# Web-enable a 5250 application using the IBM WebFacing Tool

# Contents

# Web-enable a 5250 application using the IBM WebFacing Tool

This tutorial teaches you how to use the IBM® WebFacing Tool to Web-enable a 5250 application. You learn about customizing the output of the conversion process using the IBM WebFacing Tool and the LPEX Editor and you learn how to run the WebFacing application in the WebSphere® Test Environment that is part of the product. You also learn about deploying the application to the WebSphere Application Server and mixing a WebFacing application with a non-WebFacing application.

## Learning objectives
- Convert DDS screens in an existing application to a Web browser user interface using the IBM WebFacing Tool
- Customize the Web browser user interface after conversion
- Run the customized WebFacing application
- Deploy a WebFacing application to a product WebSphere Application Server
- Mix a WebFacing and non-WebFacing application

180 minutes

### Related information

![pdf icon] View the PDF version

## Introduction

While creating a browser user interface, you will learn how to use the IBM WebFacing Tool. You will customize the output of the conversion process using the IBM WebFacing Tool and the LPEX Editor. Next, you will learn how to run the WebFacing application in the WebSphere Test Environment that is part of the product. You will also learn how to use Page Designer to customize the application start page and you will learn how to publish and deploy your WebFacing application to a remote WebSphere Application Server (this is an optional module). Finally you learn how to run a WebFacing and non-WebFacing application using the IBM WebFacing Tool in Host Access Transformation Services (HATS) for System i.

## Learning objectives
- Review an existing 5250 order entry application before creating a browser user interface for it
- Create a WebFacing project for the converted application
- Convert DSPF and UIM source
- Run the WebFacing application in the WebSphere Test Environment
- Customize the WebFacing application browser user interface
- Run the customized WebFacing application in the WebSphere Test Environment
- Deploy the customized WebFacing application to a production server
- Enhance the WebFacing application browser user interface further using Web Tools
- Run a mixed WebFacing and non-WebFacing application

## Time required

This tutorial should take approximately 180 minutes to finish. If you explore other concepts related to this tutorial, it could take longer to complete.

## Skill level

Introductory

## Audience

System i programmer

## System requirements

- IBM Host Access Transformation Services (HATS) for System i V 7.1 product with the WebFacing tool installed and all software updates through the IBM Installation Manager.
- Rational Developer for System i (RDi) Version 7.1.
- i5/OS® V5R2 or greater (V5R4 or greater is necessary for the part in this tutorial where you mix a WebFacing and non-WebFacing application).
- The WebFacing runtime server is started:
  - STRTCPSVR *webfacing
  - Verify jobs QQFWFSVR and QQFVTSVR are running. Use the command WRTACTJOB JOB(QQF*).

  Make sure the user ID starting the WebFacing server has *USE authority for *PUBLIC user for object type *LIB and object type *OUTQ.
- System i™ Access for Windows® or IBM Personal Communications with 5250 emulation
- IBM WebSphere Application Server for i5/OS is installed on an i5/OS system (required if you want to do the optional module on deploying your WebFacing application to a production server). Your administrator will need to set up and start the WebSphere Application Server and an associated HTTP server on your i5/OS server.
- Check with your system administrator to ensure that your user ID has the necessary authority to create and access IFS folders.

## Prerequisites

- Basic Microsoft® Windows operations such as working with the desktop and basic mouse operations such as opening folders and performing drag-and-drop operations
- Basic knowledge of how Web applications work
- Basic knowledge of how to use a browser to navigate the Internet
- Restore the WFLABXX savefile (WFLABXX.savf) on an i5/OS system:
  - Import **wflabxx** project in **WFLABXX.zip** to your workspace.
  - Open the Project Explorer view by clicking **Window** → **Show View** → **Other** → **General** → **Project Explorer**.
  - Expand the **wflabxx** project.
  - Right-click the **wflabxx.savf** savefile, and select **Restore on i5/OS**.
- Extract the file WFDEMO.zip to your C drive:
  - Open the Project Explorer view by clicking **Window** → **Show View** → **Other** → **General** → **Project Explorer**.
  - Expand the **wflabxx** project.
  - Right-click the **WFDEMO.zip** file, and select **Export**.
  - Export the file to the local file system.
  - On the local file system unzip the file WFDEMO.zip.
- If you move the WebFacing applications to production, you need to buy a Host Access Transformation Services (HATS) license. Without a valid license, you are limited to two concurrent trial WebFacing connections.

## Expected results

Upon completion of this tutorial you will know how to use the IBM WebFacing Tool to create and customize a browser interface for an existing customer inquiry application written in RPG.

## Conventions used in this tutorial

- **Bold** font for user interface controls
- `Mono-spaced` font for user input and code blocks
- *Italic* font for variable names and glossary terms

# Reviewing the 5250 order entry application

This module teaches you how the existing application green screens, command keys and help panels work and look before you start using the WebFacing Tool to convert it. You will become familiar with the 5250 screens and the behavior of the application so that after conversion with the WebFacing Tool you will then be able to compare the 5250 and the Web user interface.

Completing this module will also test your user profile setup. If you can run this application directly without changing the job environment on the i5/OS, the WebFacing conversion and the WebFacing server will not have problems during the remaining lessons later.

You will use a 5250 emulation screen to start the sample Order Entry application. You will be prompted with the first screen for a customer number. You will work with the help panels this application provides. You will select a customer from the list of valid customers and then go through the steps of filling an order by specifying the quantity ordered. After all parts and their quantities for this order have been specified you complete the order by pressing a specific command key. The application will then prompt you for a new customer number to handle the next order.

**Tip:** If you have problems make sure the library list for your job is setup correctly to include library WFLABXX at job start up.

## Learning objectives

- Start a 5250 emulation session
- Call the order entry application
- View the customer selection screen
- Display help for the customer number field
- Display help for selecting a customer
- Display help for specifying a valid customer number
- Display extended help for the customer number field
- Display the customer selection list
- Select a customer from the list
- Display the parts selection list
- Select a part from the list
- Specify the part quantity
- Accept the order
- Exit the application

## Time required

This module will take approximately 5 minutes to complete.

# Starting the 5250 application

You need a 5250 emulator on your workstation to start the order entry application.

To start the 5250 application:
1. Start a 5250 emulation session.
2. In the **User ID** field, type your user ID.
3. In the **Password** field, type your password.
4. On the command line of the 5250 screen, invoke the Order Entry Application: CALL ORDENTR

    The application starts and shows the first panel. This first screen prompts for a customer number. You have a choice of keying in the customer number directly or you can press command key **F4** to display a list of existing customers.
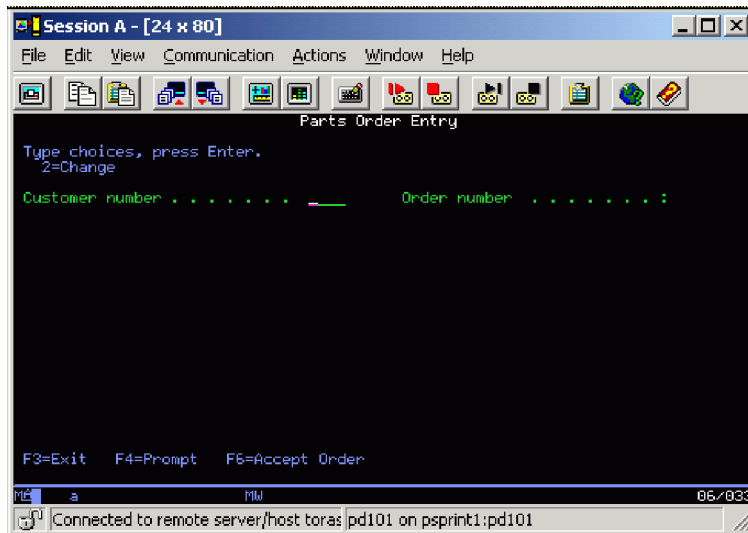


You have started a 5250 emulation session, invoked the order entry application and seen the customer selection screen.

### Lesson checkpoint

You learned the following:
* How to start the 5250 emulator from your workstation

# Accessing the online help

Before you go ahead with the order entry process, try the help. This application uses User Interface Manager (UIM) help. You will also convert these UIM help panels with the WebFacing Tool. To understand the results of the UIM help conversion, try the help in the 5250 environment and then later in the browser.
1. Move the cursor to the **Customer number** field.
2. Press command key **F1**.

    Panel group help displays for the customer number.
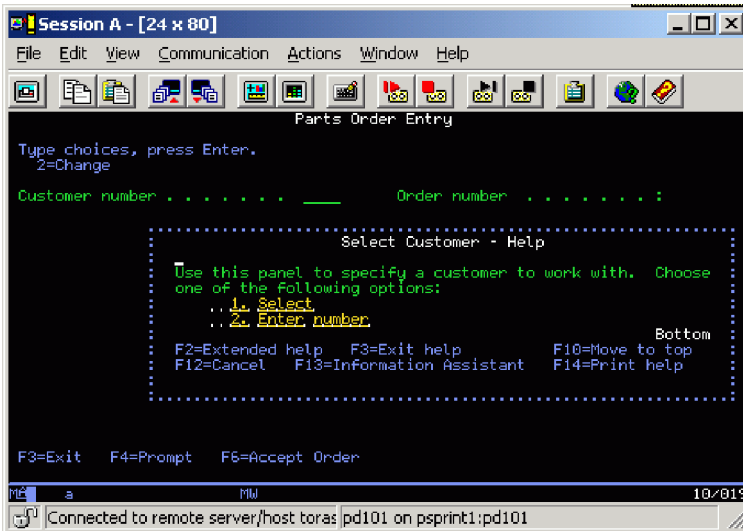
3. To see more help, move the cursor underneath the 1 in the help area and press the **Enter** key.

