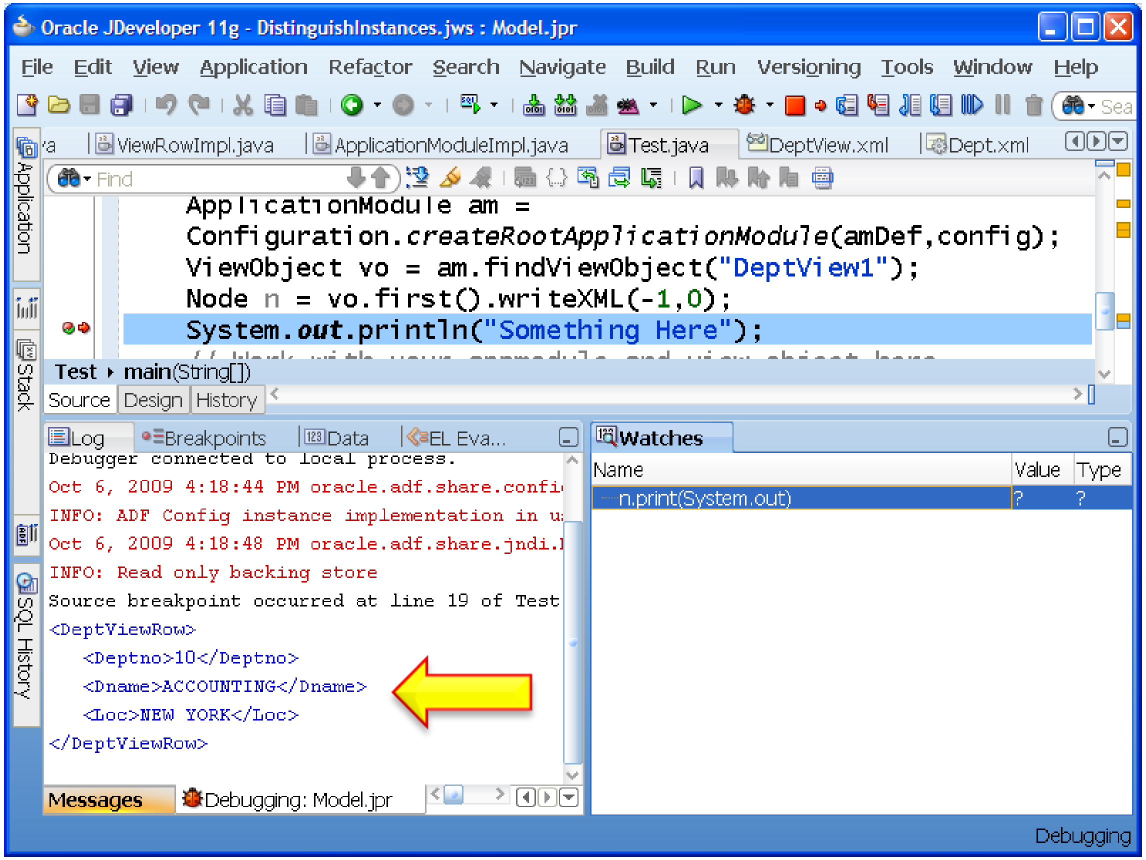
- Call Functions
  - `getViewObject().findAttributeDef("Dname") .getUIHelper().getLabel(getViewObject() .getApplicationModule().getSession() .getLocaleContext())`



Name	Value	Type
getViewObject().findAttributeDef("Dname").getUIHelper().getLabel(getV	"Department Name"	String

Debugger Watch Expression Tricks (Cont'd)

- Call Methods That Produce Log Output
  - *xmlNode*`.print(System.out)`



Oracle JDeveloper 11g - DistinguishInstances.jws : Model.jpr
File Edit View Application Refactor Search Navigate Build Run Versioning Tools Window Help
ViewRowImpl.java
ApplicationModuleImpl.java
Test.java
DeptView.xml
Dept.xml
Find
Application
Stack
SQL History
Test ▸ main(String[])
Source Design History
Log Breakpoints Data EL Eva...
Watches
Messages
Debugging: Model.jpr
Debugging

```
    ApplicationModule am =
    Configuration.createRootApplicationModule(amDef,config);
    ViewObject vo = am.findViewObject("DeptView1");
    Node n = vo.first().writeXML(-1,0);
    System.out.println("Something Here");
    // Work with your appmodule and view object here
```

```
Debugger connected to local process.
Oct 6, 2009 4:18:44 PM oracle.adf.share.confi
INFO: ADF Config instance implementation in u
Oct 6, 2009 4:18:48 PM oracle.adf.share.jndi.I
INFO: Read only backing store
Source breakpoint occurred at line 19 of Test
<DeptViewRow>
   <Deptno>10</Deptno>
   <Dname>ACCOUNTING</Dname>
   <Loc>NEW YORK</Loc>
</DeptViewRow>
```

Name	Value	Type
n.print(System.out)	?	?

TIP

Breakpoint Expressions Can Reference Watch Expressions

Breakpoint Conditional Expressions

- Basic Expressions
  - Any Expression that Works in a Watch
  - Boolean operators `!` (not), `||` (logical or), && (logical and)
  - Gotcha: Remember to Think About null Values
    - `Expr != null && Expr.equals("Foo")`
    - `"Foo".equals(Expr)`
- Advanced Expressions
  - `_throw` to reference exception object being thrown
  - `instanceof` *`fully.qualified.ClassName`*
  - *`StringExpr`*` != null && `*`StringExpr`*`.indexof("Something") >= 0`
  - *`StringExpr`*` != null && `*`StringExpr`*`.startsWith("Something")`
  - *`Expr`*` ? `*`IfTrueExpr`*` : `*`IfFalseExpr`*

