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# Oracle Web Service Manager 11g

## Interop with WLS WS-Security (in WLS)

March, 2012

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### Step-by-Step Instruction Guide

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## Use Case

### ***Description***

### ***Objective***

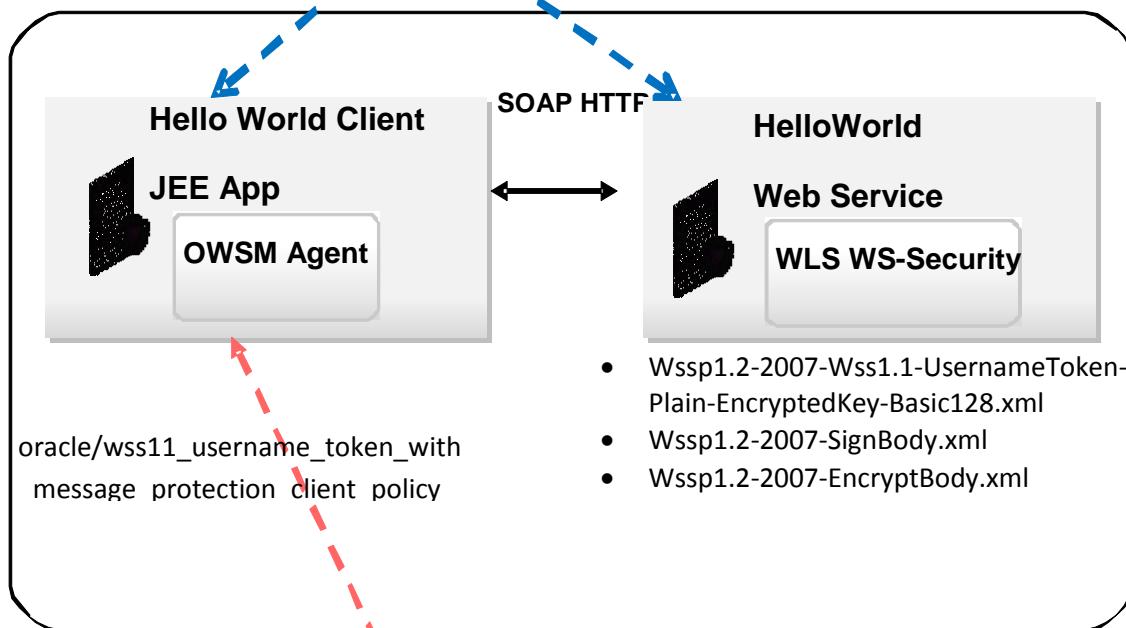
Provide a detailed step by step instruction for enabling interoperability between OWSM and WLS WS-Security for username token with message protection scenario.

### ***Scenario***

This How-To illustrates the following:

1. How to Build a HelloWorld WLS POJO JAX-WS.
2. How to secure the HelloWorld WLS POJO JAX-WS with WLS WS-Security using username token with message protection
3. Deploy the HelloWorld WLS POJO JAX-WS.
4. How to Build a HelloWorld Client Web App that will invoke the HelloWorld WLS POJO JAX-WS
5. How to secure the HelloWorld Client Web App with OWSM security
6. Setup the Keystore and WLS WS-Security Configuration required for WLS WS-Security
7. Setup the Keystore and Credential Store required for OWSM.

- Policy Attachment
- Override Config
- Find Matching Policy



- Policy Authoring
- Versioning
- Usage Tracking
- Violation Metrics
- Migration

**Enterprise Manager**



## Policies Used

Service/Client	Policy	Policy Type
JEE Client	oracle/wss11_username_token_with_message_protection_client_policy	Client

# Software Requirements

## Prerequisites

#	Product	Download URL
1	Install SOA Suite 11.1.1.5 with JDeveloper	

## Verified Product Version

#	Product	Release Version
1	WebLogic	10.3.5
2	SOA	11.1.1.5
3	JDeveloper	11.1.1.5

## Potentially Applies to Product Version(s)

#	Product	Release Version
1	WebLogic	10.3.3, 10.3.4, 10.3.5, 10.3.6
2	SOA	11.1.1.4, 11.1.1.5, 11.1.1.6

## Download Main Page

<http://www.oracle.com/technetwork/middleware/soasuite/downloads/index.html>

## Product URLs

Product	URL	Login/Password
EM Fusion Middle Control	<a href="http://admin_host:admin_port/em">http://admin_host:admin_port/em</a>	User: weblogic Password: welcome1
Weblogic Console	<a href="http://admin_host:admin_port/console">http://admin_host:admin_port/console</a>	User: weblogic Password: welcome1

## Install Locations

This How-To does not provide installation instructions for the pre-requisite components. Please consult the appropriate Install guides.

The components in this How-To are installed at the following locations:

Component	Install location
Oracle Weblogic 11g PS4	D:\Oracle11gR1\Middleware\wlserver_10.3
Oracle Web Services Manager (OWSM) 11g PS4	D:\Oracle11gR1\Middleware\oracle_common
Oracle SOA Suite (SOA) 11g PS4	D:\Oracle11gR1\Middleware\Oracle_SOA1
Oracle Enterprise Manager (EM) 11g PS4	D:\Oracle11gR1\Middleware\oracle_common
JDeveloper	D:\Oracle11gR1\Middleware\jdeveloper
JDK	D:\Oracle11gR1\Middleware\jdk160_24

## Topology

This How-To uses a single domain. The domain includes a one weblogic server. The steps provided in this How-To can vary based on Topology.

- Domain Name: soa\_domain
- Weblogic Server: AdminServer

## Install & Topology Verification

Start the Admin Server

Navigate to: D:\Oracle11gR1\Middleware\user\_projects\domains\soa\_domain\bin

```
C:\WINDOWS\system32\cmd.exe - startWebLogic.cmd
> output.log
java version "1.6.0_24"
Java(TM) SE Runtime Environment (build 1.6.0_24-b50)
Java HotSpot(TM) Client VM (build 19.1-b02, mixed mode)
y
D:\Oracle11gR1\Middleware\user_projects\domains\soa_domain\bin>del output.log
D:\Oracle11gR1\Middleware\user_projects\domains\soa_domain\bin>del output.log
Could Not Find D:\Oracle11gR1\Middleware\user_projects\domains\soa_domain\bin\ou
tput.log
D:\Oracle11gR1\Middleware\user_projects\domains\soa_domain\bin>startWebLogic.cmd
> output.log
java version "1.6.0_24"
Java(TM) SE Runtime Environment (build 1.6.0_24-b50)
Java HotSpot(TM) Client VM (build 19.1-b02, mixed mode)
```

## Verify all Product Consoles are reachable

Go to the product console URL and provide username as weblogic and password as welcome1.

Product	URL	Note
Oracle WebLogic	<a href="http://localhost:7001/console">http://localhost:7001/console</a>	WebLogic Administration Console
Oracle Web Services Manager (OWSM)	<a href="http://localhost:7001/wsm-pm">http://localhost:7001/wsm-pm</a>	Indicates status of OWSM Policy Manager. Presence of this page indicates that the Policy Manager has started
	<a href="http://localhost:7001/wsm-pm/validator">http://localhost:7001/wsm-pm/validator</a>	Show you all the out-of-the-box

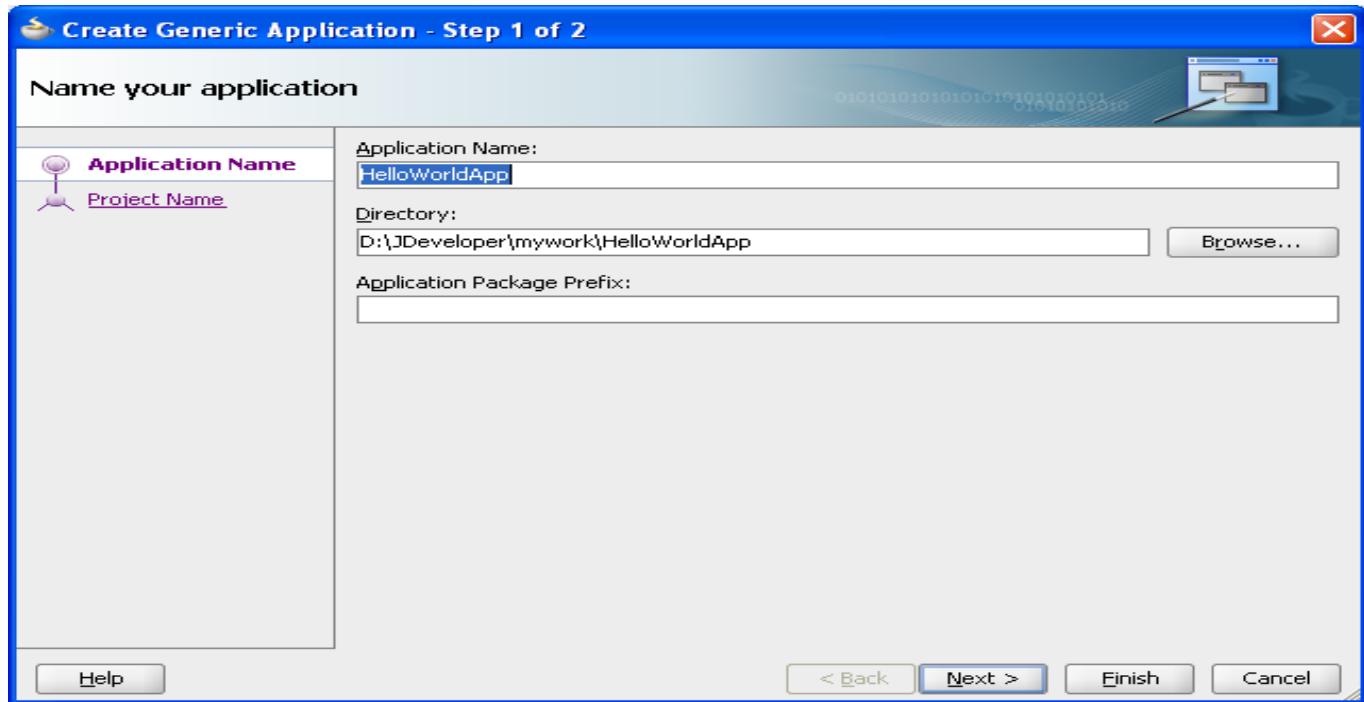
		policy. If you see that page, OWSM policy store is properly deployed and running
Oracle SOA Suite (SOA)	<a href="http://localhost:7001/soa-infra">http://localhost:7001/soa-infra</a>	List all deployed SOA Composites. Also has a test console to test the SOA Composite
Oracle Enterprise Manager (EM)	<a href="http://localhost:7001/em">http://localhost:7001/em</a>	Oracle Enterprise Manager

## Step by Step Instructions

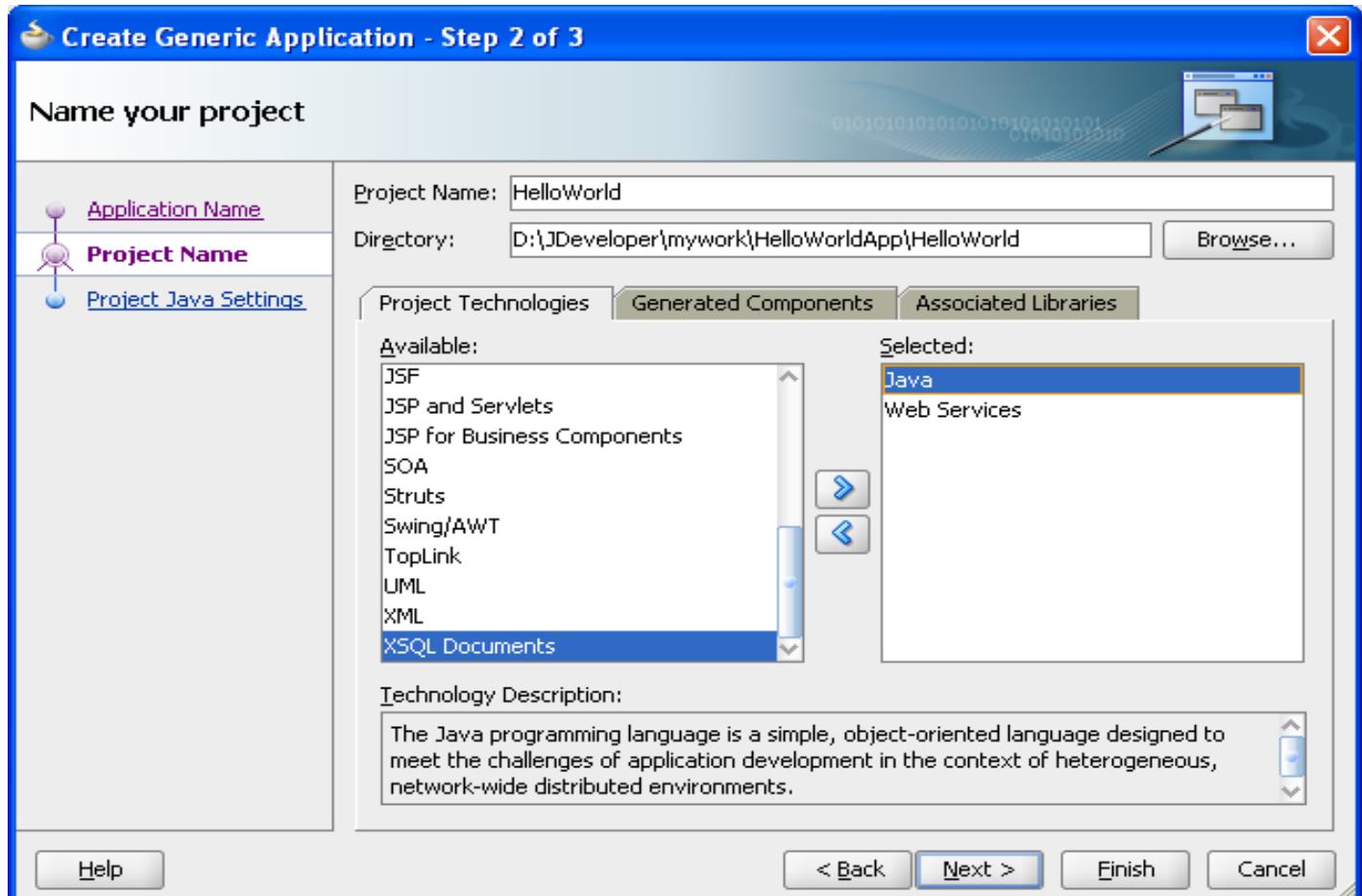
### Create HelloWorld WLS POJO JAX-WS

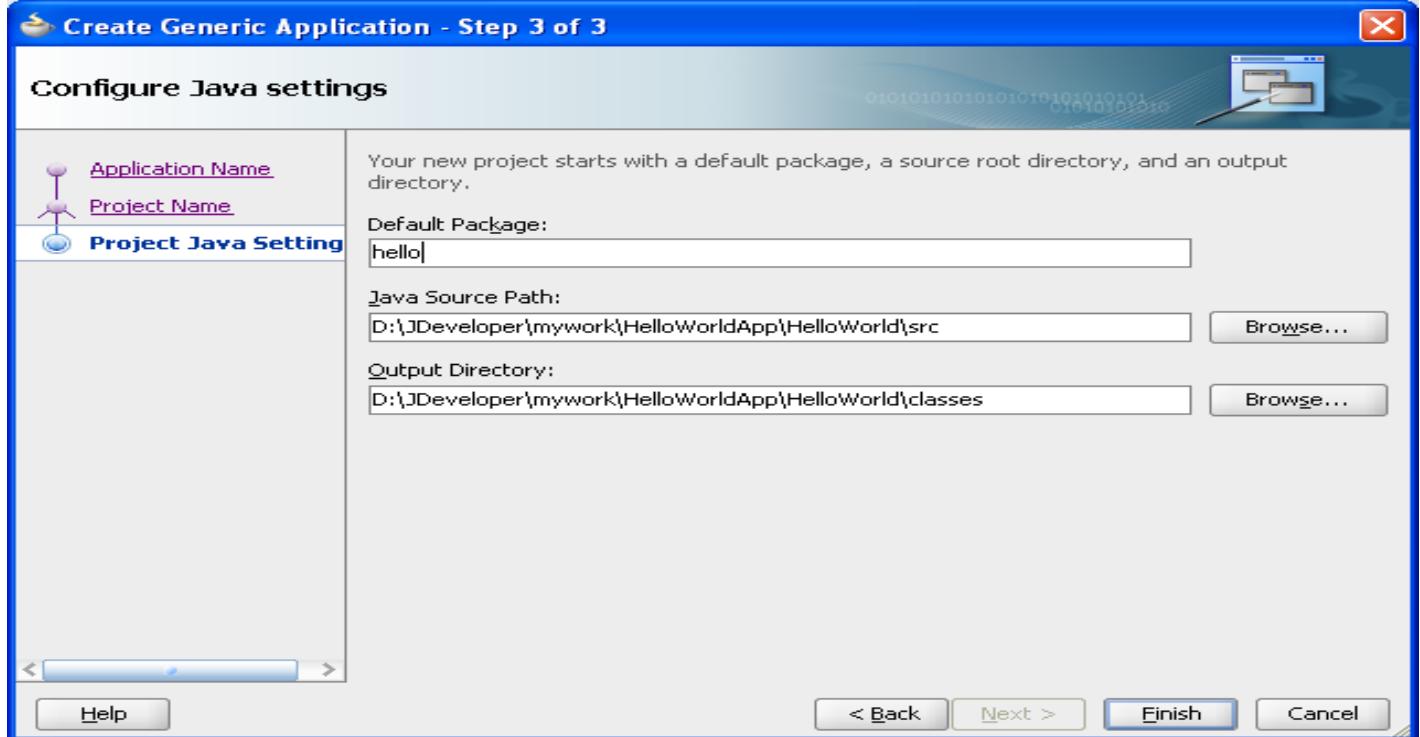
#### *Create Application "HelloWorldApp"*

Click on File->New to start creation of the HelloWorld App in JDeveloper.



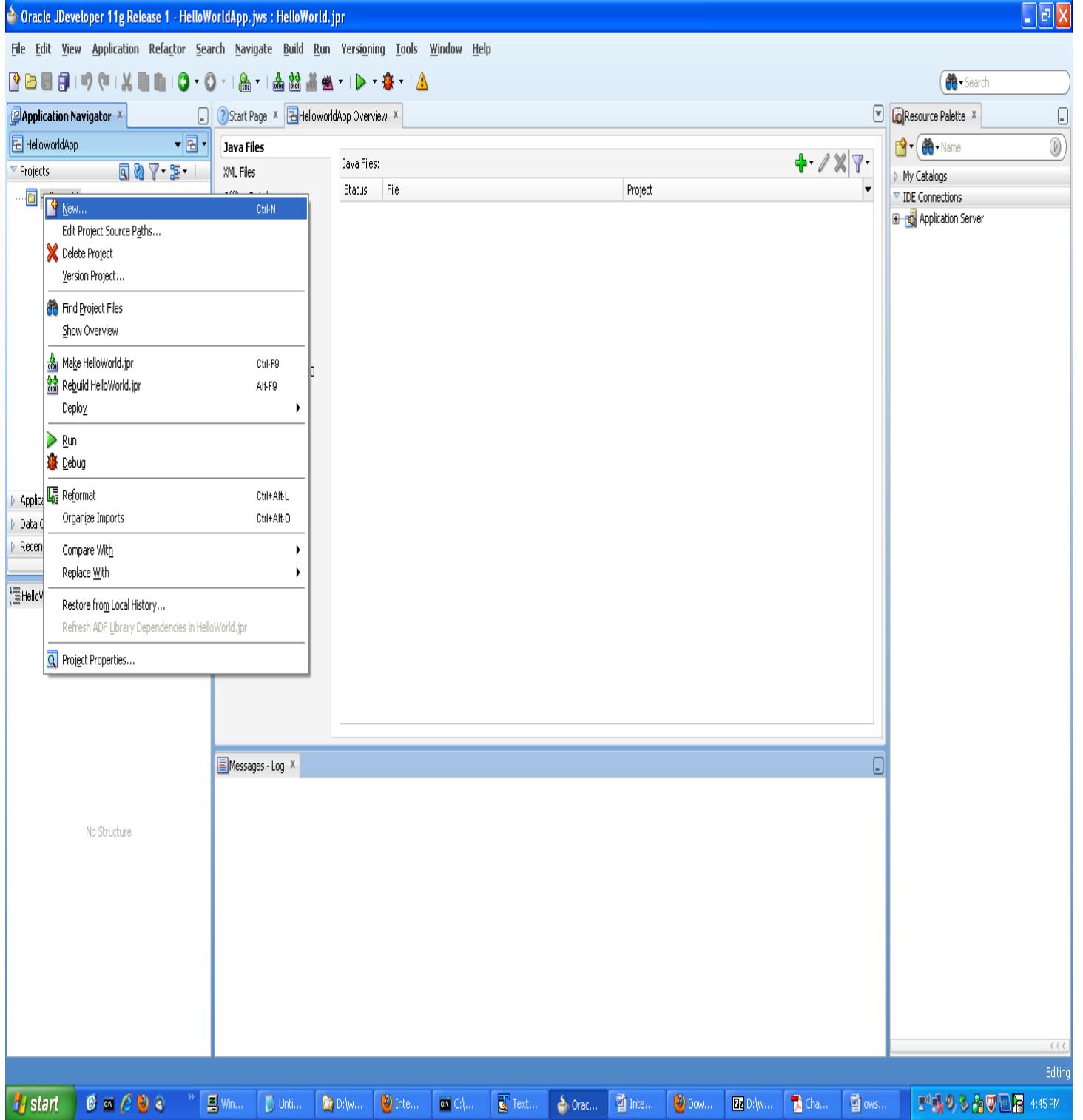
## Create Project "HelloWorld"



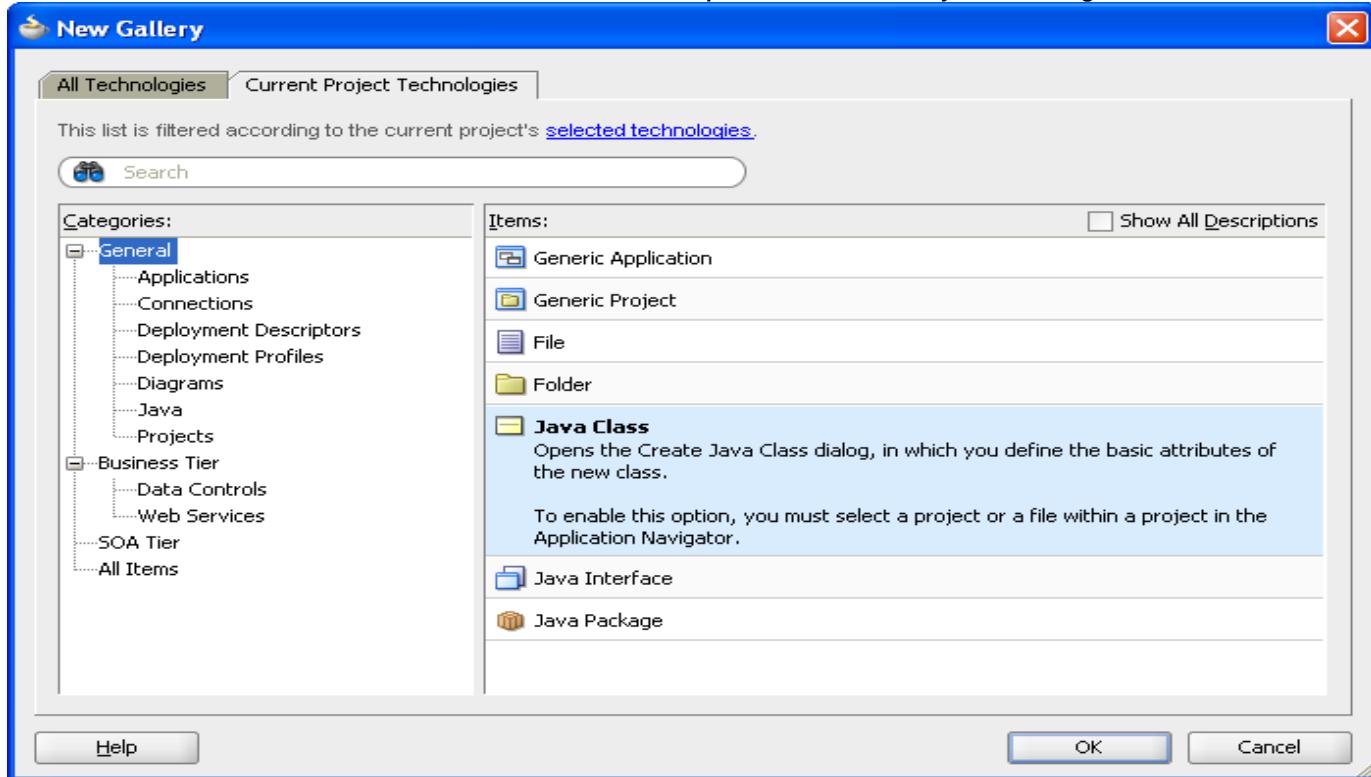


### Create a POJO Java Class "HelloWorld"

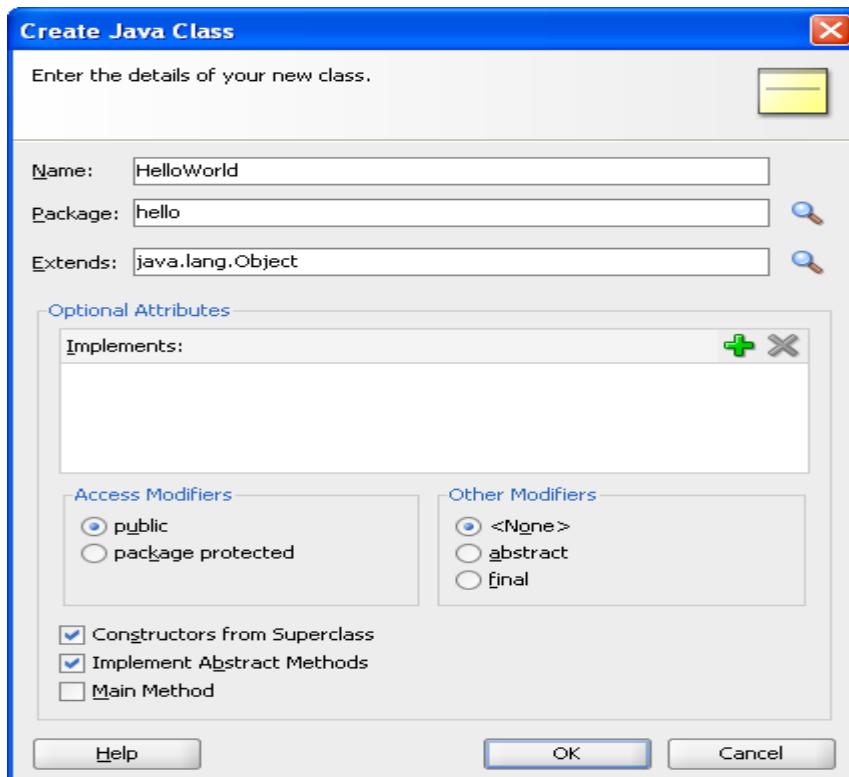
Right Click on HelloWorld project and select “New”.



Select “Java Class” and click “OK” button as shown below.

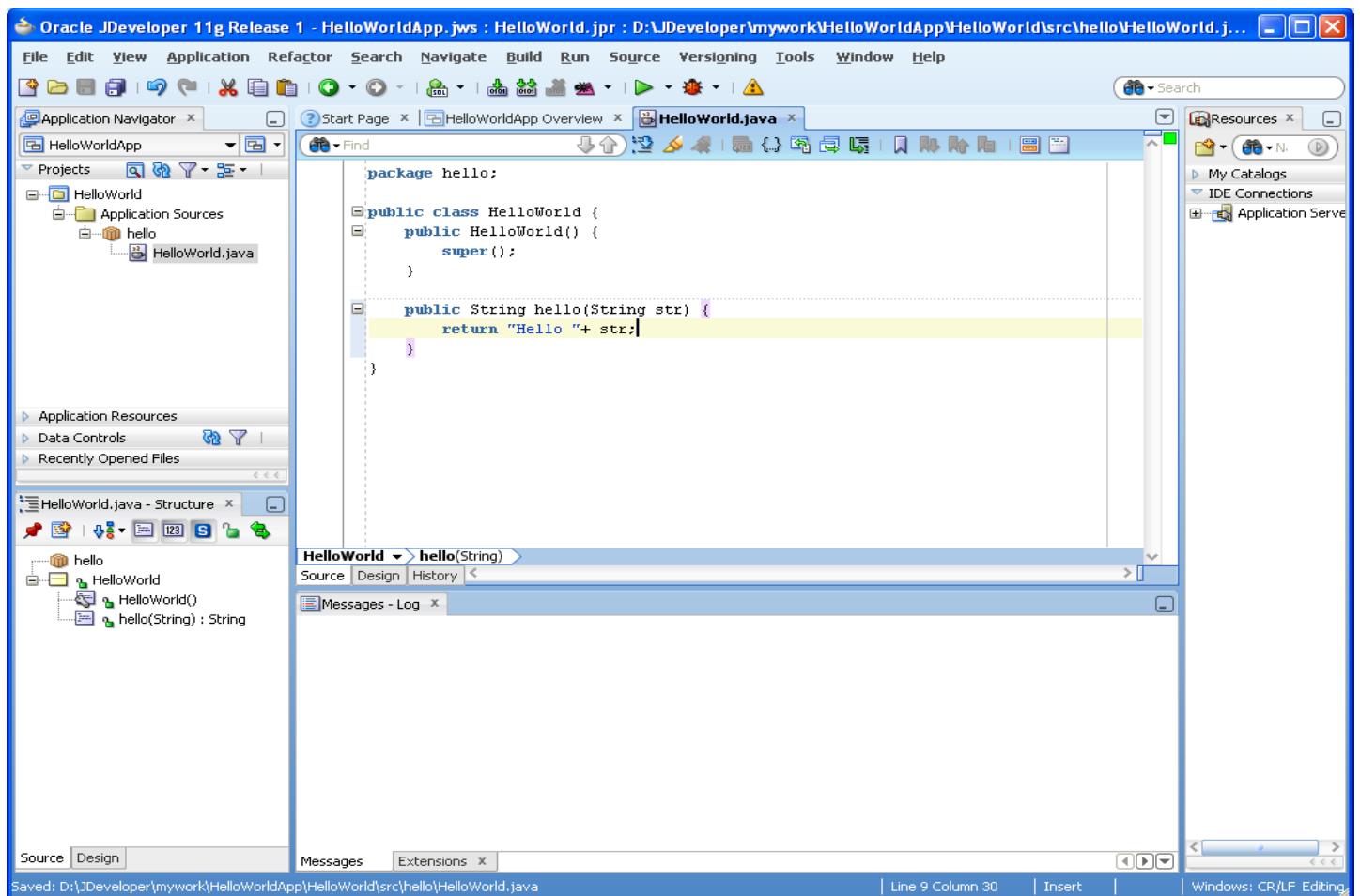


Enter the name of the Java class as “HelloWorld” and click on “OK” button.