   Help for requesting a customer list displays:
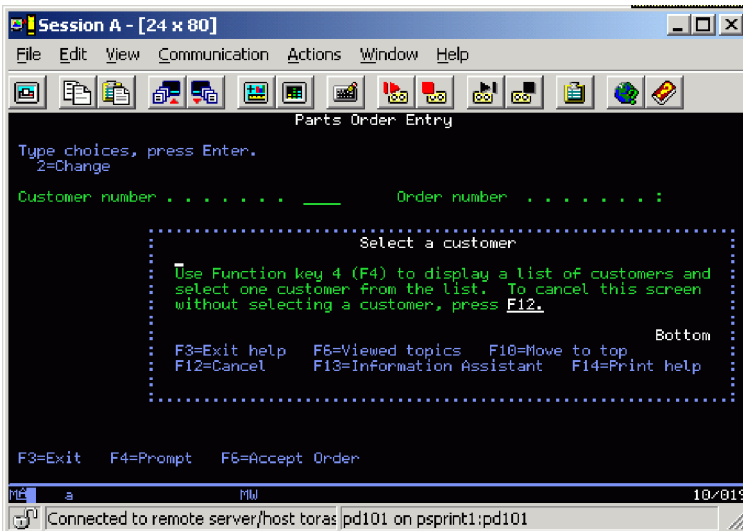


4. Press command key **F12** to return to the help for the **Customer number** field.
5. To see help for the second choice, move the cursor underneath the **2** in the help area and press the **Enter** key.

   Now you see detailed help for specifying a valid customer number.
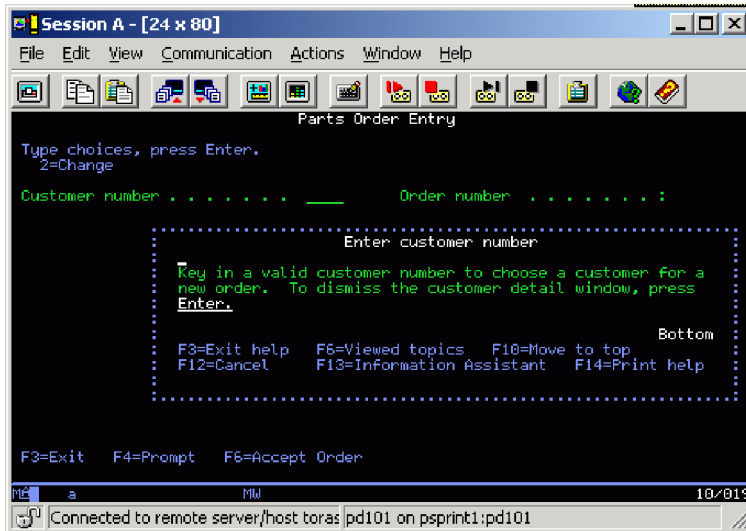
6. Press command key **F12** to leave the help for the **Customer number** field.

   The main help panel in the Select Customer - Help area shows.

7. Press command key **F2** to get to the extended help.

   Here you see the extended help for the **Customer number** field.
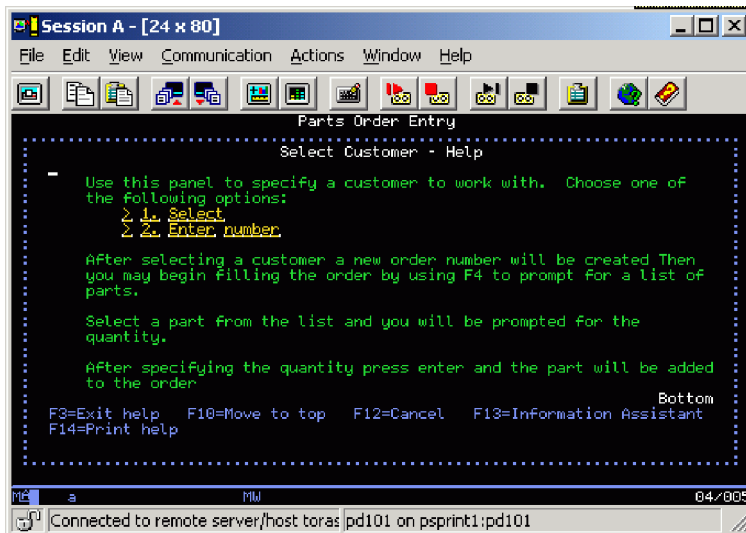


8. Press command key **F12** to leave the extended help for the **Customer number** field.

9. Press command key **F12** again to leave the help for the **Customer number** field.

You have displayed help for the customer number field, for selecting a customer, for specifying a valid customer number and extended help for the customer number field.

### Lesson checkpoint

You learned the following:
- How the online help works in the 5250 application

## Selecting a customer

Now you have an understanding how the help panels in this application work and look. Next you need to identify the customer related order. You have the choice of specifying a valid customer number, or you

can get a selection list of valid customers. Use the selection list because it shows a record format that uses the WINDOW DDS keyword and so you can see how the WebFacing Tool converts a DDS window.

To select a customer:

1. Press command key **F4** to display the customer selection list.

   A list of customers displays.
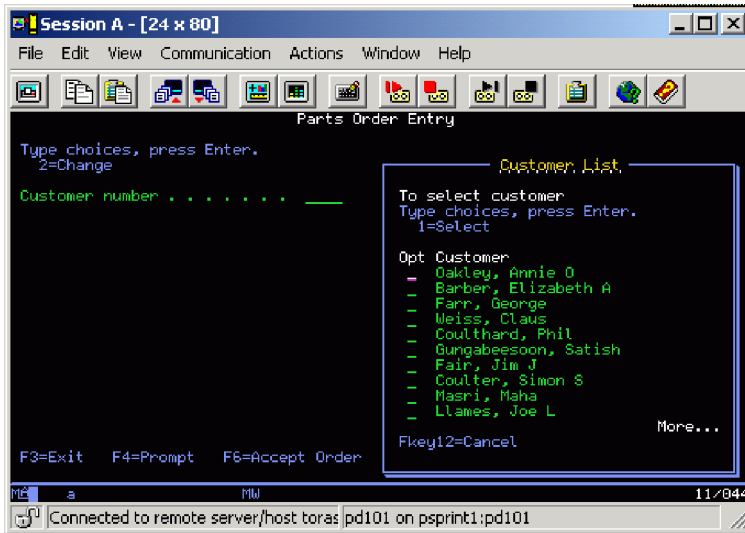


2. In the **Opt** field, type 1 to select a customer.
3. Press the **Enter** key to proceed.

   This returns you to the initial panel now filled with detailed data for the selected customer.
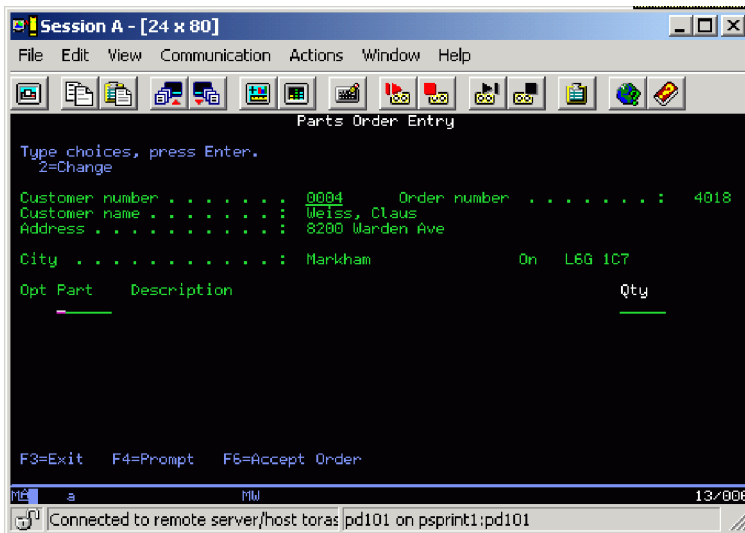


   You'll notice that an order number has been assigned as well. You are ready to order some parts.

You have displayed the customer selection list and selected a customer from the list.

## Lesson checkpoint

You learned the following:

• How selecting a customer works in the existing 5250 application

# Filling the order

The process of selecting parts is similar to the way you selected a customer in the previous lesson. You are able to key in the part number directly or select the part from a selection list. Next you want to work with the parts selection list.

On the order entry panel:

1. Press command key **F4** to see a list of available parts.

   The Select Part panel opens.
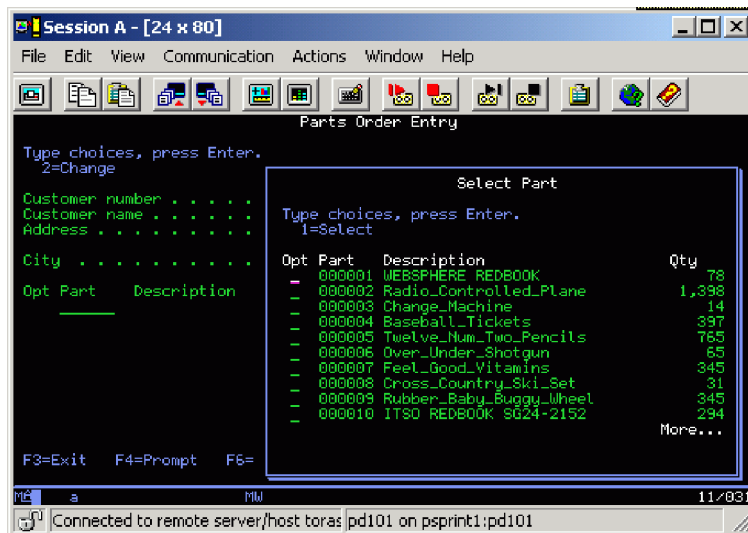


2. In the **Opt** field, type 1 next to a part that has lots of quantity left and press **Enter**.

   Back on the order screen, the part appears in the order; on the top line of the parts list.
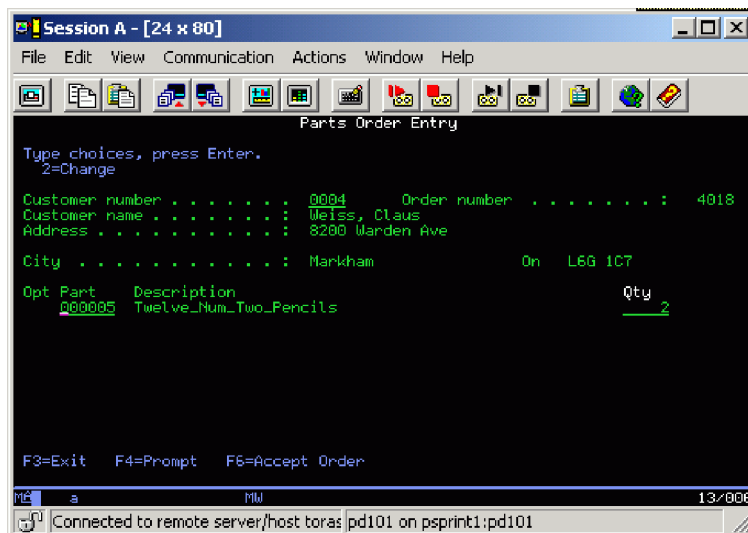


   Next you order a certain quantity of this part.

