Building a Global Application using the Globalization Development Kit (GDK)

Purpose

This lesson utilizes the APIs in the Oracle Globalization Development Kit (GDK), to demonstrate how you can migrate an existing English only monolingual J2EE application to a Global multilingual application. The application contains a JSP front end to a simple customer order retrieval application (Oracle Store) based on the oe Sample Schema. The application contains servlets that use GDK to persist regular Java objects.

Topics

This module will discuss the following topics:

- Overview
- Prerequisites
- Understanding the Oracle Store Application
- Installing the Oracle Store Application

- Reviewing and Running the current English only Oracle Store Application
- Configuring and setting up the GDK Application
- Adding translated Store Logos
- Integrating translated UI text
- Formatting dates and numbers using Oracle Formatter Classes

- Using pre-defined Oracle locale translations
- Detecting the User preferred locale
- Enabling support for exchange rates, translated product names and descriptions
- Using Oracle linguistic sorts
- Displaying flags and available language translations
- Adding support for a new locale (German)
- Integrating Language Detection Technology

Place the cursor on this icon to display all screenshots. You can also place the cursor on each icon to see only the screenshot associated with it.

Overview

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The Globalization Development Kit (GDK) for Java provides a J2EE application framework and Java APIs to develop globalized Internet applications using the best globalization practices and freatures designed by Oracle. GDK complements the existing globalization features in Java by extending Oracle Globalization Support features to the application server. Globalization logic such as Oracle date / number / monetary formatting and Oracle binary & linguistic sorting are now available in the middle tier. GDK provides mappings between Oracle and Java locales, character set conversions between Oracle and Java character sets, and it also returns locale related data sets such as the common languages, common linguistic sorts and the local time zones supported in a given territory etc. It offers APIs that can encapsulate the complexity of globalization programming such as locale determination, caching and processing of the locale information. It supports the detection of the user preferred locale, the re-writing of URLs to locate content for the different locales, and provides a single application configuration file to control the globalization behavior of the user application.

Note. A locale refers to a national language and the region in which the language is spoken. For example, the primary language of the United States and Great Britain is English, however the two territories have different currencies and different conventions for date formats. Therefore, the United States and Great Britain are considered as 2 different locales.

Prerequisites

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Before starting this module, you should have:

☐ **1.** Completed the Configuring Linux for the Installation of Oracle Database 10g lesson

☐ **2.** Completed the Installing the Oracle Database 10g on Linux lesson

☐ **3.** Completed the Installing Oracle9i JDeveloper on Linux lesson.

☐ **4.** Download and unzip gdk.zip into your working directory (i.e. /home/oracle/wkdir)

Understanding the Oracle Store Application

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The application includes the following files:

Java Source Files

src/oracle/i18n/demo/obe/gdkshop

AuthFilter.java	Authentication filter
MyAccountAction.java	My Account servlet
OrderInformationAction.java	Order Information servlet
ShopAction.java	Shop actions

src/oracle/i18n/demo/obe/gdkshop/bean

Customer.java	Customer bean

Order.java	Order bean
OrderItem.java	Order item bean

src/oracle/i18n/demo/obe/gdkshop/gdk

DBLocaleSource.java	Locale source for user schema in the database
Translations.java	UI translations for English (will be added during the lesson)
Translations_de.java	UI translations for German (will be added during the lesson)
Translations_es.java	UI translations for Spanish (will be added during the lesson)
Translations _zh_cn.java	UI translations for Simplified Chinese (will be added during the lesson)

JSP and Static Contents

public_html/

index.jsp	Index JSP page
myaccount.jsp	My Account JSP page
orderinformation.jsp	Order Information JSP page
feedback.jsp	A Feedback JSP page
store_logo_new.gif	Shop logo image for English
US.gif	Flag image for United States (will be added during the lesson)
CN.gif	Flag image for China (will be added during the lesson)
DE.gif	Flag image for Germany (will be added during the lesson)
ES.gif	Flag image for Spain (will be added during the lesson)
IN.gif	Flag image for India (will be added during the lesson)

public_html/de/

store_logo_new.gif	German Oracle Shop logo (will be added during the lesson)

public_html/es/

store_logo_new.gif	Spanish Oracle Shop logo (will be added during the lesson)

public_html/zh_cn/

store_logo_new.gif	Simplified Chinese Oracle Shop logo (will be added during the lesson)

public_html/WEB-INF/

web.xml	Web deployment descriptor
gdkapp.xml	GDK/OGS application configuration file (will be added during the lesson)

public_html/WEB-INF/lib/

orai18n-lcsd.jar	GDK LCSD (Language and Character Set Detection) extension (will be added during the lesson)
orai18n.jar	GDK main library (will be added during the lesson)

Installing the Oracle Store Application

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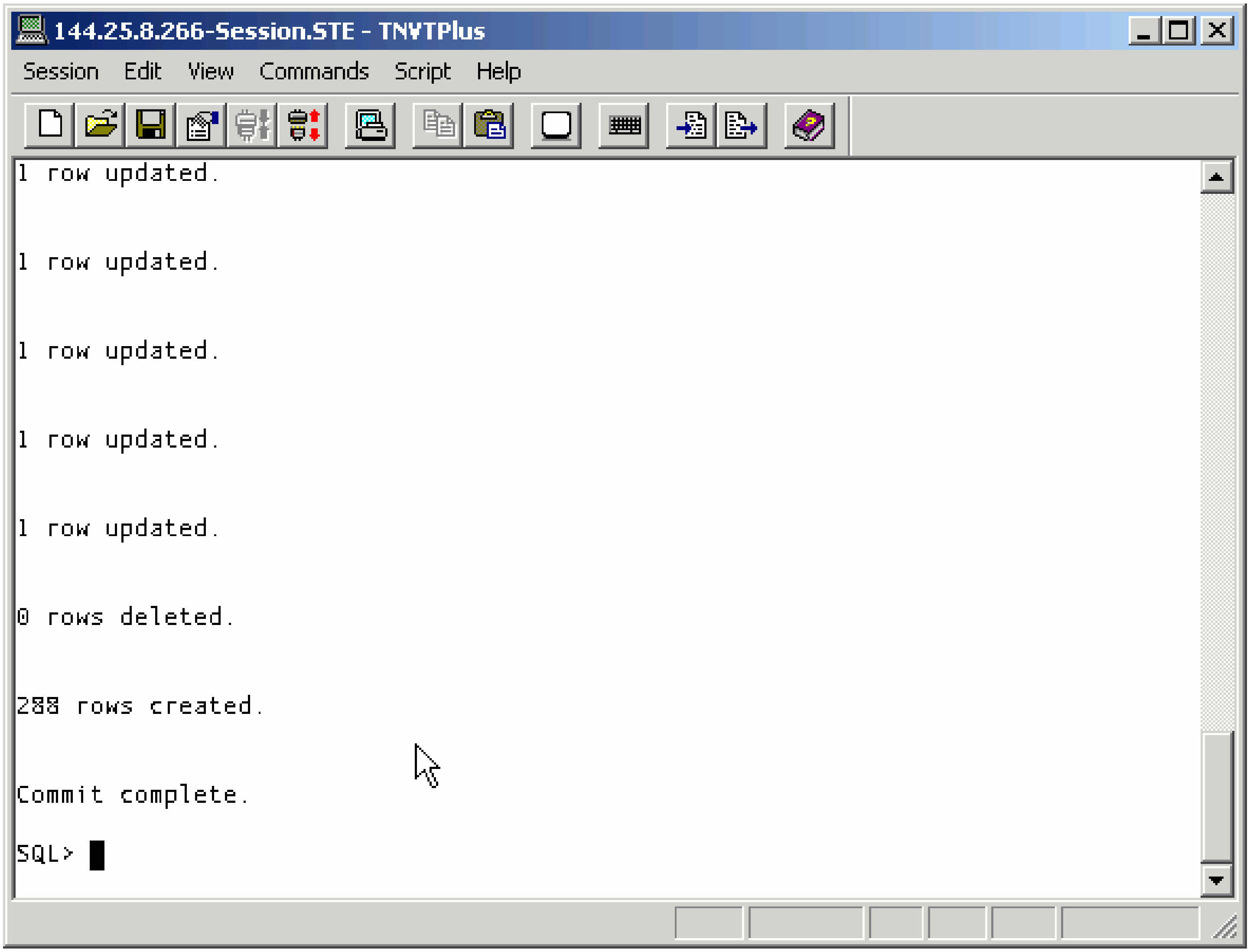
In order for the Oracle Store Application to work you will need to populate the Sample Schema with new sample data. Perform the following:

☐ **1.** Unzip gdk.zip into your working directory. Let **`/home/oracle/wkdir`** be the working directory.

☐ **2.** Create tables for storing currency exchange rates and time zones information. Open a terminal window and execute the following:

```
cd /home/oracle/wkdir/gdk/step0
sqlplus oe/oe
@obeGdkSetup
```

Note : **`obeGdkSetup.sql`** is a script file that populates tables such as `CUSTOMERS` , `ORDERS` , and `ORDER_ITEMS` of OE schema. This directory also contain a script called **`obeGdkRevert.sql`** for uninstalling all the objects created for this lesson.


144.25.8.266-Session.STE - TNVTPlus
Session Edit View Commands Script Help

```
1 row updated.


1 row updated.


1 row updated.


1 row updated.


1 row updated.


0 rows deleted.


288 rows created.


Commit complete.

SQL>
```

Reviewing and Running the current English only Oracle Store Application

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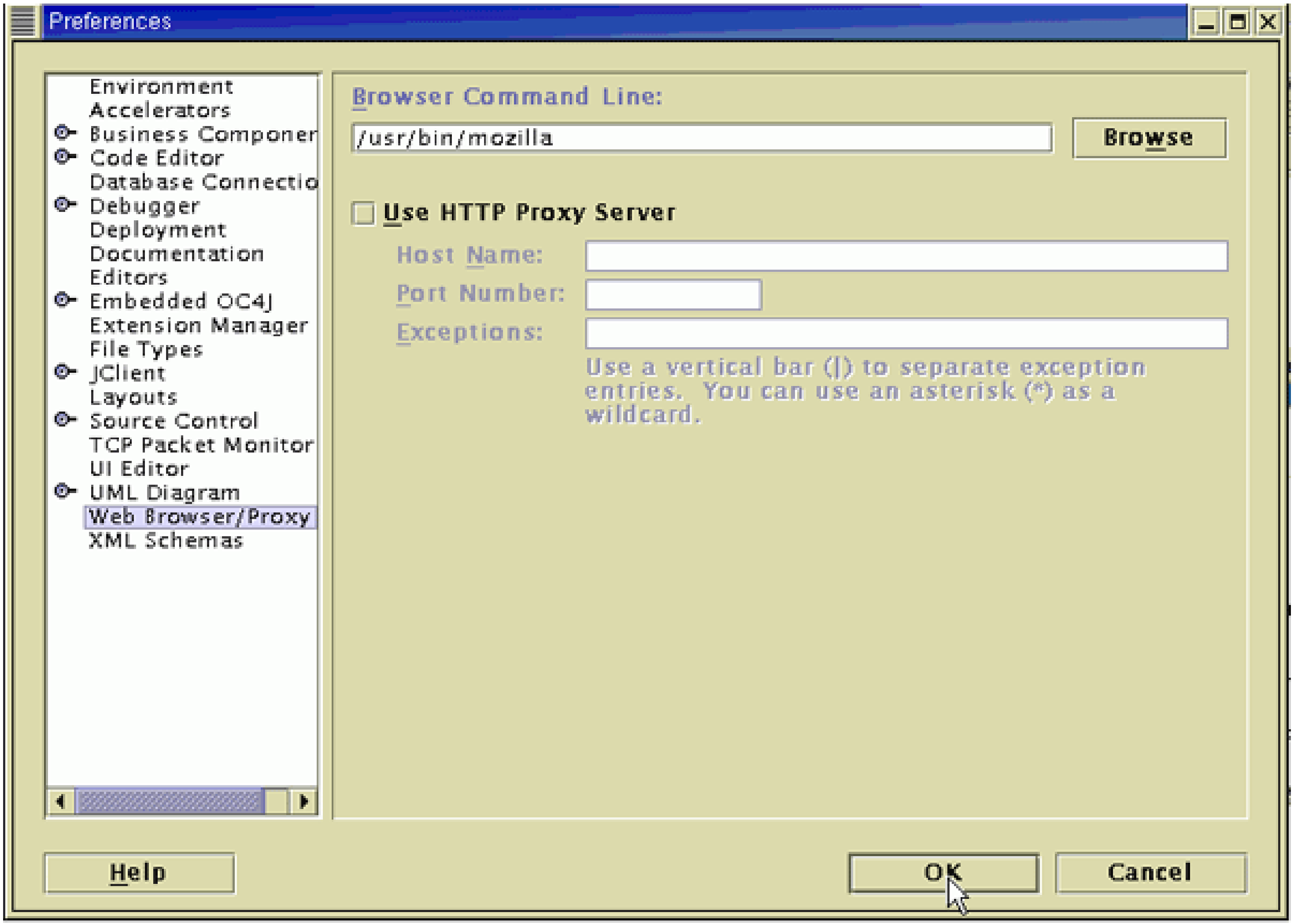
You will run the application as an english only (monolingual) application and observe the behavior. You will then change the source files to make it a multilingual application. Note that the modified files are already provided and you are not expected to make changes to the source files. However, the changes made to the files are explicitly mentioned.

Perform the following to run the monolingual application:

☐ **1.** Launch Oracle9 *i* JDeveloper.

☐ 2. Set Mozilla as default browser in Jdeveloper.
Tools --> Preferences --> Web Browser/Proxy . Enter **`/usr/bin/mozilla`** in the Browser Command Line field.

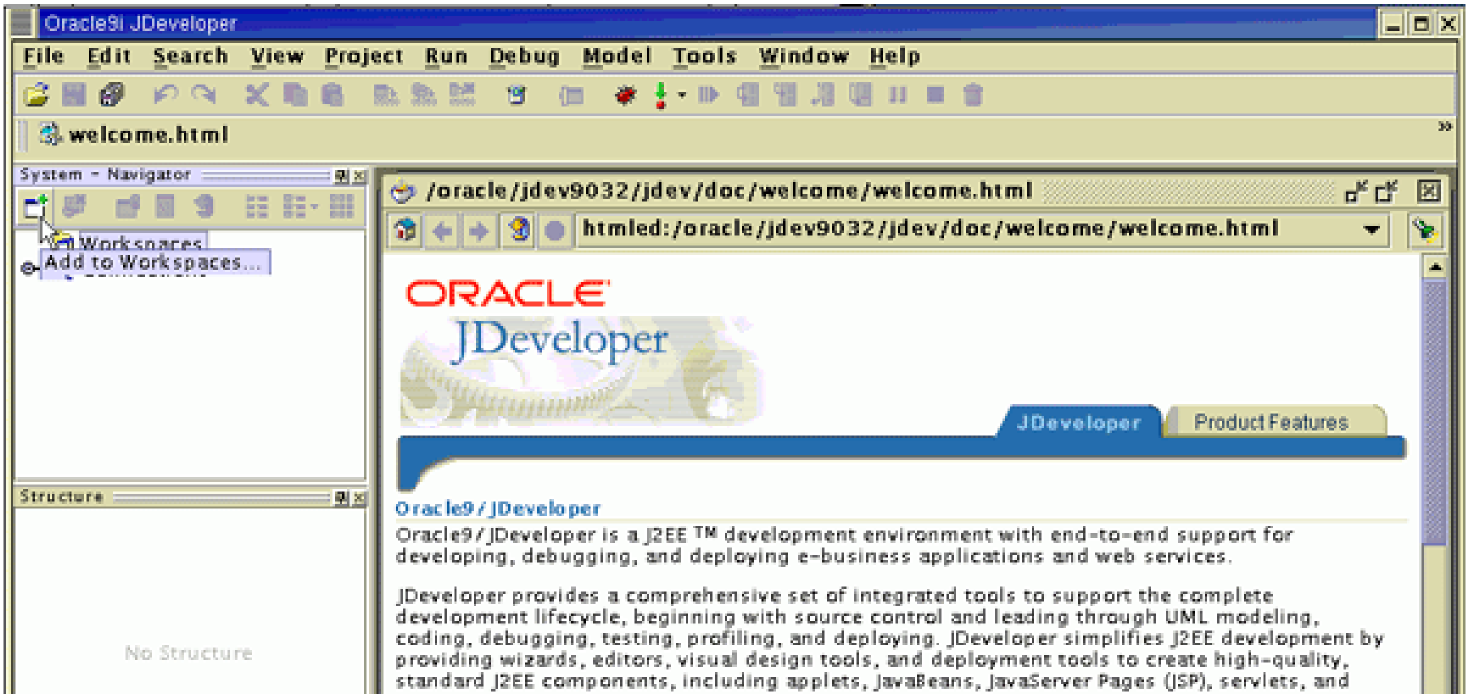


Browser Command Line: /usr/bin/mozilla

☐ Use HTTP Proxy Server

Use a vertical bar (|) to separate exception entries. You can use an asterisk (*) as a wildcard.

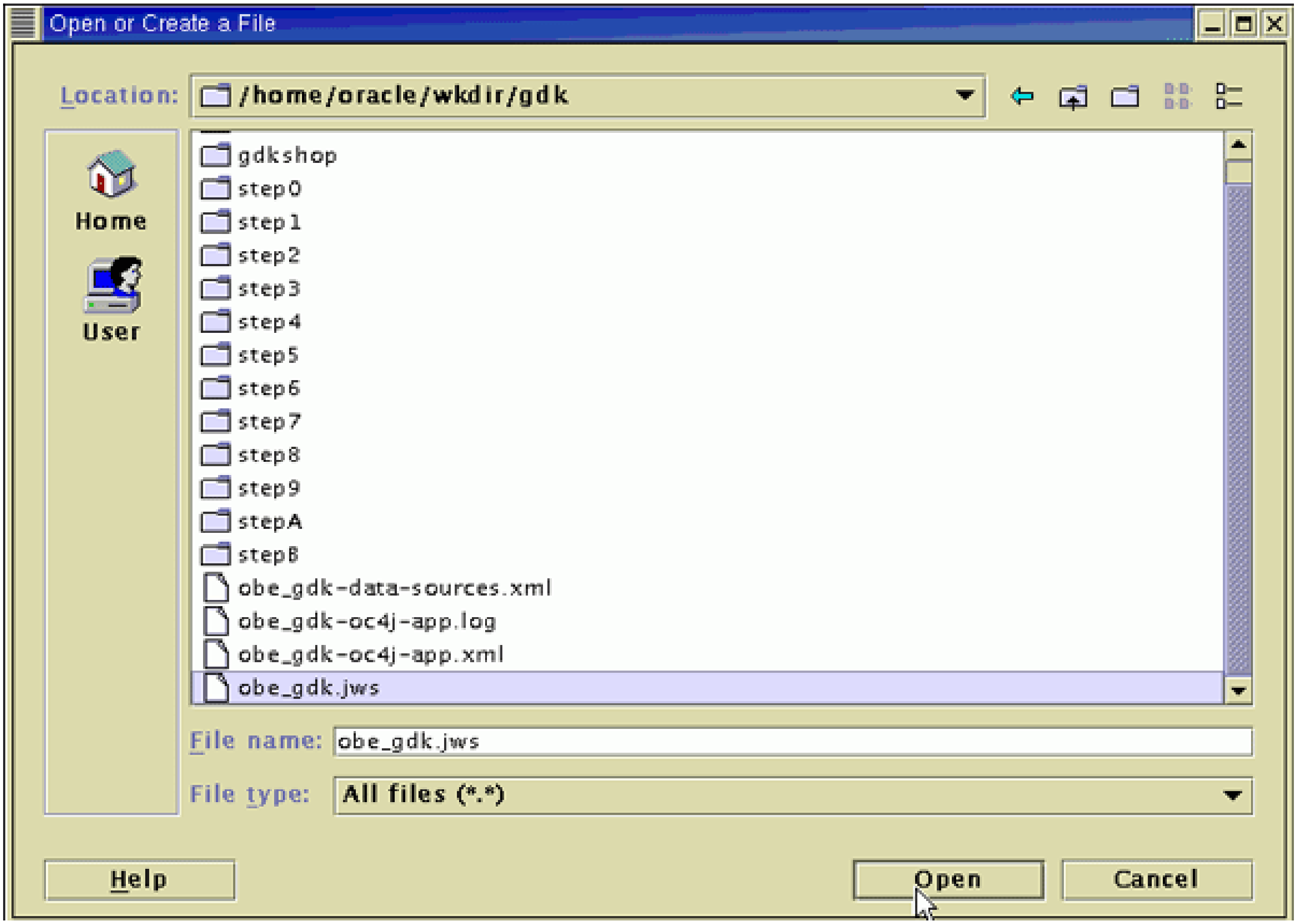
☐ 3. Click and highlight **Workspaces** in the System-Navigator window. Click **+** icon at the top left hand corner to **Add to Workspaces...**


Oracle9i JDeveloper
File Edit Search View Project Run Debug Model Tools Window Help
welcome.html
System - Navigator
Workspaces
Add to Workspaces...
Structure
No Structure
/oracle/jdev9032/jdev/doc/welcome/welcome.html
htmled:/oracle/jdev9032/jdev/doc/welcome/welcome.html
ORACLE
JDeveloper
JDeveloper
Product Features
Oracle9i JDeveloper

Oracle9i JDeveloper is a J2EE TM development environment with end-to-end support for developing, debugging, and deploying e-business applications and web services.

JDeveloper provides a comprehensive set of integrated tools to support the complete development lifecycle, beginning with source control and leading through UML modeling, coding, debugging, testing, profiling, and deploying. JDeveloper simplifies J2EE development by providing wizards, editors, visual design tools, and deployment tools to create high-quality, standard J2EE components, including applets, JavaBeans, JavaServer Pages (JSP), servlets, and

☐ **4.** Select and open the file **`/home/oracle/wkdir/gdk/obe_gdk.jws`** .

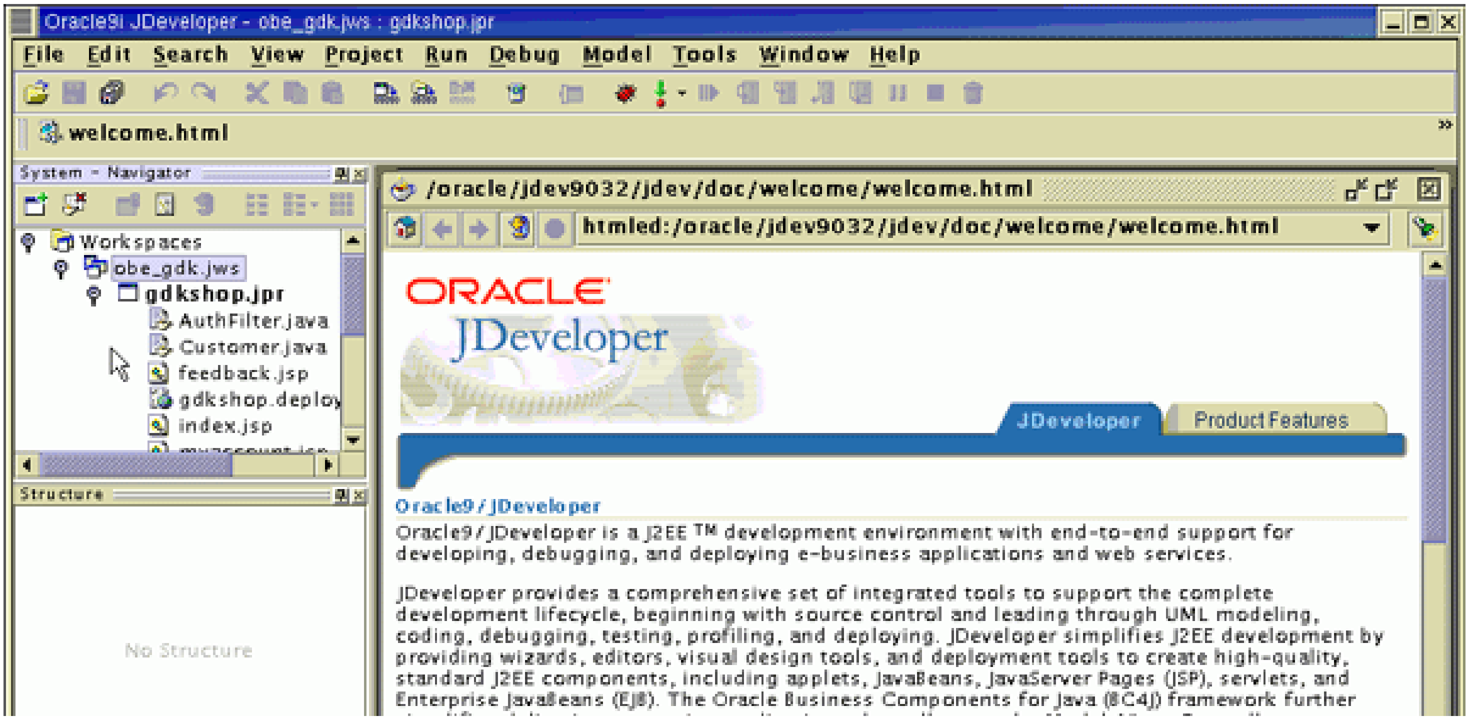


Location: /home/oracle/wkdir/gdk

File name: obe_gdk.jws

File type: All files (*.*)

☐ **5.** Expand the tree to ensure that the project **gdkshop.jpr** is included.

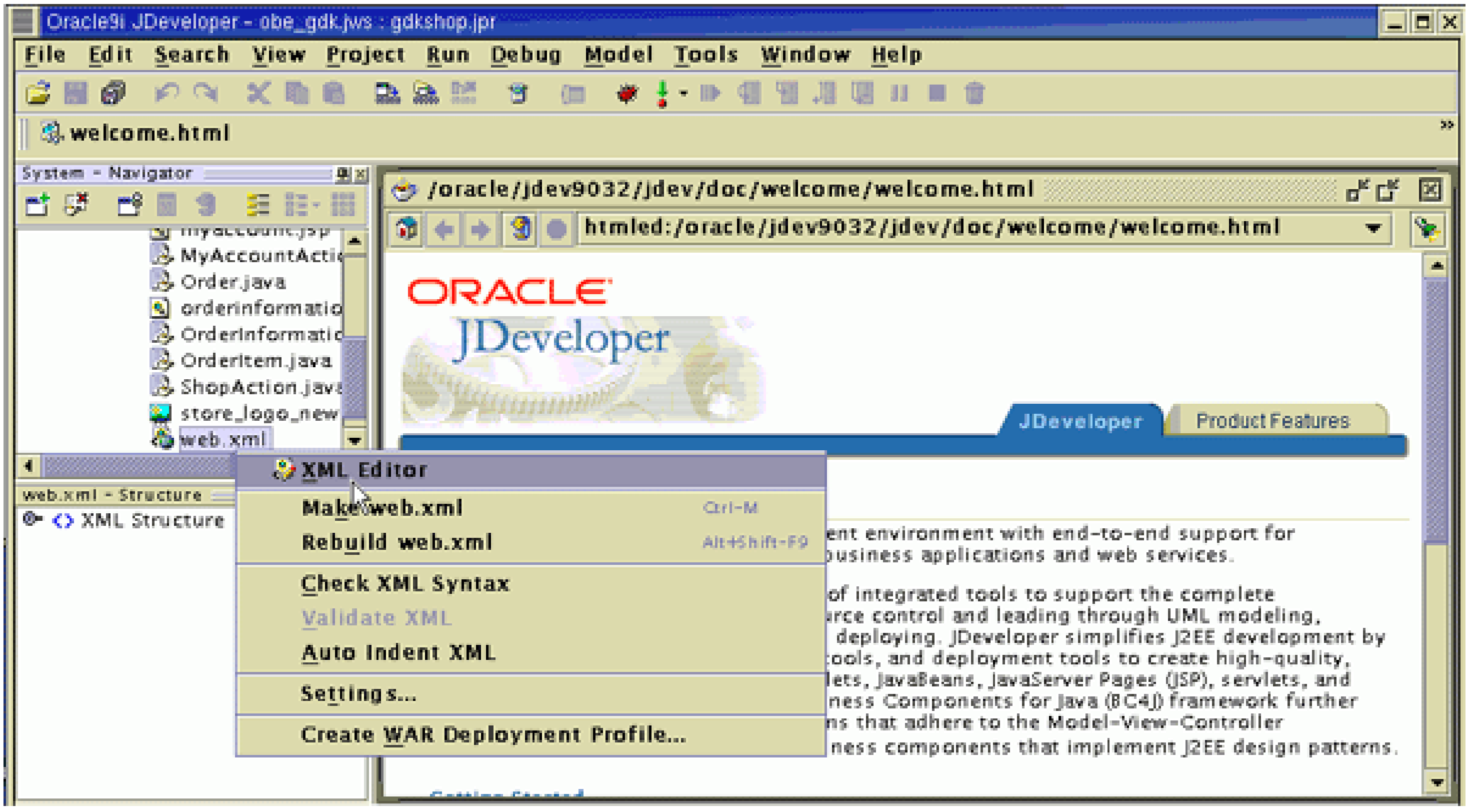

Oracle9i JDeveloper - obe_gdk.jws : gdkshop.jpr
File Edit Search View Project Run Debug Model Tools Window Help
welcome.html
System - Navigator
Workspaces
obe_gdk.jws
gdkshop.jpr
AuthFilter.java
Customer.java
feedback.jsp
gdkshop.deploy
index.jsp
Structure
No Structure
/oracle/jdev9032/jdev/doc/welcome/welcome.html
htmled:/oracle/jdev9032/jdev/doc/welcome/welcome.html
ORACLE
JDeveloper
JDeveloper
Product Features

Oracle9/JDeveloper

Oracle9/JDeveloper is a J2EE TM development environment with end-to-end support for developing, debugging, and deploying e-business applications and web services.

JDeveloper provides a comprehensive set of integrated tools to support the complete development lifecycle, beginning with source control and leading through UML modeling, coding, debugging, testing, profiling, and deploying. JDeveloper simplifies J2EE development by providing wizards, editors, visual design tools, and deployment tools to create high-quality, standard J2EE components, including applets, JavaBeans, JavaServer Pages (JSP), servlets, and Enterprise JavaBeans (EJB). The Oracle Business Components for Java (BC4J) framework further

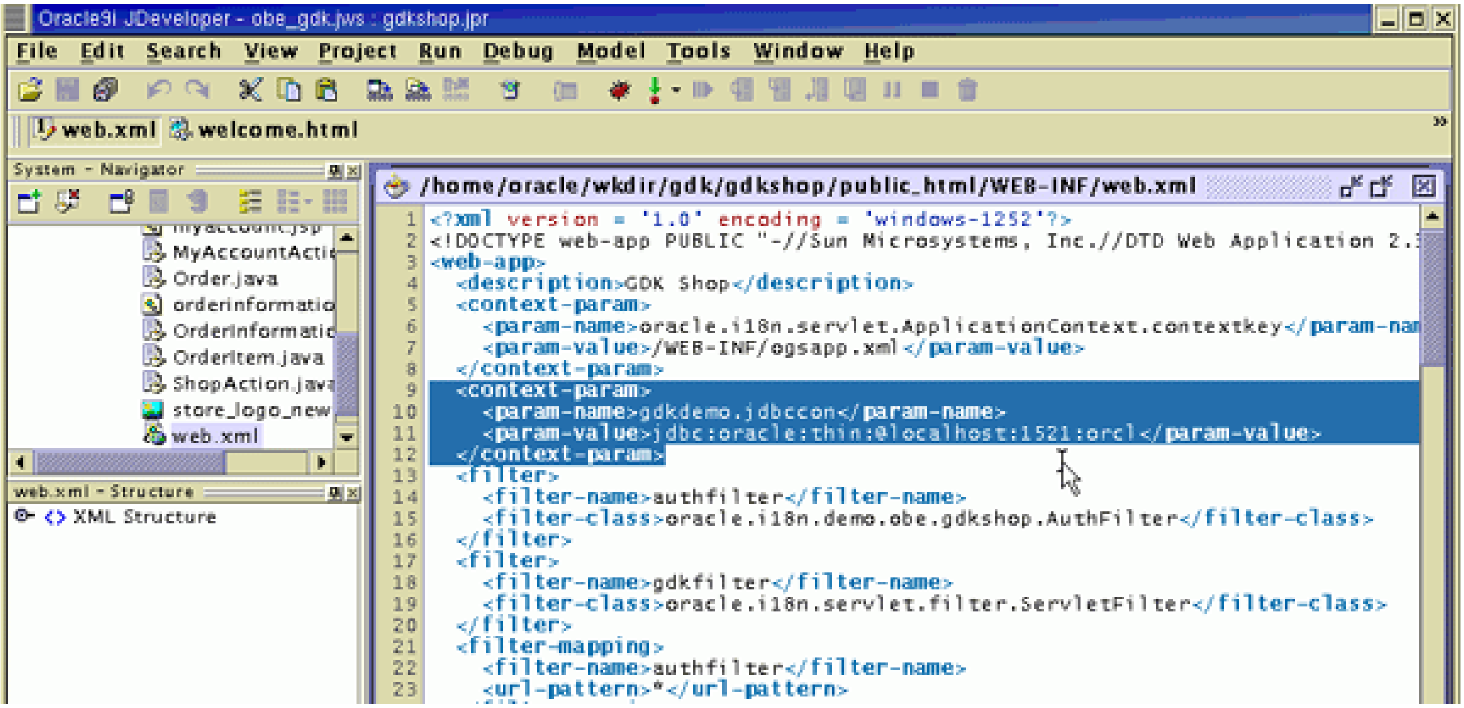
☐ 6. You will need to verify the JDBC database connect string. Expand the project tree off **gdkshop.jpr.** Right click on **web.xml** and select **XML Editor** .