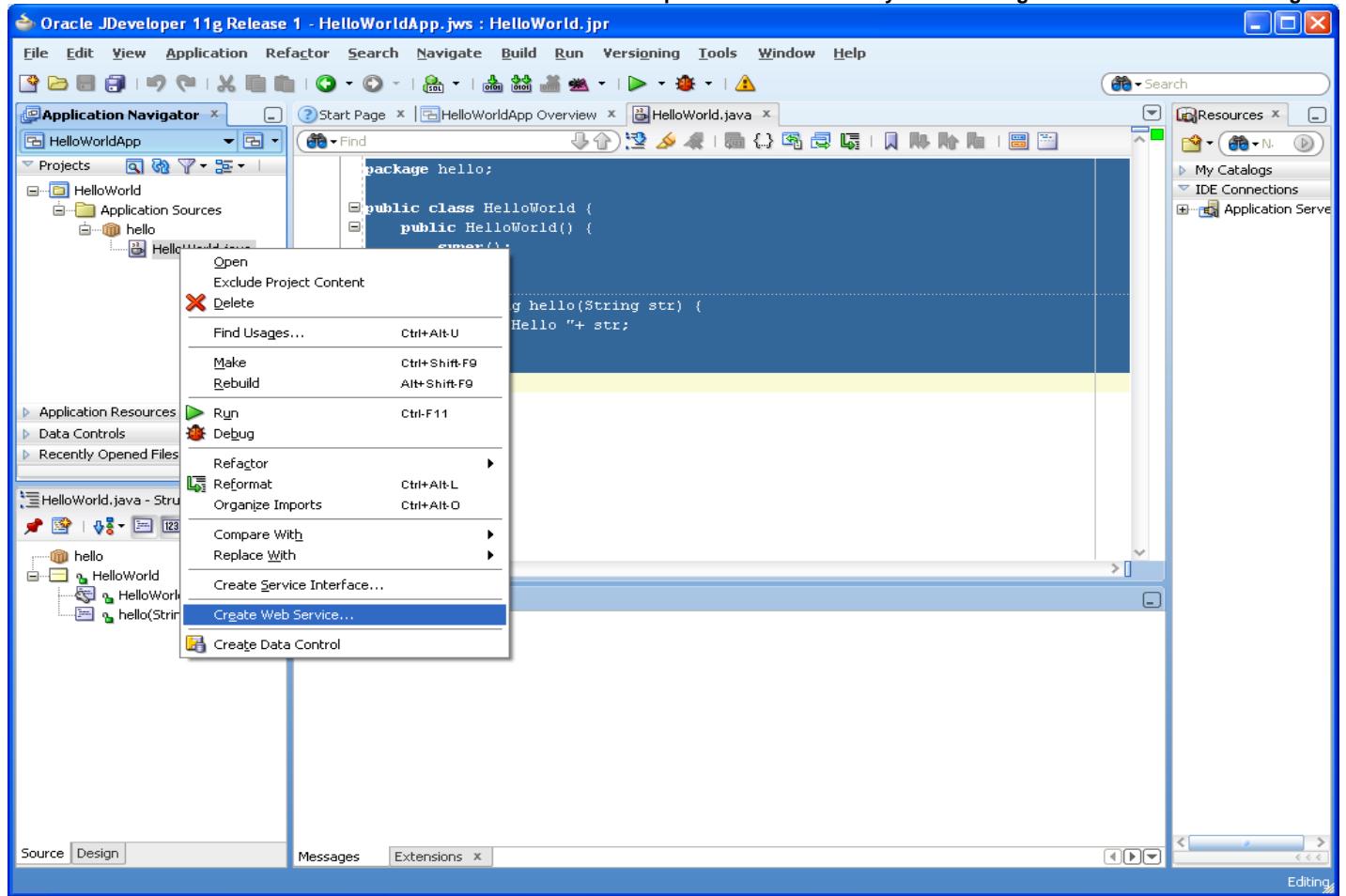
## Add method "hello" to the Java Class "HelloWorld"

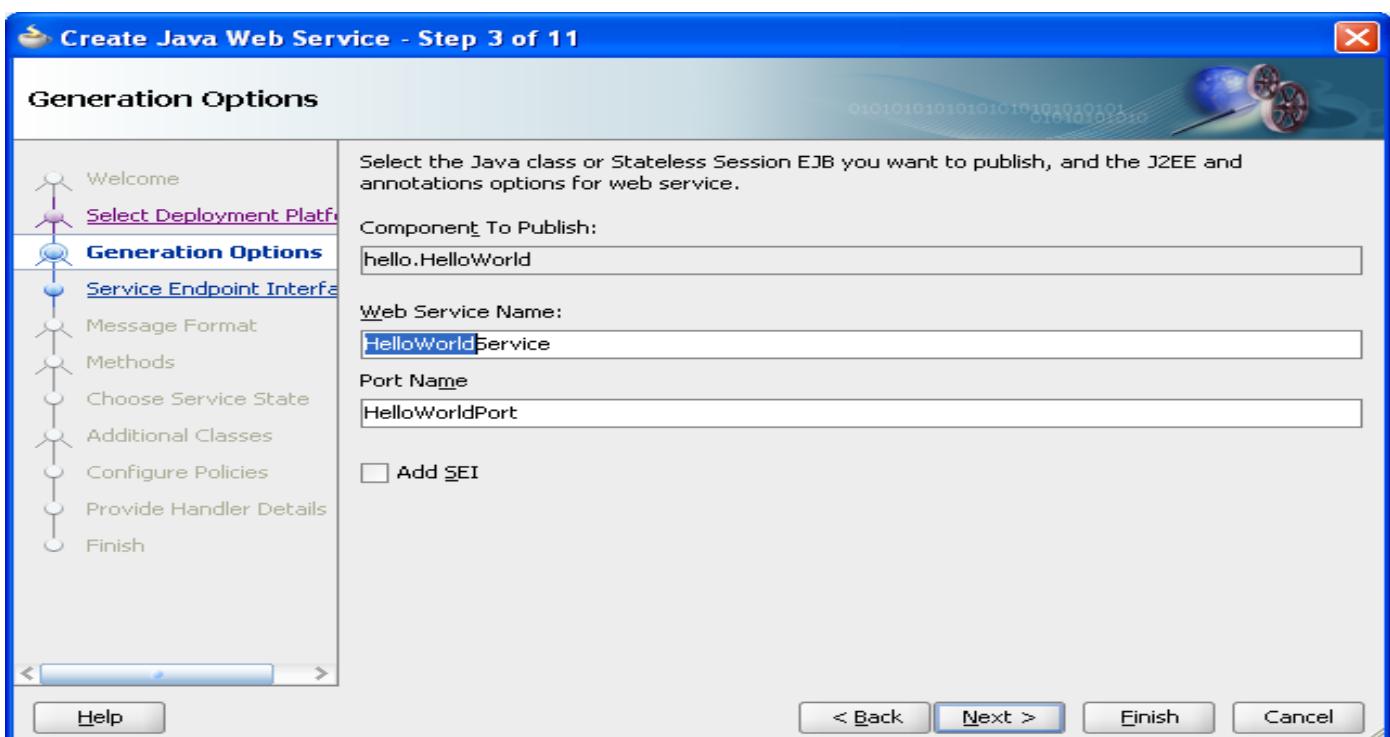
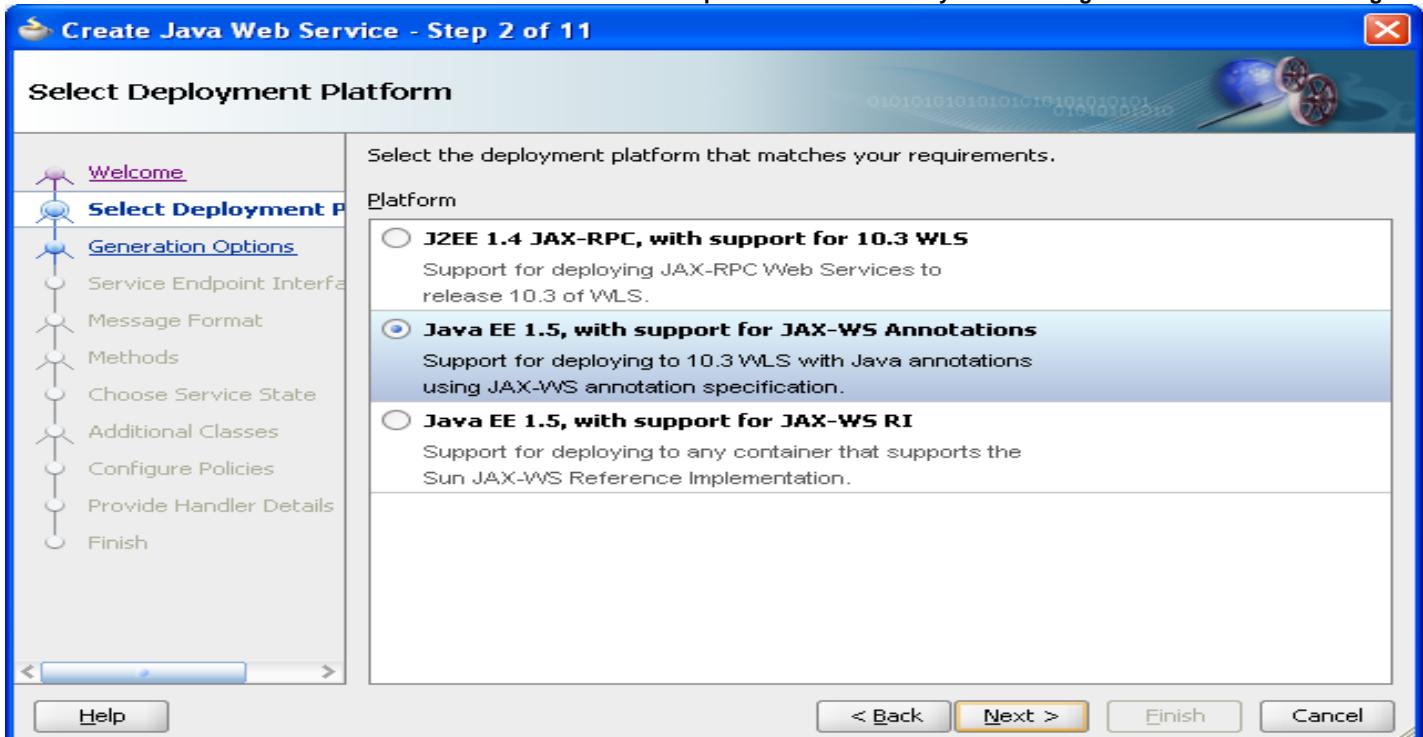
```
public String hello(String str) {
    return "Hello "+ str;
}
```



## Create Web Service from HelloWorld POJO Class

Right Click on the HelloWorld class and click on “Create Web Service”





**Create Java Web Service - Step 4 of 10**

### Message Format

Use the controls on this page to choose the binding option and the settings that control the structure of the SOAP messages transmitted to and from the web service.

SOAP 1.1 Binding  
 SOAP 1.2 Binding

SOAP Message Format: **Document/Wrapped**

Binary encoding style for this service is MTOM. Enable MTOM to write MTOM annotation for this service.

Enable **MTOM**

< Back Next > Finish Cancel

**Create Java Web Service - Step 5 of 10**

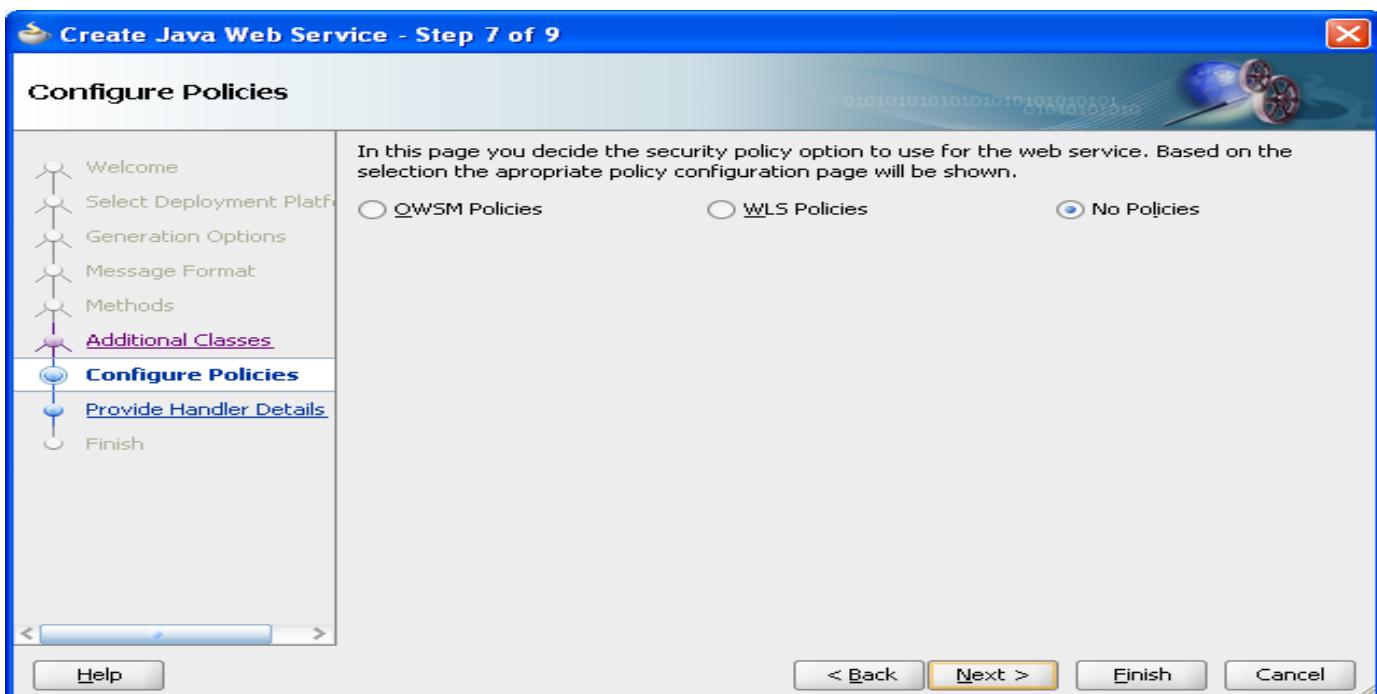
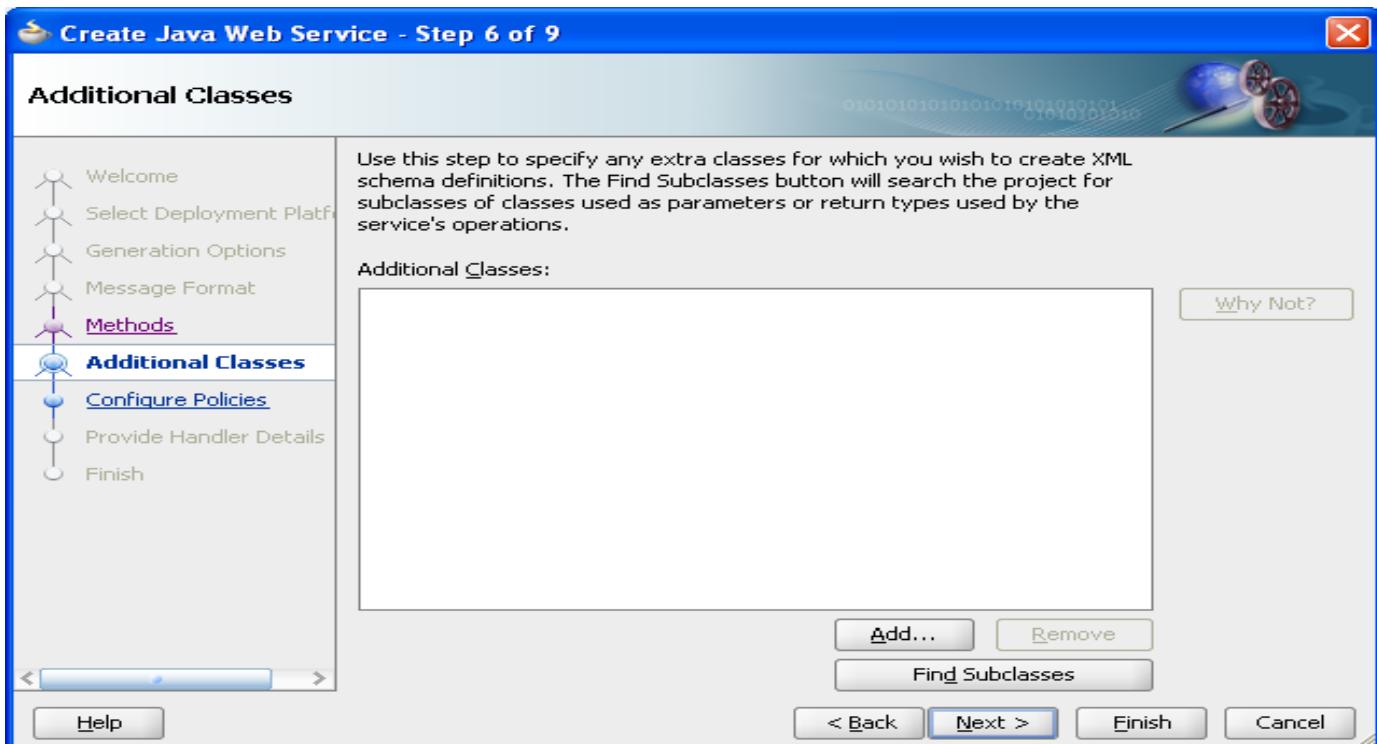
### Methods

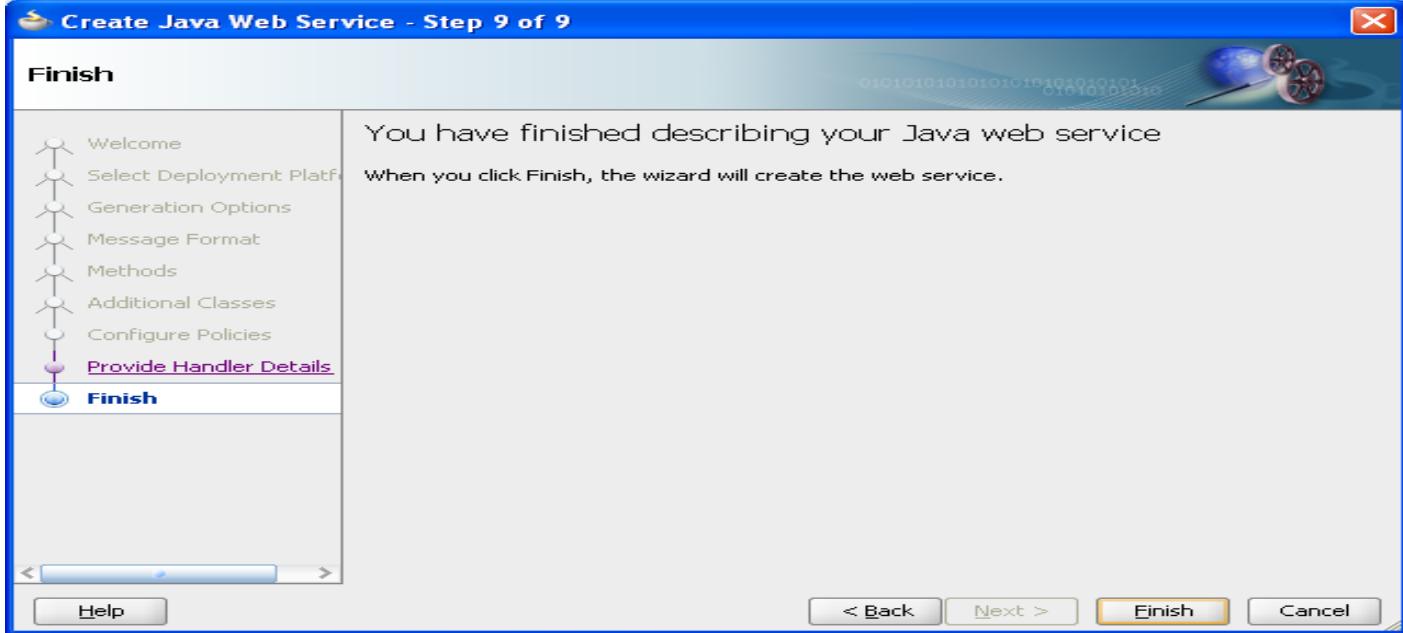
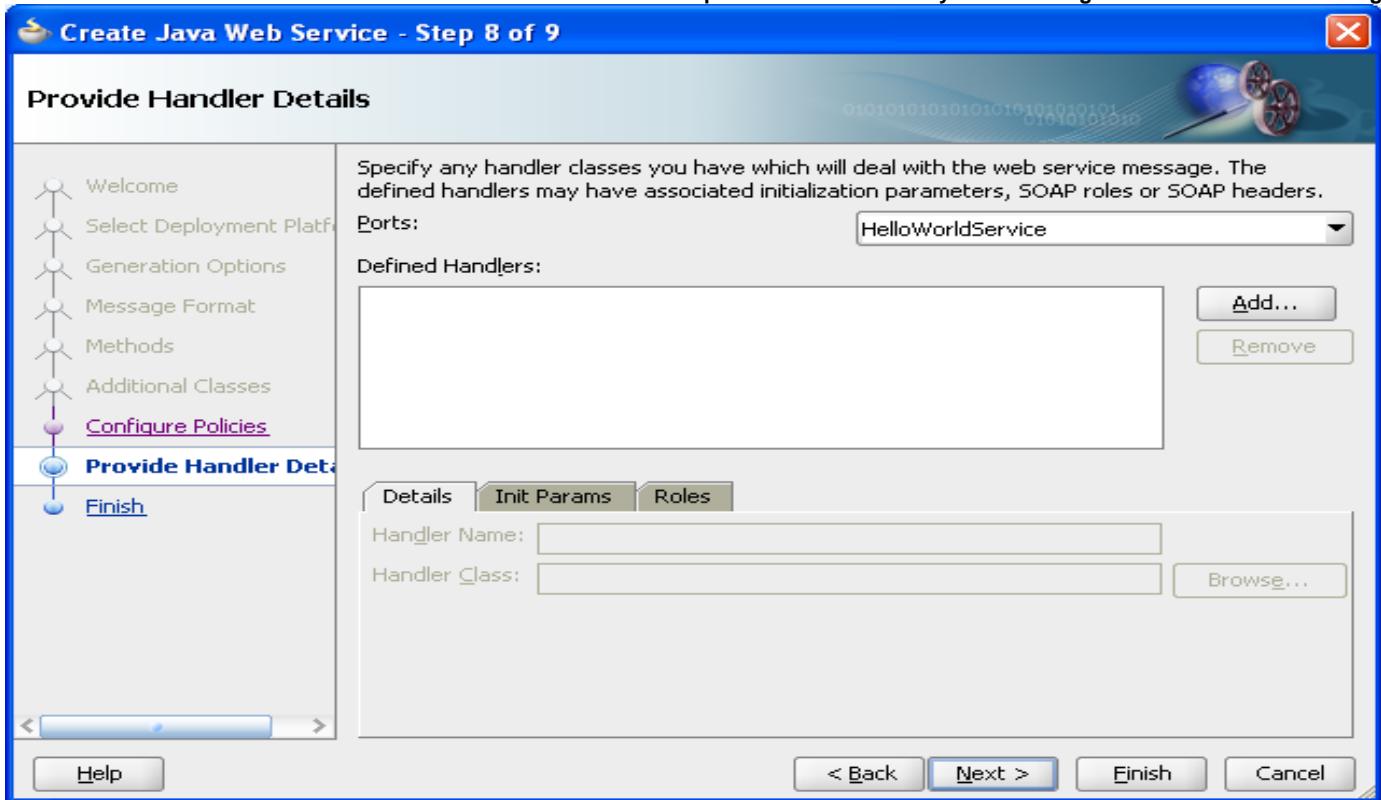
Select at least one method for the web service to expose.

Available Methods:

<input checked="" type="checkbox"/>  hello(java.lang.String str) : java.lang.String	Why Not?
<input type="checkbox"/>  hello(java.lang.String str) : java.lang.String	Select All
<input type="checkbox"/>  hello(java.lang.String str) : java.lang.String	Deselect All

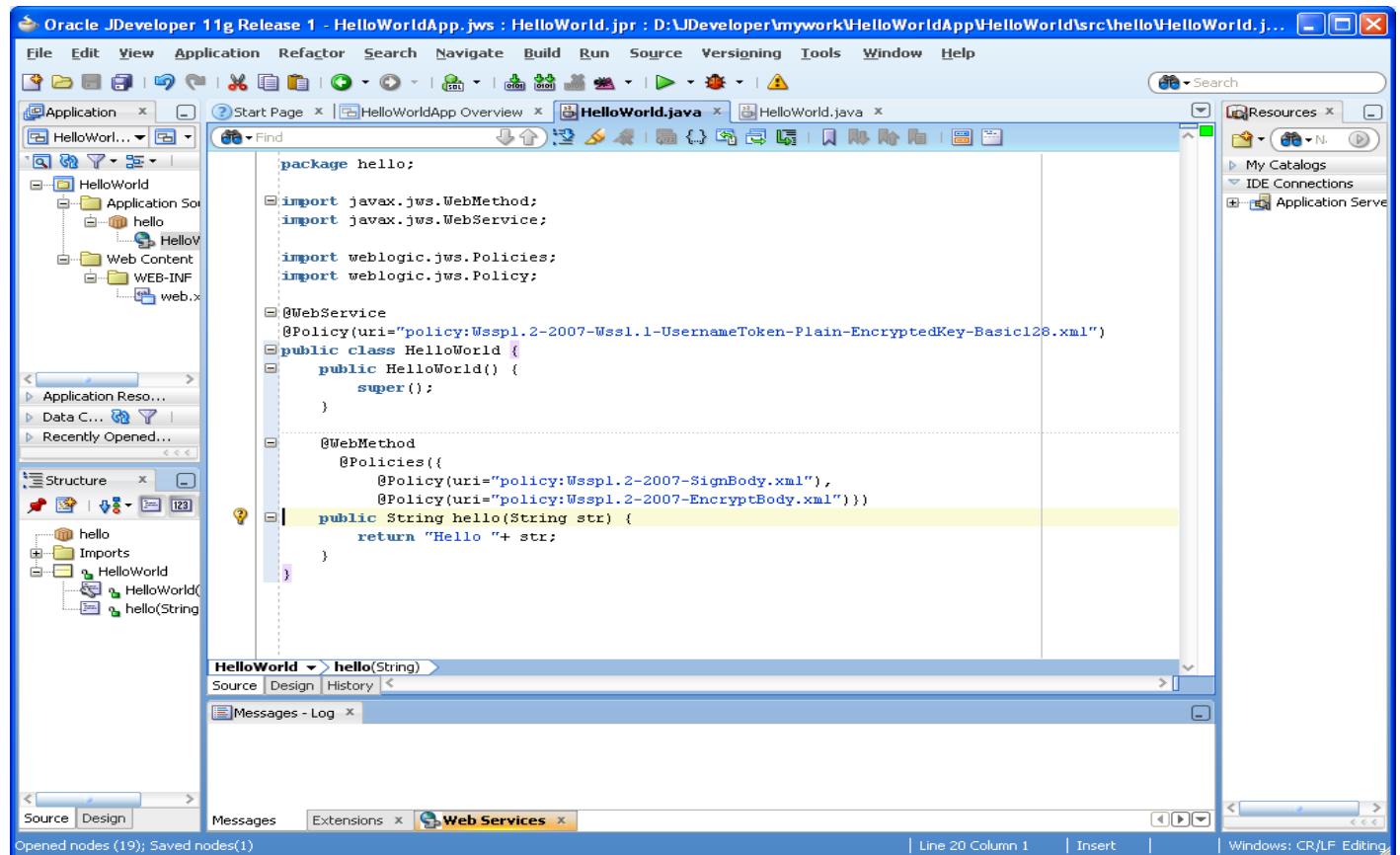
< Back Next > Finish Cancel





## Attach Weblogic WS-Security Policies to the HelloWorld Web Service

You can attach Weblogic WS-Security Policies using the @Policy and @Policies annotation.



