

BPEL composition in Eclipse and deployment of composite service in Apache ODE engine

Web service creation : Apache axis2

Server : Tomcat

I) Steps for web services deployment:

- 1) Start the Tomcat server. Place the axis2.war file in the path “Apache tomcat home directory/webapps”. Now the axis2 folder is generated on that directory.
- 2) Write the web services in java and create the class file by compilation.
- 3) Place the java and class files in a folder. (Eg:add - package name)
- 4) Create the folder “META-INF” and create a file service.xml inside that. Web service name, operation are specified on that for execution.

Example service.xml

```
<service>
    <parameter name="ServiceClass" locked="false">add.Addition</parameter>
    <operation name="addno">
        <messageReceiver
class="org.apache.axis2.rpc.receivers.RPCMessageReceiver"/>
    </operation>
</service>
```

add -package name
Addition -service name
addno -operation name

- 5) Place the “META-INF” and “add” folders inside the folder “webservices”.
- 6) Finally place the “webservices” folder inside a new folder. (Eg: Sample)
- 7) Convert to .aar file using command prompt:
 >Sample file path\ webservices\jar cvf -addition.aar *
- 8) Copy the .aar file and paste into the location “apache tomcat home directory/webapps/axis2/WEB-INF/services
- 9) Type the url <http://localhost:8080/axis2/services>. Deployed service available on the List of services. Select service for the retrieval of wsdl.
- 10) Similarly all the partner web services need to be created for BPEL composition.

II) Steps for BPEL composition and deployment:

- 1) Place the ode.war file in “Tomcat\webapps”. Now the ode folder is generated on that directory.
- 2) Create all the partner web services using the above 9 steps.

- 3) Create a new BPEL project by File->New->Project->BPEL 2.0->BPEL project and click Next
- 4) Specify the name of the service as SampleBPEL, set the runtime target as Apache ODE 1.x Runtime and click modify in Configuration, select the BPEL 2.0 Facet under Project Facet then click OK.
- 5) Click Finish to create a new BPEL process in New BPEL Project workspace.
- 6) Right click the project SampleBPEL->New->Other->BPEL 2.0->New BPEL process file->Next-> and give the following details.

BPEL process name : Sampleservice
 Namespace : http://sampleservice.bpel.bps
 Template : Synchronous BPEL process

- 7) Finally click Finish button, now the BPEL designer is available.
- 8) Download the service description files (.wsdl file) of the partner web services and copy them into BPEL project.
- 9) Create the BPEL process using assign, invoke activities and partner web services in BPEL designer.
- 10) Right click the SampleserviceArtifacts.wsdl->open with->WSDL editor.
- 11) Right click the empty space of the WSDL editor select AddBinding. In Properties view, set the name of the new binding as SampleBinding and select the SampleService.
- 12) Click Generate Binding Content button and set the following.

Protocol :SOAP
 SOAP binding options :document literal

- 13) Right click the empty space of the WSDL editor select select Addservice. Rename the service as SampleService.
- 14) Click the NewPort below the service name and set the following in Properties view.

PortName : SamplePort
 Binding :SampleBinding
 Address :http://localhost:8080/ode/processes/SampleService
 Protocol :SOAP

- 15) After the completion of above steps deployment descriptor needs to be write. Right click the project SampleBPEL->New->Other->BPEL 2.0->Apache ODE Deployment Descriptor->Next->verify BPEL project name(Sampleservice) and click finish.
- 16) Right click the deploy.xml->open with->ODE deployment descriptor editor set the followings in inbound interface.

Partner link :Client
 Associated Port :SamplePort

Eclipse will automatically fill other fields.

17) At the outbound interface select the ports for the partnerlinks.

18) Create a folder (Eg.: Samplecompositeservice) and place the following files inside that.

- a. Wsdl files of the partner web services
- b. Deploy.xml
- c. BPEL file (Eg:Sampleservice.bpel)
- d. Wsdl file for composite service (Eg:Sampleservice.wsdl)

19) Compress all this files(Convert above 4 files into a single .zip file)

20) Type the URL <http://localhost:8080/ode>

21) Select the deployment tab, specify the name of the process and upload a .zip file then click OK.

22) The package was successfully deployed in ODE.

23) Type the URL <http://localhost:8080/ode/processes>. It contains the list of deployed processes. From that click the appropriate process.

24) Copy the wsdl url of the composite service.

25) Test the composite service with the wsdl url using SoapUI. The results are available in server log.