☐ 7. It should contain the following information:

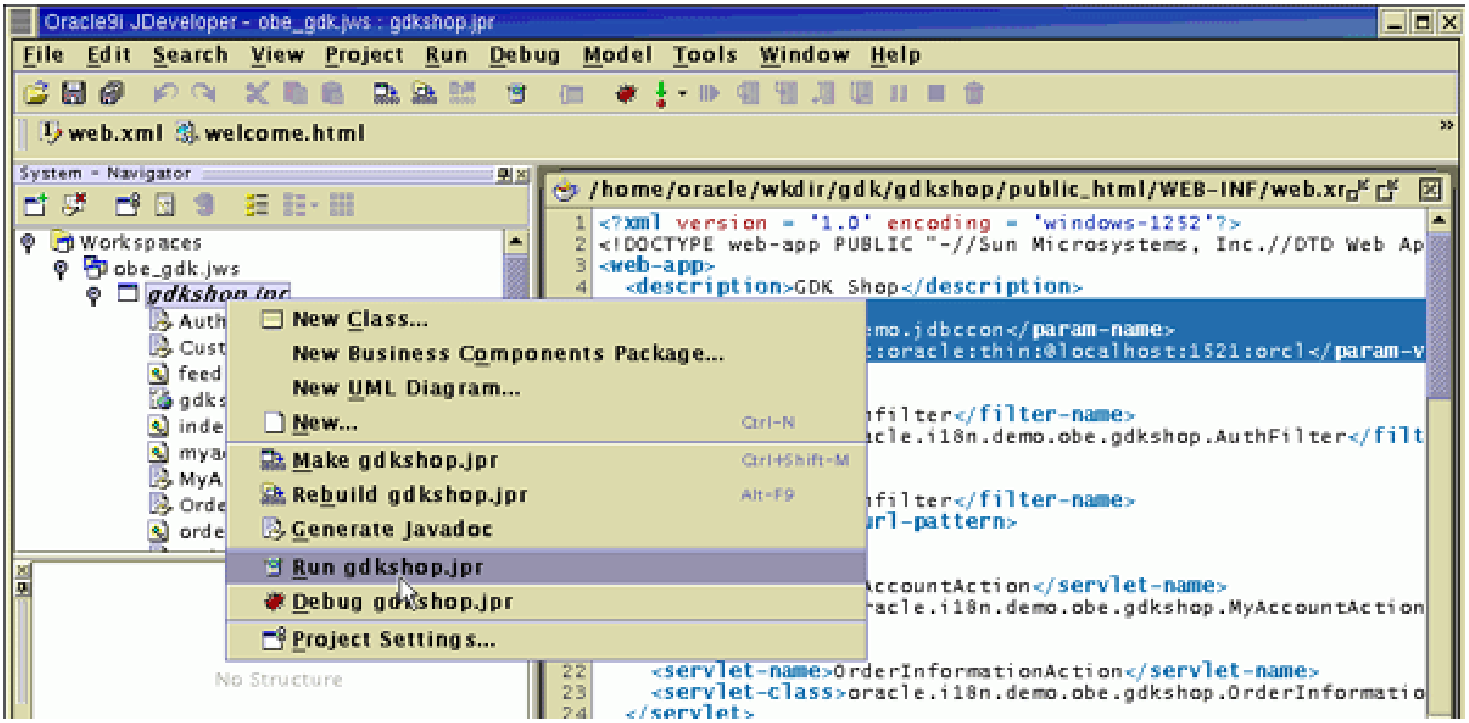
```
<context-param>
  <param-name>gdkdemo.jdbccon</param-name>
  <param-value>jdbc:oracle:thin:@localhost:1521:orcl</param-value>
</context-param>
```

This is currently connecting to a database on your local machine with SID = orcl using the port number 1521. **Replace with your connect string if necessary and save the file** .



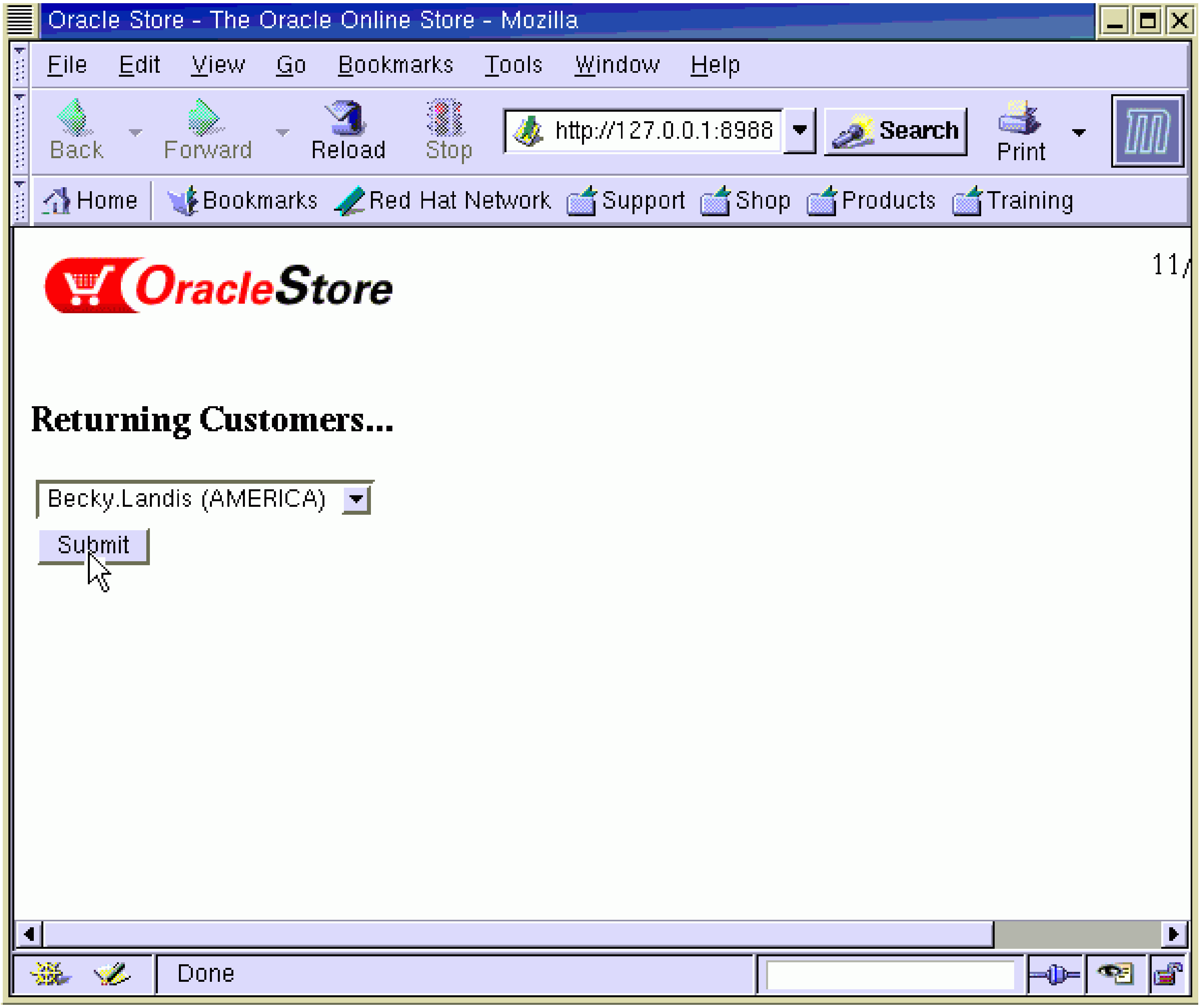
```
<?xml version = '1.0' encoding = 'windows-1252'?>
<!DOCTYPE web-app PUBLIC "-//Sun Microsystems, Inc.//DTD Web Application 2.
<web-app>
  <description>GDK Shop</description>
  <context-param>
    <param-name>oracle.i18n.servlet.ApplicationContext.contextkey</param-nam
    <param-value>/WEB-INF/gdkapp.xml</param-value>
  </context-param>
  <context-param>
    <param-name>gdkdemo.jdbccon</param-name>
    <param-value>jdbc:oracle:thin:@localhost:1521:orcl</param-value>
  </context-param>
  <filter>
    <filter-name>authfilter</filter-name>
    <filter-class>oracle.i18n.demo.obe.gdkshop.AuthFilter</filter-class>
  </filter>
  <filter>
    <filter-name>gdkfilter</filter-name>
    <filter-class>oracle.i18n.servlet.filter.ServletFilter</filter-class>
  </filter>
  <filter-mapping>
    <filter-name>authfilter</filter-name>
    <url-pattern>*</url-pattern>
```

☐ 8. Click and Highlight the project **gdkshop.jpr** . Select the Menu option **Run -> Run gdkshop.jpr.**


Oracle9i JDeveloper - obe_gdk.jws : gdkshop.jpr
File Edit Search View Project Run Debug Model Tools Window Help
web.xml welcome.html
System - Navigator
Workspaces
obe_gdk.jws
gdkshop.jpr
Auth
Cust
feed
gdks
inde
mya
MyA
Orde
orde
No Structure
/home/oracle/wkdir/gdk/gdkshop/public_html/WEB-INF/web.xml
New Class...
New Business Components Package...
New UML Diagram...
New... Ctrl-N
Make gdkshop.jpr Ctrl+Shift-M
Rebuild gdkshop.jpr Alt-F9
Generate Javadoc
Run gdkshop.jpr
Debug gdkshop.jpr
Project Settings...

```
<?xml version = '1.0' encoding = 'windows-1252'?>
<!DOCTYPE web-app PUBLIC "-//Sun Microsystems, Inc.//DTD Web Ap
<web-app>
  <description>GDK Shop</description>
mo.jdbccon</param-name>
:oracle:thin:@localhost:1521:orcl</param-v
filter</filter-name>
cle.i18n.demo.obe.gdkshop.AuthFilter</filt
filter</filter-name>
rl-pattern>
ccountAction</servlet-name>
racle.i18n.demo.obe.gdkshop.MyAccountAction
    <servlet-name>OrderInformationAction</servlet-name>
    <servlet-class>oracle.i18n.demo.obe.gdkshop.OrderInformatio
  </servlet>
```

☐ **9.** The first page is the login screen for the Oracle Store application, the drop down list shows the available customers together with their country of residence. Click on the **Submit** button to view the Account profile and the Order History of the selected customer.

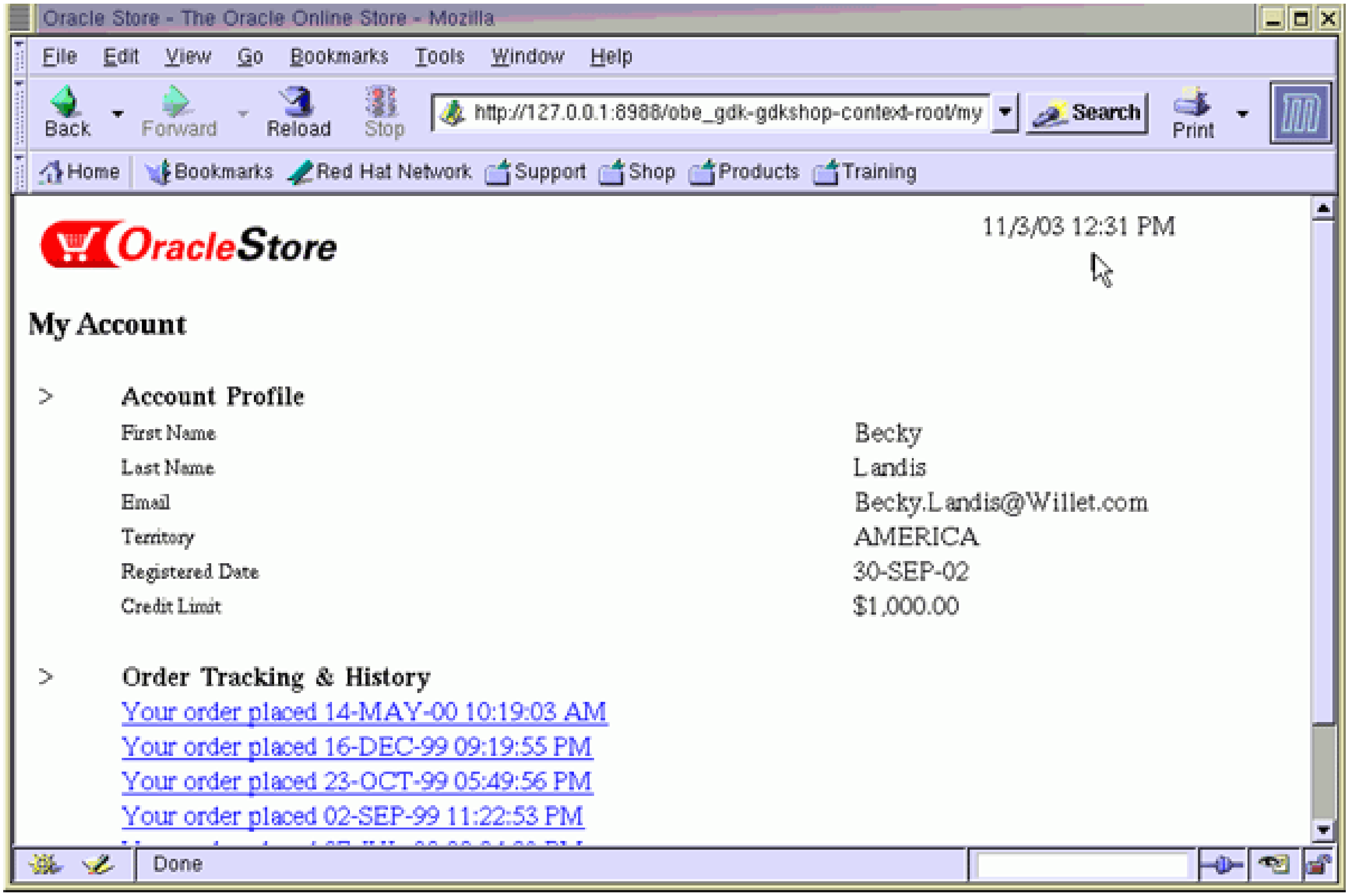

Oracle Store - The Oracle Online Store - Mozilla
File Edit View Go Bookmarks Tools Window Help
Back Forward Reload Stop
http://127.0.0.1:8988
Search
Print
Home Bookmarks Red Hat Network Support Shop Products Training
OracleStore
11/
Done

Returning Customers...

Becky.Landis (AMERICA)

Submit

☐ **10.** View the customer details. Observe that the date is displayed on the right hand corner of the browser. Click **Back** .



11/3/03 12:31 PM

My Account

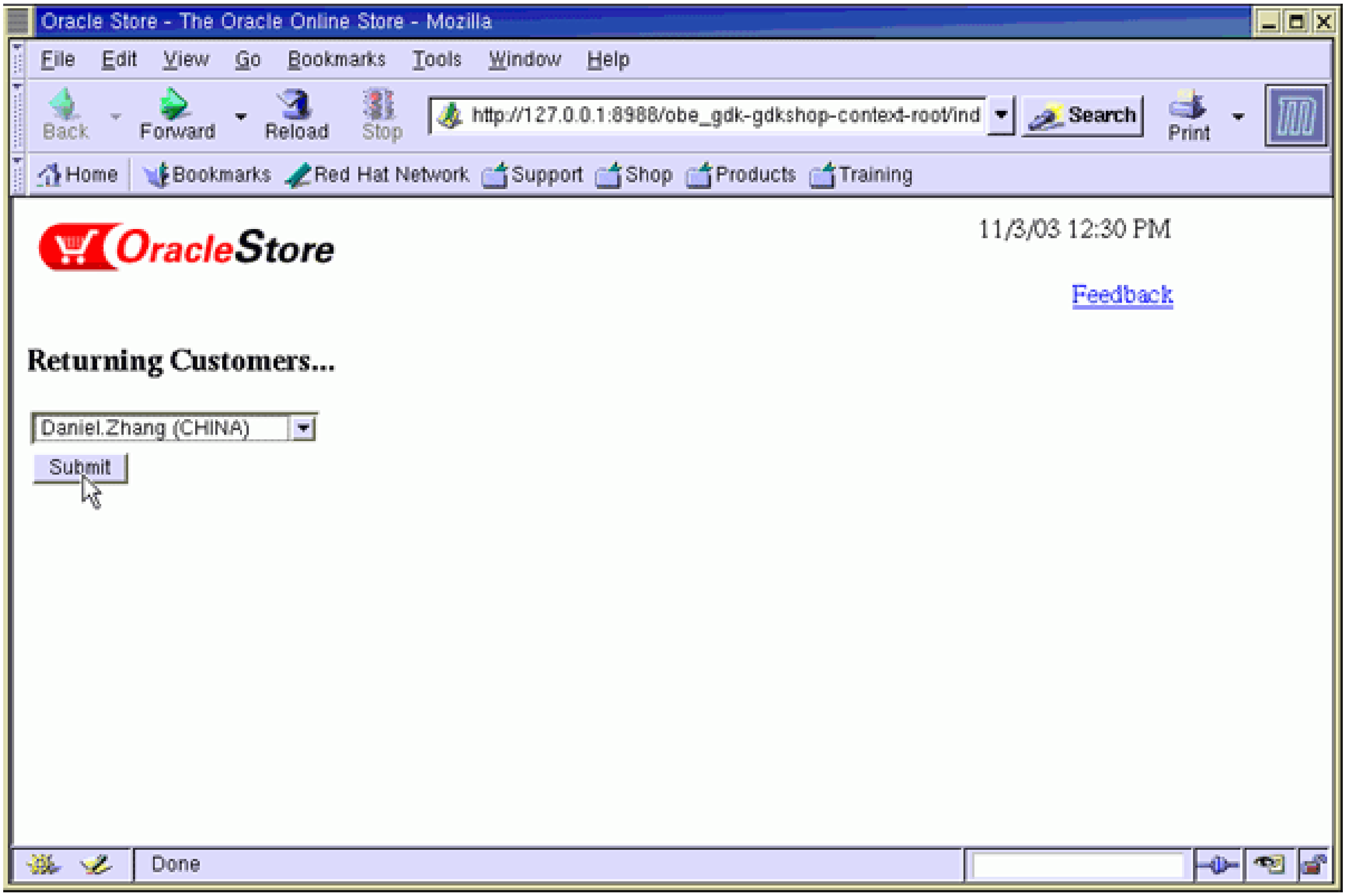
> **Account Profile**

First Name	Becky
Last Name	Landis
Email	Becky.Landis@Willet.com
Territory	AMERICA
Registered Date	30-SEP-02
Credit Limit	$1,000.00

> **Order Tracking & History**

Your order placed 14-MAY-00 10:19:03 AM
Your order placed 16-DEC-99 09:19:55 PM
Your order placed 23-OCT-99 05:49:56 PM
Your order placed 02-SEP-99 11:22:53 PM

☐ **11.** Check the details of another customer Daniel Zhang. Select **Daniel Zhang** from the drop down list and click **Submit** .

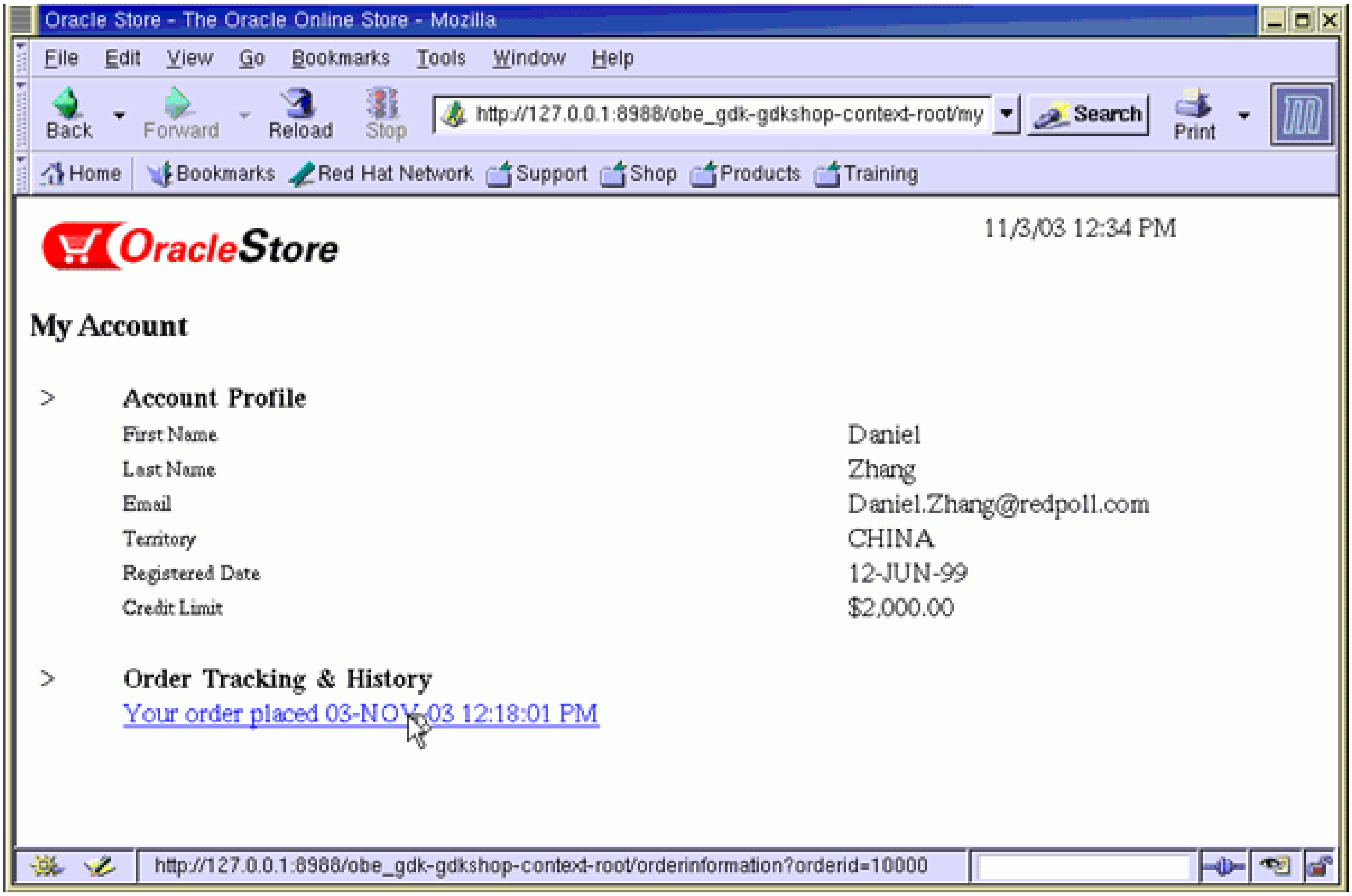

Oracle Store - The Oracle Online Store - Mozilla
File Edit View Go Bookmarks Tools Window Help
Back Forward Reload Stop
http://127.0.0.1:8988/obe_gdk-gdkshop-context-root/ind
Search Print
Home Bookmarks Red Hat Network Support Shop Products Training
OracleStore
Feedback
Submit
Done

11/3/03 12:30 PM

Returning Customers...

Daniel.Zhang (CHINA)

☐ **12.** Note that Daniel's territory preference is China, but since this application has not been globalized, all the text are displayed in English; the credit limit is based on US dollars; the date & time stamp of the order is based on the database time stamp and not the customer's time zone. Dates retrieved from the database are formatted using Oracle's date convention while the date generated for the application is formatted based on Java's convention. Click on the order link to view the details of the order.


Oracle Store - The Oracle Online Store - Mozilla
File Edit View Go Bookmarks Tools Window Help
Back
Forward
Reload
Stop
http://127.0.0.1:8988/obe_gdk-gdkshop-context-root/my
Search
Print
Home
Bookmarks
Red Hat Network
Support
Shop
Products
Training
OracleStore

11/3/03 12:34 PM

My Account

> **Account Profile**

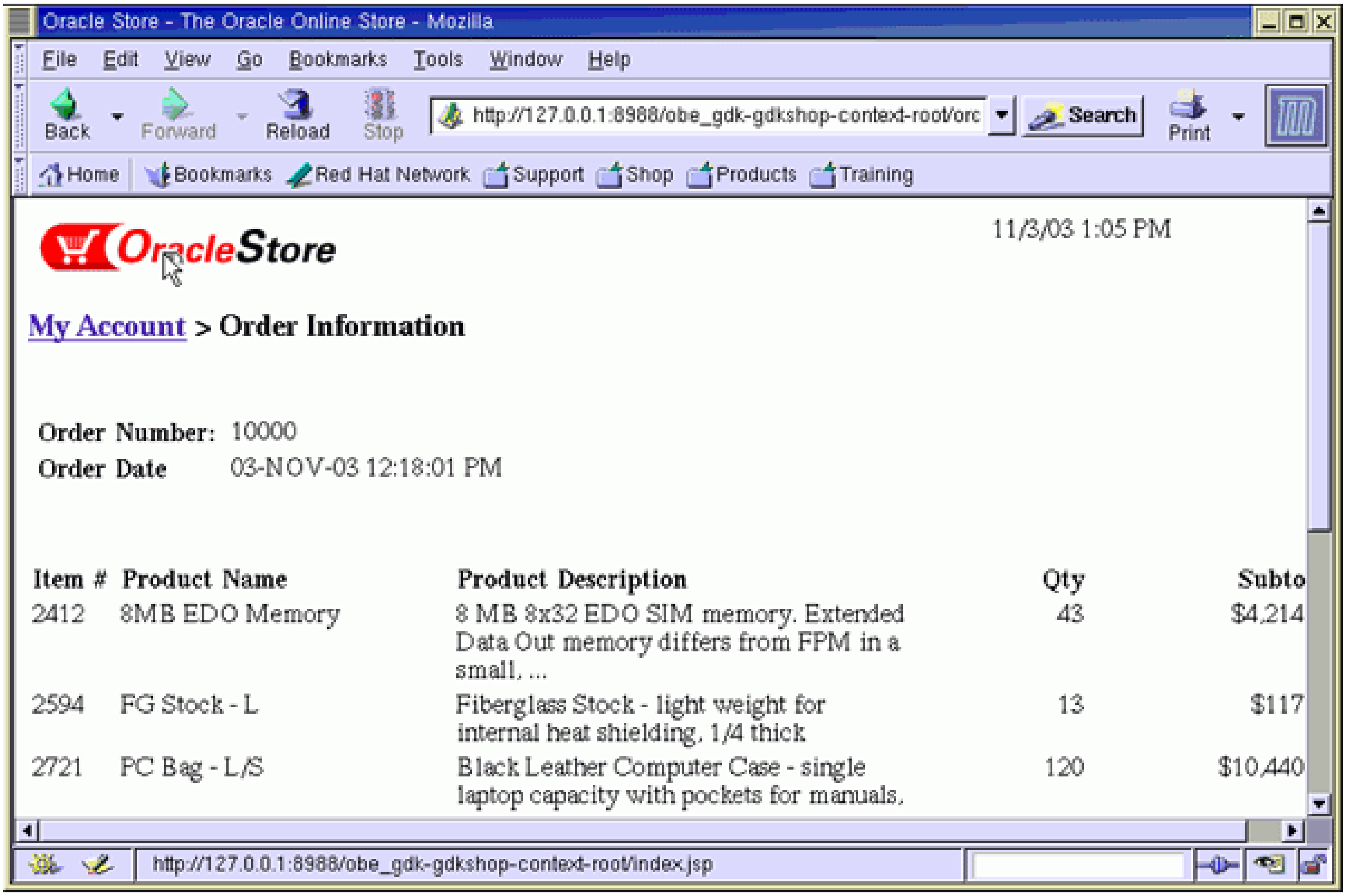
First Name	Daniel
Last Name	Zhang
Email	Daniel.Zhang@redpoll.com
Territory	CHINA
Registered Date	12-JUN-99
Credit Limit	$2,000.00

> **Order Tracking & History**

Your order placed 03-NOV-03 12:18:01 PM

http://127.0.0.1:8988/obe_gdk-gdkshop-context-root/orderinformation?orderid=10000

☐ **13.** Similar to the previous screen, all the text including product names and descriptions are in English only; the monetary values are formatting using US monetary conventions based on US dollars and US debit symbols. The items are ordered based on the binary values of the English product names. Click on the **Store Logo** and it will take you back to the Customer login page.


Oracle Store - The Oracle Online Store - Mozilla
File Edit View Go Bookmarks Tools Window Help
Back Forward Reload Stop
http://127.0.0.1:8988/obe_gdk-gdkshop-context-root/orc
Search
Print
Home Bookmarks Red Hat Network Support Shop Products Training
OracleStore
http://127.0.0.1:8988/obe_gdk-gdkshop-context-root/index.jsp

11/3/03 1:05 PM

My Account > Order Information

Order Number: 10000
Order Date 03-NOV-03 12:18:01 PM

Item #	Product Name	Product Description	Qty	Subto
2412	8MB EDO Memory	8 MB 8x32 EDO SIM memory. Extended Data Out memory differs from FPM in a small, ...	43	$4,214
2594	FG Stock - L	Fiberglass Stock - light weight for internal heat shielding, 1/4 thick	13	$117
2721	PC Bag - L/S	Black Leather Computer Case - single laptop capacity with pockets for manuals,	120	$10,440

Configuring and Setting up the GDK application

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At this point, you will migrate from a monolingual application to a global multilingual Oracle Store. You will add support for the following languages: Simplified Chinese, Spanish and English serving Oracle Store customers in China, Spain and India respectively.

Note: Instead of typing in all the code changes into the existing application, all the updates are already prepared and shipped with the zip file to demonstrate the multilingual Oracle store application.

Perform the following:

☐ **1.** Open a terminal window and execute the following commands:

```
cd /home/oracle/wkdir/gdk/gdkshop/public_html/WEB-INF
mkdir lib
cd lib
cp /home/oracle/wkdir/gdk/step1/lib/orai18n.jar orai18n.jar
cp /home/oracle/wkdir/gdk/step1/lib/orai18n-lcsd.jar orai18n-lcsd.jar
cd ..
cp /home/oracle/wkdir/gdk/step1/web.xml web.xml
```

☐ **2.** Execute the following commands from your terminal window:

```
cd /home/oracle/wkdir/
gdk/gdkshop/public_html/WEB-INF
cp /home/oracle/wkdir/gdk/step1/gdkapp.xml gdkapp.xml
```

The contents of the file includes the following:

```
<?xml version="1.0" encoding="utf-8"?>

<gdkapp

xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"

xsi:noNamespaceSchemaLocation="gdkapp.xsd">

  <!-- Application Configurations -->

  <page-charset default="yes">UTF-8</page-charset>

  <application-locales>

    <locale default="yes">en</locale>

    <locale>es</locale>

    <locale>zh_CN</locale>

    <locale>en_IN</locale>

  </application-locales>

  <locale-determine-rule>
```

```
      <locale-source>oracle.i18n.servlet.localesource.HttpAcceptLanguage</locale-source>
    </locale-determine-rule>
    <!-- URL rewriting rule -->
    <url-rewrite-rule fallback="yes">
      <pattern>(.*)/([^/]+)$</pattern>
      <result>$1/$A/$2</result>
    </url-rewrite-rule>
  </gdkapp>
```

This is the GDK Application configuration file, it controls the Globalization behavior of the Oracle Store application. One application configuration file is required for each J2EE application using the GDK.

☐ Supports English (en) as the default application locale, Spanish (es), Simplified Chinese in China (zh_CN), and English in India (en_IN) are also supported
☐ Uses the browser language preference (HTTP Accept-Language header) to determine the user locale
☐ Rewrites URLs to redirect translated contents based on the user locale

Adding Translated Store Logos

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You can have different logos for each language. You can now add the Store Logos. Perform the following:

☐ **1.** From your terminal window, execute the following commands:

```
cd /home/oracle/wkdir/gdk/gdkshop/public_html
mkdir es
cd es
cp /home/oracle/wkdir/gdk/step2/es/store_logo_new.gif store_logo_new.gif
cd ..
mkdir zh_CN
cd zh_CN
cp /home/oracle/wkdir/gdk/step2/zh_CN/store_logo_new.gif store_logo_new.gif
```

The directories "es" and "zh_cn" store the Spanish and Chinese Oracle Store logos.