The final class looks as follows:

```
package hello;
import javax.jws.WebMethod;
import javax.jws.WebService;
import weblogic.jws.Policies;
import weblogic.jws.Policy;

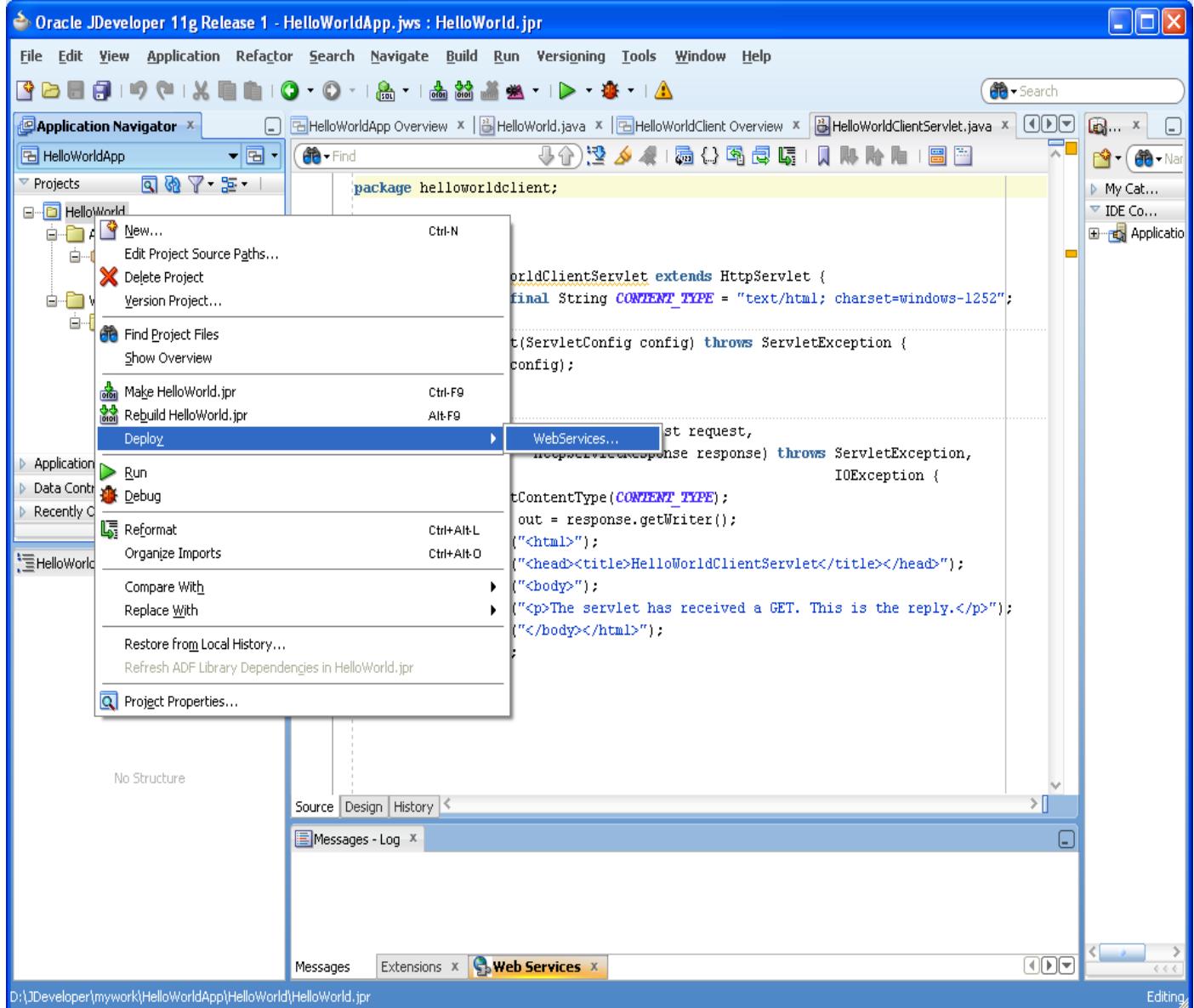
@WebService
@Policy(uri="policy:Wssp1.2-2007-Wss1.1-UsernameToken-Plain-EncryptedKey-Basic128.xml")
public class HelloWorld {
    public HelloWorld() {
        super();
    }

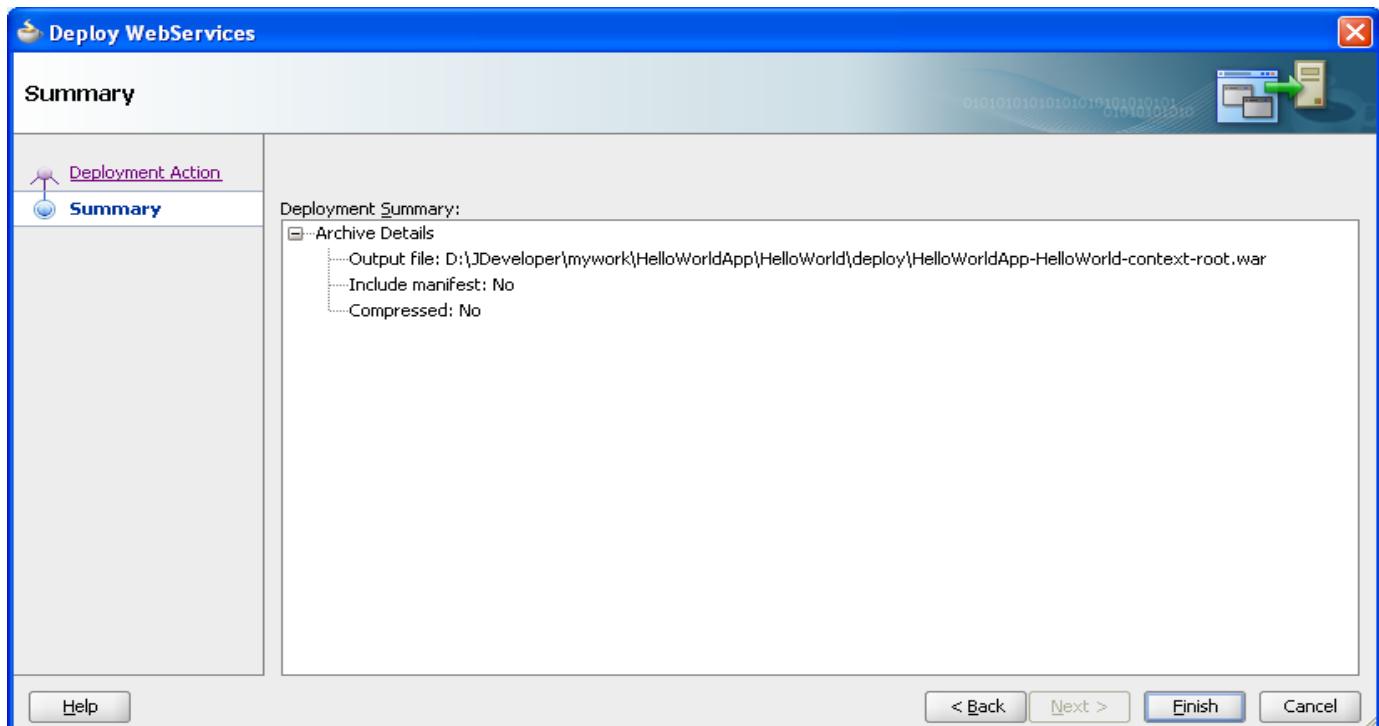
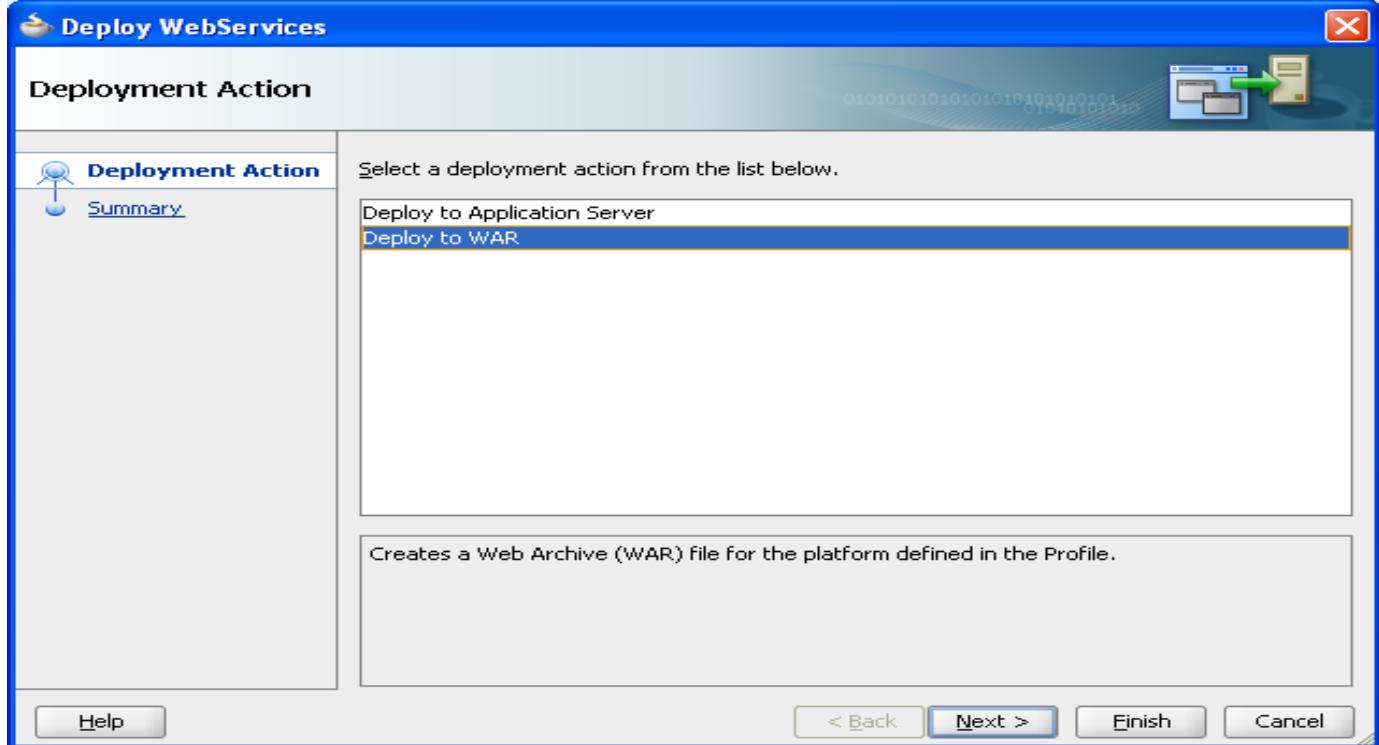
    @WebMethod
    @Policies({
        @Policy(uri="policy:Wssp1.2-2007-SignBody.xml"),
        @Policy(uri="policy:Wssp1.2-2007-EncryptBody.xml")})
    public String hello(String str) {
        return "Hello "+ str;
    }
}
```

## Deploy HelloWorld Web Service

### *Create WAR*

Right Click on the HelloWorld project. Select “Deploy” item from the menu.





## Deploy HelloWorldApp-HelloWorld-context-root.war

**Install Application Assistant - soa\_domain - WLS Console - Mozilla Firefox**

File Edit View History Bookmarks Tools Help

http://localhost:7001/console/console.portal?\_nfpb=true&\_pageLabel=AppApplicationInstallPage&App security token failed to validate

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**ORACLE WebLogic Server® Administration Console**

Change Center

**View changes and restarts**

Configuration editing is enabled. Future changes will automatically be activated as you modify, add or delete items in this domain.

**Domain Structure**

- soa\_domain
  - Environment
  - Deployments
  - Services
  - Security Realms
  - Interoperability
  - Diagnostics

**How do I...**

- Start and stop a deployed Enterprise application
- Configure an Enterprise application
- Create a deployment plan
- Target an Enterprise application to a server
- Test the modules in an Enterprise application

**Install Application Assistant**

Back Next Finish Cancel

**Locate deployment to install and prepare for deployment**

Select the file path that represents the application root directory, archive file, exploded archive directory, or application module descriptor that you want to install. You can also enter the path of the application directory or file in the Path field.

**Note:** Only valid file paths are displayed below. If you cannot find your deployment files, [upload your file\(s\)](#) and/or confirm that your application contains the required deployment descriptors.

**Path:** `ork\HelloWorldApp\HelloWorld\deploy\HelloWorldApp-HelloWorld-context-root.war`

**Recently Used Paths:**  
`D:\JDeveloper\mywork\testclient\helloworldclient\deploy`  
`D:\JDeveloper\mywork\testapp\testws\deploy`

**Current Location:** `localhost \ D: \ JDeveloper \ mywork \ HelloWorldApp \ HelloWorld \ deploy`

**HelloWorldApp-HelloWorld-context-root.war**

Back Next Finish Cancel

**Install Application Assistant - soa\_domain - WLS Console - Mozilla Firefox**

File Edit View History Bookmarks Tools Help

http://localhost:7001/console/console.portal?AppApplicationInstallPortlet\_actionOverride=/com/bea/cc security token failed to validate

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Change Center

**View changes and restarts**

Configuration editing is enabled. Future changes will automatically be activated as you modify, add or delete items in this domain.

**Domain Structure**

- soa\_domain
  - + Environment
  - Deployments
  - + Services
  - Security Realms
  - + Interoperability
  - + Diagnostics

**How do I...**

- Start and stop a deployed Enterprise application
- Configure an Enterprise application
- Create a deployment plan
- Target an Enterprise application to a server
- Test the modules in an Enterprise application

Find: @WssC Next Previous Highlight all Match case

Done

Home Log Out Preferences Record Help

Welcome, weblogic Connected to: soa\_domain

Home >Summary of Deployments

**Install Application Assistant**

Back Next Finish Cancel

**Choose targeting style**

Targets are the servers, clusters, and virtual hosts on which this deployment will run. There are several ways you can target an application.

**Install this deployment as an application**

The application and its components will be targeted to the same locations. This is the most common usage.

**Install this deployment as a library**

Application libraries are deployments that are available for other deployments to share. Libraries should be available on all of the targets running their referencing applications.

Back Next Finish Cancel

Install Application Assistant - soa\_domain - WLS Console - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://localhost:7001/console/console.portal?AppApplicationInstallPortlet\_actionOverride=|com/bea/console/actions/app/install|targetStyleSelected security token failed to validate

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Services  
Security Realms  
Interoperability  
Diagnostics

What do you want to name this deployment?  
Name: HelloWorldApp-HelloWorld-conte

**Security**

What security model do you want to use with this application?  
 DD Only: Use only roles and policies that are defined in the deployment descriptors.  
 Custom Roles: Use roles that are defined in the Administration Console; use policies that are defined in the deployment descriptor.  
 Custom Roles and Policies: Use only roles and policies that are defined in the Administration Console.  
 Advanced: Use a custom model that you have configured on the realm's configuration page.

**Source accessibility**

How should the source files be made accessible?  
 Use the defaults defined by the deployment's targets

Recommended selection.

Copy this application onto every target for me  
During deployment, the files will be copied automatically to the managed servers to which the application is targeted.

I will make the deployment accessible from the following location  
Location: D:\JDeveloper\mywork\HelloWorldApp\HelloWorld\dist

Provide the location from where all targets will access this application's files. This is often a shared directory. You must ensure the application files exist in this location and that each target can reach the location.

Back Next Finish Cancel

WebLogic Server Version: 10.3.5.0  
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Oracle is a registered trademark of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners.

Find: @WssC Next Previous Highlight all Match case

Done

Click on “Finish” to complete the deployment.

## Validate HelloWorldApp-HelloWorld-context-root.war successfully deployed

Summary of Deployments - soa\_domain - WLS Console - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://localhost:7001/console/console.portal?\_pageLabel=AppDeploymentsControlPage&\_nfpb=true& security token failed to validate

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McAfee

Neither Ind... Use Case - ... Google News How to conf... Oracle SOA ... Interoperab... Specify the ... Summary Credentials

<input type="checkbox"/>	FileAdapter	Active	OK	Resource Adapter	321
<input type="checkbox"/>	FMW Welcome Page Application (11.1.0.0.0)	Installed		Enterprise Application	5
<input type="checkbox"/>	FtpAdapter	Active	OK	Resource Adapter	325
<input type="checkbox"/>	HelloWorldApp-HelloWorld-context-root	Active	OK	Web Application	100
Web Services					
HelloWorldService					
<input type="checkbox"/>	JmsAdapter	Active	OK	Resource Adapter	323
<input type="checkbox"/>	jsf(1.2,1.2.9.0)	Active		Library	100
<input type="checkbox"/>	jstl(1.2,1.2.0.1)	Active		Library	100
<input type="checkbox"/>	MQSeriesAdapter	Installed		Resource Adapter	327
<input type="checkbox"/>	ohw-rcf(5,5.0)	Active		Library	100

X Find: @WssC     Match case

http://localhost:7001/console/console.portal?\_nfpb=true&\_pageLabel=AppApplicationDispatcherPage&AppApplicationDispatcherPortlethandle=com.bea.console.handlers.ModuleHandle/"com...

## Validate Web Service

```

<definitions targetNamespace="http://hello/" name="HelloWorldService">
  <wsp:UsingPolicy wssutil:Required="true"/>
  <wsp:Policy wsu:Id="Wssp1.2-2007-Wss1.1-UsernameToken-Plain-EncryptedKey-Basic128.xml">
    <ns1:SymmetricBinding>
      <wsp:Policy>
        <ns1:ProtectionToken>
          <wsp:Policy>
            <ns1:X509Token ns1:IncludeToken="http://docs.oasis-open.org/ws-sx/ws-securitypolicy/200702/IncludeToken/Never">
              <wsp:Policy>
                <ns1:RequireThumbprintReference/>
                <ns1:WssX509V3Token11/>
              </wsp:Policy>
            </ns1:X509Token>
          </wsp:Policy>
        </ns1:ProtectionToken>
      </wsp:Policy>
    </ns1:AlgorithmSuite>
    <wsp:Policy>
      <ns1:Basic128/>
    </wsp:Policy>
  </ns1:AlgorithmSuite>
  <ns1:Layout>
    <wsp:Policy>
      <ns1:Lax/>
    </wsp:Policy>
  </ns1:Layout>
  <ns1:IncludeTimestamp/>
  <ns1:OnlySignEntireHeadersAndBody/>
</wsp:Policy>
</ns1:SymmetricBinding>
<ns2:SignedEncryptedSupportingTokens>
  <wsp:Policy>
    <ns2:UsernameToken ns2:IncludeToken="http://docs.oasis-open.org/ws-sx/ws-securitypolicy/200702/IncludeToken/AlwaysToRecipient">
      <wsp:Policy>
    </ns2:UsernameToken>
  </wsp:Policy>
</ns2:SignedEncryptedSupportingTokens>

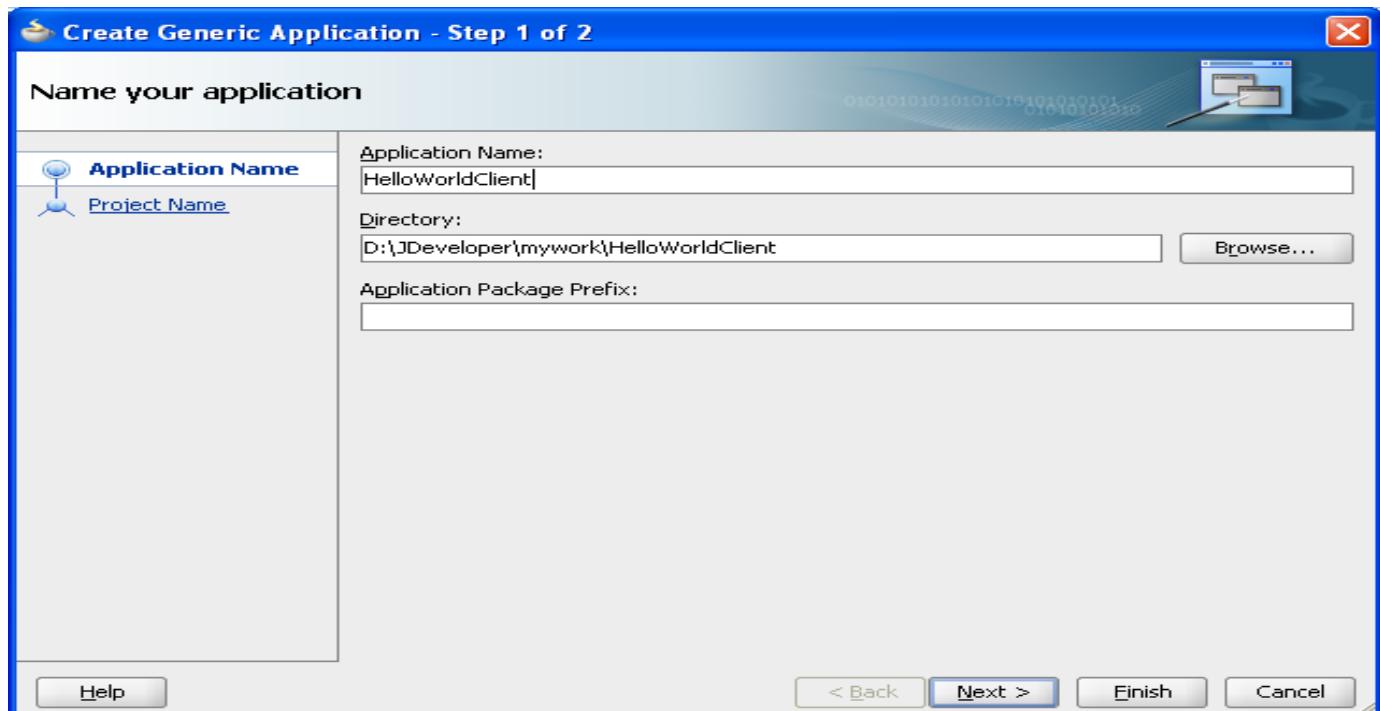
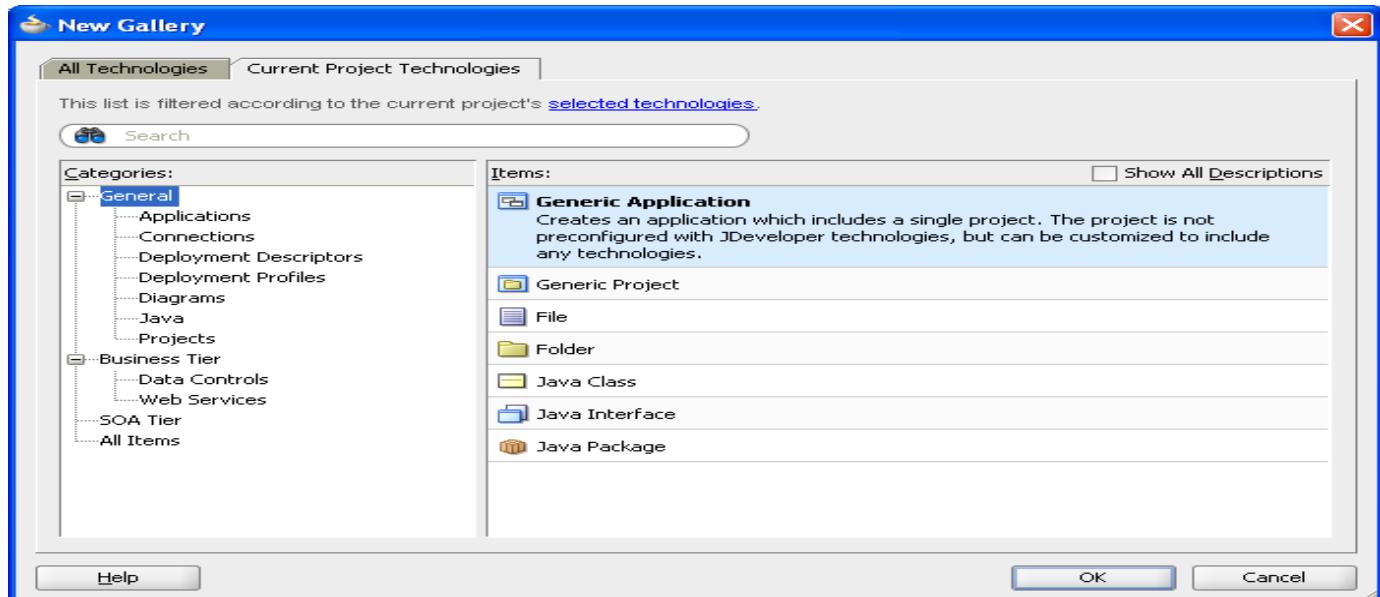
```

Find: @WssC    Next    Previous    Highlight all    Match case

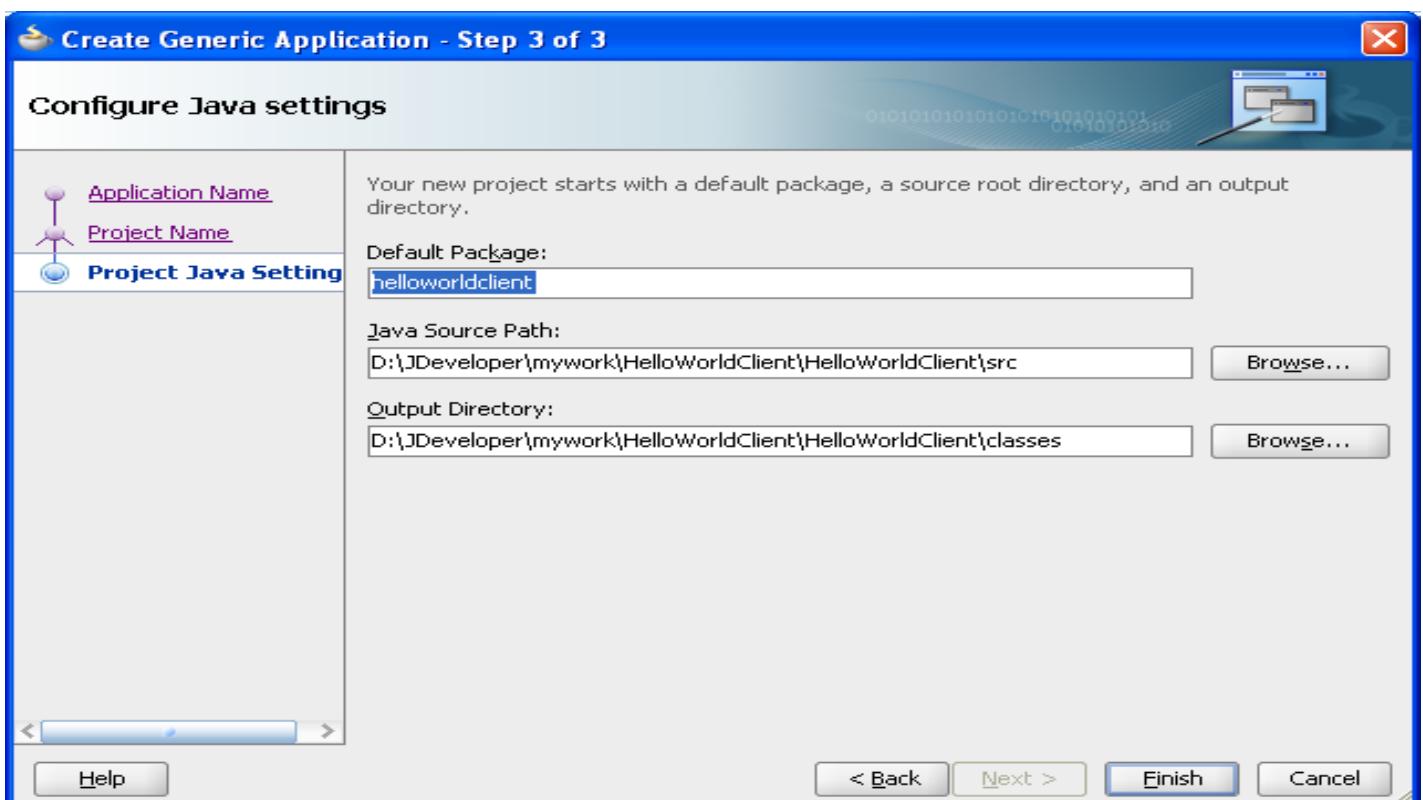
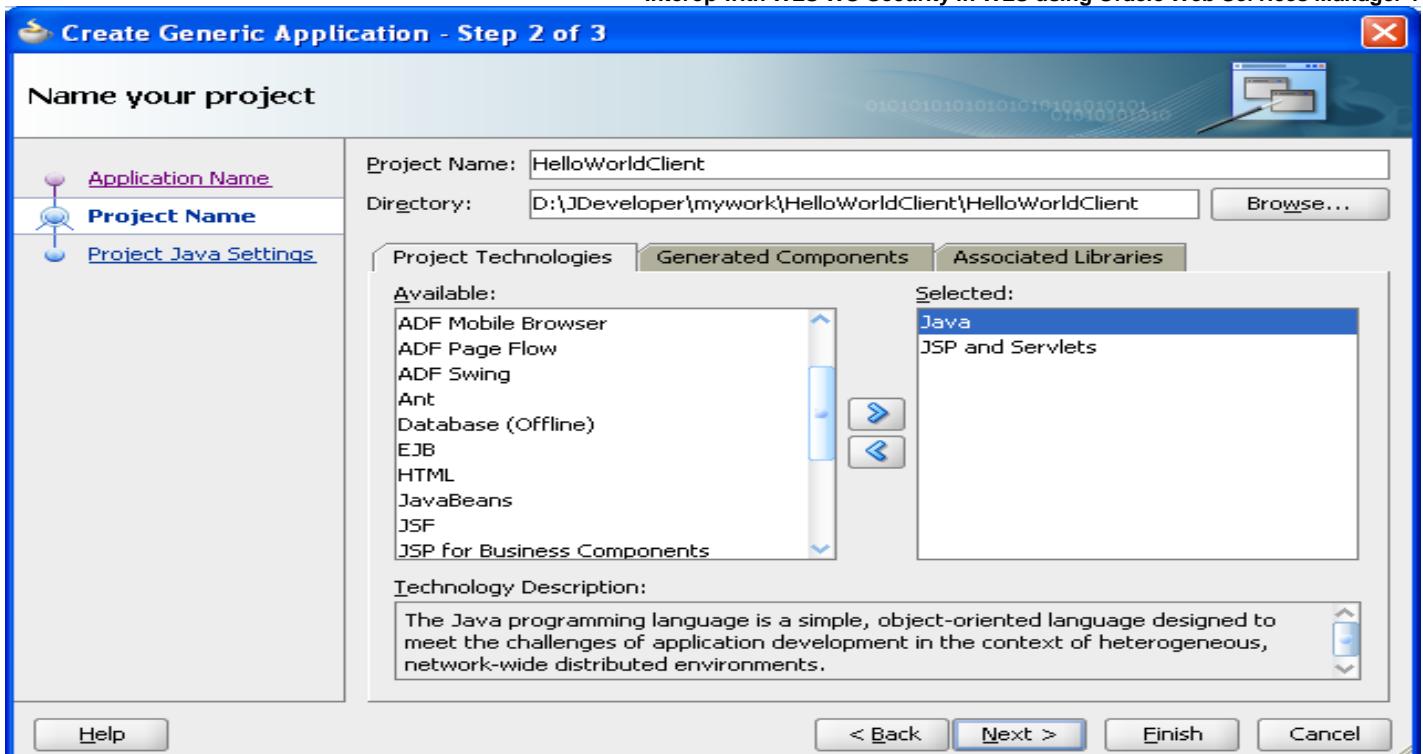
Done

## Create the HelloWorldClient Web App

Click on File->New to start creating a new Application.

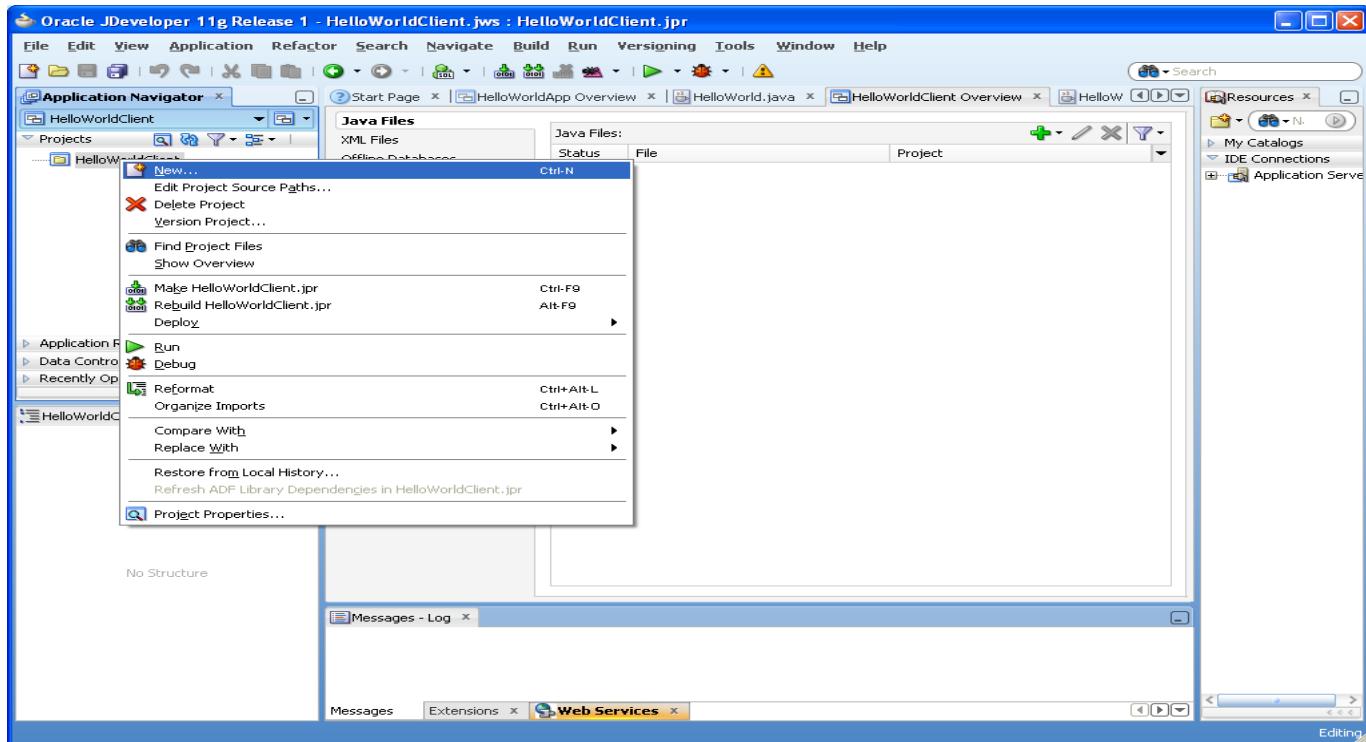


Select JSP and Servlets as the “Project Technologies” for the project and click on “Next”.