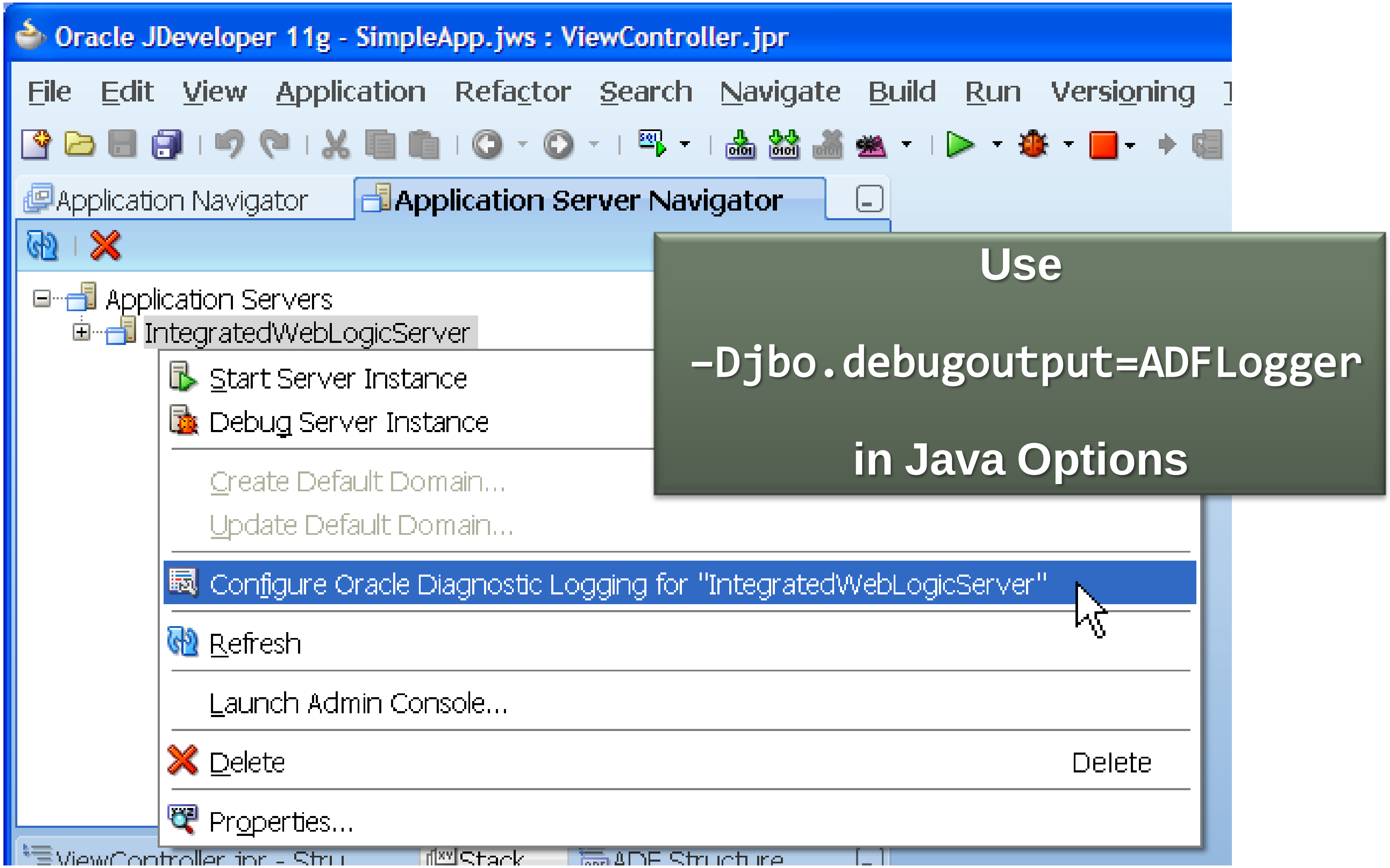
When Debugging Does Not Succeed…
Create a Great Test Case for Worldwide Support

- Small investment of your time pays dividends
  - Simple testcase → faster diagnosis, workaround, fix
- Base the testcase on EMP or HR schema
  - Eliminates any database setup complications
- Otherwise, provide minimal SQL script
  - Insert only enough sample data to reproduce problem
- Create a command-line test client
  - Reduces reproduce instructions to: "Run Test.java"
- Otherwise, give the minimum steps to reproduce
  - Some issues only occur in context of multi-step, web scenario

