

# DB Adapter Integration

Demo

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**Heba Owis**

26 May 2024

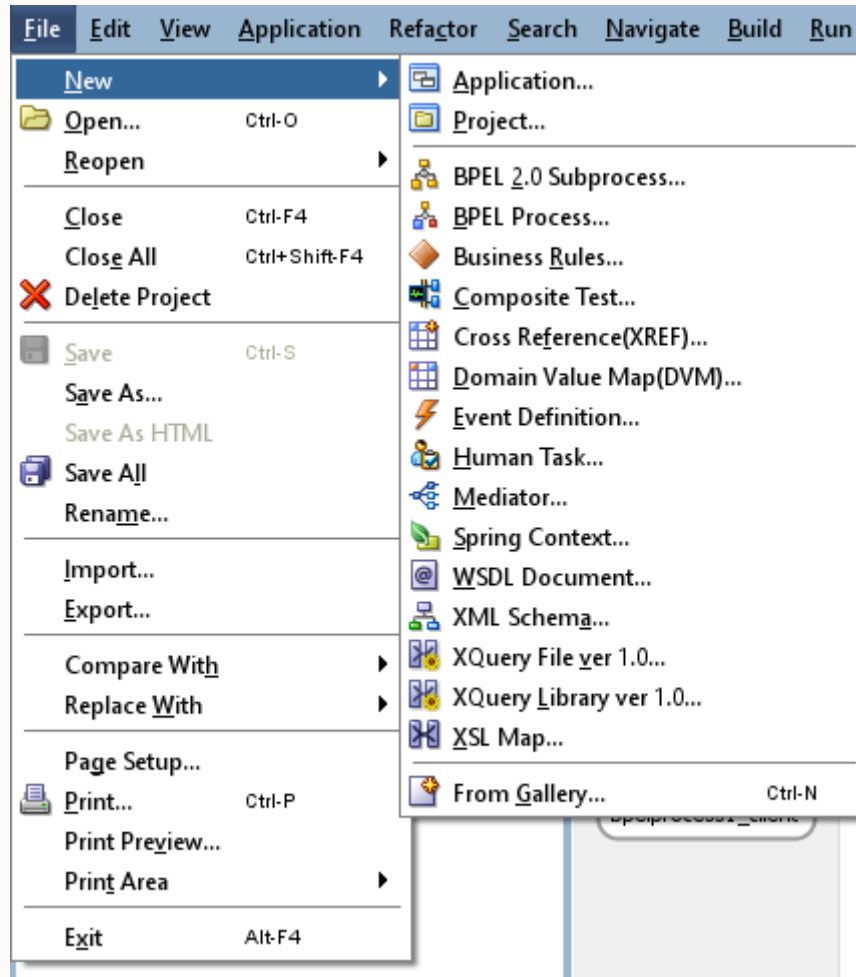
# Agenda

1. Development of “QueryDept” SOA Composite
2. Deployment of SOA Composite

# Development of “QueryDept” SOA Composite

**DB Adapter**

# New Project



# New Project

File

Edit

View

Application

Refactor

Search

Navigate

Build

Run

New

Open...  
Ctrl-O

Reopen

Close  
Ctrl-F4

Close All  
Ctrl+Shift-F4

Delete Project

Save  
Ctrl-S

Save As...

Save As HTML

Save All

Rename...

Import...

Export...

Compare With

Replace With

Page Setup...

Print...  
Ctrl-P

Print Preview...

Print Area

Exit  
Alt-F4

Application...

Project...

BPEL 2.0 Subprocess...

BPEL Process...

Business Rules...

Composite Test...

Cross Reference(XREF)...

Domain Value Map(DVM)...

Event Definition...

Human Task...

Mediator...

Spring Context...

WSDL Document...

XML Schema...

XQuery File ver 1.0...

XQuery Library ver 1.0...

XSL Map...

From Gallery...  
Ctrl-N

New Gallery

Categories:

Projects

UML

Unit Tests

XML

Business Tier

ADF Business Components

Business Rules

Contexts and Dependency Injection

Data Controls

EJB

Enterprise Scheduler Metadata

Security

Spring

TopLink/JPA

Web Services

Client Tier

ADF Desktop Integration

Extension Development

Swing/AWT

Database Tier

Database Files

Database Objects

Offline Database Objects

Service Bus Tier

Services

Interfaces

Transformations/Translations

Security

Utility

System

Items:

Java Project

ADF Model Project

ADF Model RESTful Webservice Project

ADF ViewController Project

Coherence Project

Custom Project

Database Project

EJB Project

Extension Project

Import Maven Projects

Project from Existing Source

Project from WAR File

Project Template

REST Web Service Project

Service Bus Project

SOA Project

SOAP Web Service Project

Help

OK

Cancel

# Project Details

**Create SOA Project - Step 1 of 2**

Name your project

Project Name:

Directory:  [Browse...](#)

Project Features:

**SOA Suite**

SOA Suite is a suite of tools to model SOA(Service Oriented Architecture) applications.

[Project Name](#)

[Project SOA Settings](#)

[Help](#) [< Back](#) [Next >](#) [Finish](#) [Cancel](#)

**Create SOA Project - Step 2 of 2**

Configure SOA settings

Composite Name:

Start from: ☒ Standard Composite ☐ SOA Template

- ☐ Empty Composite
- ☐ Composite With BPEL Process
- ☐ Composite With Human Task
- ☐ Composite With Subprocess
- ☐ Composite With Mediator
- ☐ Composite With Spring
- ☐ Composite With Business Rule

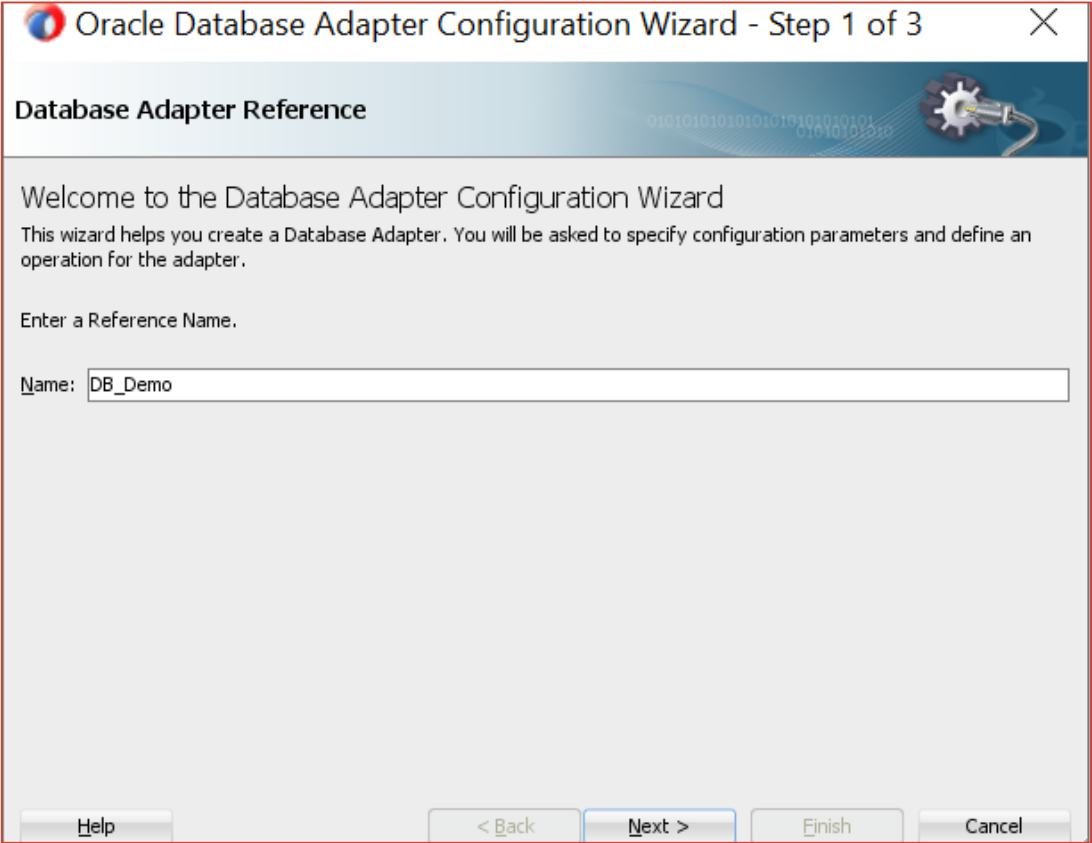
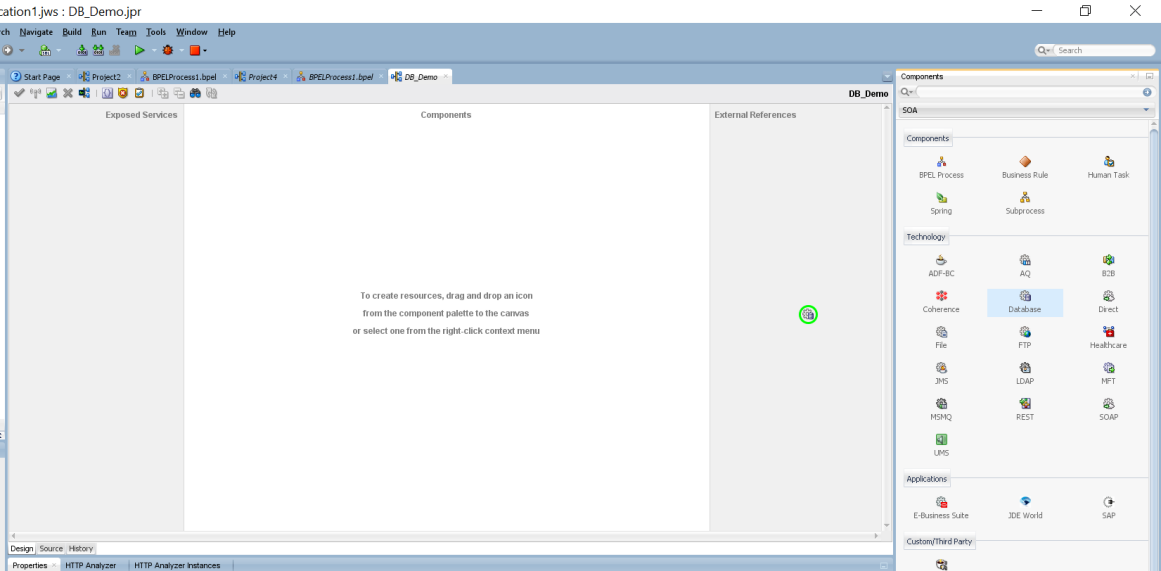
☐ Customizable

[Project Name](#)

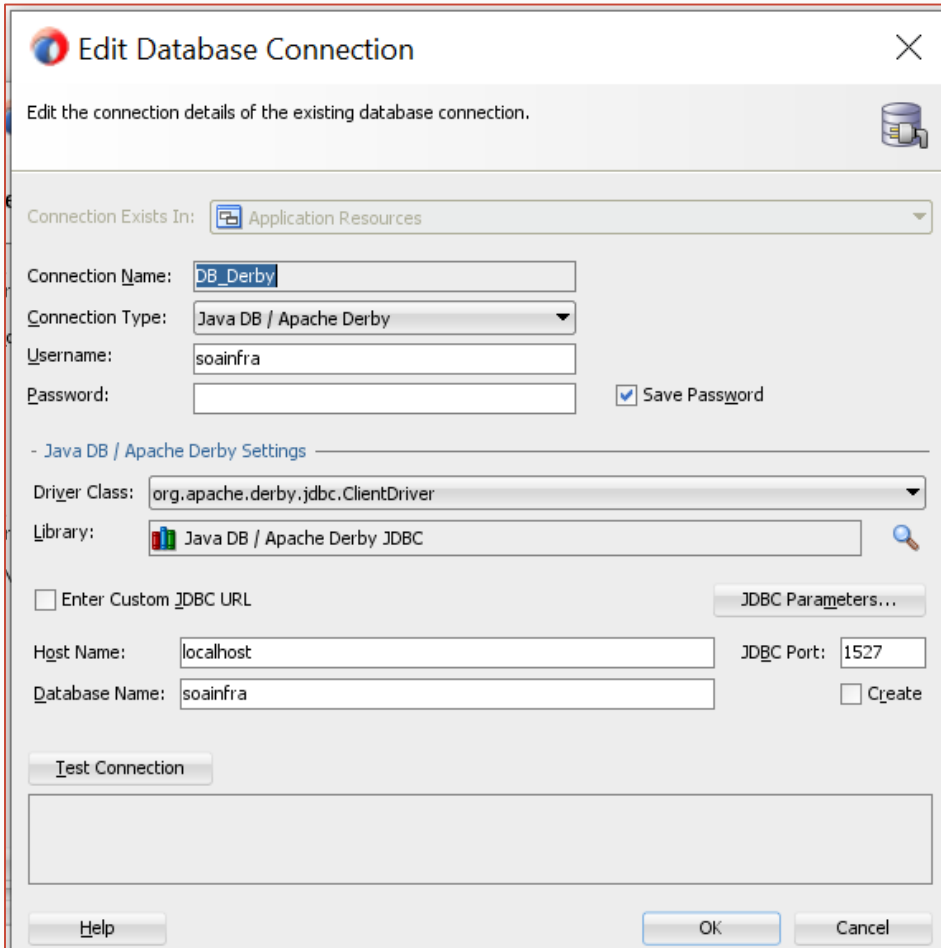
[Project SOA Settings](#)

[Help](#) [< Back](#) [Next >](#) [Finish](#) [Cancel](#)

# Database Adapter



# DB Connection - JNDI



**Edit Database Connection**

Edit the connection details of the existing database connection.

