

SOA Build Composite

Demo

Heba Owis

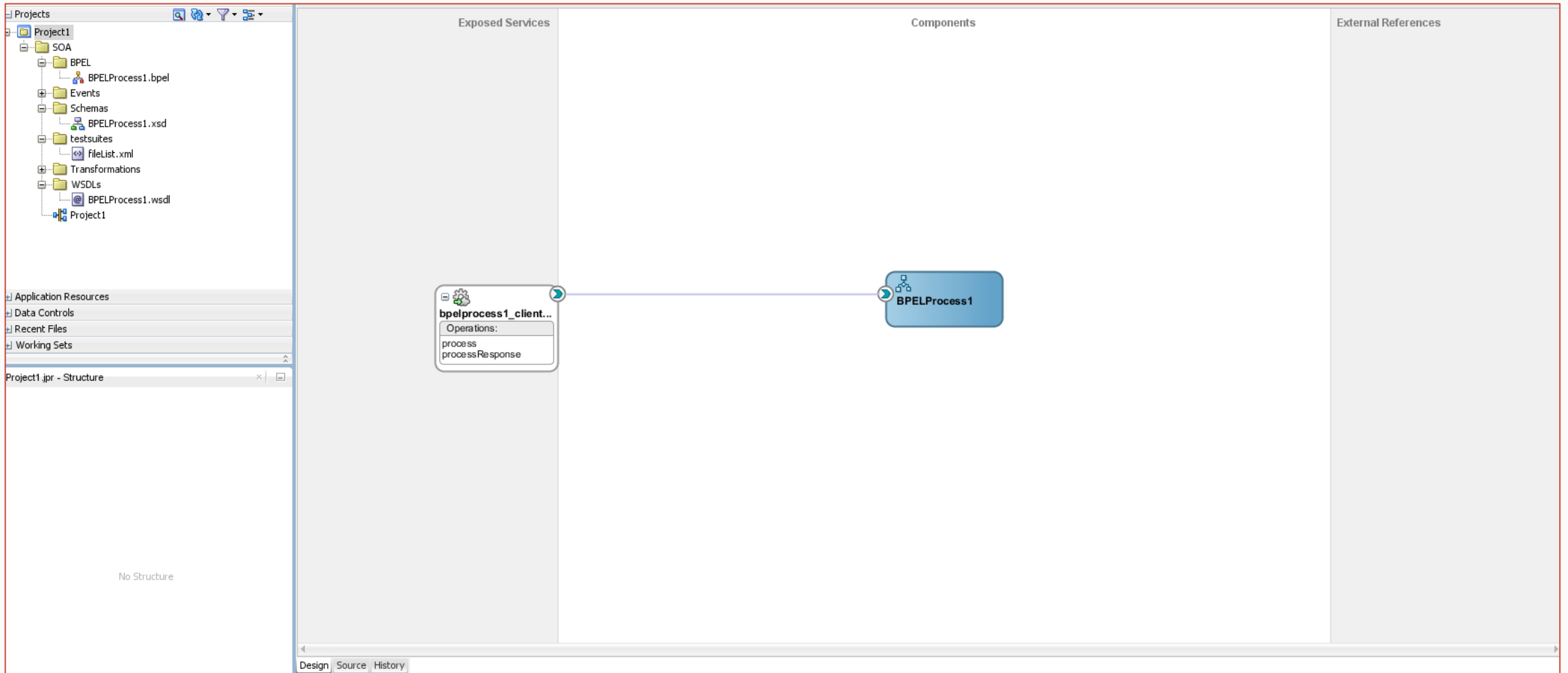
26 May 2024

Agenda

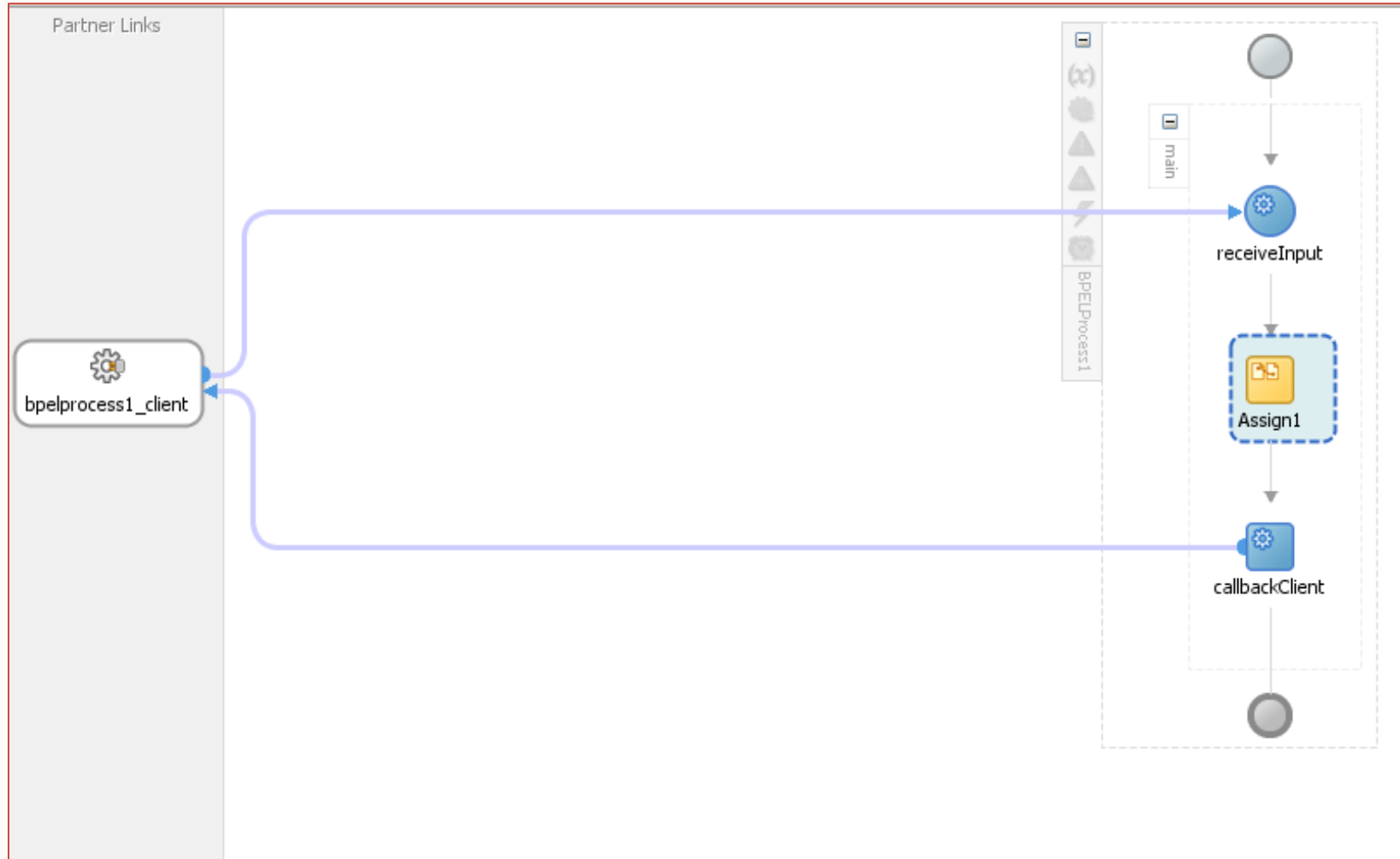
1. Development of “Hello World” SOA Composite
2. Deployment of SOA Composite

Development of “Hello World” SOA Composite (live demo)

HelloWorld Composite Application

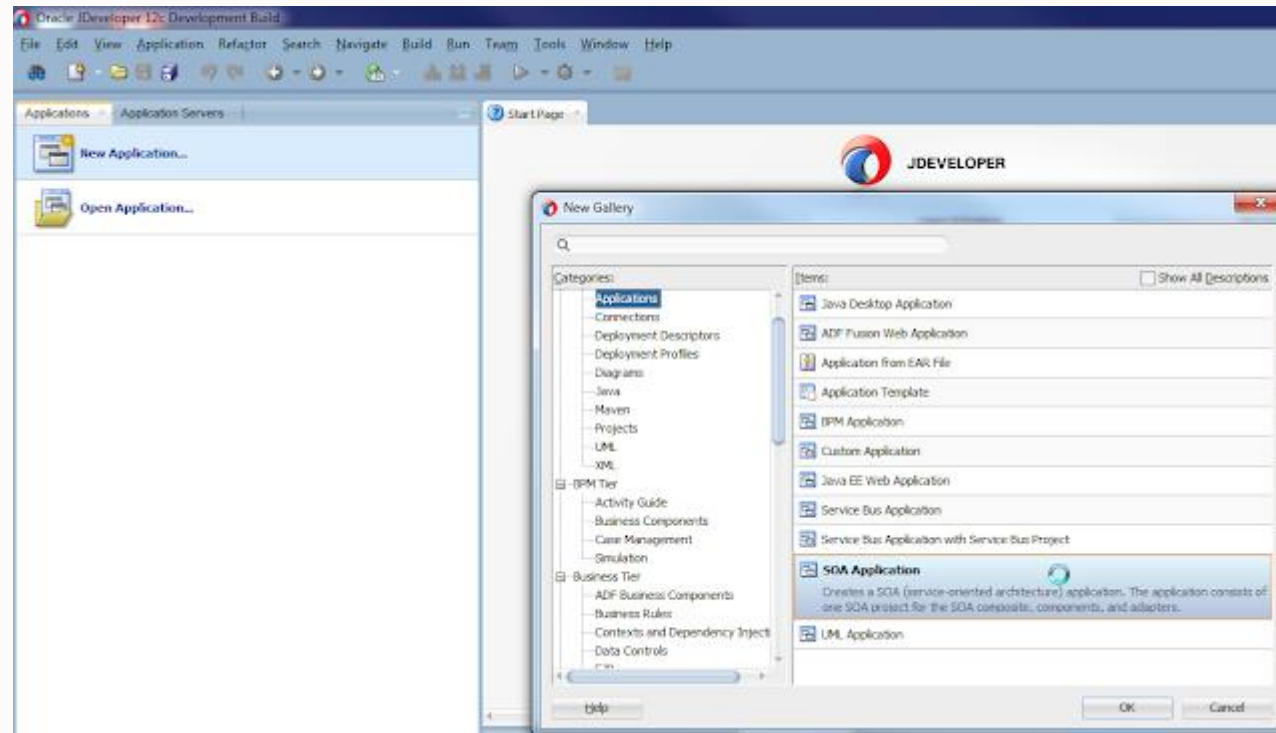


HelloWorld Composite Application



Create SOA Application

After having JDeveloper started, click on the 'New Application' link, top right. You can also use the New icon (+) or the File->New menu, option Application



SOA Application

Create SOA Application - Step 1 of 3

Name your application

Application Name

Application Name: HelloWorld

Project Name

Project SOA Settings

Directory: C:\Data\Source\HelloWorld Browse...