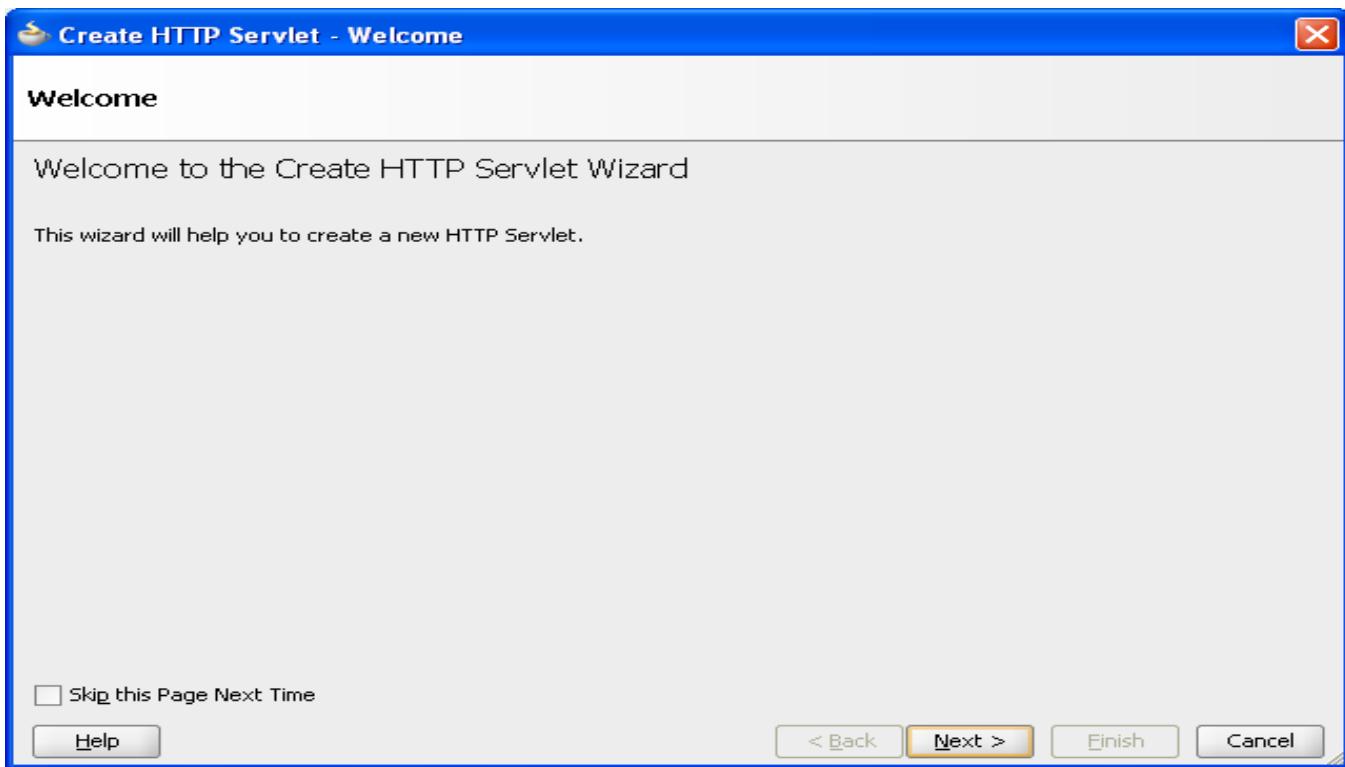
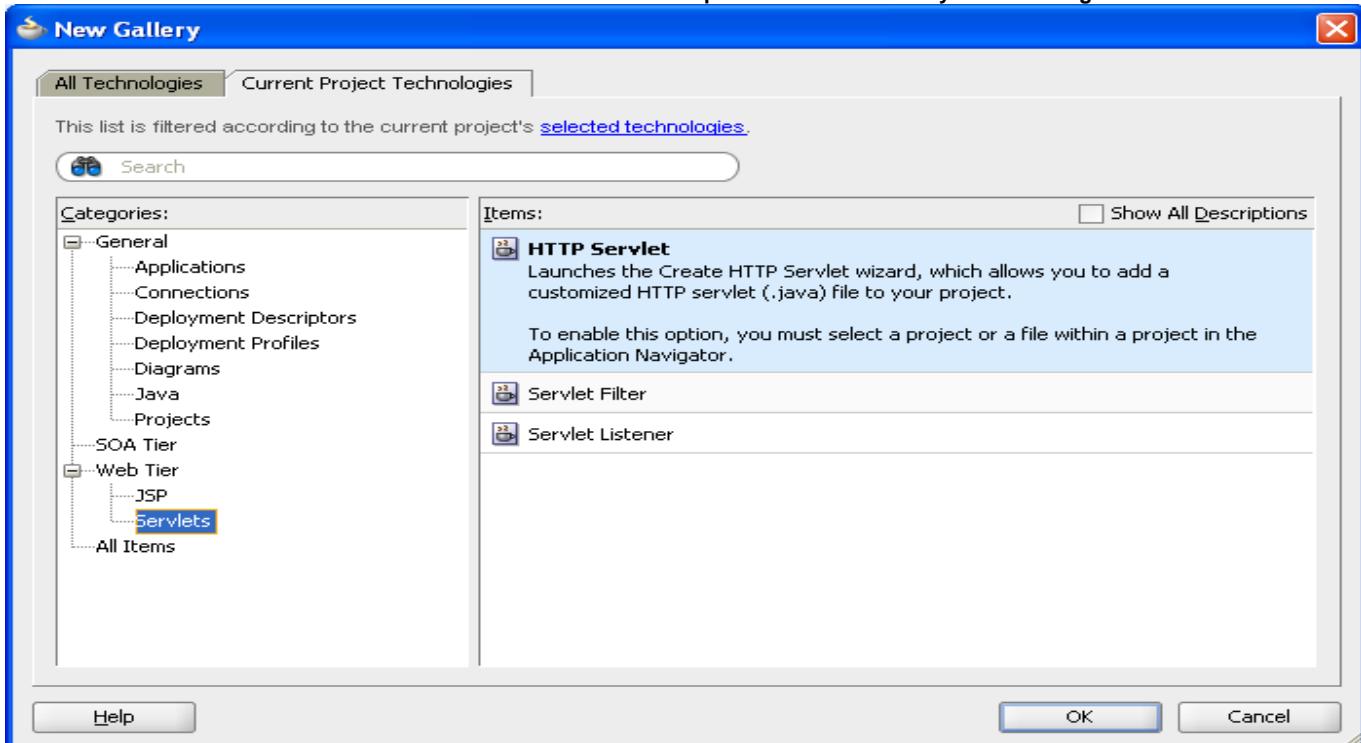


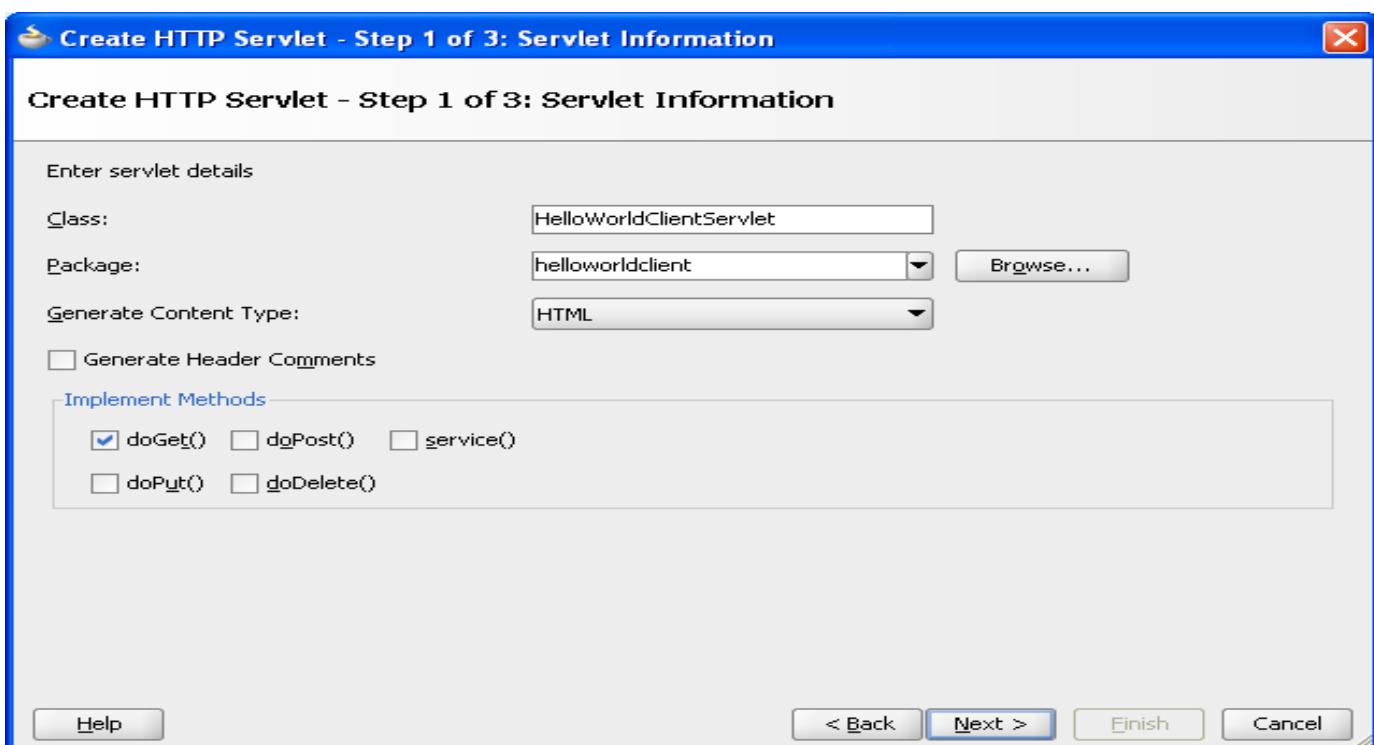
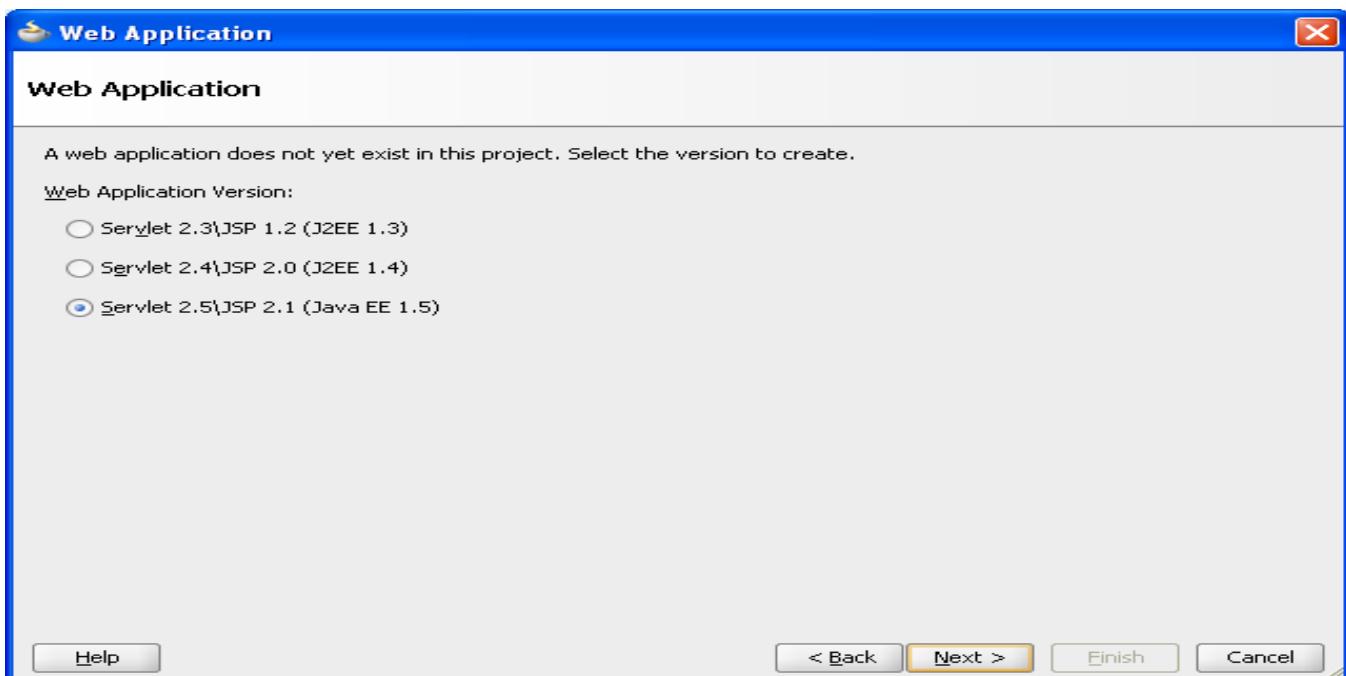
## Create a HTTP Servlet "HelloWorldClientServlet"

Right Click on the HelloWorldClient Project and click on “New” menu item.



Select “Servlets” and Select “HTTP Servlet” and click on “OK”.





**Create HTTP Servlet - Step 2 of 3: Mapping Information**

Enter servlet mapping.  
While this is not required to create a servlet, it is required to run a servlet.

Specify a name and mapping for the servlet.

**Mapping Details**

Name:	HelloWorldClientServlet
URL Pattern:	/helloworldclientservlet

**Buttons:** Help | < Back | Next > | Finish | Cancel

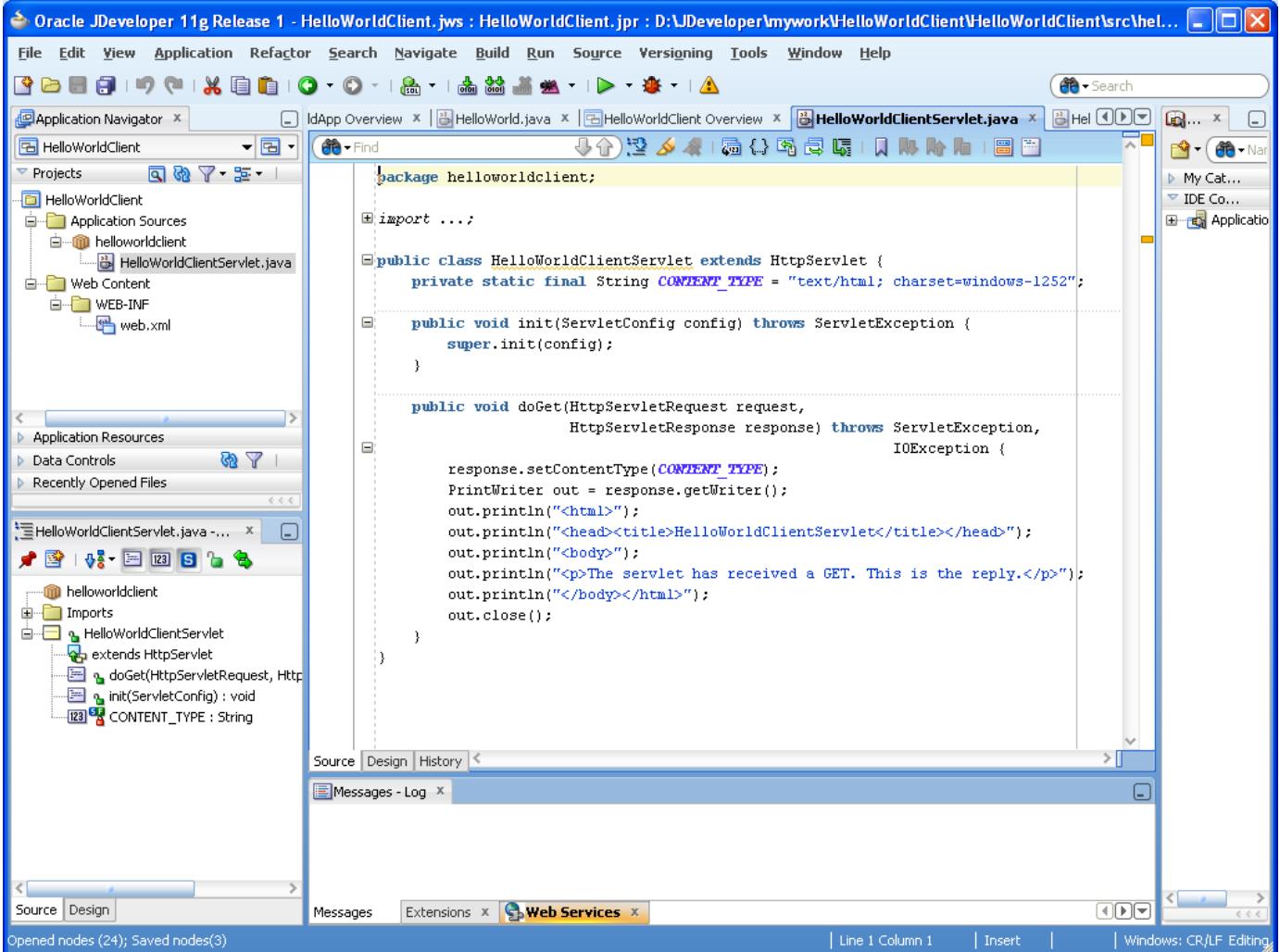
**Create HTTP Servlet - Step 3 of 3: Servlet Parameters**

Enter servlet parameters:

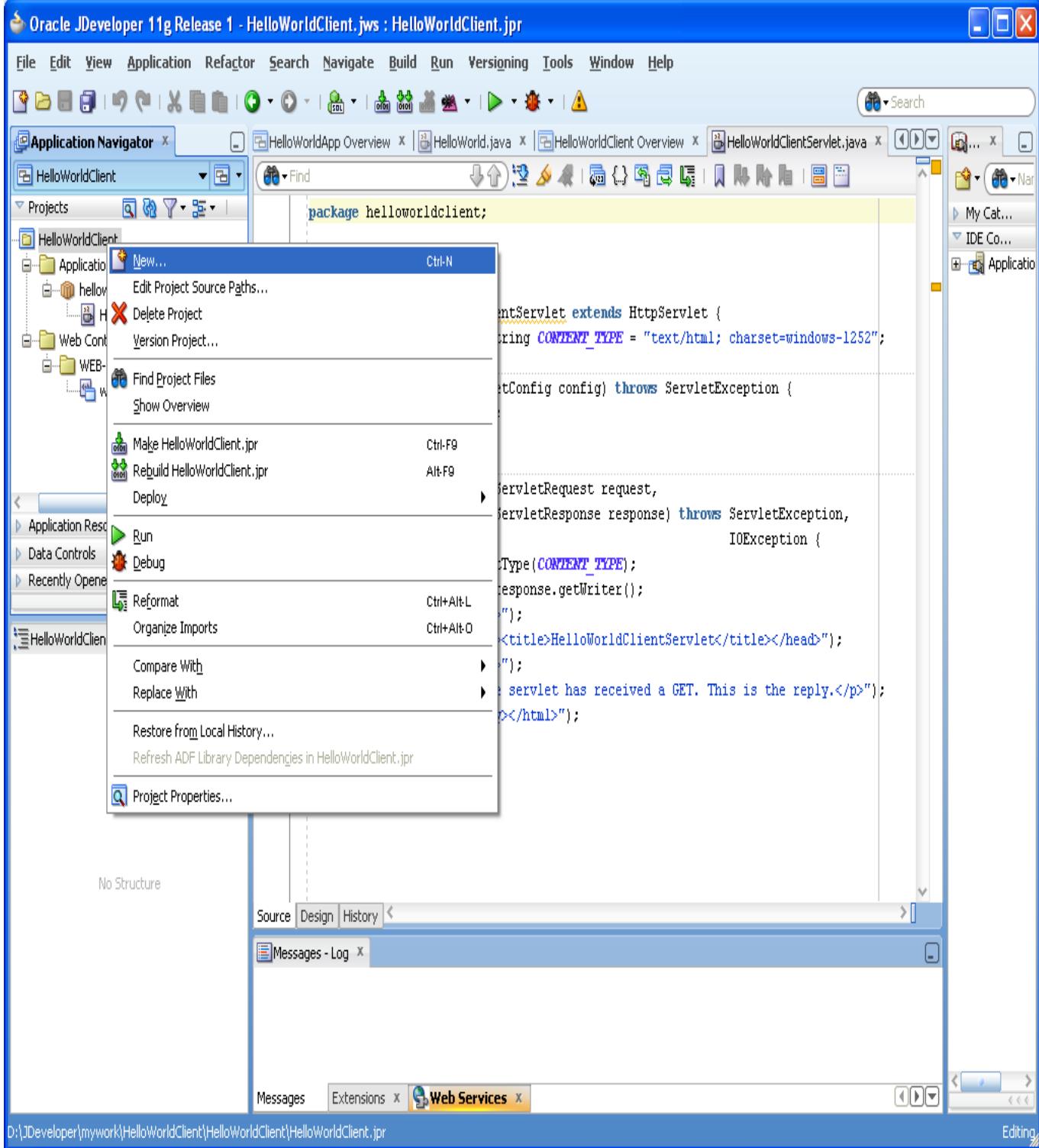
\*-Required Field

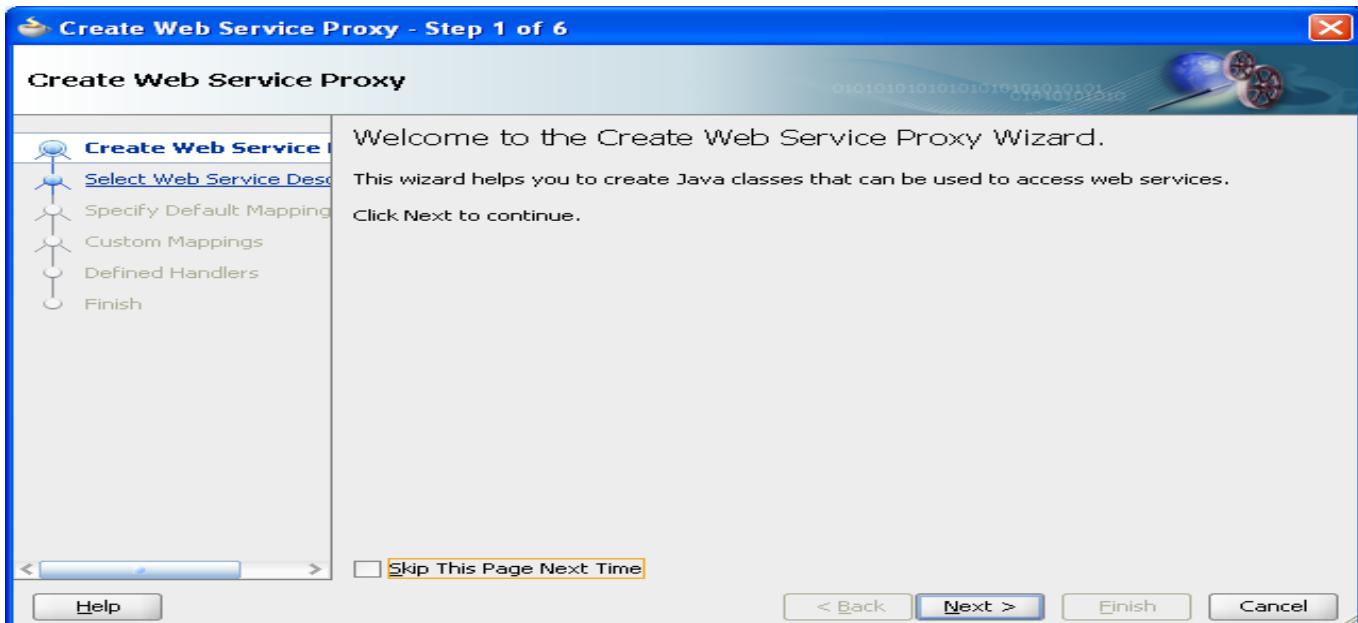
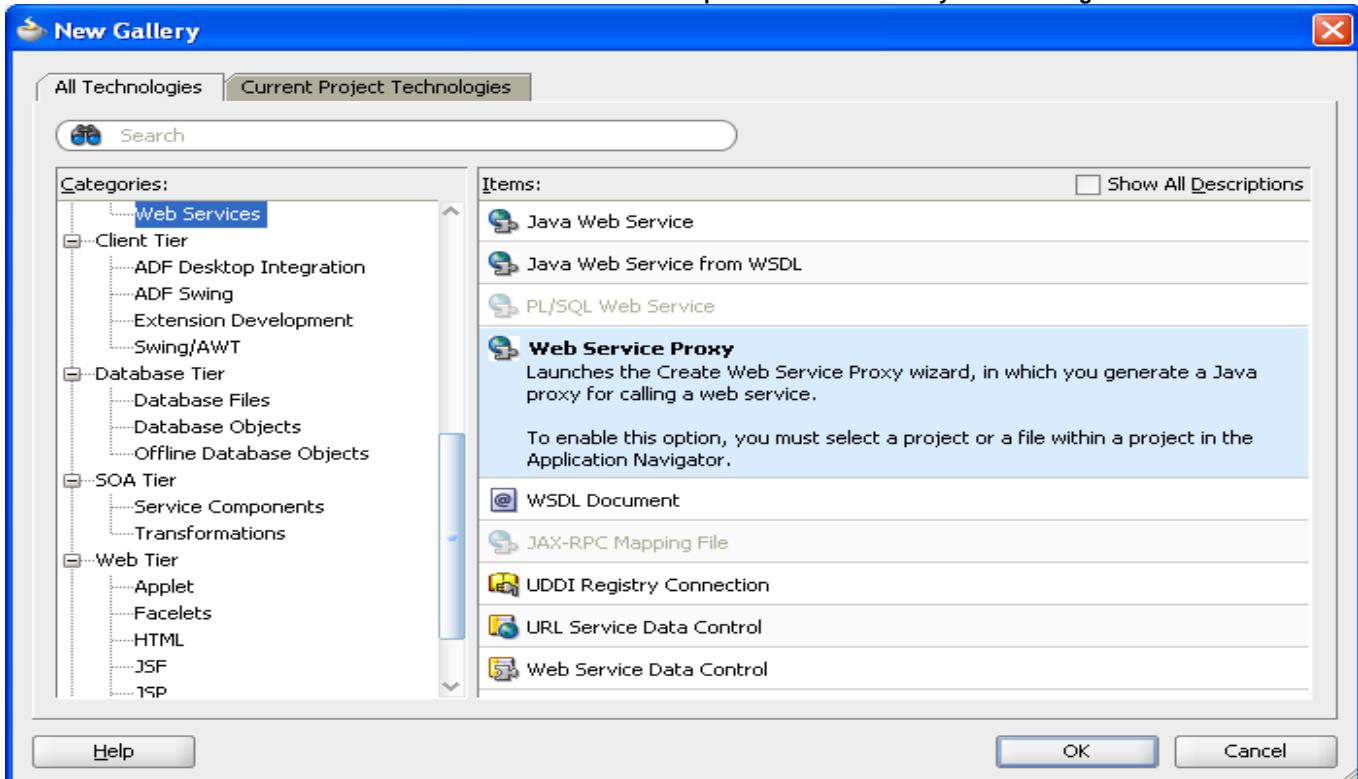
Name*	Type*	Variable*	Desc	Default