Connection Exists In: Application Resources

Connection Name: DB\_Derby

Connection Type: Java DB / Apache Derby

Username: soainfra

Password:  ☒ Save Password

- Java DB / Apache Derby Settings -

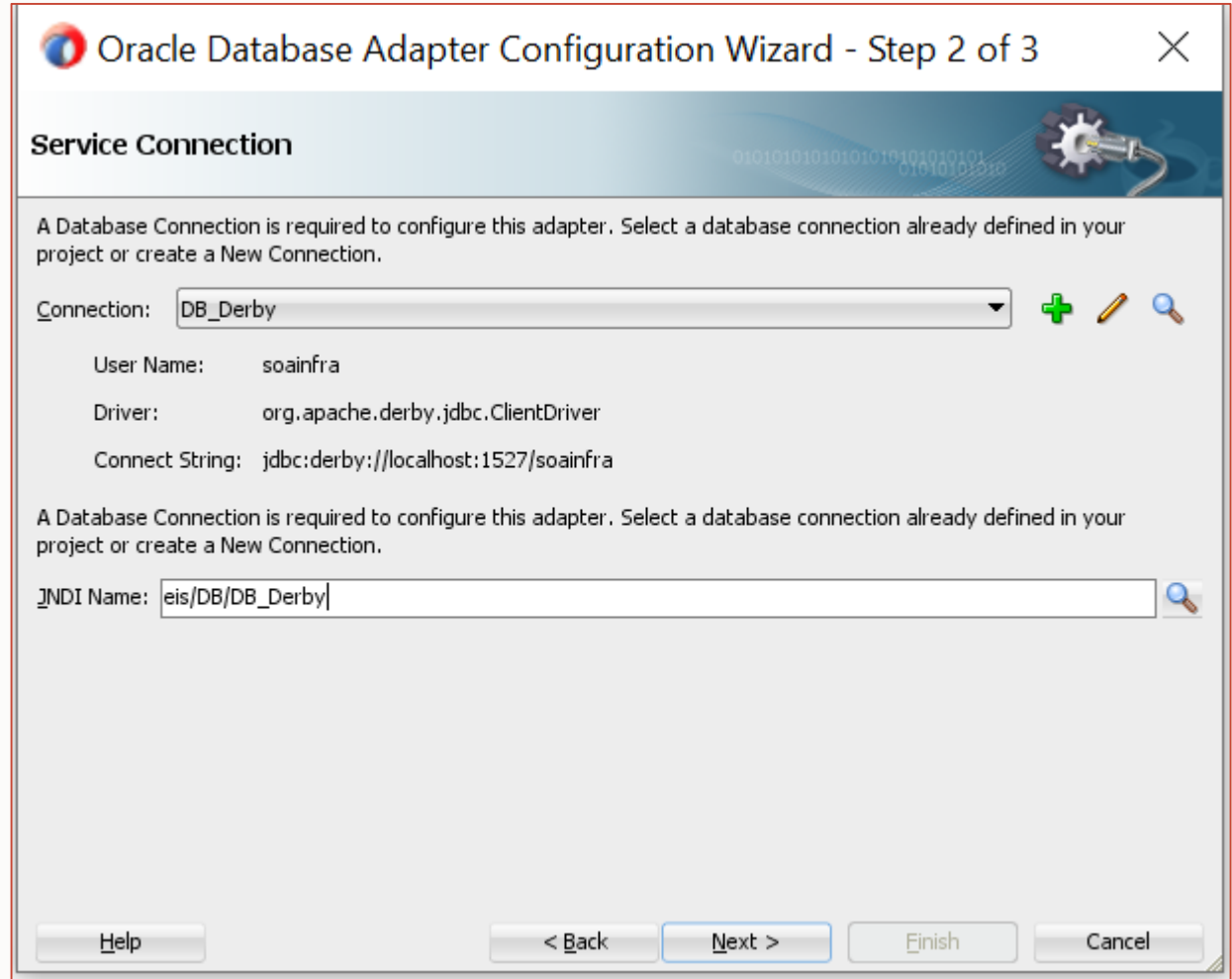
Driver Class: org.apache.derby.jdbc.ClientDriver

Library: Java DB / Apache Derby JDBC

☐ Enter Custom JDBC URL

Host Name: localhost JDBC Port: 1527

Database Name: soainfra ☐ Create



**Oracle Database Adapter Configuration Wizard - Step 2 of 3**

**Service Connection**

A Database Connection is required to configure this adapter. Select a database connection already defined in your project or create a New Connection.

Connection: DB\_Derby

User Name: soainfra

Driver: org.apache.derby.jdbc.ClientDriver

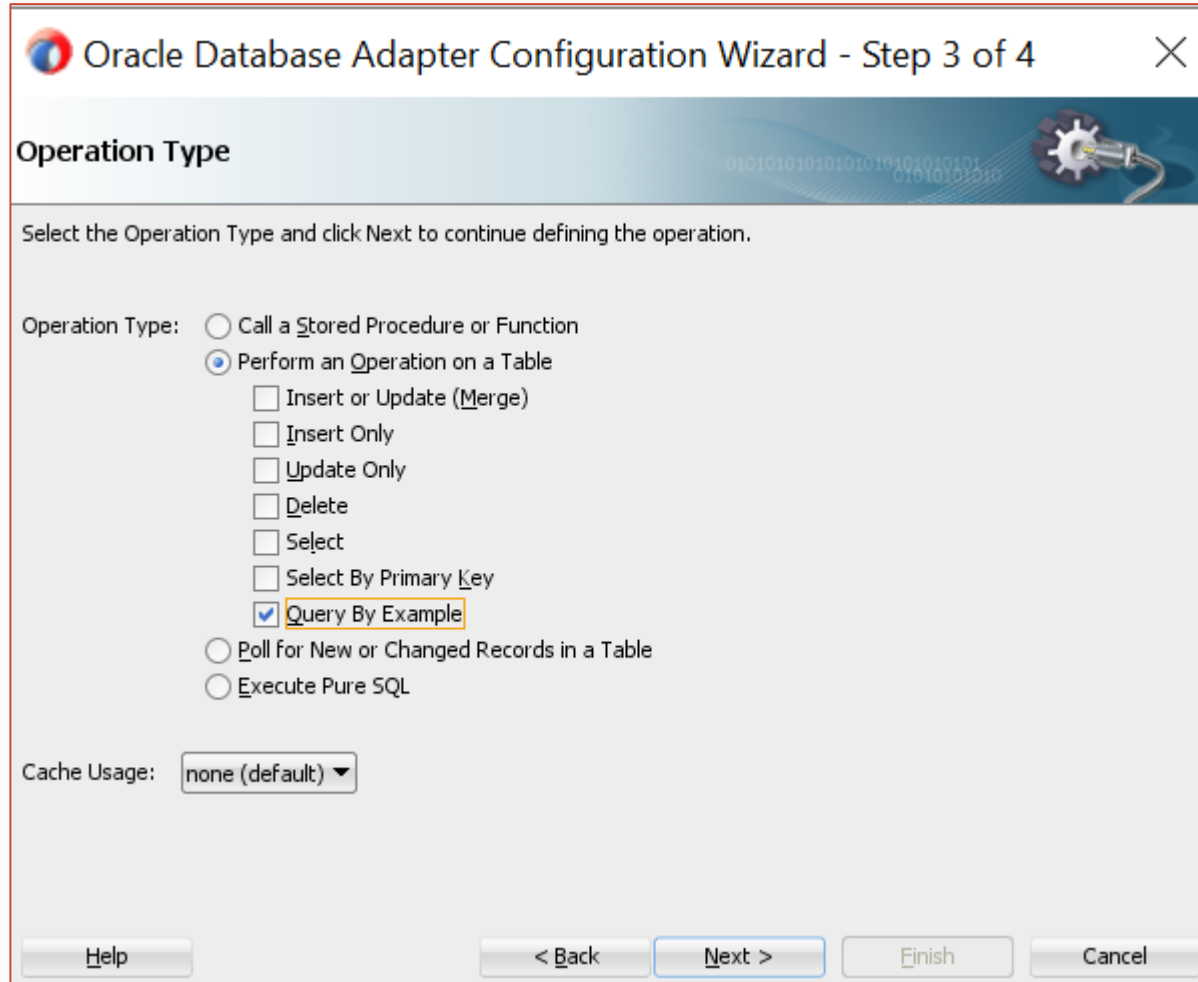
Connect String: jdbc:derby://localhost:1527/soainfra

A Database Connection is required to configure this adapter. Select a database connection already defined in your project or create a New Connection.

JNDI Name: eis/DB/DB\_Derby



# Query by Example



The image shows a screenshot of the 'Oracle Database Adapter Configuration Wizard - Step 3 of 4'. The window has a title bar with the Oracle logo and a close button. Below the title bar is a header area with the text 'Operation Type' and a decorative background with binary code and a gear icon. The main content area contains instructions: 'Select the Operation Type and click Next to continue defining the operation.' Below this, there are radio buttons for 'Operation Type'. The first group has two options: 'Call a Stored Procedure or Function' and 'Perform an Operation on a Table'. The second group has several options: 'Insert or Update (Merge)', 'Insert Only', 'Update Only', 'Delete', 'Select', 'Select By Primary Key', 'Query By Example' (which is checked and highlighted with a yellow box), 'Poll for New or Changed Records in a Table', and 'Execute Pure SQL'. At the bottom, there is a 'Cache Usage:' label and a dropdown menu showing 'none (default)'. The bottom of the window features a row of buttons: 'Help', '< Back', 'Next >' (highlighted with a blue border), 'Finish', and 'Cancel'.

Oracle Database Adapter Configuration Wizard - Step 3 of 4

**Operation Type**

Select the Operation Type and click Next to continue defining the operation.

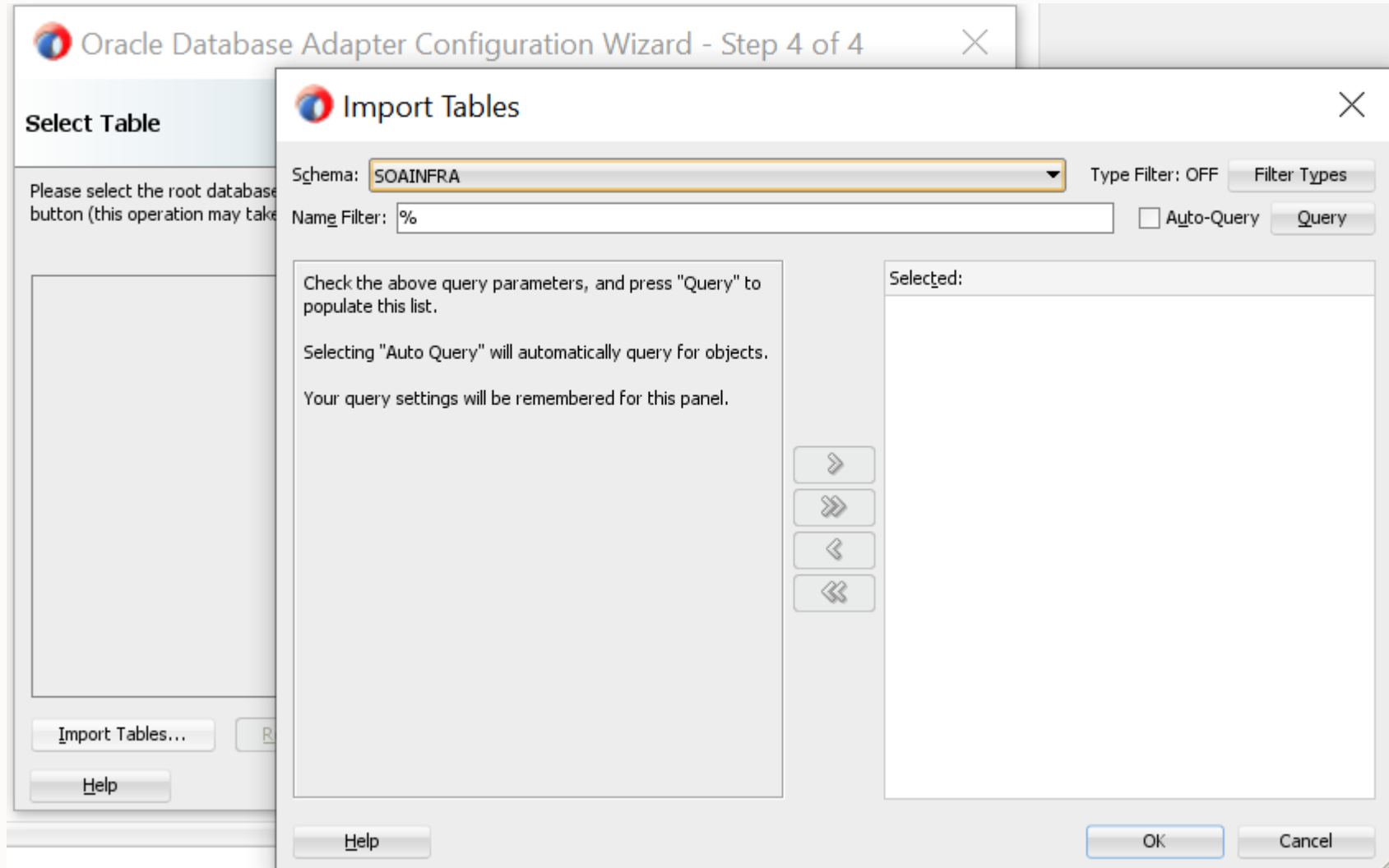
Operation Type:

- ☐ Call a Stored Procedure or Function
- ☒ Perform an Operation on a Table
  - ☐ Insert or Update (Merge)
  - ☐ Insert Only
  - ☐ Update Only
  - ☐ Delete
  - ☐ Select
  - ☐ Select By Primary Key
  - ☒ Query By Example
- ☐ Poll for New or Changed Records in a Table
- ☐ Execute Pure SQL