Application Package Prefix:

Help < Back Next > Finish Cancel

SOA Project

Create SOA Application - Step 2 of 3

Name your project

[Application Name](#)

Project Name

[Project SOA Settings](#)

Project Name: HelloWorld

Directory: C:\Data\Source\HelloWorld\HelloWorld [Browse...](#)

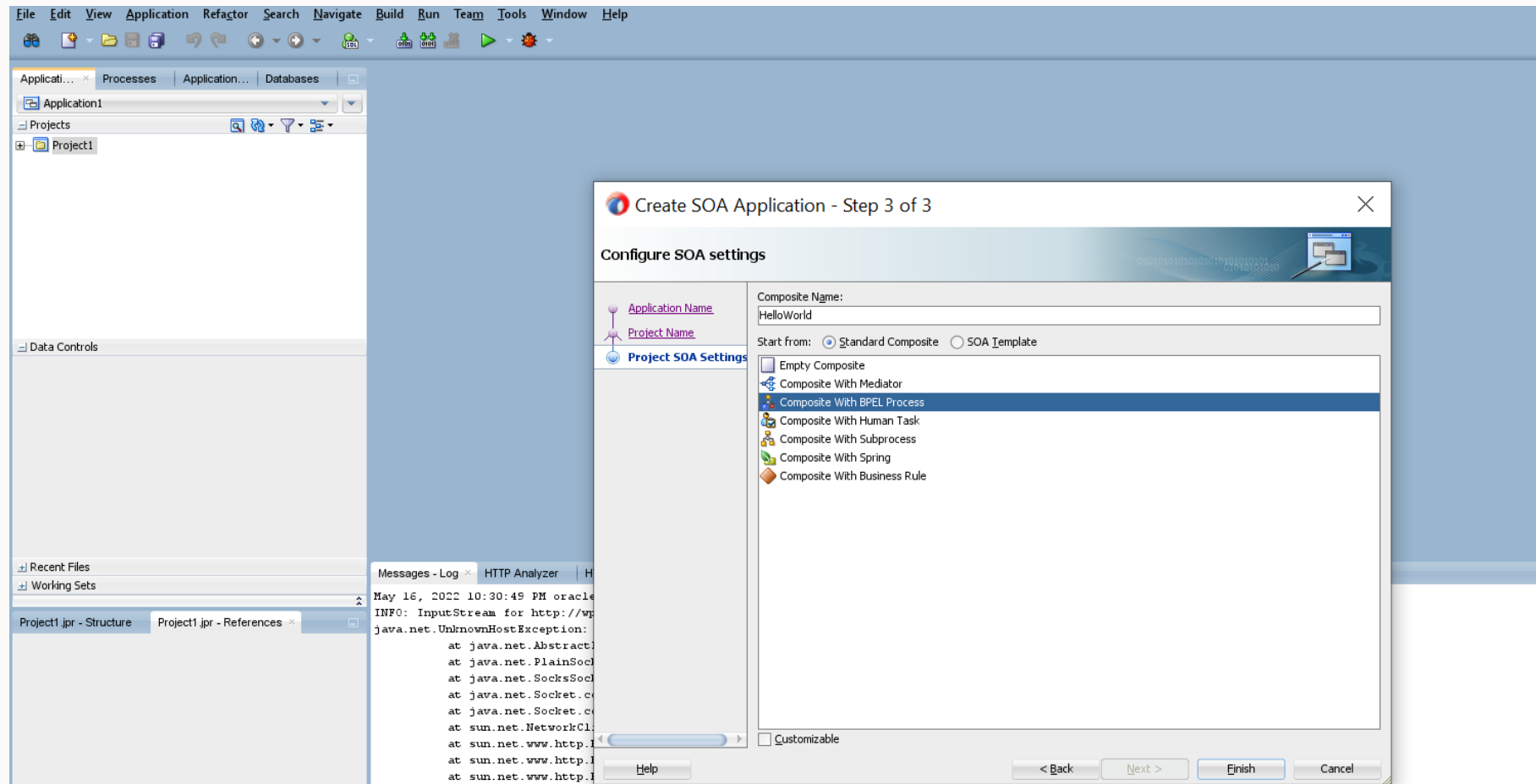
Project Features:

SOA Suite

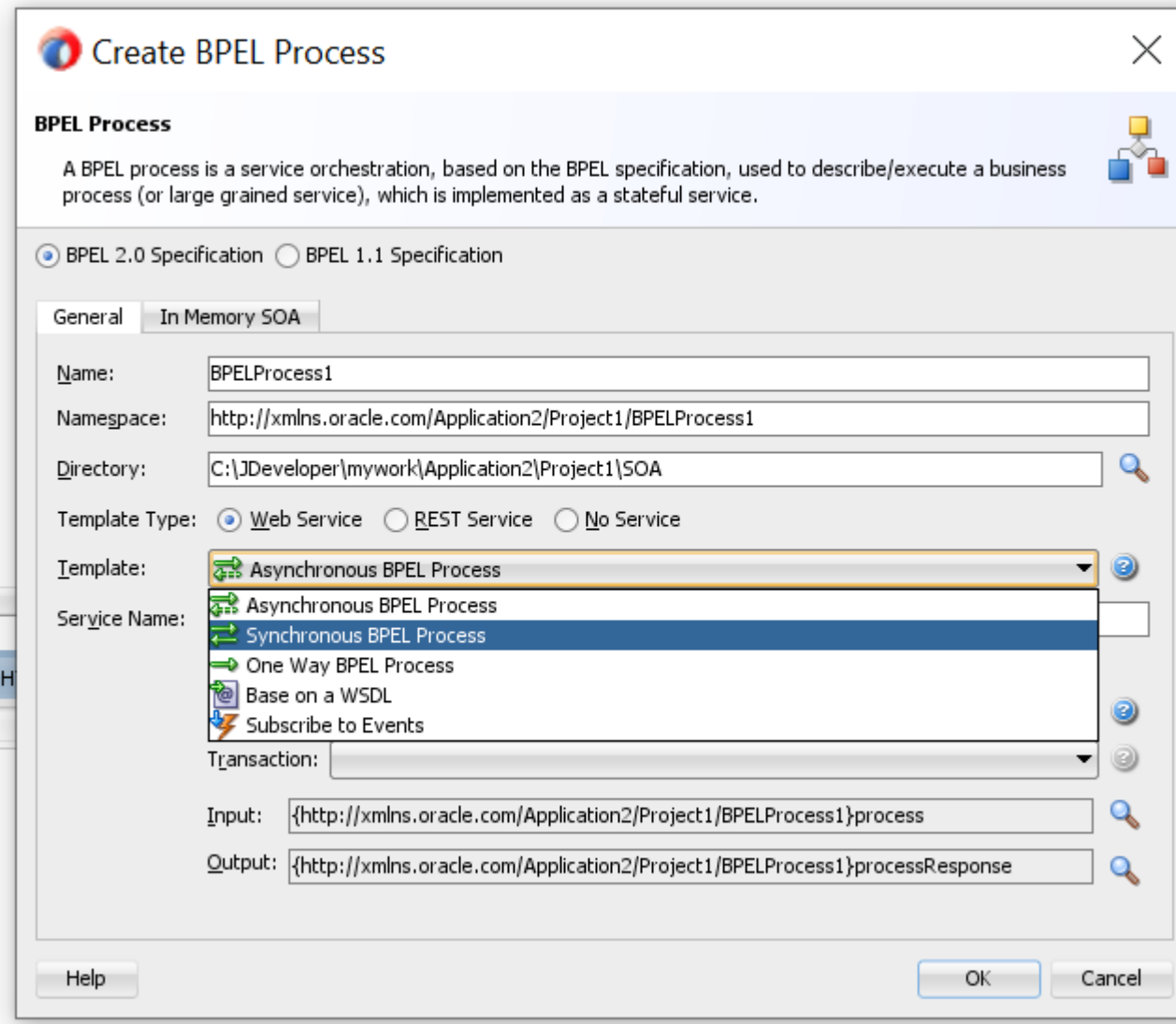
SOA Suite is a suite of tools to model SOA(Service Oriented Architecture) applications.

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

BPEL Process



Create BPEL



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: BPELProcess1

Namespace: http://xmlns.oracle.com/Application2/Project1/BPELProcess1

Directory: C:\JDeveloper\mywork\Application2\Project1\SOA

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

Template: Asynchronous BPEL Process

Service Name: Synchronous BPEL Process

Transaction:

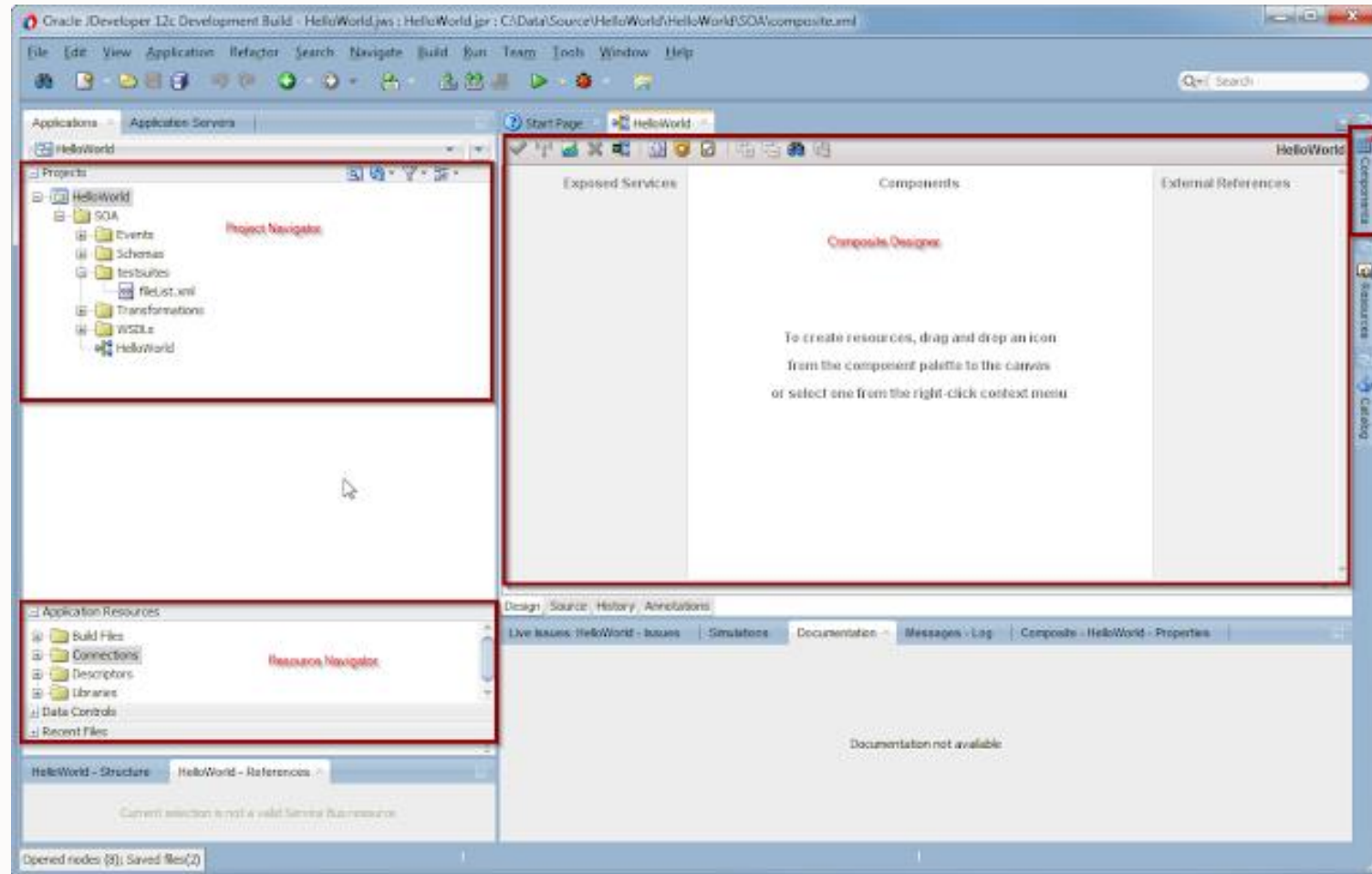
Input: {http://xmlns.oracle.com/Application2/Project1/BPELProcess1}process

Output: {http://xmlns.oracle.com/Application2/Project1/BPELProcess1}processResponse