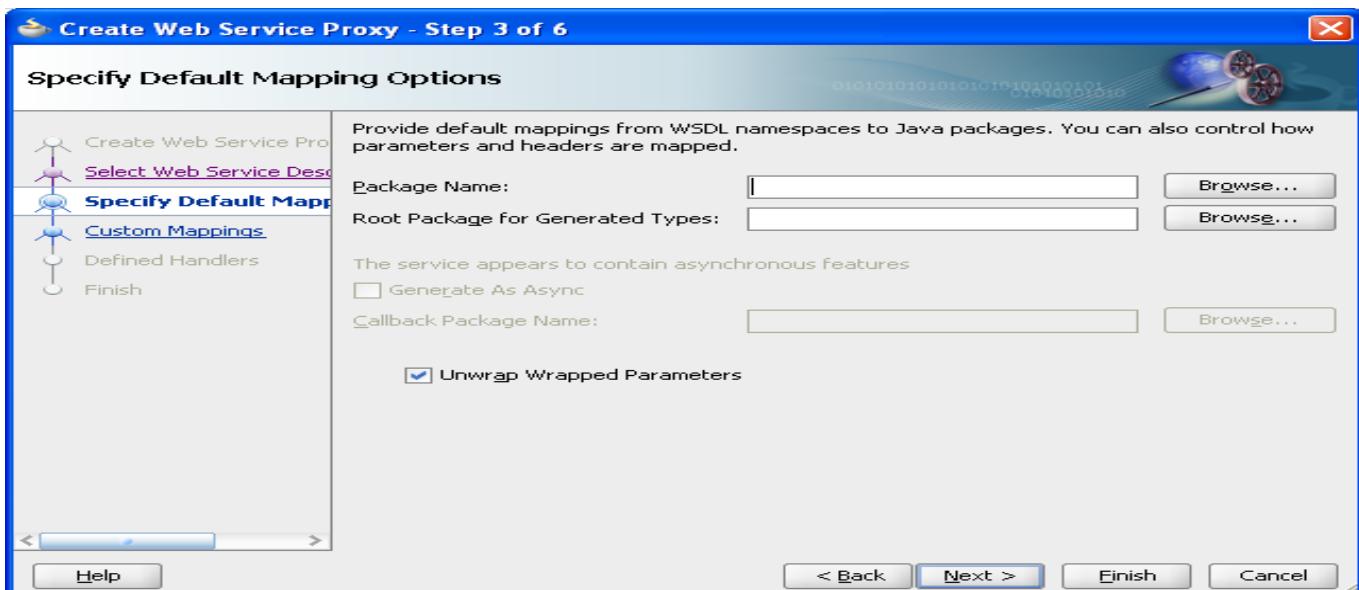
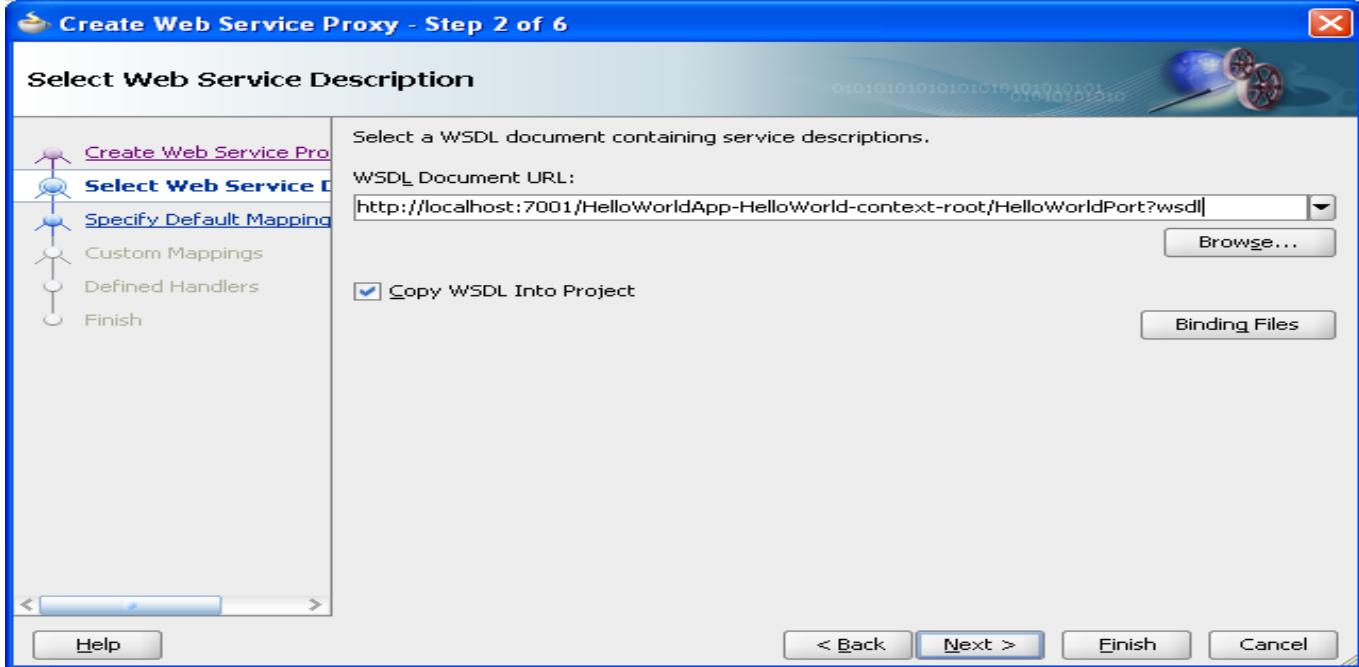
**Buttons:** New | Remove | Help | < Back | Next > | Finish | Cancel

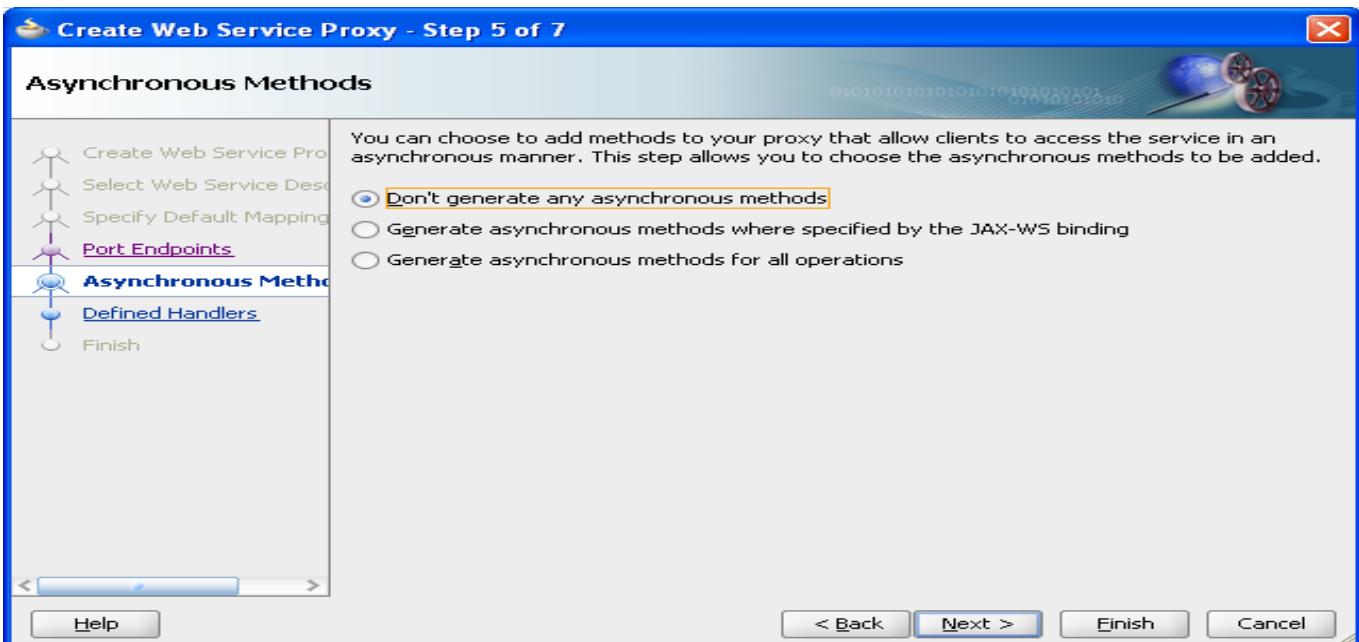
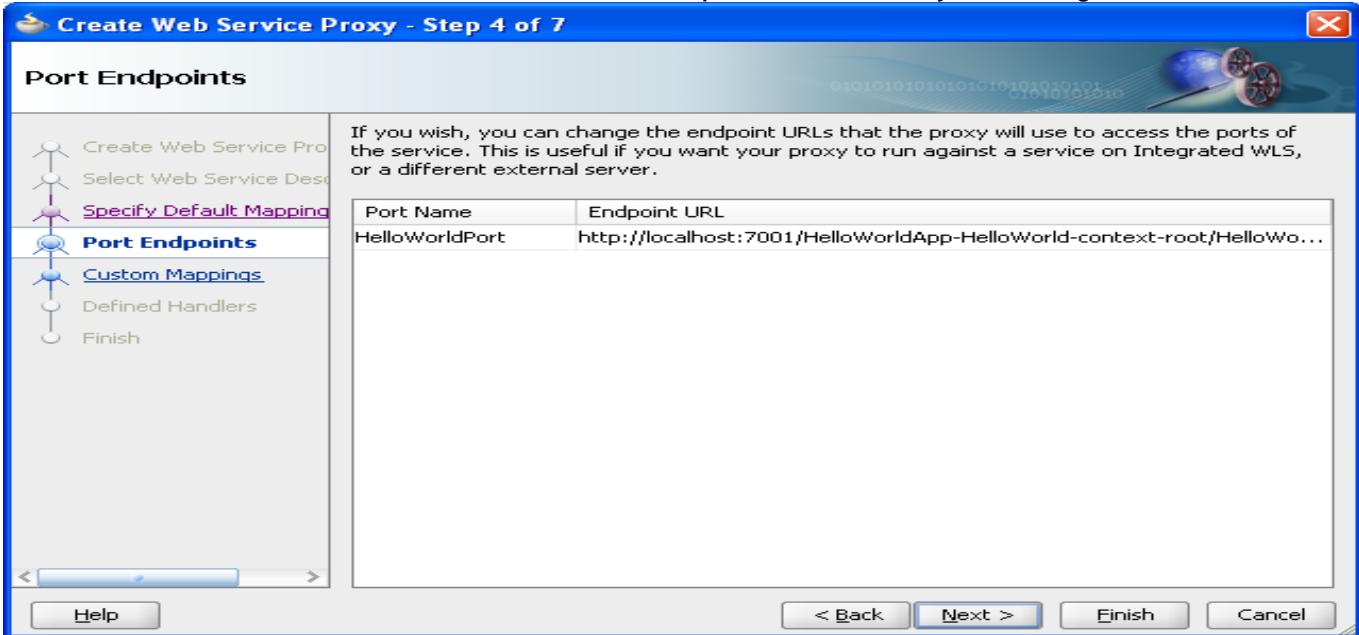


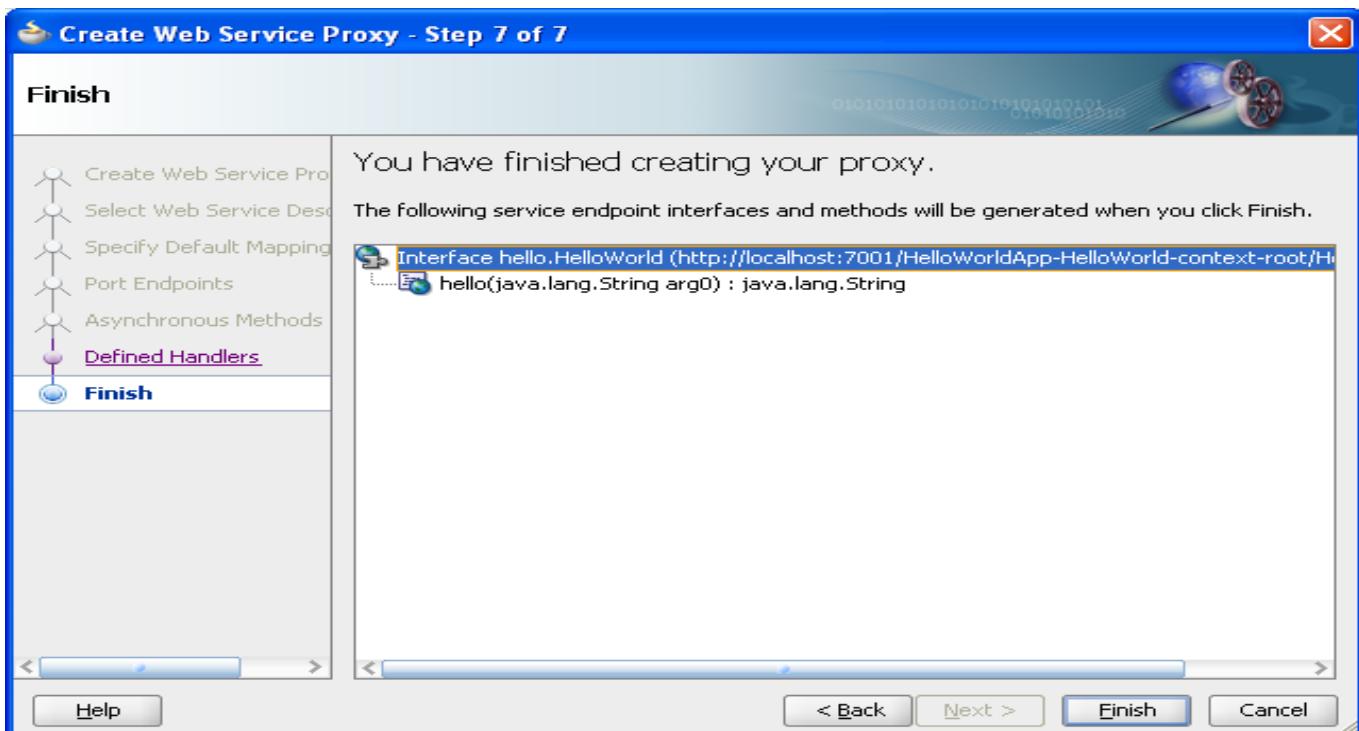
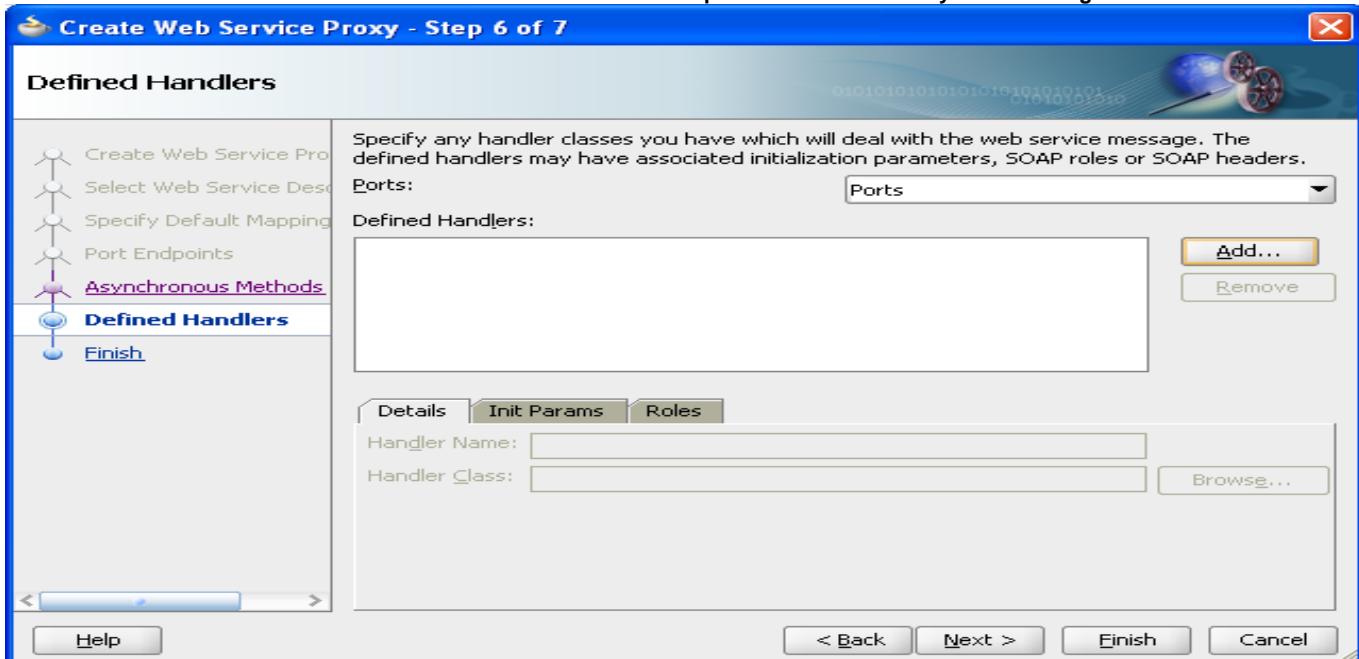
## Create "HelloWorldService" Web Service Proxy











*Invoke the HelloWorld Web Service from the HelloWorldClientServlet*

Oracle JDeveloper 11g Release 1 - HelloWorldClient.jws : HelloWorldClient.jpr : D:\JDeveloper\mywork\HelloWorldClient\HelloWorldClient\src\hel...

File Edit View Application Refactor Search Navigate Build Run Source Versioning Tools Window Help

Start Page | HelloWorldApp Overview | HelloWorld.java | HelloWorldClient Overview | HelloWorldClientServlet.java | helloworldclientservlet.java | He

Find | Search

```

import java.io.IOException;
import java.io.PrintWriter;

import javax.servlet.*;
import javax.servlet.http.*;

import weblogic.wsee.jaxws.owsm.SecurityPolicyFeature;

public class HelloWorldClientServlet extends HttpServlet {
    private static final String CONTENT_TYPE = "text/html; charset=windows-1252";

    public void init(ServletConfig config) throws ServletException {
        super.init(config);
    }

    public void doGet(HttpServletRequest request,
                      HttpServletResponse response) throws ServletException,
                                                IOException {
        response.setContentType(CONTENT_TYPE);
        PrintWriter out = response.getWriter();
        out.println("<html>");
        out.println("<head><title>HelloWorldClientServlet</title></head>");
        out.println("<body>");
        out.println("<p>The servlet has received a GET. This is the reply.</p>");

        HelloWorldService helloWorldService = new HelloWorldService();
        HelloWorld helloWorld = null;
        try {
            helloWorld = helloWorldService.getHelloWorldPort();
            out.println("<p>Calling Web Service:"+
                       helloWorld.hello("HelloWorldClient app calling") + "</p>");
            out.println("</body></html>");
            out.close();
        } finally {
    }
}

HelloWorldClientServlet > doGet(HttpServletRequest, HttpServletResponse)
Source Design History < > | Line 33 Column 1 | Insert | Windows: CR/LF Editing
Saved: D:\JDeveloper\mywork\HelloWorldClient\HelloWorldClient\src\helloworldclient\HelloWorldClientServlet.java

```

Make the following modifications to the generated code in the HelloWorldClientServlet:

```
HelloWorldService helloWorldService = new HelloWorldService();
HelloWorld helloWorld = null;
try {
    helloWorld = helloWorldService.getHelloWorldPort();
    out.println("<p>Calling Web Service:<br>" +
               helloWorld.hello("HelloWorldClient app calling") + "</p>");
    out.println("</body></html>");
    out.close();
} finally {
    out.close();
    ((java.io.Closeable)helloWorld).close();
}
```

## Attach OWSM Client Policy to the HelloWorldClientServlet

```

import oracle.wsm.security.util.SecurityConstants;
import weblogic.wsee.jws.jaxws.owsm.SecurityPolicyFeature;

public class HelloWorldClientServlet extends HttpServlet {
    private static final String CONTENT_TYPE = "text/html; charset=windows-1252";

    public void init(ServletConfig config) throws ServletException {
        super.init(config);
    }

    public void doGet(HttpServletRequest request,
                      HttpServletResponse response) throws ServletException,
                                                IOException {
        response.setContentType(CONTENT_TYPE);
        PrintWriter out = response.getWriter();
        out.println("<html>");
        out.println("<head><title>HelloWorldClientServlet</title></head>");
        out.println("<body>");
        out.println("<p>The servlet has received a GET. This is the reply.</p>");

        HelloWorldService helloWorldService = new HelloWorldService();
        HelloWorld helloWorld = null;
        SecurityPolicyFeature[] securityFeature = new SecurityPolicyFeature[] {
            new SecurityPolicyFeature("policy:oracle/wss11_username_token_with_message_protection_client_policy") };
        try {
            helloWorld = helloWorldService.getHelloWorldPort(securityFeature);
            ((BindingProvider) helloWorld).getRequestContext().put(SecurityConstants.ClientConstants.WSS_CSF_KEY, "mycreds");
            out.println("<p>Calling Web Service:<br>" + helloWorld.hello("HelloWorldClient app calling") + "</p>");
            out.println("</body></html>");
            out.close();
        } finally {
    }
}

```

Source | Design | History < > | Line 41 Column 1 | Insert | Windows: CR/LF Editing

Make the following code changes to attach the OWSM Client Policy:

```

SecurityPolicyFeature[] securityFeature = new SecurityPolicyFeature[] {
    new SecurityPolicyFeature("policy:oracle/wss11_username_token_with_message_protection_client_policy") };
try {
    helloWorld = helloWorldService.getHelloWorldPort(securityFeature);
    ((BindingProvider)
    helloWorld.getRequestContext().put(SecurityConstants.ClientConstants.WSS_CSF_KEY,
    "mycreds");
}

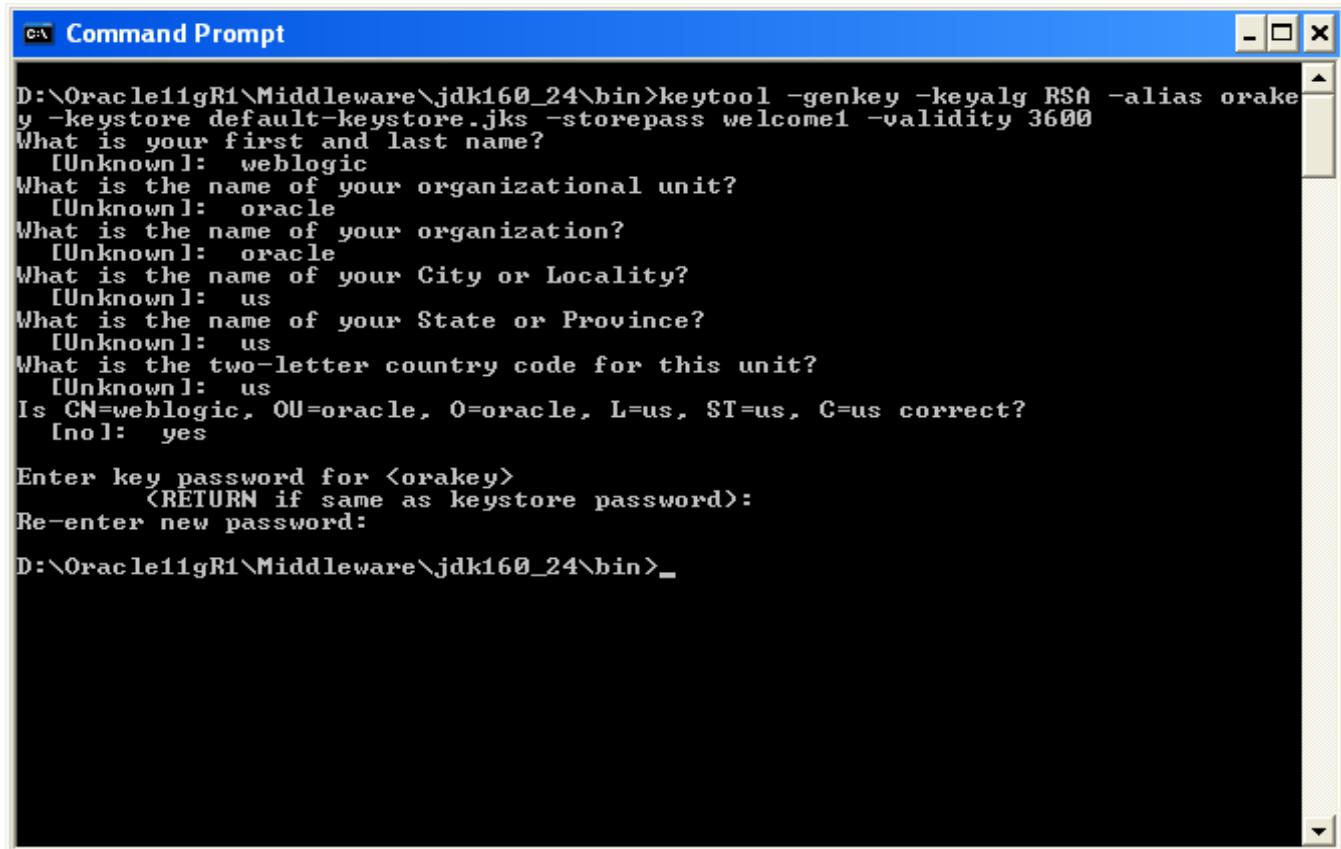
```

## Setup KeyStore & WLS Security Configuration

### Create Keystore using keytool

We will create a keystore using keytool. The keystore will be called default-keystore.jks. We will use the alias orakey and oratest

Note: All passwords will be welcome1 (keystore, truststore passwords and alias passwords).



```
D:\Oracle11gR1\Middleware\jdk160_24\bin>keytool -genkey -keyalg RSA -alias orakey -keystore default-keystore.jks -storepass welcome1 -validity 3600
What is your first and last name?
[Unknown]: weblogic
What is the name of your organizational unit?
[Unknown]: oracle
What is the name of your organization?
[Unknown]: oracle
What is the name of your City or Locality?
[Unknown]: us
What is the name of your State or Province?
[Unknown]: us
What is the two-letter country code for this unit?
[Unknown]: us
Is CN=weblogic, OU=oracle, O=oracle, L=us, ST=us, C=us correct?
[nol]: yes

Enter key password for <orakey>
  (RETURN if same as keystore password):
Re-enter new password:

D:\Oracle11gR1\Middleware\jdk160_24\bin>
```

```
D:\>Oracle11gR1\Middleware\jdk160_24\bin>keytool -genkey -keyalg RSA -alias oratest -keystore default-keystore.jks -storepass welcome1 -validity 3600
What is your first and last name?
[Unknown]: wls
What is the name of your organizational unit?
[Unknown]: oracle
What is the name of your organization?
[Unknown]: oracle
What is the name of your City or Locality?
[Unknown]: us
What is the name of your State or Province?
[Unknown]: us
What is the two-letter country code for this unit?
[Unknown]: us
Is CN=wls, OU=oracle, O=oracle, L=us, ST=us, C=us correct?
[n/o]: yes

Enter key password for <oratest>
      (RETURN if same as keystore password):
Re-enter new password:

D:\>Oracle11gR1\Middleware\jdk160_24\bin>_
```

## Validate content of keystore

```
D:\>Oracle11gR1\Middleware\jdk160_24\bin>keytool -list -keystore default-keystore.jks -storepass welcome1
Keystore type: JKS
Keystore provider: SUN

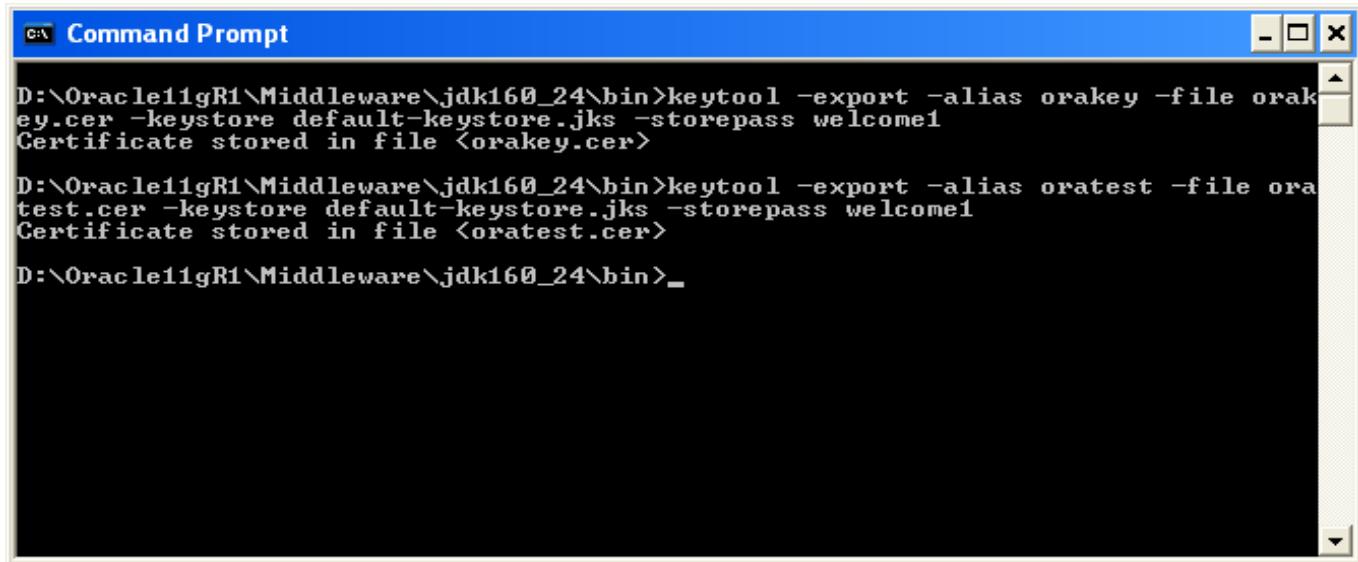
Your keystore contains 2 entries

orakey, Dec 23, 2011, PrivateKeyEntry,
Certificate fingerprint (MD5): 3D:96:A0:F4:29:9F:3D:C1:63:53:F1:A4:19:8D:73:6C
oratest, Dec 23, 2011, PrivateKeyEntry,
Certificate fingerprint (MD5): 96:49:7F:A2:1C:FC:4B:5C:25:86:D9:D0:64:4E:E2:50

D:\>Oracle11gR1\Middleware\jdk160_24\bin>_
```

## Create truststore using keytool

Export the certificates from the default-keystore.jks



```
D:\Oracle11gR1\Middleware\jdk160_24\bin>keytool -export -alias orakey -file orakey.cer -keystore default-keystore.jks -storepass welcome1
Certificate stored in file <orakey.cer>

D:\Oracle11gR1\Middleware\jdk160_24\bin>keytool -export -alias oratest -file oratest.cer -keystore default-keystore.jks -storepass welcome1
Certificate stored in file <oratest.cer>

D:\Oracle11gR1\Middleware\jdk160_24\bin>_
```

Import the certificates into default-truststore.jks

```
D:\>Oracle11gR1\Middleware\jdk160_24\bin>keytool -import -alias orakey -file orakey.cer -keystore default-truststore.jks -storepass welcome1
Owner: CN=weblogic, OU=oracle, O=oracle, L=us, ST=us, C=us
Issuer: CN=weblogic, OU=oracle, O=oracle, L=us, ST=us, C=us
Serial number: 4ef536d9
Valid from: Fri Dec 23 18:20:09 PST 2011 until: Sun Oct 31 19:20:09 PDT 2021
Certificate fingerprints:
    MD5: 3D:96:A0:F4:29:9F:3D:C1:63:53:F1:A4:19:8D:73:6C
    SHA1: 90:0B:10:36:7B:F7:2F:E7:80:CE:1C:7E:2F:84:01:68:D4:0E:33:9A
    Signature algorithm name: SHA1withRSA
    Version: 3
Trust this certificate? [no]: yes
Certificate was added to keystore

D:\>Oracle11gR1\Middleware\jdk160_24\bin>keytool -import -alias oratest -file oratest.cer -keystore default-truststore.jks -storepass welcome1
Owner: CN=wls, OU=oracle, O=oracle, L=us, ST=us, C=us
Issuer: CN=wls, OU=oracle, O=oracle, L=us, ST=us, C=us
Serial number: 4ef5377c
Valid from: Fri Dec 23 18:22:52 PST 2011 until: Sun Oct 31 19:22:52 PDT 2021
Certificate fingerprints:
    MD5: 96:49:7F:A2:1C:FC:4B:5C:25:86:D9:D0:64:4E:E2:50
    SHA1: 0D:9F:1A:0F:EF:93:CF:18:2F:72:FA:2D:4A:16:B8:A4:E6:FE:88:57
    Signature algorithm name: SHA1withRSA
    Version: 3
Trust this certificate? [no]: yes
Certificate was added to keystore

D:\>Oracle11gR1\Middleware\jdk160_24\bin>cls
```