☐ **2.** Copy the index.jsp, myaccount.jsp, and orderinformation.jsp JSP files to the appropriate directories. From your terminal window, execute the following:

```
cd ..
cp /home/oracle/wkdir/gdk/step2/index.jsp index.jsp
cp /home/oracle/wkdir/gdk/step2/myaccount.jsp myaccount.jsp
cp /home/oracle/wkdir/gdk/step2/orderinformation.jsp orderinformation.jsp
cp /home/oracle/wkdir/gdk/step2/feedback.jsp feedback.jsp
```

Note: This folder already contains these three files that were used for the monolingual application. Overwrite the old files with the modified ones.

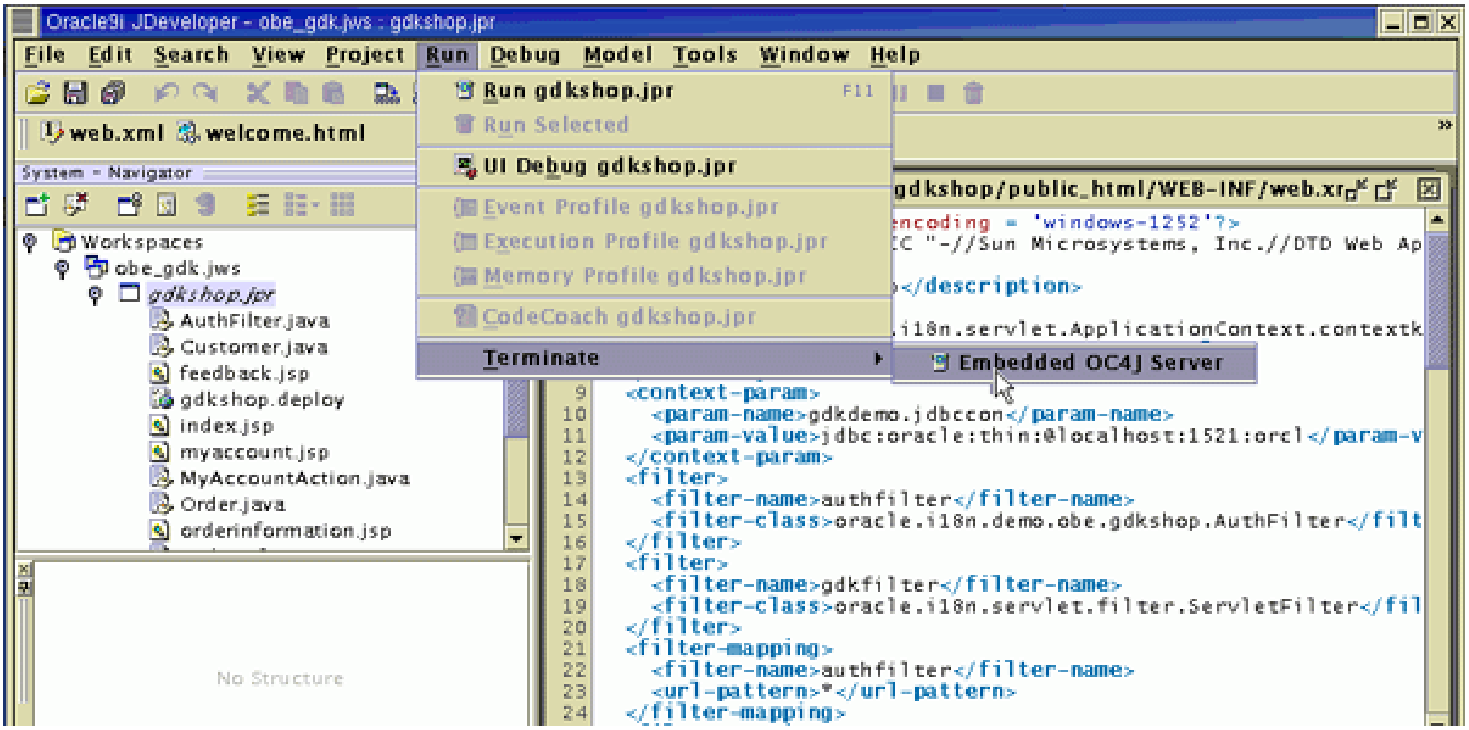
You can open the each file and observe that the classes in servlet package and util package are imported as follows:

```
<%@ page import="oracle.i18n.servlet.*, oracle.i18n.util.*" %>
```

And the store logo file name in the JSP files is replaced from store_logo_new.gif to

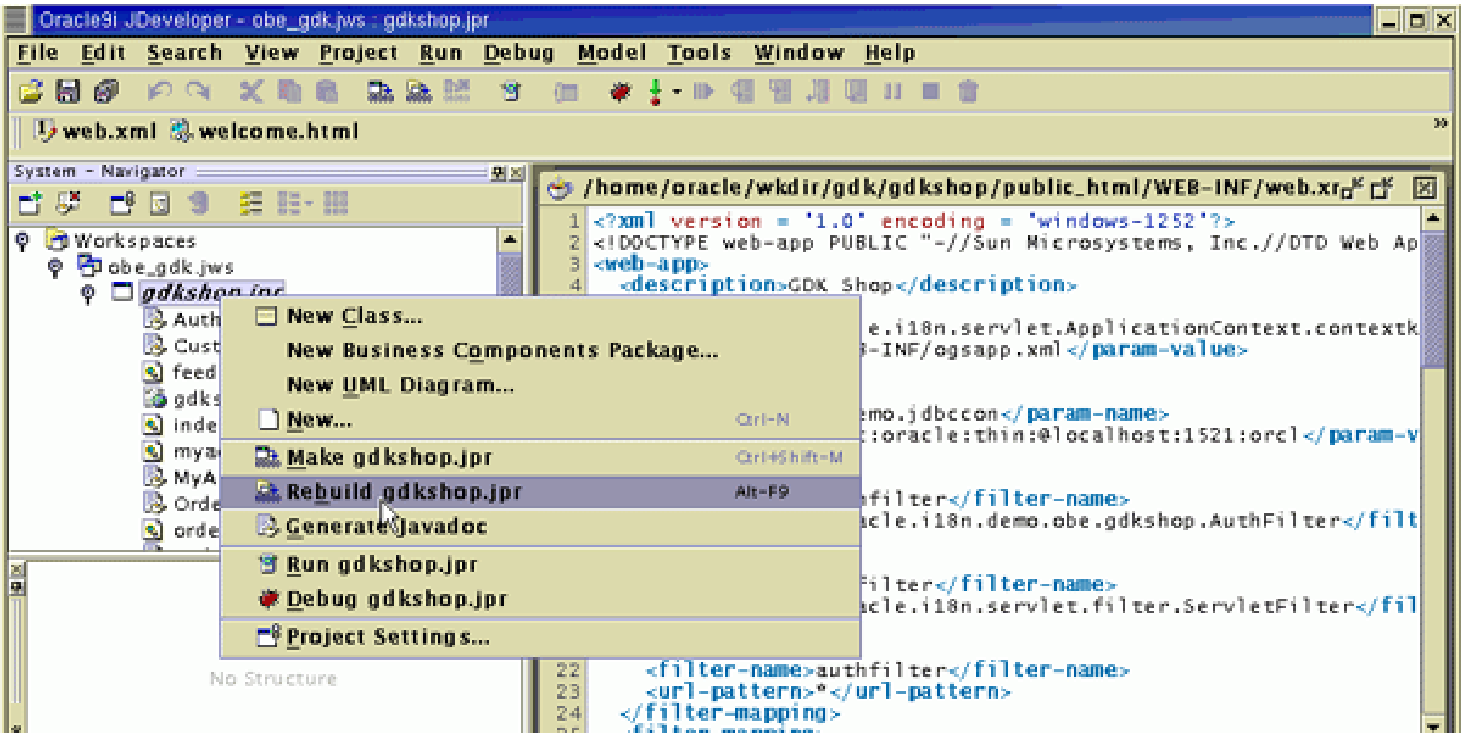
```
<%= ServletHelper.rewriteURL("./store_logo_new.gif", request) %>
```

☐ **3.** You are now ready to run the application inside JDeveloper. First you need to make sure the OC4J Server has been terminated. Select **Run -> Terminate -> Embedded OC4J Server**



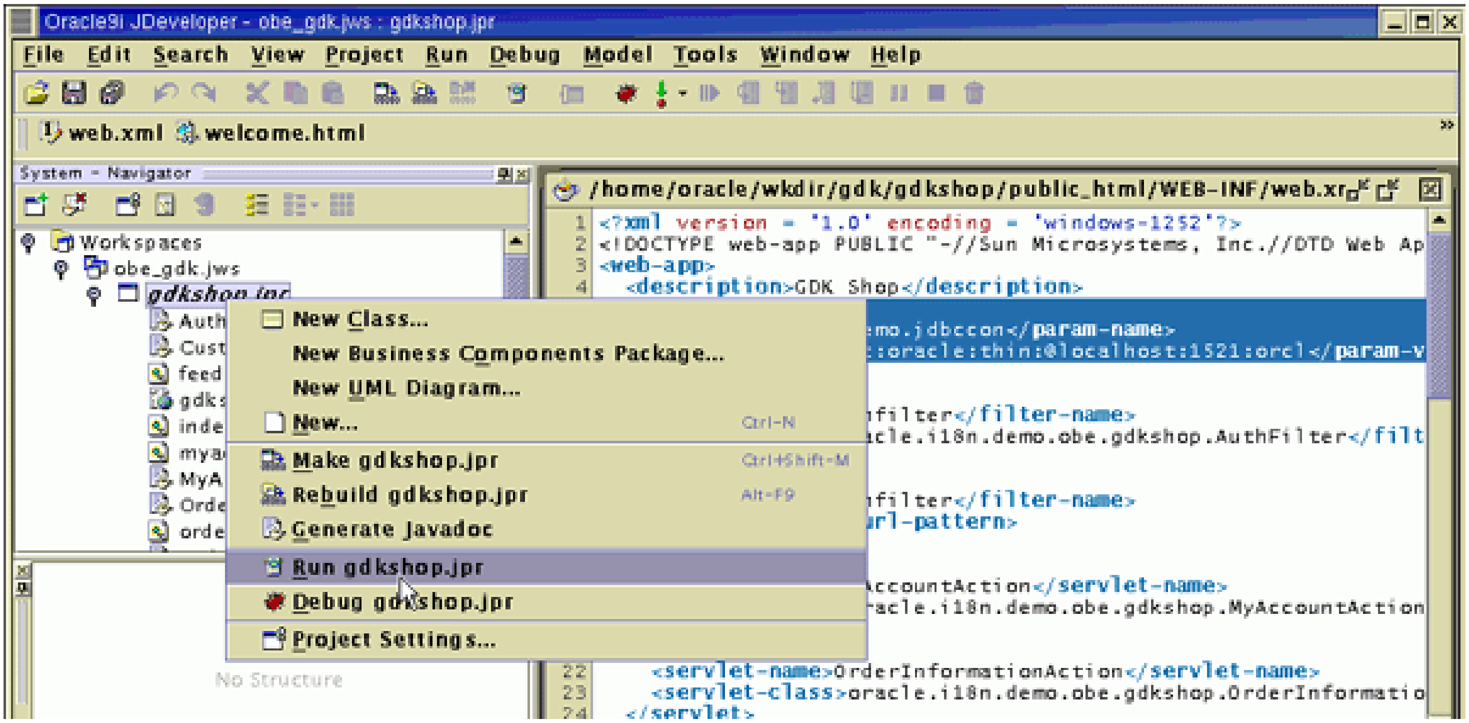
```
ncoding = 'windows-1252'?>
C "-//Sun Microsystems, Inc.//DTD Web Ap
></description>
.i18n.servlet.ApplicationContext.contextk
<context-param>
  <param-name>gdkdemo.jdbccon</param-name>
  <param-value>jdbc:oracle:thin:@localhost:1521:orcl</param-v
</context-param>
<filter>
  <filter-name>authfilter</filter-name>
  <filter-class>oracle.i18n.demo.obe.gdkshop.AuthFilter</filt
</filter>
<filter>
  <filter-name>gdkfilter</filter-name>
  <filter-class>oracle.i18n.servlet.filter.ServletFilter</fil
</filter>
<filter-mapping>
  <filter-name>authfilter</filter-name>
  <url-pattern>*</url-pattern>
</filter-mapping>
```

☐ **4.** Rebuild the project **gdkshop.jpr** . Select **Project -> Rebuild gdkshop.jpr.**


Oracle9i JDeveloper - obe_gdk.jws : gdkshop.jpr
File Edit Search View Project Run Debug Model Tools Window Help
web.xml welcome.html
System - Navigator
Workspaces
obe_gdk.jws
gdkshop.jpr
No Structure
New Class...
New Business Components Package...
New UML Diagram...
New... Ctrl-N
Make gdkshop.jpr Ctrl+Shift-M
Rebuild gdkshop.jpr Alt-F9
Generate Javadoc
Run gdkshop.jpr
Debug gdkshop.jpr
Project Settings...
/home/oracle/wkdir/gdk/gdkshop/public_html/WEB-INF/web.xr

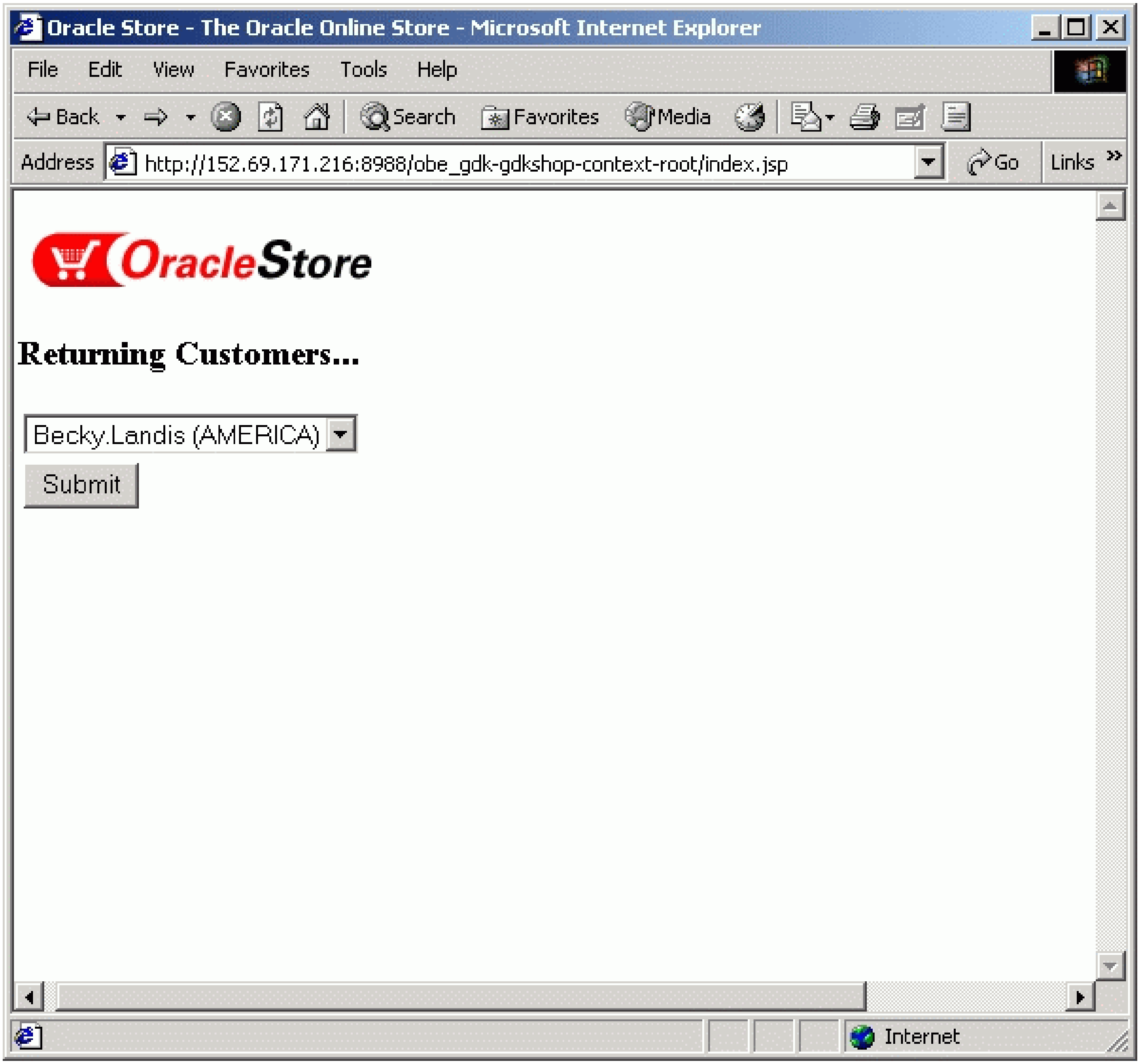
```
<?xml version = '1.0' encoding = 'windows-1252'?>
<!DOCTYPE web-app PUBLIC "-//Sun Microsystems, Inc.//DTD Web Ap
<web-app>
  <description>GDK Shop</description>
e.i18n.servlet.ApplicationContext.contextk
-INF/ogsapp.xml</param-value>
mo.jdbccon</param-name>
:oracle:thin:@localhost:1521:orcl</param-v
filter</filter-name>
acle.i18n.demo.obe.gdkshop.AuthFilter</filt
ilter</filter-name>
acle.i18n.servlet.filter.ServletFilter</fil
  <filter-name>authfilter</filter-name>
  <url-pattern>*</url-pattern>
</filter-mapping>
```

☐ **5.** Select **Run -> Run gdkshop.jpr.**


Oracle9i JDeveloper - obe_gdk.jws : gdkshop.jpr
File Edit Search View Project Run Debug Model Tools Window Help
web.xml
welcome.html
System - Navigator
Workspaces
obe_gdk.jws
gdkshop.jpr
Auth
Cust
feed
gdks
inde
mya
MyA
Orde
orde
No Structure
/home/oracle/wkdir/gdk/gdkshop/public_html/WEB-INF/web.xml
New Class...
New Business Components Package...
New UML Diagram...
New... Ctrl-N
Make gdkshop.jpr Ctrl+Shift-M
Rebuild gdkshop.jpr Alt-F9
Generate Javadoc
Run gdkshop.jpr
Debug gdkshop.jpr
Project Settings...

```
<?xml version = '1.0' encoding = 'windows-1252'?>
<!DOCTYPE web-app PUBLIC "-//Sun Microsystems, Inc.//DTD Web Ap
<web-app>
  <description>GDK Shop</description>
emo.jdbccon</param-name>
:oracle:thin:@localhost:1521:orcl</param-v
filter</filter-name>
acle.i18n.demo.obe.gdkshop.AuthFilter</filt
filter</filter-name>
url-pattern>
AccountAction</servlet-name>
racle.i18n.demo.obe.gdkshop.MyAccountAction
    <servlet-name>OrderInformationAction</servlet-name>
    <servlet-class>oracle.i18n.demo.obe.gdkshop.OrderInformatio
  </servlet>
```

☐ **6.** If you see the Oracle Store logo in English as shown below, you should set the language preference of your browser.

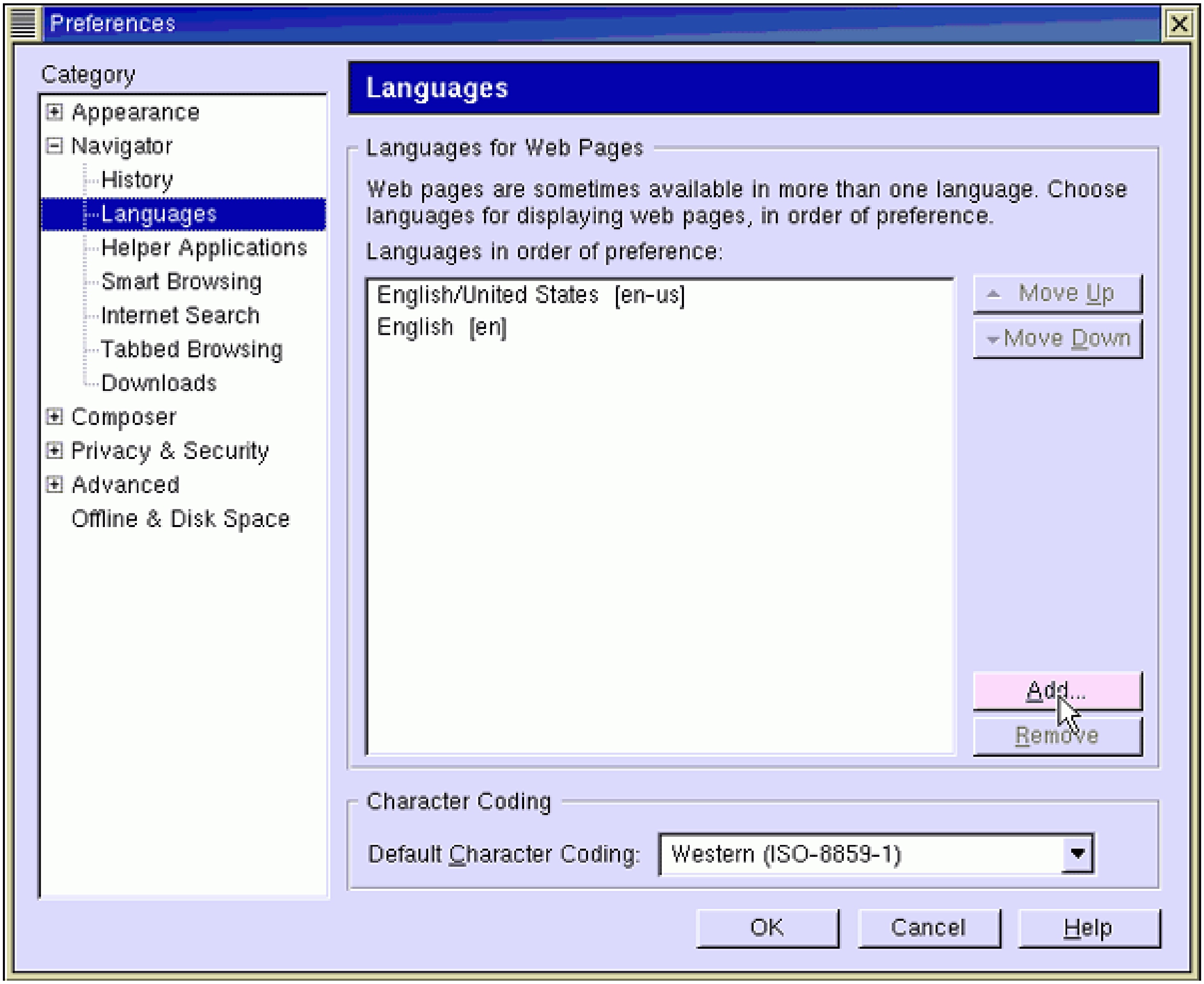

Oracle Store - The Oracle Online Store - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back
Search
Favorites
Media
Address
http://152.69.171.216:8988/obe_gdk-gdkshop-context-root/index.jsp
Go
Links
OracleStore
Internet

Returning Customers...

Becky.Landis (AMERICA)

Submit

☐ **7.** The steps in this lesson assume you are using a Mozilla browser. Select **Edit --> Preferences** . Then select **Languages** under Navigator. Click the **Add** button.



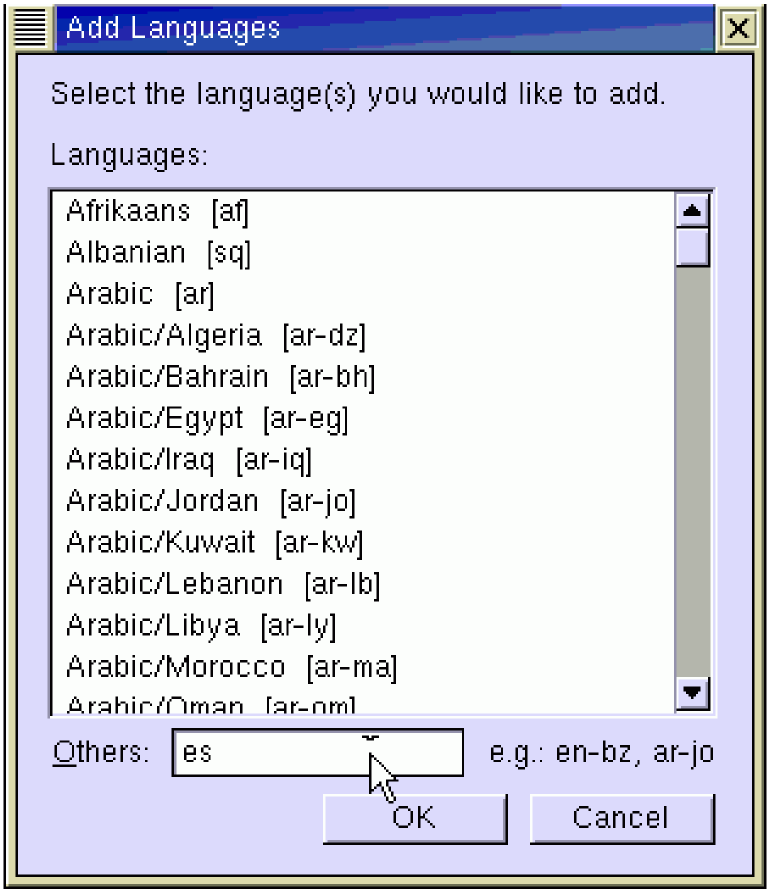
Web pages are sometimes available in more than one language. Choose languages for displaying web pages, in order of preference.

Languages in order of preference:

English/United States [en-us]
English [en]

Default Character Coding: Western (ISO-8859-1)

☐ **8.** Enter **es** in the Others field and press **enter** .



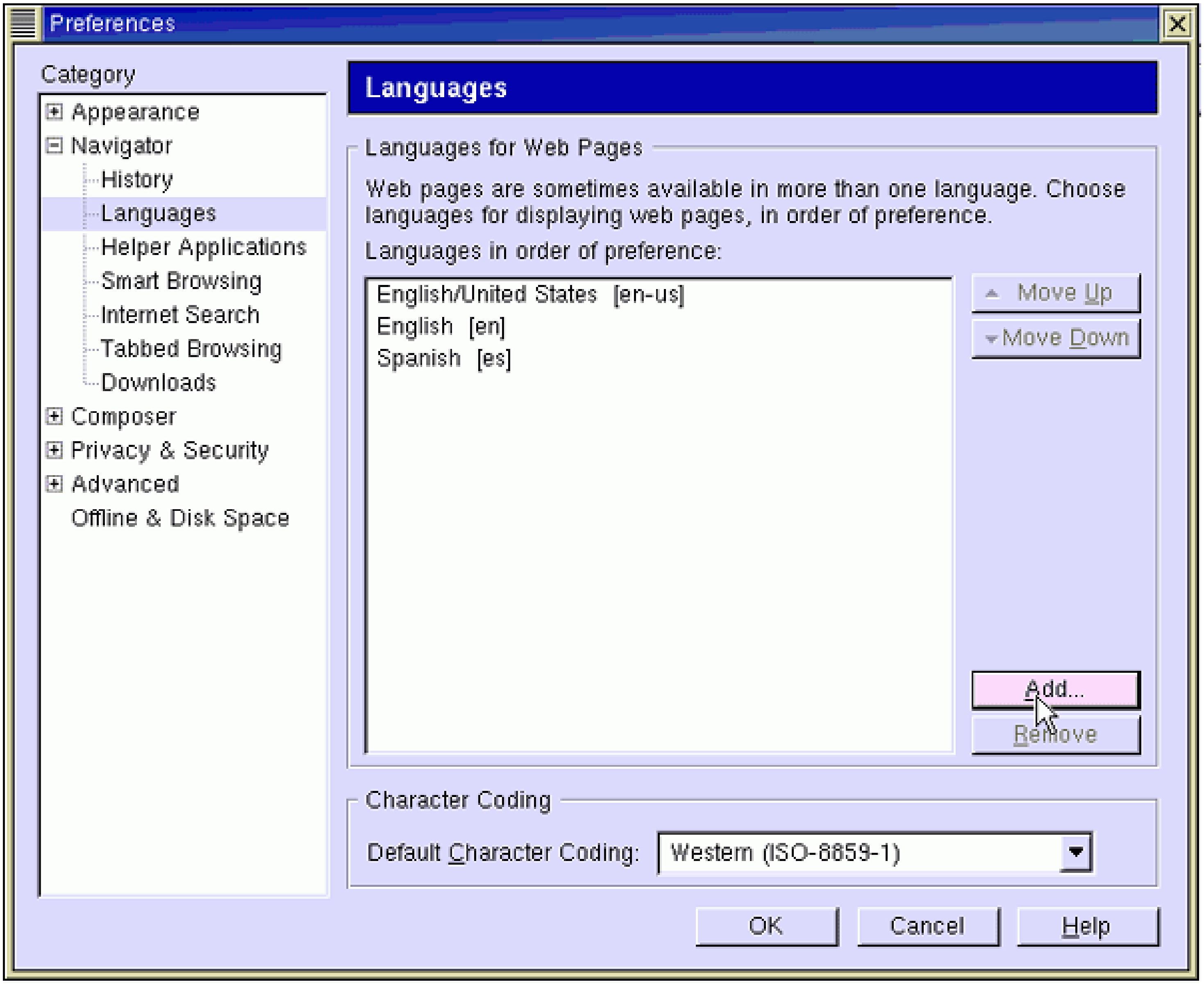
Select the language(s) you would like to add.

Languages:

- Afrikaans [af]
- Albanian [sq]
- Arabic [ar]
- Arabic/Algeria [ar-dz]
- Arabic/Bahrain [ar-bh]
- Arabic/Egypt [ar-eg]
- Arabic/Iraq [ar-iq]
- Arabic/Jordan [ar-jo]
- Arabic/Kuwait [ar-kw]
- Arabic/Lebanon [ar-lb]
- Arabic/Libya [ar-ly]
- Arabic/Morocco [ar-ma]
- Arabic/Oman [ar-om]

Others: es e.g.: en-bz, ar-jo

☐ **9.** Notice that Spanish has been added to the list. Click the **Add** button again to add Chinese.



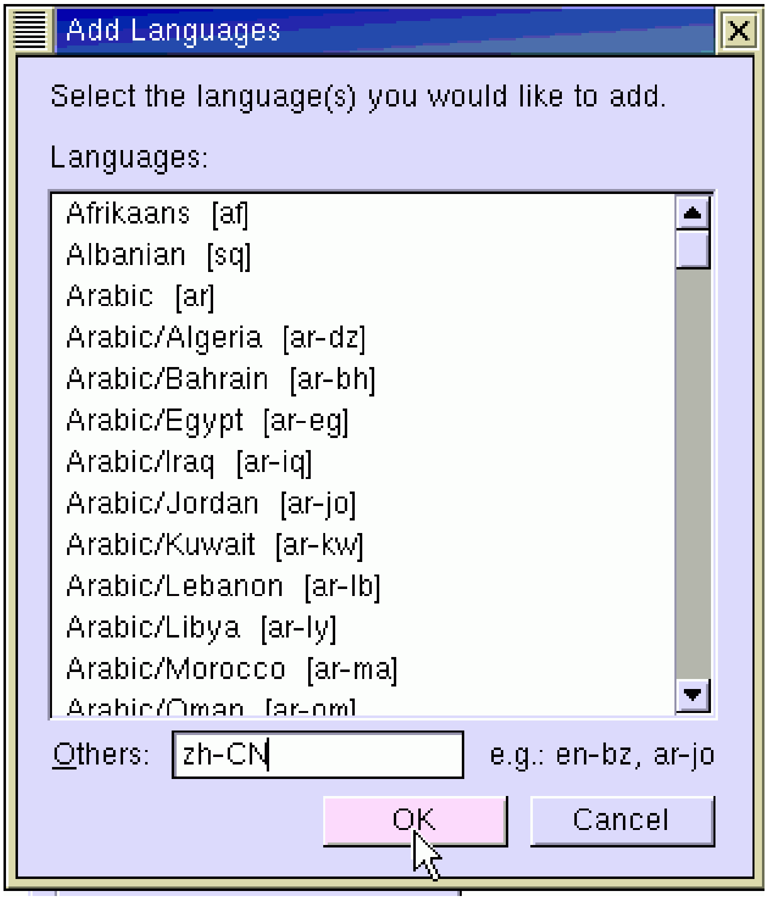
Web pages are sometimes available in more than one language. Choose languages for displaying web pages, in order of preference.