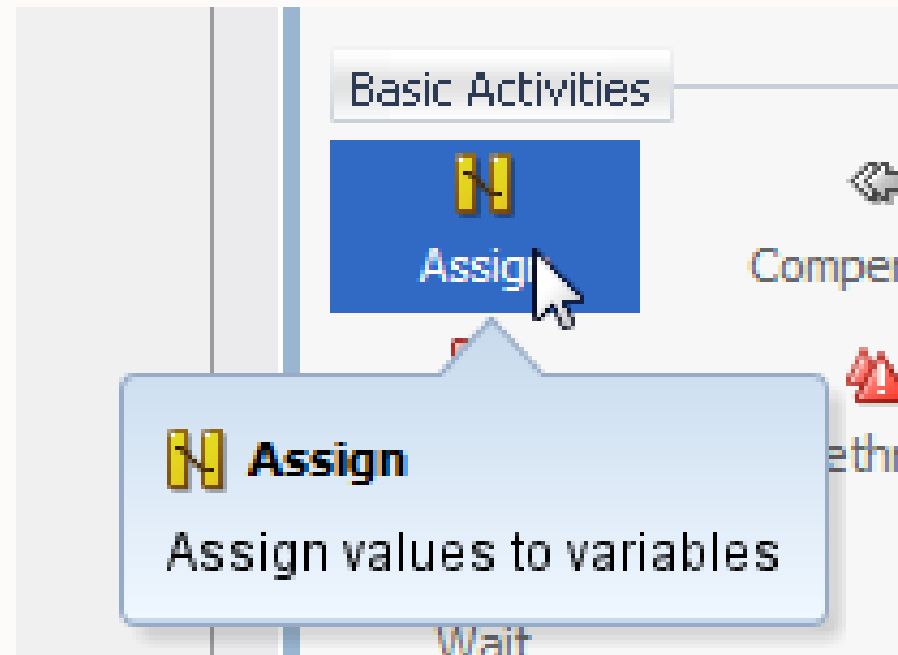
Help OK Cancel

The dialog box is titled "Create BPEL Process". It has a close button (X) in the top right corner. Below the title bar, there's a section titled "BPEL Process" with a description: "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." To the right of this text is a small icon showing a flowchart. Below this, there are two radio buttons: "BPEL 2.0 Specification" (selected) and "BPEL 1.1 Specification". Underneath, there are two tabs: "General" (selected) and "In Memory SOA". The "General" tab contains several fields: "Name" (BPELProcess1), "Namespace" (http://xmlns.oracle.com/Application2/Project1/BPELProcess1), "Directory" (C:\JDeveloper\mywork\Application2\Project1\SOA), "Template Type" (Web Service selected, REST Service and No Service are unselected), "Template" (Asynchronous BPEL Process selected, with a dropdown menu showing other options: Asynchronous BPEL Process, Synchronous BPEL Process, One Way BPEL Process, Base on a WSDL, and Subscribe to Events), "Service Name" (empty), "Transaction" (empty), "Input" ({http://xmlns.oracle.com/Application2/Project1/BPELProcess1}process), and "Output" ({http://xmlns.oracle.com/Application2/Project1/BPELProcess1}processResponse). At the bottom, there are three buttons: "Help", "OK", and "Cancel".