3. Change the **Qty** field to a value, for example 2.

4. Press the **Enter** key to add the part and quantity ordered to the order.

   The detail order line for this part, with the quantity specified, is now part of this order.
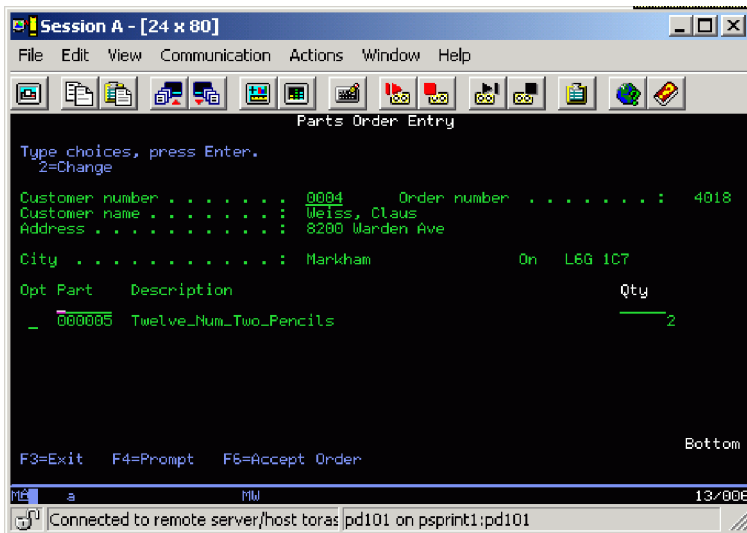
Add more parts until your order is complete.

5. Press command key **F4** to see a list of available parts.
6. Select a part from the parts list and press **Enter**.
7. Specify the part quantity and press **Enter**.

You have displayed the parts selection list, selected a part from the list and specified the part quantity.

### Lesson checkpoint

You learned the following:
* How the order entry panel works in the 5250 application

## Completing the order

Now you are ready to accept the order. You use the Order Entry panel to complete the order.

To complete the order:

1. Press command key **F6** to accept the order.
   The order is added to the database and the next order can be filled. You return to the starting screen of the application.
   You have worked with all panels in this application:
   * The start order entry panel
   * Several help panels
   * The customer list window
   * The full order entry panel
   * The parts list window
2. Press command key **F3** to exit the application.
   You are now ready to put a brand new user interface onto this application.

You have accepted the order and exited the application.

### Lesson checkpoint

You learned the following:
* How the application works to complete an order

## Module summary

In this module, you learned how the order entry application green screens, command keys and help panels worked and looked.

### Lessons learned

By completing this module, you learned about the following concepts and tasks:
* How to start a 5250 emulation session
* How the application works

### Assessment
* How do you start a 5250 emulation session?
* How does the 5250 application work?

# Creating the WebFacing project

Before you can use the WebFacing Tool to reface your application you need to create a WebFacing project in the workbench. The first step when starting with the WebFacing Tool is to create a WebFacing project. You will identify the project information, like the DDS source member names to be converted using the WebFacing Tool, and they will be stored in a workspace on your workstation. You will proceed through the process of identifying the DDS and UIM Panel Group source members to be converted by the WebFacing Tool and specify some of the runtime information you will need later when running the WebFacing application.

### Learning objectives
* Start the product
* Set the default workspace
* Access unique views and tools targeted towards the WebFacing tasks
* Specify a name for your WebFacing Web Project
* Select a Web style for your converted application
* Connect to an i5/OS server
* Select source members to convert
* Specify the CL command to invoke the application
* Specify the application signon values
* Create the WebFacing Web Project without converting files
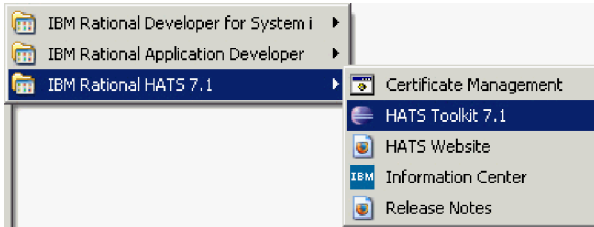
### Time required

This module will take approximately 25 minutes to complete.

## Starting the product

Now go ahead and start the product.

To start the product:
1. On the desktop task bar click **Start > Programs > IBM Software Development Platform > IBM Rational HATS 7.1 > HATS Toolkit 7.1**.

A dialog appears asking you for the workspace location, unless you used the product before and selected not to show this dialog again.

The workspace contains all the information about your projects. You can accept the default or store the work related to this tutorial in a separate workspace. You can always start with a new workspace later, if you don't want to mix these exercise WebFacing projects with your real work.
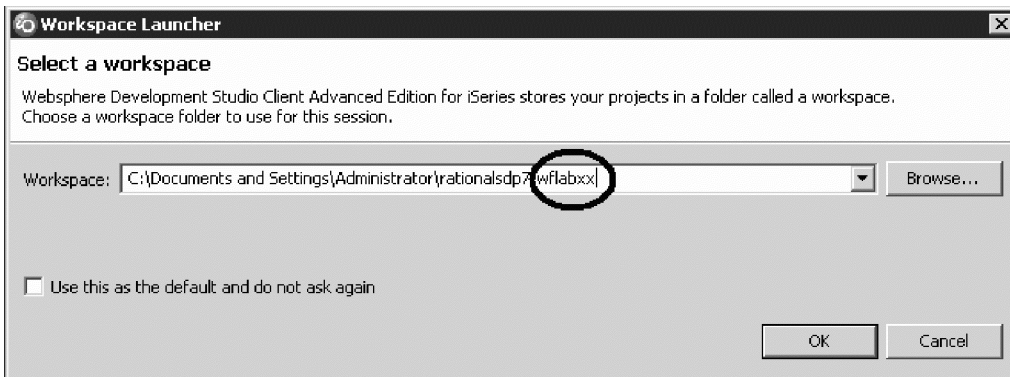


2. Accept the default directory structure but change the name of the workspace directory to the name WFLABxx where XX is a unique number.

3. Click **OK**.

   After a few moments of loading, the workbench opens, and the initial window of the product opens.

**Note:** If you didn't reset the workspace your environment will differ slightly from the screen captures in this tutorial.

You have started the product and set the default workspace.

### Lesson checkpoint

You learned the following:

- About workspaces
- How to start the product

## Opening the WebFacing perspective

The workbench shows the HATS perspective by default. The Remote System Explorer (RSE) perspective is the perspective that you would use to work with i5/OS objects. It allows specifying connections to i5/OS servers and provides for the programmer a similar interface to i5/OS objects as the Program Development Manager (PDM) does in a green screen environment.

The WebFacing Tool provides it's own perspective since it needs to give its users access to unique views and tools targeted towards the WebFacing task. To create a WebFacing Web project you can either open the WebFacing perspective or you can create a WebFacing Web project without opening the WebFacing perspective. To create a WebFacing Web project without opening the WebFacing perspective, see the next lesson.

To open the WebFacing perspective:
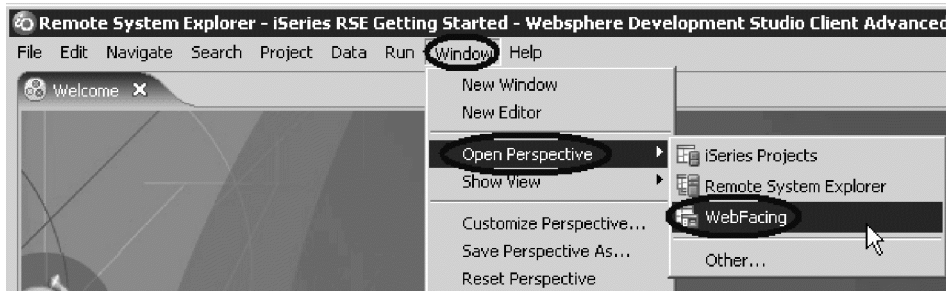


Click **Window > Open Perspective > WebFacing** from the workbench menu.

The workbench now shows the WebFacing perspective with the WebFacing Projects view open in the left pane of the workbench.
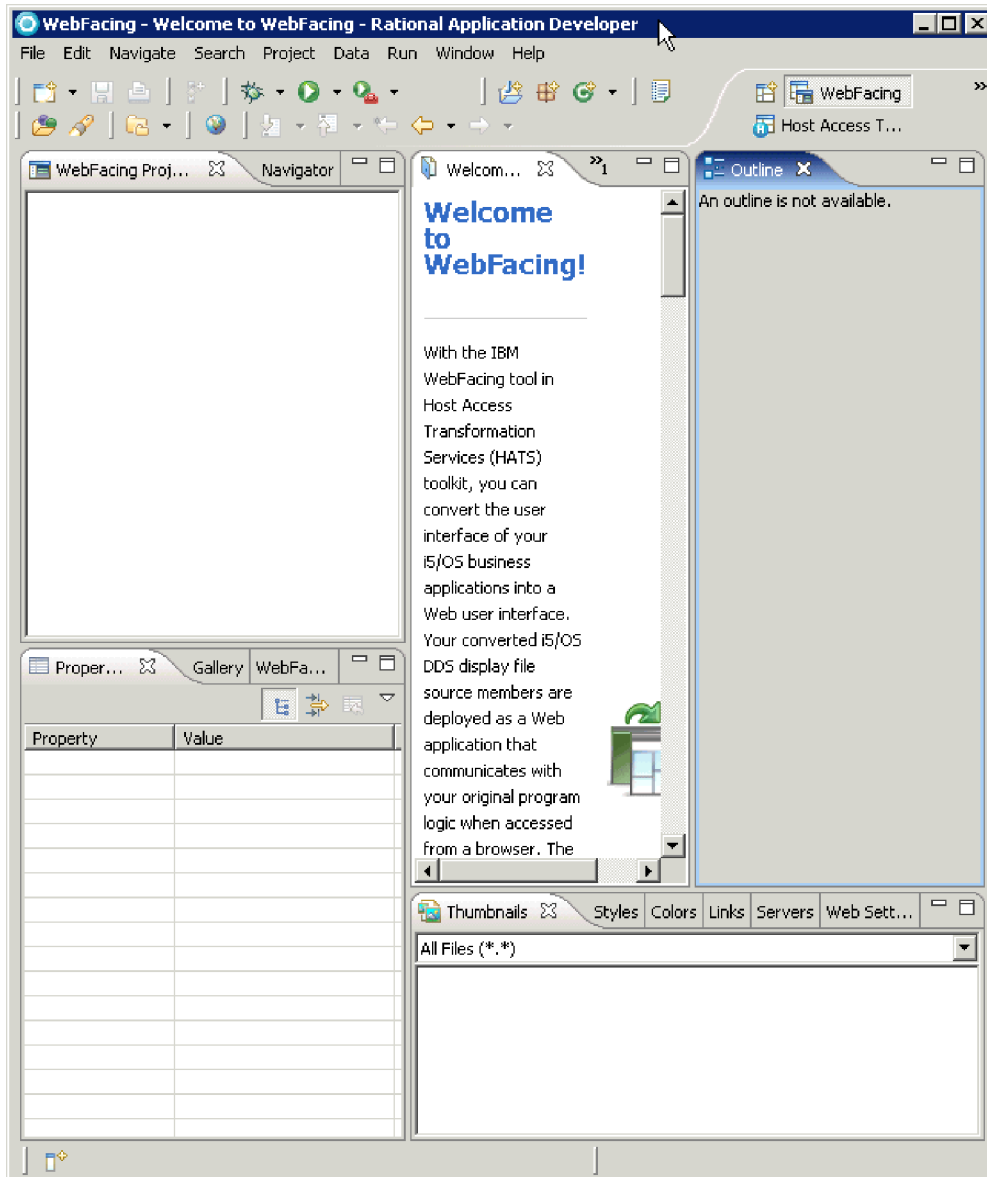
You are ready to start the WebFacing project wizard to create a WebFacing project.