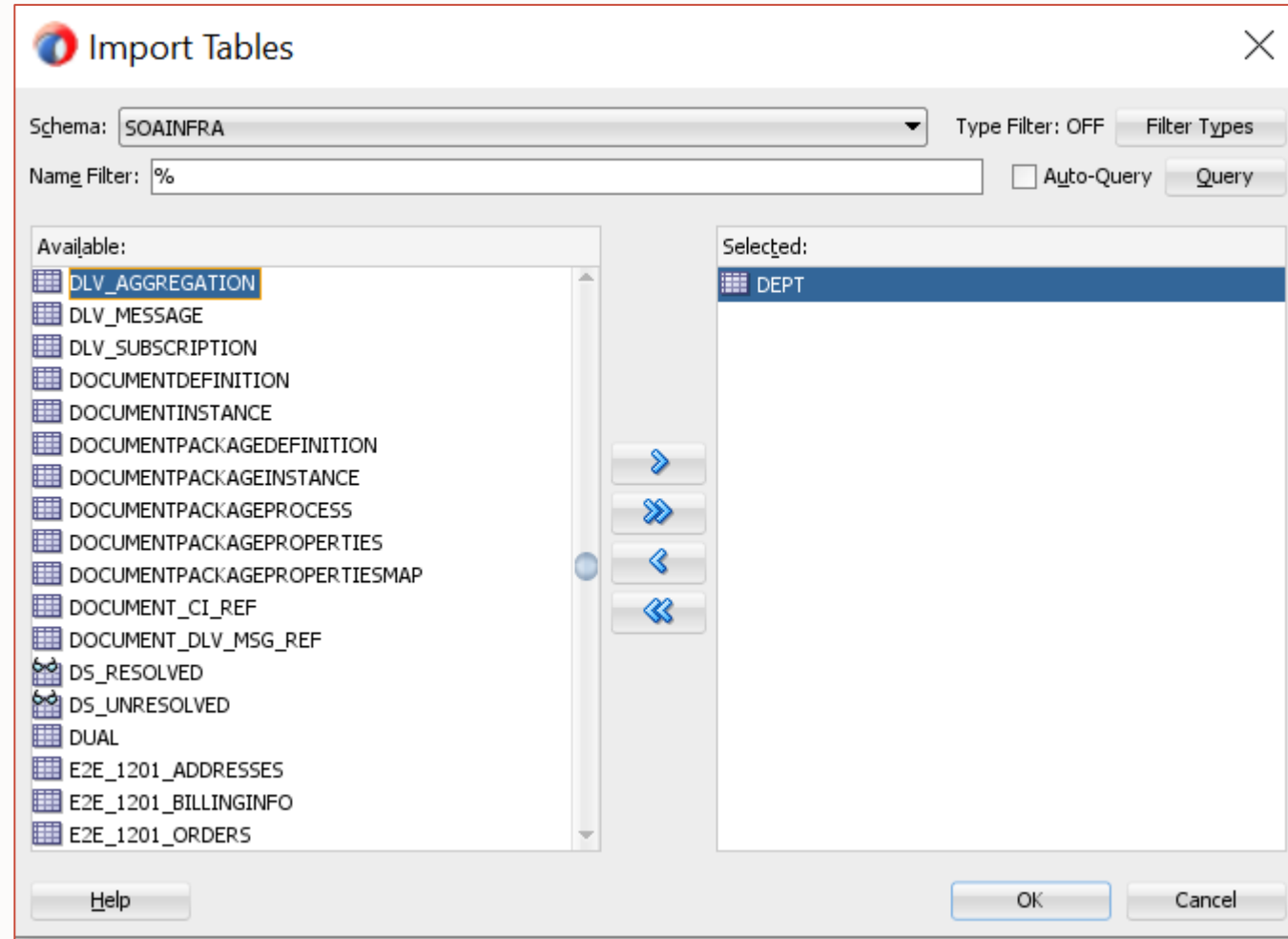
Cache Usage: none (default) ▼

Help < Back Next > Finish Cancel

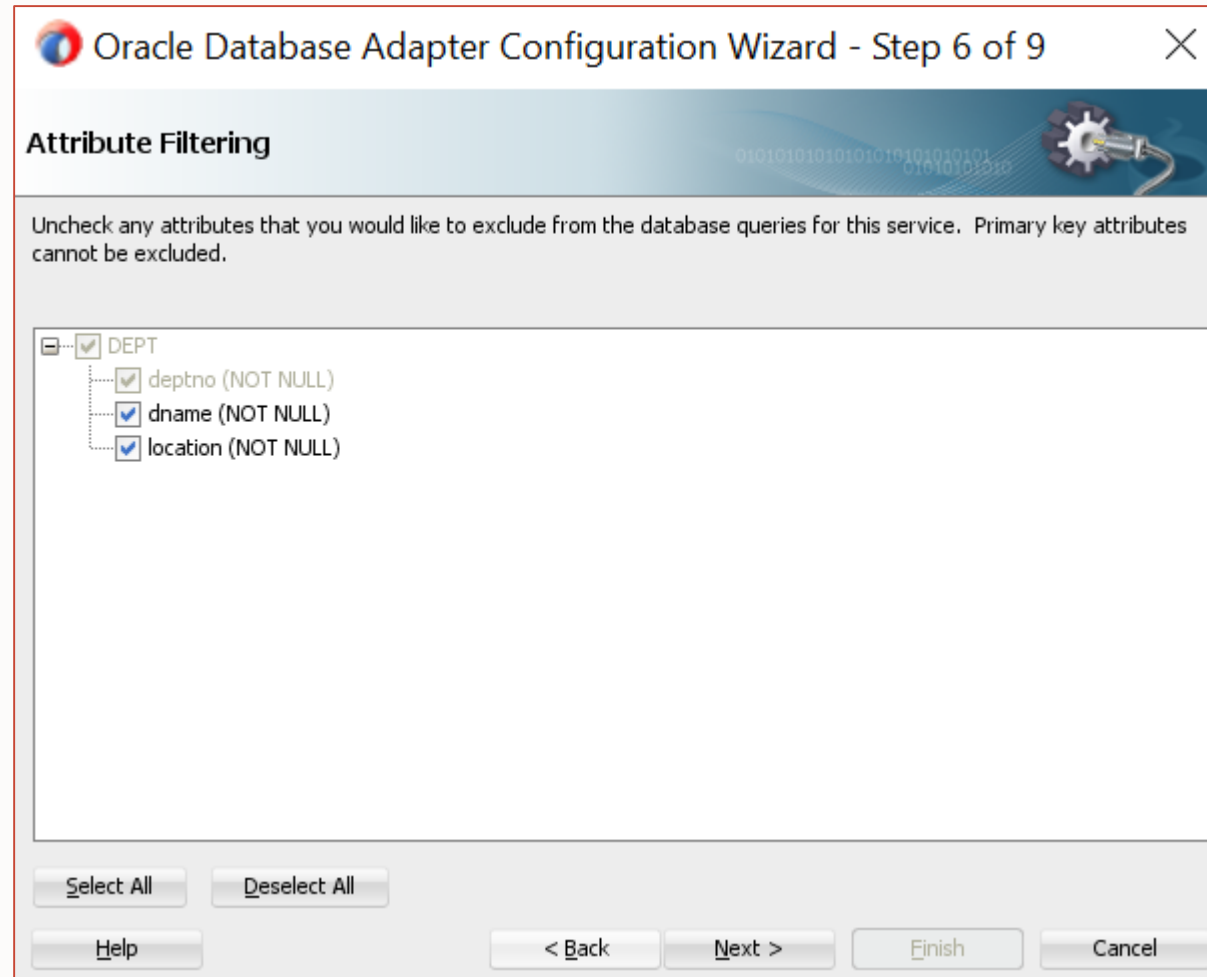
# Select Table



# Import Table



# Filtering



# Filtering- Accept Default Values

Oracle Database Adapter Configuration Wizard - Step 6 of 9

Attribute Filtering

Uncheck any attributes that you would like to exclude from the data. Attributes cannot be excluded.

DEPT

☒ deptno (NOT NULL)

☒ dname (NOT NULL)

☒ location (NOT NULL)

Select All

Deselect All

Help

< Back

Next >

Finish

Cancel

Oracle Database Adapter Configuration Wizard - Step 7 of 9

Advanced Options

Specify any additional advanced options. To use the recommended, default values, click Next.

JDBC Options:

Query Timeout: 0

Query By Example Comparison Operators:

Text Operator: equal

Numeric Operator: equal

Date Operator: equal

Interaction Options:

☐ Get Active UnitOfWork

Help

< Back

Next >

Finish

Cancel

Oracle Database Adapter Configuration Wizard - Step 8 of 9

JCA Endpoint Properties

Specify Adapter Framework-level properties for this service. To use the recommended, default values, click Next.

Auto-Retries:

Attempts: 4

Interval (s): 1

Backoff Factor: x

Max Interval (s): 120

Help

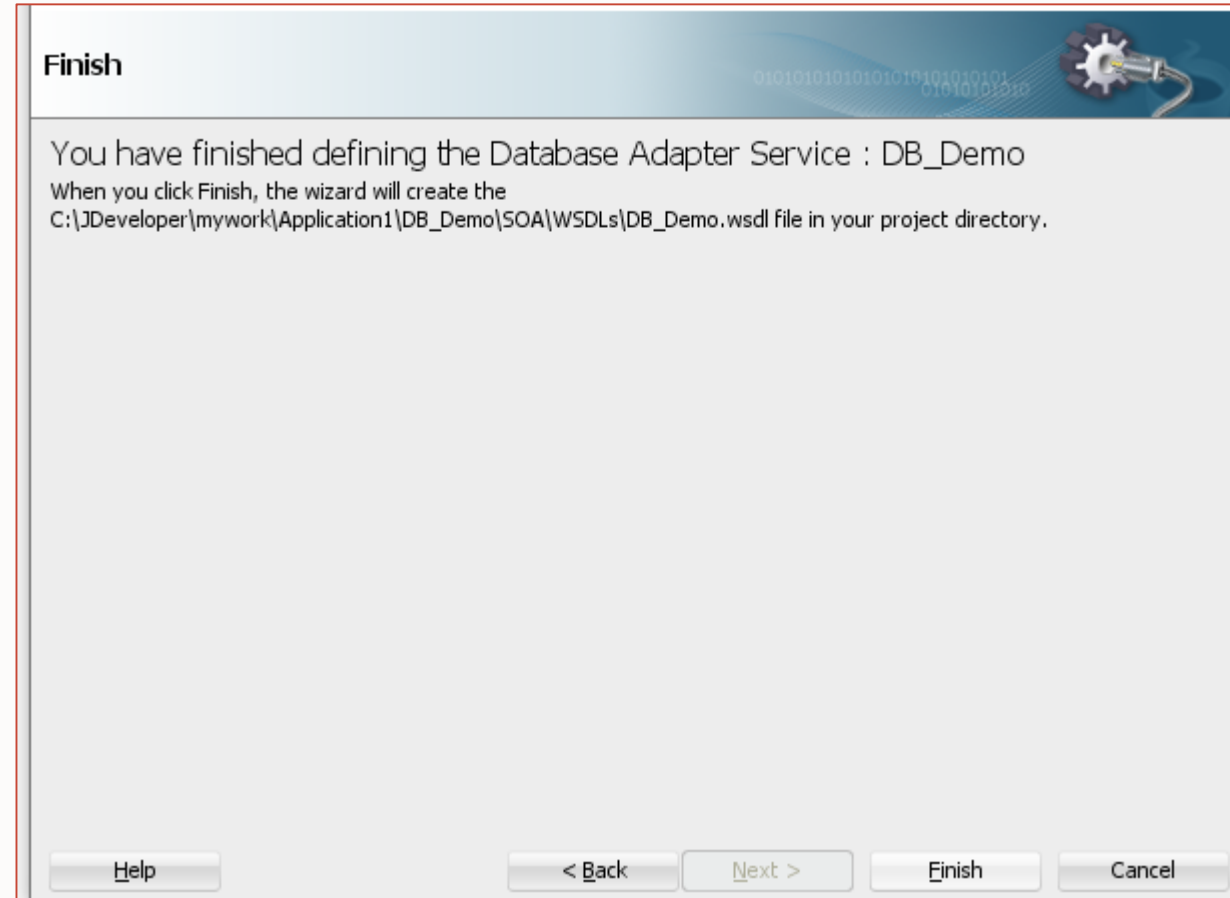
< Back

Next >

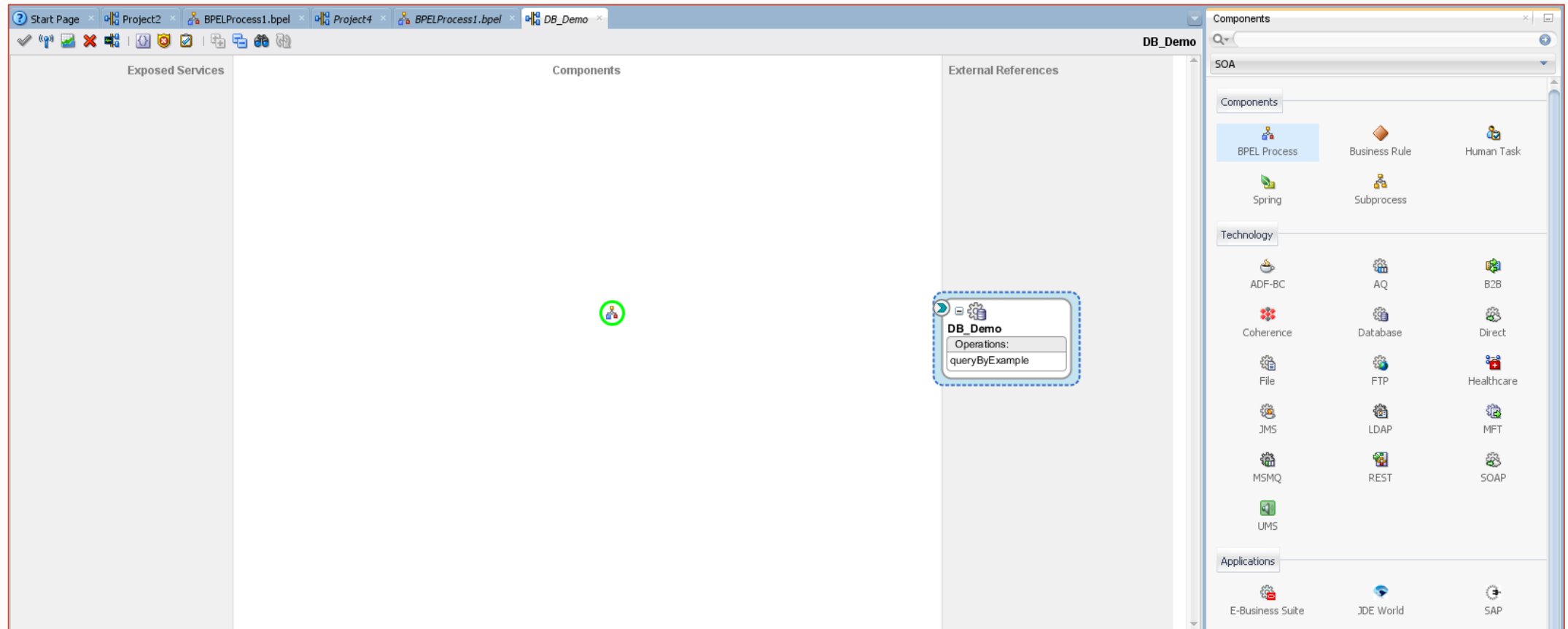
Finish

Cancel

# Finish



# Drag BPEL Process



# Synchronous Process

**Create BPEL Process**

**BPEL Process**

A BPEL process is a service orchestration, based on the BPEL specification, used to describe/execute a business process (or large grained service), which is implemented as a stateful service.