## Validate the contents of the default-truststore.jks

```
D:\>Oracle11gR1\Middleware\jdk160_24\bin>keytool -list -keystore default-truststore.jks -storepass welcome1
Keystore type: JKS
Keystore provider: SUN

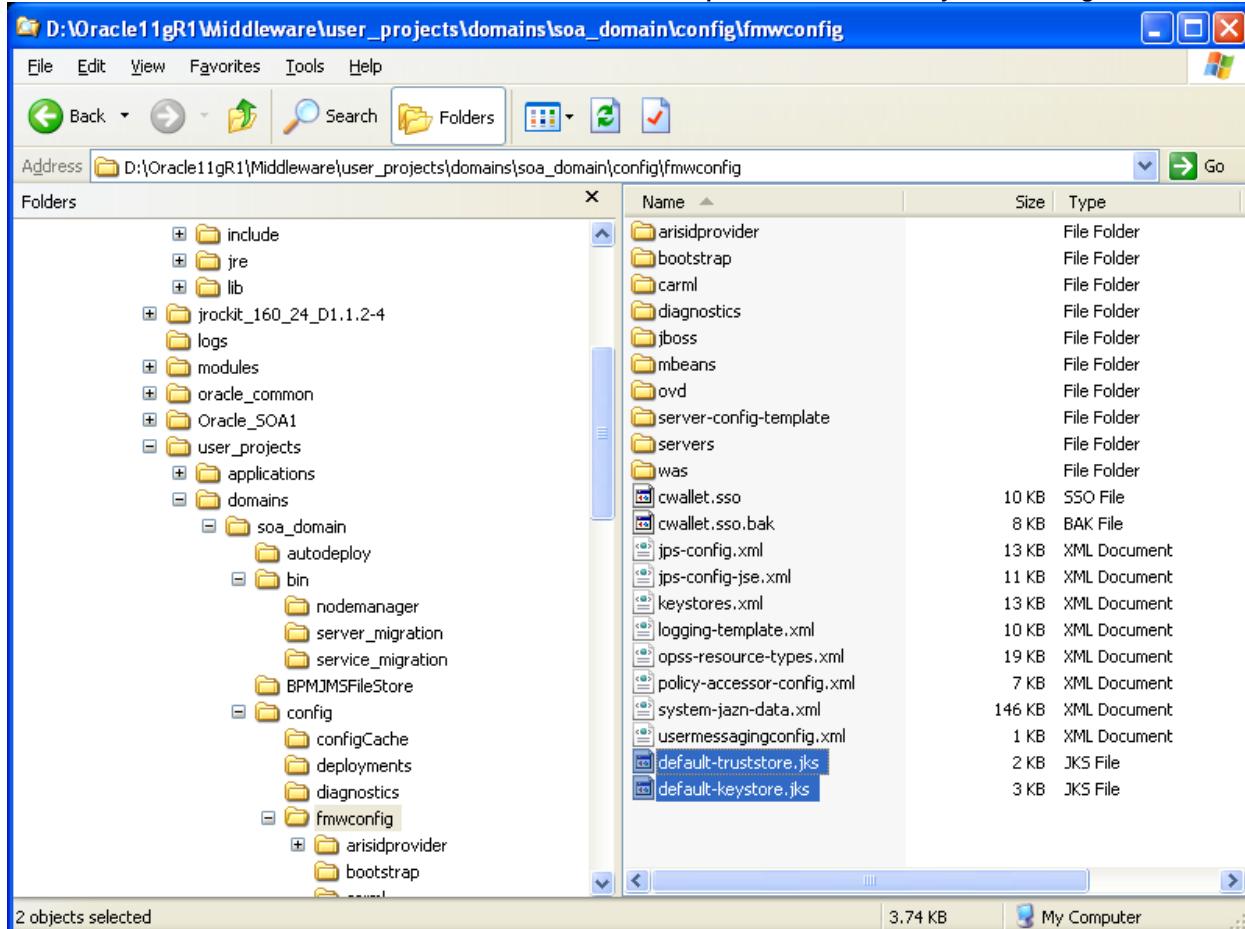
Your keystore contains 2 entries

orakey, Dec 23, 2011, trustedCertEntry,
Certificate fingerprint <MD5>: 3D:96:A0:F4:29:9F:3D:C1:63:53:F1:A4:19:8D:73:6C
oratest, Dec 23, 2011, trustedCertEntry,
Certificate fingerprint <MD5>: 96:49:7F:A2:1C:FC:4B:5C:25:86:D9:D0:64:4E:E2:50

D:\>Oracle11gR1\Middleware\jdk160_24\bin>_
```

## *Copy Keystore & Truststore*

Copy the keystore & truststore to the \$MW\_HOME/user\_projects/domains/soa\_domain/config/fmwconfig



## Change WLS Keystore Configuration to use the Cusom Keystore and Truststore created above

- Login into WLS Console.
- Click on “Servers” under Environment on the Left Hand Navigation
- Click on “AdminServer”

**Summary of Servers - soa\_domain - WLS Console - Mozilla Firefox**

The screenshot shows the Oracle Web Services Manager 11g WLS Console interface. The title bar reads "Summary of Servers - soa\_domain - WLS Console - Mozilla Firefox". The menu bar includes File, Edit, View, History, Bookmarks, Tools, and Help. The toolbar has standard browser icons and a URL bar showing "http://localhost:7001/console/console.portal?\_nfpb=true&\_pageLabel=CoreServerServerTablePage". Below the toolbar is a bookmarks bar with links like "Most Visited", "Getting Started", and "Latest Headlines". A McAfee security status indicator is present. The main content area has tabs "Configuration" and "Control", with "Configuration" selected. The left sidebar under "Domain Structure" shows "soa\_domain" with "Environment" expanded, showing "Servers", "Clusters", "Virtual Hosts", "Migratable Targets", "Coherence Servers", "Coherence Clusters", "Machines", "Work Managers", "Startup and Shutdown Classes", "Deployments", "Services", and "Security Realms". The "Servers" section is selected. The main panel contains a summary text about servers and a table titled "Servers (Filtered - More Columns Exist)". The table has columns: Name, Cluster, Machine, State, Health, and Listen Port. One row is shown: AdminServer(admin) with State: RUNNING, Health: OK, and Listen Port: 7001. Navigation buttons for New, Clone, Delete, and a search bar for "Find: @WssC" are also visible.

Name	Cluster	Machine	State	Health	Listen Port
AdminServer(admin)			RUNNING	OK	7001

Click on the “Keystore” tab. Click on “Change” button to change the keystore and truststore.

The screenshot shows the Oracle Web Services Manager 11g interface for the AdminServer in the soa\_domain. The left sidebar shows the domain structure with nodes like Environment, Servers, Clusters, Virtual Hosts, Migratable Targets, Coherence Servers, Coherence Clusters, Machines, Work Managers, Deployments, and Services. A 'How do I...' section provides links for Configure identity and trust, Configure keystores, and Set up SSL. The 'System Status' section shows the health of running servers with 0 Failed, 0 Critical, 0 Overloaded, 0 Warning, and 1 OK. The main content area is titled 'Keystores' and contains tabs for General, Cluster, Services, Keystores, SSL, Federation Services, Deployment, Migration, Tuning, Overload, Health Monitoring, Server Start, and Web Services. The 'Keystores' tab is selected. It displays configuration for 'Demo Identity and Demo Trust'. Under the 'Identity' section, 'Demo Identity Keystore' is set to D:\ORACLE~1\MIDDLE~1\WLSERV~1.3\server\lib\DemoIdentity.jks and 'Demo Identity Keystore Type' is jks. Under the 'Trust' section, 'Demo Trust Keystore' is set to D:\ORACLE~1\MIDDLE~1\WLSERV~1.3\server\lib\DemoTrust.jks and 'Demo Trust Keystore Type' is jks. Other fields include 'Java Standard Trust Keystore' (D:\ORACLE~1\MIDDLE~1\JDK160~1\jre\lib\security\cacerts), 'Java Standard Trust Keystore Type' (jks), and 'Java Standard Trust Keystore Passphrase' (empty). The 'Keystores' section notes that keystores ensure secure storage and management of private keys and trusted certificate authorities (CAs). A 'Save' button is at the bottom.

Select “Custom Identity and Custom Trust” option and click on “Save”.

The screenshot shows the 'Keystores' configuration page in the Oracle Web Services Manager. The 'Keystores' tab is active. A dropdown menu is open under 'Keystores:' showing options: 'Custom Identity and Custom Trust' (selected), 'Custom Identity and Command Line Trust', 'Custom Identity and Custom Trust' (repeated), 'Custom Identity and Java Standard Trust', and 'Demo Identity and Demo Trust'. A tooltip provides information about the selected option. Below the dropdown are 'Save' and 'Cancel' buttons.

Enter the following values in the Custom Identity and Custom Trust page and click on “Save” button:

Key	Value
Custom Identity Keystore:	D:\Oracle11gR1\Middleware\user_projects\domains\soa_domain\config\fmwconfig\default-keystore.jks
Custom Identity Keystore Type:	Jks
Custom Identity Keystore Passphrase:	welcome1
Confirm Custom Identity Keystore Passphrase:	welcome1
Custom Trust Keystore:	D:\Oracle11gR1\Middleware\user_projects\domains\soa_domain\config\fmwconfig\default-truststore.jks
Custom Trust Keystore Type:	Jks
Custom Trust Keystore Passphrase:	welcome1
Confirm Custom Trust Keystore Passphrase:	welcome1

Settings for AdminServer - soa\_domain - WLS Console - Mozilla Firefox

File Edit View History Bookmarks Tools Help

https://localhost:7001/console/console.portal?\_nfpb=true&\_pageLabel=ServerConfigTablestoreTabPage&handle=com.bea.console.handles.JMXHandle("com.bea%3AName%3DAdmin") security token failed to validate

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Save

Keystores: Custom Identity and Custom Trust Change Which configuration rules should be used for finding the server's identity and trust keystores? [More Info...](#)

**Identity**

Custom Identity Keystore: nfig/default-keystore.jks The path and file name of the identity keystore. [More Info...](#)

Custom Identity Keystore Type: jks The type of the keystore. Generally, this is JKS. [More Info...](#)

Custom Identity Keystore Passphrase:  The encrypted custom identity keystore's passphrase. If empty or null, then the keystore will be opened without a passphrase. [More Info...](#)

Confirm Custom Identity Keystore Passphrase:

**Trust**

Custom Trust Keystore: D:\Oracle11gR1\Middleware The path and file name of the custom trust keystore. [More Info...](#)

Custom Trust Keystore Type: jks The type of the keystore. Generally, this is JKS. [More Info...](#)

Custom Trust Keystore Passphrase:  The custom trust keystore's passphrase. If empty or null, then the keystore will be opened without a passphrase. [More Info...](#)

Confirm Custom Trust Keystore Passphrase:

Save

Find: @WssC Next Previous Highlight all Match case

Done



## Change SSL to use the Custom Identity and Custom Trust

Enter the following values in the SSL configuration page.

Key	Value
Private Key Alias:	orakey
Private Key Passphrase:	welcome1
Confirm Private Key Passphrase:	welcome1

The screenshot shows the Oracle WebLogic Server Administration Console interface. The title bar reads "Settings for AdminServer - soa\_domain - WLS Console - Mozilla Firefox". The main content area is titled "Settings for AdminServer" under the "SSL" tab. It displays configuration for SSL settings, including fields for "Identity and Trust Locations", "Private Key Location", "Private Key Alias", "Private Key Passphrase", "Confirm Private Key Passphrase", and "Certificate Location". A "Save" button is present at the bottom left of the form. On the left side, there is a "Domain Structure" tree view showing the "soa\_domain" structure. The "Health of Running Servers" section indicates 0 Failed, 0 Critical, and 0 Overloaded servers. A search bar at the bottom left contains the text "@WssC". The top navigation bar includes links for Home, Log Out, Preferences, Record, Help, and a search field.

## Create Web Service Security Configuration

Click on “soa\_domain” under the Domain Structure on the Left Hand Tree.

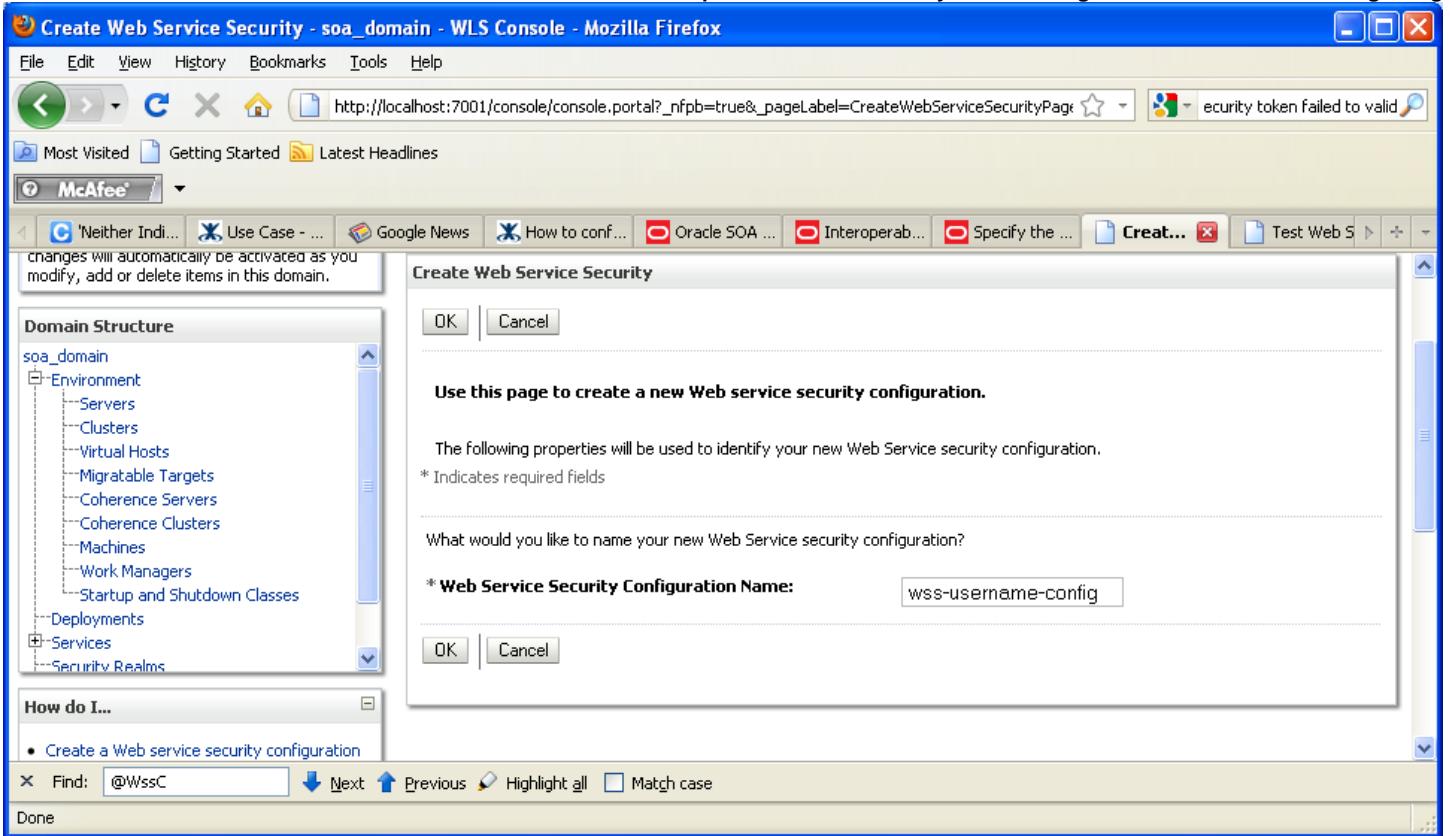
The screenshot shows the Oracle WebLogic Server Administration Console interface. The title bar reads "Settings for soa\_domain - soa\_domain - WLS Console - Mozilla Firefox". The address bar shows the URL "http://localhost:7001/console/console.portal?\_nfpb=true&\_pageLabel=DomainConfigGeneralPage&Dor". A message "security token failed to validate" is displayed in the top right corner. The main content area is titled "ORACLE WebLogic Server® Administration Console" and "Settings for soa\_domain". The "Configuration" tab is selected, showing sub-tabs for General, JTA, JPA, EJBs, Web Applications, Logging, and Log Filters. A "Save" button is visible. A note states: "A domain is a collection of WebLogic Server instances that is managed by a single Administration Server. Use this page to configure administrative options that apply to all servers in the current domain." A legend indicates "\* Indicates required fields". On the left, a "Domain Structure" tree view shows the "soa\_domain" node expanded, listing Environment, Servers, Clusters, Virtual Hosts, Migratable Targets, Coherence Servers, Coherence Clusters, Machines, Work Managers, and Startup and Shutdown Classes. A "Change Center" sidebar on the left indicates "View changes and restarts". The bottom of the screen has a search bar with "Find: @WssC" and navigation buttons for "Next", "Previous", "Highlight all", and "Match case".

Click on “Web Service Security” tab on the Right hand side.

The screenshot shows the Oracle Web Services Manager 11g WLS Console interface. The title bar reads "Settings for soa\_domain - soa\_domain - WLS Console - Mozilla Firefox". The main content area is titled "Settings for soa\_domain" and has tabs for Configuration, Monitoring, Control, Security, Web Service Security, and Notes. The "Web Service Security" tab is selected. Below it, a message states: "This page lists the Web service security configurations that have been created for this domain. Click on the security configuration name to update it, such as create new credential providers, new token handlers, or configure the timestamp properties." The "Web Service Security Configurations" section contains a table with two rows. The first row is highlighted in blue and labeled "Web Service Security Configuration Name". The second row contains the value "my-security-config". At the bottom of this section, there are "New" and "Delete" buttons. A status message at the bottom right says "Showing 1 to 1 of 1 Previous | Next". On the left side, there is a "Domain Structure" tree view under "soa\_domain" with nodes like Environment, Servers, Clusters, Virtual Hosts, etc. A "How do I..." panel on the left provides a link to "Create a Web service security configuration". A search bar at the bottom left shows "@WssC".

Click on the “New” button to create new web service security configuration.

Provide the following value “wss-username-config” and then click on “OK” button.



## Edit “wss-username-config”

**Change Center**

**View changes and restarts**

Configuration editing is enabled. Future changes will automatically be activated as you modify, add or delete items in this domain.

**Domain Structure**

- soa\_domain
  - Environment
  - Servers
  - Clusters
  - Virtual Hosts
  - Migratable Targets
  - Coherence Servers
  - Coherence Clusters
  - Machines
  - Work Managers
  - Startup and Shutdown Classes
  - Deployments
  - Services
  - Security Realms

**How do I...**

Find: @WssC

Done

Home Log Out Preferences Record Help

Welcome, weblogic Connected to: soa\_domain

Home >Summary of Servers >AdminServer >soa\_domain >wss-username-config

**Settings for wss-username-config**

General Credential Provider Token Handler Timestamp

This page lists the credential providers that have been created for the Web service security configuration. Click on the credential provider name to modify its configuration and to add properties. Click New to create a new credential provider. To delete a credential provider, check the box next to its name and click Delete.

**Credential Providers**

New	Delete	Showing 0 to 0 of 0 Previous   Next
		Credential Provider Name Class Name Token Type
		There are no items to display
New	Delete	Showing 0 to 0 of 0 Previous   Next

Click on the “Credential Provider” tab to create Credential providers.

## Create Credential Provider

Enter the following values:

Key	Value
Name:	Username
Class Name:	weblogic.wsee.security.bst.ServerBSTCredentialProvider
Token Type:	X509

Click on “Finish” button.

Create a Web Service Security Credential Provider - soa\_domain - WLS Console - Mozilla Firefox

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http://localhost:7001/console/console.portal?\_nfpb=true&\_pageLabel=CreateWebServiceSecurityCred security token failed to validate

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**ORACLE WebLogic Server® Administration Console**

Change Center

**View changes and restarts**

Configuration editing is enabled. Future changes will automatically be activated as you modify, add or delete items in this domain.

**Domain Structure**

- soa\_domain
  - Environment
    - Servers
    - Clusters
    - Virtual Hosts
    - Migratable Targets
    - Coherence Servers
    - Coherence Clusters
    - Machines
    - Work Managers
    - Startup and Shutdown Classes
  - Deployments
  - Services
  - Security Realms

**How do I...**

- Create a Web service security configuration
- Specify the key pair used to sign SOAP messages
- Specify the key pair used to encrypt SOAP messages
- Use a password digest in SOAP messages
- Use X.509 certificates to establish identity

Welcome, weblogic | Connected to: soa\_domain

Home >Summary of Servers >AdminServer >soa\_domain >wss-username-config >username >wss-username-config

**Create a Web Service Security Credential Provider**

Back Next Finish Cancel

**Create Credential Provider**

This assistant helps you create a new credential provider for an existing Web service security configuration.

\* Indicates required fields

What would you like to name your credential provider?

\* **Name:** username

Specify the class name that implements this credential provider.

\* **Class Name:** BSTCredentialProvider

Specify the token type of the credential provider, such as x509.

\* **Token Type:** x509

Back Next Finish Cancel

**Domain Structure**

- Environment
  - Servers
  - Clusters
  - Virtual Hosts
  - Migratable Targets
  - Coherence Servers
  - Coherence Clusters
  - Machines
  - Work Managers
  - Startup and Shutdown Classes
- Deployments
- Services
- Security Realms

**How do I...**

- Create a Web service security configuration
- Specify the key pair used to sign SOAP messages
- Specify the key pair used to encrypt SOAP messages
- Use a password digest in SOAP messages
- Use X.509 certificates to establish identity

**System Status**

Health of Running Servers

Failed (0)
Critical (0)
Overloaded (0)
Warning (0)
OK (1)

Find: @WssC    Next    Previous    Highlight all    Match case

Done

**Configuration** Notes

**Name:** username The user-specified name of this MBean instance. [More Info...](#)

**Class Name:** weblogic.wsee.security. The fully qualified name of the class that implements a particular credential provider or token handler. [More Info...](#)

**Token Type:** x509 Specifies the type of token used for the particular credential provider or token handler. [More Info...](#)

**Credential Provider Properties**

New	Delete	Showing 0 to 0 of 0 Previous   Next	
	Name	Value	Is Encrypted
There are no items to display			

## Create Credential Provider Properties

### Create ConfidentialityKeyStore Credential Provider Property

Create a Credential Provider property - soa\_domain - WLS Console - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://localhost:7001/console/console.portal?WebServiceSecurityCredentialProviderPropertiesCreate security token failed to validate

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ORACLE WebLogic Server® Administration Console

Change Center

View changes and restarts

Configuration editing is enabled. Future changes will automatically be activated as you modify, add or delete items in this domain.

Domain Structure

- soa\_domain
  - Environment
    - Servers
    - Clusters
    - Virtual Hosts
    - Migratable Targets
    - Coherence Servers
    - Coherence Clusters
    - Machines
    - Work Managers
    - Startup and Shutdown Classes

Welcome, weblogic | Connected to: soa\_domain

Home >Summary of Servers >AdminServer >soa\_domain >wss-username-config >username >wss-username-config >username

Create a Credential Provider property

Back Next | Finish | Cancel

Select Encryption

Use this page to select the encryption for the property that is going to be created.

Is Encrypted

Back Next | Finish | Cancel

Find: @WssC

Done

The screenshot shows the Oracle WebLogic Server Administration Console interface. The title bar indicates the task is 'Create a Credential Provider property - soa\_domain - WLS Console - Mozilla Firefox'. The main content area is titled 'Create a Credential Provider property' and is currently on the 'Select Encryption' step. It contains a single checkbox labeled 'Is Encrypted'. Below the checkbox are standard navigation buttons: Back, Next, Finish, and Cancel. The left sidebar, titled 'Domain Structure', shows the 'soa\_domain' structure with various sub-nodes like Environment, Servers, Clusters, etc. The top menu bar includes File, Edit, View, History, Bookmarks, Tools, and Help. The browser toolbar at the top shows the URL 'http://localhost:7001/console/console.portal?WebServiceSecurityCredentialProviderPropertiesCreate' and a message 'security token failed to validate'. The bottom of the screen has a search bar 'Find: @WssC' and a 'Done' button.

Create a Credential Provider property - soa\_domain - WLS Console - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://localhost:7001/console/console.portal?WebServiceSecurityCredentialProviderPropertiesCreate

security token failed to validate

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Change Center

**View changes and restarts**

Configuration editing is enabled. Future changes will automatically be activated as you modify, add or delete items in this domain.

Domain Structure

- soa\_domain
  - Environment
  - Servers
  - Clusters
  - Virtual Hosts
  - Migratable Targets
  - Coherence Servers
  - Coherence Clusters
  - Machines
  - Work Managers
  - Startup and Shutdown Classes

Back Next | Finish | Cancel

**Credential Provider Properties**

Use this page to create a property associated with an existing credential provider of a Web service security configuration.

**Name:** ConfidentialityKeyStore

**Value:** nfig\default-keystore.jks

Find: @WssC

### Create ConfidentialityKeyStorePassword Credential Provider Property

Create a Credential Provider property - soa\_domain - WLS Console - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://localhost:7001/console/console.portal?WebServiceSecurityCredentialProviderPropertiesCreate security token failed to validate

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ORACLE WebLogic Server® Administration Console

Change Center

View changes and restarts

Configuration editing is enabled. Future changes will automatically be activated as you modify, add or delete items in this domain.

Domain Structure

- soa\_domain
  - Environment
    - Servers
    - Clusters
    - Virtual Hosts
    - Migratable Targets
    - Coherence Servers
    - Coherence Clusters
    - Machines
    - Work Managers
    - Startup and Shutdown Classes

Home Log Out Preferences Record Help

Welcome, weblogic Connected to: soa\_domain

Home >Summary of Servers >AdminServer >soa\_domain >wss-username-config >username >wss-username-config >username

Create a Credential Provider property

Back Next | Finish | Cancel

Select Encryption

Use this page to select the encryption for the property that is going to be created.

Is Encrypted

Back Next | Finish | Cancel

Find: @WssC

Done

The screenshot shows the Oracle WebLogic Server Administration Console interface. A specific wizard window titled 'Create a Credential Provider property' is open. The current step is 'Select Encryption'. A checkbox labeled 'Is Encrypted' is checked. Navigation buttons for 'Back', 'Next', 'Finish', and 'Cancel' are visible. On the left, a 'Domain Structure' tree shows the 'soa\_domain' node expanded, revealing various configuration categories like Environment, Servers, Clusters, etc. The top navigation bar includes links for Home, Log Out, Preferences, Record, and Help. The URL in the address bar is http://localhost:7001/console/console.portal?WebServiceSecurityCredentialProviderPropertiesCreate. A status message at the top right says 'security token failed to validate'.

Create a Credential Provider property - soa\_domain - WLS Console - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://localhost:7001/console/console.portal?WebServiceSecurityCredentialProviderPropertiesCreate

security token failed to validate

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ORACLE WebLogic Server® Administration Console

Change Center

**View changes and restarts**

Configuration editing is enabled. Future changes will automatically be activated as you modify, add or delete items in this domain.

Domain Structure

- soa\_domain
  - Environment
    - Servers
    - Clusters
    - Virtual Hosts
    - Migratable Targets
    - Coherence Servers
    - Coherence Clusters
    - Machines
    - Work Managers
    - Startup and Shutdown Classes
  - Deployments
  - Services

Find: @WssC

Back Next | Finish | Cancel

**Credential Provider Properties**

Use this page to create a property associated with an existing credential provider of a Web service security configuration.

**Name:** ConfidentialityKeyStorePassword

**Value:** \*\*\*\*\*

**Confirm Value:** \*\*\*\*\*

### Create ConfidentialityKeyAlias Credential Provider Property

The screenshot shows the Oracle WebLogic Server Administration Console. The URL in the address bar is <http://localhost:7001/console/console.portal?WebServiceSecurityCredentialProviderPropertiesCreate>. The page title is "Create a Credential Provider property - soa\_domain - WLS Console - Mozilla Firefox".

The left sidebar shows the "Domain Structure" for the "soa\_domain" environment, listing various server components like Environment, Servers, Clusters, etc.

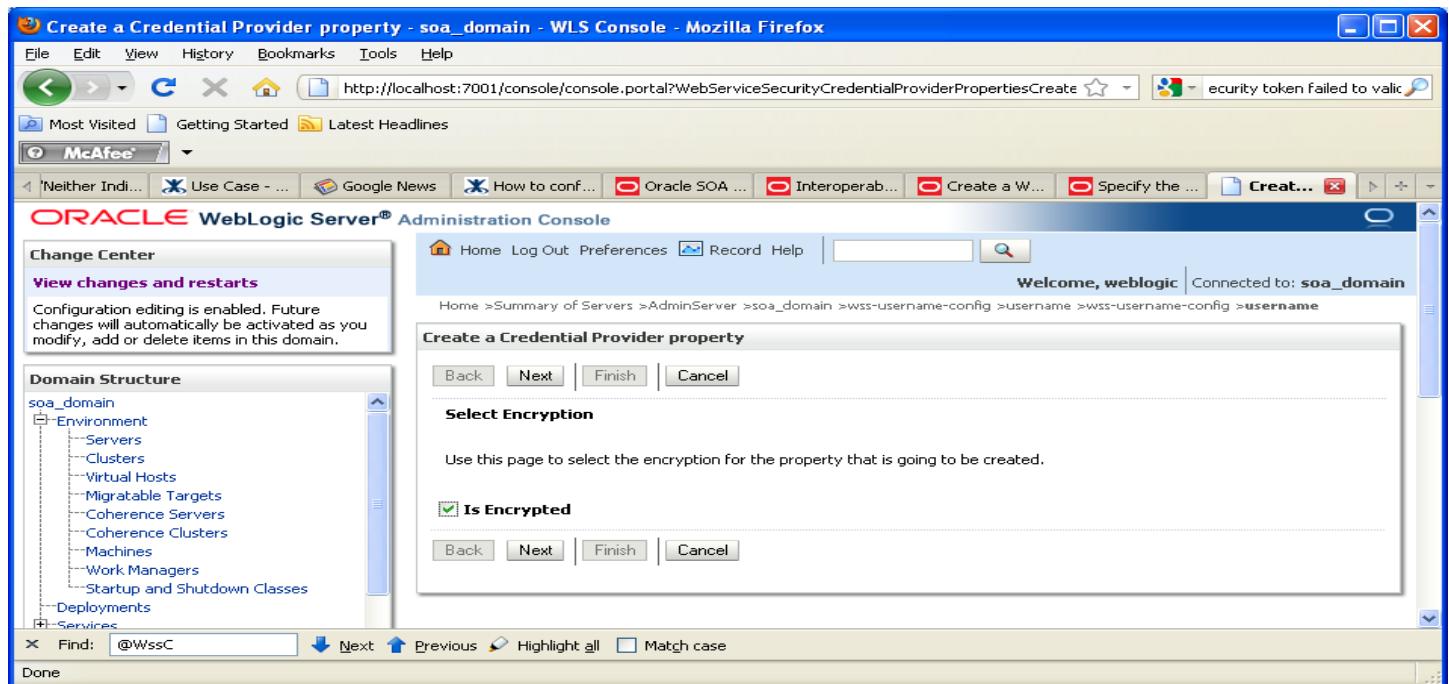
The main content area displays the "Create a Credential Provider property" wizard. Step 1, "Select Encryption", is shown. It contains a checkbox labeled "Is Encrypted" which is currently unchecked. Navigation buttons "Back", "Next", "Finish", and "Cancel" are at the bottom of the wizard step.

This screenshot shows the continuation of the "Create a Credential Provider property" wizard, specifically step 2: "Credential Provider Properties".

The "Name" field is populated with "ConfidentialityKeyAlias" and the "Value" field is populated with "orakey".

Navigation buttons "Back", "Next", "Finish", and "Cancel" are at the bottom of the wizard step.