You have accessed unique views and tools targeted towards the WebFacing tasks through the WebFacing perspective.

**Lesson checkpoint**

You learned the following:
- About the RSE perspective
- About the WebFacing perspective
- How to open the WebFacing perspective

# Starting the WebFacing Web Project wizard

A WebFacing project is a complete Web project with the directory structure and files needed to conform to the Java™ 2 platform, Enterprise Edition (J2EE) standard of a Web application. It also contains additional information unique to WebFacing, like the source to be converted.

To start the WebFacing Web Project wizard:
1. In the WebFacing perspective or the Remote System Explorer perspective, click **File > New > WebFacing Web Project** from the workbench menu.
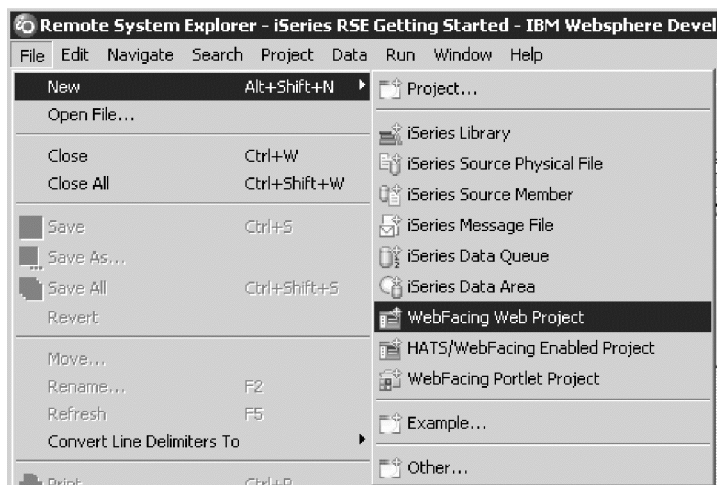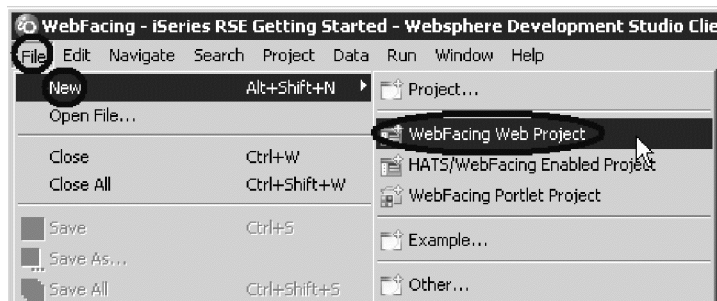


This will start the WebFacing Web Project wizard.
2. In the WebFacing Web Project wizard you will be presented with the WebFacing Web Project page.
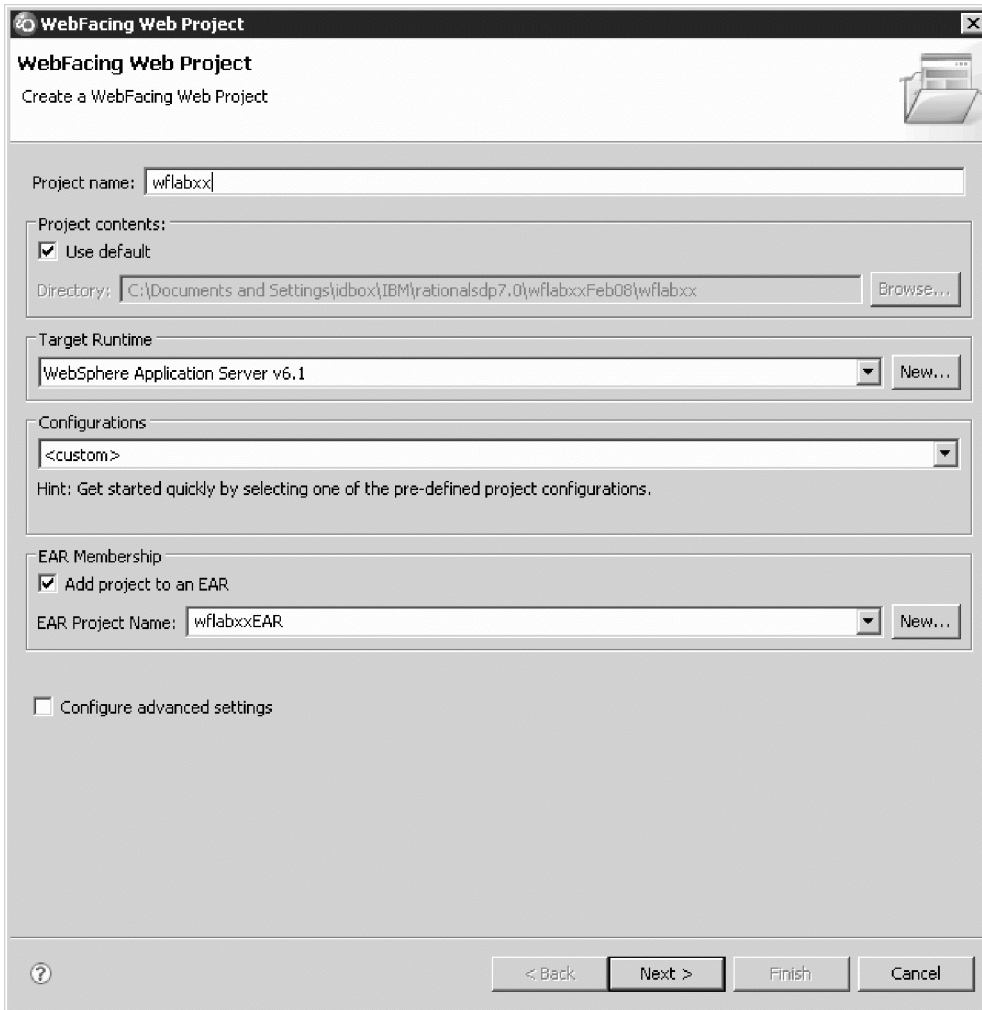
3. In the **Project name** field, type the project name `wflabxx` where XX is a unique number.

4. Click **Next**.

   The Web Style page opens.

You have specified a name for your WebFacing Web Project, and accepted default values for the Project Facets page, Web Module page and Struts Settings page.

### Lesson checkpoint

You learned the following:
- About WebFacing projects
- How to start the WebFacing project wizard and give a name to the WebFacing project

## Selecting a Web style

Next you select a Web style for your converted screens.

To select a Web style:

1. Select the **gradient style** from the list of available styles
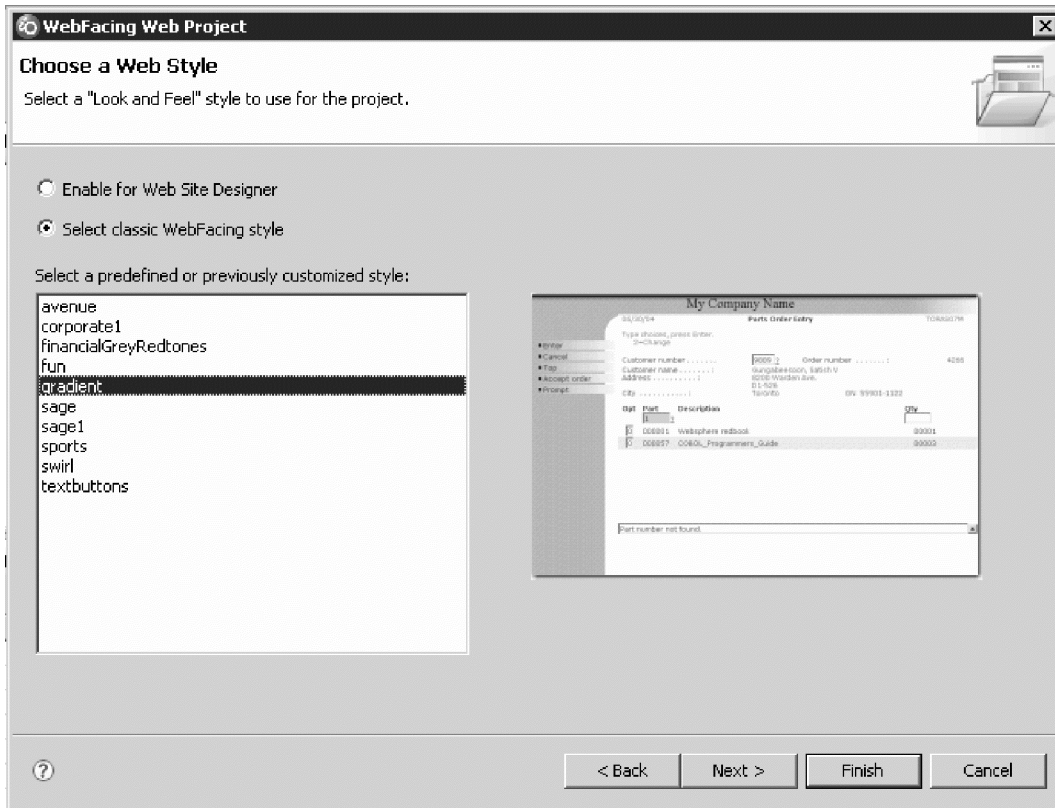2. Click **Next**.