☒ BPEL 2.0 Specification ☐ BPEL 1.1 Specification

**General** **In Memory SOA**

Name:

Namespace:

Directory:

Template Type: ☒ Web Service ☐ REST Service ☐ No Service

Template:

Service Name:

☒ Expose as a SOAP service

Transaction:

Input:

Output:

**Create BPEL Process**

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**General** **In Memory SOA**

Name:

Namespace:

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Template:

Service Name:

☒ Expose as a SOAP service

Transaction:

Input:

Output:

**Type Chooser**

Type Explorer

- Project Schema Files
  - DB\_Demo\_table.xsd
    - Dept Dept**
    - DeptCollection DeptCollection**
- Project WSDL Files
- Recent Files

Type: {http://xmlns.oracle.com/pcbpel/adapter/db/top/DB\_Demo}Dept

☐ Show Detailed Node Information

Help

**Type Chooser**

Type Explorer

- Project Schema Files
  - DB\_Demo\_table.xsd
    - Dept Dept**
    - DeptCollection DeptCollection**
- Project WSDL Files
- Recent Files

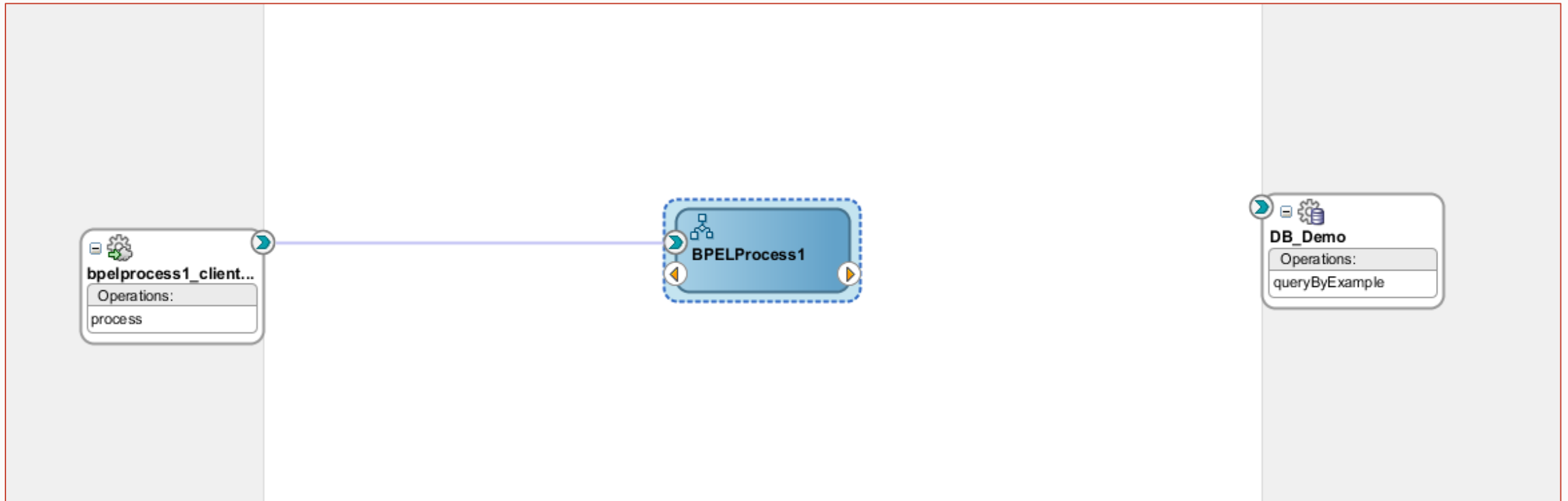
Type: {http://xmlns.oracle.com/pcbpel/adapter/db/top/DB\_Demo}Dept