OTHER ADF DEBUG FEATURES

IN JDEVELOPER 11.1.1.3 RELEASE

ADF Logger
► Configure Loggers Dynamically

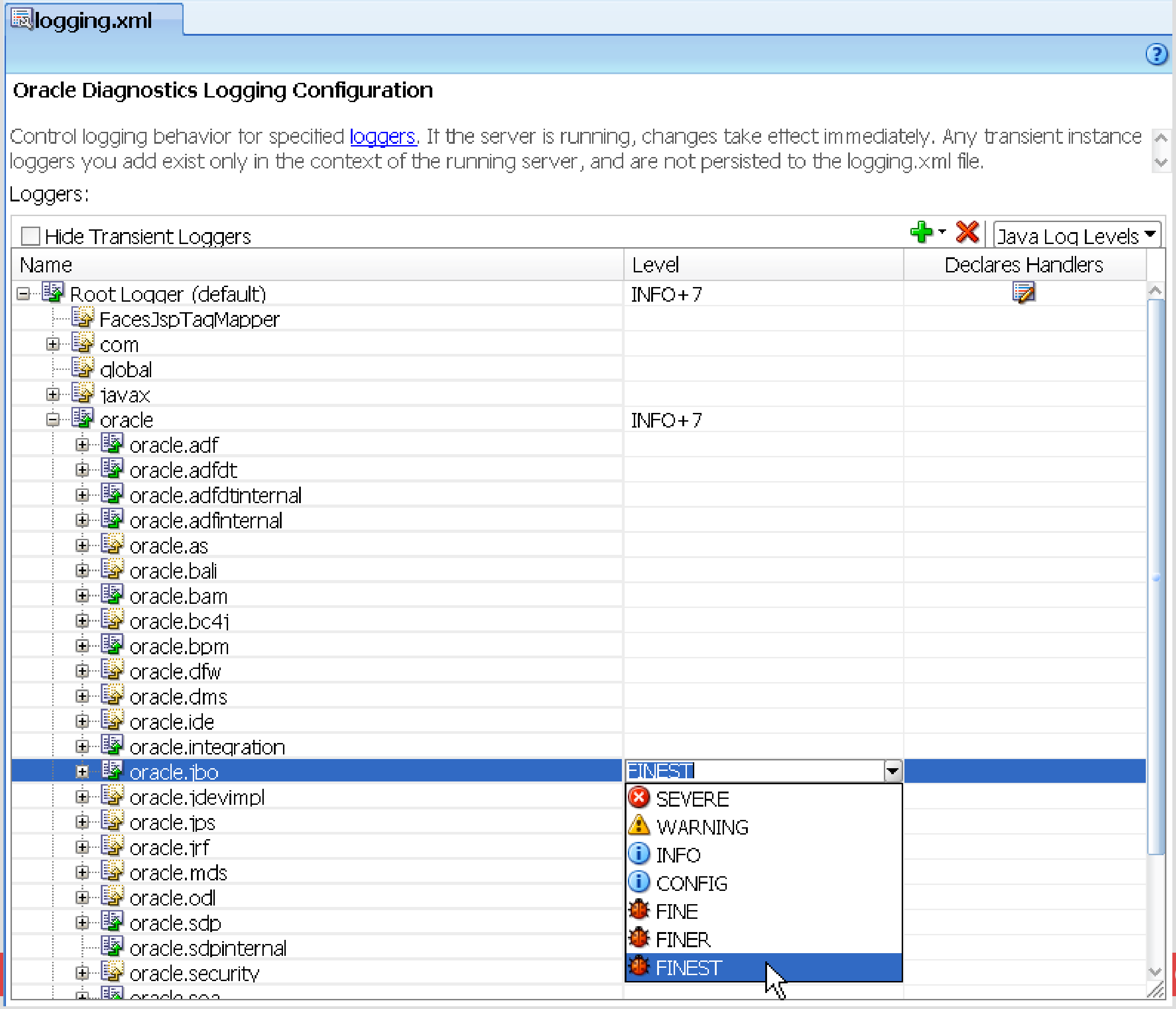


Use

-Djbo.debugoutput=ADFLogger

in Java Options

ADF Logger Improvements
► Configure Logger Levels Dynamically



logging.xml

Oracle Diagnostics Logging Configuration

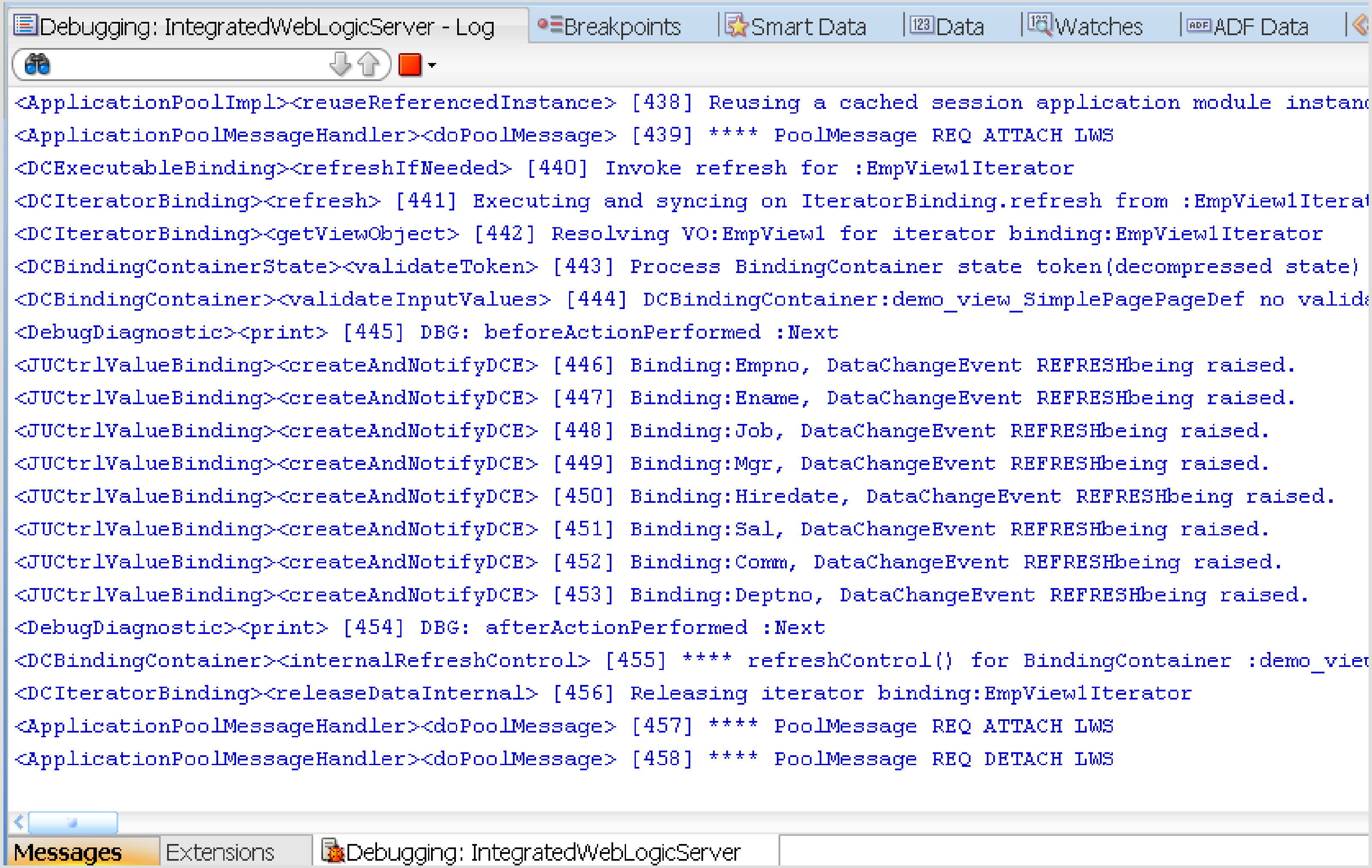
Control logging behavior for specified loggers. If the server is running, changes take effect immediately. Any transient instance loggers you add exist only in the context of the running server, and are not persisted to the logging.xml file.

Loggers:

□ Hide Transient Loggers — Java Log Levels

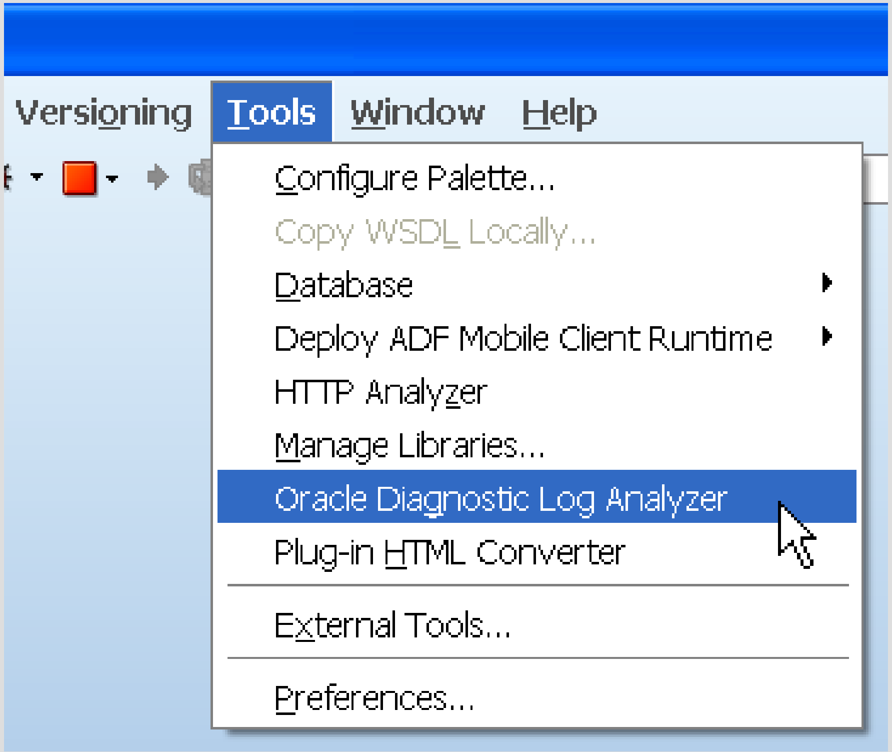
Name	Level	Declares Handlers
Root Logger (default)	INFO+7	
FacesJspTagMapper		
com		
global		
javax		
oracle	INFO+7	
oracle.adf		
oracle.adfdt		
oracle.adfdtinternal		
oracle.adfinternal		
oracle.as		
oracle.bali		
oracle.bam		
oracle.bc4j		
oracle.bpm		
oracle.dfw		
oracle.dms		
oracle.ide		
oracle.integration		
oracle.jbo	FINEST	
oracle.jdevimpl		
oracle.jps		
oracle.jrf		
oracle.mds		
oracle.odl		
oracle.sdp		
oracle.sdpinternal		
oracle.security		
oracle.soa		