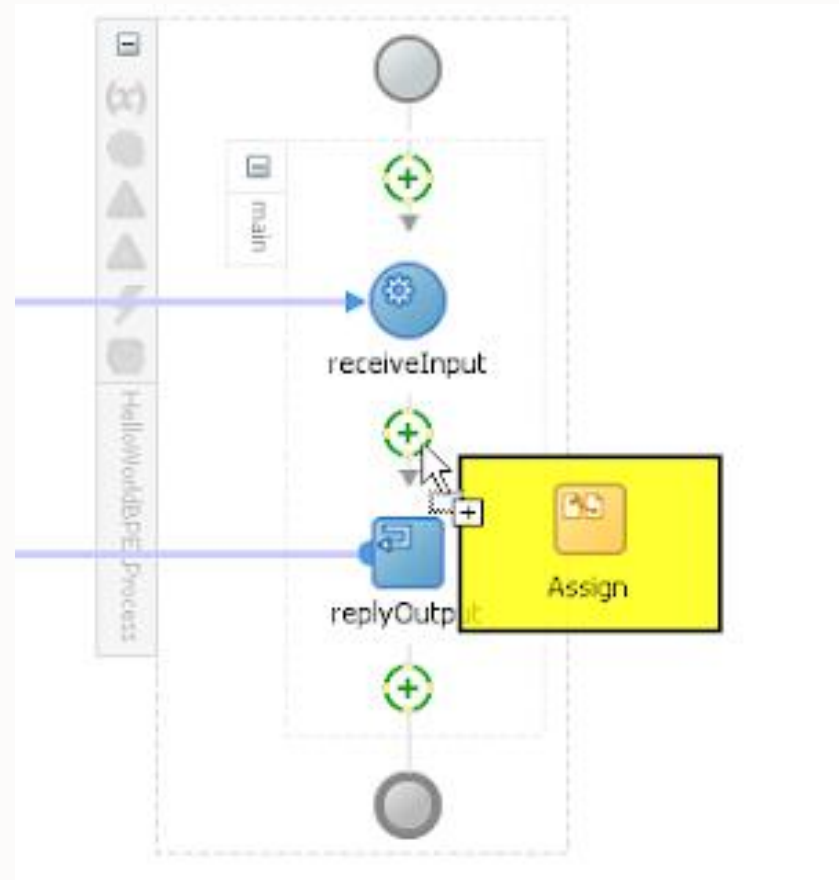
JDeveloper Environment



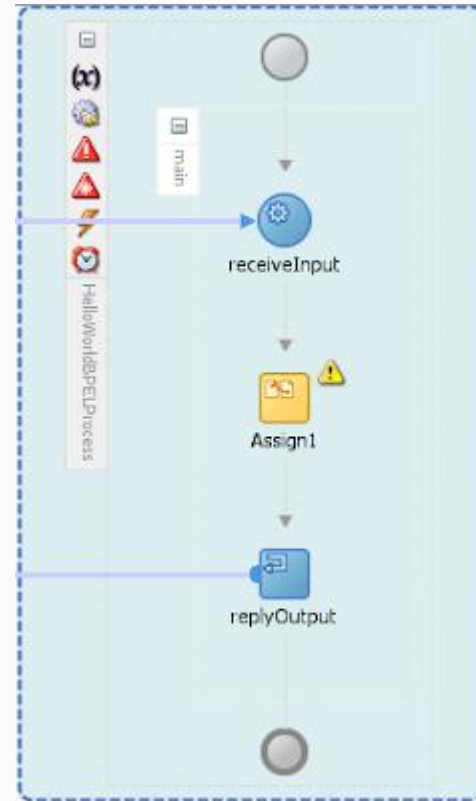
Select Assign Activity



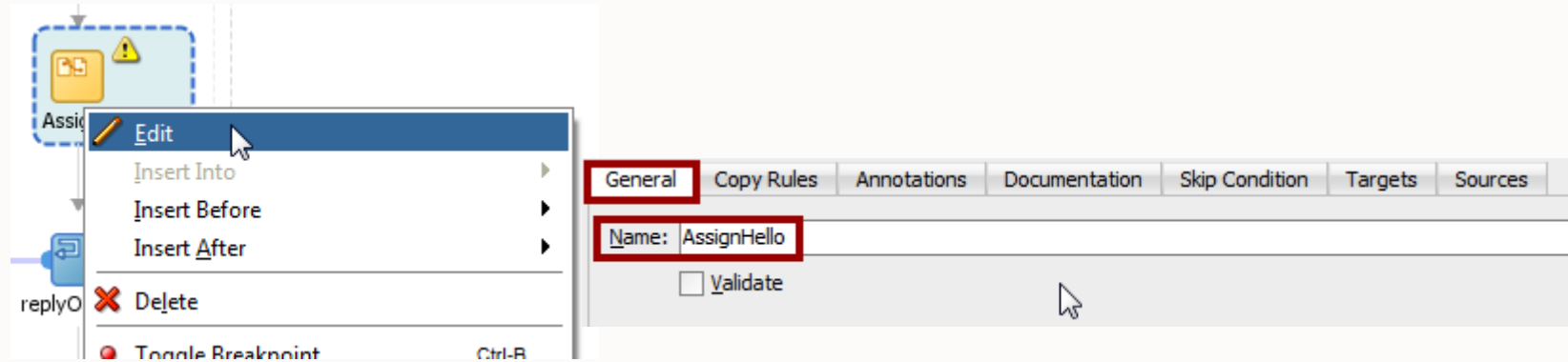
Drag Assign Activity



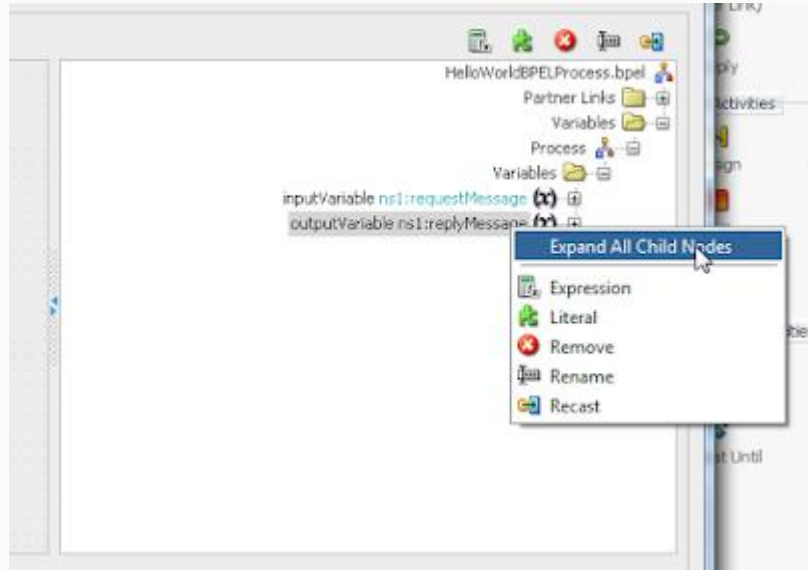
Drop Assign



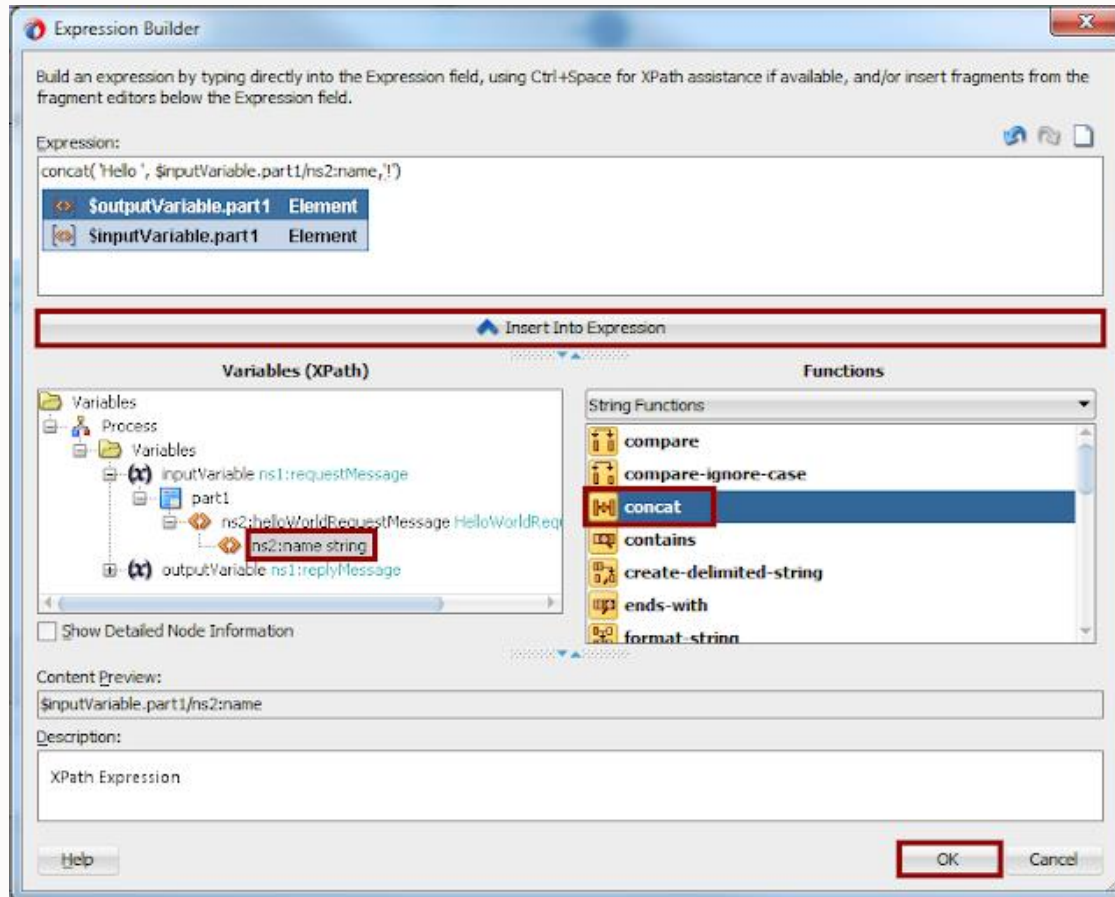
Edit Assign



Expand All Child

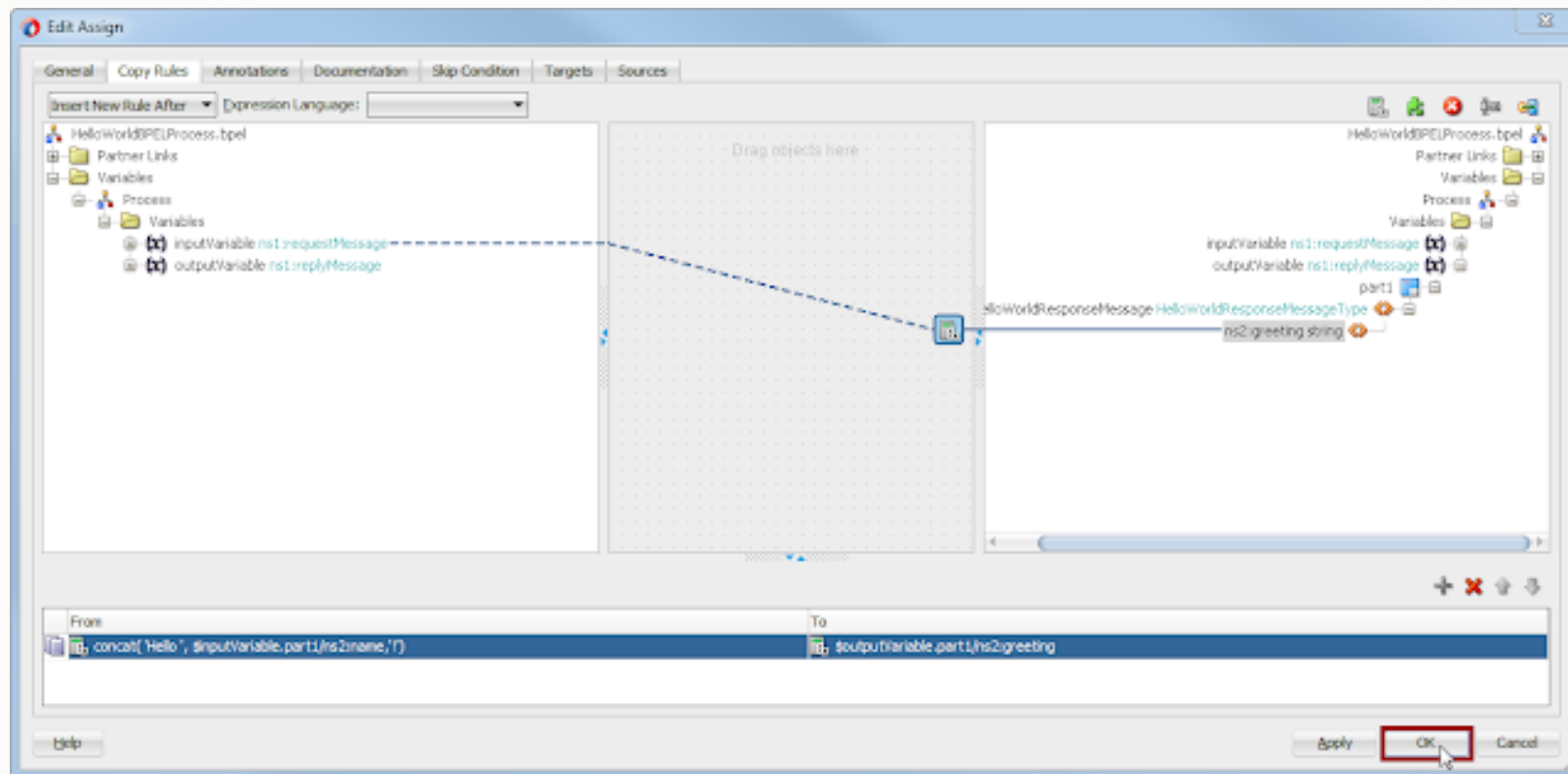


Xpath Expression

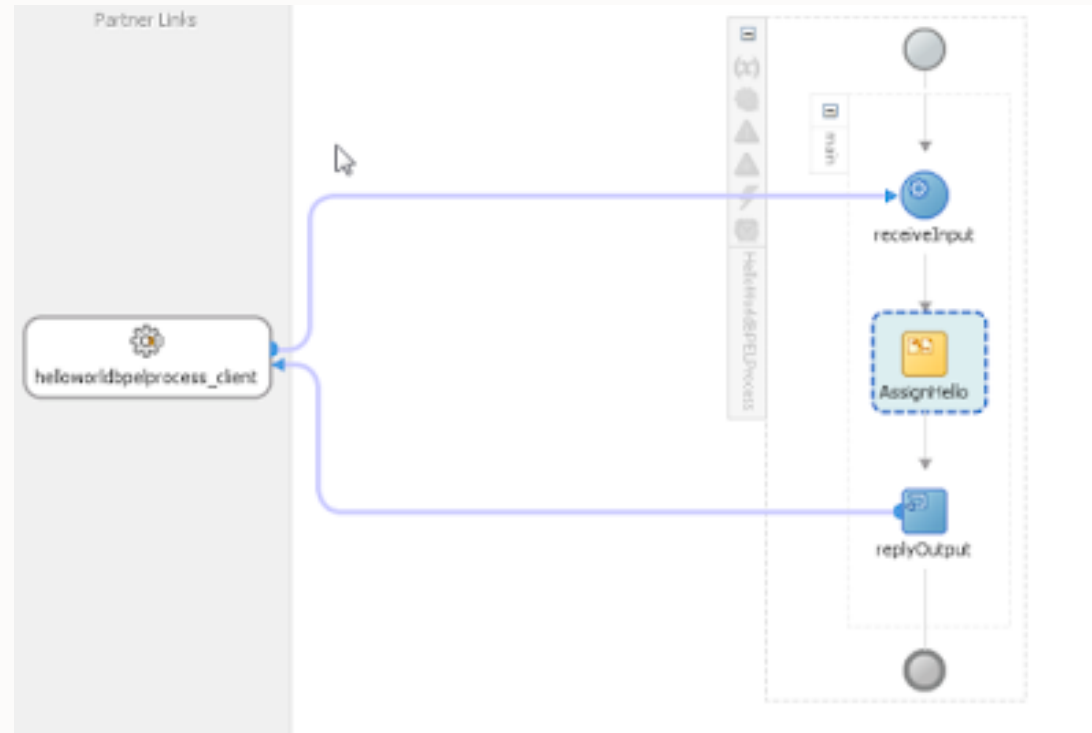


```
1 | concat( 'Hello ', $inputVariable.part1/ns2:name, '!')
```