☐ Show Detailed Node Information

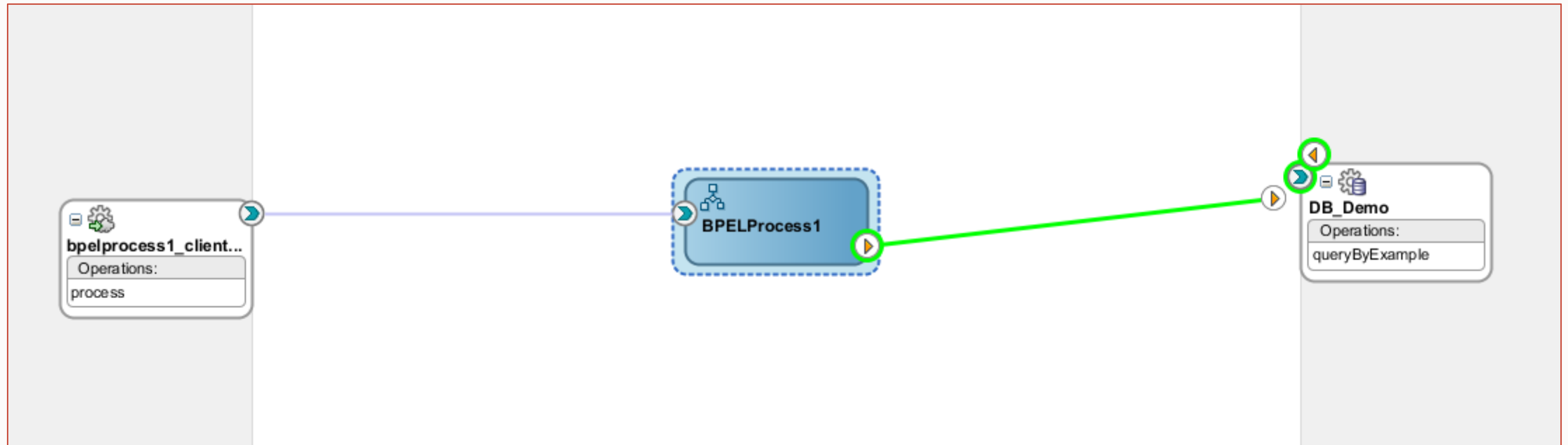
Help



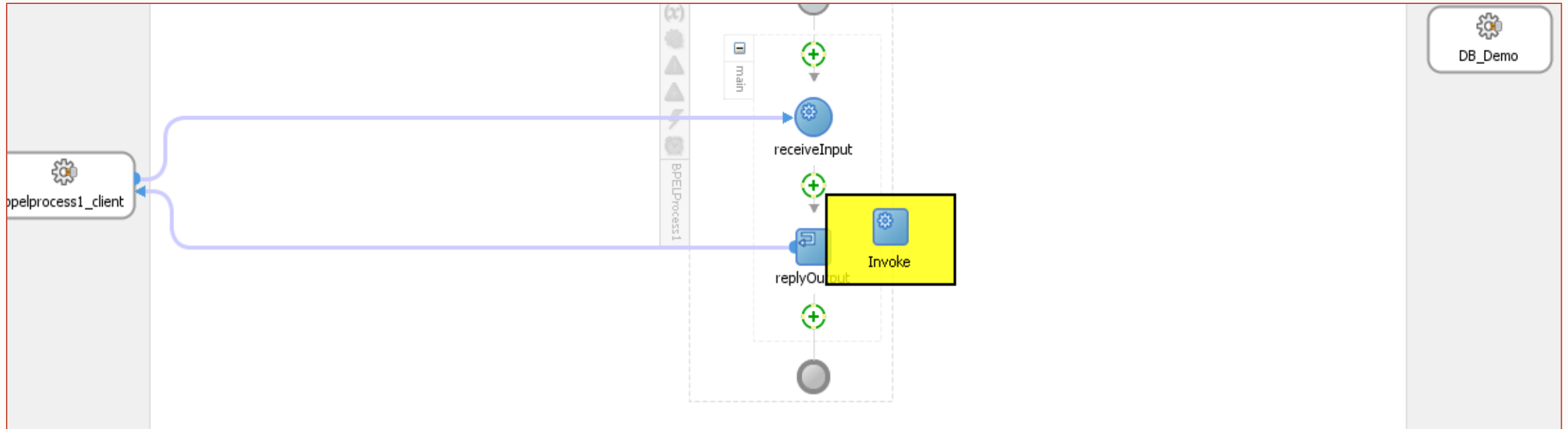
# BPEL Interface



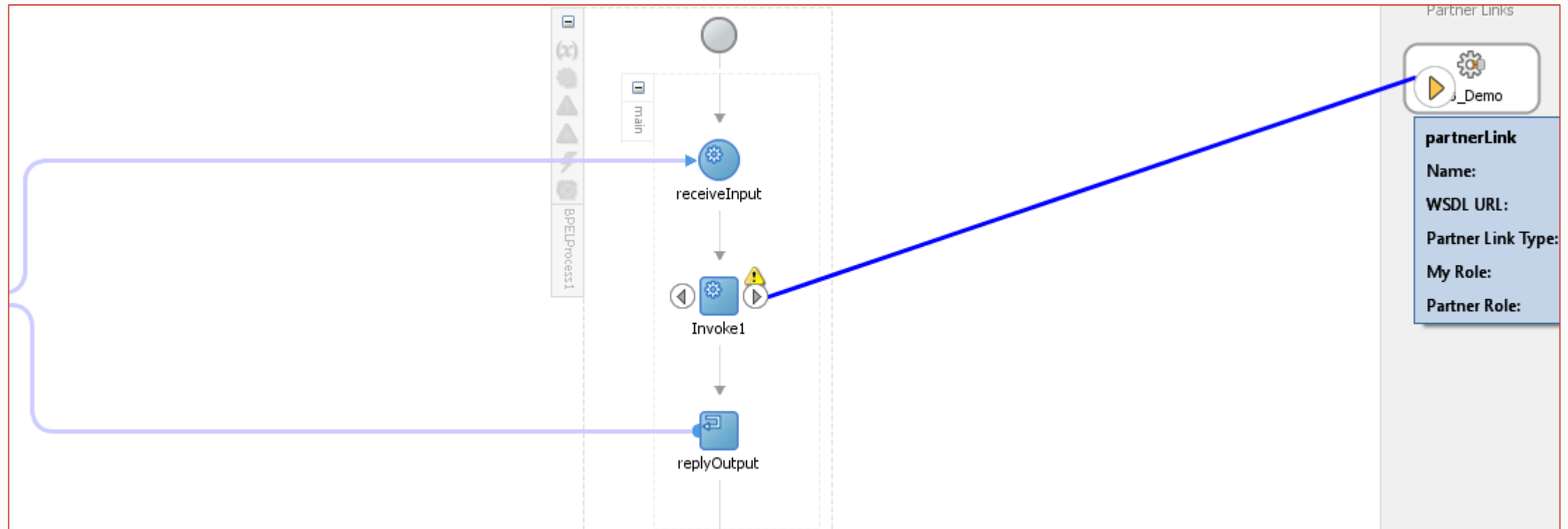
# Link BPEL to DB Adapter



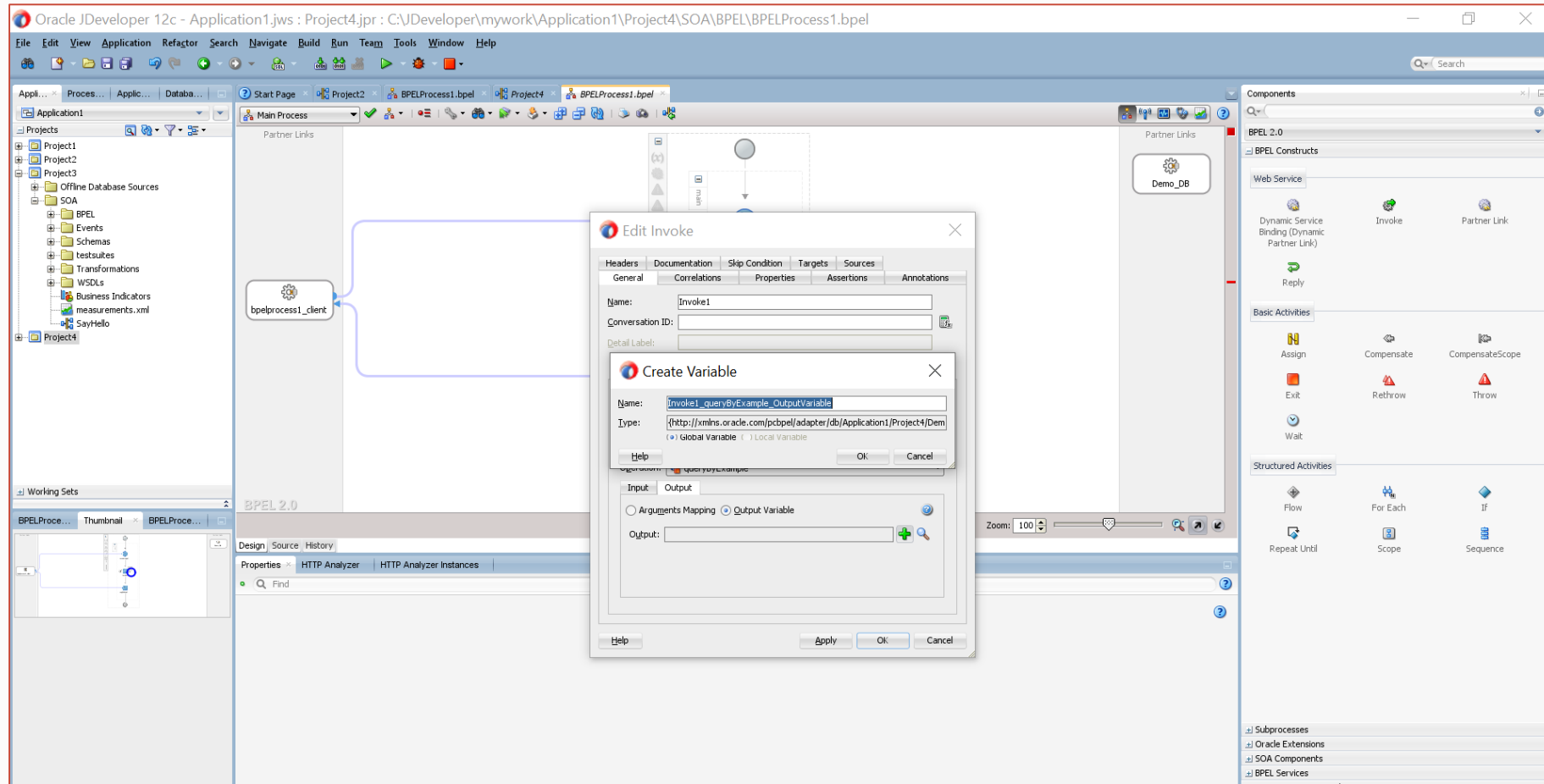
# Drag Invoke



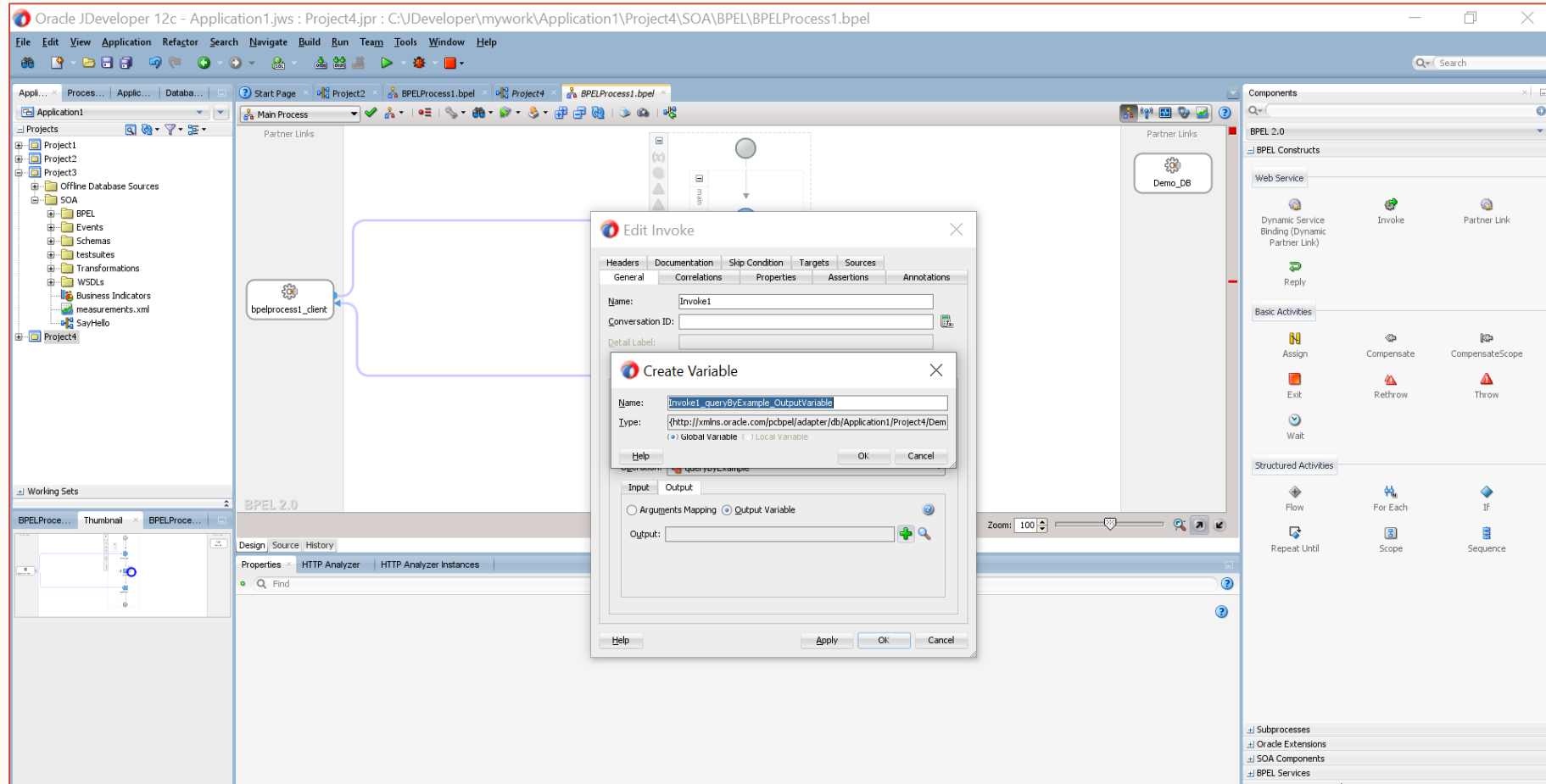
# Link Invoke to DB Adapter



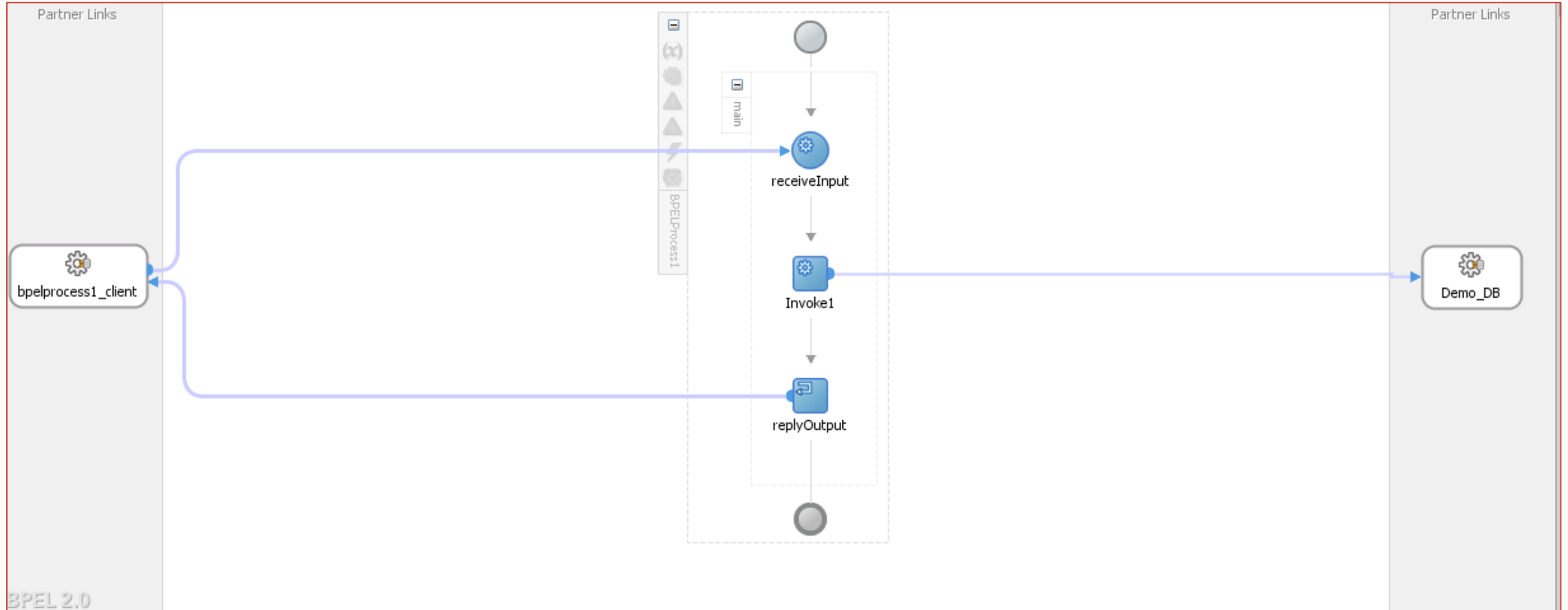
# Create Invoke Input Variable



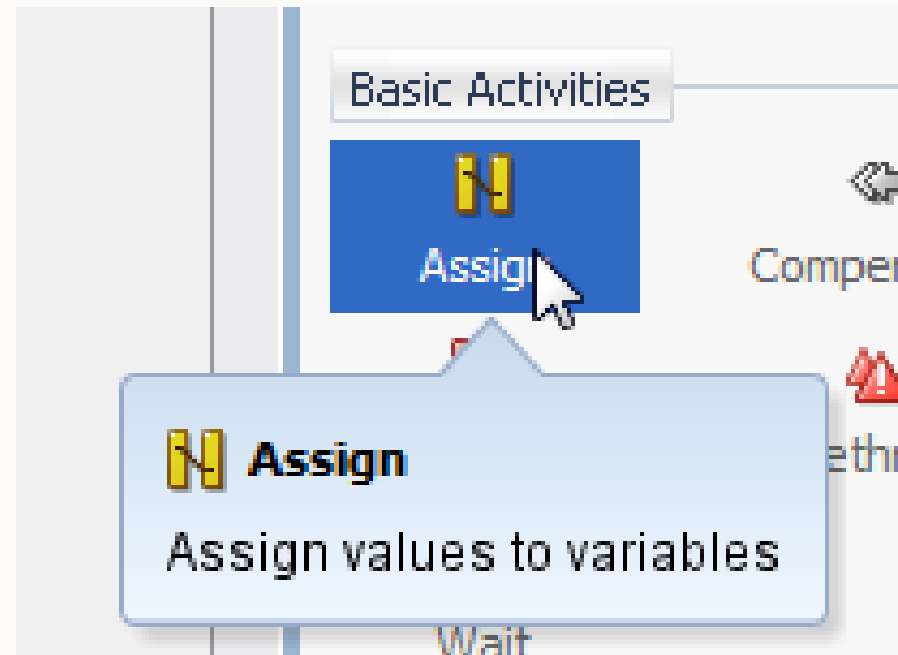