ADF Logger Improvements
► See Class/Method With Every Log Message

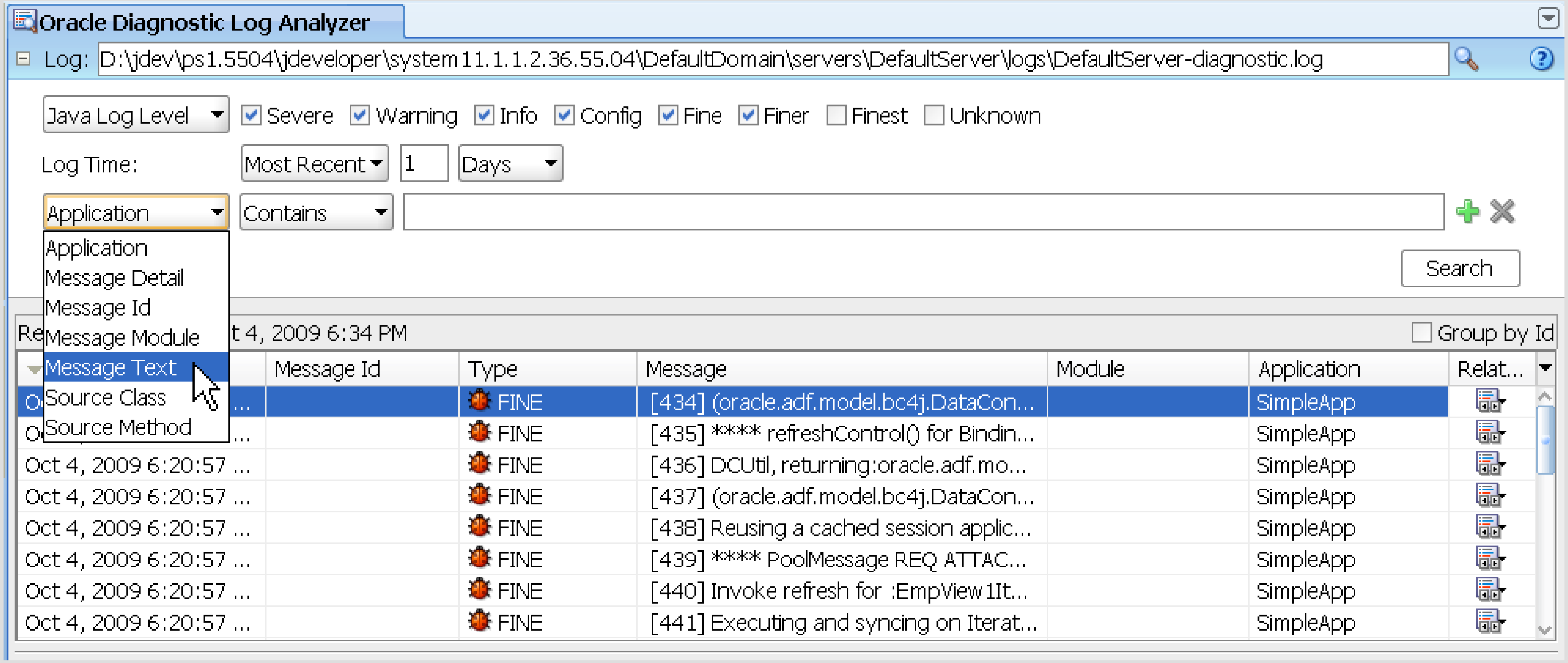

Debugging: IntegratedWebLogicServer - Log
Breakpoints
Smart Data
Data
Watches
ADF Data
Messages
Extensions
Debugging: IntegratedWebLogicServer

```
<ApplicationPoolImpl><reuseReferencedInstance> [438] Reusing a cached session application module instanc
<ApplicationPoolMessageHandler><doPoolMessage> [439] **** PoolMessage REQ ATTACH LWS
<DCExecutableBinding><refreshIfNeeded> [440] Invoke refresh for :EmpView1Iterator
<DCIteratorBinding><refresh> [441] Executing and syncing on IteratorBinding.refresh from :EmpView1Iterat
<DCIteratorBinding><getViewObject> [442] Resolving VO:EmpView1 for iterator binding:EmpView1Iterator
<DCBindingContainerState><validateToken> [443] Process BindingContainer state token(decompressed state)
<DCBindingContainer><validateInputValues> [444] DCBindingContainer:demo_view_SimplePagePageDef no valida
<DebugDiagnostic><print> [445] DBG: beforeActionPerformed :Next
<JUCtrlValueBinding><createAndNotifyDCE> [446] Binding:Empno, DataChangeEvent REFRESHbeing raised.
<JUCtrlValueBinding><createAndNotifyDCE> [447] Binding:Ename, DataChangeEvent REFRESHbeing raised.
<JUCtrlValueBinding><createAndNotifyDCE> [448] Binding:Job, DataChangeEvent REFRESHbeing raised.
<JUCtrlValueBinding><createAndNotifyDCE> [449] Binding:Mgr, DataChangeEvent REFRESHbeing raised.
<JUCtrlValueBinding><createAndNotifyDCE> [450] Binding:Hiredate, DataChangeEvent REFRESHbeing raised.
<JUCtrlValueBinding><createAndNotifyDCE> [451] Binding:Sal, DataChangeEvent REFRESHbeing raised.
<JUCtrlValueBinding><createAndNotifyDCE> [452] Binding:Comm, DataChangeEvent REFRESHbeing raised.
<JUCtrlValueBinding><createAndNotifyDCE> [453] Binding:Deptno, DataChangeEvent REFRESHbeing raised.
<DebugDiagnostic><print> [454] DBG: afterActionPerformed :Next
<DCBindingContainer><internalRefreshControl> [455] **** refreshControl() for BindingContainer :demo_view
<DCIteratorBinding><releaseDataInternal> [456] Releasing iterator binding:EmpView1Iterator
<ApplicationPoolMessageHandler><doPoolMessage> [457] **** PoolMessage REQ ATTACH LWS
<ApplicationPoolMessageHandler><doPoolMessage> [458] **** PoolMessage REQ DETACH LWS
```

ADF Logger Improvements
► Flexibly Search Log Files



ADF Logger Improvements
► Flexibly Search Log Files



Oracle Diagnostic Log Analyzer

Log: D:\jdev\ps1.5504\jdeveloper\system11.1.1.2.36.55.04\DefaultDomain\servers\DefaultServer\logs\DefaultServer-diagnostic.log

Java Log Level ☑ Severe ☑ Warning ☑ Info ☑ Config ☑ Fine ☑ Finer □ Finest □ Unknown