Assign Result



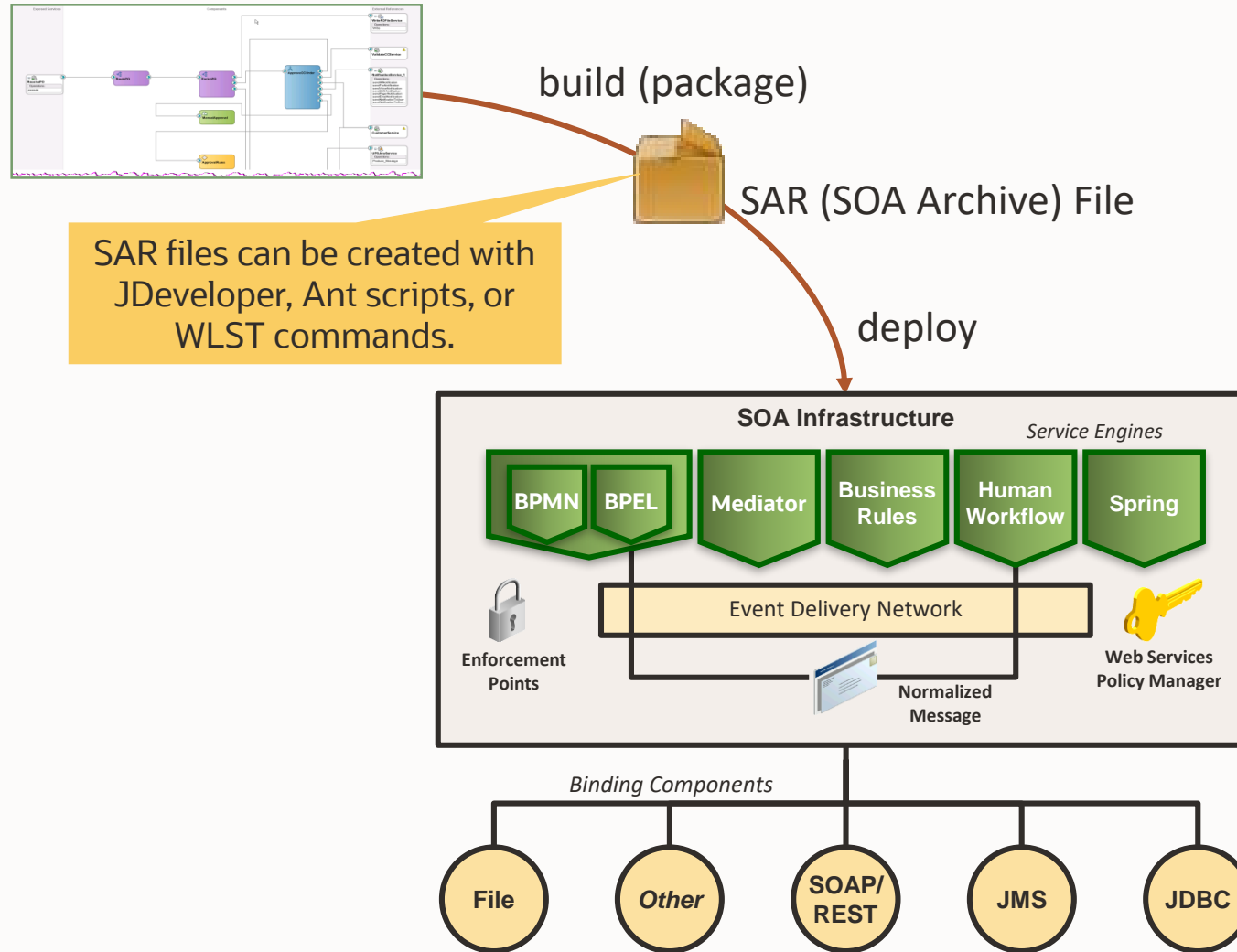
BPEL Process result



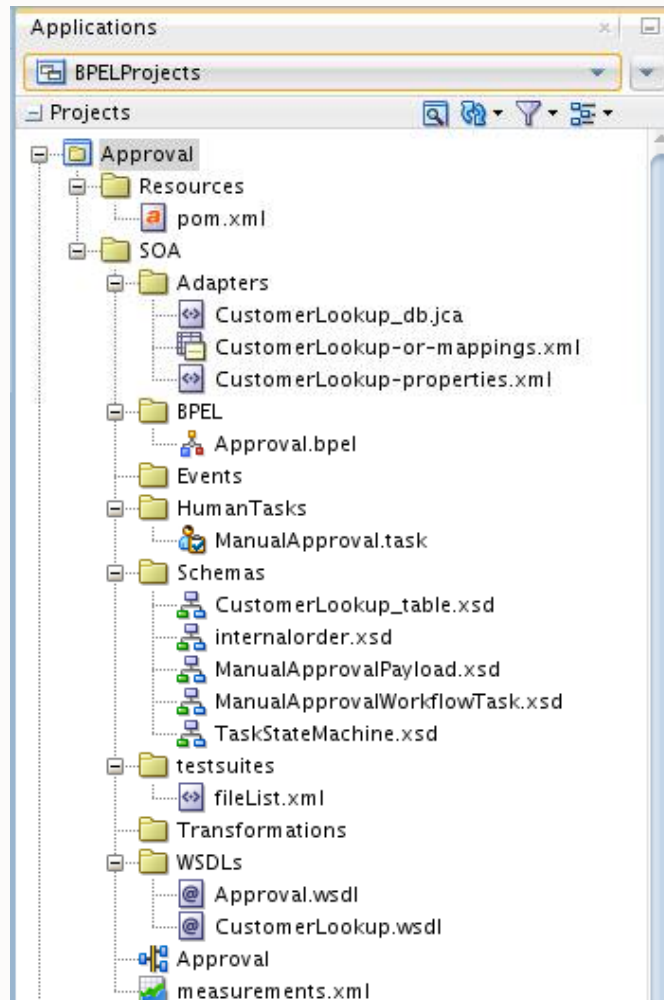


Deployment

Packaging and Deploying a Composite Application



Building a Service Archive

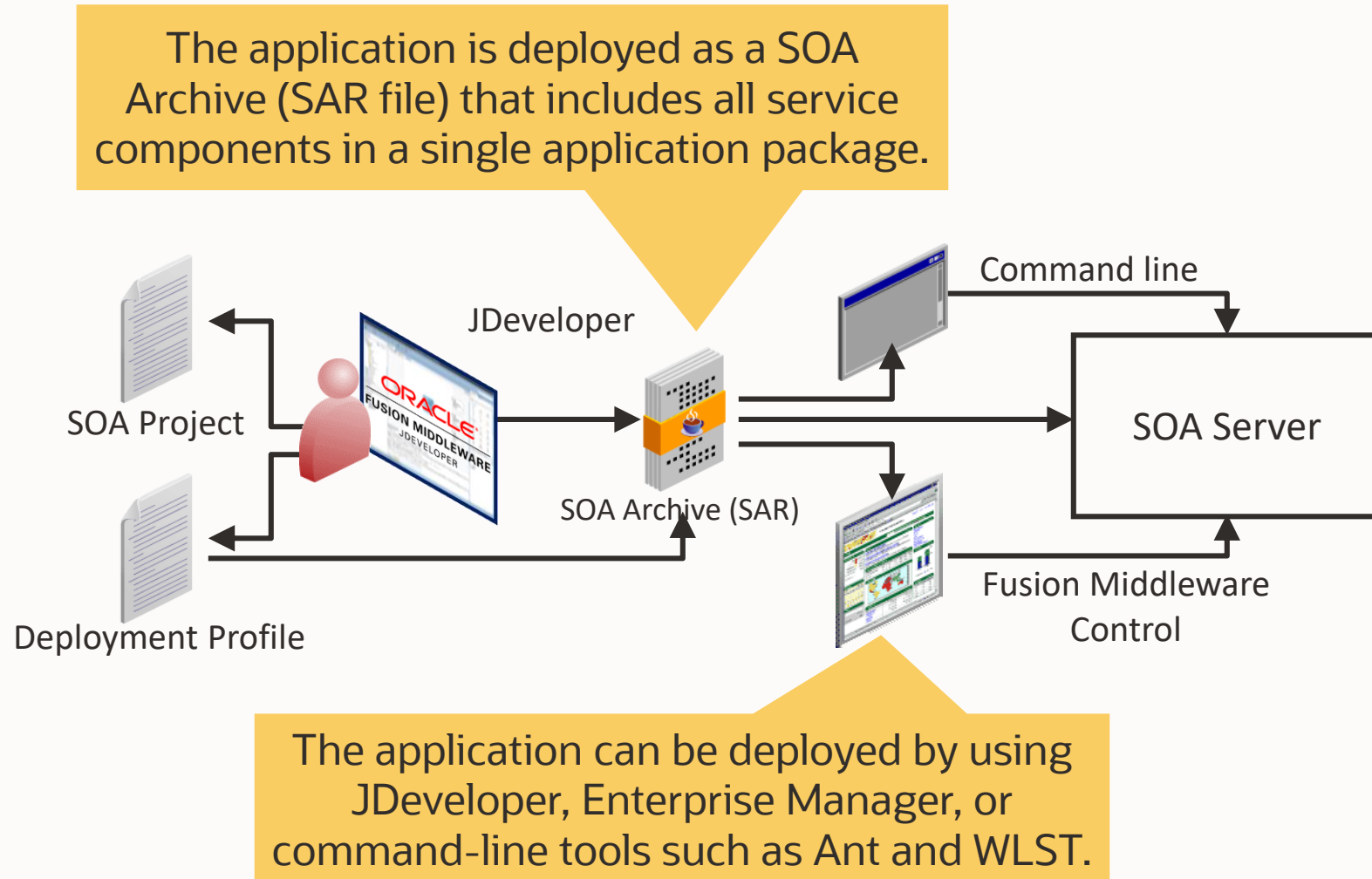


sca_Approval_rev1.0.jar

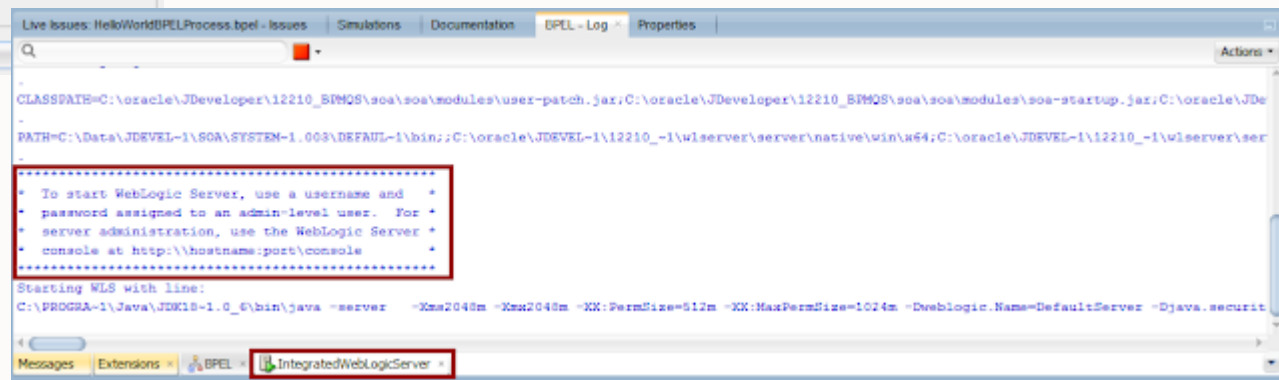
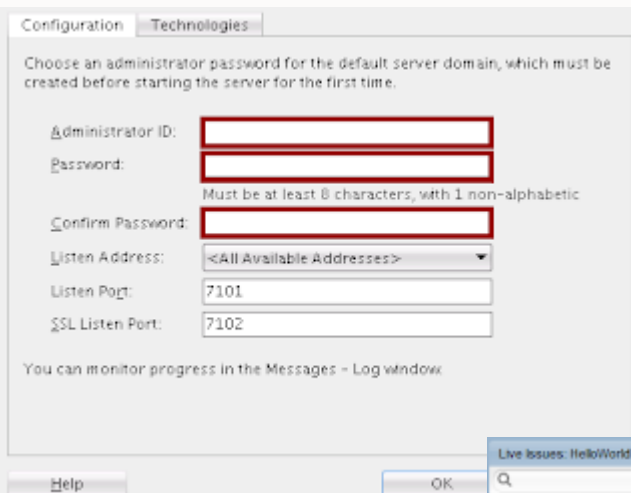
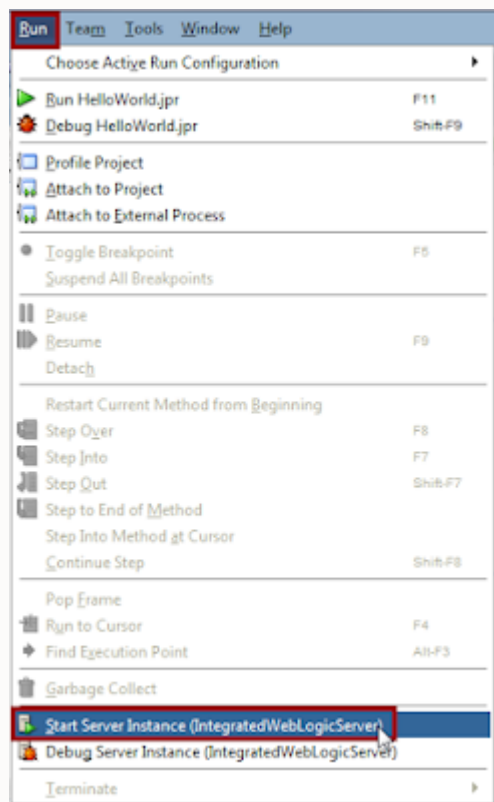
The screenshot shows the contents of the 'sca_Approval_rev1.0.jar' file. The table below lists the files and their properties:

Name	Size	Type	Date Modified	Location
composite.xml	5.7 KB	XML document	29 September ...	/
measurements.xml	1.2 KB	XML document	29 September ...	/
ManualApproval_graphics.xml	768 bytes	XML document	29 September ...	/taskeditor
CustomerLookup-or-mappings.xml	5.3 KB	XML document	29 September ...	/Adapters
CustomerLookup-properties.xml	2.2 KB	XML document	29 September ...	/Adapters
CustomerLookup_db.jca	817 bytes	unknown	29 September ...	/Adapters
Approval.bpel	15.1 KB	unknown	29 September ...	/BPEL
ManualApproval.task	3.8 KB	unknown	29 September ...	/HumanTasks
SOA-jdbc.xml	1002 bytes	XML document	15 December 2...	/META-INF
weblogic-application.xml	404 bytes	XML document	15 December 2...	/META-INF
Approval.diagram.jpg	46.7 KB	JPEG image	09 October 201...	/SCA-INF
Approval.diagram.xml	7.7 KB	XML document	09 October 201...	/SCA-INF
CustomerLookup_table.xsd	1.4 KB	unknown	29 September ...	/Schemas
internalorder.xsd	2.5 KB	unknown	29 September ...	/Schemas
ManualApprovalPayload.xsd	566 bytes	unknown	29 September ...	/Schemas
ManualApprovalWorkflowTask.xsd	40.0 KB	unknown	29 September ...	/Schemas
TaskStateMachine.xsd	1.5 KB	unknown	29 September ...	/Schemas
fileList.xml	66 bytes	XML document	29 September ...	/testsuites
Approval.wsdl	2.8 KB	unknown	29 September ...	/WSDLs
CustomerLookup.wsdl	1.6 KB	unknown	29 September ...	/WSDLs