## Create ConfidentialityKeyPassword Credential Provider Property



The screenshot shows the Oracle WebLogic Server Administration Console interface. The title bar reads "Create a Credential Provider property - soa\_domain - WLS Console - Mozilla Firefox". The URL in the address bar is "http://localhost:7001/console/console.portal?WebServiceSecurityCredentialProviderPropertiesCreate". A message in the top right corner says "security token failed to validate". The main window is titled "Create a Credential Provider property" and contains fields for "Name" (set to "fidelityKeyPassword"), "Value" (set to "\*\*\*\*\*"), and "Confirm Value" (also set to "\*\*\*\*\*"). The left sidebar shows the "Domain Structure" for the "soa\_domain" environment, listing various server components like Environment, Servers, Clusters, etc. A search bar at the bottom left contains the text "@WssC".

### Create IntegrityKeyStore Credential Provider Property

Create a Credential Provider property - soa\_domain - WLS Console - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://localhost:7001/console/console.portal?WebServiceSecurityCredentialProviderPropertiesCreate

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Change Center

View changes and restarts

Configuration editing is enabled. Future changes will automatically be activated as you modify, add or delete items in this domain.

Domain Structure

- soa\_domain
  - Environment
    - Servers
    - Clusters
    - Virtual Hosts
    - Migratable Targets
    - Coherence Servers
    - Coherence Clusters
    - Machines
    - Work Managers
    - Startup and Shutdown Classes
  - Deployments
  - Services

Find: @WssC

Back Next Finish Cancel

Select Encryption

Use this page to select the encryption for the property that is going to be created.

Is Encrypted

Back Next Finish Cancel

Welcome, weblogic | Connected to: soa\_domain

Home >Summary of Servers >AdminServer >soa\_domain >wss-username-config >username >wss-username-config >username

Create a Credential Provider property

Back Next Finish Cancel

Create a Credential Provider property - soa\_domain - WLS Console - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://localhost:7001/console/console.portal?WebServiceSecurityCredentialProviderPropertiesCreate

security token failed to validate

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ORACLE WebLogic Server® Administration Console

Welcome, weblogic | Connected to: soa\_domain

Home Log Out Preferences Record Help

Change Center

**View changes and restarts**

Configuration editing is enabled. Future changes will automatically be activated as you modify, add or delete items in this domain.

**Domain Structure**

- soa\_domain
  - Environment
    - Servers
    - Clusters
    - Virtual Hosts
    - Migratable Targets
    - Coherence Servers
    - Coherence Clusters
    - Machines
    - Work Managers
    - Startup and Shutdown Classes
  - Deployments
  - + Services

Find: @WssC

Back Next Finish Cancel

**Credential Provider Properties**

Use this page to create a property associated with an existing credential provider of a Web service security configuration.

**Name:** IntegrityKeyStore

**Value:** nfig\default-keystore.jks

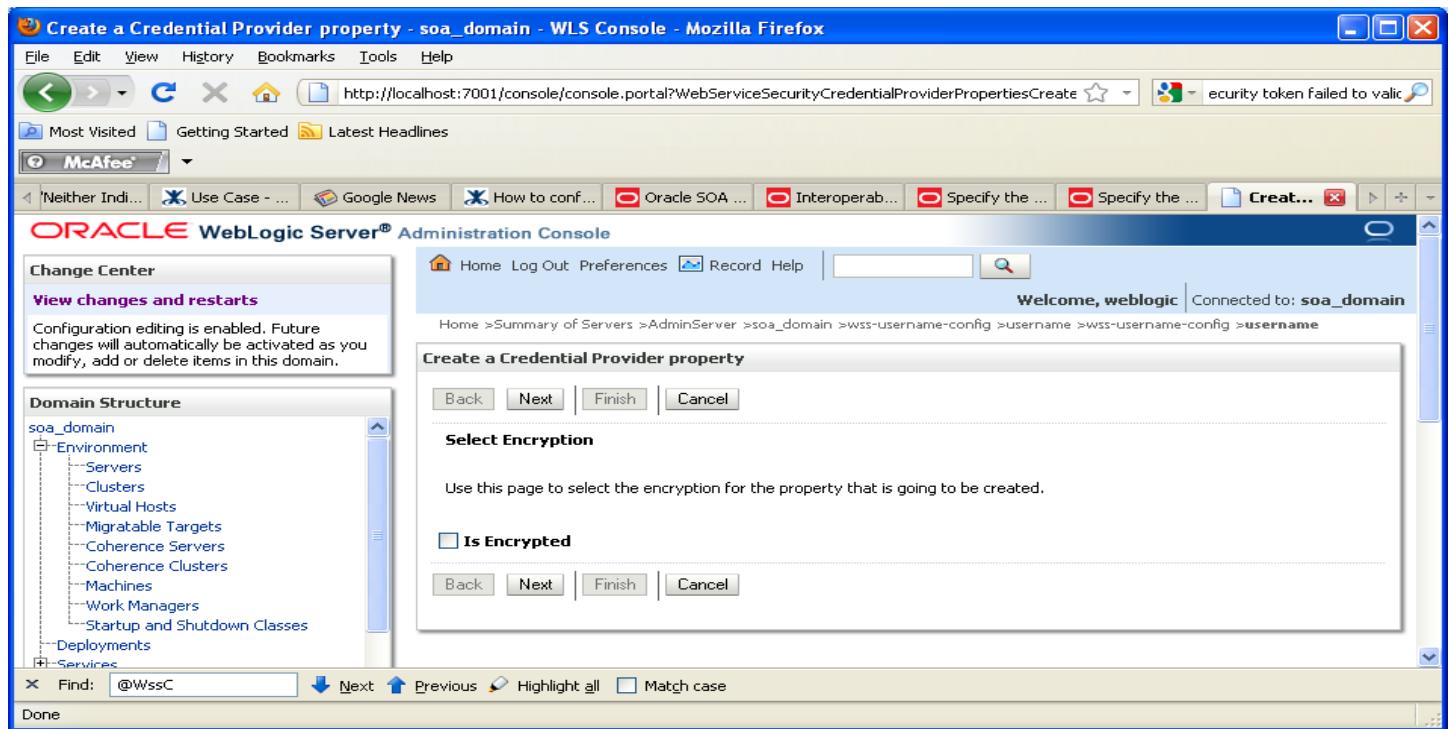
Back Next Finish Cancel

### Create *IntegrityKeyStorePassword* Credential Provider Property

The screenshot shows the Oracle WebLogic Server Administration Console. The left sidebar displays the domain structure under 'soa\_domain' with 'Environment' expanded, showing 'Servers', 'Clusters', 'Virtual Hosts', 'Migratable Targets', 'Coherence Servers', 'Coherence Clusters', 'Machines', 'Work Managers', 'Startup and Shutdown Classes', and 'Deployments'. The main panel is titled 'Create a Credential Provider property' and is on step 1, 'Select Encryption'. It contains a checkbox labeled 'Is Encrypted' which is checked. Navigation buttons 'Back', 'Next', 'Finish', and 'Cancel' are at the bottom of the panel.

The screenshot shows the Oracle WebLogic Server Administration Console. The left sidebar displays the domain structure under 'soa\_domain' with 'Environment' expanded, showing 'Servers', 'Clusters', 'Virtual Hosts', 'Migratable Targets', 'Coherence Servers', 'Coherence Clusters', 'Machines', 'Work Managers', 'Startup and Shutdown Classes', and 'Deployments'. The main panel is titled 'Create a Credential Provider property' and is on step 2, 'Credential Provider Properties'. It shows a table with three rows: 'Name:' containing 'grityKeyStorePassword', 'Value:' containing masked text, and 'Confirm Value:' containing masked text. Navigation buttons 'Back', 'Next', 'Finish', and 'Cancel' are at the bottom of the panel.

## Create IntegrityKeyAlias Credential Provider Property



The screenshot shows the Oracle WebLogic Server Administration Console. The title bar says "Create a Credential Provider property - soa\_domain - WLS Console - Mozilla Firefox". The URL in the address bar is "http://localhost:7001/console/console.portal?WebServiceSecurityCredentialProviderPropertiesCreate". A message in the top right corner says "security token failed to validate". The main window is titled "Create a Credential Provider property". It has tabs "Back", "Next", "Finish", and "Cancel". Below the tabs, it says "Credential Provider Properties" and "Use this page to create a property associated with an existing credential provider of a Web service security configuration." There are two input fields: "Name" with value "IntegrityKeyAlias" and "Value" with value "orakey". At the bottom of the dialog are the same "Back", "Next", "Finish", and "Cancel" buttons. On the left, there's a "Domain Structure" tree view under "soa\_domain" with nodes like Environment, Servers, Clusters, Virtual Hosts, etc. A search bar at the bottom left says "Find: @WssC".

### Create IntegrityKeyPassword Credential Provider Property

Create a Credential Provider property - soa\_domain - WLS Console - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://localhost:7001/console/console.portal?WebServiceSecurityCredentialProviderPropertiesCreate

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ORACLE WebLogic Server® Administration Console

Change Center

View changes and restarts

Configuration editing is enabled. Future changes will automatically be activated as you modify, add or delete items in this domain.

Domain Structure

- soa\_domain
  - Environment
    - Servers
    - Clusters
    - Virtual Hosts
    - Migratable Targets
    - Coherence Servers
    - Coherence Clusters
    - Machines
    - Work Managers
    - Startup and Shutdown Classes
  - Deployments
  - Services

Find: @WssC

Done

Welcome, weblogic | Connected to: soa\_domain

Home >Summary of Servers >AdminServer >soa\_domain >wss-username-config >username >wss-username-config >username

Create a Credential Provider property

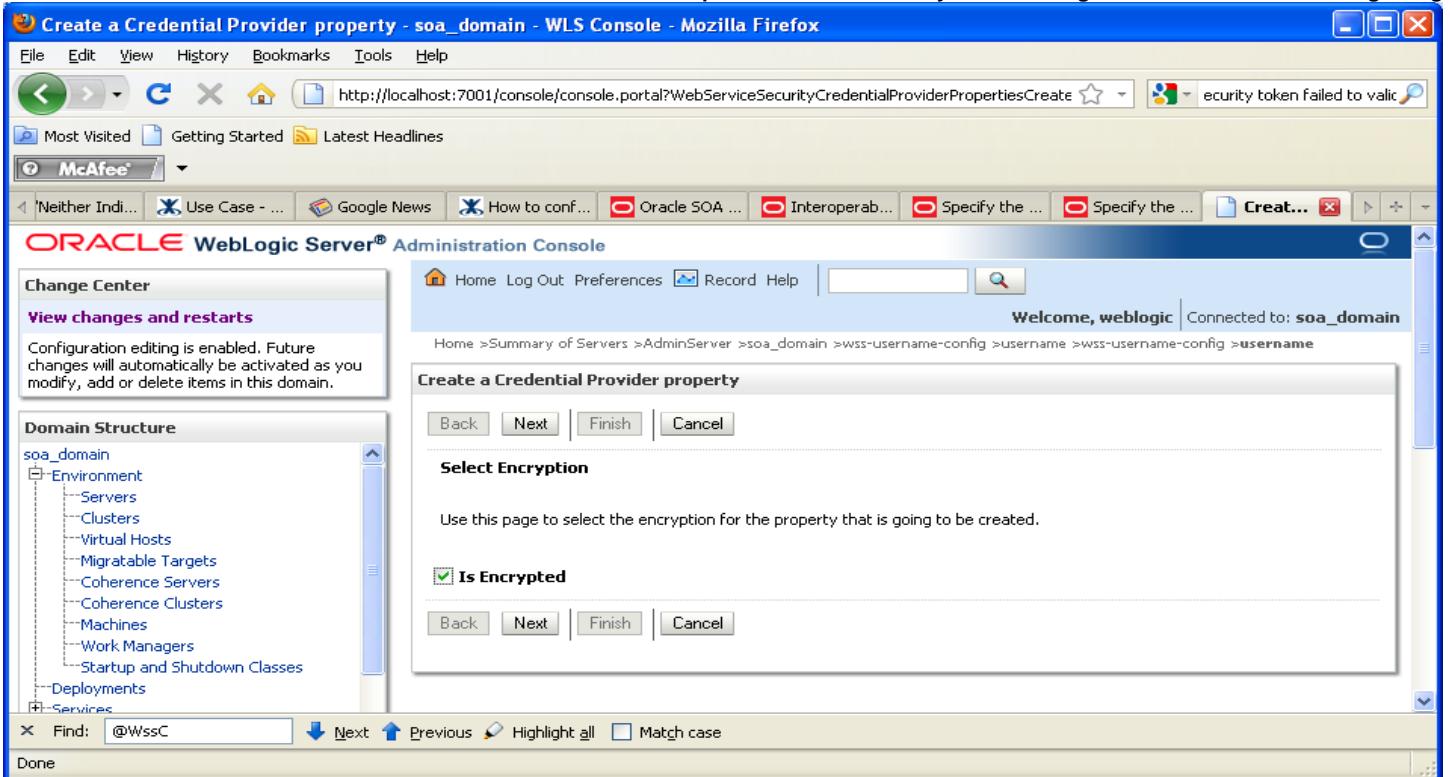
Back Next | Finish | Cancel

Select Encryption

Use this page to select the encryption for the property that is going to be created.

Is Encrypted

Back Next | Finish | Cancel



Create a Credential Provider property - soa\_domain - WLS Console - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://localhost:7001/console/console.portal?WebServiceSecurityCredentialProviderPropertiesCreate

security token failed to validate

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ORACLE WebLogic Server® Administration Console

Change Center

View changes and restarts

Configuration editing is enabled. Future changes will automatically be activated as you modify, add or delete items in this domain.

Domain Structure

- soa\_domain
  - Environment
    - Servers
    - Clusters
    - Virtual Hosts
    - Migratable Targets
    - Coherence Servers
    - Coherence Clusters
    - Machines
    - Work Managers
    - Startup and Shutdown Classes
  - Deployments
  - + Services

Home Log Out Preferences Record Help

Welcome, weblogic | Connected to: soa\_domain

Home >Summary of Servers >AdminServer >soa\_domain >wss-username-config >username >wss-username-config >username

Create a Credential Provider property

Back Next | Finish | Cancel

Credential Provider Properties

Use this page to create a property associated with an existing credential provider of a Web service security configuration.

Name: IntegrityKeyPassword

Value:

Confirm Value:

Find: @WssC

Done

**Settings for username - soa\_domain - WLS Console - Mozilla Firefox**

File Edit View History Bookmarks Tools Help

http://localhost:7001/console/console.portal?\_nfpb=true&\_pageLabel=WebServiceSecurityCredentialProviderConfigPage

security token failed to validate

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modify, add or delete items in this domain.

**Domain Structure**

- soa\_domain
  - Environment
  - Servers
  - Clusters
  - Virtual Hosts
  - Migratable Targets
  - Coherence Servers
  - Coherence Clusters
  - Machines
  - Work Managers
  - Startup and Shutdown Classes
  - Deployments
  - Services
  - Security Realms

How do I...

- Create a Web service security configuration
- Specify the key pair used to sign SOAP messages
- Specify the key pair used to encrypt SOAP messages
- Use a password digest in SOAP messages
- Use X.509 certificates to establish identity

**System Status**

Health of Running Servers

Failed (0)
Critical (0)
Overloaded (0)
Warning (0)
OK (1)

Find: @WssC

Done

### Settings for username

**Configuration** Notes

Save

Use this page to configure a credential provider of a Web service security configuration. In particular, you can change the classname that implements the credential provider, change the type of token, and add or delete properties of the credential provider.

**Name:** username The user-specified name of this MBean instance. [More Info...](#)

**Class Name:** weblogic.wsee.security. The fully qualified name of the class that implements a particular credential provider or token handler. [More Info...](#)

**Token Type:** x509 Specifies the type of token used for the particular credential provider or token handler. [More Info...](#)

Save

**Customize this table**

**Credential Provider Properties**

New Delete Showing 1 to 8 of 8 | Previous | Next

Name	Value	Is Encrypted
ConfidentialityKeyAlias	orakey	false
ConfidentialityKeyPassword	*****	true
ConfidentialityKeyStore	D:\Oracle11gR1\Middleware\user_projects\domains\soa_domain\config\fmwconfig\default-keystore.jks	false
ConfidentialityKeyStorePassword	*****	true
IntegrityKeyAlias	orakey	false
IntegrityKeyPassword	*****	true
IntegrityKeyStore	D:\Oracle11gR1\Middleware\user_projects\domains\soa_domain\config\fmwconfig\default-keystore.jks	false
IntegrityKeyStorePassword	*****	true



## Use the “wss-username-config” in the HelloWorld Service

```

package hello;

import javax.jws.WebMethod;
import javax.jws.WebService;

import weblogic.jws.Policies;
import weblogic.jws.Policy;
import weblogic.jws.security.WssConfiguration;

@WebService
@Policy(uri="policy:Wsspl.2-2007-Wssl.1-UsernameToken-Plain-EncryptedKey-Basic128.xml")
@WssConfiguration(value="wss-username-config")
public class HelloWorld {
    public HelloWorld() {
        super();
    }

    @WebMethod
    @Policies({
        @Policy(uri="policy:Wsspl.2-2007-SignBody.xml"),
        @Policy(uri="policy:Wsspl.2-2007-EncryptBody.xml"))
    }
    public String hello(String str) {
        return "Hello " + str;
    }
}

```

Redeploy the app as described in section 3.

## Setup OWSM KeyStore & Credential Store

For the purposes of this How-To we will use the same default-keystore.jks created in section 0

## *Configure jps-config.xml to use default-keystore.jks using EM*

Keystore Configuration: /Farm\_soa\_domain/soa\_domain (Oracle WebLogic Domain) - Oracle Enterprise Manager (weblogic) - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://localhost:7001/em/faces/as/security/credentialStoreHome?target=%2FFarm\_soa\_domain%2Fsoa\_domain

security token failed to validate

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ORACLE Enterprise Manager 11g Fusion Middleware Control

Setup Help Log Out

Farm Topology

Logged in as weblogic

Page Refreshed Dec 23, 2011 8:33:20 PM PST

**soa\_domain**

WebLogic Domain

Control Logs Port Usage Application Deployment SOA Deployment Web Services Security Metadata Repositories JDBC Data Sources System MBean Browser

WebLogic Server Administration Console

General Information

\* Confirm Password:

Credentials

Security Provider Configuration

Application Policies Application Roles System Policies Audit Policy Audit Store

Alias: orakey  
Password:   
Confirm Password:

Security Provider Configuration: /Farm\_soa\_domain/soa\_domain (Oracle WebLogic Domain) - Oracle Enterprise Manager (weblogic) - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://localhost:7001/em/faces/as/security/credentialStoreHome?target=%2FFarm\_soa\_domain%2Fsoa\_domain&type=weblogic\_domain&\_afrLoop=345484872032898&\_afrWindowId= security token failed to validate

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**ORACLE** Enterprise Manager 11g Fusion Middleware Control

Setup ▾ Help ▾ Log Out

Farm ▾ Topology

soa\_domain

WebLogic Domain

Logged in as weblogic

Page Refreshed Dec 23, 2011 8:36:26 PM PST

Change store type | CUI

Name	Store Type	Location
Policy Store	File	system-jazn-data.xml
Credential Store	File	cwallet.sso
Keystore		keystores.xml

+ Identity Store Provider

Web Services Manager Authentication Providers

You can configure the login modules and keystore for Web Services Manager authentication.

Login Modules

The following table lists all configured login modules for Web Services Manager. Use this list to create, configure or delete a login module.

Create...	Edit...	Delete...	Name	Class	Control Flag	Description
			saml.loginmodule	oracle.security.jps.internal.jaas.module.saml.JpsSAMLLoginModule	Required	SAML Login Module
			saml2.loginmodule	oracle.security.jps.internal.jaas.module.saml.JpsSAML2LoginModule	Required	SAML2 Login Module
			ktb5.loginmodule	com.sun.security.auth.module.Krb5LoginModule	Required	Kerberos Login Module
			digest authenticator log	oracle.security.jps.internal.jaas.module.digest.DigestLoginModule	Required	Digest Authenticator Login Module
			certificate authenticator	oracle.security.jps.internal.jaas.module.x509.X509LoginModule	Required	X509 Certificate Login Module
			wss digest loginmodule	oracle.security.jps.internal.jaas.module.digest.WSSDigestLoginModule	Required	WSS Digest Login Module
			user authentication login	oracle.security.jps.internal.jaas.module.authentication.JpsUserAuthenticationLoginModule	Required	User Authentication Login Module
			user assertion loginmodi	oracle.security.jps.internal.jaas.module.assertion.JpsUserAssertionLoginModule	Required	User Assertion Login Module

+ Keystore

Use this section to specify the keystore used to store public and private keys for all secure connections within the WebLogic Domain. [Configure...](#)

Type JKS  
Path ./default-keystore.jks

+ Single Sign-On Provider

+ Advanced Properties

Find: W5 proxy Next Previous Highlight all Match case

Done

Keystore Configuration: /Farm\_soa\_domain/soa\_domain (Oracle WebLogic Domain) - Oracle Enterprise Manager (weblogic) - Mozilla Firefox X

File Edit View History Bookmarks Tools Help

http://localhost:7001/em/faces/as/security/credentialStoreHome?target=%2FFarm\_soa\_domain%2Fsoa\_domain

security token failed to validate

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**ORACLE Enterprise Manager 11g Fusion Middleware Control**

Setup Help Log Out

Farm Topology

soa\_domain Logged in as weblogic

Page Refreshed Dec 23, 2011 8:33:20 PM PST

WebLogic Domain

Security Provider Configuration > Configure Key Store

**Information**  
All changes made in this page require a server restart to take effect.

**Keystore Configuration**

A keystore is a key database that contains both public and private keys. Keystore needs to be configured only at the WebLogic Domain level. You will need to provide the keystore name, path, password and information about default identity certificates.

Keystore Type: Java Key Store (JKS)

**Access Attributes**

* Keystore Path:	./default-keystore.jks
* Password:	*****
* Confirm Password:	*****

**Identity Certificates**

Specify the default identity certificates (signature and encryption keys) for this keystore. Web Services that are configured to use this keystore will use these identity certificates.

Signature Key	Encryption Key
* Key Alias: orakey	* Crypt Alias: orakey
* Signature Password: *****	* Crypt Password: *****
* Confirm Password: *****	* Confirm Password: *****

Find: WS proxy Next Previous Highlight all Match case

Read localhost

## Validate the necessary credentials for Keystore access has been created using EM

The screenshot shows the Oracle Enterprise Manager Fusion Middleware Control interface. The left sidebar navigation includes Farm, Topology, Application Deployments, SOA, WebLogic Domain (with sub-options like soa\_domain and AdminServer), Metadata Repositories, and User Messaging Service. The main content area is titled "soa\_domain" and "WebLogic Domain". It displays various configuration tabs: Home, Control, Logs, Port Usage, Application Deployment, SOA Deployment, Web Services, Security, Metadata Repositories, JDBC Data Sources, System MBean Browser, and General Information. Under the General Information tab, there is a section for "Keystore" configuration. The "Keystore" section contains fields for "Type" (set to JKS) and "Path" (set to ./default-keystore.jks). Below this, there are sections for "Single Sign-On Provider" and "Advanced Properties". On the right side of the main content area, there is a detailed table titled "Credentials" which lists various security provider configurations, their control flags, and descriptions. The table includes rows for Security Provider Configuration, Application Policies, Application Roles, System Policies, and Audit Policy.

	Control Flag	Description
Security Provider Configuration	LoginModul: Required	SAML Login Module
	LoginModul: Required	SAML2 Login Module
	Required	Kerberos Login Module
Application Policies	LoginModule: Required	Digest Authenticator Login Module
	Module: Required	X509 Certificate Login Module
Application Roles	lstLoginMod: Required	WSS Digest Login Module
	psUserAu: Required	User Authentication Login Module
System Policies	userAssert: Required	User Assertion Login Module
Audit Policy		
Audit Store		

## Interop with WLS WS-Security in WLS using Oracle Web Services Manager 11g

The screenshot shows the Oracle Enterprise Manager Fusion Middleware Control interface. The title bar reads "Credentials: /Farm\_soa\_domain/soa\_domain (Oracle WebLogic Domain) - Oracle Enterprise Manager (weblogic) - Mozilla Firefox". The main content area displays the "soa\_domain" WebLogic Domain's credential store. A sidebar on the left shows the navigation tree with nodes like "Farm", "soa\_domain", "SOA", and "User Messaging Service". The central panel has a header "soa\_domain" and "WebLogic Domain". Below it, a section titled "Credentials" explains the purpose of the credential store. A table titled "Credential Store Provider" lists credentials under "oracle.wsm.security":

Credential	Type	Description
sign-csf-key	Password	
basic.credentials	Password	
enc-csf-key	Password	
keystore-csf-key	Password	

At the bottom of the page, there is a search bar with "Find: WS proxy" and a status message "Read localhost".

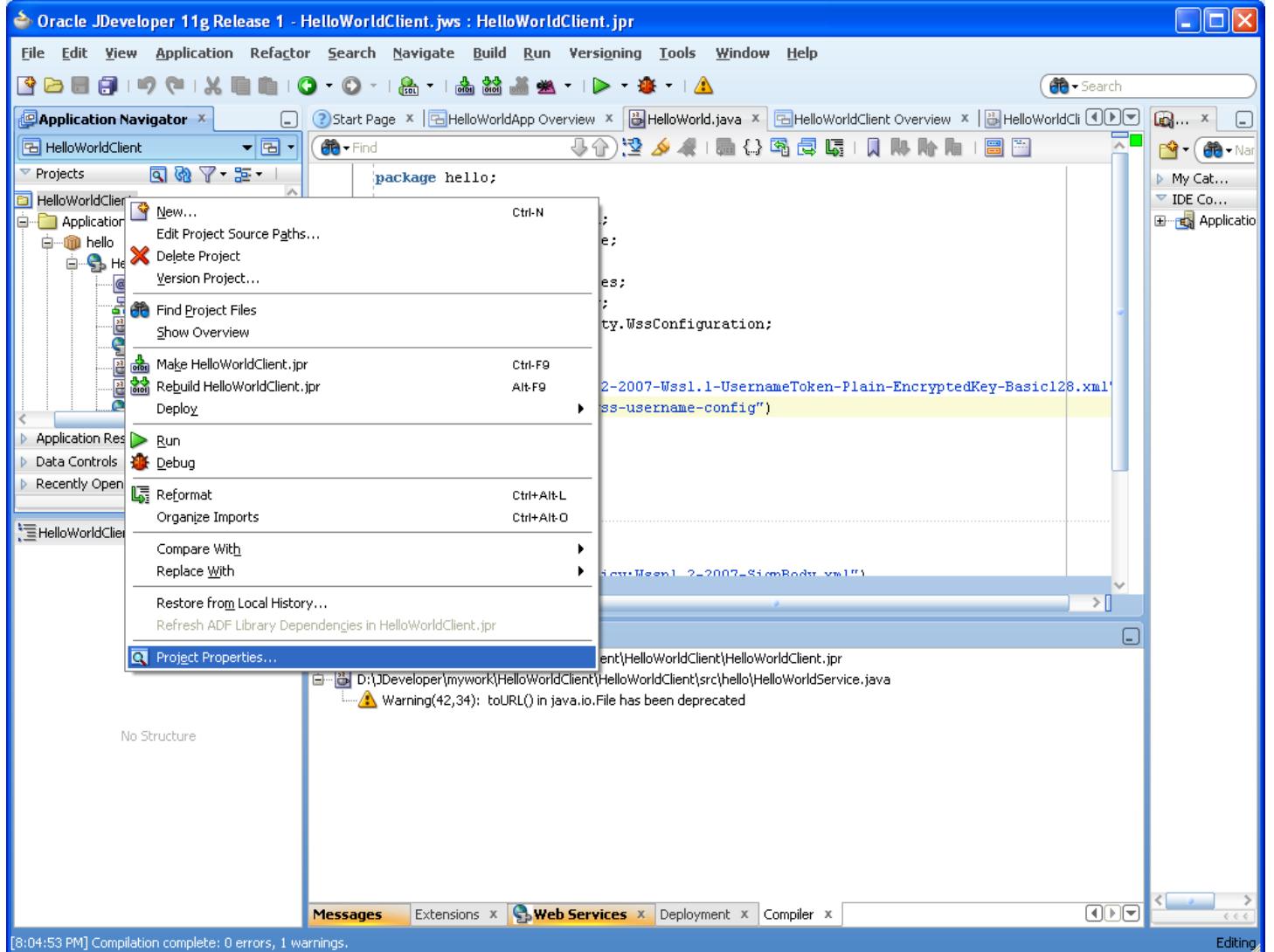
*Create the credentials "mycreds" using EM*

## Interop with WLS WS-Security in WLS using Oracle Web Services Manager 11g

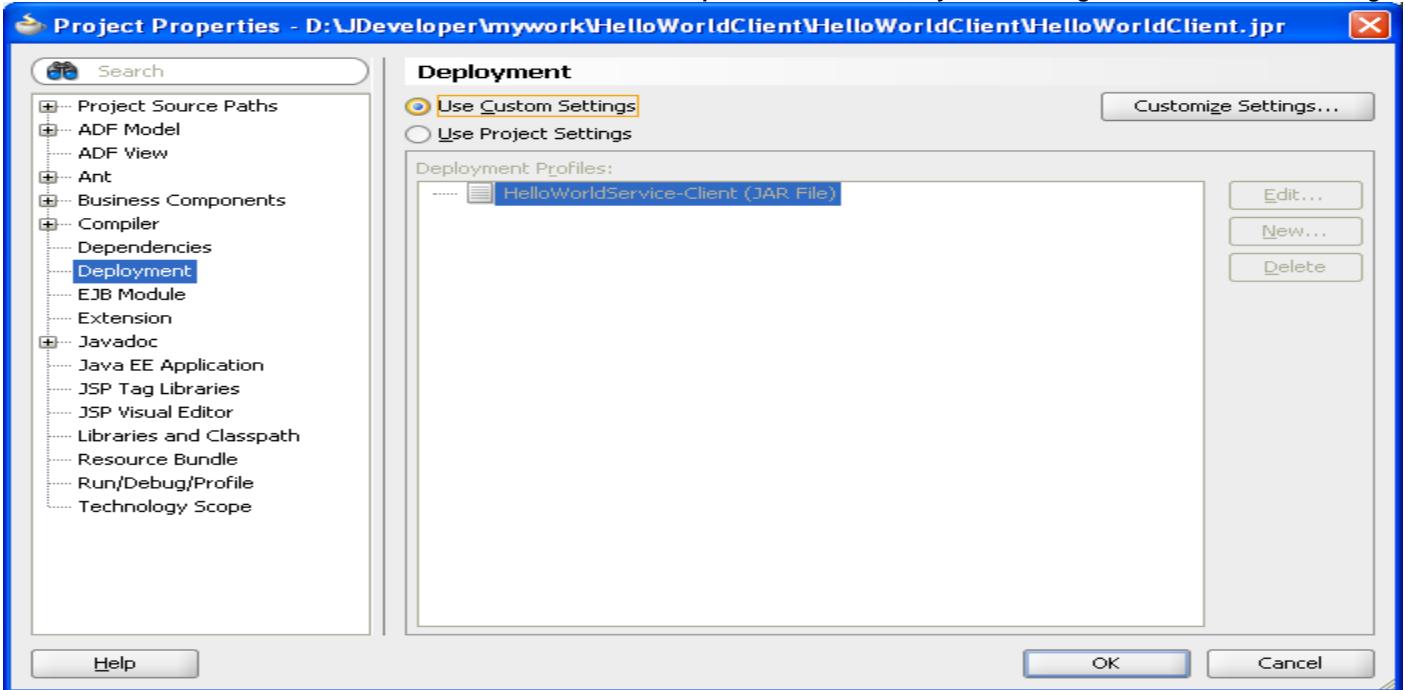
The screenshot shows the Oracle Enterprise Manager Fusion Middleware Control interface. The left sidebar shows a tree view of the domain structure under 'Farm\_soa\_domain'. The main panel is titled 'soa\_domain' and contains a 'Credentials' section. A modal dialog box is open, titled 'Create Key', showing the configuration for a new credential key named 'mycreds'. The 'Select Map' dropdown is set to 'oracle.wsm.security'. The 'Key' field is 'mycreds', 'Type' is 'Password', 'User Name' is 'weblogic', and 'Password' and 'Confirm Password' fields both contain masked text. The 'Description' field is empty. At the bottom right of the dialog are 'OK' and 'Cancel' buttons.