# Create Invoke Output Variable



# Invoke made Successfully

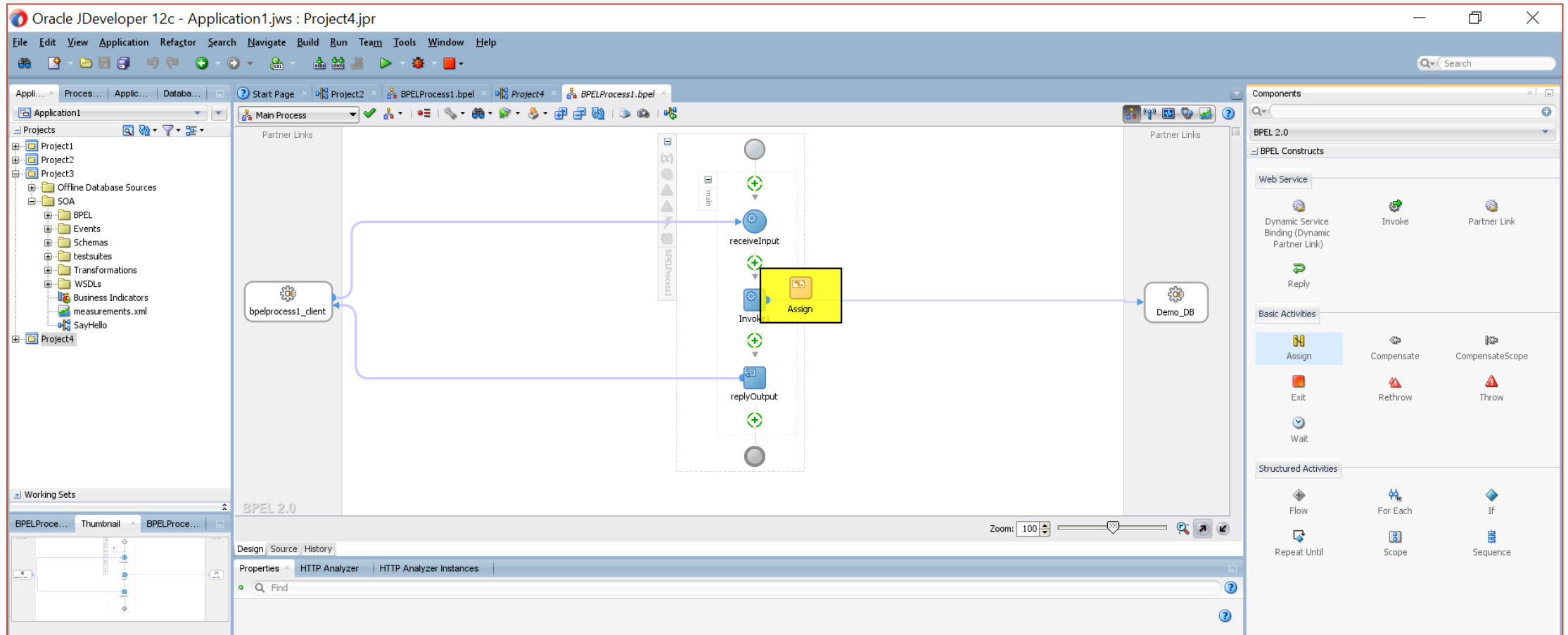


## Select Assign Activity

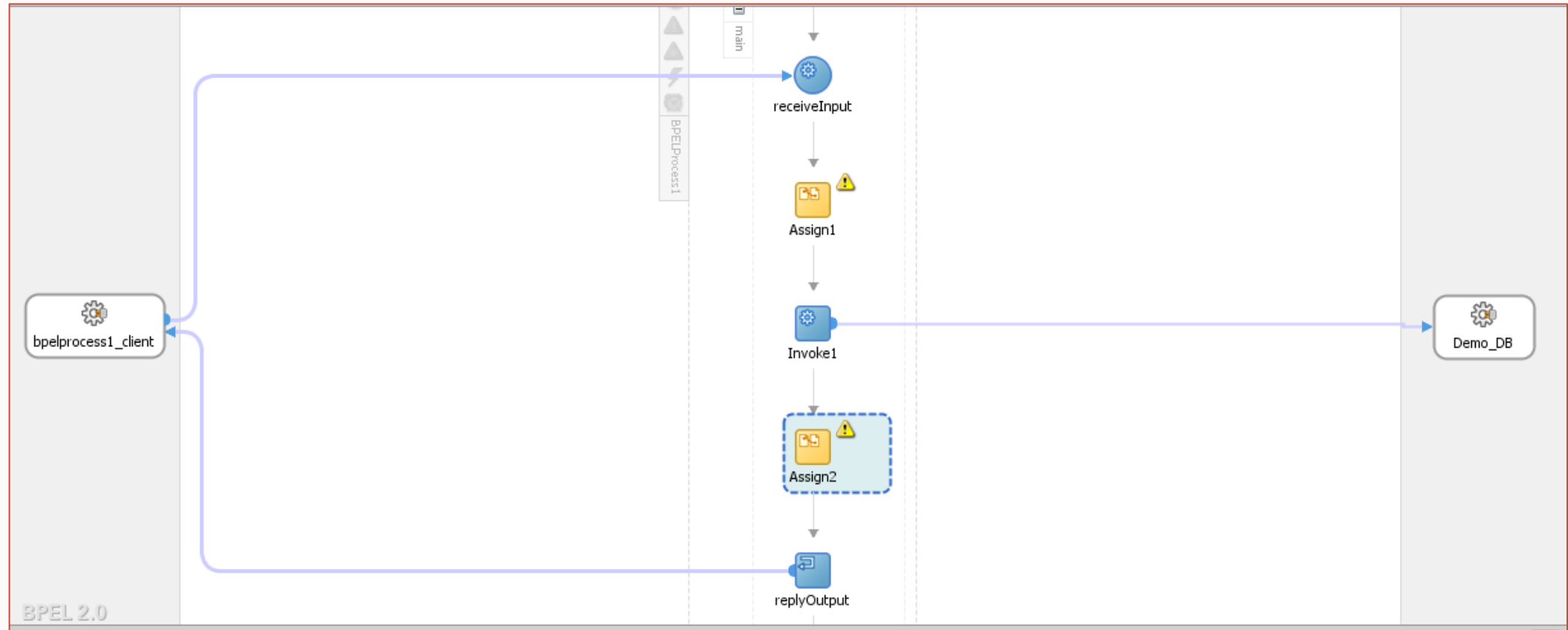




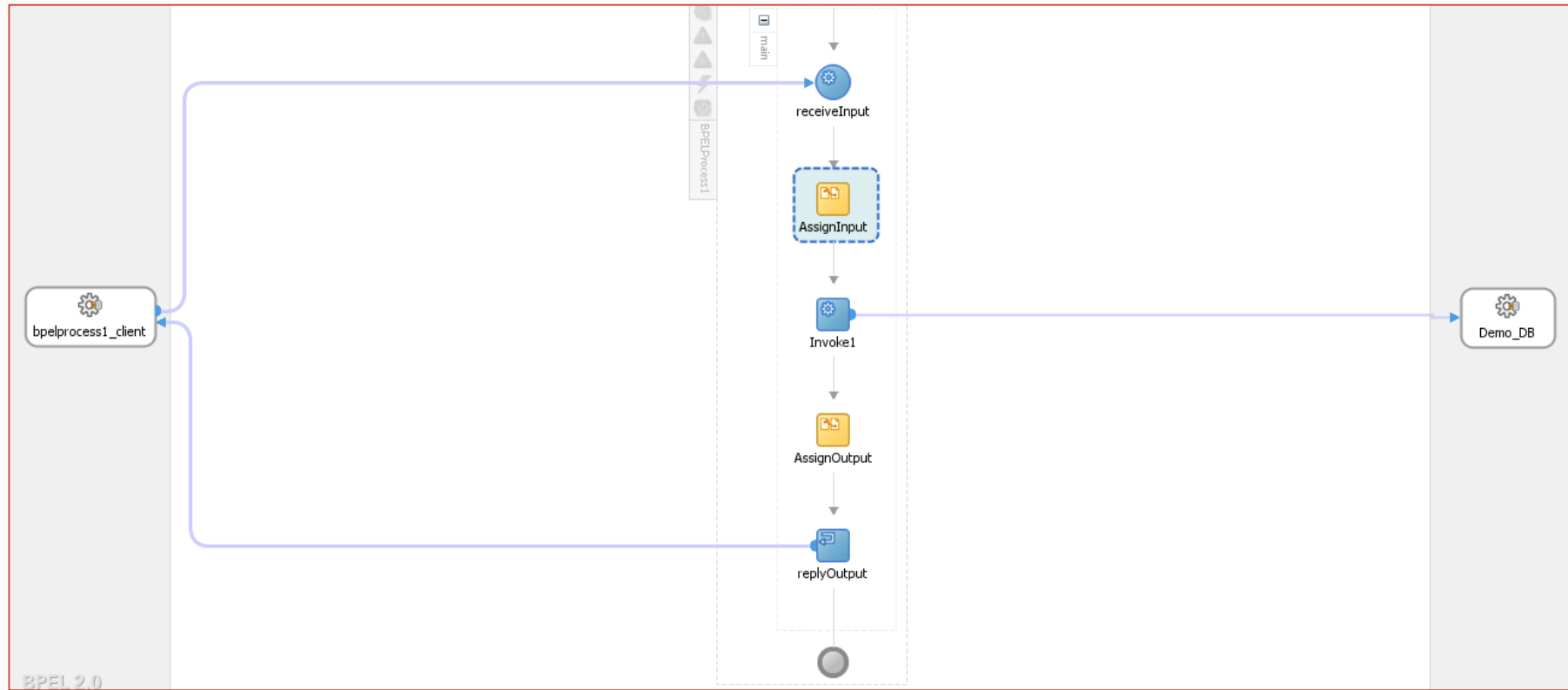
# Drag Assign Activity



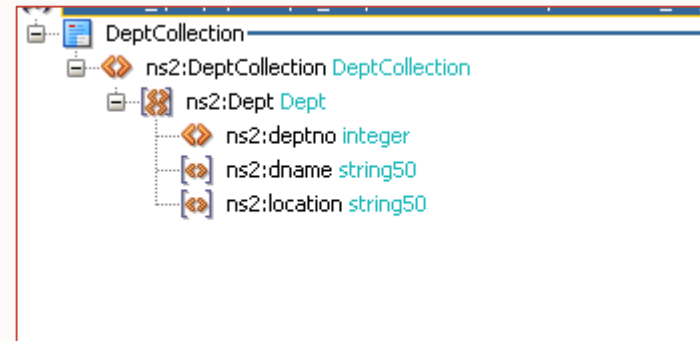
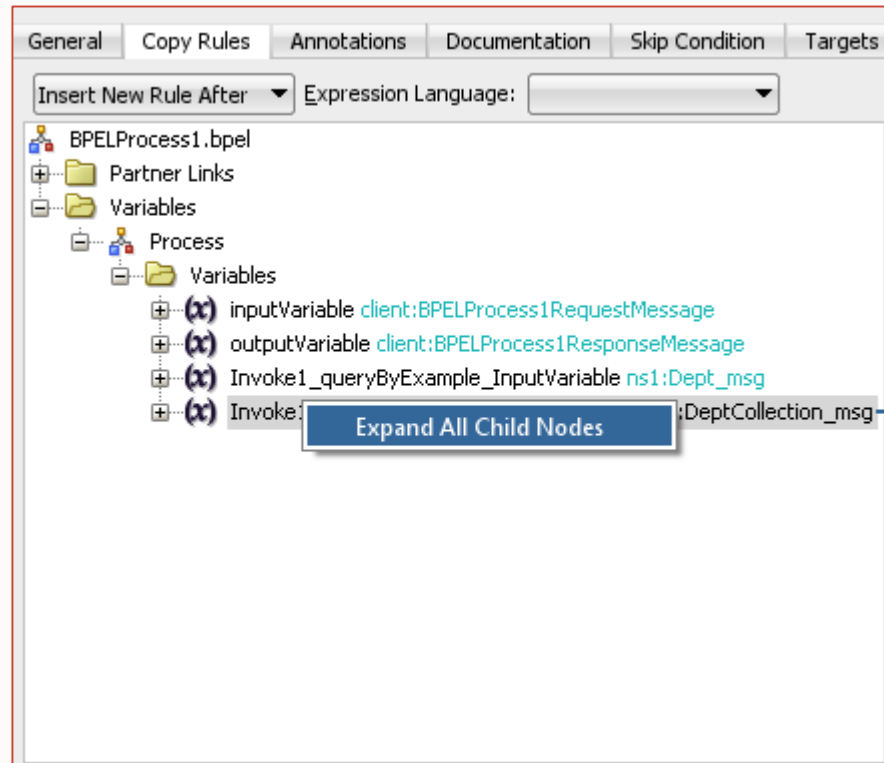
# Drop Assign



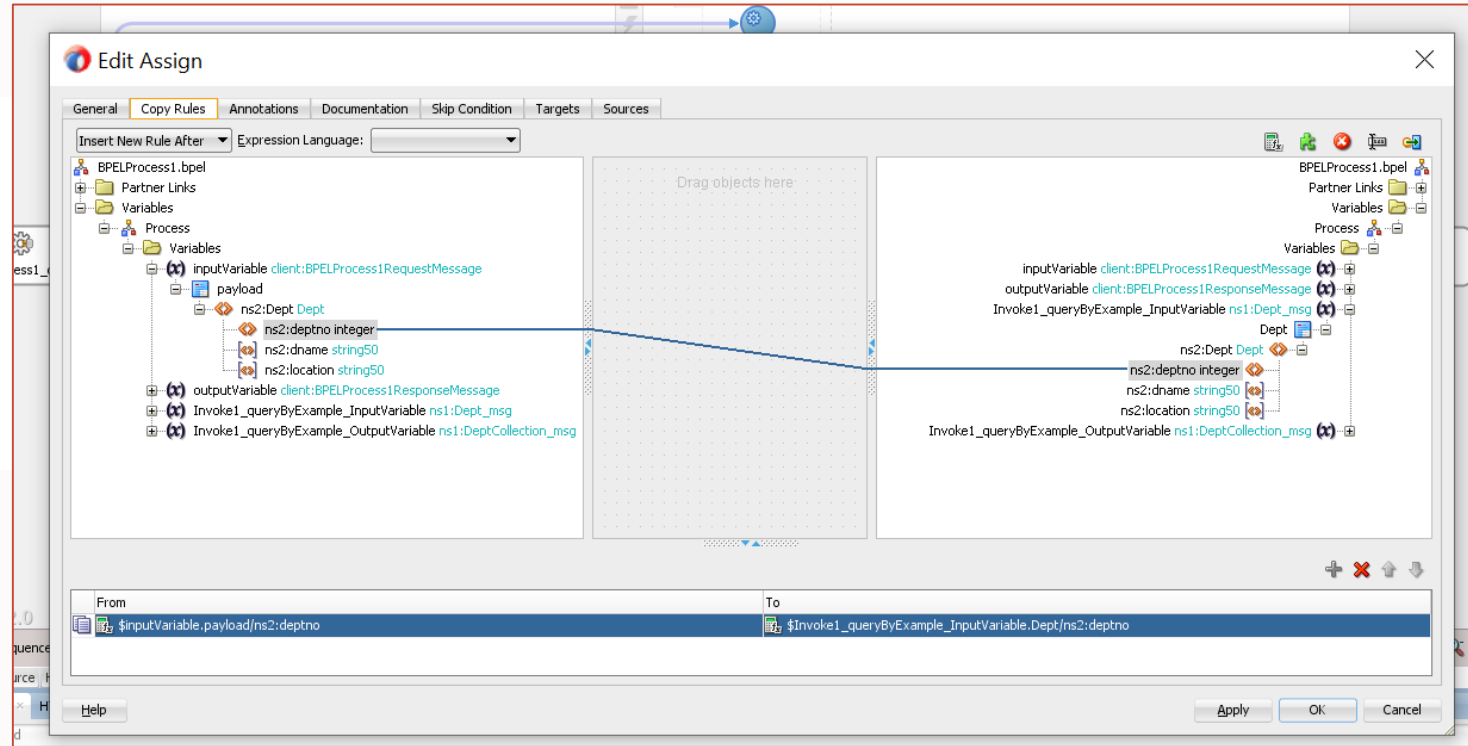
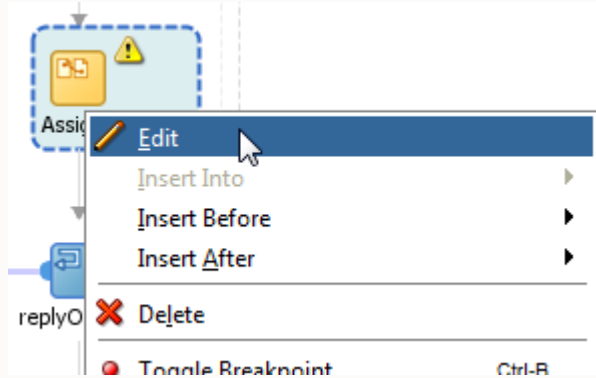
# Edit Assign