Deploying a Composite Application



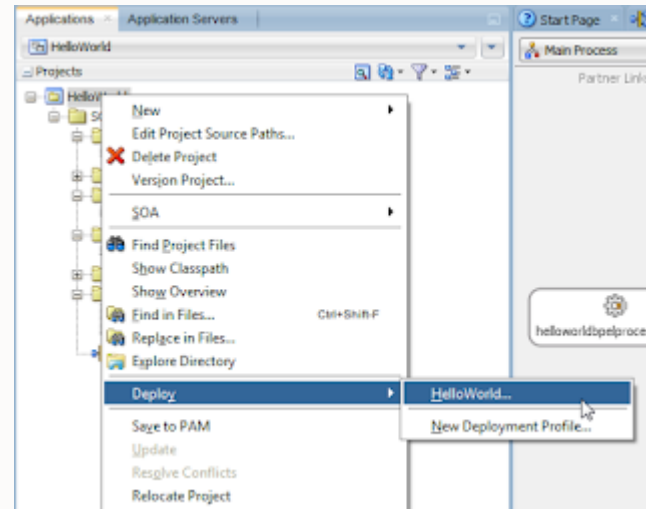
Start Local Server



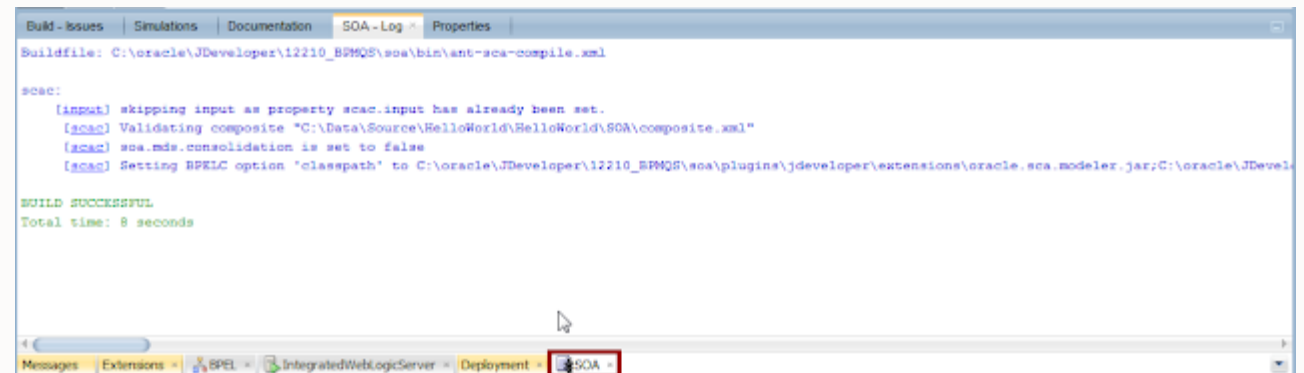
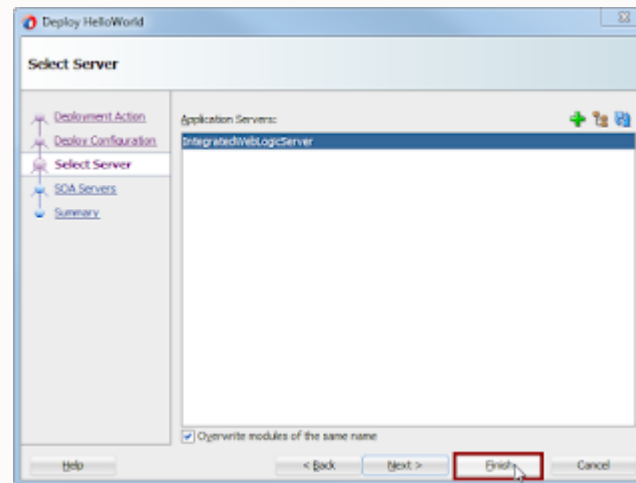
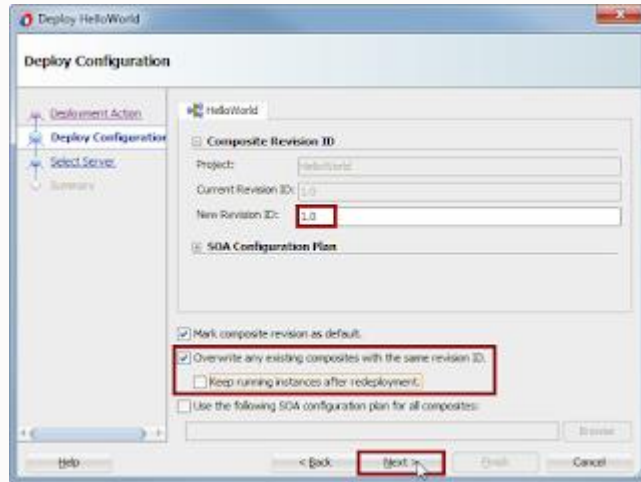
Deploy to Server

```
SOA Platform is running and accepting requests. Start up took 92300 ms  
IntegratedWebLogicServer startup time: 363761 ms.  
[IntegratedWebLogicServer started.]
```

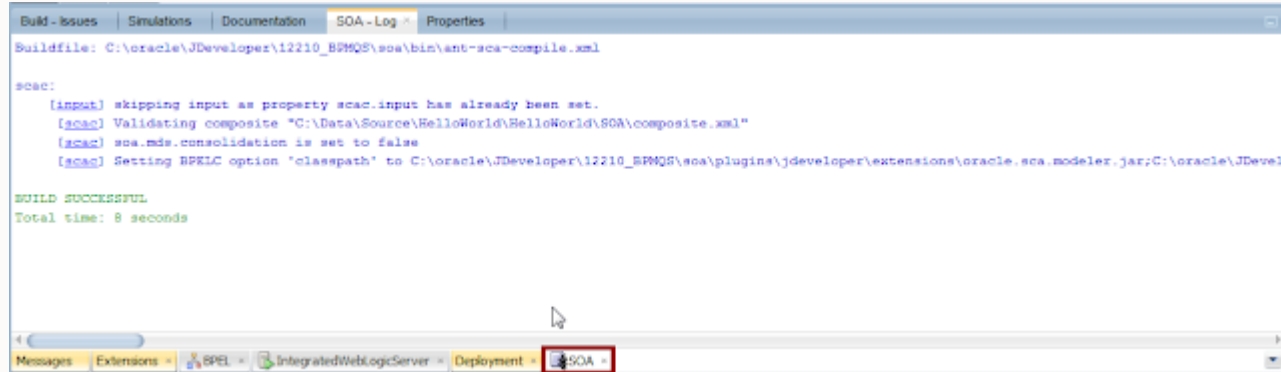
Messages Extensions BPEL IntegratedWebLogicServer



Deploy to Integrated Server



Verify Deployment

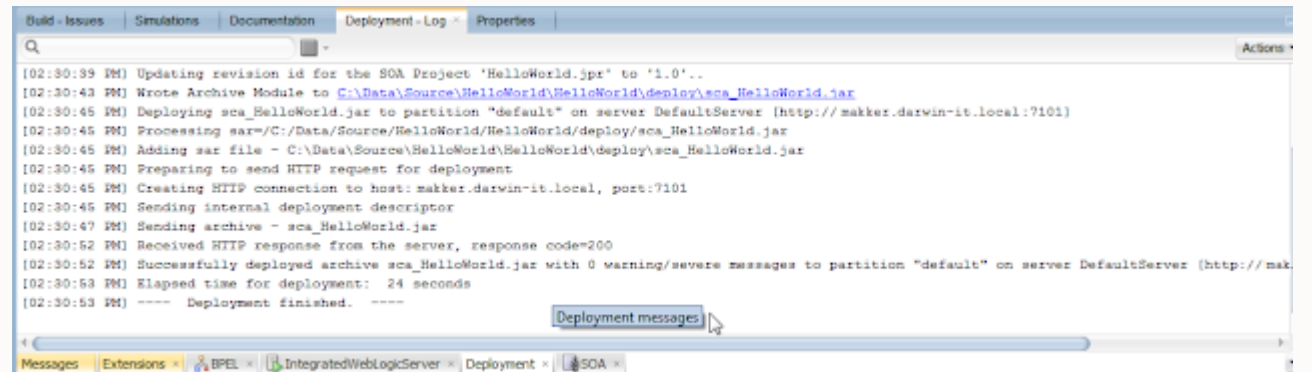


The screenshot shows the 'SOA - Log' window in a development environment. The log text indicates a successful build of the SOA project. The buildfile path is C:\oracle\JDeveloper\12210_BPMQS\soa\bin\ant-sca-compile.xml. The log shows the following steps: skipping input as property soac.input has already been set, validating composite "C:\Data\Source\HelloWorld\HelloWorld\SOA\composite.xml", setting soa.mds.consolidation to false, and setting the BPELC option 'classpath' to C:\oracle\JDeveloper\12210_BPMQS\soa\plugins\jdeveloper\extensions\oracle.sca.modeler.jar;C:\oracle\JDeveloper\12210_BPMQS\soa\bin\ant-sca-compile.xml. The build is successful and took 8 seconds. The bottom toolbar shows tabs for Messages, Extensions, BPEL, IntegratedWebLogicServer, Deployment, and SOA, with the SOA tab selected and highlighted by a red box.

```
Buildfile: C:\oracle\JDeveloper\12210_BPMQS\soa\bin\ant-sca-compile.xml

soac:
[input] skipping input as property soac.input has already been set.
[soac] Validating composite "C:\Data\Source\HelloWorld\HelloWorld\SOA\composite.xml"
[soac] soa.mds.consolidation is set to false
[soac] Setting BPELC option 'classpath' to C:\oracle\JDeveloper\12210_BPMQS\soa\plugins\jdeveloper\extensions\oracle.sca.modeler.jar;C:\oracle\JDeveloper\12210_BPMQS\soa\bin\ant-sca-compile.xml

BUILD SUCCESSFUL
Total time: 8 seconds
```



The screenshot shows the 'Deployment - Log' window. The log text details the deployment process of the SOA project 'HelloWorld.jpr' to version '1.0'. It shows the creation of the archive module 'sca_HelloWorld.jar' and its deployment to the 'default' partition on the 'DefaultServer' (http://makker.darwin-it.local:7101). The log includes timestamps and status messages for each step, such as 'Writing Archive Module', 'Deploying sca_HelloWorld.jar', 'Processing ear', 'Adding ear file', 'Preparing to send HTTP request for deployment', 'Creating HTTP connection to host', 'Sending internal deployment descriptor', 'Sending archive', 'Received HTTP response from the server', 'Successfully deployed archive', and 'Elapsed time for deployment'. The deployment is completed successfully. The bottom toolbar shows tabs for Messages, Extensions, BPEL, IntegratedWebLogicServer, Deployment, and SOA, with the SOA tab selected. A 'Deployment messages' button is visible in the bottom right corner.

```
[02:30:39 PM] Updating revision id for the SOA Project 'HelloWorld.jpr' to '1.0'..
[02:30:43 PM] Wrote Archive Module to C:\Data\Source\HelloWorld\HelloWorld\deploy\sca_HelloWorld.jar
[02:30:45 PM] Deploying sca_HelloWorld.jar to partition "default" on server DefaultServer (http://makker.darwin-it.local:7101)
[02:30:45 PM] Processing ear=C:\Data\Source\HelloWorld\HelloWorld\deploy\sca_HelloWorld.jar
[02:30:45 PM] Adding ear file - C:\Data\Source\HelloWorld\HelloWorld\deploy\sca_HelloWorld.jar
[02:30:45 PM] Preparing to send HTTP request for deployment
[02:30:45 PM] Creating HTTP connection to host: makker.darwin-it.local, port:7101
[02:30:45 PM] Sending internal deployment descriptor
[02:30:47 PM] Sending archive - sca_HelloWorld.jar
[02:30:52 PM] Received HTTP response from the server, response code=200
[02:30:52 PM] Successfully deployed archive sca_HelloWorld.jar with 0 warning/severe messages to partition "default" on server DefaultServer (http://makker.darwin-it.local:7101)
[02:30:53 PM] Elapsed time for deployment: 24 seconds
[02:30:53 PM] ---- Deployment finished. ----
```