Languages in order of preference:

English/United States [en-us]
English [en]
Spanish [es]

Default Character Coding: Western (ISO-8859-1)

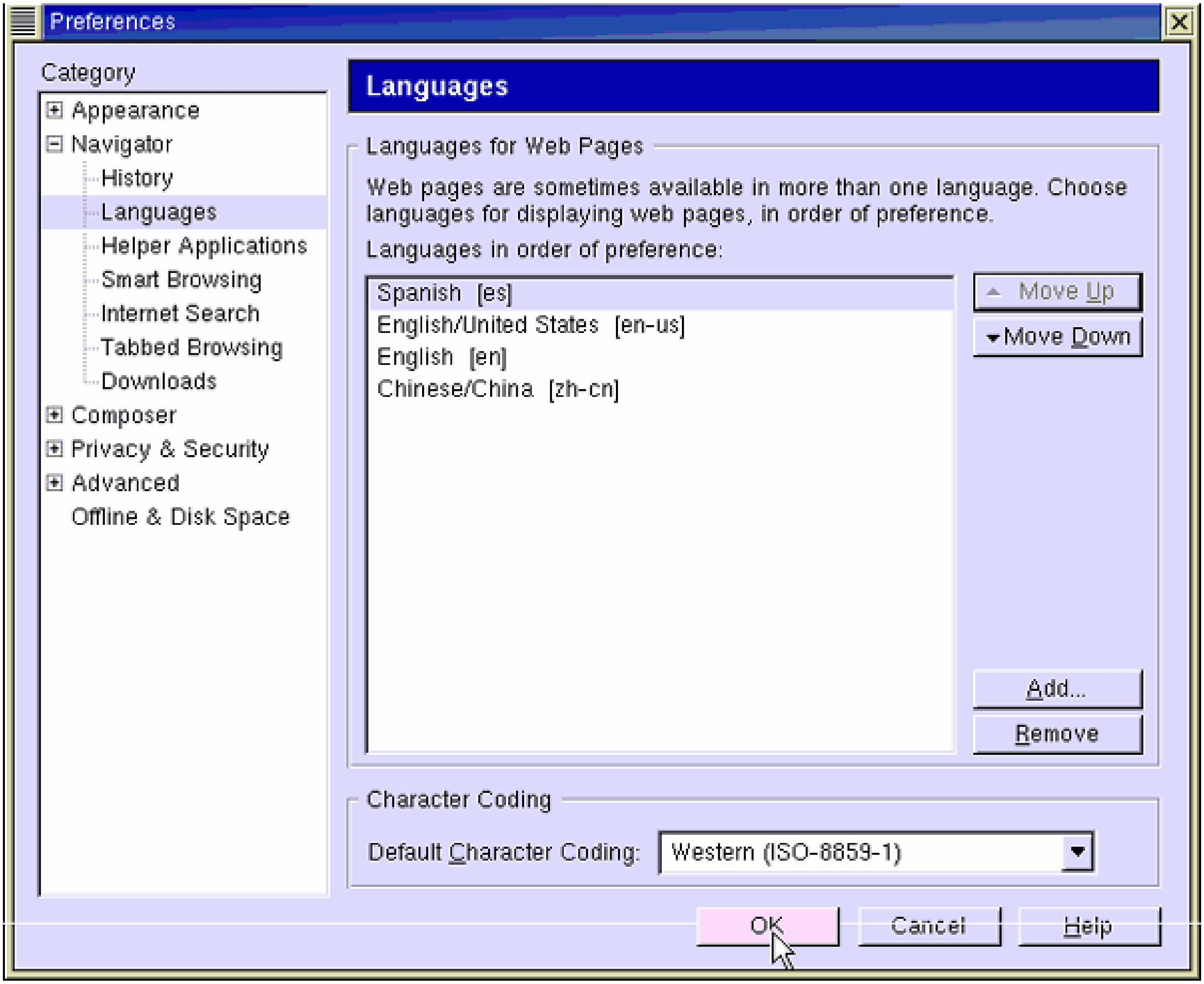
☐ **10.** Enter **zh-CN** in the Others field and press **enter** .



Select the language(s) you would like to add.

Others: zh-CN e.g.: en-bz, ar-jo

☐ **11.** Select **Spanish** from the list and click the **Move Up** button until Spanish appears at the top of the list. Then click **OK** ..



Languages

Languages for Web Pages

Web pages are sometimes available in more than one language. Choose languages for displaying web pages, in order of preference.

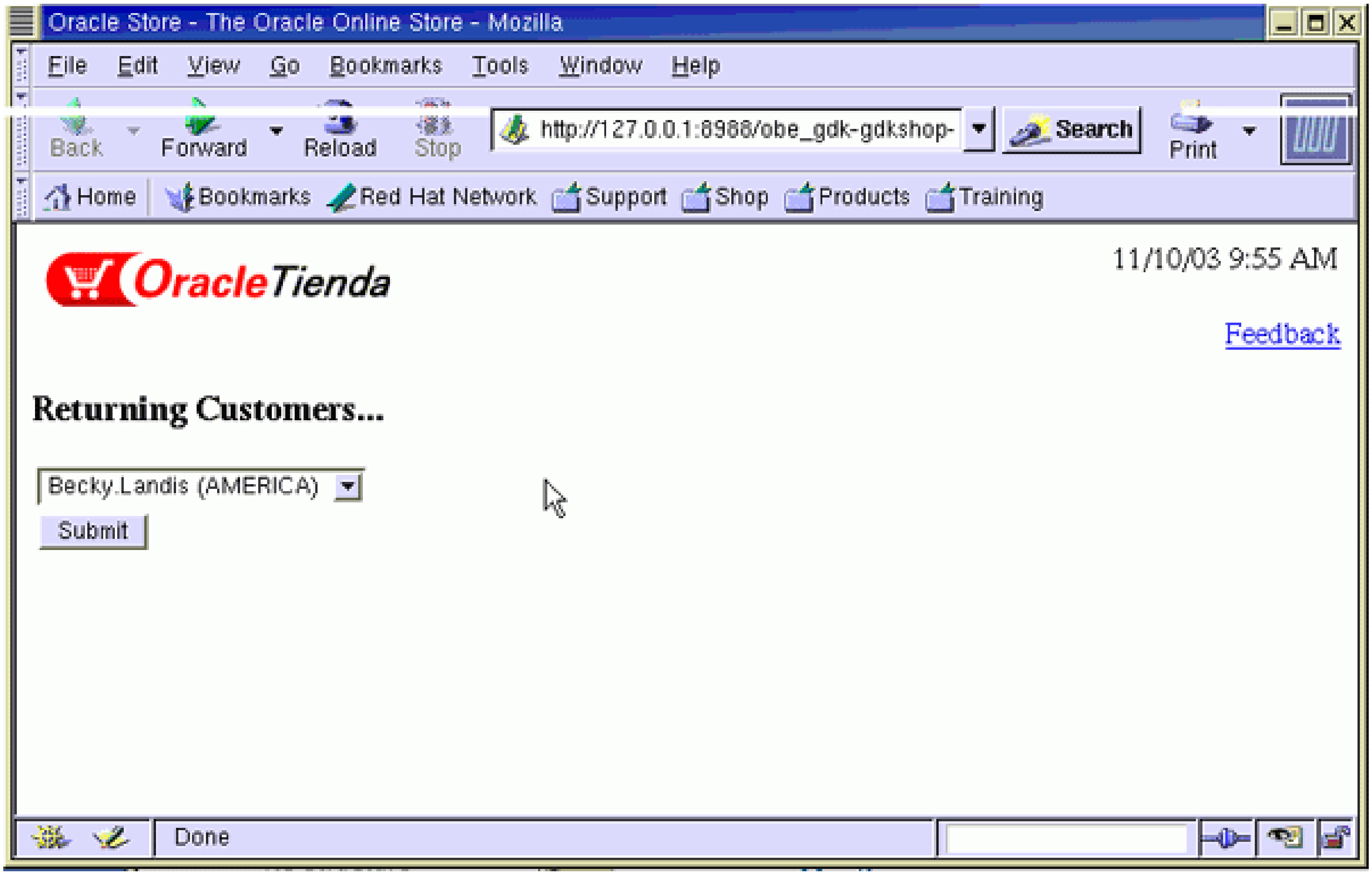
Languages in order of preference:

Spanish [es]
English/United States [en-us]
English [en]
Chinese/China [zh-cn]

Character Coding

Default Character Coding: Western (ISO-8859-1)

☐ **12.** Switch back to your web page and refresh the screen. You will see that the Spanish Store logo is now shown. Make sure this is reflected on all 3 JSP pages.


Oracle Store - The Oracle Online Store - Mozilla
File Edit View Go Bookmarks Tools Window Help
Back Forward Reload Stop
http://127.0.0.1:8988/obe_gdk-gdkshop-
Search Print
Home Bookmarks Red Hat Network Support Shop Products Training
OracleTienda
11/10/03 9:55 AM
Feedback
Returning Customers...
Becky.Landis (AMERICA)
Submit
Done

Integrating translated UI text

Back to Topic List

In order to translate the application into different languages, all hard coded text strings should be externalized to resource files, these files can then be sent for translation. The resource bundle is Java's primary mechanism for localizing applications. Externalize all UI text from the 3 JSP files into Java resource bundles. Perform the following:

☐ **1.** You need to copy the three translation files to your project directory. From your terminal window, execute the following commands:

```
cd /home/oracle/wkdir/gdk/gdkshop/src/oracle/i18n/demo/obe/gdkshop
mkdir gdk
cd gdk
cp /home/oracle/wkdir/gdk/step3/Translations.java Translations.java
cp /home/oracle/wkdir/gdk/step3/Translations_es.java Translations_es.java
cp /home/oracle/wkdir/gdk/step3/Translations_zh_CN.java Translations_zh_CN.java
```

Below is the contents of the Spanish translation file, **`Translations_es.java`** :

```
package oracle.i18n.demo.obe.gdkshop.gdk;

import java.util.ListResourceBundle;

public class Translations_es extends ListResourceBundle

{

  static final Object[][] contents =

  {

    { "RETURNING_CUSTOMERS", "Clientes que vuelven..." },

    { "SUBMIT", "Env\u00ede" },

    { "MY_ACCOUNT", "Mi cuenta " },

    { "ACCOUNT_PROFILE", "Infomaci\u00f3n de cuenta" },

    { "FIRST_NAME", "Nombre" },

    { "LAST_NAME", "Apellido" },

    { "EMAIL", "Correo electr\u00f3nico" },

    { "LANGUAGE", "Idioma" },

    { "TERRITORY", "Territorio" },

    { "REGISTERED_DATE", "Fecha de registraci\u00f3n" },

    { "CREDIT_LIMIT", "Limite de credito" },

    { "ORDER_TRACKING_AND_HISTORY", "Seguimiento del pedido e historial" },

    { "GRAND_TOTAL", "El gran total" },

    { "TOTAL", "Total" },

    { "DISCOUNT", "Descuento" },

    { "PRODUCT_NAME", "Nombre del producto" },

    { "PRODUCT_DESCRIPTION", "Descripci\u00f3n del producto" },

    { "ITEM_NUMBER", "N\u00famero de parte" },

    { "QUANTITY", "Cantidad" },

    { "SUB_TOTAL", "Subtotal" },
    { "ORDER_INFORMATION", "Informaci\u00f3n de orden" },

    { "ORDER_NUMBER", "N\u00famero de orden" },

    { "ORDER_DATE", "Fecha de orden" },

    { "YOUR_ORDER_PLACED", "Su orden procesada {0}" },

    { "FEEDBACK", "Comentarios" },

    { "YOUR_MESSAGE", "Su comentario ha sido enviado" }

  };

  public Object[][] getContents()

  {

    return contents;

  }

}
```

☐ **2.** You have to register the "Translations" class. From your terminal window, execute the following commands:

```
cd /home/oracle/wkdir/gdk/gdkshop/public_html/WEB-INF
cp /home/oracle/wkdir/gdk/step3/gdkapp.xml gdkapp.xml
```

If you review the contents of the file you can observe the details of the <message-bundles> tag.

```
<message-bundles>
  <resource-bundle name="default">oracle.i18n.demo.obe.gdkshop.gdk.Translations
  </resource-bundle>
</message-bundles>
```

☐ **3.** The code necessary to handle translation has been added to your JSP files. From your terminal window, execute the following commands:

```
cd ..
```

(Note: you want to be in the `/home/oracle/wkdir/gdk/gdkshop/public_html` directory)

```
cp /home/oracle/wkdir/gdk/step3/index.jsp index.jsp
cp /home/oracle/wkdir/gdk/step3/myaccount.jsp myaccount.jsp
cp /home/oracle/wkdir/gdk/step3/orderinformation.jsp orderinformation.jsp
cp /home/oracle/wkdir/gdk/step3/feedback.jsp feedback.jsp
```

If you review the contents of each file you will observe that the `Localizer` object is instantiated at the top of each JSP page by adding the following:

```
<% Localizer localizer = ServletHelper.getLocalizerInstance(request); %>
```

In addition, all translatable texts have been replaced with the `localizer.getMessage` API call. For example, "Returning Customers..." should be replaced with

```
<%= localizer.getMessage("RETURNING_CUSTOMERS") %>
```

☐ **4.** The code necessary to handle translation has been added to your java files. From your terminal window, execute the following commands:

```
cd /home/oracle/wkdir/gdk/gdkshop/src/oracle/i18n/demo/obe/gdkshop
cp /home/oracle/wkdir/gdk/step3/MyAccountAction.java MyAccountAction.java
cp /home/oracle/wkdir/gdk/step3/OrderInformationAction.java
    OrderInformationAction.java
```

If you review the contents of each file you will observe that the `Localizer` object is instantiated with the following:

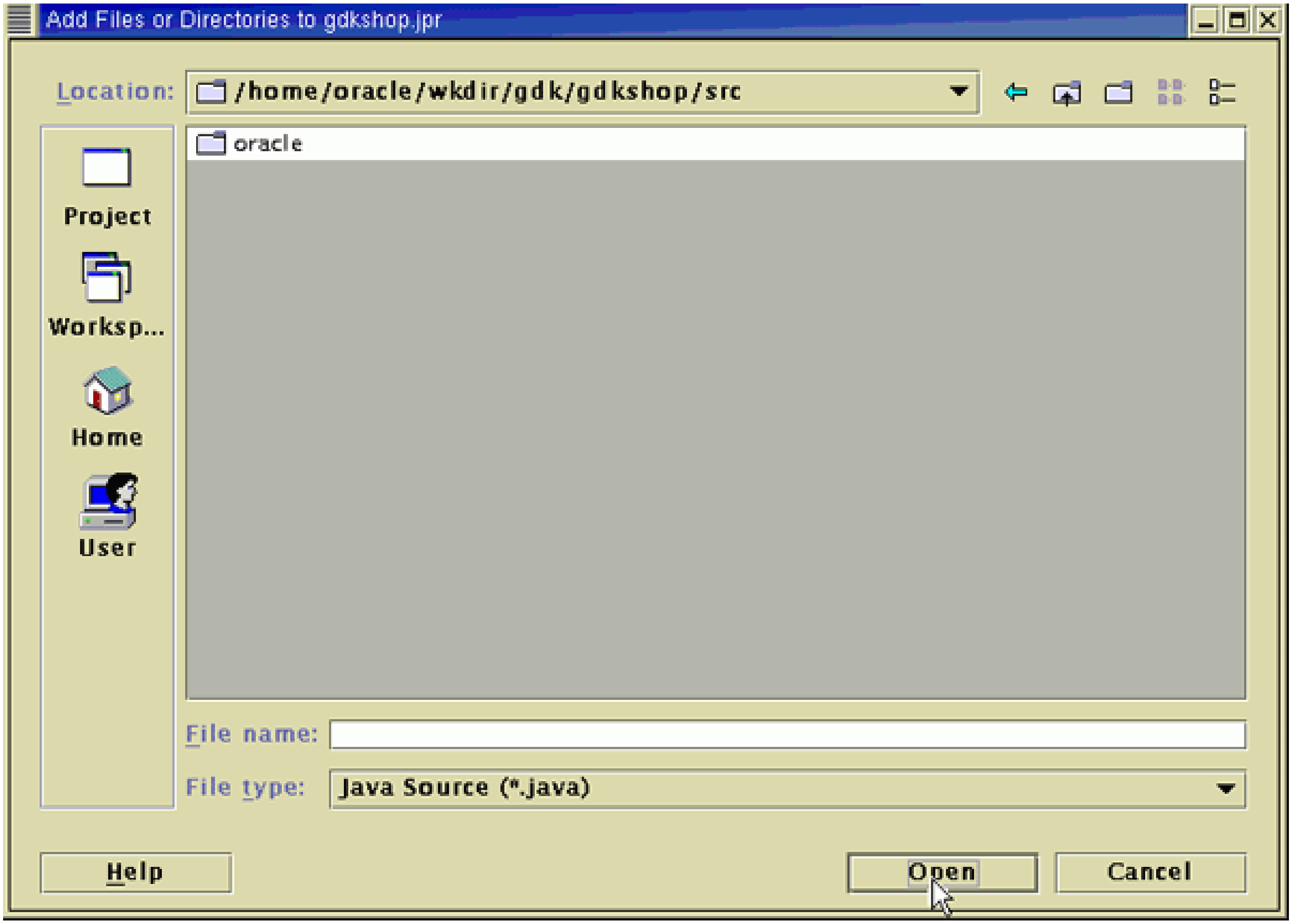
```
<% Localizer localizer = ServletHelper.getLocalizerInstance (request); %>
```

In addition, all translatable texts are replaced with the `localizer.getMessage` API call. For example, "Returning Customers..." should be replaced with

```
import oracle.i18n.servlet.ServletHelper;

import oracle.i18n.servlet.Localizer;

Localizer localizer = ServletHelper.getLocalizerInstance(request);

request.setAttribute("localizer",localizer);
```

☐ **5.** Before the application can pick up the Spanish and Simplified Chinese translation files, the resource bundles need to be included into the project. In JDeveloper, Click and highlight **gdkshop.jpr** in the System-Navigator window. Click **+** icon at the top left hand corner.

☐ **6.** Select and open the directory **`home/oracle/wkdir/gdk/gdkshop/src`** . Select Java Source (*.java) from the "File type" drop down list. Click **Open** .

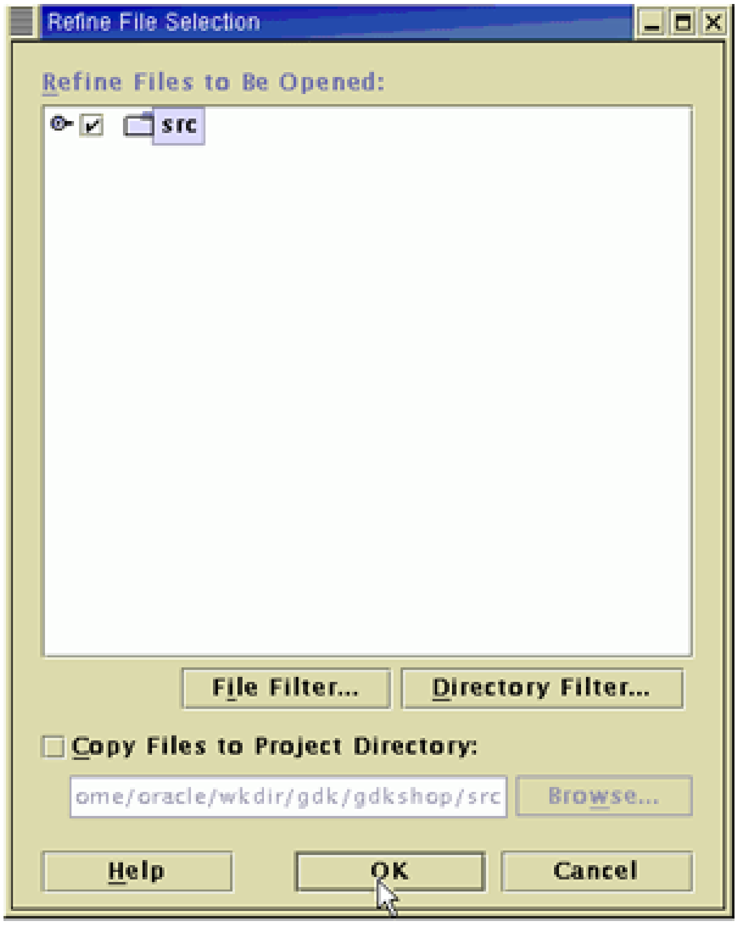


Location: /home/oracle/wkdir/gdk/gdkshop/src

File name:

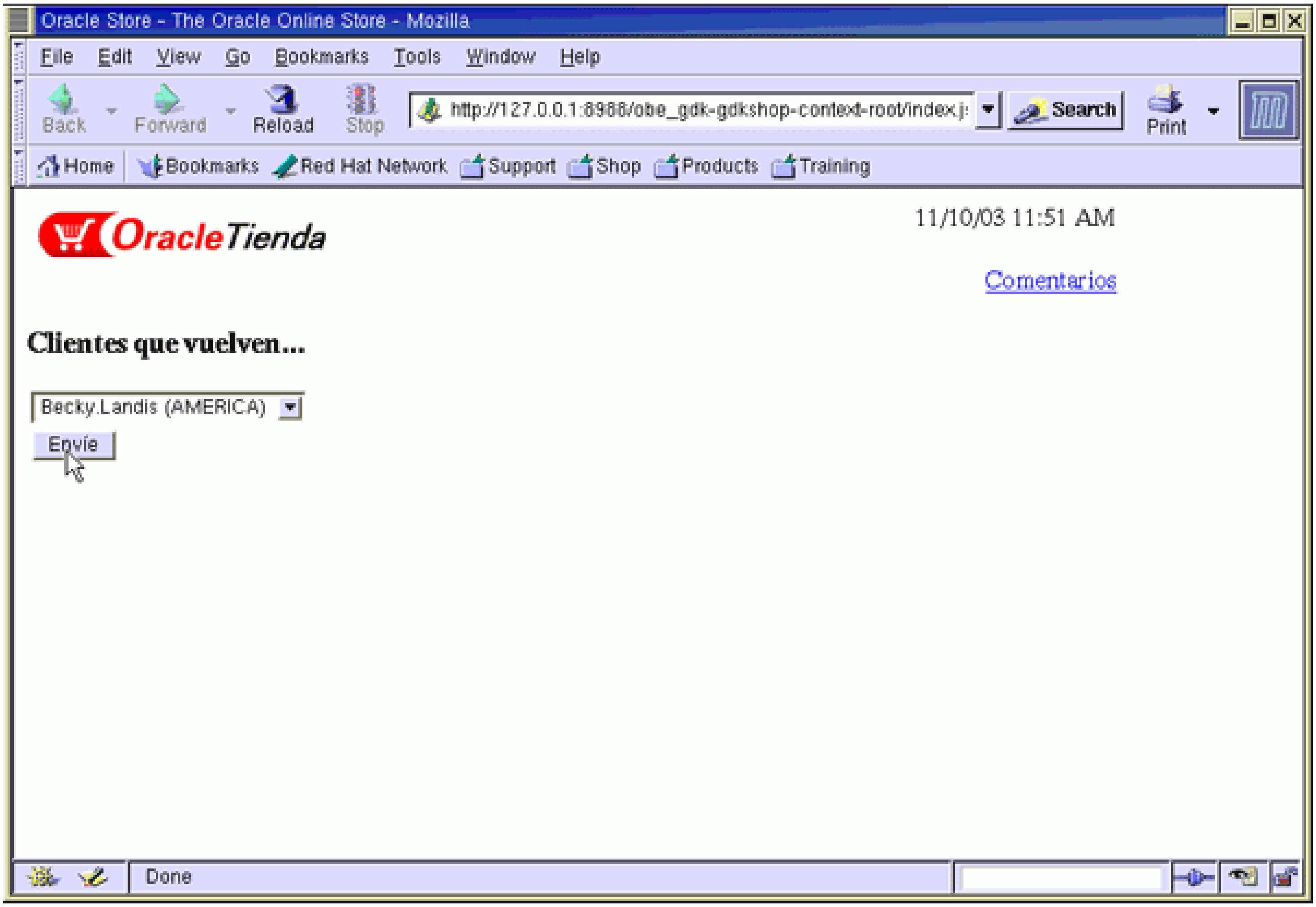
File type: Java Source (*.java)

☐ **7.** Click **OK** .


Refine File Selection
Refine Files to Be Opened:
☑ src
File Filter...
Directory Filter...
☐ Copy Files to Project Directory:
ome/oracle/wkdir/gdk/gdkshop/src
Browse...
Help
OK
Cancel

☐ **8.** You are now ready to re-run the application. **Terminate the Embedded OC4J Server** , **Rebuild gdkshop.jpr** and **Run gdkshop.jpr** .

☐ **9.** You see that the fields and buttons on this window have been translated to Spanish. Click the **Envie** button.


Oracle Store - The Oracle Online Store - Mozilla
File Edit View Go Bookmarks Tools Window Help
Back
Forward
Reload
Stop
http://127.0.0.1:8988/obe_gdk-gdkshop-context-root/index.j
Search
Print
Home
Bookmarks
Red Hat Network
Support
Shop
Products
Training
OracleTienda
Done

11/10/03 11:51 AM

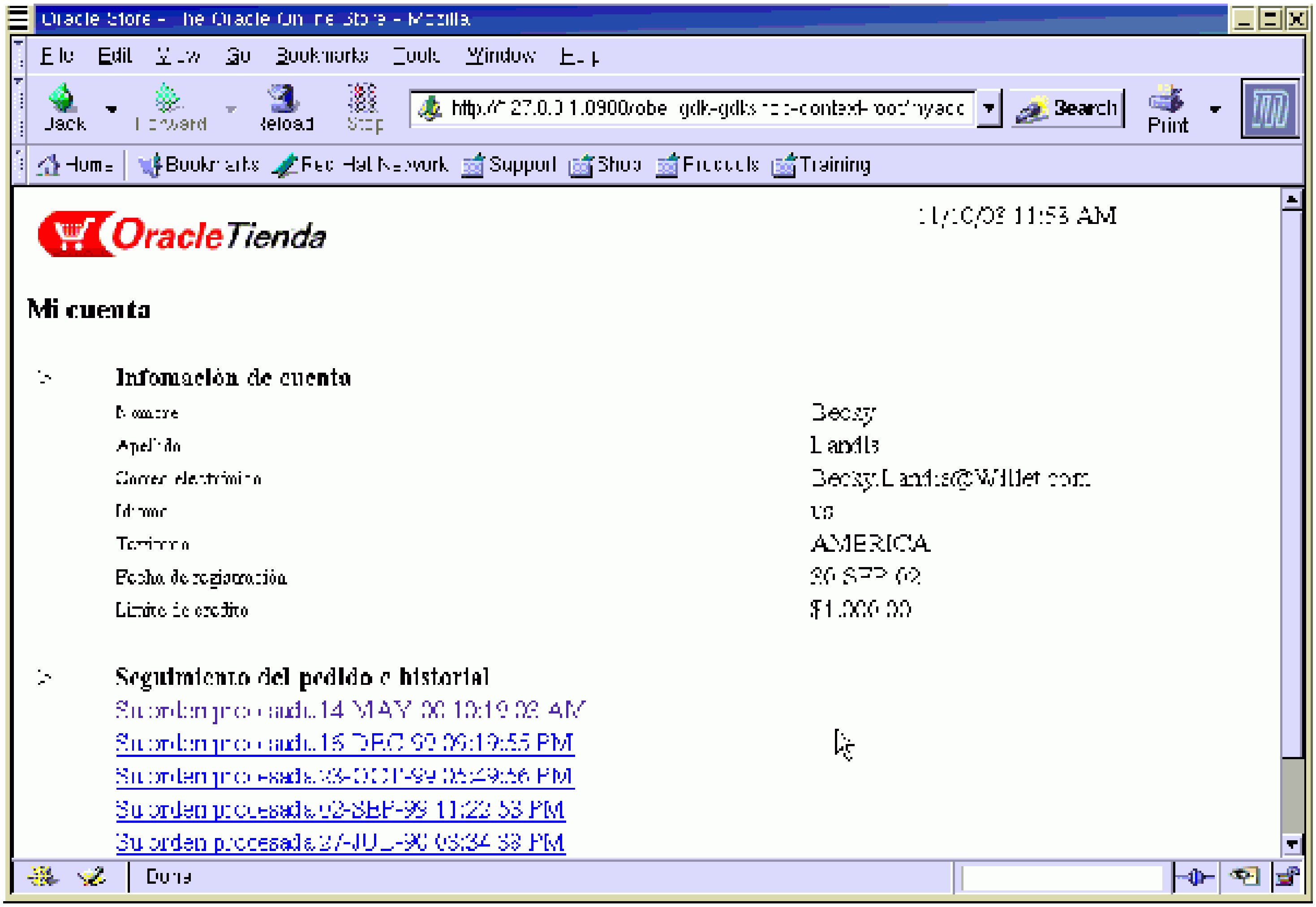
Comentarios

Clientes que vuelven...

Becky.Landis (AMERICA)

Envíe

☐ **10.** You see that the fields has been translated to Spanish.



11/10/03 11:53 AM

Mi cuenta

Información de cuenta

Nombre	Becky
Apellido	Landis
Correo electrónico	Becky.Landis@Willet.com
Idioma	US
Territorio	AMERICA
Fecha de registración	20-SEP-02
Límite de crédito	$1,000.00

Seguimiento del pedido e historial

Su orden procesada 14-MAY-00 10:19:03 AM
Su orden procesada 16-DEC-99 06:19:55 PM
Su orden procesada 23-OCT-99 05:49:56 PM
Su orden procesada 02-SEP-99 11:22:53 PM
Su orden procesada 27-JUL-99 03:34:33 PM

Formatting dates and numbers using Oracle Formatter Classes

[Back to Topic List](#)

Now you can format the dates and numbers to see its impact on the application. Perform the following:

☐ **1.** Changes have been made to format the dates and numbers in the application. From your terminal window, execute the following commands:

```
cd /home/oracle/wkdir/gdk/gdkshop/public_html
cp /home/oracle/wkdir/gdk/step4/myaccount.jsp myaccount.jsp
cp /home/oracle/wkdir/gdk/step4/orderinformation.jsp orderinformation.jsp
cp /home/oracle/wkdir/gdk/step4/feedback.jsp feedback.jsp
```

The following date formatting was used:

```
<%= localizer.formatDateTime(new Date(), DateFormat.LONG) %>
```

```
<%= localizer.formatDate(customer.registeredDate,DateFormat.SHORT)%>
<%= localizer.formatDateTime(order.orderDate,DateFormat.LONG)%>
```

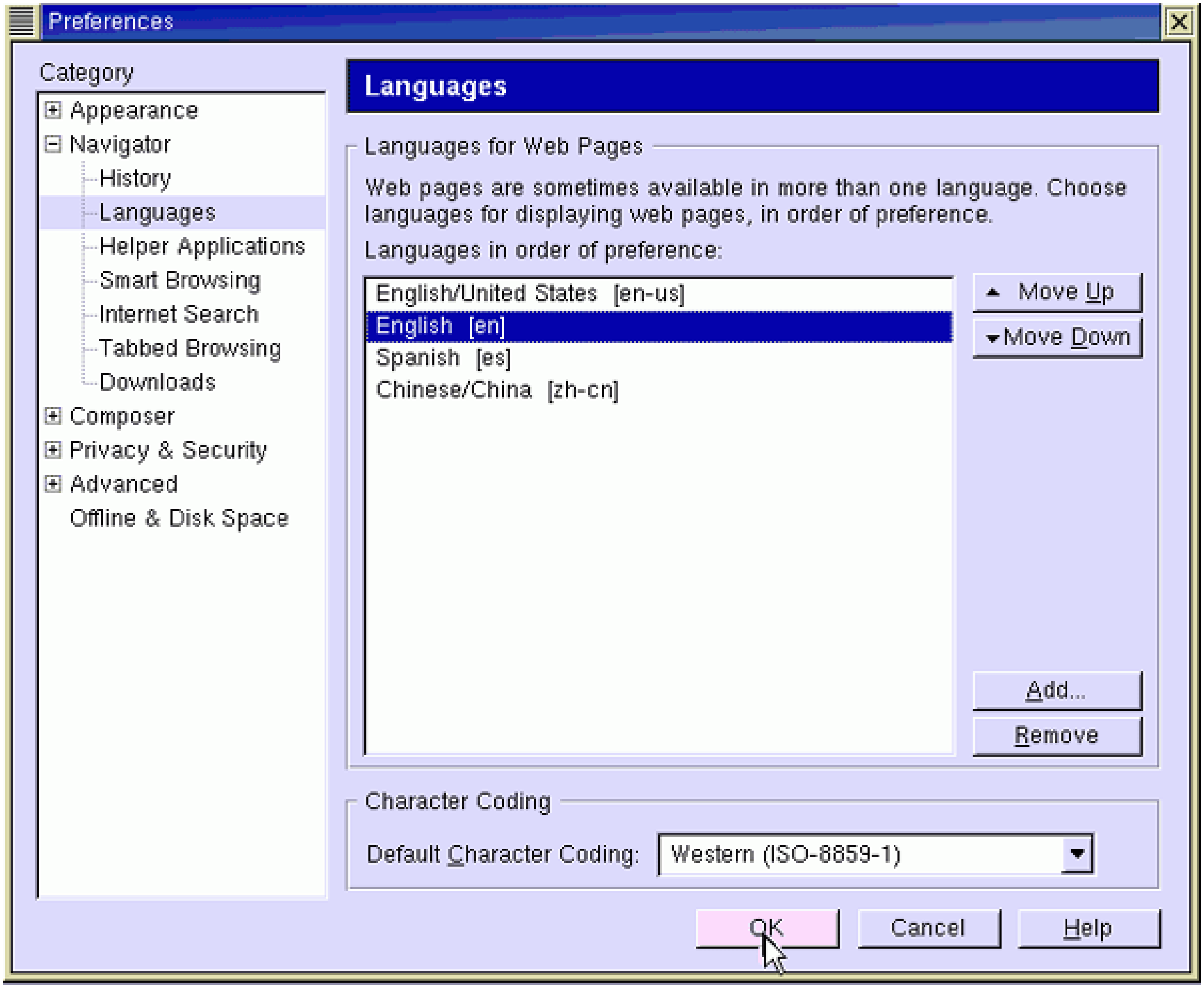
The following currency formatting was used:

```
<%= localizer.formatCurrency(customer.creditLimit) %>
```

The following message formatting to format complex UI text with translations was used:

```
<%=
  new MessageFormat(localizer.getMessage("YOUR_ORDER_PLACED")).
  format(new Object[] {localizer.formatDateTime(o.orderDate,

      DateFormat.LONG)})
%>
```

☐ **2.** You want to change the language in your browser to English. Select **Edit -> Preferences** . Under Navigator, select **Languages** . Select **English/United States** and click **Move Up** . Then select **English** and click **Move Up** . Then click **OK** .