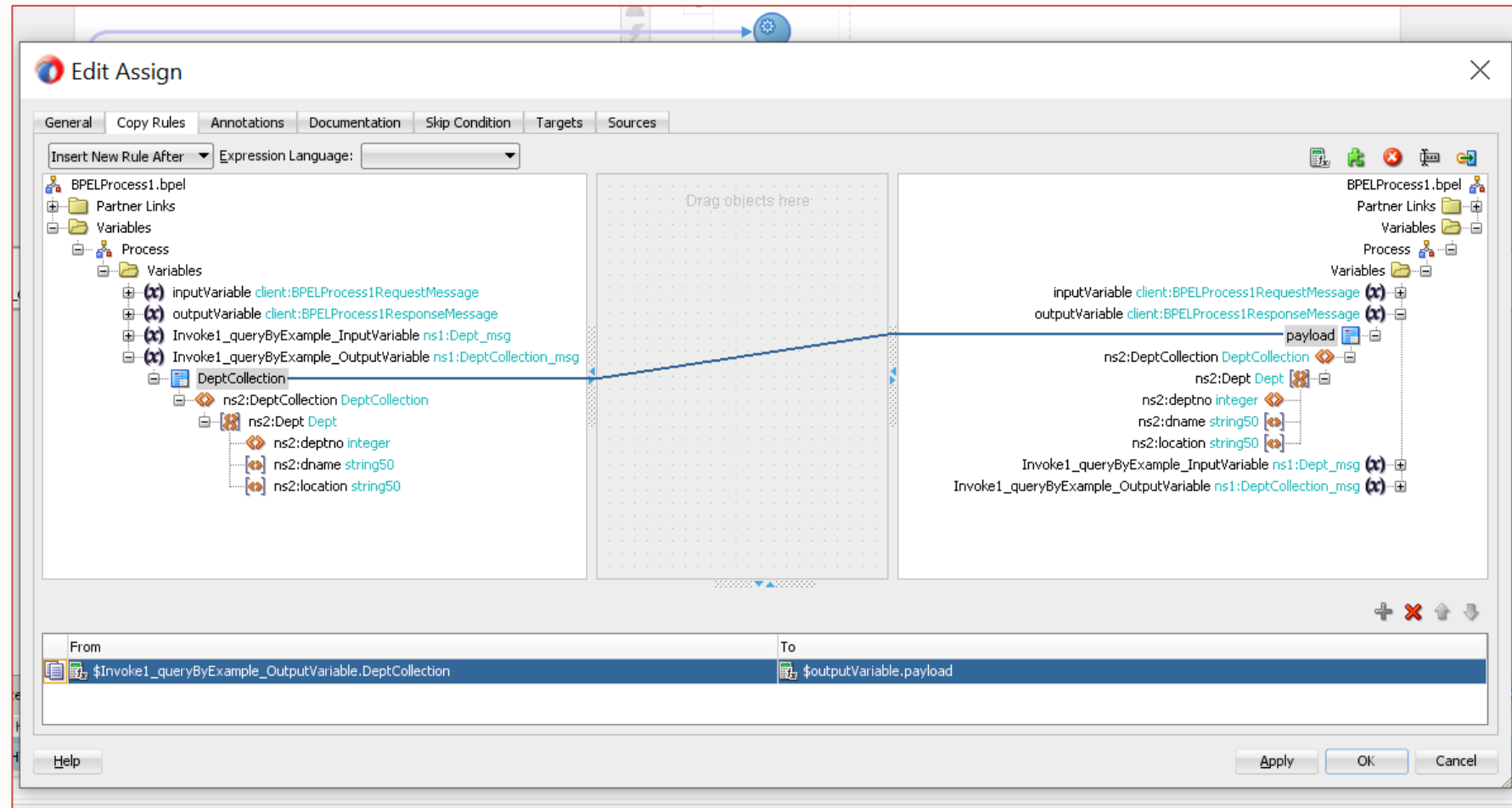
# Expand All Child



# Edit Assign Input



# Edit Assign Output



# Deployment

# Setting Connection Factory for Database Adapter

Domain Structure

DefaultDomain

Domain Partitions

Environment

Deployments

Services

Messaging

Data

Persistent Stores

Foreign JNDI Providers

Work Contexts

XML Registries

XML Entity Caches

jCOM

Mail Sessions

Deployments, Level 1

DbAdapter

DefaultToDoTaskFlow

Dms Application (12.2.1.1.0)

DbAdapter, Level 1, 25 of 194

settings for DbAdapter

Overview

Deployment Plan

Configuration

Security

Targets

Control

Testing

Monitoring

Notes

General

Properties

Outbound Connection Pools

Admin Objects

Workload

Instrumentation

This page displays a table of outbound connection pools for a connection pool instance within an application.

Configuration - Outbound Connection Pools- Tab - Select

Outbound Connection Pool Configuration Table

New

Delete

Groups and Instances

javax.resource.cci.ConnectionFactory

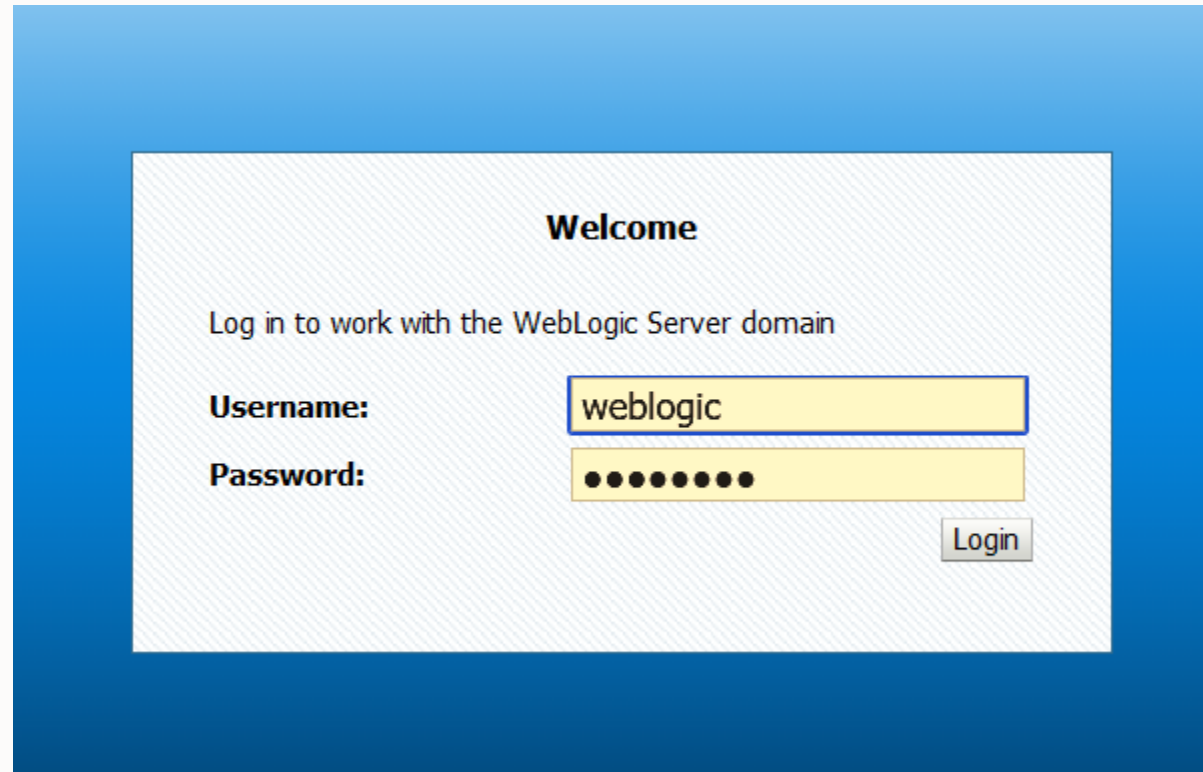
New

Delete



# Login to WebLogic Console

<http://host:port/console>

The image shows a screenshot of the WebLogic Console login interface. It features a blue gradient background. In the center, there is a white rectangular box with a thin blue border. Inside this box, the word "Welcome" is displayed in bold black text. Below it, the instruction "Log in to work with the WebLogic Server domain" is shown in a smaller black font. Further down, there are two labels: "Username:" and "Password:". To the right of "Username:" is a yellow text input field containing the text "weblogic". To the right of "Password:" is a yellow text input field filled with ten black dots, representing a masked password. At the bottom right of the white box, there is a small, light gray button with the text "Login" in black.

# Create Outbound Connection Pool

Home > Summary of Services > Summary of JDBC Data Sources > SOADDataSource > SOADataSource

### Create a New Outbound Connection

Back Next Finish Cancel

---

#### Outbound Connection Group

In which outbound connection group do you want to create

#### Outbound Connection Groups

	Outbound Connection Group ^
<input checked="" type="radio"/>	javax.resource.cci.ConnectionFactory

Back Next Finish Cancel

Home > Summary of Services > Summary of JDBC Data Sources > SOADDataSource > Summary of JDBC Data Sources > Summary of Deployments > DbAdapter

### Create a New Outbound Connection

Back Next Finish Cancel

---


#### JNDI name for Outbound Connection Instance

Enter the JNDI name that you want to use to obtain the new connection instance

\* Indicates required fields

---

The Outbound Connection instance represents a connection pool. The JNDI name can be used to obtain the pool at runtime.

 \* JNDI Name:

Back Next Finish Cancel

# Save Changes

Save Deployment Plan Assistant

OK

Cancel

Save Deployment Plan

You have made configuration changes that need to be stored in a new deployment plan.  
Select or enter the path of a deployment plan file. The path must end with '.xml'. It is highly recommended that this file be named 'Plan.xml'.  
Each plan should be located in its own directory, otherwise applications can inadvertently share deployment plan files. The plan file will be overwritten if it already

Path:

C:\fmw124\Oracle\_Home\soa\soa\Plan.xml

Recently Used Paths:

(none)

Current Location:

localhost \ C: \ fmw124 \ Oracle\_Home \ soa \ soa

applications

compdist

connectors

doc

helpsets

modules

prov

OK

Cancel

This page allows you to view and modify the configuration properties of this outbound connection pool. Properties you modify here are saved to a deployment plan

Save

Property Name	Property Type	Property Value
DataSourceName	java.lang.String	
DefaultNChar	java.lang.Boolean	false
PlatformClassName	java.lang.String	org.eclipse.persistence.platform.database.Oracle
SequencePreallocationSize	java.lang.Integer	50
UsesBatchWriting	java.lang.Boolean	true
UsesNativeSequencing	java.lang.Boolean	true
UsesSkipLocking	java.lang.Boolean	true
XADataSourceName	java.lang.String	jdbc/HR

Save

✓ All changes have been activated. No restarts are necessary.

✓ A new deployment plan has been successfully created in C:\fmw124\Oracle\_Home\soa\soa\Plan.xml.

✓ Your deployment configuration has been updated to include the new plan.

Settings for DbAdapter

Overview

Deployment Plan

Configuration

Security

Targets

Control

Testing

Monitoring

Notes

Save

This page displays basic information about this resource adapter.

Name:

DbAdapter

Scope:

Global

Source Path:

C:\fmw124\Oracle\_Home\soa\soa\connectors\DbAdapter.rar

Deployment Plan:

C:\fmw124\Oracle\_Home\soa\soa\Plan.xml

Staging Mode:

nostage

Plan Staging Mode:

(not specified)

Security Model:

DDOnly

Deployment Order:

100

Deployment Principal Name:

Save

# Create Data Source

[Customize this table](#)

**Data Sources (Filtered - More Columns Exist)**

New ▾ Delete

	Type
Generic Data Source	Generic
GridLink Data Source	Generic
Multi Data Source	Generic
Proxy Data Source	Generic
UCP Data Source	Generic
<input type="checkbox"/> mds-owsm	Generic
<input type="checkbox"/> mds-soa	Generic
<input type="checkbox"/> opss-audit-DBDS	Generic
<input type="checkbox"/> opss-audit-viewDS	Generic
<input type="checkbox"/> opss-data-source	Generic

Create a New JDBC Data Source

Back Next Finish Cancel

**JDBC Data Source Properties**

The following properties will be used to identify your new JDBC data source.

\* Indicates required fields

What would you like to name your new JDBC data source?

\* Name: hrSchema

What scope do you want to create your data source in?

Scope: Global

What JNDI name would you like to assign to your new JDBC Data Source?

\* JNDI Name: jdbc/hr

What database type would you like to select?

Database Type: Derby

Back Next Finish Cancel

Create a New JDBC Data Source

Back Next Finish Cancel

**JDBC Data Source Properties**

The following properties will be used to identify your new JDBC data source.

Database Type: Derby

What database driver would you like to use to create database connections? Note: \* indicates that the driver is explicitly supported by Oracle WebLogic Server.

Database Driver: Derby's Driver (Type 4) for client driver; Versions:Any

Back Next Finish Cancel

# Connection Details - Test

Back

Next

Finish

Cancel

Connection Properties

Define Connection Properties.

What is the name of the database you would like to connect to?

Database Name:

soainfra

What is the name or IP address of the database server?

Host Name:

localhost

What is the port on the database server used to connect to the database?

Port:

1527

What database account user name do you want to use to create database connections?

Database User Name:

soainfra

What is the database account password to use to create database connections?

Password:

Confirm Password:

Back

Next

Finish

Cancel

Test Database Connection

Test the database availability and the connection properties you provided.

What is the full package name of JDBC driver class used to create database connections in the connection pool?  
(Note that this driver class must be in the classpath of any server to which it is deployed.)

Driver Class Name:

org.apache.derby.jdbc.ClientDriver

What is the URL of the database to connect to? The format of the URL varies by JDBC driver.

URL:

jdbc:derby://localhost:1527/soainfra;ServerName=loc

What database account user name do you want to use to create database connections?

Database User Name:

soainfra

What is the database account password to use to create database connections?  
(Note: for secure password management, enter the password in the Password field instead of t

Password:

Confirm Password:

What are the properties to pass to the JDBC driver when creating database connections?

Properties:

user=soainfra  
portNumber=1527  
databaseName=soainfra;create=true  
serverName=localhost

## Messages


✔ Connection test succeeded.

# Add the DataSource to Connection Factory

This page allows you to view and modify the configuration properties of this outbound connection pool. Properties you modify here are saved to a deployment plan.