EM

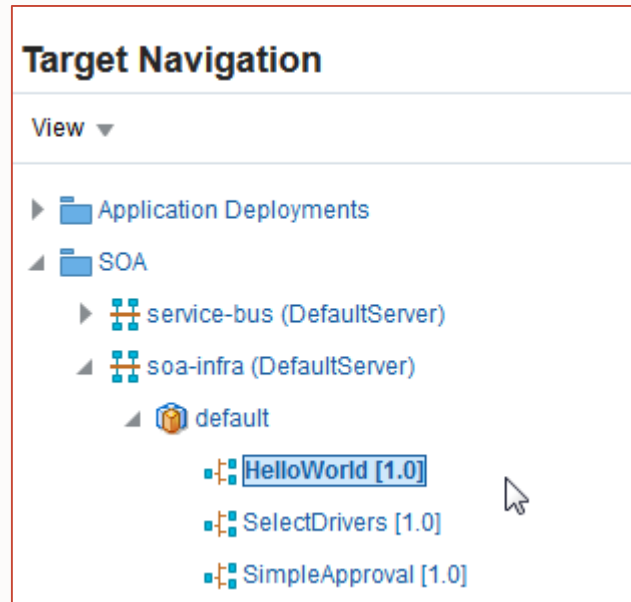
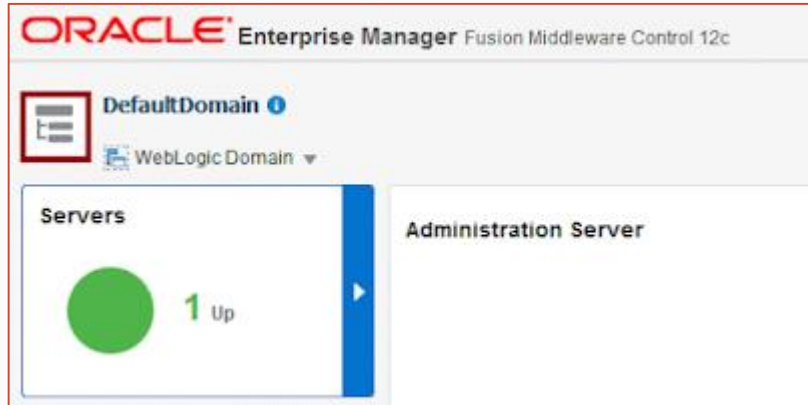
LOGIN TO
ORACLE ENTERPRISE MANAGER
FUSION MIDDLEWARE CONTROL 12c

Domain Domain_DefaultDomain

* User Name 

* Password 

Navigation



Deploy SAR from EM

soa-infra

Select ArchiveSelect TargetConfirmation

Deploy S... ?

BackStep 2 of 3NextCancel

WebLogic Server or Cluster

Based on the context from which you launched this wizard, the selected composite will be deployed to the WebLogic server or cluster shown below.If you wish to deploy to a different target, click Cancel to exit this wizard, navigate to a different WebLogic server or cluster or to the WebLogic Domain, and select Deploy again.

Deployment Target

/Domain_DefaultDomain/DefaultDomain/DefaultServer

Type

Oracle WebLogic Server

Token Configurations

As a good practice, configure the global token variables referenced by this composite before deploying it. Else the composite may not run properly, once it is deployed. Global token variables are used to resolve environment specific URIs when a composite is moved to another environment. Before starting the deployment operation, ensure that all the tokens referenced by the selected composite are configured. The Token Configurations page can be found in the SOA Administration section of the SOA Infrastructure target menu.[\[More Info...\]](#)

Test

JBoss ESB console interface for the 'HelloWorld [1.0]' SOA Composite. The 'Test' button is highlighted with a red box. The left sidebar shows the following components:

- Components**
 - Name: HelloWorldBPELProcess
- Services and References**
 - Name: HelloWorldWS

JBoss ESB console interface for the 'Test' configuration of the 'HelloWorldWS' service. The 'Service', 'Port', and 'Operation' dropdowns are highlighted with a red box. The 'Endpoint URL' is 'http://makker.darwin-it.local:7101/soa-infra/services/default/HelloWorld/Hel'. The 'Request' tab is selected, showing the following configuration:

- Security**
- Quality of Service**
- HTTP Header**
- Additional Test Options**
- Input Arguments**
 - Tree View: ☐ Enable Validation: ☒ Load Payload: No file selected.
- SOAP Body**
 - View:

Name	Type	Value
* part1	HelloWorldRequestMessageT...	
* name	string	Jean-Michel Jarre

The 'Test Web Service' button is highlighted with a red box.

Result

Request Response

Test Status Request successfully received

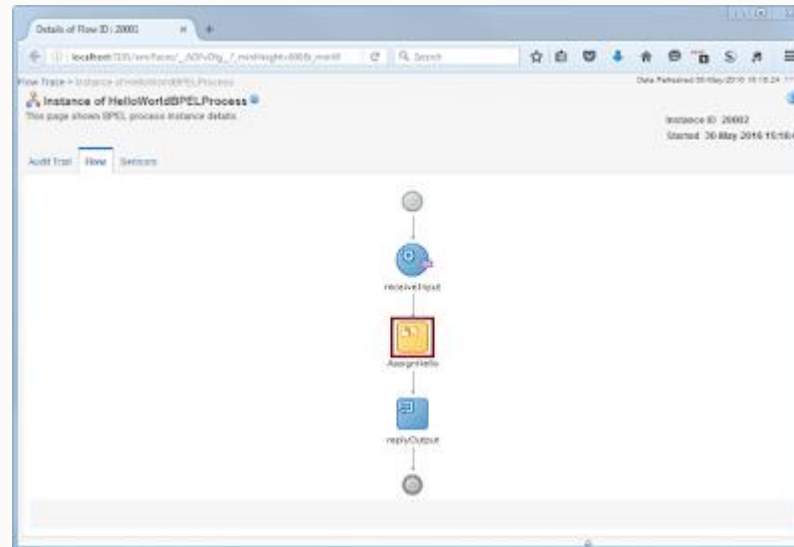
Response Time (ms) 1912

Tree View

A new flow instance was generated. [Launch Flow Trace](#)

Name	Type	Value
part1	HelloWorldRes...	
greeting	string	Hello Jean-Michel Jarre!

Request Response



Activity Audit Trail - Mozilla Firefox

localhost/7101/em/soa/mgmt/bpel/flow/digElementDetails.html

AssignHello

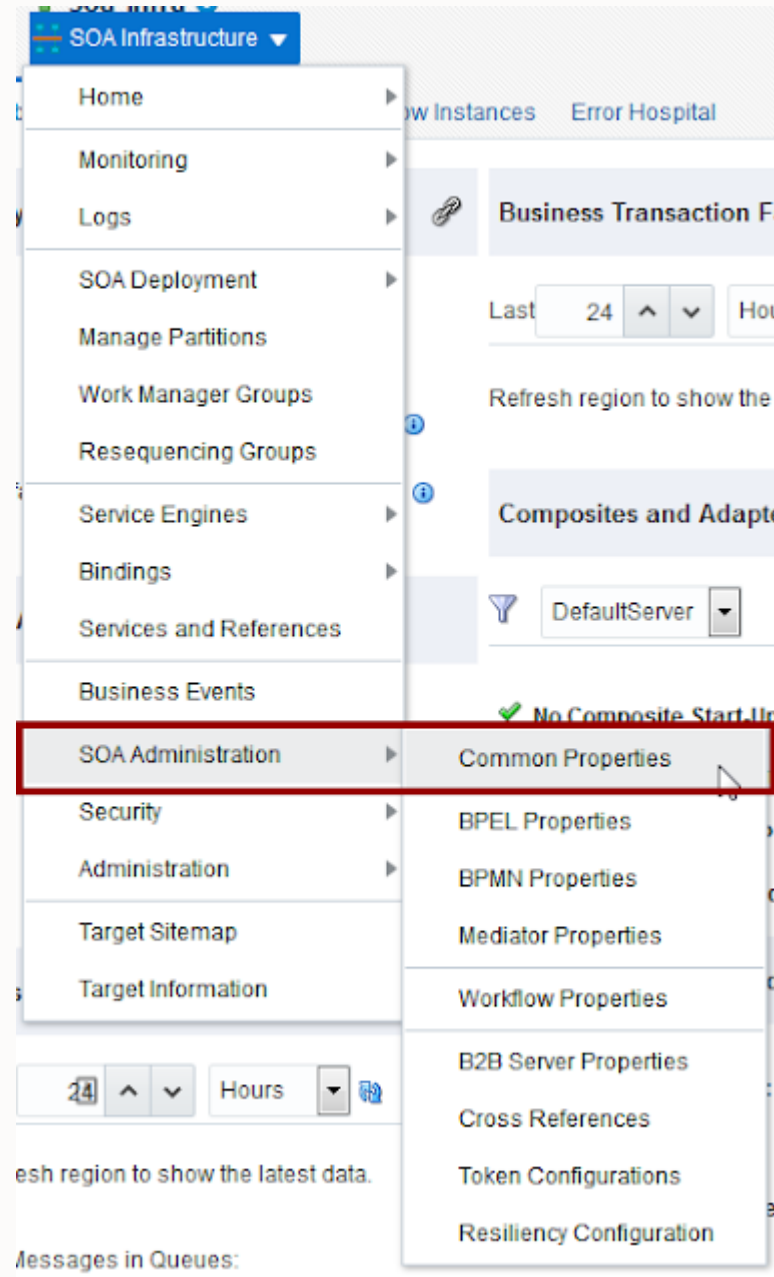
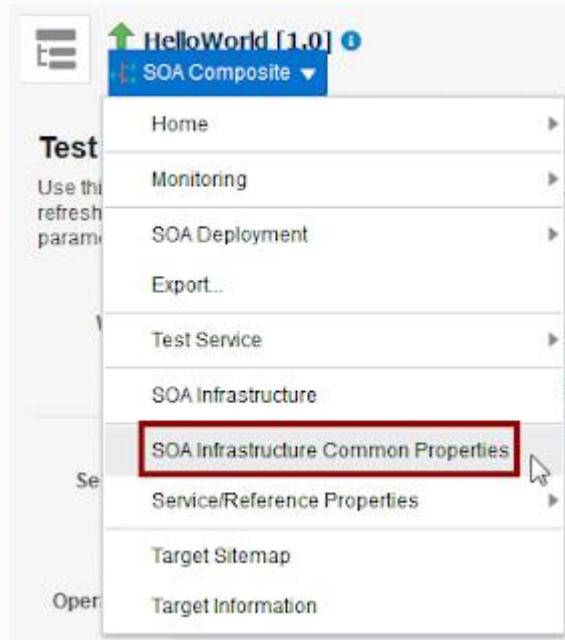
[2016/05/30 15:16:48]
Updated variable "outputVariable"

```
<outputVariable>
- <part name="part1" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
- <helloWorldResponseMessage xmlns="http://www.darwin-it.nl/xsd/HelloWorld">
- <greeting>Hello Jean-Michel Jarre!</greeting>
- </helloWorldResponseMessage>
- </part>
</outputVariable>
```