   The Select Source Members To Convert page opens.
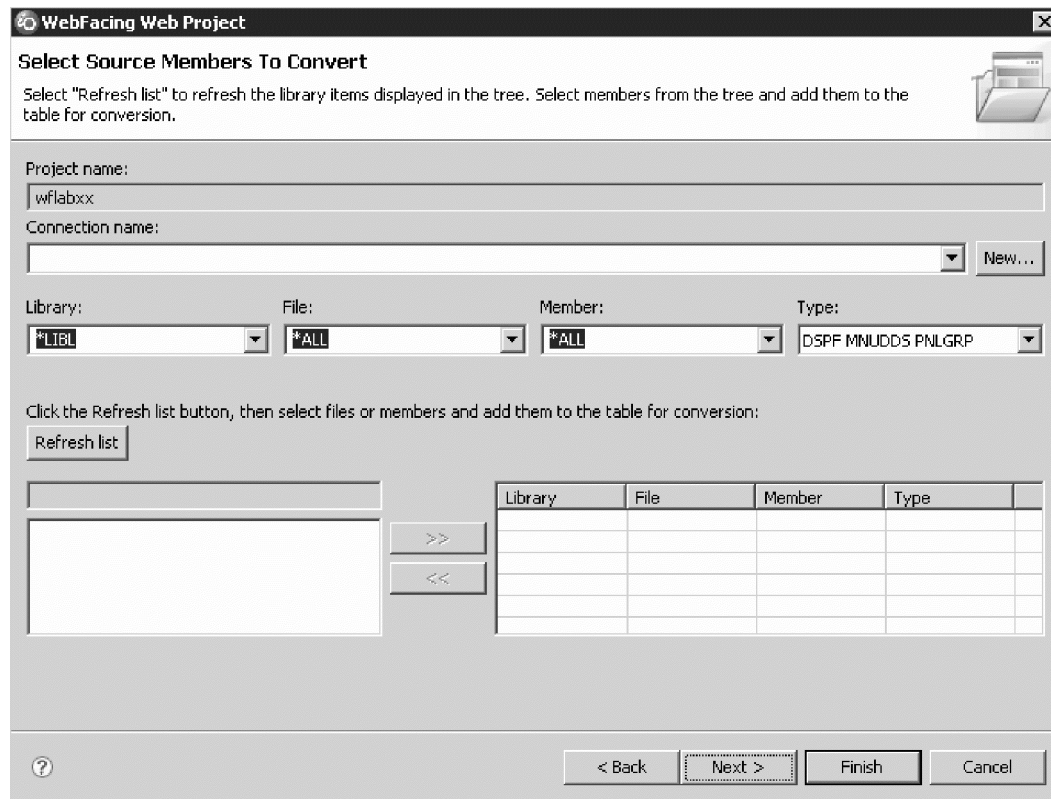
You have selected a Web style for your converted application.

## Lesson checkpoint

You learned the following:
- How to select a Web style for your converted application

# Selecting source members to convert

On this page of the WebFacing project wizard you need to specify the name of the i5/OS server that contains your source members of the source file you want to convert. Specifically, the WebFacing Tool needs to know these names:
- Server name
- Library name
- Source file name
- Member name

First since you are starting with a new workspace, you need to specify the i5/OS server name to specify where the Data Description Source (DDS) is located.

1. To connect to an i5/OS:

   a. Click **New** beside the **Connection name** list.
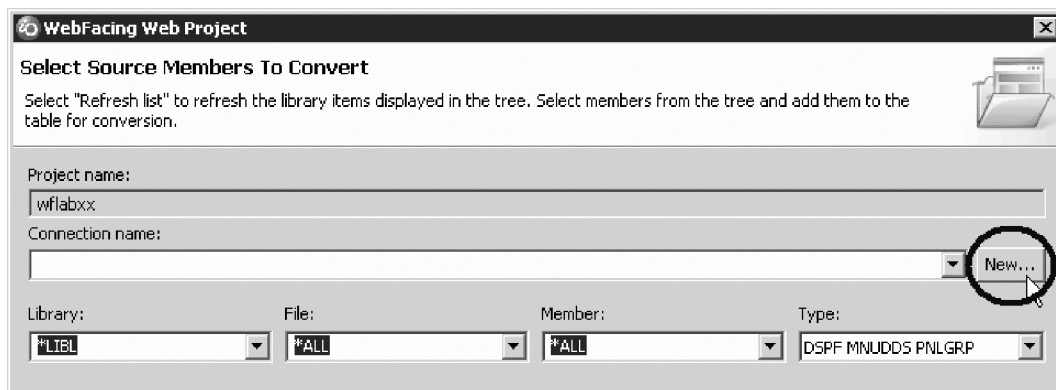


   The Name personal profile page opens.
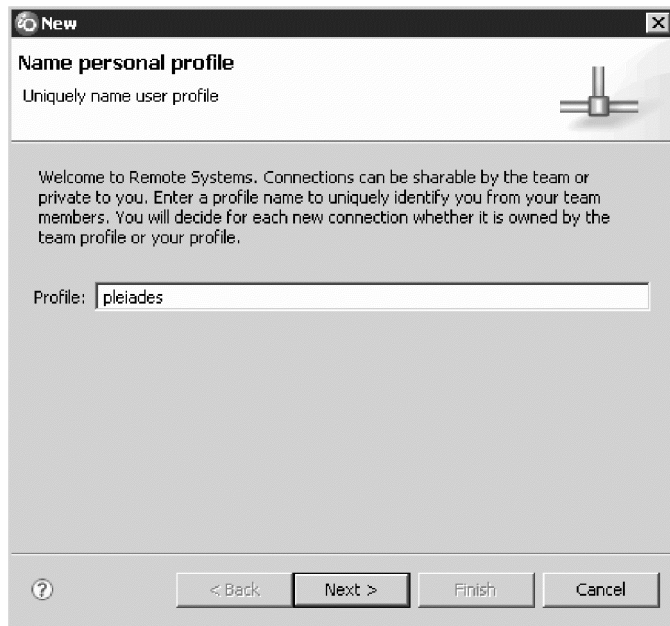
b.  Accept the default profile name as this is your own private connection.

c.  Click **Next**.

   The Remote i5/OS System Connection page opens.
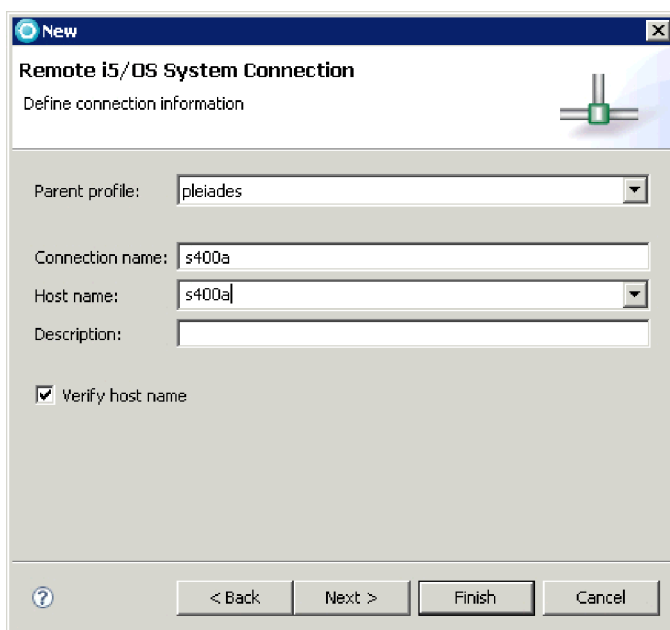


d.  In the **Host name** field, type the name of the host system, for example s400a.

   **Note:** This is your i5/OS server name; don't use the one shown unless your system is named s400a.

   The connection name will be filled automatically with the same value.

e.  Leave the **Verify host name** check box selected to verify that the host name or IP address exists.

f.  Click **Finish**.

   The connection is created and can be re-used by all tools in the workbench.The connection wizard also checks whether the i5/OS host can be reached and if this test is successfully completed, you return to the Select Source Members To Convert page.

g.  Check that your i5/OS server is selected in the **Connection** list.
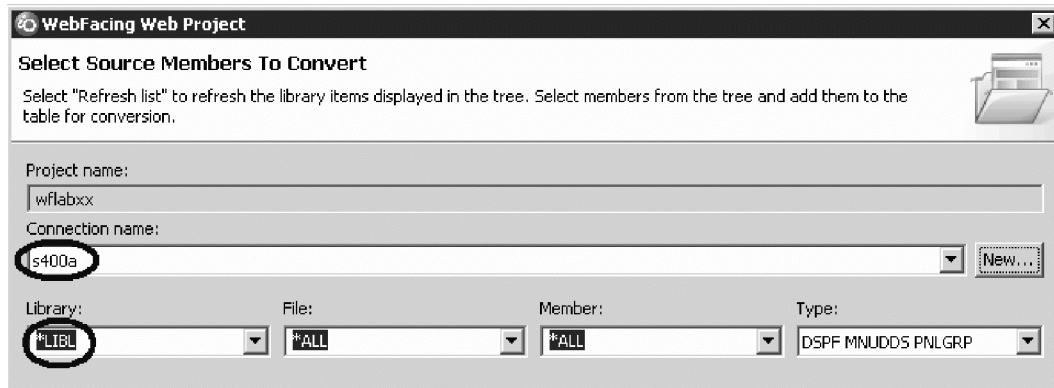
h. Make sure that *LIBL is selected in the Library list.