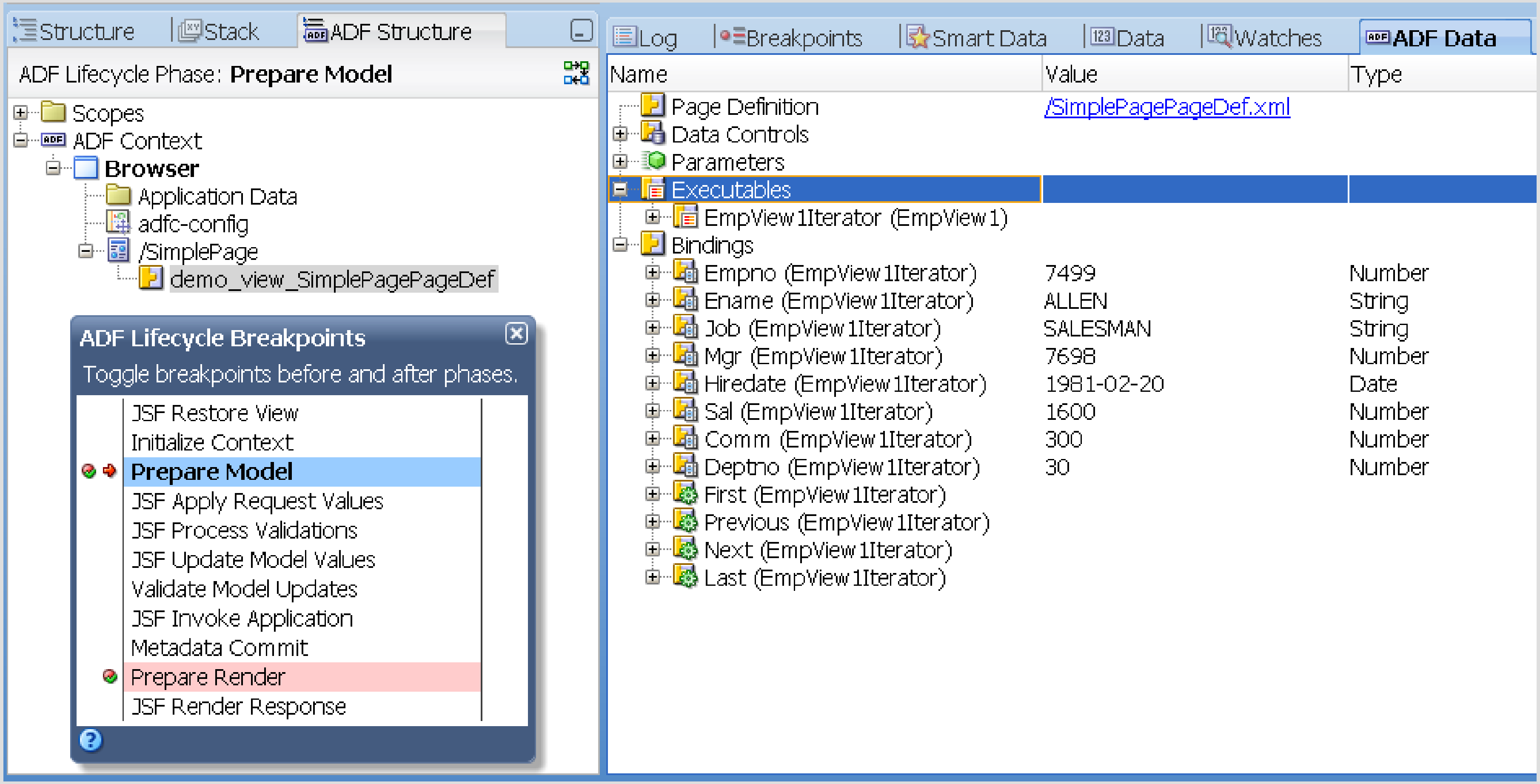
Log Time: Most Recent 1 Days

Application Contains

Re t 4, 2009 6:34 PM □ Group by Id

	Message Id	Type	Message	Module	Application	Relat...
O ...		FINE	[434] (oracle.adf.model.bc4j.DataCon...		SimpleApp	
O ...		FINE	[435] **** refreshControl() for Bindin...		SimpleApp	
Oct 4, 2009 6:20:57 ...		FINE	[436] DCUtil, returning:oracle.adf.mo...		SimpleApp	
Oct 4, 2009 6:20:57 ...		FINE	[437] (oracle.adf.model.bc4j.DataCon...		SimpleApp	
Oct 4, 2009 6:20:57 ...		FINE	[438] Reusing a cached session applic...		SimpleApp	
Oct 4, 2009 6:20:57 ...		FINE	[439] **** PoolMessage REQ ATTAC...		SimpleApp	
Oct 4, 2009 6:20:57 ...		FINE	[440] Invoke refresh for :EmpView1It...		SimpleApp	
Oct 4, 2009 6:20:57 ...		FINE	[441] Executing and syncing on Iterat...		SimpleApp	

ADF Debugger Improvements
► Easily See Binding Values



ADF Lifecycle Phase: **Prepare Model**

- Scopes
- ADF Context
  - **Browser**
    - Application Data
    - adfc-config
    - /SimplePage
      - demo_view_SimplePagePageDef