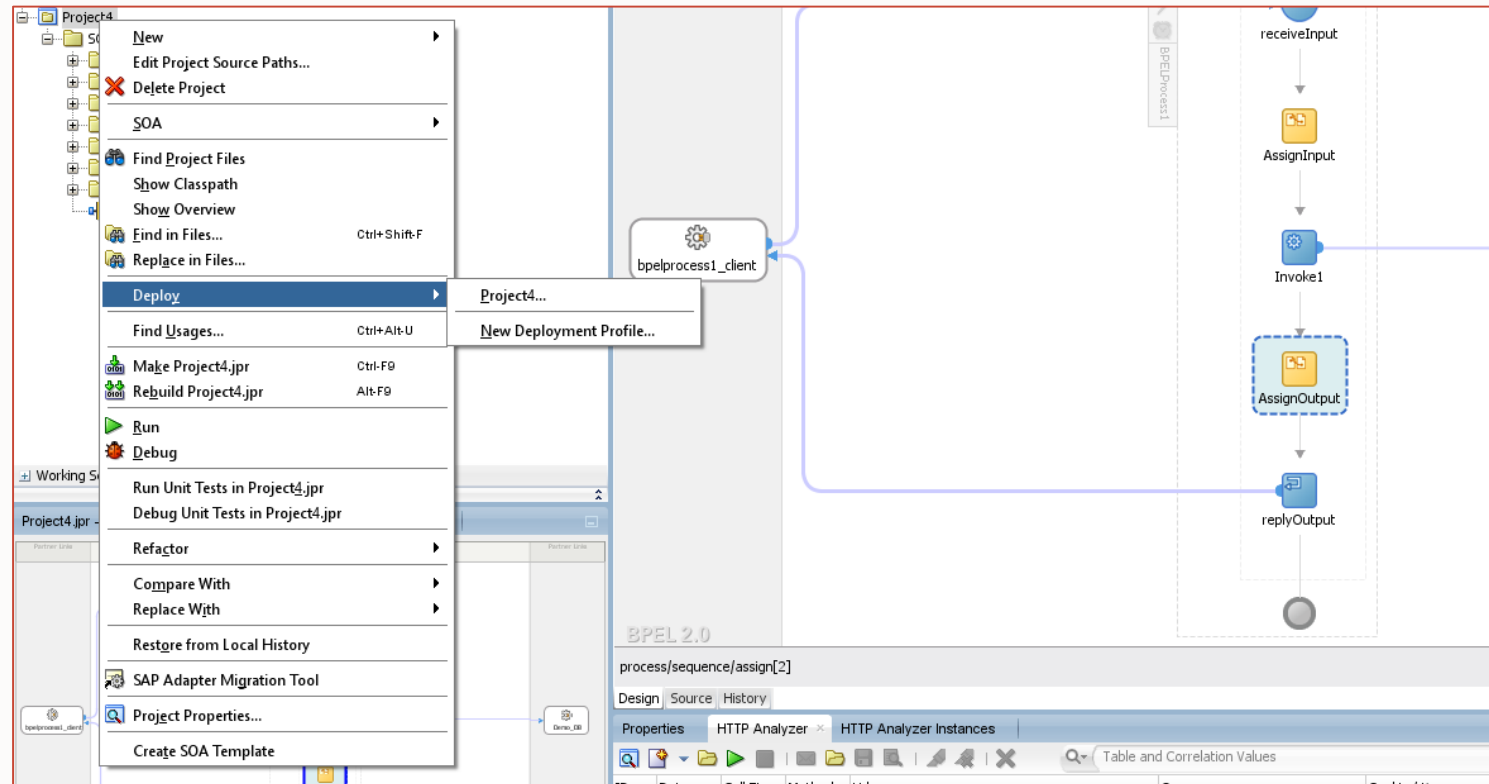
## Outbound Connection Properties

Save

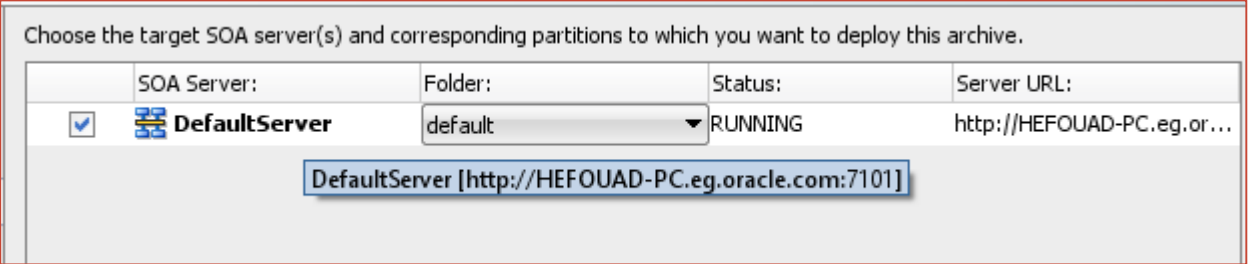
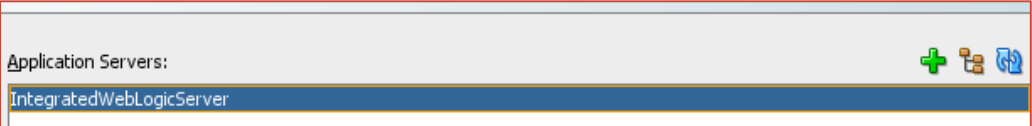
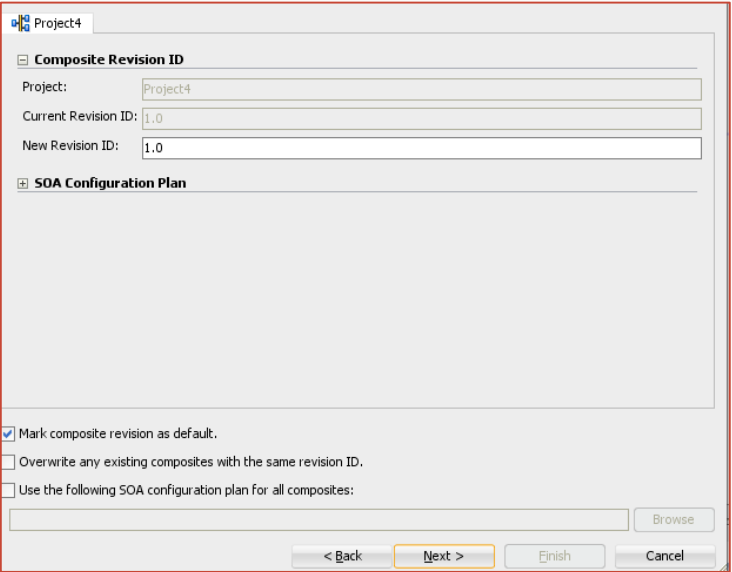
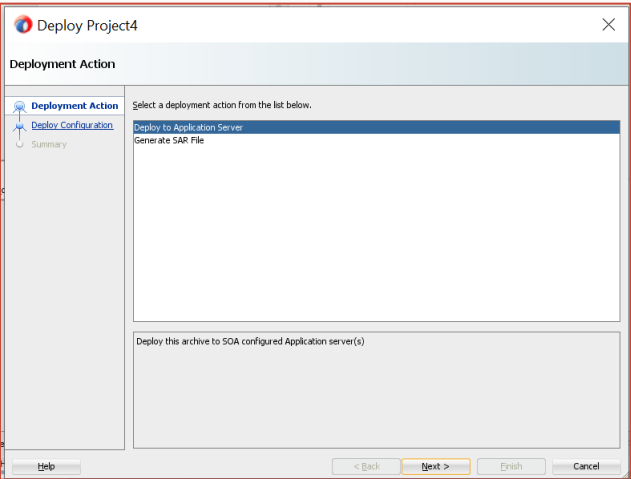
Property Name 	Property Type	Property Value
DataSourceName	java.lang.String	
DefaultNChar	java.lang.Boolean	false
PlatformClassName	java.lang.String	org.eclipse.persistence.platform.database.Oracle
SequencePreallocationSize	java.lang.Integer	50
UsesBatchWriting	java.lang.Boolean	true
UsesNativeSequencing	java.lang.Boolean	true
UsesSkipLocking	java.lang.Boolean	true
XADataSourceName	java.lang.String	<input type="text" value="jdbc/HR"/>

Save

# Deploy to Server



# Deploy to Integrated Server





# Verify Deployment

```
Buildfile: C:\mwKW\soa\bin\ant-sca-compile.xml
```

```
scac:
```

```
  [input] skipping input as property scac.input has already been set.
```

```
  [scac] Validating composite "C:\JDeveloper\mywork\Application1\Project4\SOA\composite.xml"
```

```
  [scac] Setting BPELC option 'classpath' to C:\mwKW\soa\soa\modules\oracle.bpm.client_11.1.1\oracle.bpm.bpm-services.interface.jar;C:\mwKW\soa\soa\modules\oracle.bpm.client_11.1.1\o
```

```
BUILD SUCCESSFUL
```

```
Total time: 8 seconds
```

```
[11:11:01 PM] ---- Deployment started. ----
[11:11:01 PM] Target platform is (Weblogic 12.x).
[11:11:01 PM] Running dependency analysis...
[11:11:01 PM] Building...
[11:11:10 PM] Deploying profile...
[11:11:10 PM] WARNING: Connection DB_Derby has no password. DB_Derby-jdbc.xml file not generated for connection DB_Derby.
[11:11:11 PM] Wrote Archive Module to C:\JDeveloper\mywork\Application1\Project4\deploy\sca_Project4.jar
[11:11:11 PM] Deploying sca_Project4.jar to partition "default" on server DefaultServer (http://HEFOUAD-PC.eg.oracle.com:7101)
[11:11:11 PM] Processing sar=C:\JDeveloper\mywork\Application1\Project4\deploy\sca_Project4.jar
[11:11:11 PM] Adding sar file - C:\JDeveloper\mywork\Application1\Project4\deploy\sca_Project4.jar
[11:11:11 PM] Preparing to send HTTP request for deployment
[11:11:11 PM] Creating HTTP connection to host:HEFOUAD-PC.eg.oracle.com, port:7101
[11:11:11 PM] Sending internal deployment descriptor
[11:11:11 PM] Sending archive - sca_Project4.jar
[11:11:12 PM] Received HTTP response from the server, response code=200
[11:11:12 PM] Successfully deployed archive sca_Project4.jar with 0 warning/severe messages to partition "default" on server DefaultServer (http://HEFOUAD-PC.eg.oracle.com:7101)
[11:11:12 PM] Elapsed time for deployment: 11 seconds
[11:11:12 PM] ---- Deployment finished. ----
```

Deployment messages

# EM

LOGIN TO  
**ORACLE ENTERPRISE MANAGER**  
FUSION MIDDLEWARE CONTROL 12c

Domain Domain\_DefaultDomain

\* User Name weblogic

\* Password ••••••••

Login

Domain Domain\_DefaultDomain

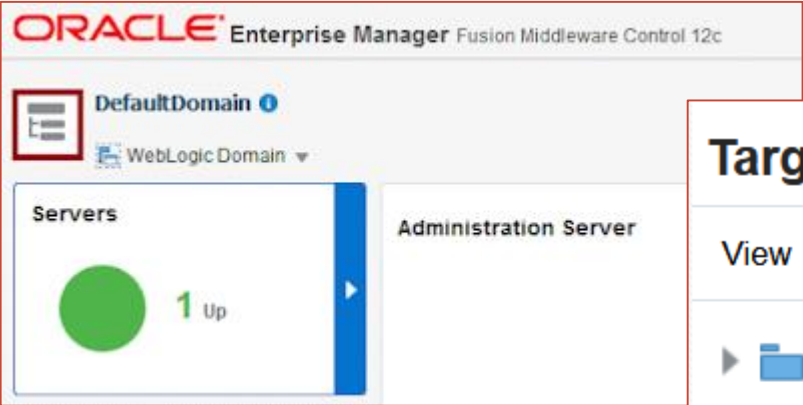
\* User Name weblogic

\* Password ••••••••

☐ Login to Partition

Sign in

# Navigation



## Target Navigation

View ▾

▶

Application Deployments

▲

SOA

+

service-bus (DefaultServer)

+

soa-infra (DefaultServer)

▲

WebLogic Domains

▲

DefaultDomain

+

DefaultServer

▶

Coherence Clusters

▶

Metadata Repositories

▶

User Messaging Service

Dashboard

SOA Folders

Deployed Composites

Flow Instances

Error

A composite application consists of the entire assembly of SOA components that

Show only active composites ☐

View ▾

Start Up...

Activate ...



Set As Default ...

Deploy...

Composite
● Project4 [1.0]
● SayHello [1.0]
● Project1 [1.0]
● HelloWorld [1.0]
Project1 [2.0]


# Test

SOA Infrastructure > default (SOA Folder) > Composite



 **Project4 [1.0]** ▼ (SOA Composite Application) | **Active** | **Retire ...** | **Shut Down...** | **Test** | **Settings...** ▼ | 

**Dashboard** | Composite Definition | Flow Instances | Unit Tests | Policies

▲ **Components**

Name
 BPELProcess1

▲ **Services and References**

Name
 bpelprocess1_client_ep
 Demo_DB

# Input Arguments for Testing

**Input Arguments**

Tree View

Enable Validation ☒

Load Payload 


Browse...


 No file selected.

Save Payload

**SOAP Body**

View

 Detach

Name	Type	Value
 * payload	Dept	
* deptno	integer	<div>10</div>
dname	string	<div>102</div> <div>101</div>
location	string	<div></div>

# Result

**Input Arguments**

Tree View ▾

Enable Validation ☒

Load Payload 


Browse...

 No file selected.

Save Payload

**SOAP Body**

View ▾

 Detach

Name	Type	Value
▲ * payload	Dept	
* deptno	integer	<div>10</div>
dname	string	<div>102</div> <div>101</div>
location	string	<div></div>

The background of the slide is a repeating pattern of overlapping circles. Each circle is filled with numerous concentric, slightly irregular lines, creating a textured, wood-grain-like effect. The circles are arranged in a staggered, honeycomb-like fashion, with some overlapping others.

**Q&A**

# Tutorials

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Topic	Website
Oracle SOA Suite	<a href="https://docs.oracle.com/en/middleware/soa-suite/soa/12.2.1.4/index.html">https://docs.oracle.com/en/middleware/soa-suite/soa/12.2.1.4/index.html</a>
Product Forums	<a href="http://forums.oracle.com">http://forums.oracle.com</a>
Sample Code	<a href="http://www.oracle.com/technology/sample_code">http://www.oracle.com/technology/sample_code</a>

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