Languages for Web Pages

Web pages are sometimes available in more than one language. Choose languages for displaying web pages, in order of preference.

Languages in order of preference:

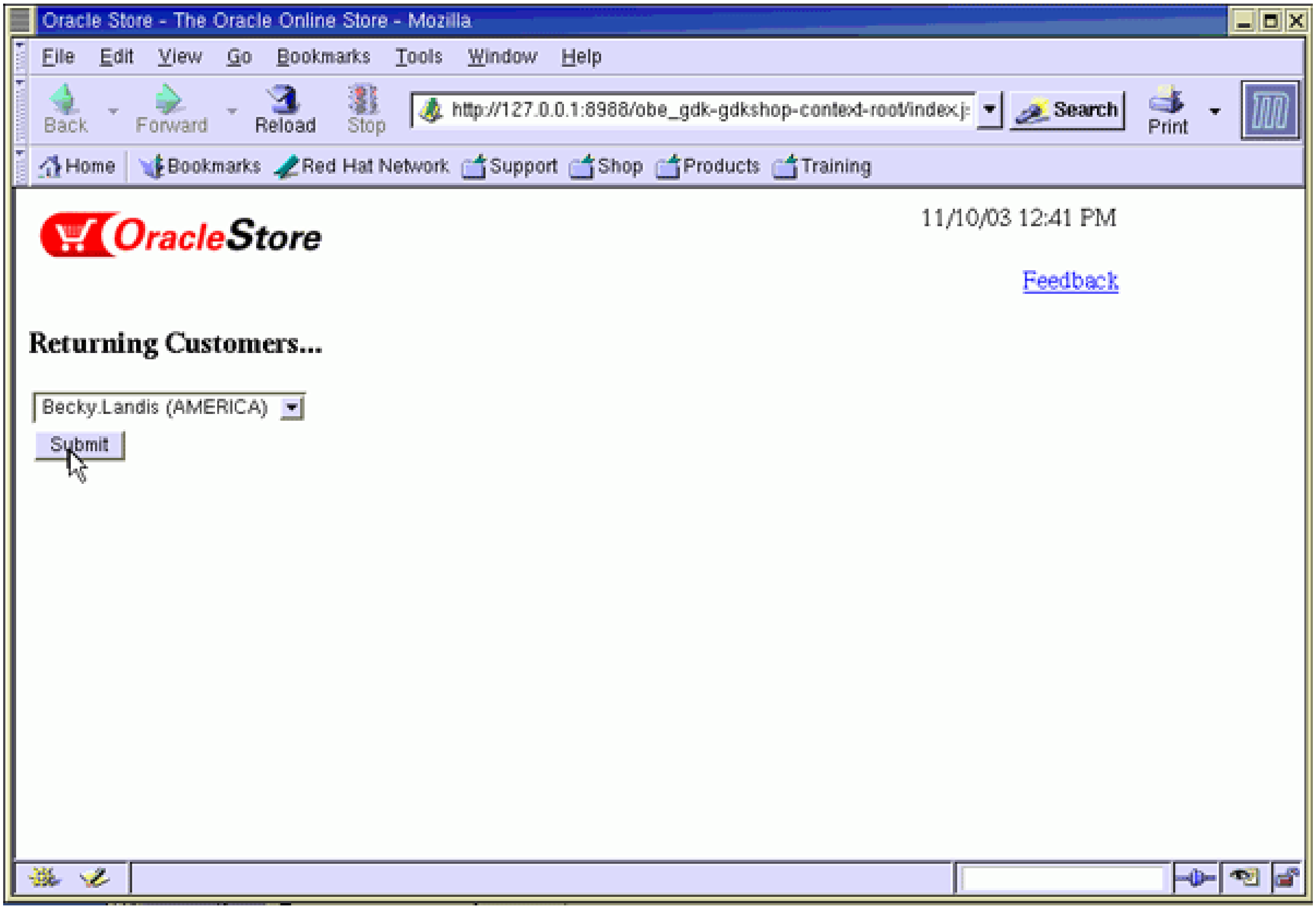
English/United States [en-us]
English [en]
Spanish [es]
Chinese/China [zh-cn]

Character Coding

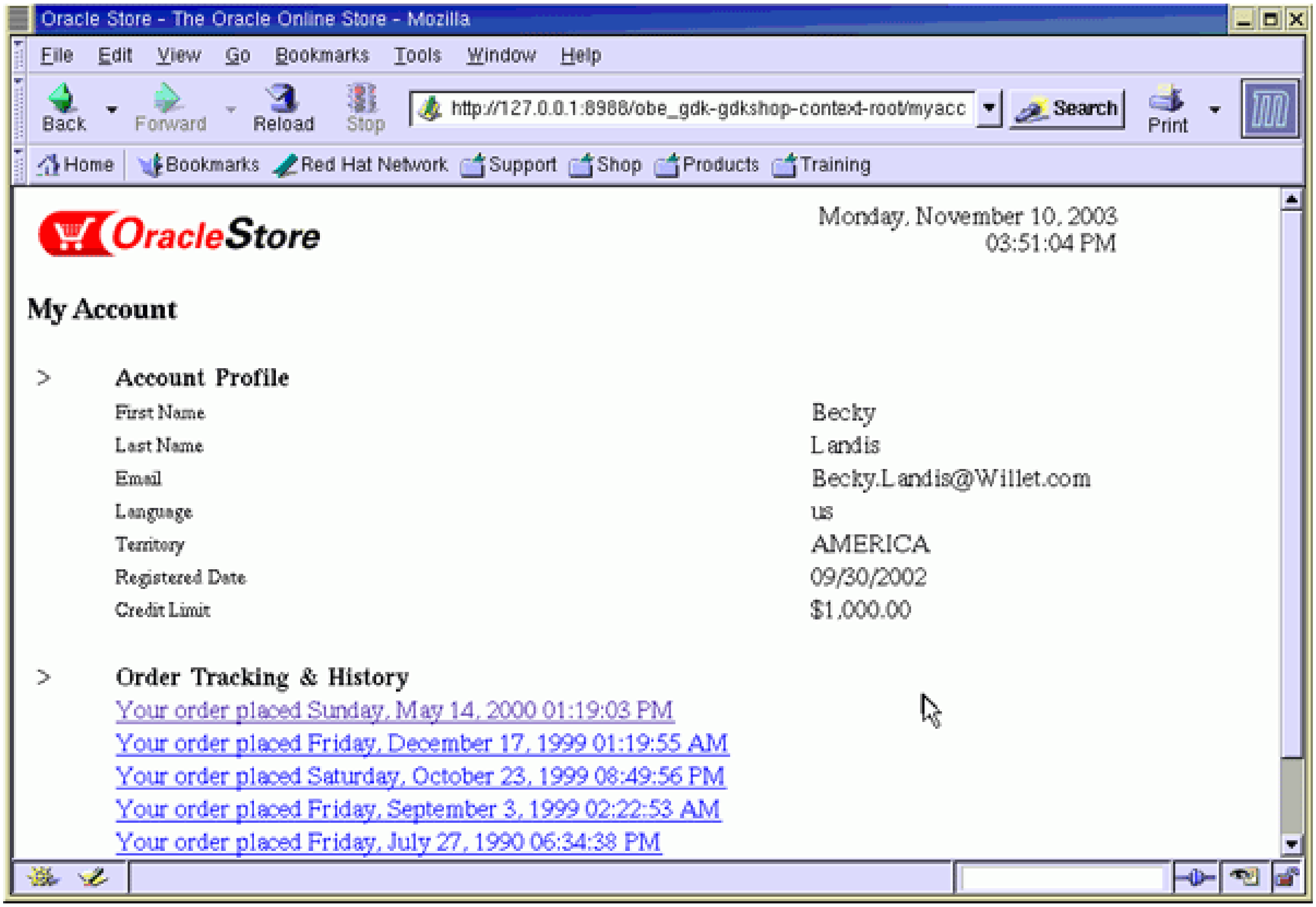
Default Character Coding: Western (ISO-8859-1)

☐ **3.** You are now ready to re-run the application. **Terminate the Embedded OC4J Server** , **Rebuild gdkshop.jpr** and **Run gdkshop.jpr** .

☐ **4.** Select **Submit** .


Oracle Store - The Oracle Online Store - Mozilla
File Edit View Go Bookmarks Tools Window Help
Back Forward Reload Stop
http://127.0.0.1:8988/obe_gdk-gdkshop-context-root/index.j
Search Print
Home Bookmarks Red Hat Network Support Shop Products Training
OracleStore
11/10/03 12:41 PM
Feedback
Returning Customers...
Becky.Landis (AMERICA)
Submit

☐ **5.** You should see that all the dates, numbers and currencies are now formatted in a consistent format based on Oracle 's globalization conventions.


Oracle Store - The Oracle Online Store - Mozilla
File Edit View Go Bookmarks Tools Window Help
Back Forward Reload Stop
http://127.0.0.1:8988/obe_gdk-gdkshop-context-root/myacc
Search
Print
Home Bookmarks Red Hat Network Support Shop Products Training
OracleStore

Monday, November 10, 2003
03:51:04 PM

My Account

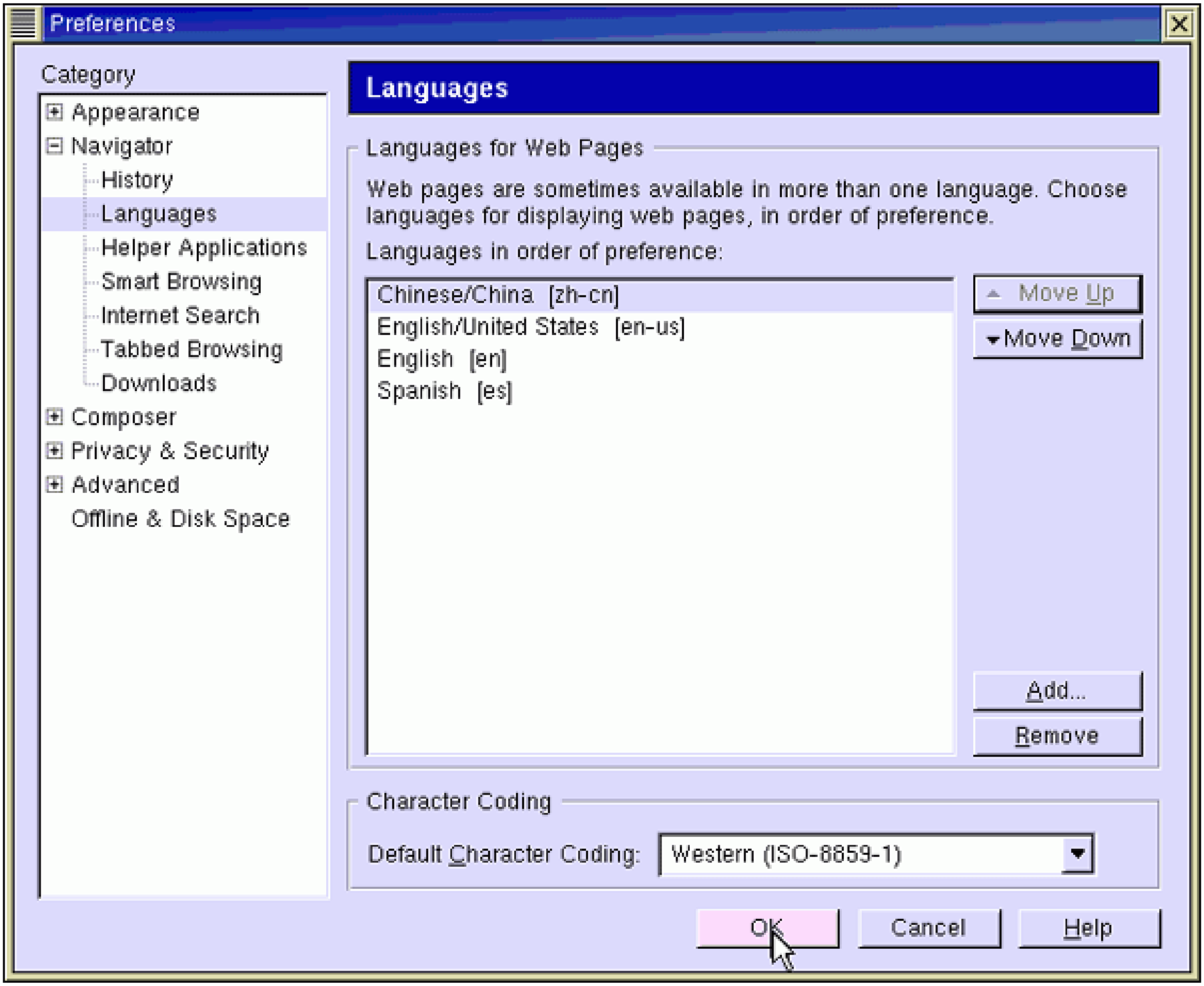
> Account Profile

First Name	Becky
Last Name	Landis
Email	Becky.Landis@Willet.com
Language	us
Territory	AMERICA
Registered Date	09/30/2002
Credit Limit	$1,000.00

> Order Tracking & History

Your order placed Sunday, May 14, 2000 01:19:03 PM
Your order placed Friday, December 17, 1999 01:19:55 AM
Your order placed Saturday, October 23, 1999 08:49:56 PM
Your order placed Friday, September 3, 1999 02:22:53 AM
Your order placed Friday, July 27, 1990 06:34:38 PM

☐ **6.** Change the Language to **Chinese** to see how the date and currency will change.



Languages

Languages for Web Pages

Web pages are sometimes available in more than one language. Choose languages for displaying web pages, in order of preference.

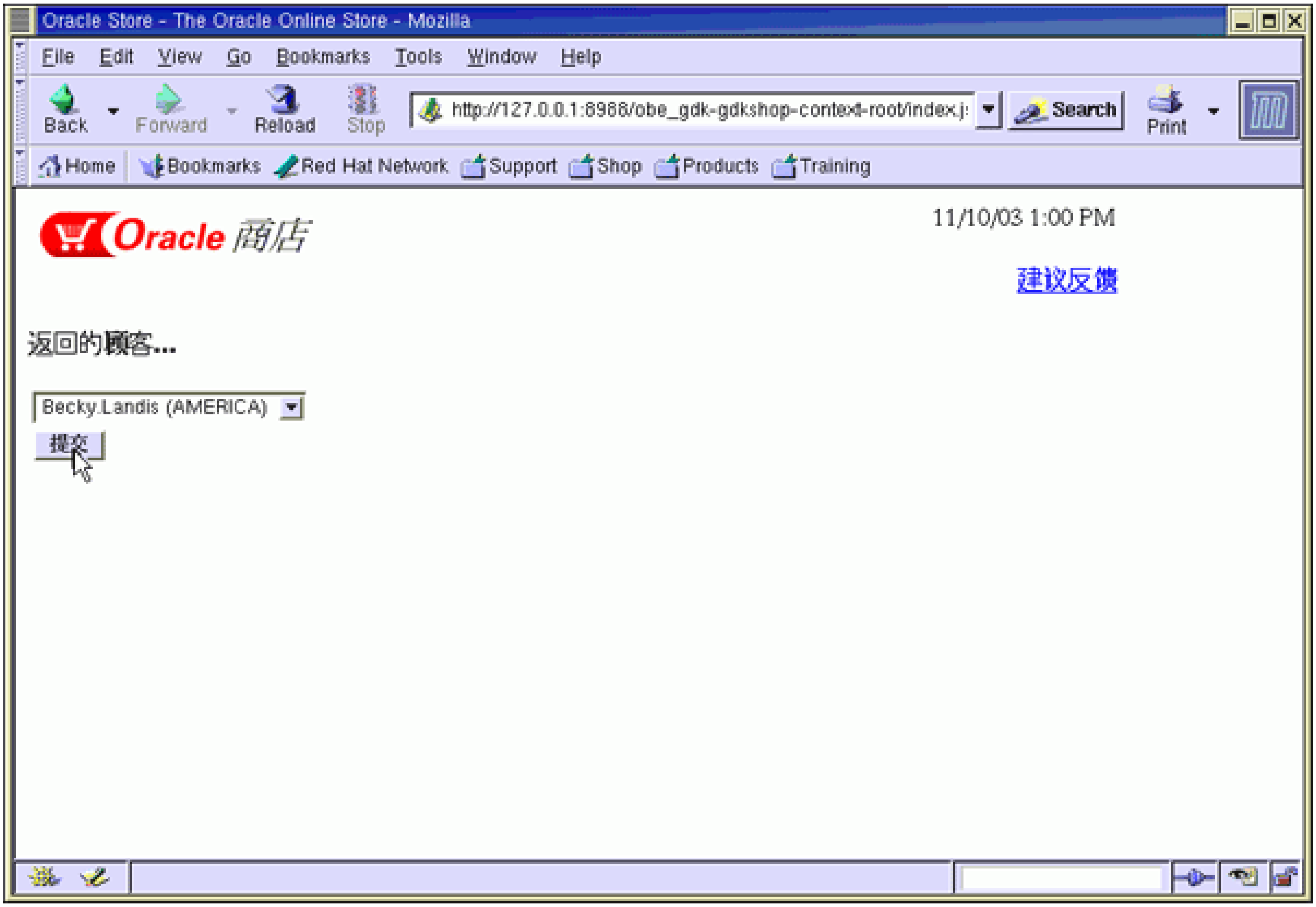
Languages in order of preference:

Chinese/China [zh-cn]
English/United States [en-us]
English [en]
Spanish [es]

Character Coding

Default Character Coding: Western (ISO-8859-1)

☐ **7.** The language is now Chinese. Click the **Submit** button.

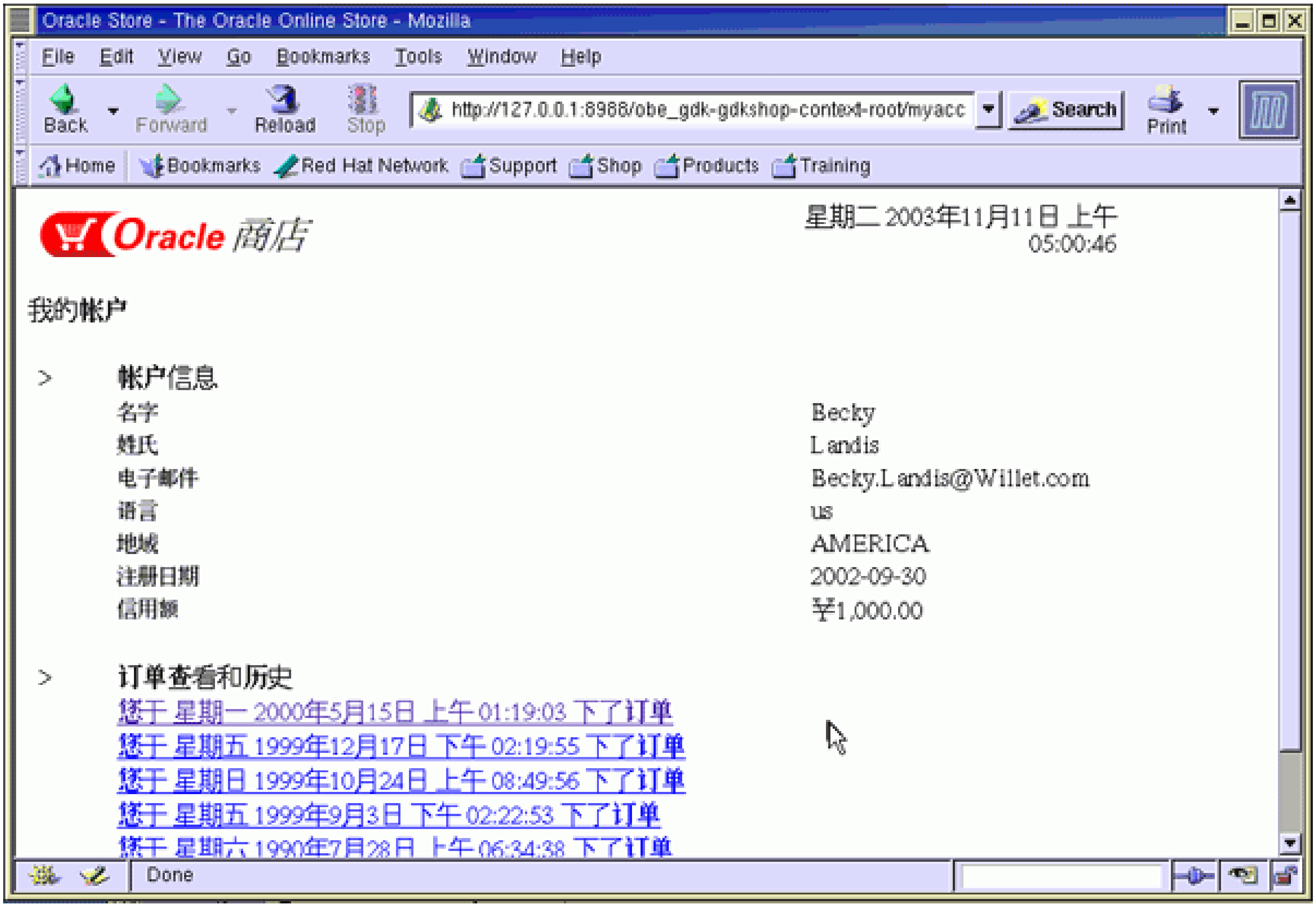

Oracle Store - The Oracle Online Store - Mozilla
File Edit View Go Bookmarks Tools Window Help
Back
Forward
Reload
Stop
http://127.0.0.1:8988/obe_gdk-gdkshop-context-root/index.j
Search
Print
Home
Bookmarks
Red Hat Network
Support
Shop
Products
Training
Oracle 商店
建议反馈
提交

11/10/03 1:00 PM

返回的顾客...

Becky.Landis (AMERICA)

☐ **8.** You should see that all the date and currency formatting has been changed to Chinese.



http://127.0.0.1:8988/obe_gdk-gdkshop-context-root/myacc

星期二 2003年11月11日 上午 05:00:46

我的帐户

> 帐户信息

名字	Becky
姓氏	Landis
电子邮件	Becky.Landis@Willet.com
语言	us
地域	AMERICA
注册日期	2002-09-30
信用额	￥1,000.00

> 订单查看和历史

您于 星期一 2000年5月15日 上午 01:19:03 下了订单
您于 星期五 1999年12月17日 下午 02:19:55 下了订单
您于 星期日 1999年10月24日 上午 08:49:56 下了订单
您于 星期五 1999年9月3日 下午 02:22:53 下了订单
您于 星期六 1990年7月28日 上午 06:34:38 下了订单

Because the Localizer is dependant on the language setting in the browser, it means that the timestamp is also being converted from the database time zone to the default time zone that are defined by the browser locale. The issue with this approach is that for countries with more than one time zone, the converted time stamp may not reflect truly the local time of the customer. See **Detecting the User preferred locale** on how to resolve this issue.

In addition, the currency has now been changed to reflect the local currency of the territory. However, because the exchange rates are never static and that they do vary between currencies, it is not possible for the localizer to re-calculate the new values automatically. See **Enabling support for exchange rates, translated product names and descriptions** on how to resolve this issue.

Using pre-defined Oracle locale translations

Back to Topic List

The translations of the names for all the Oracle supported territories, langauges, linguistic sorts, timezones, currencies and character sets are available in GDK.   These can be used directly inside the application by calling the appropriate classes. To use the pre-defined Oracle locale translations, the following changes are made:

☐ **1.** Changes have been made to **`myaccount.jsp`** for the translations of names. From your terminal window, execute the following commands:

```
cd /home/oracle/wkdir/gdk/gdkshop/public_html
cp /home/oracle/wkdir/gdk/step5/myaccount.jsp myaccount.jsp
```

The Territory in the Account Profile has been changed to the appropriate translated name.

```
<%= localizer.getDisplayTerritory(customer.nlsTerritory)%>
```

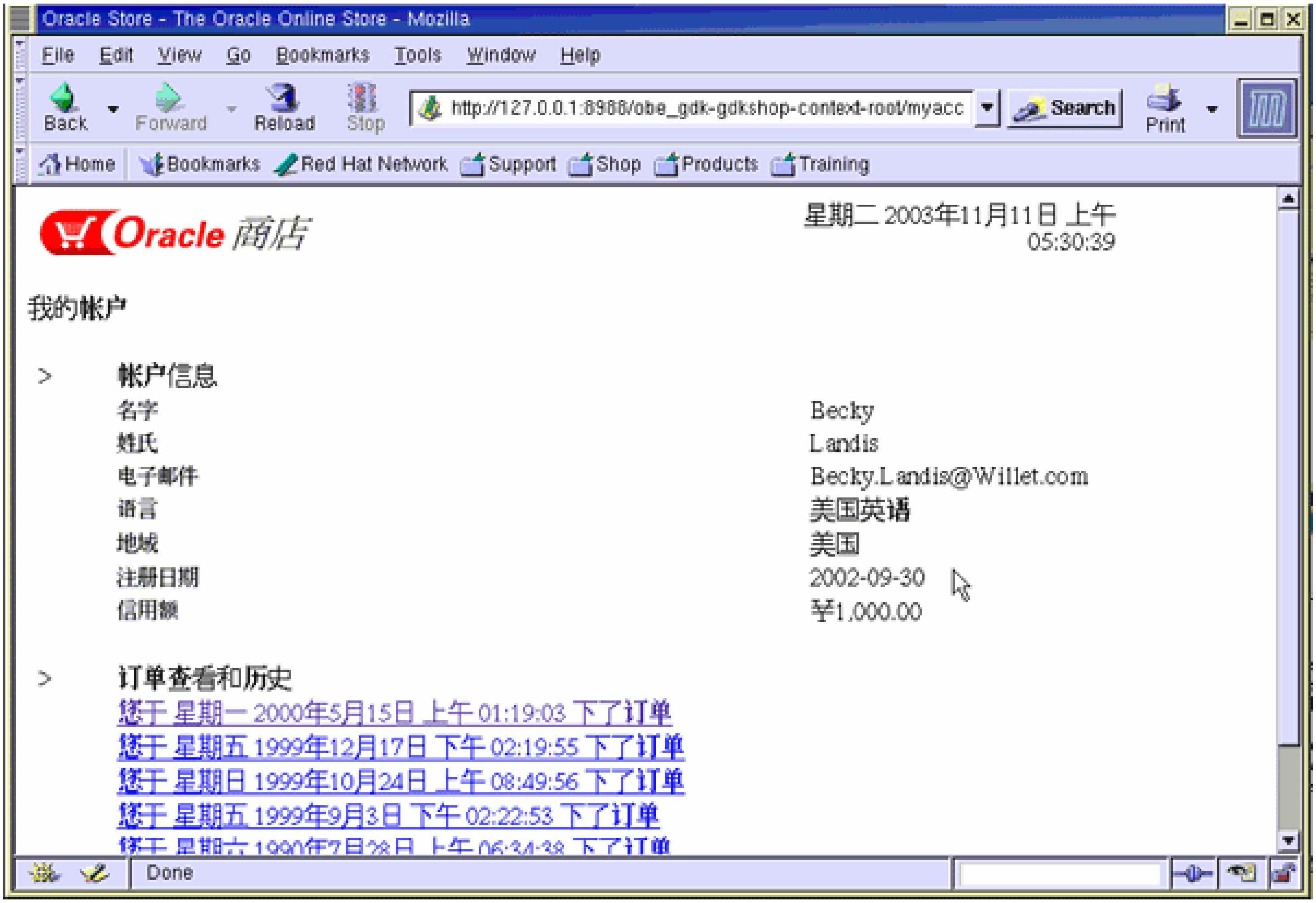
The language name is changed to the appropriate translated language name.

```
<%=
  localizer.getDisplayLanguage
  (LocaleMapper.getOraLanguageFromShortName(customer.nlsLanguage))
%>
```

The language id stored in the `OE.CUSTOMER` table is using the Oracle short language name. To get the full translation name, we need to call `LocaleMapper.getOraLanguageFromShortName` to convert it to it's full language name.

☐ **2.** You are now ready to re-run the application. **Terminate the Embedded OC4J Server** , **Rebuild gdkshop.jpr** and **Run gdkshop.jpr** .

☐ **3.** When the first screen appears, click **Submit** . Notice that the language and the territory names in the Account Profile page have been translated to the language set in your browser.


Oracle Store - The Oracle Online Store - Mozilla
File Edit View Go Bookmarks Tools Window Help
Back
Forward
Reload
Stop
http://127.0.0.1:8988/obe_gdk-gdkshop-context-root/myacc
Search
Print
Home
Bookmarks
Red Hat Network
Support
Shop
Products
Training
Oracle 商店
Done

星期二 2003年11月11日 上午 05:30:39

我的帐户

> 帐户信息

名字	Becky
姓氏	Landis
电子邮件	Becky.Landis@Willet.com
语言	美国英语
地域	美国
注册日期	2002-09-30
信用额	¥1,000.00

> 订单查看和历史

您于 星期一 2000年5月15日 上午 01:19:03 下了订单
您于 星期五 1999年12月17日 下午 02:19:55 下了订单
您于 星期日 1999年10月24日 上午 08:49:56 下了订单
您于 星期五 1999年9月3日 下午 02:22:53 下了订单
您于 星期六 1999年7月28日 上午 06:34:38 下了订单

Detecting the User preferred locale

Back to Topic List

The account profile of the customers, already contained the customer's language and territory information, this can be used to establish the customer's preferred locale after logging onto the application. A table storing the customers' time zone information was created by the OBE setup script `obeGdkSetup.sql`, this information will be used to convert between the system time stored inside the database to the user's current time zone.

```
SQL> desc ext_user_profile

 Name                                      Type
 ----------------------------------------- ----------------------
 CUSTOMER_ID                               NUMBER(6)
 TIMEZONE                                  VARCHAR2(50)
 REG_DATE                                  DATE

SQL> select * from ext_user_profile;

 CUSTOMER_ID TIMEZONE                                           REG_DATE
 ----------- -------------------------------------------------- ---------
        9000 America/Los_Angeles                                30-SEP-02
        9001 Europe/Madrid                                      05-MAR-01
        9002 Asia/Shanghai                                      12-JUN-99
        9003 Asia/Calcutta                                      23-NOV-00
        9004 Europe/Berlin                                      20-NOV-02
```

Perform the following:

☐ **1.** A DBLocaleSource is created that will retrieve the user's locale preference stored in the `OE.CUSTOMER` table, and the user's time zone in `OE.EXT_USER_PROFILE`. From your terminal window, execute the following commands:

```
cd /home/oracle/wkdir/gdk/gdkshop/src/oracle/i18n/demo/obe/gdkshop/gdk
```

```
cp /home/oracle/wkdir/gdk/step6/DBLocaleSource.java DBLocaleSource.java
```

☐ **2.** To register the locale source class in the GDK configuration file, a change has been made to gdkapp.xml. From your terminal window, execute the following commands:

```
cd /home/oracle/wkdir/gdk/gdkshop/public_html/WEB-INF
```

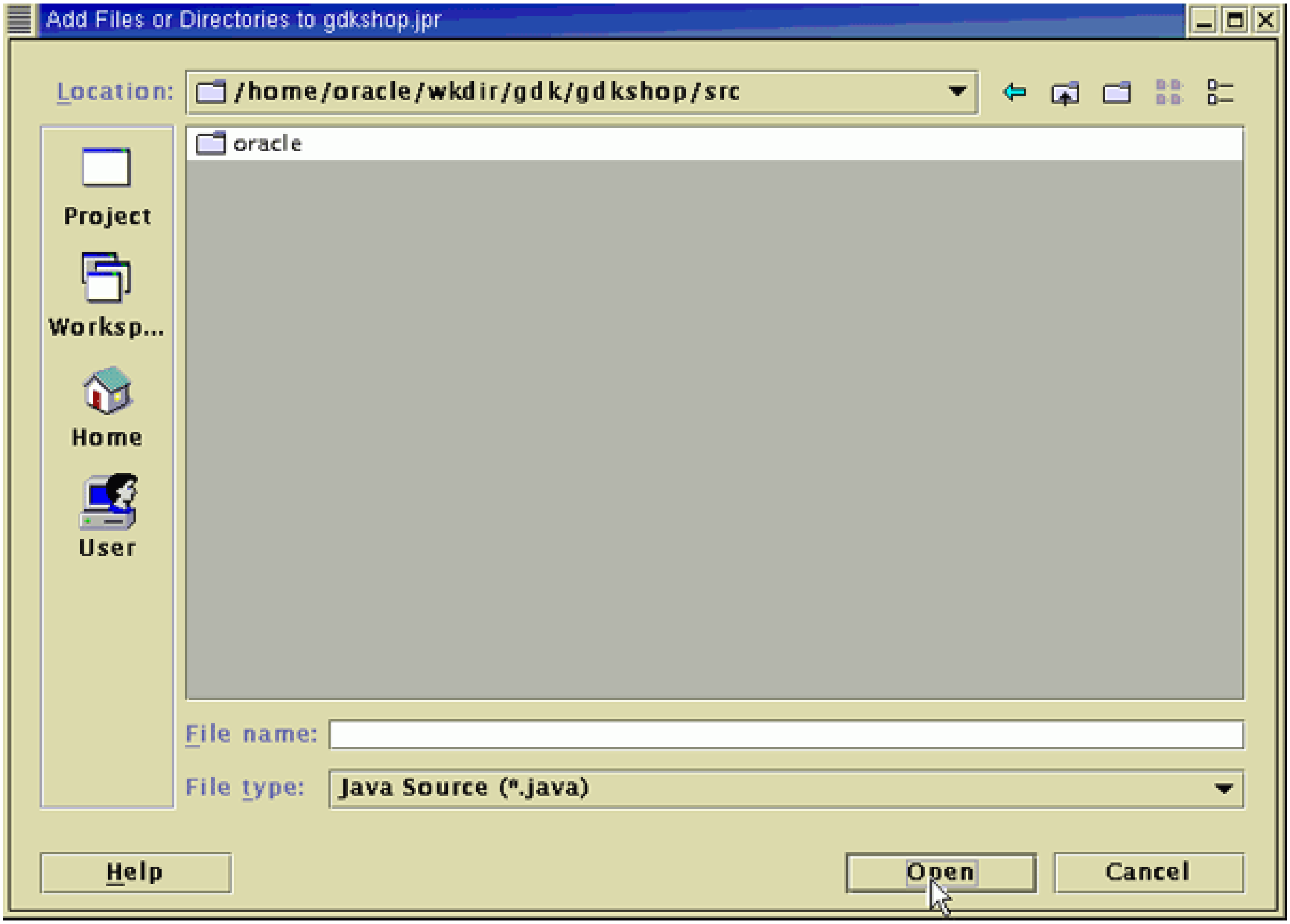
```
cp /home/oracle/wkdir/gdk/step6/gdkapp.xml gdkapp.xml
```

One line was added (in bold) to the ***gdkapp.xml*** file.

```
<locale-determine-rule>

  <locale-source>oracle.i18n.demo.obe.gdkshop.gdk.DBLocaleSource

    </locale-source>
    <locale-source>oracle.i18n.servlet.localesource.HttpAcceptLanguage

    </locale-source>
</locale-determine-rule>
```

☐ **3.** Before the application can pick up the Spanish and Simplified Chinese translation files, the resource bundles need to be included into the project. In JDeveloper, Click and highlight **gdkshop.jpr** in the System-Navigator window. Click **+** icon at the top left hand corner.