i. Click **Refresh list**.
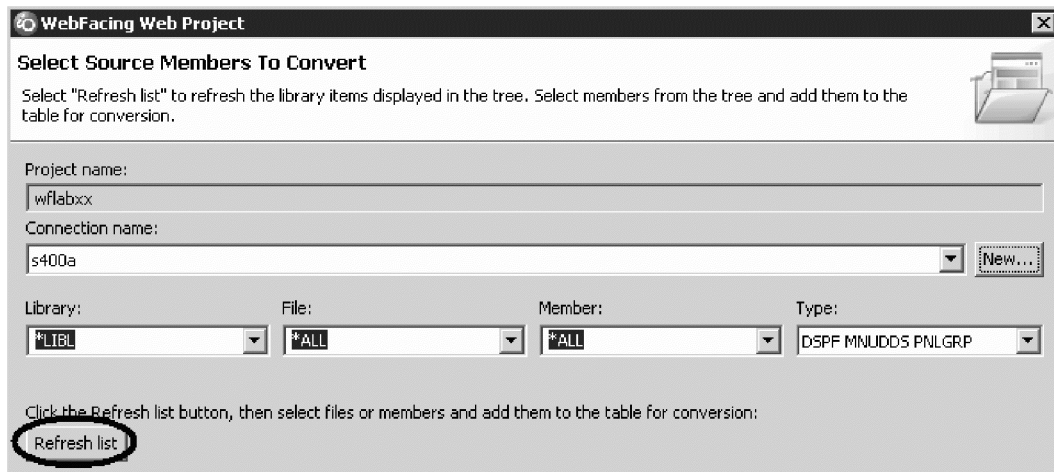


A User ID and password dialog opens.



j. In the **User ID** field, type your user ID. Use the same user ID that you used when running the Order Entry application in "Reviewing the 5250 order entry application" on page 3.

k. In the **Password** field, type your password.

l. Select the **Save user ID** check box.

m. Select the **Save password** check box.

n. Click **OK**.

A connection to the i5/OS server gets established. The library list of your i5/OS job is displayed under the **Refresh list** button on the Select Source Members To Convert page.
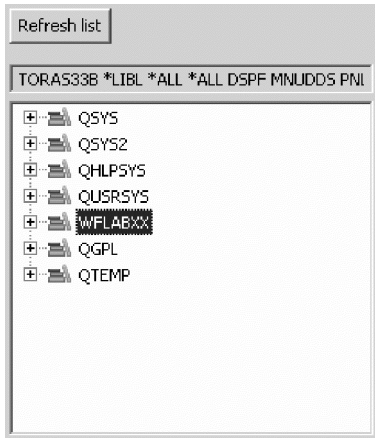
Next you select DDS source members:

2. To select DDS source members:

   a. Select the WFLABXX library from the list.

   b. Click the plus sign (+) beside the WFLABXX library to expand it.
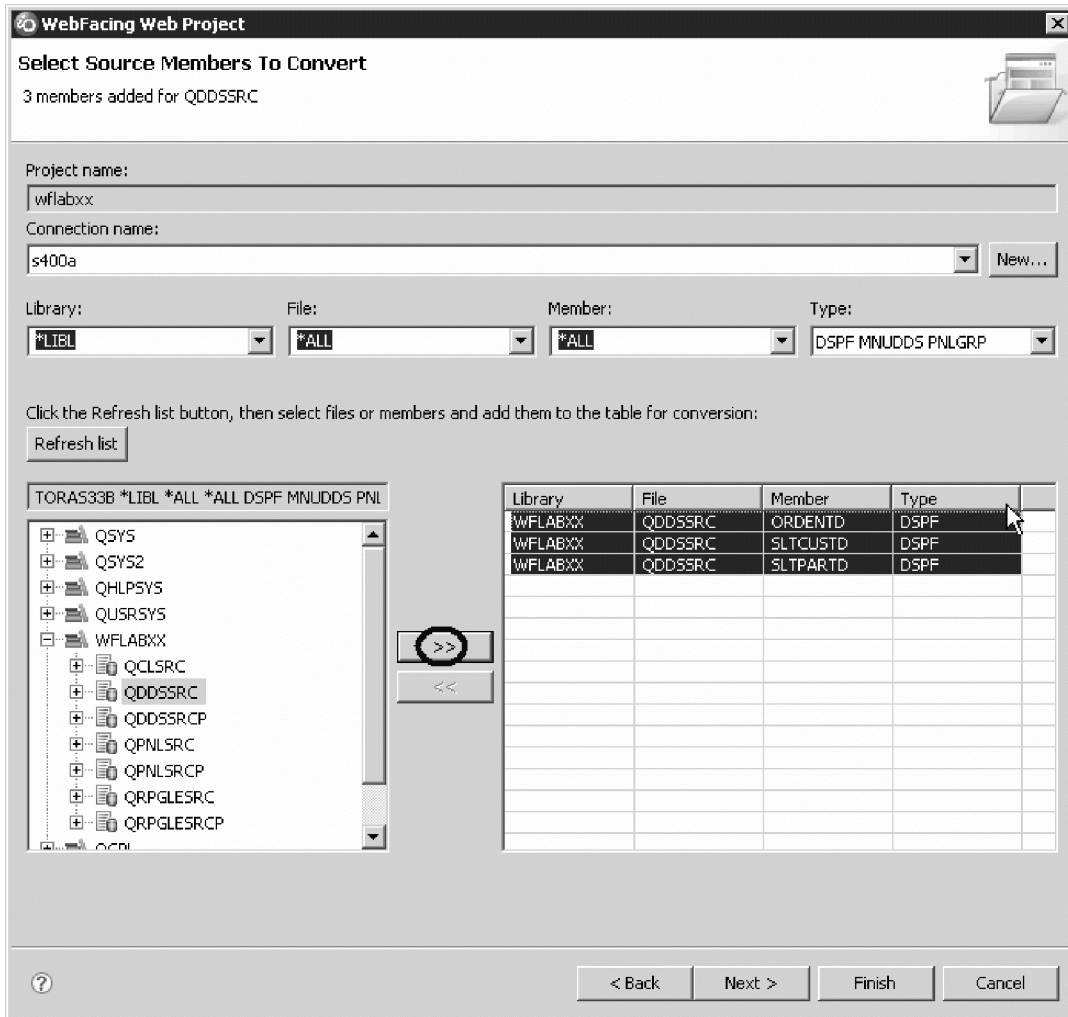


   c. Select the QDDSSRC source file from the expanded list.

   d. Expand QDDSSRC and select all members from the list.

e.  Click [ >> ] push button in the middle of the page to copy the selected members over to the list of members to be converted at the right.

> **Tip:** To move all members in a source file you can select the source file icon itself and click the [ >> ] push button. This will add all members in a source file to the list of members to be converted.

The WebFacing Tool now knows which DDS members to convert for this project. The conversion hasn't been done but the information is stored for future use.

Next you select UIM source members.

3.  To select UIM source members to convert:

a.  Select the QPNLSRC source file from the expanded list of library WFLABXX.
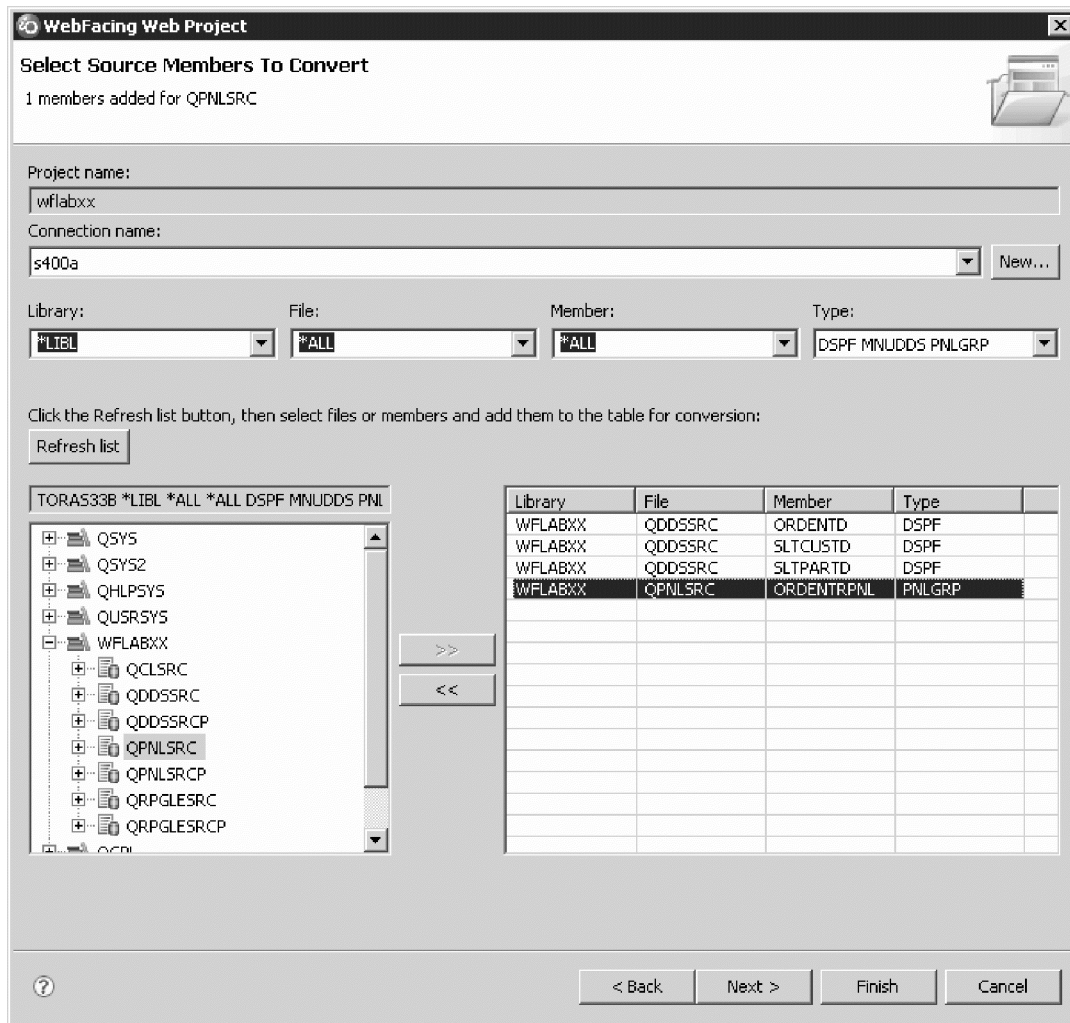


b.  Click [ >> ] push button in the middle of the page to copy all members over to the list of members to be converted at the right

There is actually only one panel group member ORDENTRPNL in this source file.

c.  Click **Next** to proceed to the next page of the wizard.