## Deploy the HelloWorldClient Web App

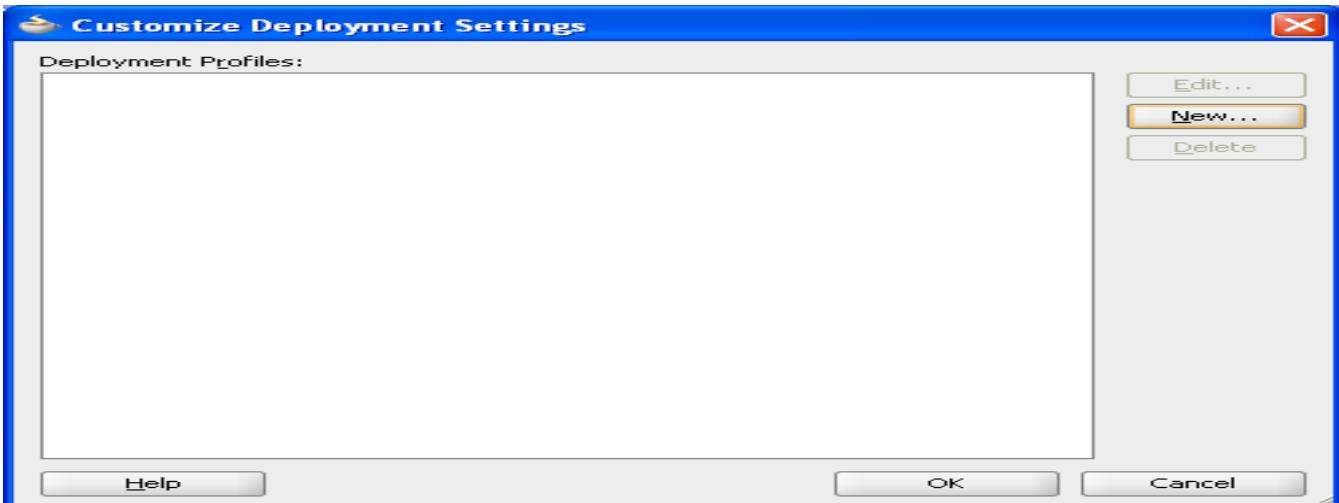
### Create Custom Deployment Settings

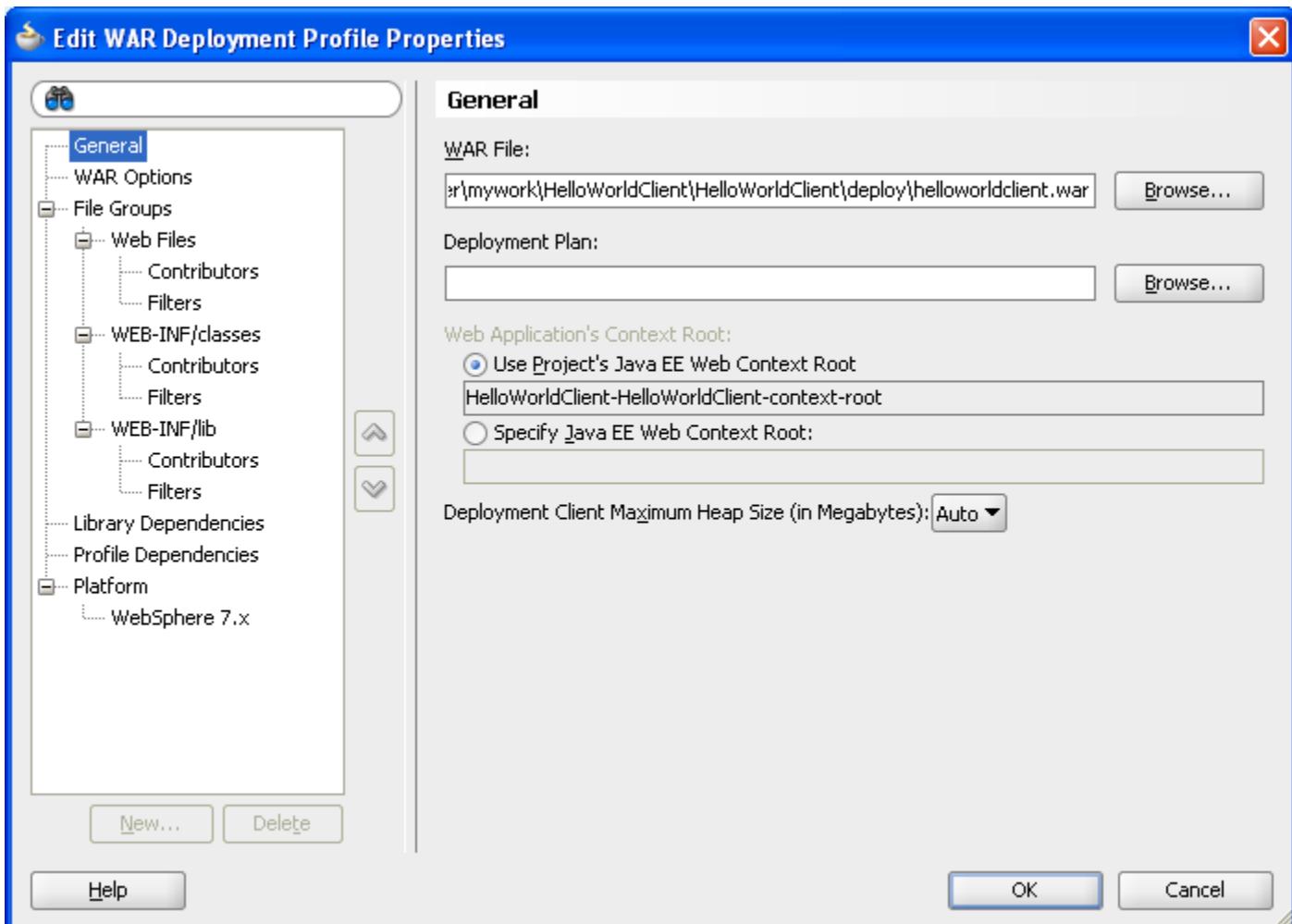
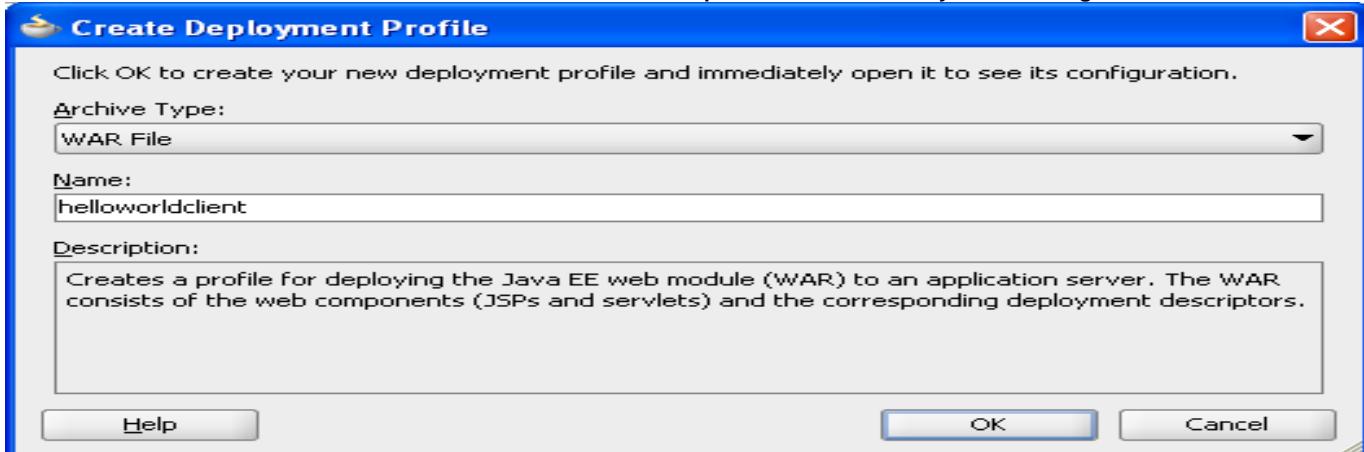


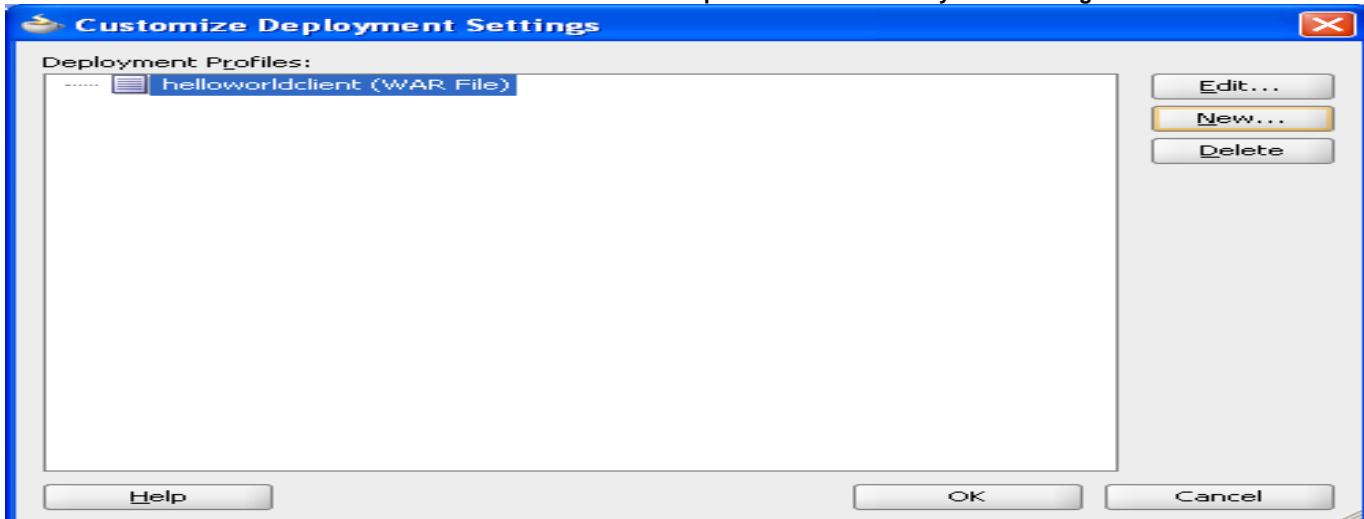
Select “Use Custom Settings” and Click on “Customize Settings” button.



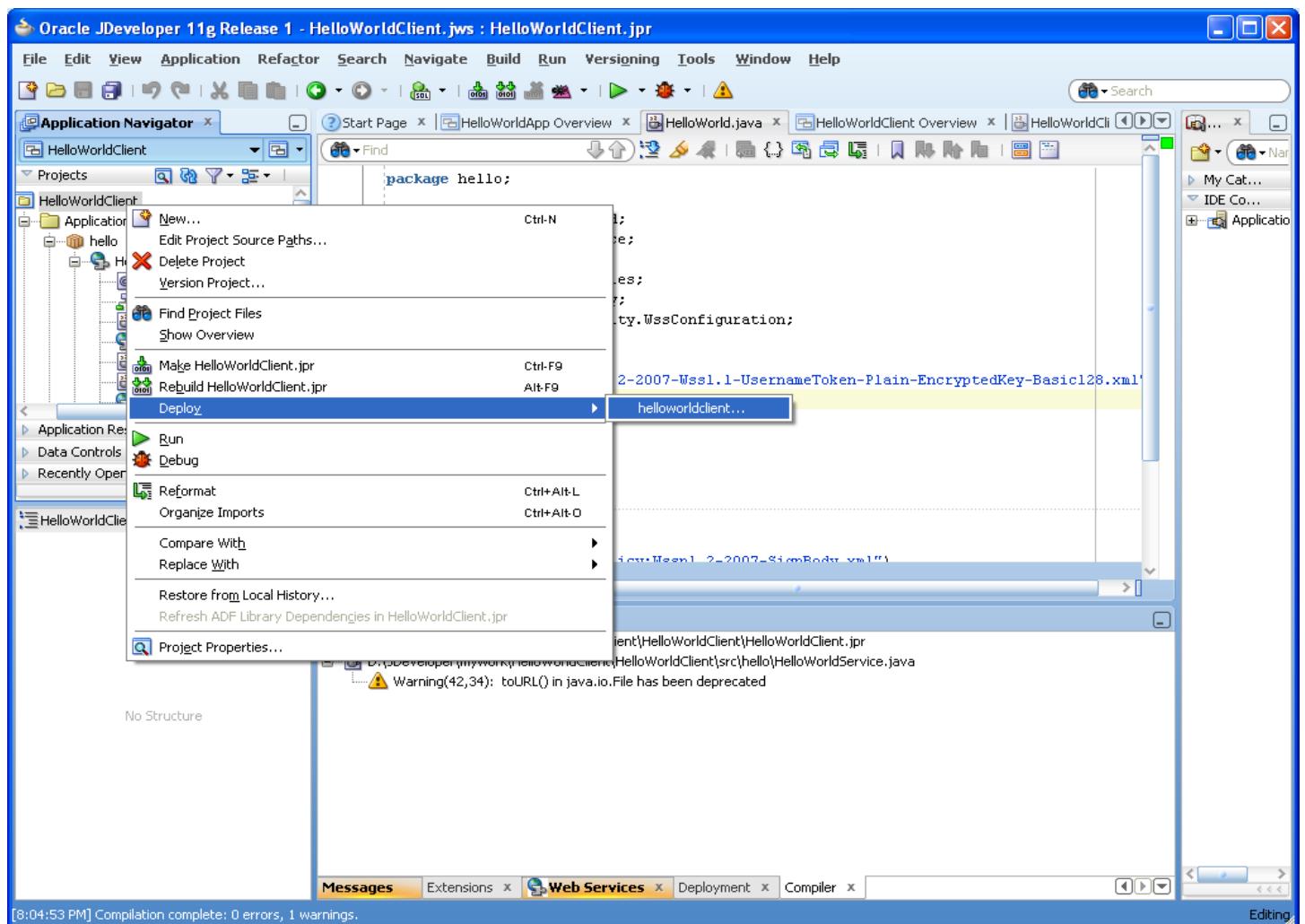
Click on “New” button.

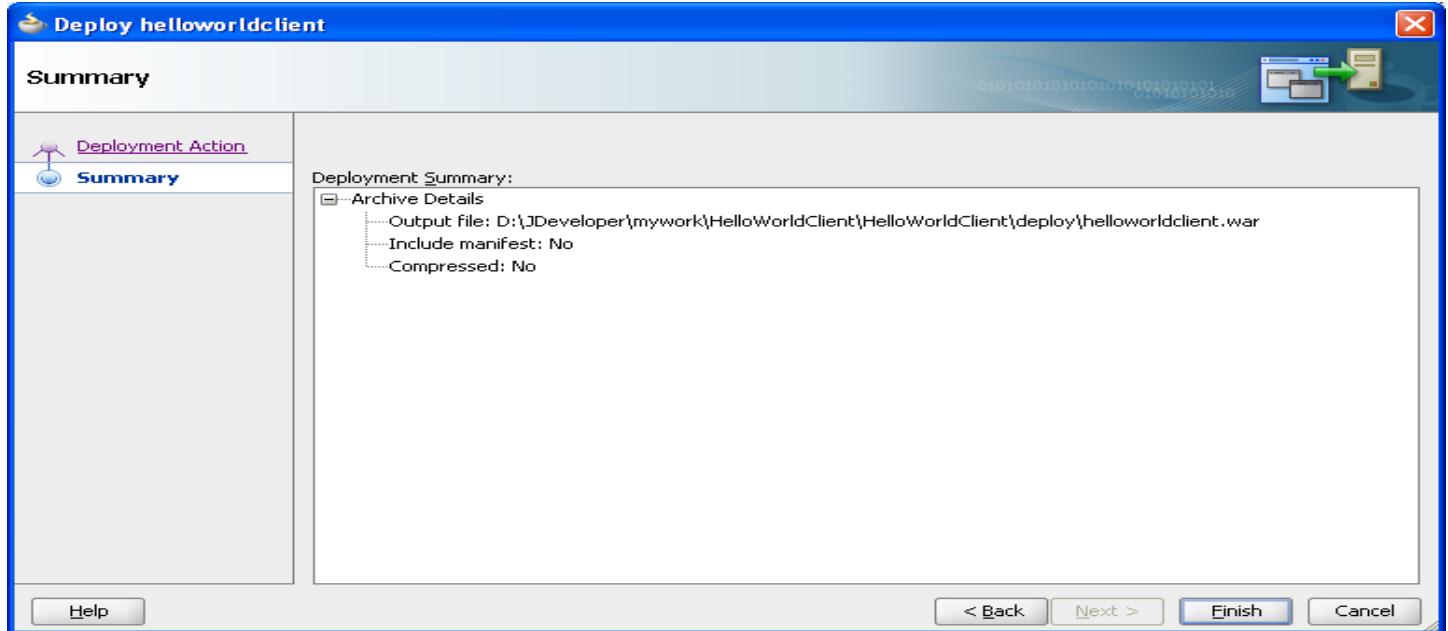
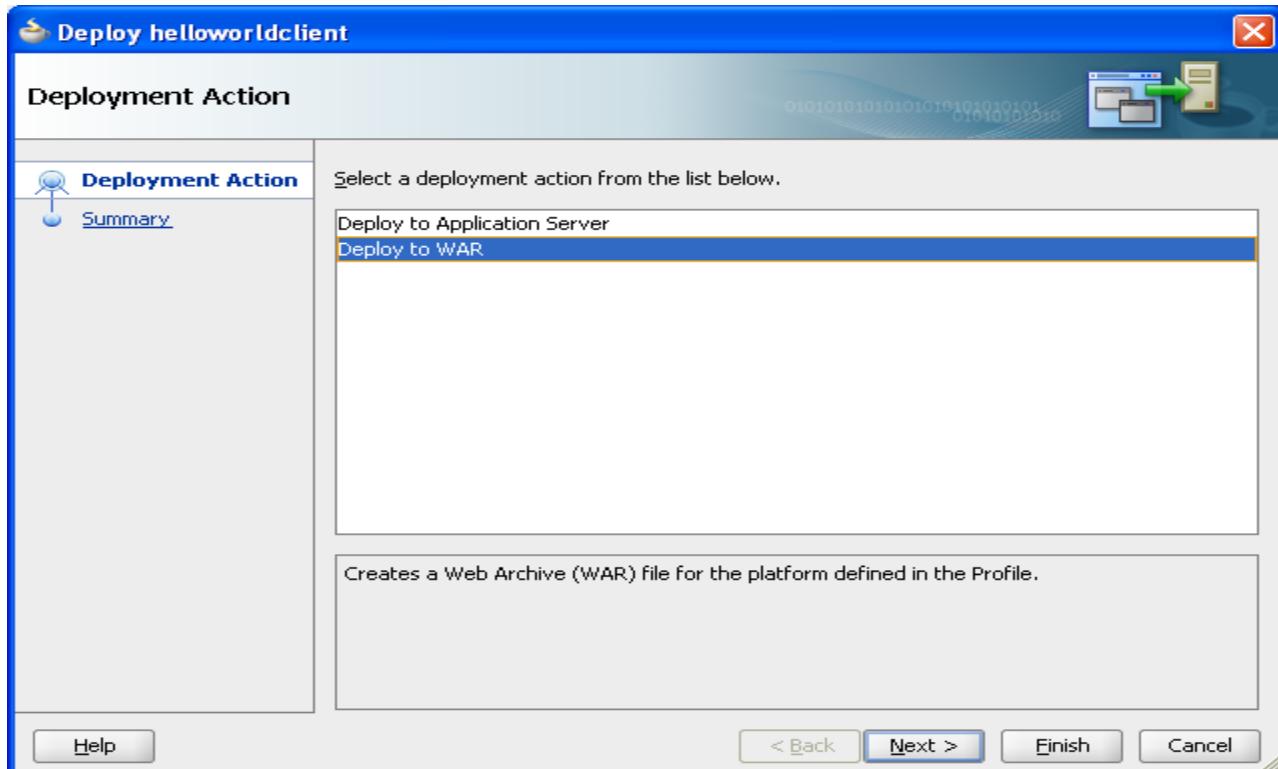






## Create helloworldclient WAR



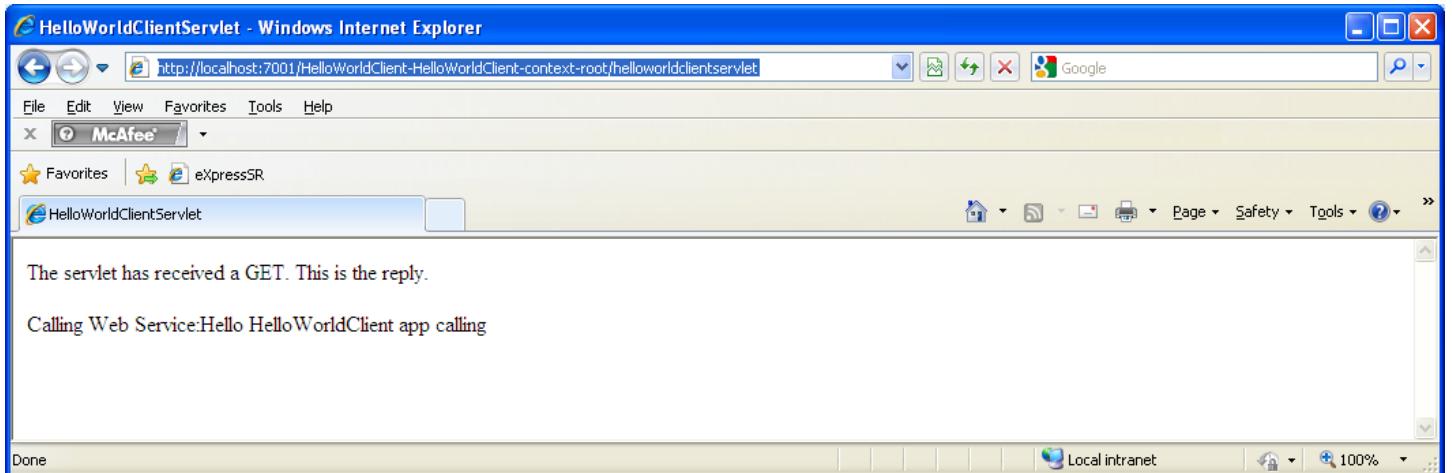


## Deploy the helloworldclient.war

Deploy the helloworldclient.war via Weblogic Console. The steps are similar to those described in section 0

## Testing

### Positive testing



### Negative testing

Just to make sure things are working as we would expect. Delete the “mycreds” from the Credential Store using EM.

#### Delete Credential “mycreds” using EM

Credentials: /Farm\_soa\_domain/soa\_domain (Oracle WebLogic Domain) - Oracle Enterprise Manager (weblogic) - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://localhost:7001/em/faces/as/security/credentialStoreHome?target=%2FFarm\_soa\_domain%2Fsoa\_domain

security token failed to validate

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ORACLE Enterprise Manager 11g Fusion Middleware Control

Setup Help Log Out

Farm Topology

soa\_domain

WebLogic Domain

Information

The credential key, mycreds, has been created.

Credentials

A credential store is the repository of security data that certify the authority of entities used by Java 2, J2EE, and ADF applications. Applications can use the Credential Store, a single, consolidated service provider to store and manage their credentials securely.

Credential Store Provider

Create Map	Create Key	Edit...	Delete...	Credential Key Name
Credential	Type	Description		
ADF				
BPM-CRYPTO				
default				
oracle.wsm.security				
sign-csf-key	Password			
basic.credentials	Password			
enc-csf-key	Password			
<b>mycreds</b>	<b>Password</b>			
keystore-csf-key	Password			

Find: WS proxy

http://localhost:7001/em/faces/as/security/credentialStoreHome?target=/Farm\_soa\_domain/soa\_domain&type=weblogic\_domain&\_afrLoop=345484872032898&\_afrWi...

Credentials: /Farm\_soa\_domain/soa\_domain (Oracle WebLogic Domain) - Oracle Enterprise Manager (weblogic) - Mozilla Firefox

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ORACLE Enterprise Manager 11g Fusion Middleware Control

Farm Topology

Logged in as weblogic  
Page Refreshed Dec 23, 2011 8:38:20 PM PST

**soa\_domain**

WebLogic Domain

**Information**  
The credential key, mycreds, has been created.

**Credentials**  
A credential store is the repository of security data that certify the authority of entities used by Java 2, J2EE, and ADF applications. Applications can use the Credential Store, a single, consolidated service provider to store and manage their credentials securely.

**Confirmation**  
Delete credential key  
You have chosen to delete the credential key, mycreds from the credential store. Do you want to proceed?

Credential	Type	Value
sign-csf-key	Password	
basic.credentials	Password	
enc-csf-key	Password	
<b>mycreds</b>	<b>Password</b>	
keystore-csf-key	Password	

Find: WS proxy Next Previous Highlight all Match case

Transferring data from localhost...

Credentials: /Farm\_soa\_domain/soa\_domain (Oracle WebLogic Domain) - Oracle Enterprise Manager (weblogic) - Mozilla Firefox

File Edit View History Bookmarks Tools Help

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ORACLE Enterprise Manager 11g Fusion Middleware Control

Logged in as weblogic  
Page Refreshed Dec 23, 2011 8:38:20 PM PST

**Information**  
The credential key, mycreds, has been deleted.

**Credentials**  
A credential store is the repository of security data that certify the authority of entities used by Java 2, J2EE, and ADF applications. Applications can use the Credential Store, a single, consolidated service provider to store and manage their credentials securely.

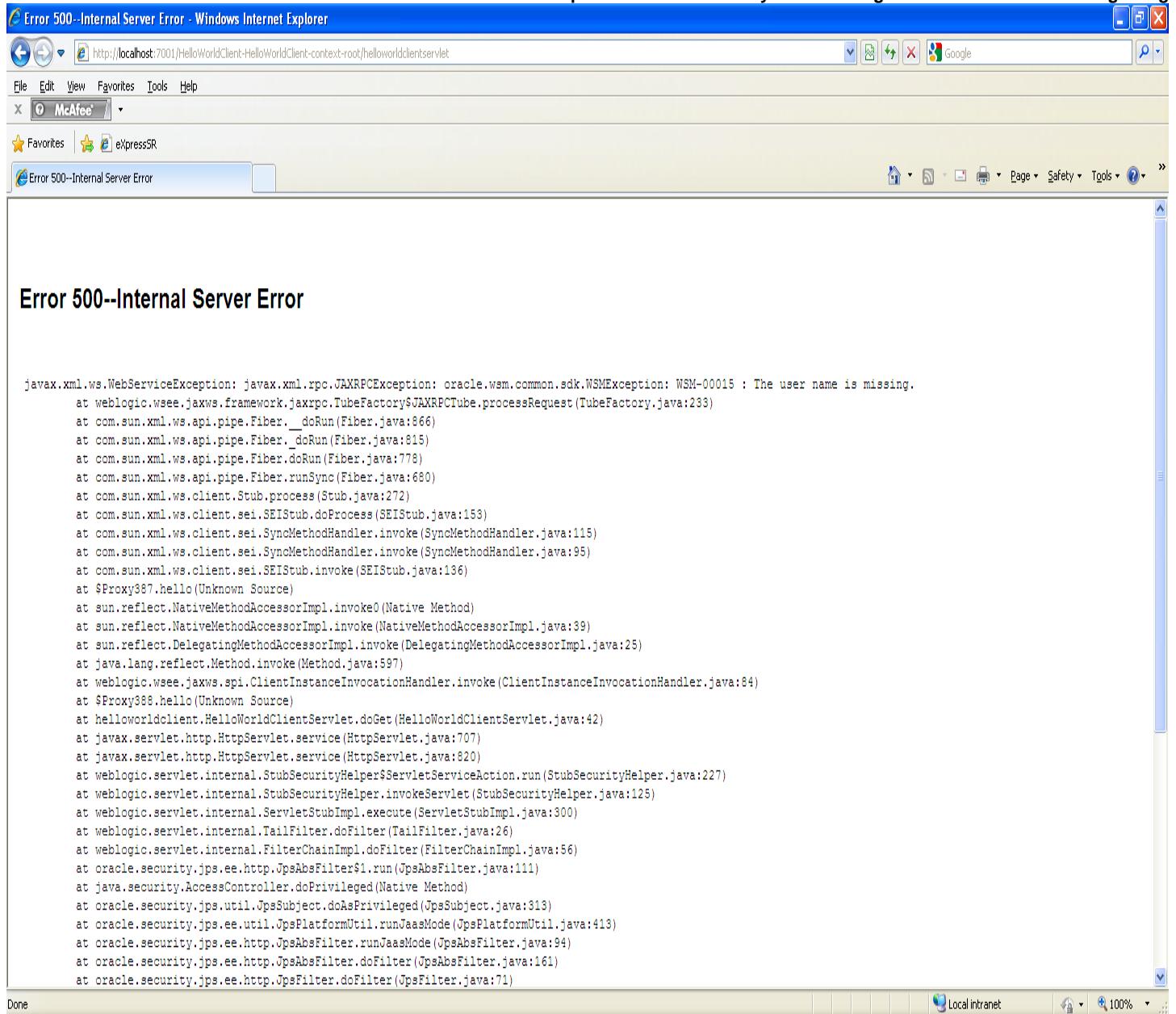
**Credential Store Provider**

Create Map	Create Key	Edit...	Delete...	Credential Key Name
Credential	Type	Description		
[+] ADF				
[+] BPM-CRYPTO				
[+] default				
[+] oracle.wsm.security				
sign-csf-key	Password			
basic.credentials	Password			
enc-csf-key	Password			
keystore-csf-key	Password			

Find: WS proxy

Done

Restart the server.





Oracle Web Services Manager  
December 2011  
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