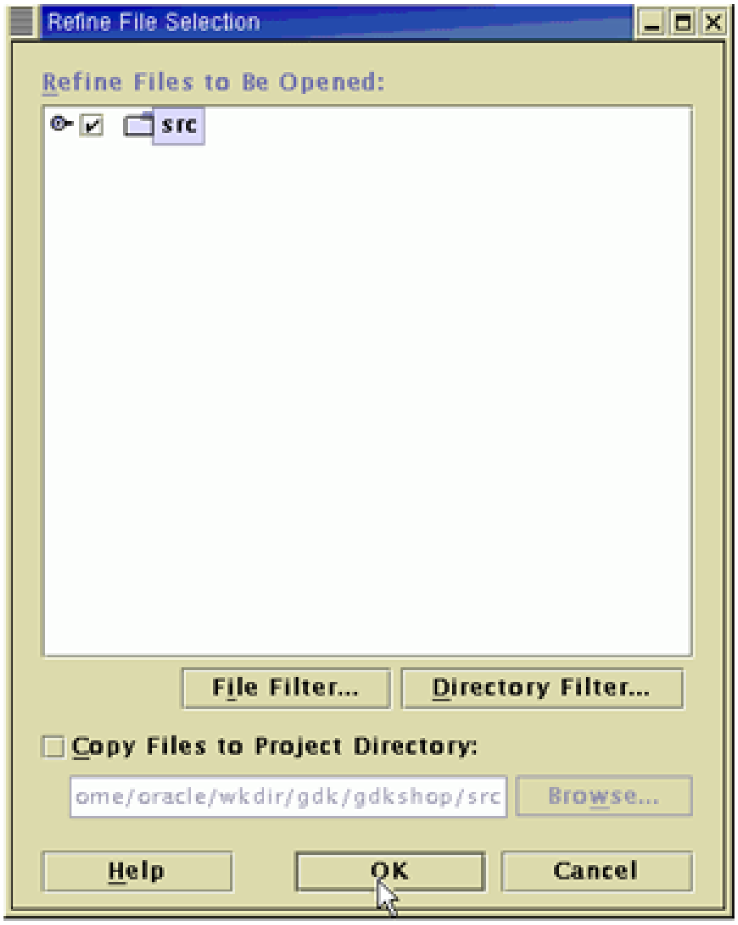
☐ **4.** Before the application can pick up the DBLocaleSource.java, the file needs to be included in the JDeveloper project. Select and open the directory **`home/oracle/wkdir/gdk/gdkshop/src`** . Select Java Source (*.java) from the "File type" drop down list. Click **Open** .



Location: /home/oracle/wkdir/gdk/gdkshop/src

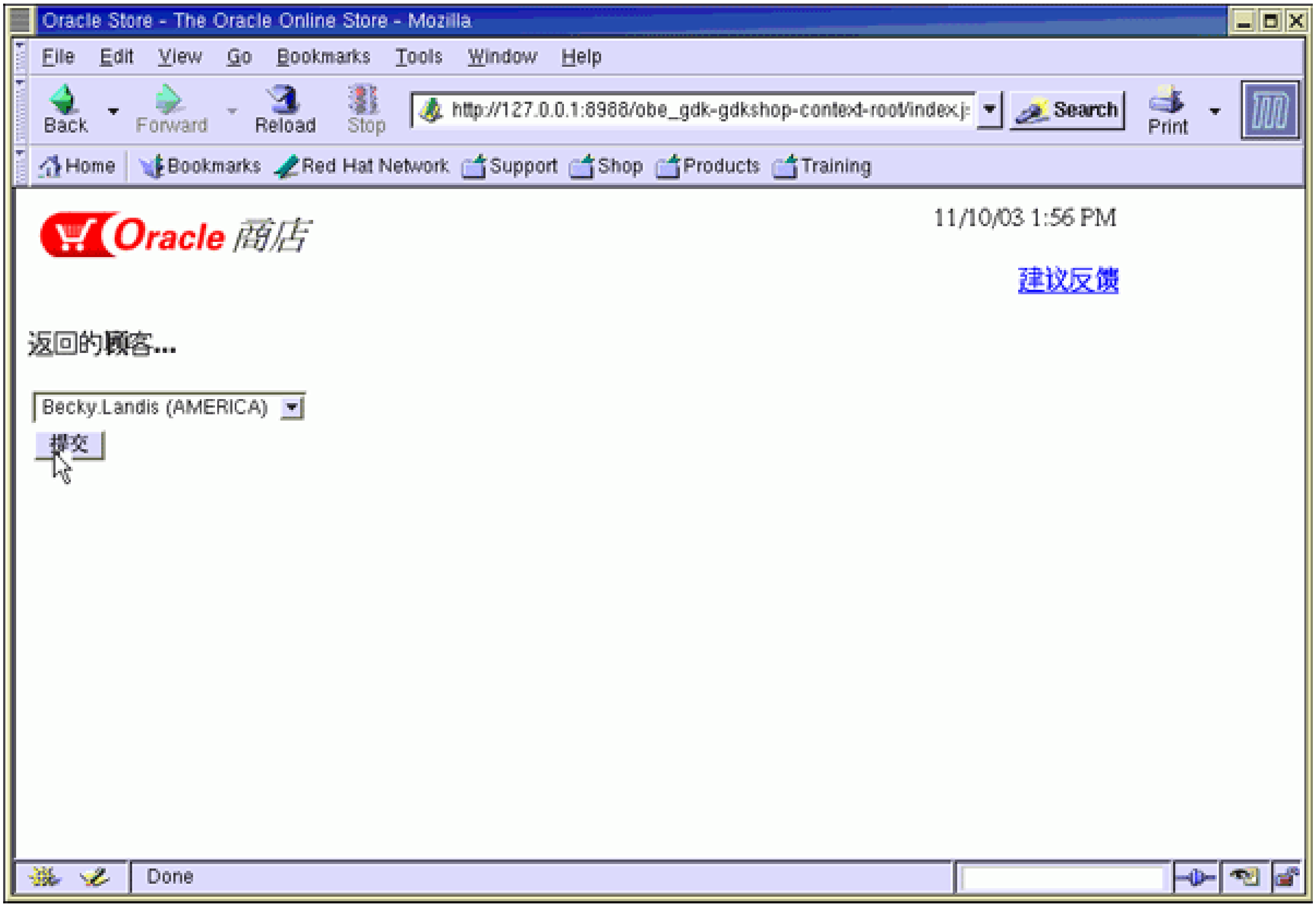
File type: Java Source (*.java)

☐ **5.** Click **OK** .


Refine File Selection
Refine Files to Be Opened:
src
File Filter...
Directory Filter...
Copy Files to Project Directory:
ome/oracle/wkdir/gdk/gdkshop/src
Browse...
Help
OK
Cancel

☐ **6.** You are now ready to re-run the application. **Terminate the Embedded OC4J Server** , **Rebuild gdkshop.jpr** and **Run gdkshop.jpr** .

☐ **7.** Make sure Becky Landis is selected and click the button to show the details.



http://127.0.0.1:8988/obe_gdk-gdkshop-context-root/index.j

11/10/03 1:56 PM

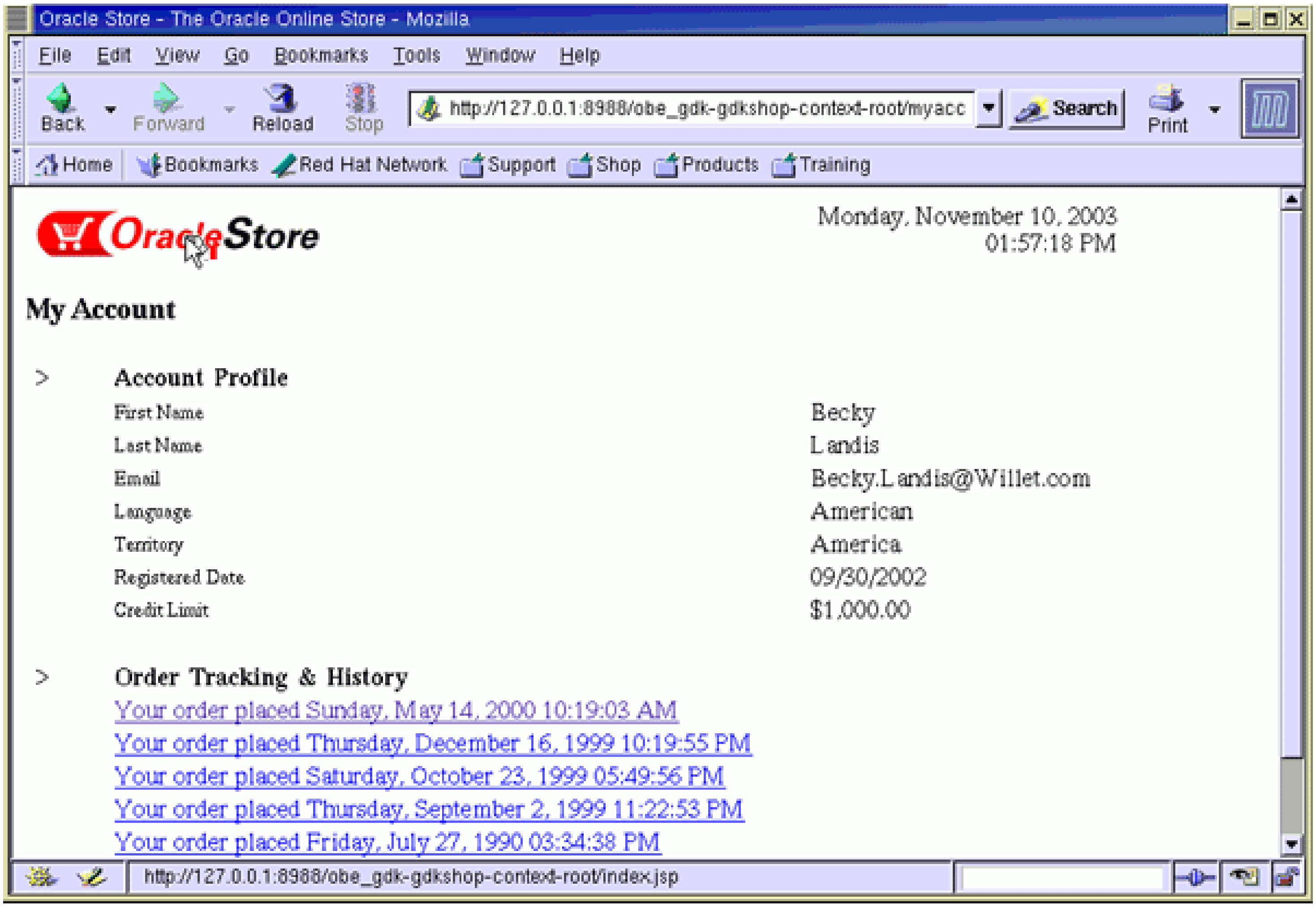
建议反馈

返回的顾客...

Becky.Landis (AMERICA)

提交

☐ **8.** The application will simulate the customer logging in and proceed to present the order history information, based on the user's timezone, language and territory setting. In this case, it is English. Click the **OracleStore** logo.


Oracle Store - The Oracle Online Store - Mozilla
File Edit View Go Bookmarks Tools Window Help
Back Forward Reload Stop
http://127.0.0.1:8988/obe_gdk-gdkshop-context-root/myacc
Search
Print
Home Bookmarks Red Hat Network Support Shop Products Training
OracleStore
http://127.0.0.1:8988/obe_gdk-gdkshop-context-root/index.jsp

Monday, November 10, 2003
01:57:18 PM

My Account

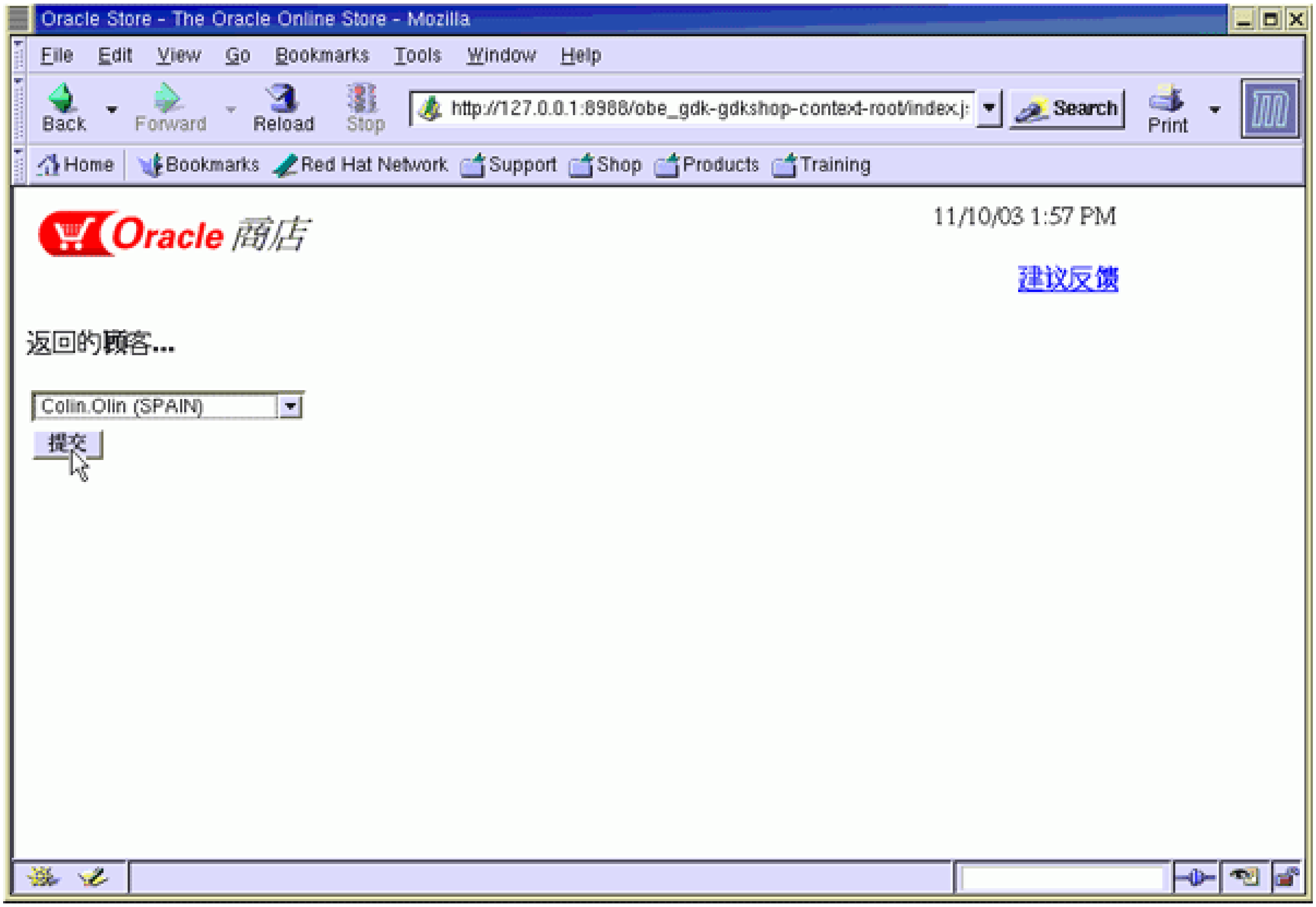
> Account Profile

First Name	Becky
Last Name	Landis
Email	Becky.Landis@Willet.com
Language	American
Territory	America
Registered Date	09/30/2002
Credit Limit	$1,000.00

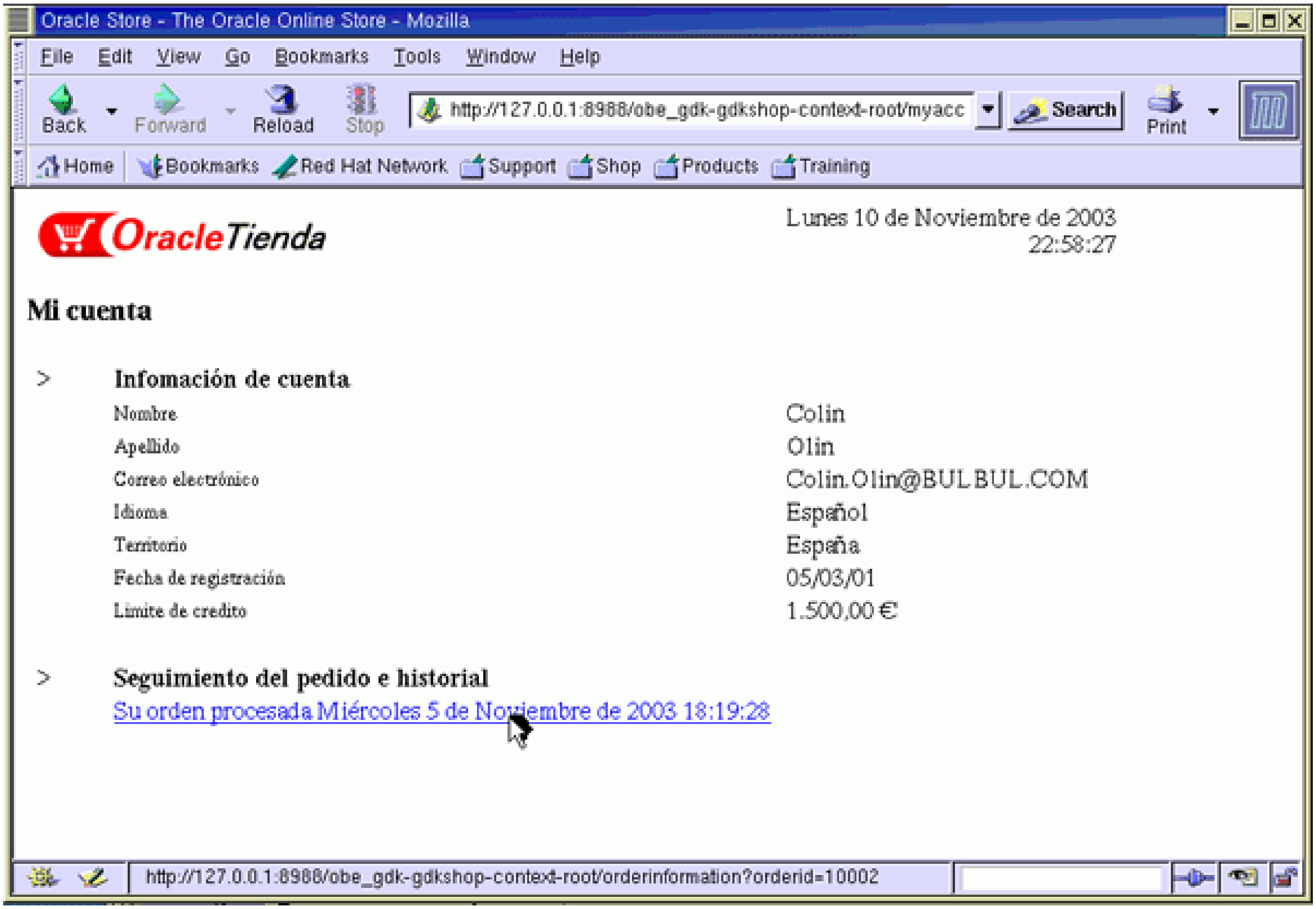
> Order Tracking & History

Your order placed Sunday, May 14, 2000 10:19:03 AM
Your order placed Thursday, December 16, 1999 10:19:55 PM
Your order placed Saturday, October 23, 1999 05:49:56 PM
Your order placed Thursday, September 2, 1999 11:22:53 PM
Your order placed Friday, July 27, 1990 03:34:38 PM

☐ **9.** Select **Colin.Olin (SPAIN)** and click the button to show the details.


Oracle Store - The Oracle Online Store - Mozilla
File Edit View Go Bookmarks Tools Window Help
Back Forward Reload Stop
http://127.0.0.1:8988/obe_gdk-gdkshop-context-root/index.j
Search
Print
Home Bookmarks Red Hat Network Support Shop Products Training
Oracle 商店
11/10/03 1:57 PM
建议反馈
返回的顾客...
Colin.Olin (SPAIN)
提交

□ **10.** The information is now translated to Spanish. Select the **order** .


Oracle Store - The Oracle Online Store - Mozilla
File Edit View Go Bookmarks Tools Window Help
Back Forward Reload Stop
http://127.0.0.1:8988/obe_gdk-gdkshop-context-root/myacc
Search
Print
Home Bookmarks Red Hat Network Support Shop Products Training
OracleTienda

Lunes 10 de Noviembre de 2003
22:58:27

Mi cuenta

> Infomación de cuenta

Nombre	Colin
Apellido	Olin
Correo electrónico	Colin.Olin@BULBUL.COM
Idioma	Español
Territorio	España
Fecha de registración	05/03/01
Limite de credito	1.500,00 €

> Seguimiento del pedido e historial

Su orden procesada Miércoles 5 de Noviembre de 2003 18:19:28

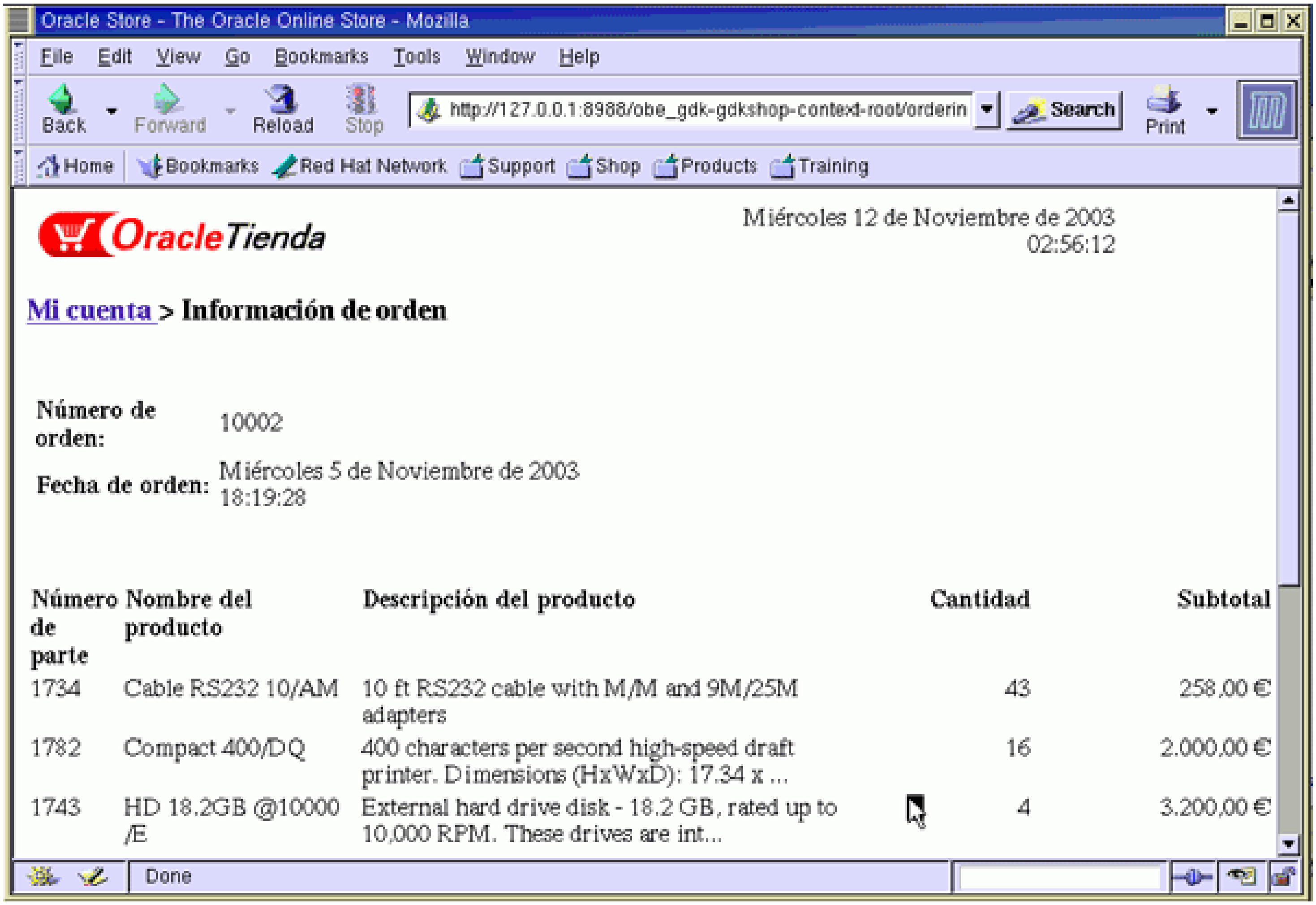
http://127.0.0.1:8988/obe_gdk-gdkshop-context-root/orderinformation?orderid=10002

Note: The GDK application framework can also detect locale preferences stored inside a user profile table, using a predefined locale source rather than a customer locale source. You can incorporate the locale source to the framework by defining them under the `<locale-determine-rule>` tab in the GDK application configuration file.

Enabling support for exchange rates, translated product names and descriptions

Back to Topic List

Observe that the product names and descriptions are still in English, though some of the text in the page is in Spanish.



Miércoles 12 de Noviembre de 2003
02:56:12

Mi cuenta > Información de orden

Número de orden:	10002
Fecha de orden:	Miércoles 5 de Noviembre de 2003 18:19:28

Número de parte	Nombre del producto	Descripción del producto	Cantidad	Subtotal
1734	Cable RS232 10/AM	10 ft RS232 cable with M/M and 9M/25M adapters	43	258,00 €
1782	Compact 400/DQ	400 characters per second high-speed draft printer. Dimensions (HxWxD): 17.34 x ...	16	2.000,00 €
1743	HD 18.2GB @10000 /E	External hard drive disk - 18.2 GB, rated up to 10,000 RPM. These drives are int...	4	3.200,00 €

You will now see how to translate product names and descriptions and support exchange rates.