The Specify CL Commands page opens.

You have connected to an i5/OS server, selected DDS source members and UIM source members to convert.

**Lesson checkpoint**

You learned the following:
- What the WebFacing Tool needs to know to convert source
- What happens if you miss selecting a record to convert
- How to connect to an i5/OS and select DDS and UIM source

## Specifying the CL command to launch the application

You will now provide the information that will allow the WebFacing Web Project wizard to create the initial index.jsp page to start the Order Entry application. Do you remember what you typed on the command line to start the Order Entry application in the 5250 emulation session during the first exercise in "Reviewing the 5250 order entry application" on page 3? In case you forgot; it was: CALL ORDENTR

Why should you remember? The WebFacing run time needs to know the invocation command for your application in order to send this invocation command to the i5/OS server to start your application from the browser. The page in the WebFacing Web Project wizard will allow you to specify the necessary information CL command and Sign on information.



To specify the CL commands:
1. In the **CL command** field, type CALL ORDENTR

2. In the **Command Label** field, type `Order Entry Application`.

   **Tip:** If you don't type anything into the **Command Label** field, the CL command input will be copied into this field.

3. Leave the default value `INV1` in the **Invocation name** field.

4. Click the **Specify i5/OS signon values** radio button.

   This will automatically apply the user ID and password you used when you connected to your i5/OS server in the previous dialog for selecting source members for invocation of this application. You will use this setup here for testing purposes to make it easier for you to start the Order Entry application without specifying the authentication information. Don't worry about security in your production environment, this can be easily changed later and you will see how to do this later in this tutorial.

5. Click **Add** on the right side of the page.

   **Tip:** Make sure the text and command you typed into the fields are actually shown in the CL Command table at the bottom of the page.

6. Click **Next** at the bottom of the wizard page.

   The Complete WebFacing Project page opens.

You have specified a CL command to invoke the application and the application signon values.

### Lesson checkpoint

You learned the following:
- What the invocation command does
- About the information required to create the Web page to start the application
- How to specify the CL command to invoke the application

## Completing the WebFacing project information

On this page you have a choice of creating the project and converting the source in one step or only creating the WebFacing project.

You will just create the WebFacing project. You don't need to convert the source now. Conversion is part of the next module.
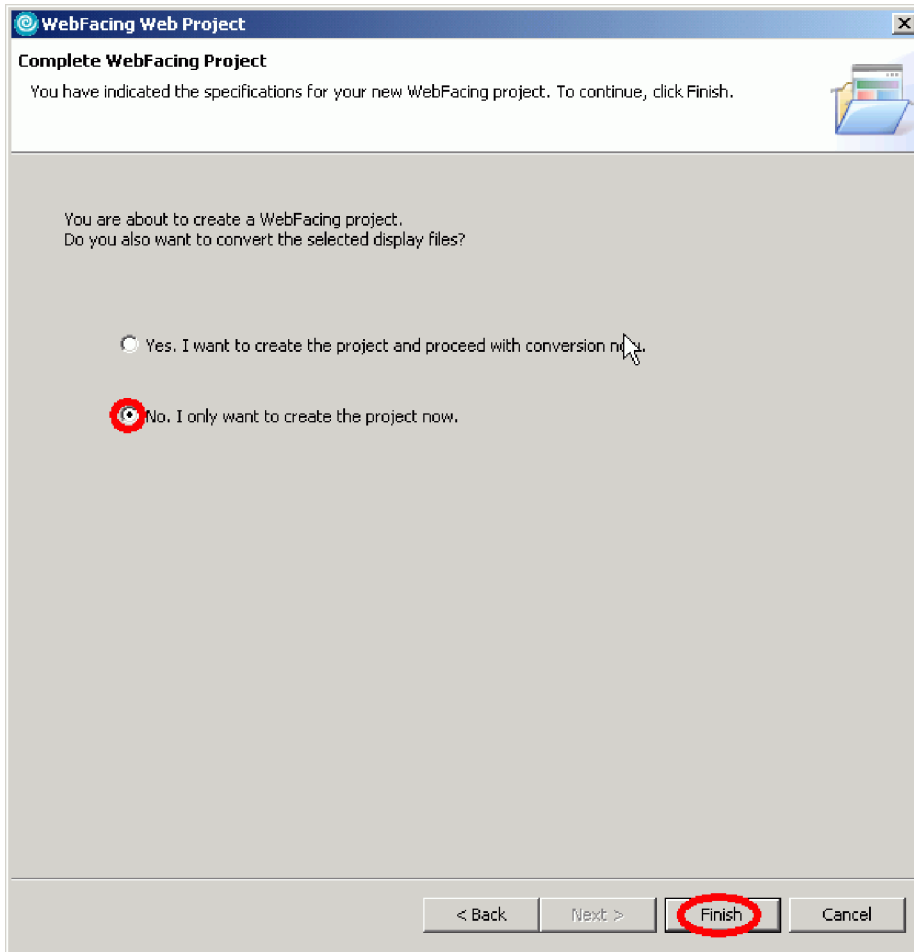
To complete the WebFacing project information:
1. Select the **No. I only want to create the project now** radio button.
2. Click **Finish**.

    The WebFacing project is created.

    **Tip:** If you created the WebFacing Web project from a different perspective, you will see a dialog asking you to confirm the switch of the perspective to the WebFacing perspective. Click **Yes**.
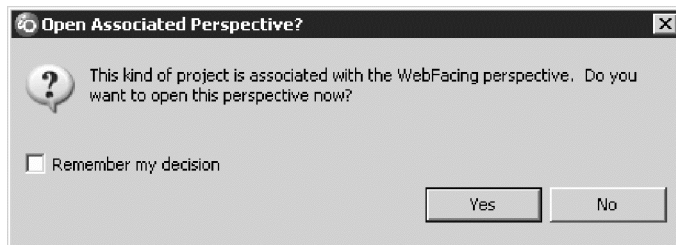


    The workbench opens in the WebFacing perspective with your new WebFacing project in the WebFacing Projects view.
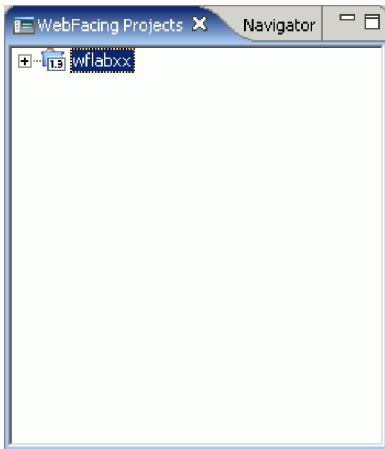
In the expanded **wflabxx** project you'll notice several files and folders have been added to this WebFacing project:

- The information for display file source members to be converted
- The information for panel group source members to be converted
- The CL Command that will be used to start the Order Entry application
- The style to be used for the converted screens.

When you expand the folders and files under your WebFacing project you can see the information that is captured for this project.
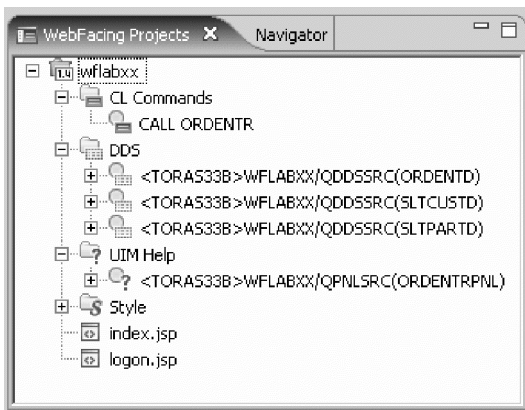


3. Click each folder or file. Click the plus + sign beside each file or folder.

   **Tip:** If you later need to add source members to the WebFacing project, right-click the DDS or UIM help icon and click **Add** on the pop-up menu. This will launch the WebFacing Web Project wizard and display the correct dialog.
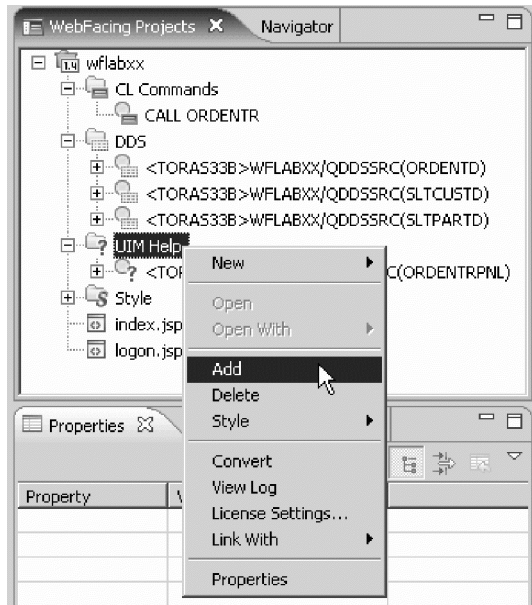
You have created the WebFacing Web Project without converting files.

### Lesson checkpoint

You learned the following:
* About the files added to the WebFacing project
* How to create the WebFacing project without converting files
* How to add source members to an existing project

## Module summary

In this module, you created a WebFacing project and in this project you specified which display file source and panel group source to convert and which i5/OS server these source members are located on. The WebFacing Tool will use this information during the conversion process.

You have to specify in this next module whether you want to convert all source members belonging to this project or selected ones only. A word regarding security, in case you are wondering, why you don't have to logon to the i5/OS server during conversion, it is because, your user ID and password have been stored during the WebFacing project setup, and will be re-used here.

### Lessons learned

By completing this module, you learned about the following concepts and tasks:
* About the workspace
* About the WebFacing perspective
* How to start the product
* How to set the default workspace
* How to access unique views and tools targeted towards the WebFacing tasks
* How to complete the WebFacing Web Project wizard

### Assessment
* What is the WebFacing perspective?
* What is a WebFacing project?

- How do you invoke the WebFacing Project wizard?
- How do you create a WebFacing Project using the WebFacing Project wizard?

## Converting selected source members

This module teaches you how the WebFacing conversion creates the JSP files for the browser User Interface description, XML files for record format layouts, and several other files needed for the Web application. You will learn how to select the convert option, start the conversion and work with the conversion logs to check the results of the WebFacing conversion.

### Learning objectives
- Select members to convert
- Convert members
- Check reference keywords for errors
- Check the DSPF conversion log for errors
- Check the UIM conversion log for errors

### Time required

This module will take approximately 10 minutes to complete.