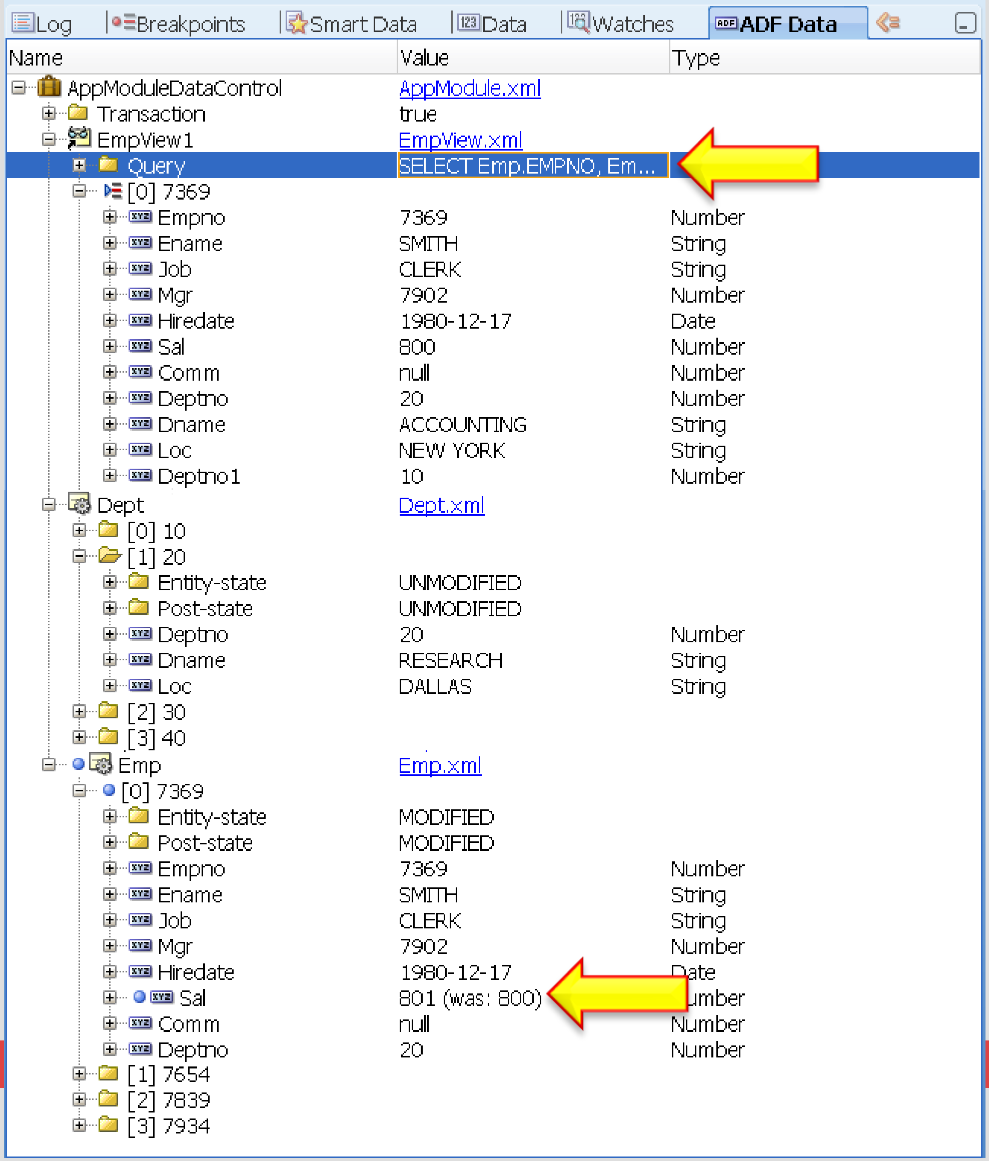
ADF Lifecycle Breakpoints

Toggle breakpoints before and after phases.

- JSF Restore View
- Initialize Context
- **Prepare Model**
- JSF Apply Request Values
- JSF Process Validations
- JSF Update Model Values
- Validate Model Updates
- JSF Invoke Application
- Metadata Commit
- Prepare Render
- JSF Render Response

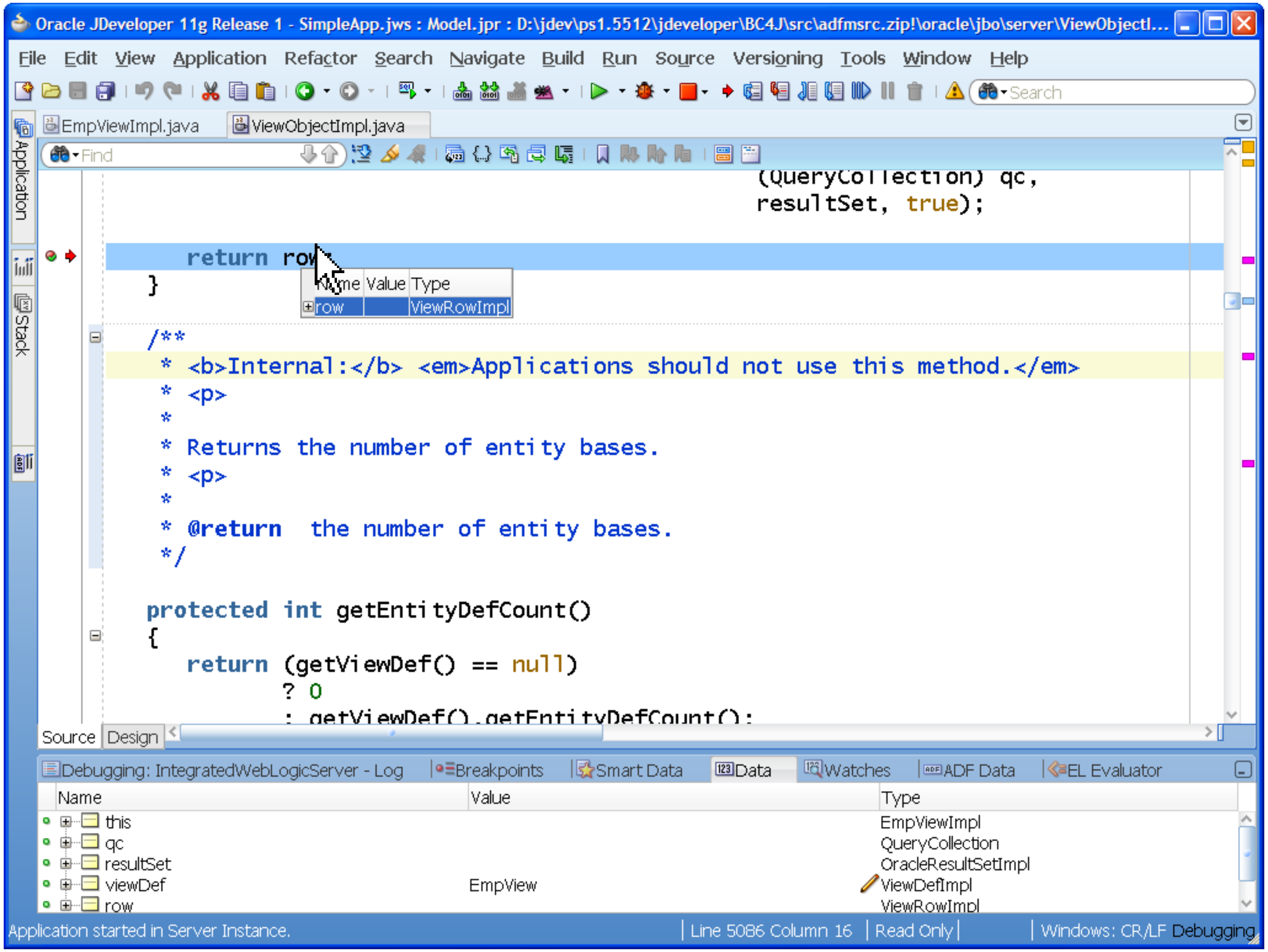
Name	Value	Type
Page Definition	/SimplePagePageDef.xml	
Data Controls		
Parameters		
Executables		
EmpView1Iterator (EmpView1)		
Bindings		
Empno (EmpView1Iterator)	7499	Number
Ename (EmpView1Iterator)	ALLEN	String
Job (EmpView1Iterator)	SALESMAN	String
Mgr (EmpView1Iterator)	7698	Number
Hiredate (EmpView1Iterator)	1981-02-20	Date
Sal (EmpView1Iterator)	1600	Number
Comm (EmpView1Iterator)	300	Number
Deptno (EmpView1Iterator)	30	Number
First (EmpView1Iterator)		
Previous (EmpView1Iterator)		
Next (EmpView1Iterator)		
Last (EmpView1Iterator)		

ADF Debugger Improvements
► Easily Explore ViewRows and Entity Objects



Name	Value	Type
AppModuleDataControl	AppModule.xml	
Transaction	true	
EmpView1	EmpView.xml	
Query	SELECT Emp.EMPNO, Em...	
[0] 7369		
Empno	7369	Number
Ename	SMITH	String
Job	CLERK	String
Mgr	7902	Number
Hiredate	1980-12-17	Date
Sal	800	Number
Comm	null	Number
Deptno	20	Number
Dname	ACCOUNTING	String
Loc	NEW YORK	String
Deptno1	10	Number
Dept	Dept.xml	
[0] 10		
[1] 20		
Entity-state	UNMODIFIED	
Post-state	UNMODIFIED	
Deptno	20	Number
Dname	RESEARCH	String
Loc	DALLAS	String
[2] 30		
[3] 40		
Emp	Emp.xml	
[0] 7369		
Entity-state	MODIFIED	
Post-state	MODIFIED	
Empno	7369	Number
Ename	SMITH	String
Job	CLERK	String
Mgr	7902	Number
Hiredate	1980-12-17	Date
Sal	801 (was: 800)	Number
Comm	null	Number
Deptno	20	Number
[1] 7654		
[2] 7839		
[3] 7934		