The previous step provides the localizer with the customer's locale information. With this, the orders can be further customized to include the product names and descriptions in the user's local language. Exchange rates can be applied to the orders to convert from US dollar to the local currency of the customer.

```
SQL> desc exchange_rates;
          Name                                      Type
          ----------------------------------------- ----------------------
          NLS_TERRITORY                             VARCHAR2(50)
          RATES                                     NUMBER(8,4)

SQL> select * from exchange_rates;

         NLS_TERRITORY                                 RATES
         --------------------------------------------- ----------
         AMERICA                                       1
         CHINA                                         8.2768
         INDIA                                         47.175
         GERMANY                                       .8705
         JAPAN                                         117.168
         SPAIN                                         .8705
```

Perform the following

☐ **1.** From your terminal window, execute the following commands:

```
cd /home/oracle/wkdir/gdk/gdkshop/src/oracle/i18n/demo/obe/gdkshop
cp /home/oracle/wkdir/gdk/step7/ShopAction.java ShopAction.java
cp /home/oracle/wkdir/gdk/step7/
MyAccountAction.java

MyAccountAction.java
cp /home/oracle/wkdir/gdk/step7/OrderInformation
Action.java

     OrderInformation
Action.java
```

The modifications to the ***ShopAction.java*** file are :

Import globalization classess in ShopAction.java

```
import java.util.Locale;
import oracle.i18n.servlet.Localizer;
```

```
  import oracle.i18n.util.OraLocaleInfo;
  import oracle.i18n.util.LocaleMapper;
  import oracle.i18n.text.OraCollator;
```

Add a Localizer parameter to getOrders

```
  public static List /* Order */ getOrders(String
         userid,
Localizer localizer
) throws Exception
```

Enhance the SQL to include the exchange rate for order_total

```
ps = cn.prepareStatement(
     "SELECT o.order_id, o.order_date, o.order_mode, o.customer_id, "
     + "o.order_status, o.order_total
 * e.rates,
"
     + "TO_CHAR(o.order_date, 'DD-MON-RR HH12:MI:SS AM') "
     + "FROM orders o, customers c
, exchange_rates e
 "
     + "WHERE o.customer_id = c.customer_id AND "
     + "e.nls_territory =? AND "
     + "LOWER(c.cust_email) = LOWER(?) ORDER BY order_date DESC" );

   ps.setString(1, localizer.getOraTerritory().toUpperCase(Locale.US));
   ps.setString(2, userid);
```

Add a Localizer parameter to getOrders

```
public static Order getOrder(long orderid,
Localizer localizer
) throws Exception
```

Enhance the SQL to include the exchange rate for order_total

```
     ps = cn.prepareStatement(
      "SELECT o.order_id, o.order_date, o.order_mode, o.customer_id,         "
```

```
    + "o.order_status, o.order_total
* e.rates,
       "
    + "TO_CHAR(o.order_date, 'DD-MON-RR HH12:MI:SS AM')         "
    +"FROM orders o
, exchange_rates e
 "
    + "WHERE o.order_id = ?
AND e.nls_territory = ?
"  );
    ps.setLong(1, orderid);

    ps.setString(2, localizer.getOraTerritory().toUpperCase(Locale.US));
    :
    :
```

```
 public static Customer getCustomer(String userid) throws Exception
```

Enhance the SQL to include the exchange rate for credit_limit

```
  ps = cn.prepareStatement(
     "SELECT c.cust_first_name, c.cust_last_name, c.nls_language, "
   + "c.nls_territory, c.cust_email, c.credit_limit
 * ex.rates
, "
   + "e.reg_date, TO_CHAR(e.reg_date) "
   + "FROM customers c, ext_user_profile e
, exchange_rates ex
"
   + "WHERE c.customer_id = e.customer_id "

   + "AND ex.nls_territory = c.nls_territory "
   + "AND LOWER(c.cust_email) = LOWER(?)" );
```

Add a Localizer parameter to getOrderItems

```
     public static List /* OrderItem */ getOrderItems(long orderId, Comparator
          sortComp,
Localizer localizer
) throws Exception
```

Change the SQL to get the translated product names and descriptions

```
   ResultSet rs = null;
```

```
   ps = cn.prepareStatement("SELECT oi.order_id, oi.product_id,"
       + "pd.translated_name, pd.translated_description,"
       + "oi.unit_price * e.rates, oi.quantity        FROM order_items oi, "
       + "product_information p,
        product_descriptions pd,exchange_rates e
 "
       + "WHERE oi.order_id = ? AND        p.product_id = oi.product_id
AND "
       + "pd.product_id = p.product_id        AND pd.language_id = ? AND "
       + "e.nls_territory = ?"
     );
   ps.setLong(1, orderId);

String lang = localizer.getOraShortLanguage().toUpperCase(Locale.US);
   String terr = localizer.getOraTerritory().toUpperCase(Locale.US);
   ps.setString(2, lang);
   ps.setString(3, terr);
```

The modifications to the ***MyAccountAction.java*** file are **:**

The new `Localizer` argument is added to `getOrder` , `getOrders` and `getOrderItems` .

```
  List orderLst = ShopAction.getOrders(userid
, localizer
);
```

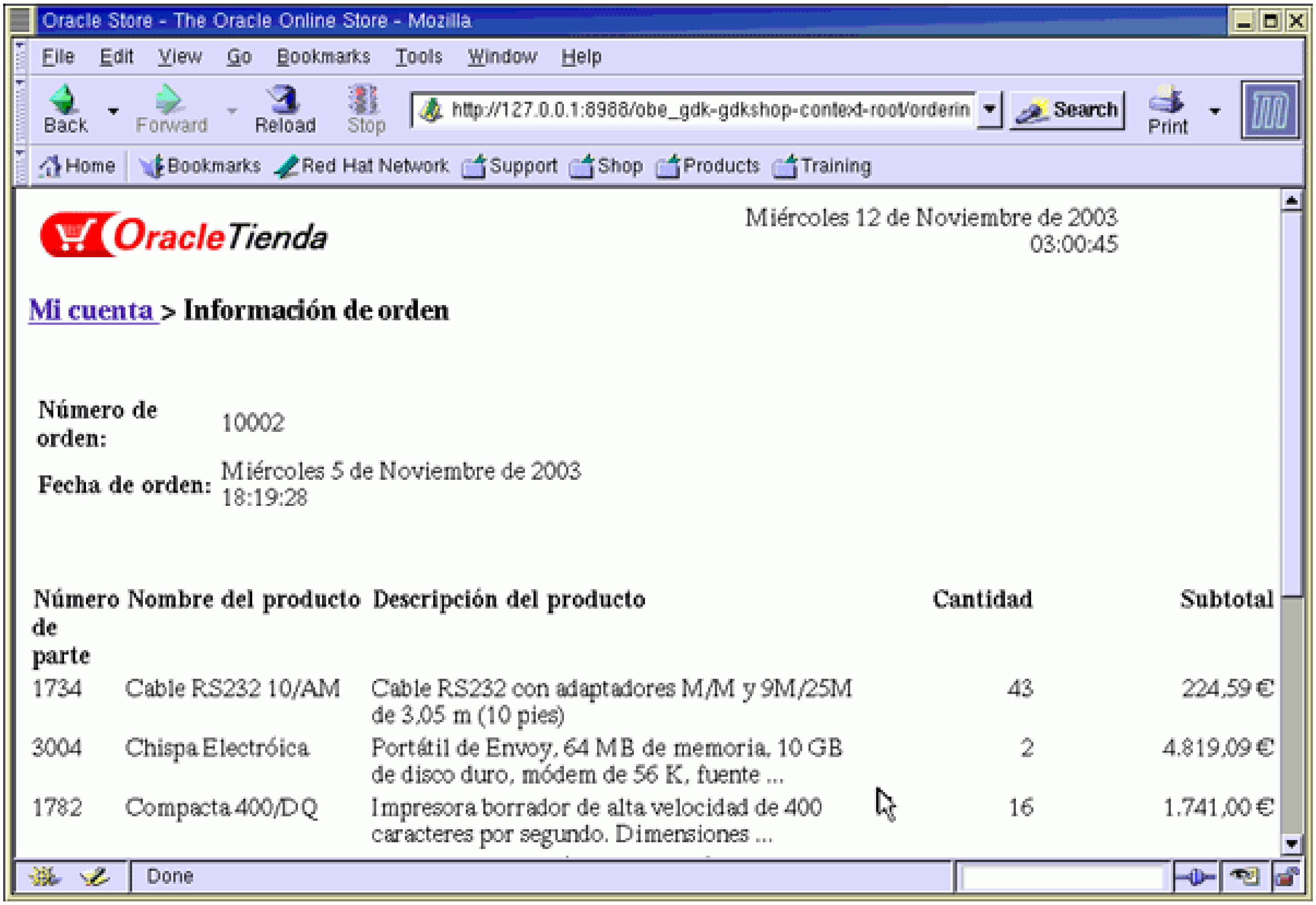
The modifications to the ***OrderInformationAction.java*** file are **:**

```
List orderItemList = ShopAction.getOrderItems(orderId, sortDir,
 localizer
);
```

```
Order od = ShopAction.getOrder(orderId,
localizer
);
```

☐ **2.** You are now ready to re-run the application. **Terminate the Embedded OC4J Server** , **Rebuild gdkshop.jpr** and **Run gdkshop.jpr** .

☐ **3.** Review Colin.Olin's order again. The product names and product descriptions should now be displayed based on the customer's language setting. All monetary values are converted from US dollar to the customer's local currency.


Oracle Store - The Oracle Online Store - Mozilla
File Edit View Go Bookmarks Tools Window Help
Back Forward Reload Stop
http://127.0.0.1:8988/obe_gdk-gdkshop-context-root/orderin
Search Print
Home Bookmarks Red Hat Network Support Shop Products Training
OracleTienda
Done

Miércoles 12 de Noviembre de 2003
03:00:45

Mi cuenta > Información de orden

Número de orden:	10002
Fecha de orden:	Miércoles 5 de Noviembre de 2003 18:19:28

Número de parte	Nombre del producto	Descripción del producto	Cantidad	Subtotal
1734	Cable RS232 10/AM	Cable RS232 con adaptadores M/M y 9M/25M de 3,05 m (10 pies)	43	224,59 €
3004	Chispa Electróica	Portátil de Envoy, 64 MB de memoria, 10 GB de disco duro, módem de 56 K, fuente ...	2	4.819,09 €
1782	Compacta 400/DQ	Impresora borrador de alta velocidad de 400 caracteres por segundo. Dimensiones ...	16	1.741,00 €

Using Oracle Linguistic Sorts

Back to Topic List

In the applications that you have developed and run so far, observe that there is no sort option. You will now learn to add linguistic sort. Perform the following steps to use a linguistic sort:

☐ **1.** From your terminal window, execute the following commands:

```
cd /home/oracle/wkdir/gdk/gdkshop/src/oracle/i18n/demo/obe/gdkshop/bean
cp /home/oracle/wkdir/gdk/step8/OrderItem.java OrderItem.java
cd ..
cp /home/oracle/wkdir/gdk/step8/Shop
Action.java
 Shop
Action.java
cp /home/oracle/wkdir/gdk/step8/OrderInformation
Action.java

     OrderInformation
Action.java
```

The modifications to the ***OrderItem.java*** file are **:**

Import OraCollationKey

```
import oracle.i18n.text.OraCollationKey;
```

Add a variable of type OraCollationKey to OrderItem

```
public OraCollationKey ocolkey;
```

Change Comparator objects so collation keys are being compared instead of the product names

```
  From  return s.productName.compareTo(d.productName);
   To
return s.ocolkey.compareTo(d.ocolkey);
```

```
From  return d.productName.compareTo(s.productName);
To    return d.ocolkey.compareTo(s.ocolkey);
```

The modifications to the ***ShopAction.java*** file are **:**

Import OraCollator

```
import oracle.i18n.text.OraCollator;
```

Add a new URL parameter to hold the name of the linguistic sort

```
public static String PARAM_SORT_NAME = "sortname";
```

Add a method that retrieves the linguistic sort name

```
public static String getSortingName(HttpServletRequest request)
```

```
{
    String sortname = request.getParameter(PARAM_SORT_NAME);
    if (sortname != null)
    {
      return sortname;
    }
    Localizer localizer = (Localizer)request.getAttribute("localizer");
    return localizer.getLocalLinguisticSorts()[0];
  }
```

Add a sort name parameter to the method getOrderItems

```
public static List /* OrderItem */ getOrderItems (long orderId, String
   sortName, Comparator sortComp, Localizer localizer ) throws Exception
```

Add code to generate collation keys for each OrderItem object

```
OraCollator ocol = OraCollator.getInstance(sortName);
   ...
   odit.ocolkey = ocol.getCollationKey(odit.productName);
```

The modifications to the ***ShopAction.java*** file are :

Add the linguistic sort name to getOrderItems are:

```
String sortName = ShopAction.getSortingName(request);
   request.setAttribute("sortname", sortName);
   List orderItemList = ShopAction.getOrderItems(orderId, sortName, sortDir,
     localizer);
```

☐ **2.** From your terminal window, execute the following commands:

```
cd /home/oracle/
wkdir/gdk/gdkshop/public_html
cp /home/oracle/wkdir/gdk/step8/orderinformation.jsp orderinformation.jsp
```

The modifications to the orderinformation.jsp file are :

Add a JavaScript that submits the linguistic sort name when you select a pull-down menu.

```
<script language="JavaScript" type="text/JavaScript">
```

```
  <!--
    function MM_jumpMenu(targ,selObj, restore, orderid){ //v3.0
    eval(targ+".location='orderinformation?orderid="+ orderid +
         "&sortname=" + selObj.options[selObj.selectedIndex].value+"'");
   if (restore) selObj.selectedIndex=0;
    }
  //-->
 </script>
```

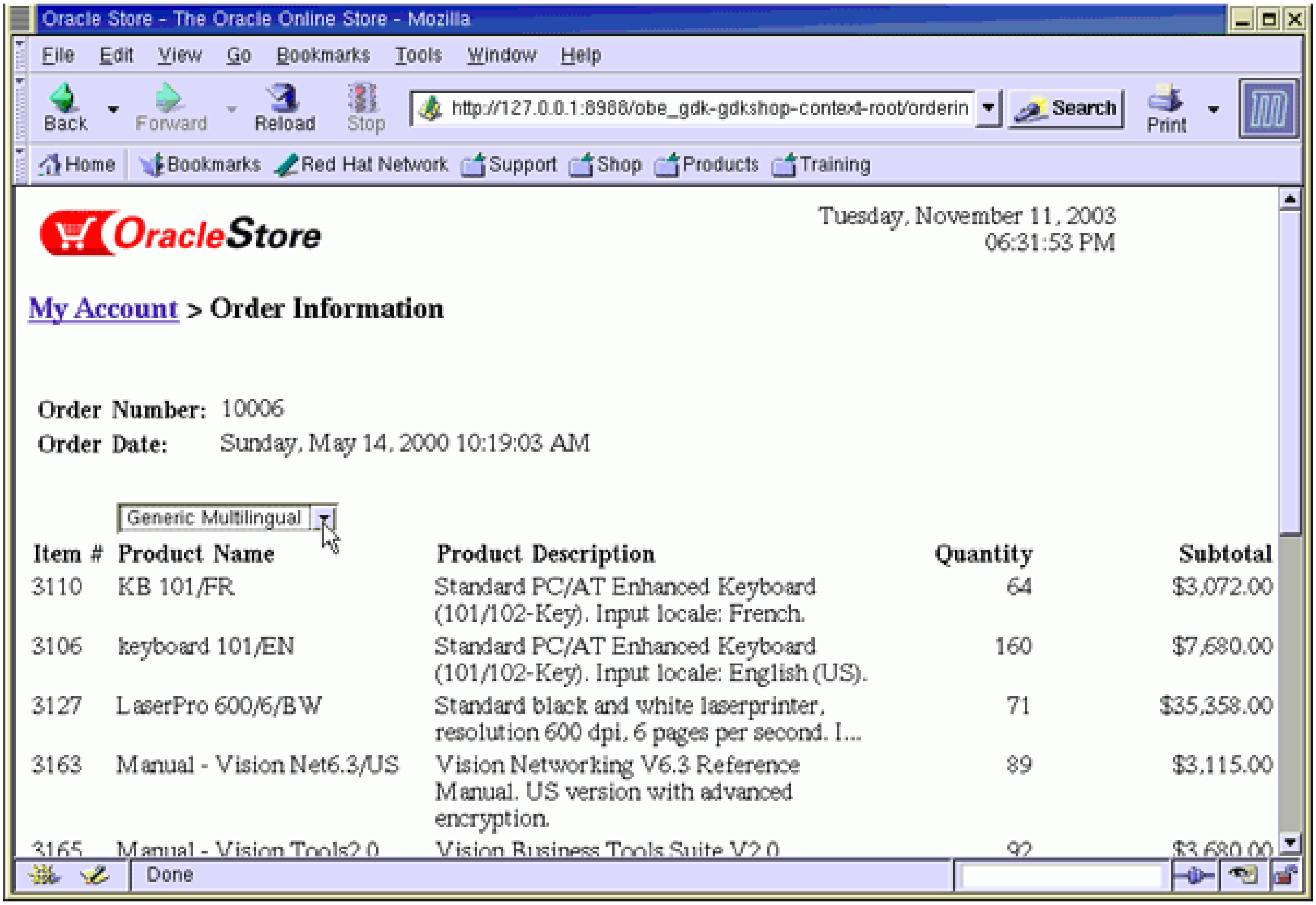
Add a form for the pull-down menu.

```
<td width="750" colspan="4">
```

```
   <select name="sortings" onChange="MM_jumpMenu(
     'parent',this,0,'<%= order.orderId %>','asc')">
 <%
   String[] lingsorts = localizer.getLocalLinguisticSorts();
   String sortname = (String) request.getAttribute("sortname");
   for (int i=0; i<lingsorts.length; ++i)
   {
 %>
      <option value="<%= lingsorts[i] %>"
        <%=lingsorts[i].equals(sortname) ? "selected" : "" %>>
        <%=localizer.getDisplayLinguisticSort(lingsorts[i]) %>
      </option>
 <%
   }
 %>
   </select>
 </td>
```

☐ **3.** You are now ready to re-run the application. **Terminate the Embedded OC4J Server** , **Rebuild gdkshop.jpr** and **Run gdkshop.jpr** .

☐ **4.** In the Order Information page you will see that a Linguistic sort drop down list (above the product name) is now available, it allows the customer to re-sequence the records by selecting from a list of the Oracle Linguistic sorts sutiable for their choosen language. Select **Binary Sort** from the list.


Oracle Store - The Oracle Online Store - Mozilla
File Edit View Go Bookmarks Tools Window Help
Back
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Reload
Stop
http://127.0.0.1:8988/obe_gdk-gdkshop-context-root/orderin
Search
Print
Home
Bookmarks
Red Hat Network
Support
Shop
Products
Training
OracleStore
Done

Tuesday, November 11, 2003
06:31:53 PM

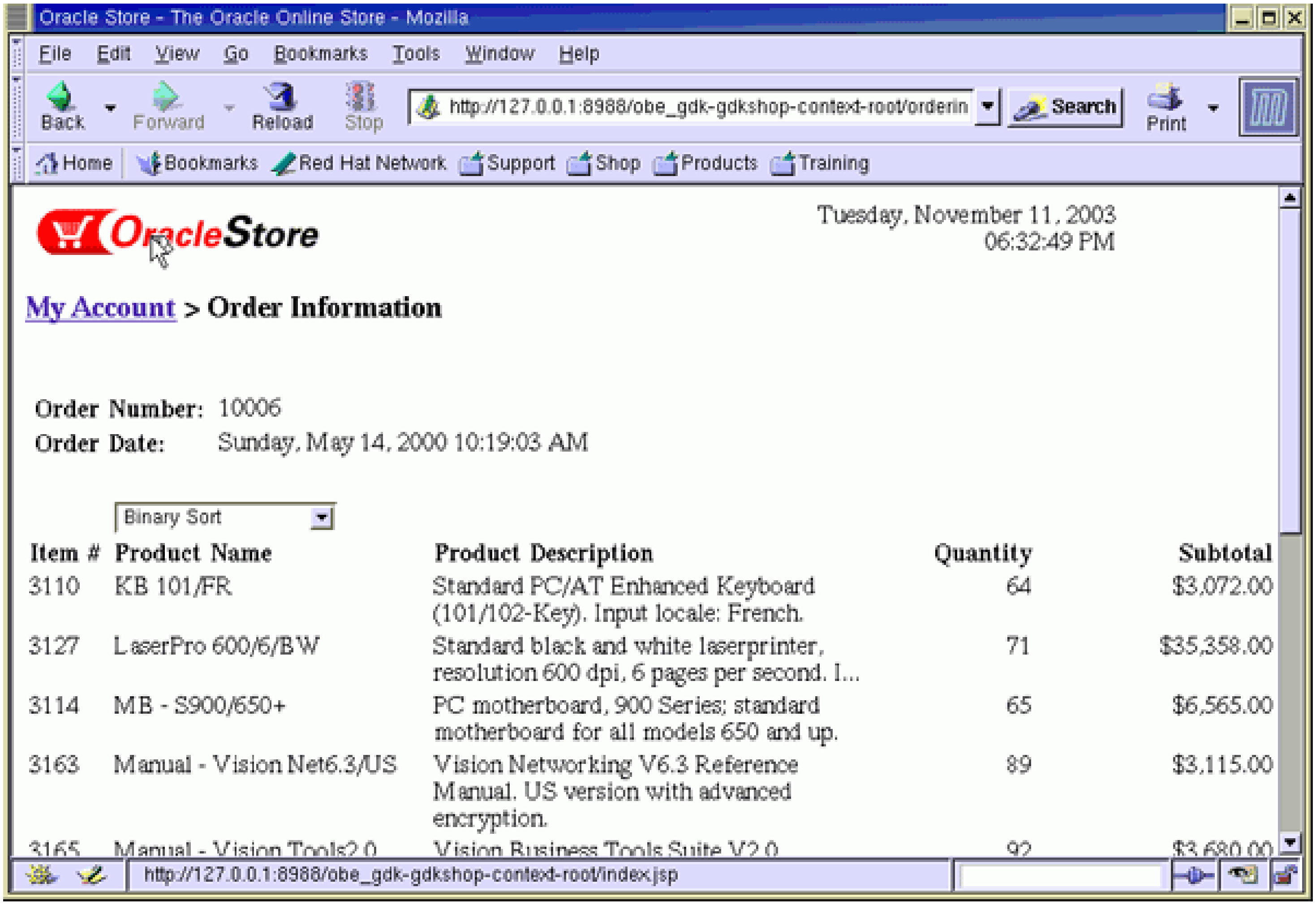
My Account > Order Information

Order Number: 10006
Order Date: Sunday, May 14, 2000 10:19:03 AM

Generic Multilingual

Item #	Product Name	Product Description	Quantity	Subtotal
3110	KB 101/FR	Standard PC/AT Enhanced Keyboard (101/102-Key). Input locale: French.	64	$3,072.00
3106	keyboard 101/EN	Standard PC/AT Enhanced Keyboard (101/102-Key). Input locale: English (US).	160	$7,680.00
3127	LaserPro 600/6/BW	Standard black and white laserprinter, resolution 600 dpi, 6 pages per second. I...	71	$35,358.00
3163	Manual - Vision Net6.3/US	Vision Networking V6.3 Reference Manual. US version with advanced encryption.	89	$3,115.00
3165	Manual - Vision Tools2.0	Vision Business Tools Suite V2.0	92	$3,680.00

☐ **5.** The problem with using Binary sort is that Upper case letters are always sorted before all Lower case ones. Select the **OracleStore** logo and select **Colin.Olin (Spanish)** to view the sort options available in Spanish.


Oracle Store - The Oracle Online Store - Mozilla
File Edit View Go Bookmarks Tools Window Help
Back Forward Reload Stop
http://127.0.0.1:8988/obe_gdk-gdkshop-context-root/orderin
Search
Print
Home Bookmarks Red Hat Network Support Shop Products Training
OracleStore
http://127.0.0.1:8988/obe_gdk-gdkshop-context-root/index.jsp

Tuesday, November 11, 2003
06:32:49 PM

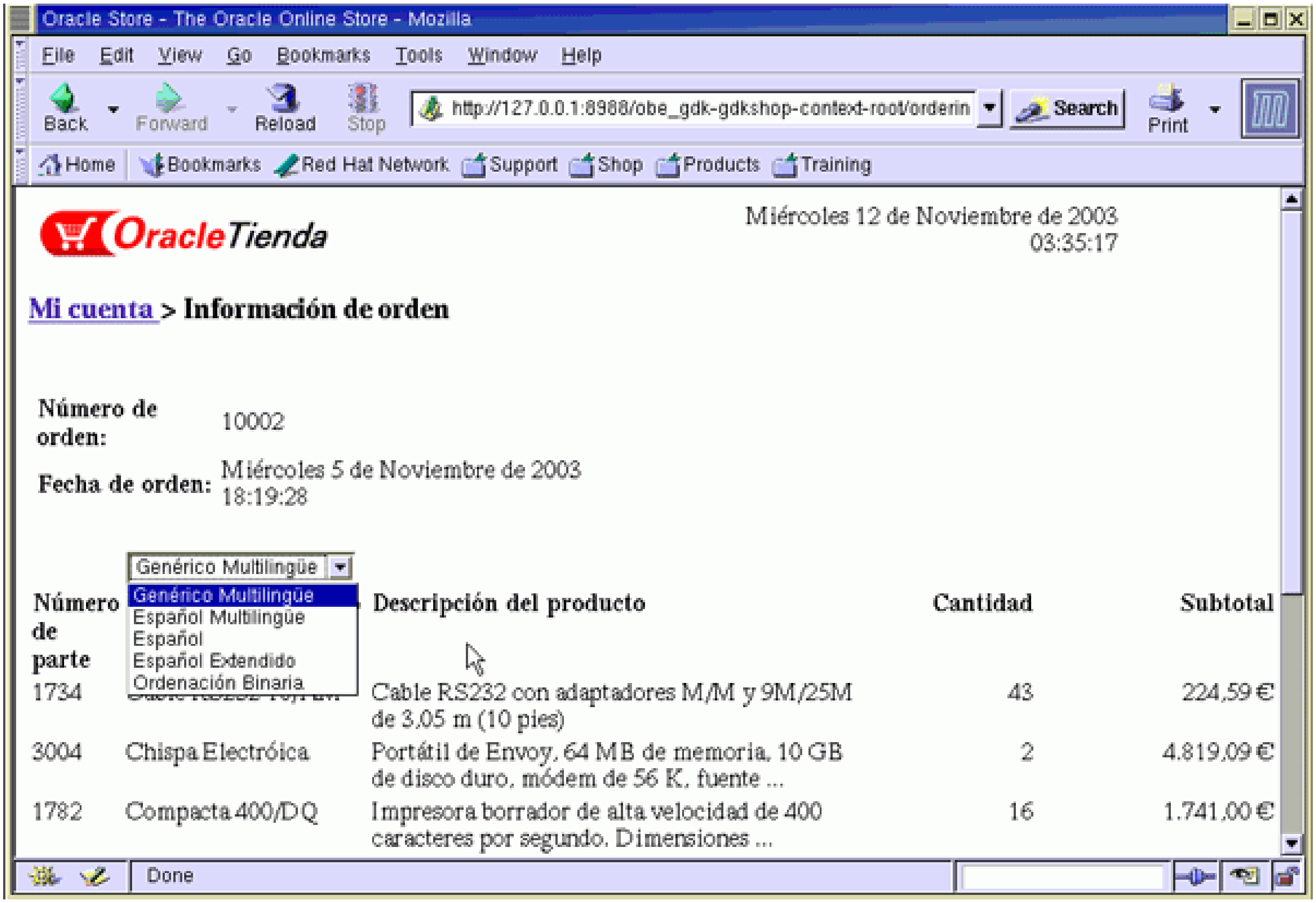
My Account > Order Information

Order Number: 10006
Order Date: Sunday, May 14, 2000 10:19:03 AM

Binary Sort

Item #	Product Name	Product Description	Quantity	Subtotal
3110	KB 101/FR	Standard PC/AT Enhanced Keyboard (101/102-Key). Input locale: French.	64	$3,072.00
3127	LaserPro 600/6/BW	Standard black and white laserprinter, resolution 600 dpi, 6 pages per second. I...	71	$35,358.00
3114	MB - S900/650+	PC motherboard, 900 Series; standard motherboard for all models 650 and up.	65	$6,565.00
3163	Manual - Vision Net6.3/US	Vision Networking V6.3 Reference Manual. US version with advanced encryption.	89	$3,115.00
3165	Manual - Vision Tools2.0	Vision Business Tools Suite V2.0	92	$3,680.00

☐ **6.** Select **Espanol Multilingue** in order to find that **ch** is considered as a separate character sorted **c** and **d** for sorting in Traditional Spanish order.



Miércoles 12 de Noviembre de 2003
03:35:17

Mi cuenta > Información de orden

Número de orden: 10002

Fecha de orden: Miércoles 5 de Noviembre de 2003 18:19:28

Número de parte		Descripción del producto	Cantidad	Subtotal
1734		Cable RS232 con adaptadores M/M y 9M/25M de 3,05 m (10 pies)	43	224,59 €
3004	Chispa Electróica	Portátil de Envoy, 64 MB de memoria, 10 GB de disco duro, módem de 56 K, fuente ...	2	4.819,09 €
1782	Compacta 400/DQ	Impresora borrador de alta velocidad de 400 caracteres por segundo. Dimensiones ...	16	1.741,00 €

Displaying flags and available language translations

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To display all the locales supported in the application, you may want to display flags and language translations by performing the following:

☐ **1.** Add bitmaps to indicate the supported locales. From your terminal window, execute the following commands:

```
cd /home/oracle/
wkdir/gdk/gdkshop/public_html
cp /home/oracle/wkdir/gdk/step9/US.gif US.gif
cp /home/oracle/wkdir/gdk/step9/ES.gif ES.gif
cp /home/oracle/wkdir/gdk/step9/CN.gif CN.gif
cp /home/oracle/wkdir/gdk/step9/IN.gif IN.gif
cp /home/oracle/wkdir/gdk/step9/index.jsp index.jsp
```

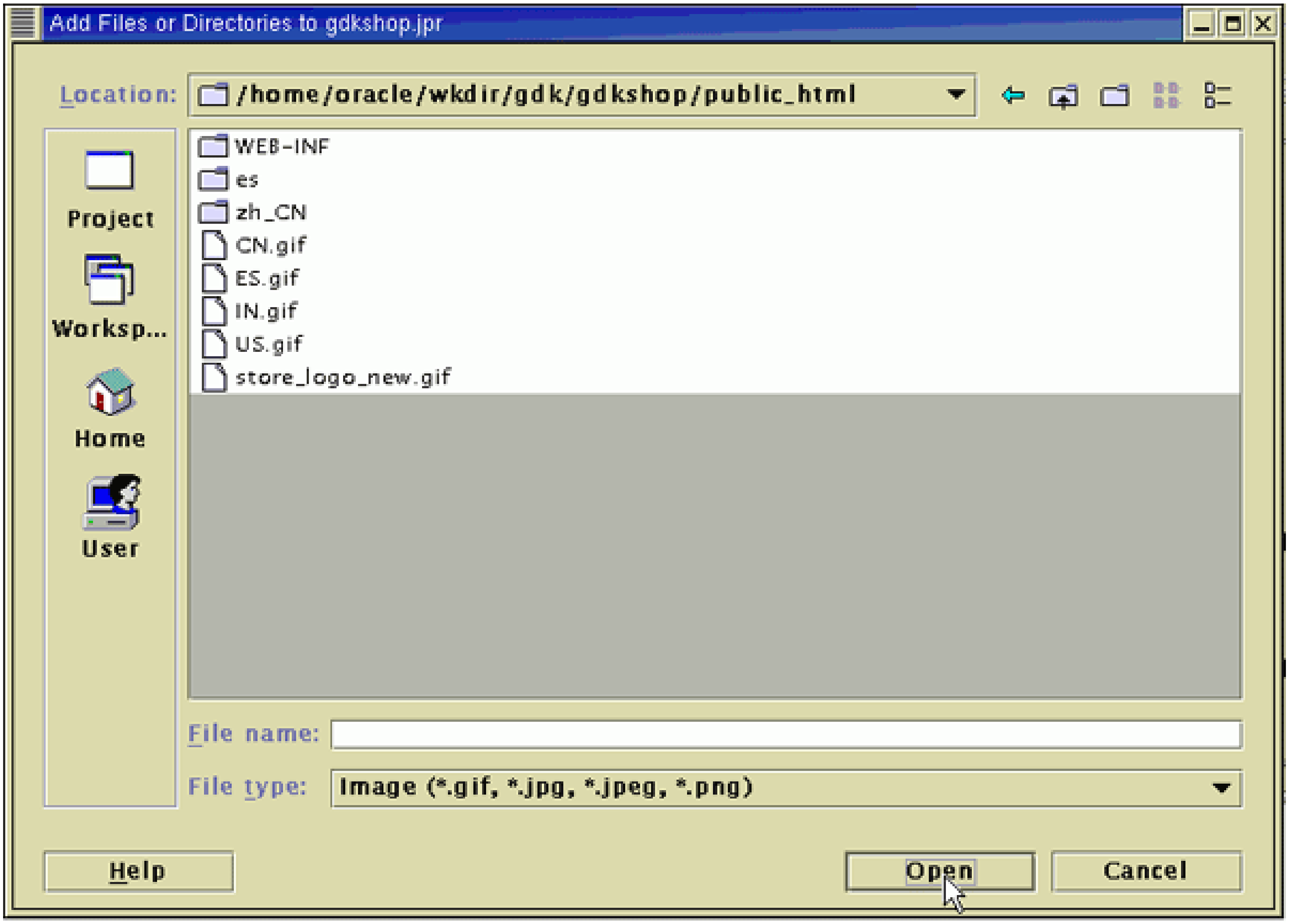
The modifications to the **index.jsp** file are:

Display the names of the supported langauges as defined in gdkapp.xml

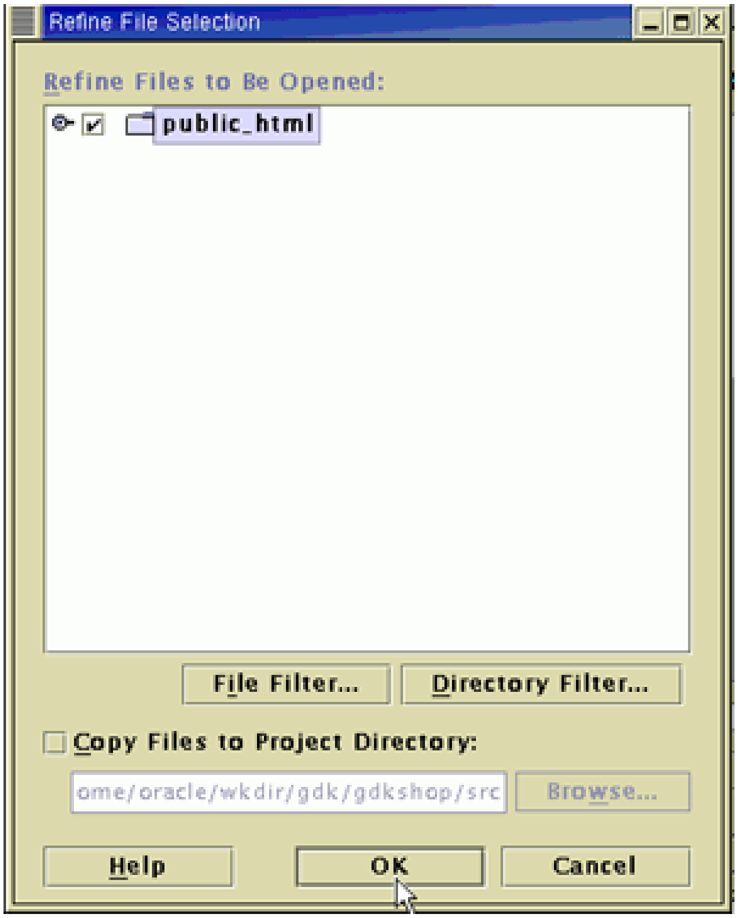
```
<%



   Locale[] locales = localizer.getSupportedLocales();
   for (int i=0; i<locales.length; ++i)
   {
     OraLocaleInfo oloc = OraLocaleInfo.getInstance(locales[i]);
     String jt = LocaleMapper.getJavaTerrFromOraTerr(oloc.getTerritory());
 %>
 <td><div align="center"><img src="<%= jt %>.gif" width="25" height="18"><br>
  <font size="-2">
   <%= OraDisplayLocaleInfo.getInstance(locales[i]).getDisplayLanguage(locales[i]) %>
  </font></div>
 </td>
 <%
   }
 %>
```

☐ **2.** Before the application can pick up the flags, the image files need to be included into the project. In JDeveloper, click and highlight **gdkshop.jpr** in the System-Navigator window. Click **+** icon at the top left hand corner.

☐ **3.** Before the application can pick up the flags, the files needs to be included in the JDeveloper project. Select and open the directory **`home/oracle/wkdir/gdk/gdkshop/public_html`** . Select **Image** from the "File type" drop down list. Click **Open** .