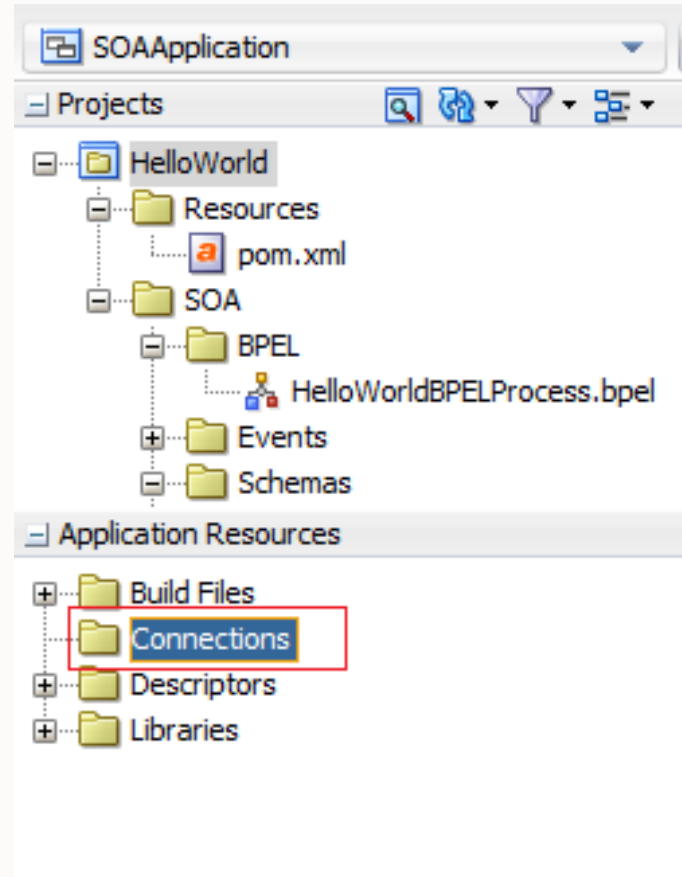
[Copy details to clipboard](#)

[2016/05/30 15:16:48]
Completed assign

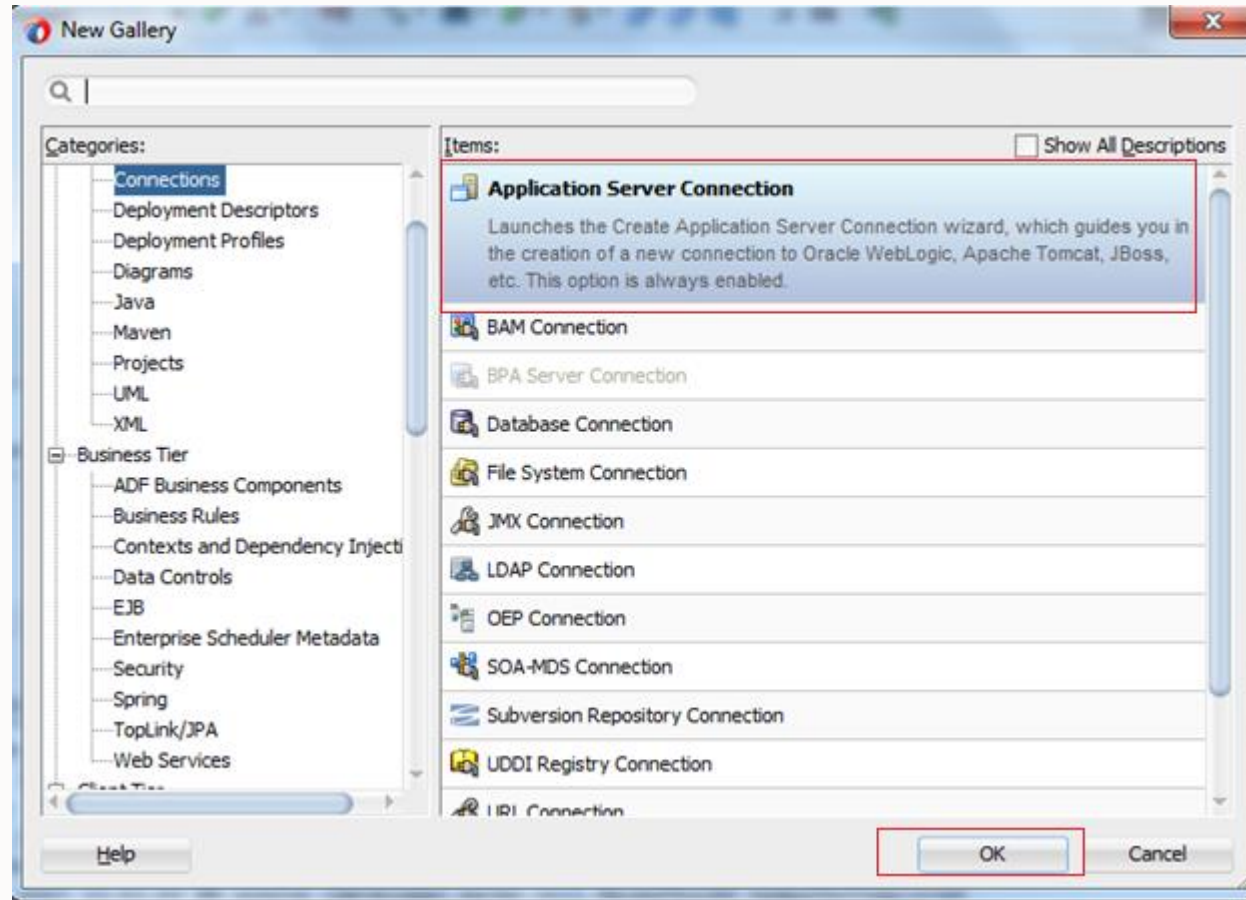
Auditing



Create the “Application Server” connection



Application Server Connection



Standalone Domain

Create Application Server Connection - Step 1 of 2

Name and Type

Specify a unique name and type for the connection. The name must be a valid Java identifier.

Create connection in: IDE Connections

Connection Name:
standalone_domain

Connection Type:
WebLogic 12.x

Help < Back Next > Finish Cancel

Create Application Server Connection - Step 2 of 5

Authentication

Specify a username and password to authenticate the connection.

Username:
weblogic

Password:

Help < Back Next > Finish Cancel

Standalone Domain

Create Application Server Connection - Step 3 of 5

Configuration

WebLogic Server connections use a host name and port to establish a connection. The Domain of the target will be verified

WebLogic Hqstname (Administration Server):
localhost

Port: 7001 SSL Port: 7002

☐ Always use SSL

WebLogic Domain:
standalone_domain

Help < Back Next > Finish Cancel

Create Application Server Connection - Step 4 of 5

Test

Click Test Connection to determine if the information specified successfully establishes a connection with the application server.

Test Connection

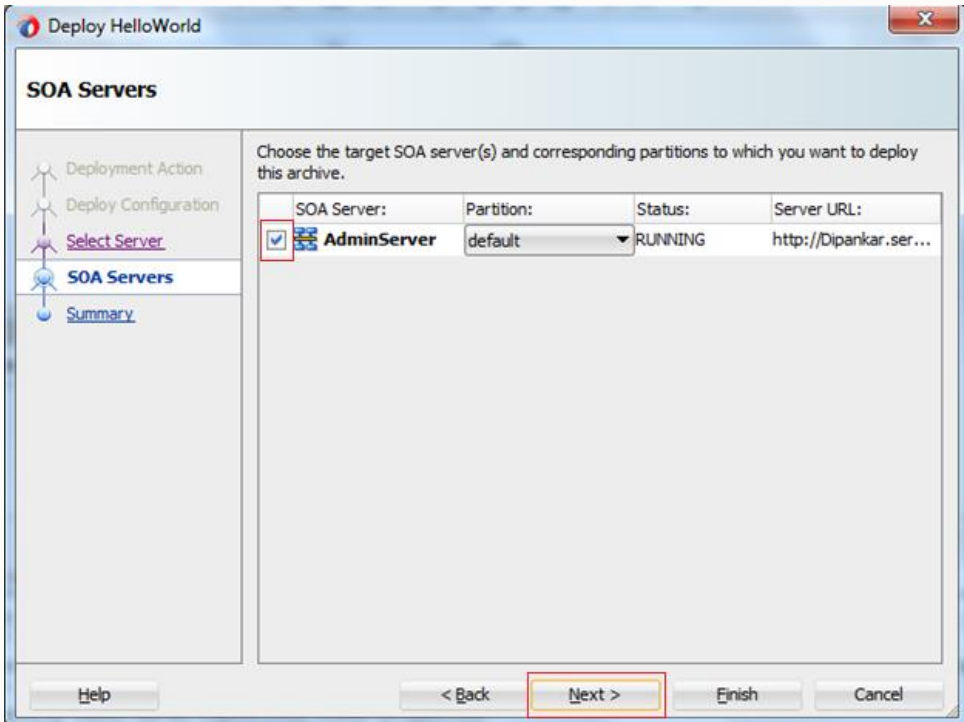
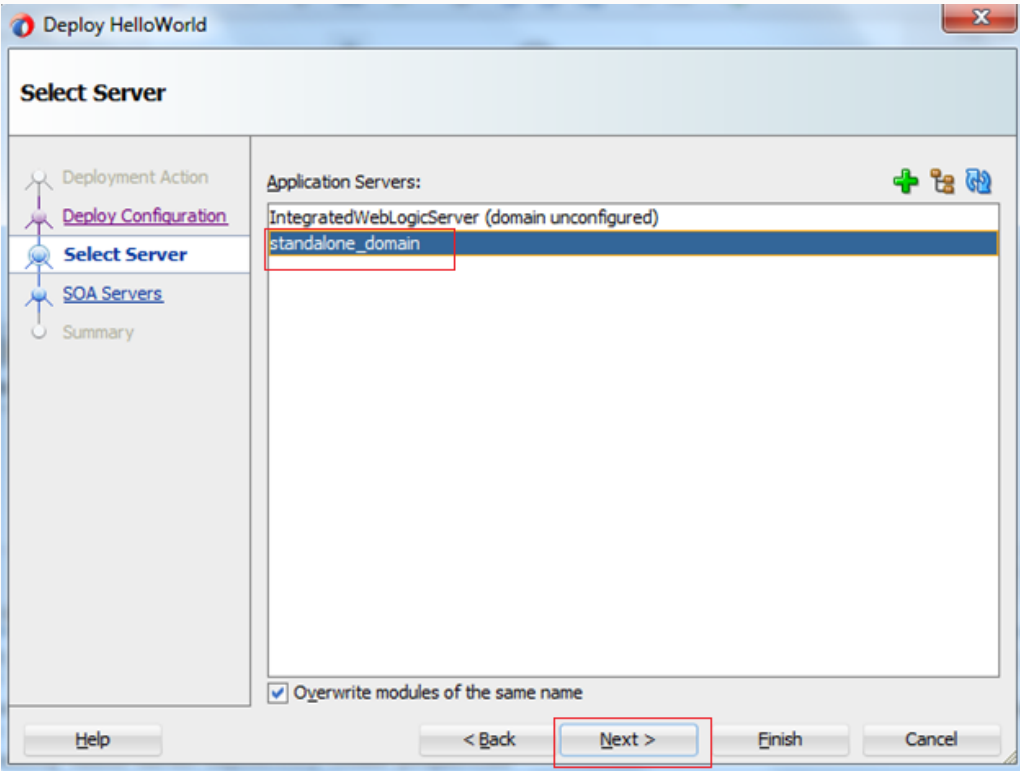
Status:

Testing JSR-160 Runtime	...	success
Testing JNDI	...	success
Testing JSR-160 DomainRuntime	...	success
Testing JSR-160 Edit	...	success
Testing HTTP	...	success
Testing HTTP Authentication	...	success
Testing JSR-88	...	success
Testing JSR-88-LOCAL	...	success
Testing Server MBeans Model	...	success
Testing App Controller	...	success
Testing JSR-88-DEP-MGR	...	success
Testing JSR-88-DEP-MGR-LOCAL	...	success

12 of 12 tests successful.

Help < Back Next > Finish Cancel

Deploy to Standalone



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. The overall color scheme is a light, muted gray.

Q&A