ADF Debugger Improvements ► Quick Expand



Oracle JDeveloper 11g Release 1 - SimpleApp.jws : Model.jpr : D:\jdev\ps1.5512\jdeveloper\BC4J\src\adfmsrc.zip!\oracle\jbo\server\ViewObjectI...
File Edit View Application Refactor Search Navigate Build Run Source Versioning Tools Window Help
Search
EmpViewImpl.java
ViewObjectImpl.java
Find
Application
Stack
Source
Design
Debugging: IntegratedWebLogicServer - Log
Breakpoints
Smart Data
Data
Watches
ADF Data
EL Evaluator

```
                                                      (QueryCollection) qc,
                                                      resultSet, true);

      return row;
   }

   /**
    * <b>Internal:</b> <em>Applications should not use this method.</em>
    * <p>
    *
    * Returns the number of entity bases.
    * <p>
    *
    * @return  the number of entity bases.
    */

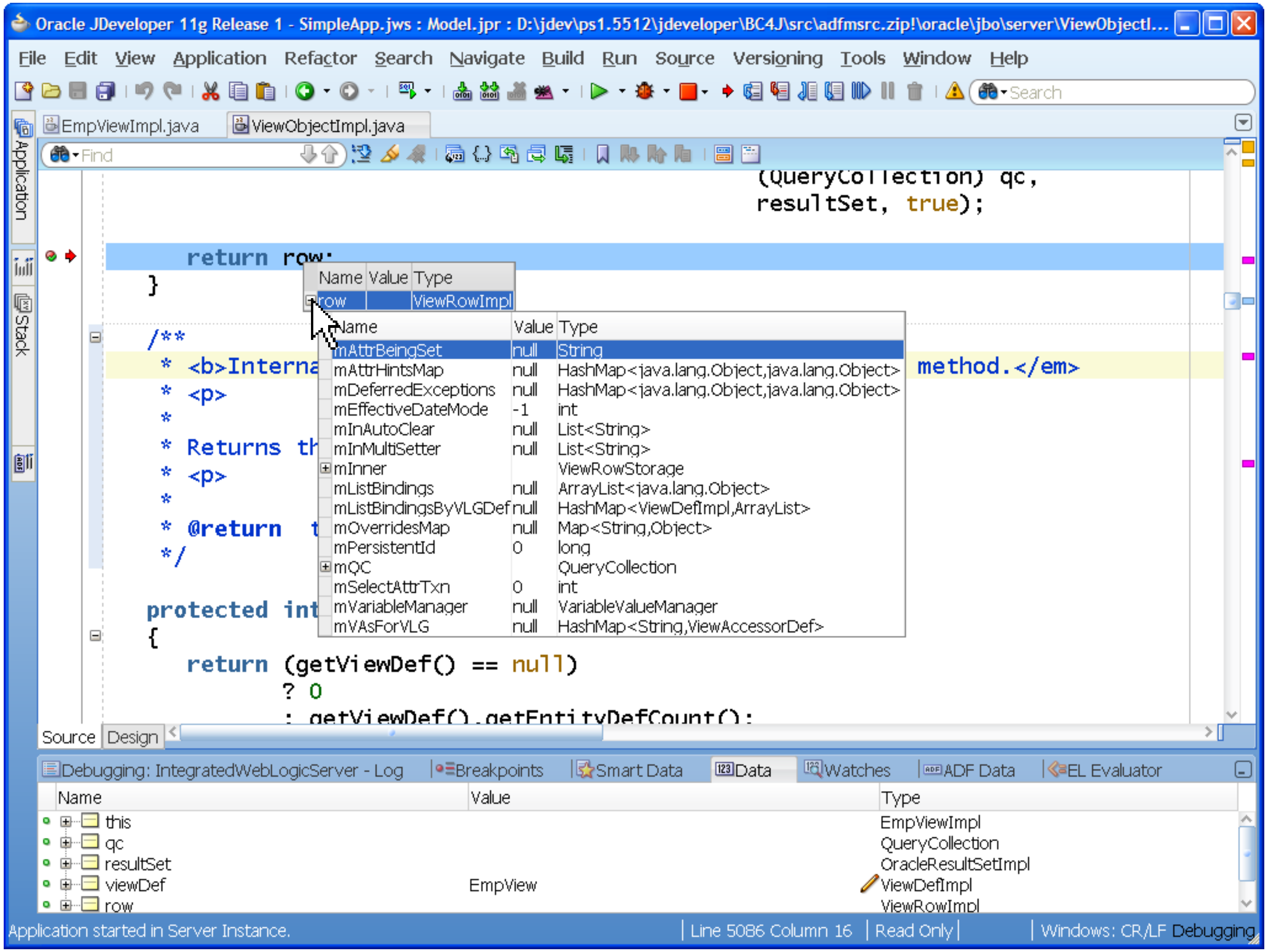
   protected int getEntityDefCount()
   {
      return (getViewDef() == null)
             ? 0
             : getViewDef().getEntityDefCount();
```

Name	Value	Type
row		ViewRowImpl

Name	Value	Type
this		EmpViewImpl
qc		QueryCollection
resultSet		OracleResultSetImpl
viewDef	EmpView	ViewDefImpl
row		ViewRowImpl

Application started in Server Instance. | Line 5086 Column 16 | Read Only | Windows: CR/LF Debugging

ADF Debugger Improvements
► Quick Expand


Oracle JDeveloper 11g Release 1 - SimpleApp.jws : Model.jpr : D:\jdev\ps1.5512\jdeveloper\BC4J\src\adfmsrc.zip!\oracle\jbo\server\ViewObjectI...
File Edit View Application Refactor Search Navigate Build Run Source Versioning Tools Window Help
Search
EmpViewImpl.java
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Application
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Design
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Data
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ADF Data
EL Evaluator

```
                                        (QueryCollection) qc,
                                        resultSet, true);

      return row;
   }

   /**
    * <b>Interna                                        method.</em>
    * <p>
    *
    * Returns th
    * <p>
    *
    * @return  t
    */
   protected int
   {
      return (getViewDef() == null)
                ? 0
                : getViewDef().getEntityDefCount();
```