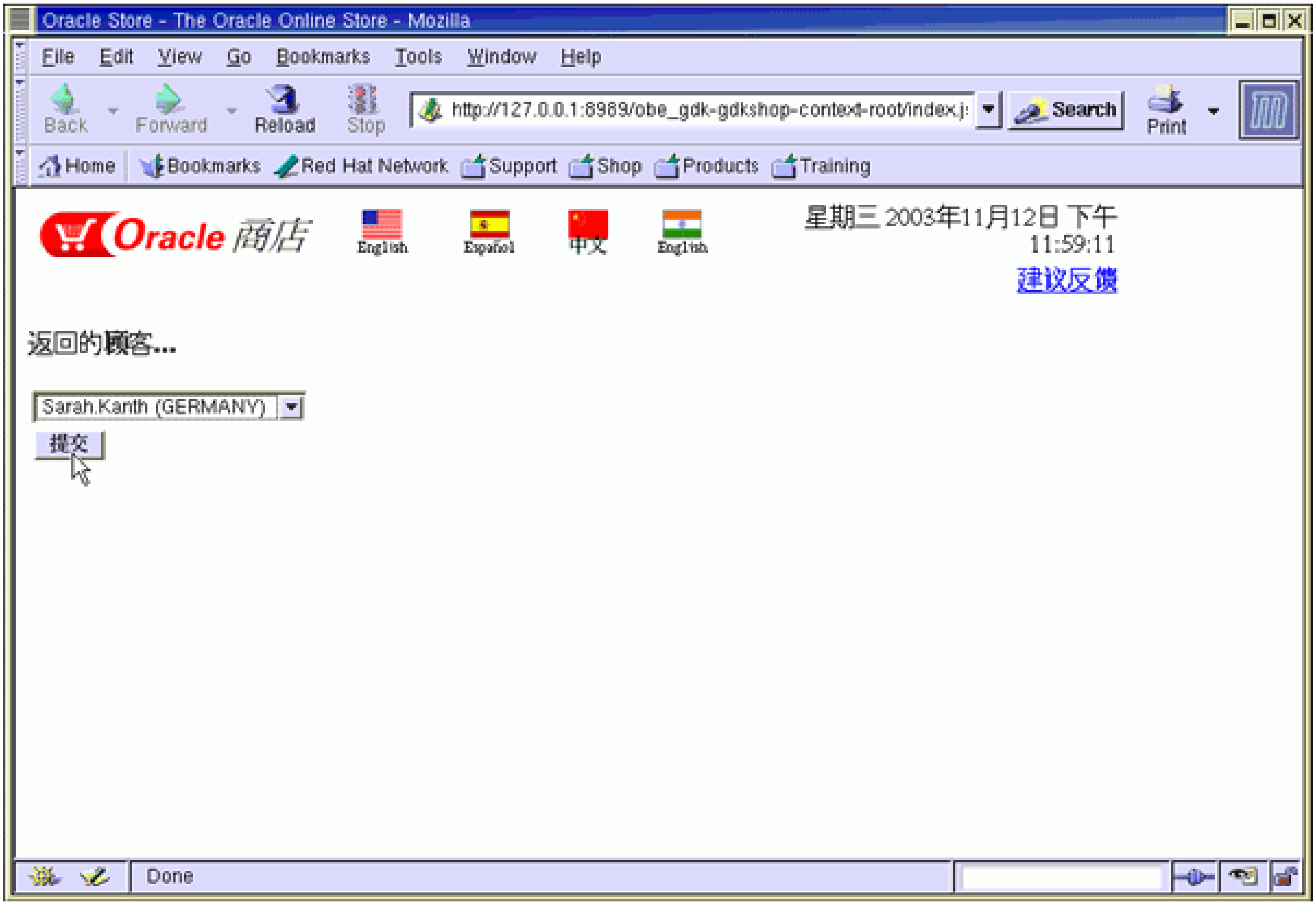

Add Files or Directories to gdkshop.jpr
Location: /home/oracle/wkdir/gdk/gdkshop/public_html
Project
Worksp...
Home
User
WEB-INF
es
zh_CN
CN.gif
ES.gif
IN.gif
US.gif
store_logo_new.gif
File name:
File type: Image (*.gif, *.jpg, *.jpeg, *.png)
Help
Open
Cancel

☐ **4.** Click **OK** .


Refine File Selection
Refine Files to Be Opened:
public_html
File Filter...
Directory Filter...
Copy Files to Project Directory:
ome/oracle/wkdir/gdk/gdkshop/src
Browse...
Help
OK
Cancel

☐ **5.** You are now ready to re-run the application. **Terminate the Embedded OC4J Server** , **Rebuild gdkshop.jpr** and **Run gdkshop.jpr** .

☐ **6.** You should see the 4 locales that are supported by the Oracle Store.


Oracle Store - The Oracle Online Store - Mozilla
File Edit View Go Bookmarks Tools Window Help
Back Forward Reload Stop
Search
Print
Home Bookmarks Red Hat Network Support Shop Products Training
Oracle 商店
English
Español
中文
English
Done

http://127.0.0.1:8989/obe_gdk-gdkshop-context-root/index.j:

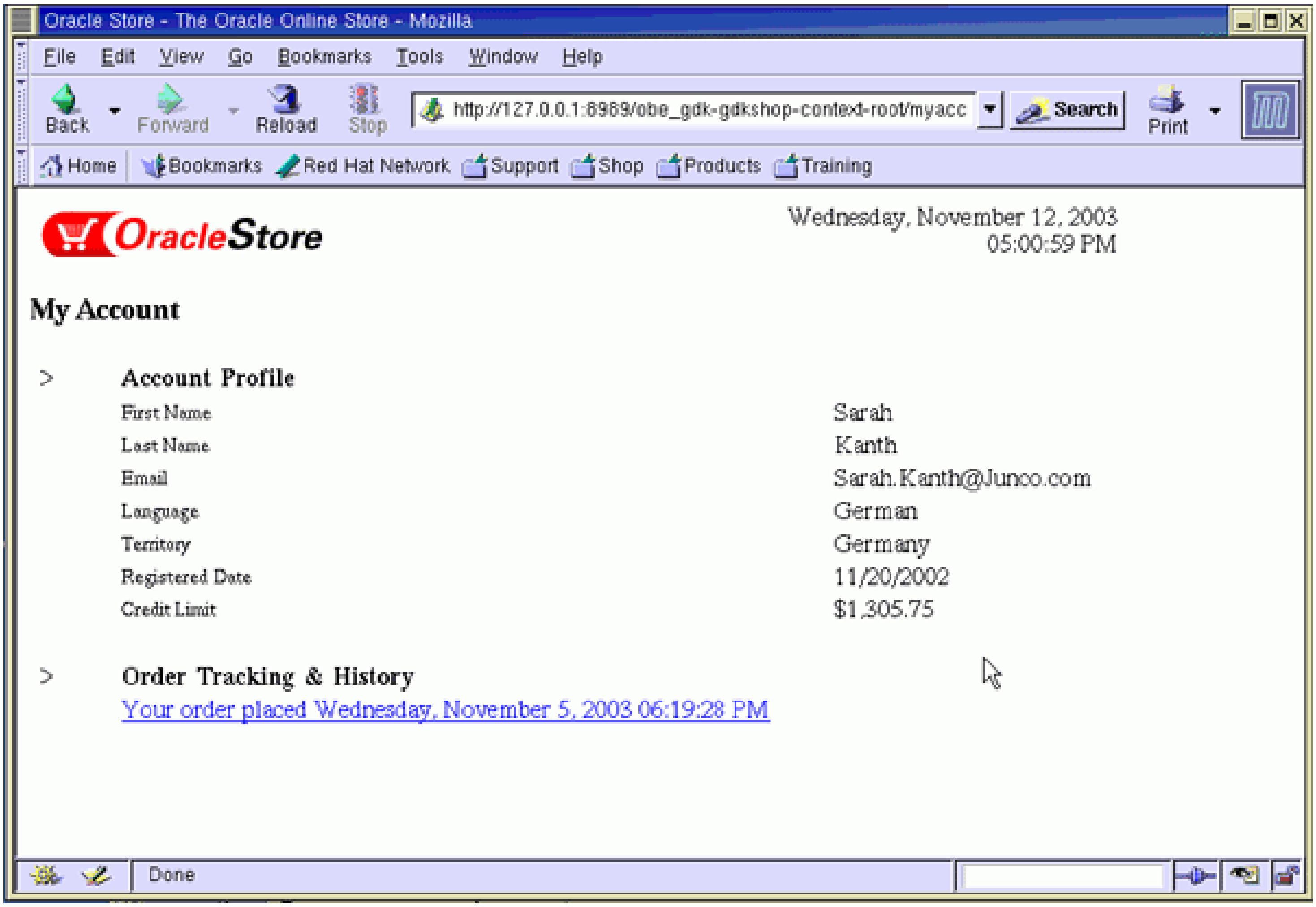
星期三 2003年11月12日 下午
11:59:11
建议反馈

返回的顾客...

Sarah.Kanth (GERMANY)

提交

☐ **7.** If you select Sarah, the customer from Germany, the application will default to English 'en' as the user locale.


Oracle Store - The Oracle Online Store - Mozilla
File Edit View Go Bookmarks Tools Window Help
Back Forward Reload Stop
http://127.0.0.1:8989/obe_gdk-gdkshop-context-root/myacc
Search
Print
Home Bookmarks Red Hat Network Support Shop Products Training
OracleStore
Done

Wednesday, November 12, 2003
05:00:59 PM

My Account

> Account Profile

First Name	Sarah
Last Name	Kanth
Email	Sarah.Kanth@Junco.com
Language	German
Territory	Germany
Registered Date	11/20/2002
Credit Limit	$1,305.75

> Order Tracking & History

Your order placed Wednesday, November 5, 2003 06:19:28 PM

Adding support for a new locale (German)

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Since the Oracle Store Application has now been fully globalized using GDK, to add support for a new locale is very simple. You just need to create a tranlsation file with the translations for the new language, a new flag and a new store logo corresponding to the new locale and finally update the locale entry in the GDK application configuration file. Perform the following:

☐ **1.** From your terminal window, execute the following commands:

```
cd /home/oracle/
wkdir/gdk/gdkshop/src/oracle/i18n/demo/obe/gdkshop/gdk
cp /home/oracle/wkdir/gdk/stepA/Translations_de.java Translations_de.java
cd /
home/oracle/wkdir/gdk/gdkshop/public_html
cp /home/oracle/wkdir/gdk/stepA/DE.gif DE.gif
mkdir de
cd de
cp /home/oracle/wkdir/gdk/stepA/de/store_logo_new.gif store_logo_new.gif
cd /home/oracle/wkdir
/gdk/gdkshop/public_html/WEB-INF
cp /home/oracle/wkdir/gdk/stepA/gdkapp.xml gdkapp.xml
```

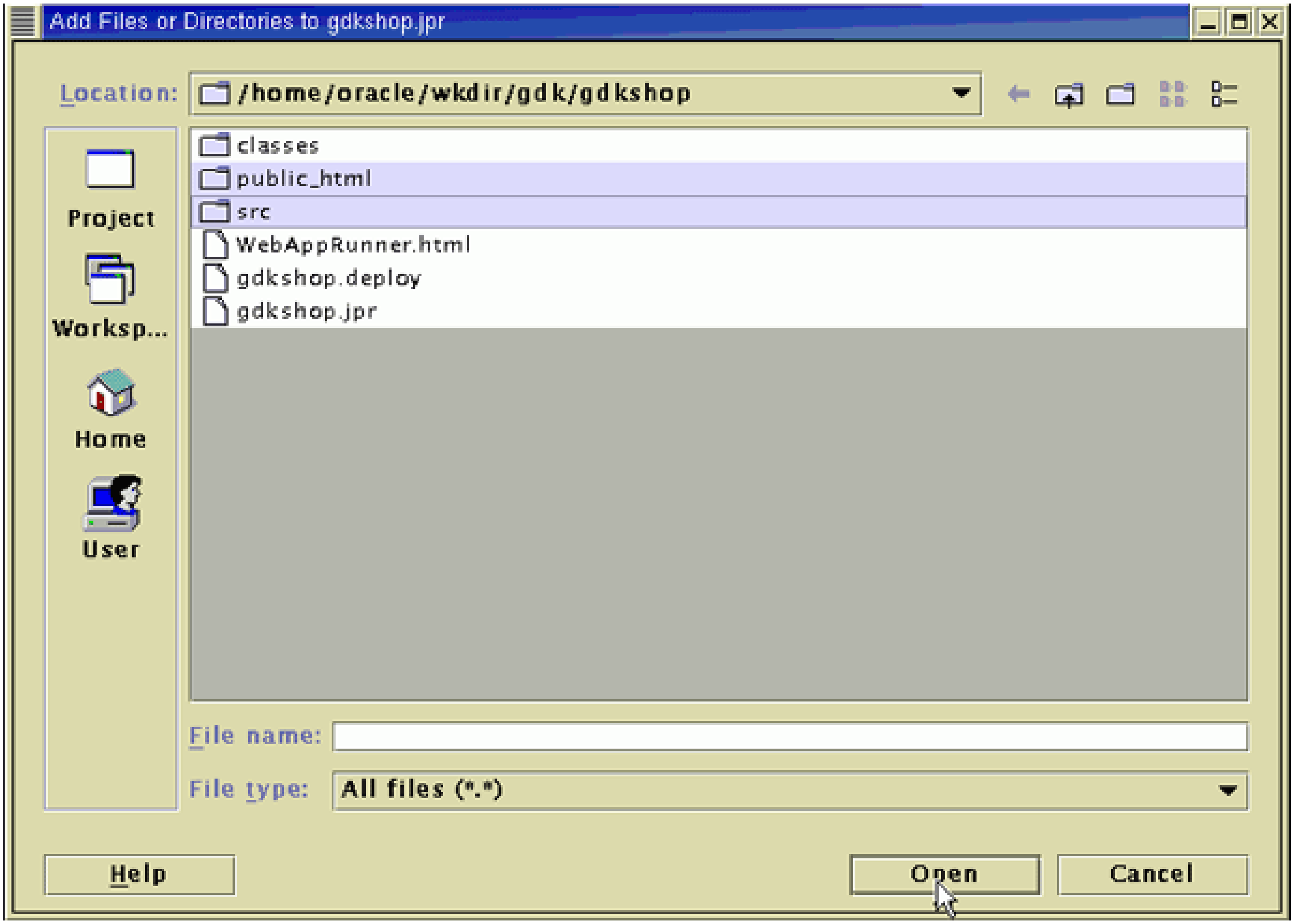
The modifications to the **gdkapp.xml** file are:

Display the names of the supported langauges as defined in gdkapp.xml

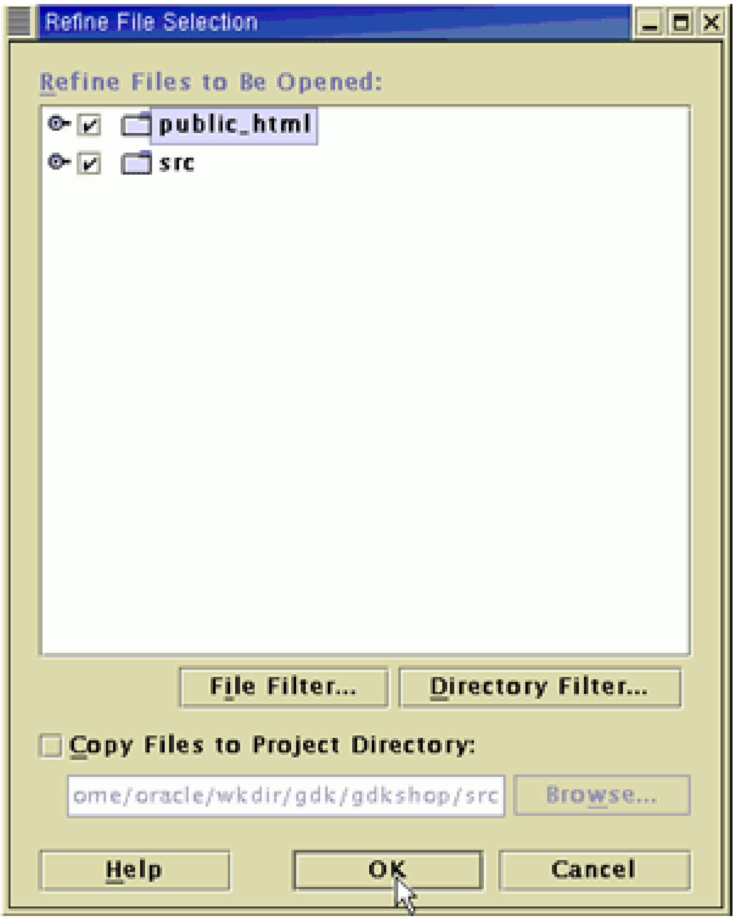
```
<application-locales>


   <locale default="yes">en</locale>
   <locale>es</locale>
   <locale>zh_CN</locale>
   <locale>en_IN</locale>
   <locale>de</locale>
 </application-locales>
```

☐ **2.** Before the application can pick up the flag images and the German resource bundle, they need to be included in the project. In JDeveloper, Click and highlight **gdkshop.jpr** in the System-Navigator window. Click **+** icon at the top left hand corner.

☐ **3.** Before the application can pick up the flags, the files needs to be included in the JDeveloper project. Shift-select **`/ home/oracle/wkdir/gdk/gdkshop/public_html`** and **`/ home/oracle/wkdir/gdk/gdkshop/src`** . The click **Open** .



☐ **4.** Click **OK** .



Refine Files to Be Opened:

☑ public_html

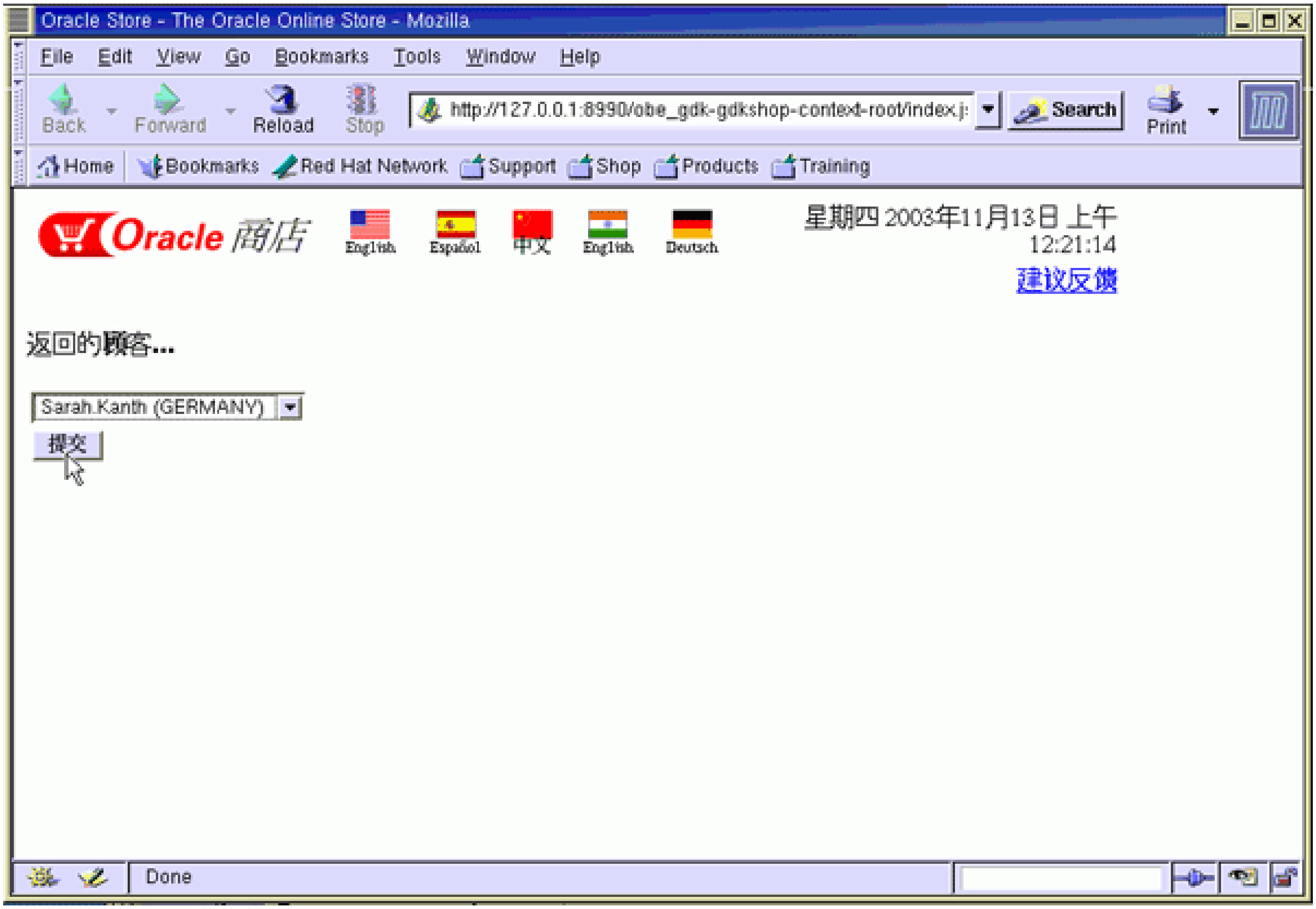
☑ src

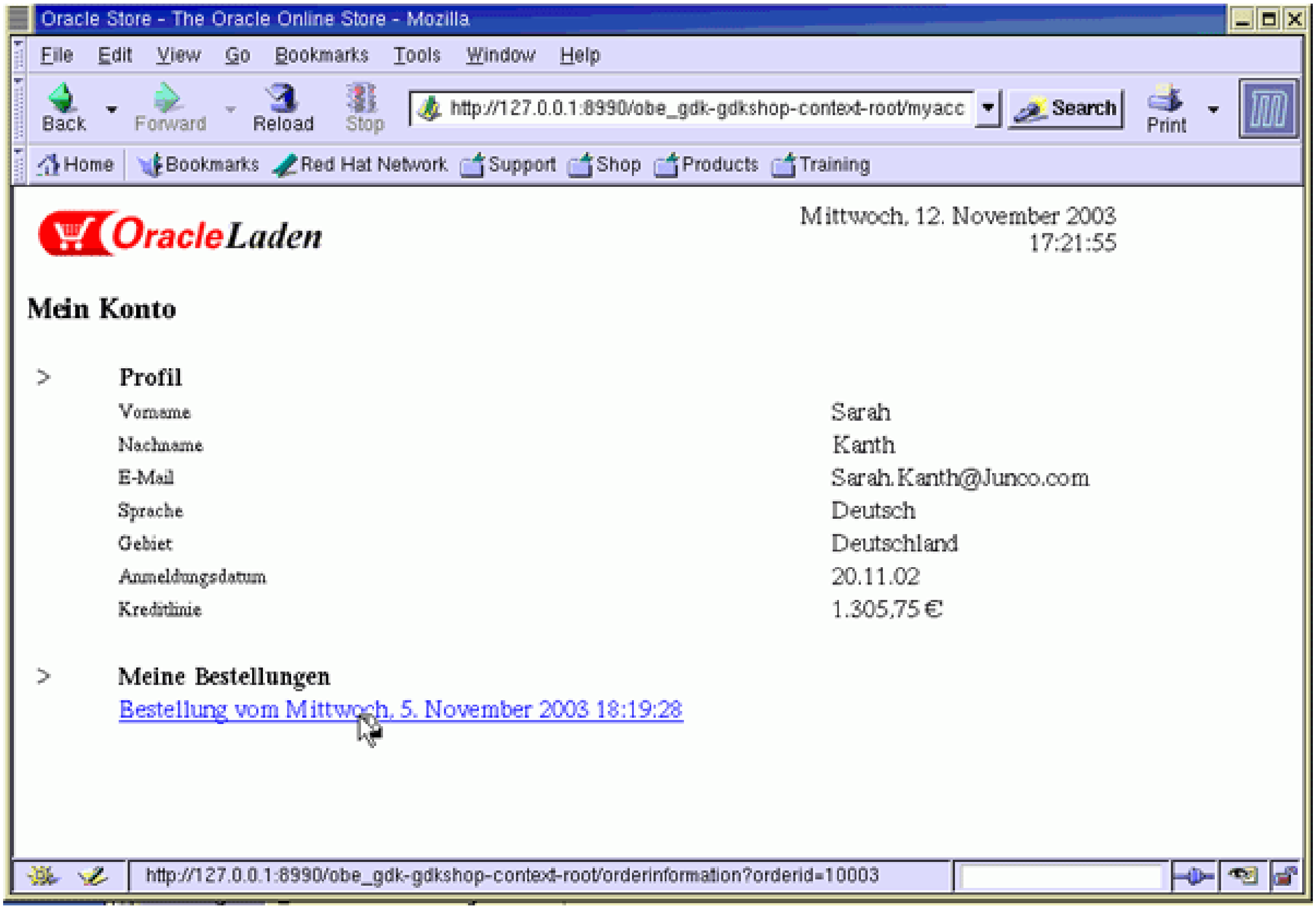
☐ Copy Files to Project Directory:

ome/oracle/wkdir/gdk/gdkshop/src

☐ **5.** You are now ready to re-run the application. **Terminate the Embedded OC4J Server** , **Rebuild gdkshop.jpr** and **Run gdkshop.jpr** .

☐ **6.** You should see 5 locales are now being supported by Oracle Store. And if you select Sarah this time, all her order information should be translated and the locale sensitive information are now based on the German conventions.


Oracle Store - The Oracle Online Store - Mozilla
File Edit View Go Bookmarks Tools Window Help
Back Forward Reload Stop
http://127.0.0.1:8990/obe_gdk-gdkshop-context-root/index.j:
Search
Print
Home Bookmarks Red Hat Network Support Shop Products Training
Oracle 商店
English
Español
中文
English
Deutsch
星期四 2003年11月13日 上午 12:21:14
建议反馈
返回的顾客...
Sarah.Kanth (GERMANY)
提交
Done


Oracle Store - The Oracle Online Store - Mozilla
File Edit View Go Bookmarks Tools Window Help
Back Forward Reload Stop
http://127.0.0.1:8990/obe_gdk-gdkshop-context-root/myacc
Search Print
Home Bookmarks Red Hat Network Support Shop Products Training
OracleLaden

Mittwoch, 12. November 2003
17:21:55

Mein Konto

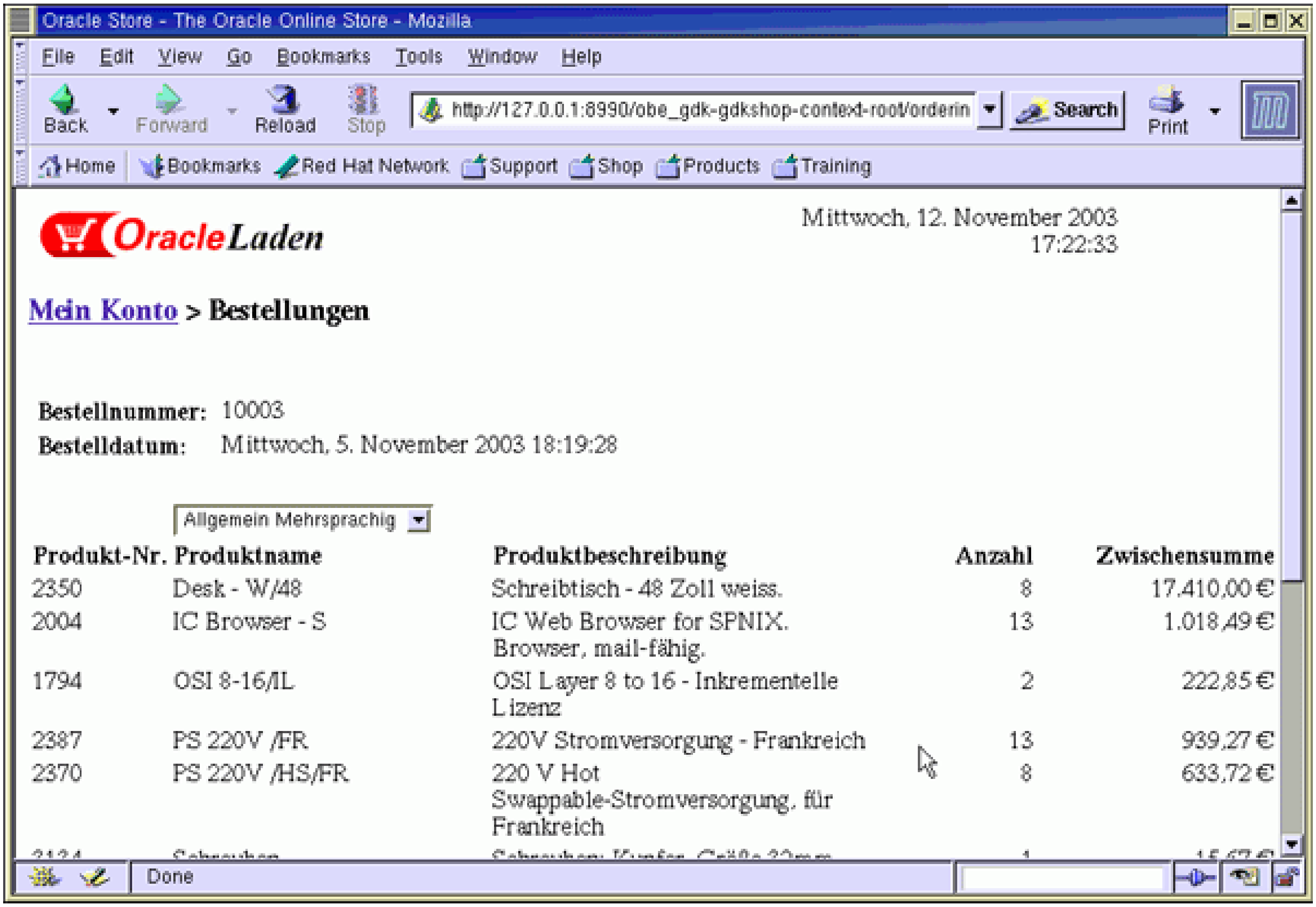
> **Profil**

Vorname	Sarah
Nachname	Kanth
E-Mail	Sarah.Kanth@Junco.com
Sprache	Deutsch
Gebiet	Deutschland
Anmeldungsdatum	20.11.02
Kreditlinie	1.305,75 €

> **Meine Bestellungen**

Bestellung vom Mittwoch, 5. November 2003 18:19:28

http://127.0.0.1:8990/obe_gdk-gdkshop-context-root/orderinformation?orderid=10003



Mittwoch, 12. November 2003
17:22:33

Mein Konto > Bestellungen

Bestellnummer: 10003
Bestelldatum: Mittwoch, 5. November 2003 18:19:28

Allgemein Mehrsprachig

Produkt-Nr.	Produktname	Produktbeschreibung	Anzahl	Zwischensumme
2350	Desk - W/48	Schreibtisch - 48 Zoll weiss.	8	17.410,00 €
2004	IC Browser - S	IC Web Browser for SPNIX. Browser, mail-fähig.	13	1.018,49 €
1794	OSI 8-16/IL	OSI Layer 8 to 16 - Inkrementelle Lizenz	2	222,85 €
2387	PS 220V /FR	220V Stromversorgung - Frankreich	13	939,27 €
2370	PS 220V /HS/FR	220 V Hot Swappable-Stromversorgung, für Frankreich	8	633,72 €

Integrating Language Detection Technology

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The Oracle Store application has a feedback page that allows a customer to compose and submit feedback to the Oracle Store. However, without prior knowledge of the language that the feedback is written in, it is not possible for the application to route the feedback to the most appropriate international Oracle Store offices for processing. Perform the following steps to add the language detection to the application:

☐ **1.** From your terminal window, execute the following commands:

```
cd /home/oracle/wkdir/gdk/gdkshop/public_html

cp /home/oracle/wkdir/gdk/stepB/feedback.jsp feedback.jsp
```

The modifications to the **feedback.jsp** file are:

Import the LCSD packages:

```
<%@ page import="oracle.i18n.lcsd.*" %>
```

Detect the content language after getting the content:

```
<%
  // detect
   String fb_content = request.getParameter("fb_content");
   String olang = null;
   if (fb_content != null && fb_content.length() > 0)
  {
     LCSDetector led = new LCSDetector();
     led.detect(fb_content);
     LCSDResultSet ledrs = led.getResult();
     olang = ledrs.getISOLanguage();
   }
  Localizer localizer = ServletHelper.getLocalizerInstance(request);
%>
```

Show the result:

```
<% if (olang != null){%>
<p>
<%= localizer.getMessage("YOUR_MESSAGE") %>
&nbsp;
(<%= localizer.getDisplayLanguage(olang)%>)
</p>
<%}%>
```

☐ **2.** You are now ready to re-run the application. **Terminate the Embedded OC4J Server** , **Rebuild gdkshop.jpr** and **Run gdkshop.jpr** .

☐ **3.** Click the **Feedback** link in the upper right on the page.

☐ **4.** Type a message in the text box and click **Submit** .

☐ **5.** You see the result.

Place the cursor on this icon to hide all screenshots.