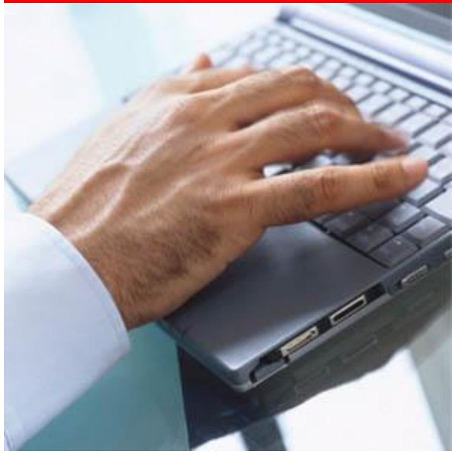
Name	Value	Type
⊟ row		ViewRowImpl

Name	Value	Type
mAttrBeingSet	null	String
mAttrHintsMap	null	HashMap<java.lang.Object,java.lang.Object>
mDeferredExceptions	null	HashMap<java.lang.Object,java.lang.Object>
mEffectiveDateMode	-1	int
mInAutoClear	null	List<String>
mInMultiSetter	null	List<String>
⊞ mInner		ViewRowStorage
mListBindings	null	ArrayList<java.lang.Object>
mListBindingsByVLGDef	null	HashMap<ViewDefImpl,ArrayList>
mOverridesMap	null	Map<String,Object>
mPersistentId	0	long
⊞ mQC		QueryCollection
mSelectAttrTxn	0	int
mVariableManager	null	VariableValueManager
mVAsForVLG	null	HashMap<String,ViewAccessorDef>

Name	Value	Type
⊞ this		EmpViewImpl
⊞ qc		QueryCollection
⊞ resultSet		OracleResultSetImpl
⊞ viewDef	EmpView	ViewDefImpl
⊞ row		ViewRowImpl

Application started in Server Instance. | Line 5086 Column 16 | Read Only | Windows: CR/LF Debugging

More Information on Oracle JDeveloper



- http://otn.oracle.com/jdev

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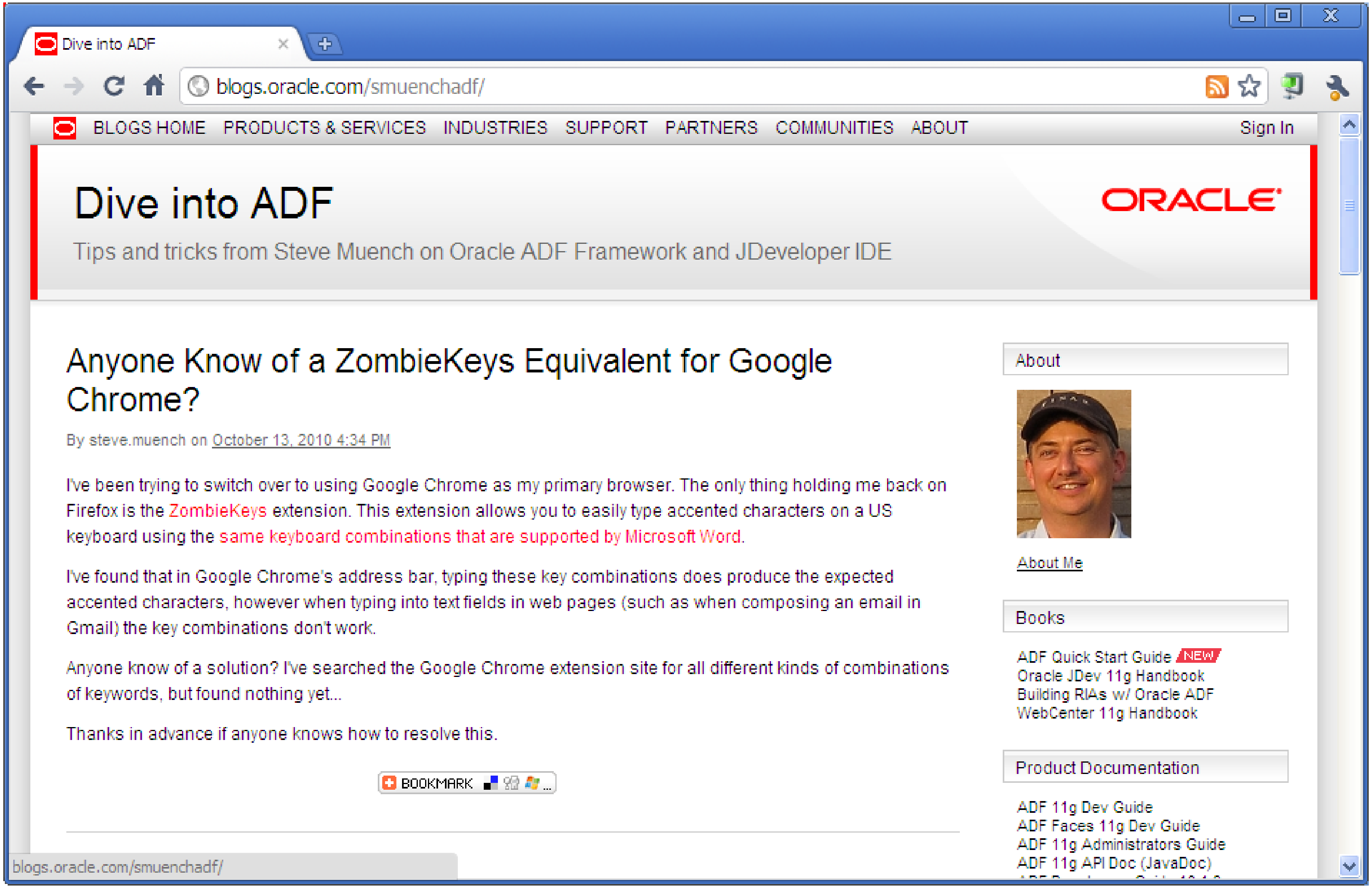

Dive into ADF

Tips and tricks from Steve Muench on Oracle ADF Framework and JDeveloper IDE

Anyone Know of a ZombieKeys Equivalent for Google Chrome?

By steve.muench on October 13, 2010 4:34 PM

I've been trying to switch over to using Google Chrome as my primary browser. The only thing holding me back on Firefox is the ZombieKeys extension. This extension allows you to easily type accented characters on a US keyboard using the same keyboard combinations that are supported by Microsoft Word.

I've found that in Google Chrome's address bar, typing these key combinations does produce the expected accented characters, however when typing into text fields in web pages (such as when composing an email in Gmail) the key combinations don't work.

Anyone know of a solution? I've searched the Google Chrome extension site for all different kinds of combinations of keywords, but found nothing yet...

Thanks in advance if anyone knows how to resolve this.

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Oracle JDev 11g Handbook
Building RIAs w/ Oracle ADF
WebCenter 11g Handbook

Product Documentation

ADF 11g Dev Guide
ADF Faces 11g Dev Guide
ADF 11g Administrators Guide
ADF 11g API Doc (JavaDoc)

Appendix
Useful ADFM/ADFBC Methods for Debugging

Object	Method	Description
ViewObjectImpl	bindParametersForCollection	Inspect SQL and bind variables just before executing query
	createRowFromResultSet	Study each row as its fetched from the database
ViewRowImpl	populate	Observe row after being populated with fetched data
	setAttributeInternal	Examine attribute value being set
	setAttributeValues	Examine multiple attribute values being set (typically by LOV mechanism)
ApplicationPoolImpl	doCheckout	Watch AM as its checked out of the pool
	doManagedCheckin	See AM as its checked into pool in managed mode
	doUnmanagedCheckin	See AM as its checked into pool in stateless mode
EntityImpl	setAttributeInternal	Examine attribute value being set
ExprEval	doEvaluate	Analyze each Groovy expression being evaluated
JUCtrlActionBinding	doIt	Follow any (method) action binding invocation

QUESTIONS?

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