## Selecting the project and source members

You will use the product to do the WebFacing conversion, if it is not up and running already, start it now. If it is still up and running on your workstation you are ready to go ahead.

If the WebFacing perspective with your project is not visible, you need to open the WebFacing perspective.

1. To open the WebFacing perspective:
   a. Check the taskbar of the workbench for the WebFacing perspective icon and if you find it, click on the icon to switch to the WebFacing perspective that is already open but not active at the moment.

      **Tip:** Avoid having too many instances of the same perspective open. It will improve performance of the workbench if you restrict yourself to one instance of a specific perspective being open. We have seen situations with 50 perspectives being open at the same time; this has caused severe performance impacts, so be careful.

      Here you see the icons on the taskbar of the workbench. The Remote System Explorer perspective is active. The workbench window title bar shows this. Four perspectives are open in the workbench.

      

      - ![icon] The WebFacing perspective
      - ![icon] The Remote System Explorer perspective
      - ![icon] The Java perspective
      - ![icon] The Web perspective

b. To switch to the WebFacing perspective. Select its icon  from the taskbar.

   **Tip:** The icon  on top of the taskbar allows you to open a new perspective.

   Next you start the conversion in the WebFacing perspective.

2. To select members to convert:
   a. Select the WebFacing project you have been working on in the previous module, wflabxx.
   b. Expand this project by clicking the plus sign (+) beside its icon in the WebFacing Projects view.
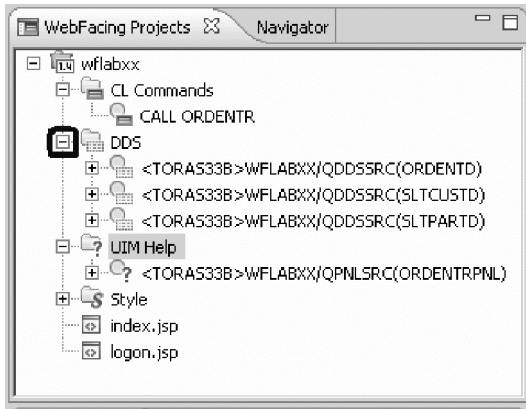


   You should see a DDS folder in the expanded view.

   If you don't see a DDS folder, you might be in the Navigator view and not in the WebFacing Projects view.

   c. Expand the DDS folder, so that you can see all three of the members that you selected in the previous module.

   Next you convert these members.

You have selected members to convert .

## Lesson checkpoint

You learned the following:
- About perspectives
- How to select members to convert

# Starting the WebFacing conversion

From here you can select individual members to convert or a collection of members. When you later in this tutorial change only one source member you will select a single member to be converted. Since you want to convert all members in the project, you can actually work with the WebFacing project icon to convert DDS and UIM panel group members.

**Tip:** You could select individual members to convert as well as expanding the DDS node.

1. Right-click the wflabxx WebFacing project.
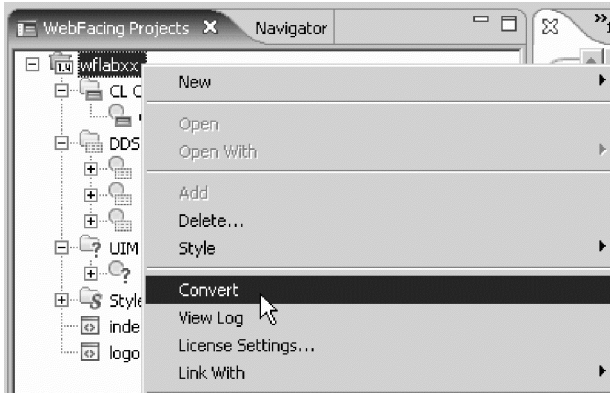
2. Click **Convert** on the pop-up menu.

The conversion process starts. You will see a progress dialog, indicating what members are being converted.
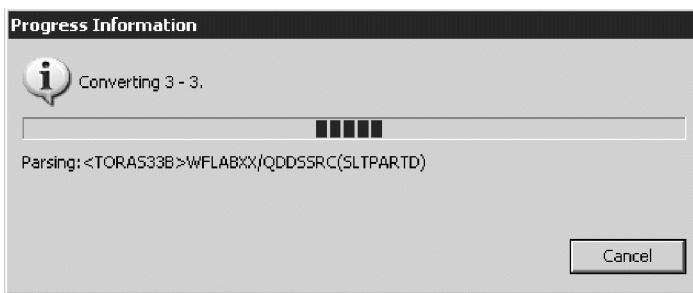


Wait until the progress dialog disappears, indicating the WebFacing conversion has finished.

You have converted members.

## Lesson checkpoint

You learned the following:

- How to convert members

# Checking the conversion logs

Notice the conversion log in the right pane of the workbench.
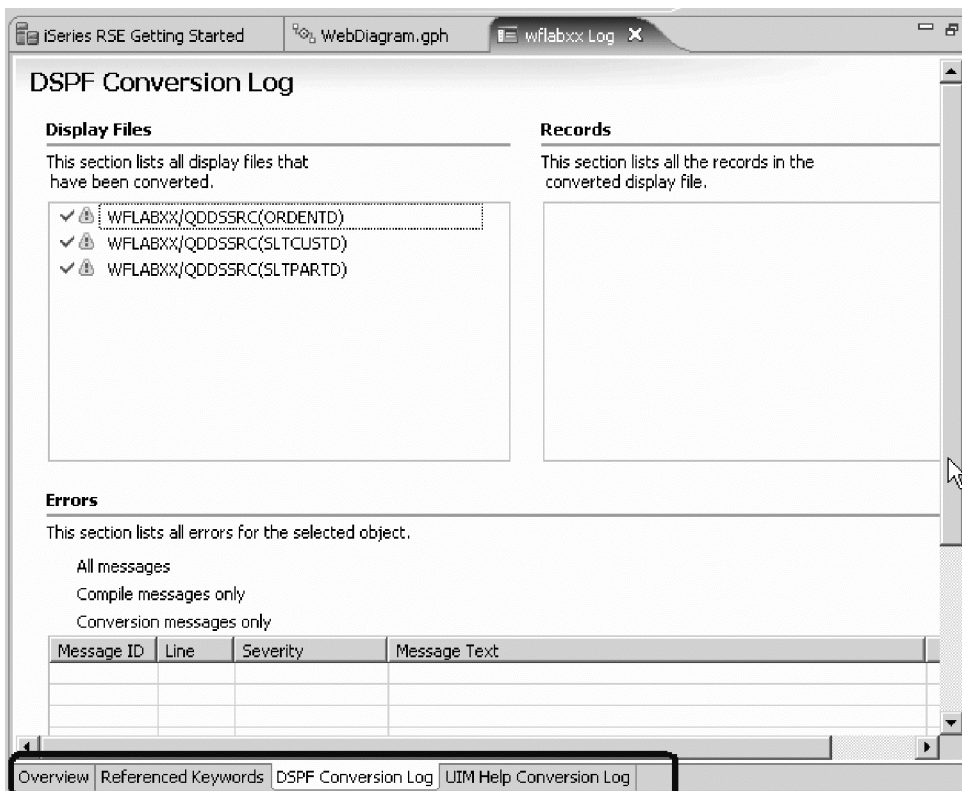


To check the conversion log:
1. Click the **Overview** tab.
2. Click the **Reference Keywords** tab.
3. Click the **DSPF Conversion Log** tab.
4. Click the **UIM Help Conversion Log** tab.

As you click each tab you will see more details about each log.

You converted the DDS source and panel group source so it is now available in a form a browser understands. The first important step to move your application to the Web is done. Notice, the conversion itself was pretty easy, because you already did the hard part when you created the WebFacing project. Now that the project exists, the WebFacing Tool has all the information readily available, and even having to re-convert later because of changes in the original source is not a big problem.

## Lesson checkpoint

You learned the following:
* How to check the conversion logs

# Module summary

You have used the WebFacing Tool to convert the user interface of the Order Entry application and you now want to see the conversion results. The WebFacing Tool created a complete Web application that can be run in an Application Server. The WebSphere Application Server test environment and the Web project

in the workbench are completely integrated and without publishing (copying) any of the files in the Web project they are known to the WebSphere Application Server test environment.

The index.jsp file that has been created by the WebFacing conversion routine is part of this Web project. It will be used as the default page for this Web application. When the application is up and running you will go through the same scenarios as in "Reviewing the 5250 order entry application" on page 3 when you went through the green screen panels of the Order Entry application but now you are using the new WebFacing user interface.

## Lessons learned

By completing this module, you learned about the following concepts and tasks:
- Select members to convert
- Convert members
- Check reference keywords for errors
- Check the DSPF conversion log for errors
- Check the UIM conversion log for errors

## Assessment
- How do you select members to convert?
- How do you convert members?
- How do check for conversion errors?

# Running the WebFacing application

You normally would now have to copy all the files of your Web project to a WebSphere Application Server and then run your application there. However, there is a WebSphere Application Server included with the product and it is called the WebSphere Test Environment (WTE). Using WTE makes the process of locally testing your WebFacing application easier than testing on a remote WebSphere Application Server.

In your real application development environment, you would test thoroughly in the test environment; then export the WebFacing project files to a remote WebSphere Application Server for final testing, before moving the Web-enabled application to your production WebSphere Application Server environment. "Exporting to i5/OS WebSphere Application Server (Optional)" on page 104 shows you the steps required to deploy to a remote WebSphere Application Server environment. Until you are sure your WebFacing application is ready for public use, you can use the test environment on your workstation, which simplifies the testing of Web applications.

This module teaches you how to test your WebFacing application in the WebSphere Test Environment. You will learn how to specify in the WebFacing perspective that you want to run your project in the WebSphere Test Environment. From the initial Web page, you will learn how to select the link created by the WebFacing Tool to invoke the WebFacing Order Entry application.

## Learning objectives
- Set the WebSphere Test Environment to test the application locally
- Launch the WebFacing application
- Prompt for a customer
- Select a customer from a list of customers
- Prompt for a part
- Select a part from a list of parts
- Enter a quantity for a part

• Display help for the customer selection list

## Time required

This module will take approximately 15 minutes to complete.

# Showing the index.jsp page

The first page of the application is the index.jsp page. This is the page that starts the order entry application.

To show the index.jsp page:

1. Right-click index.jsp in the WebFacing Projects folder.
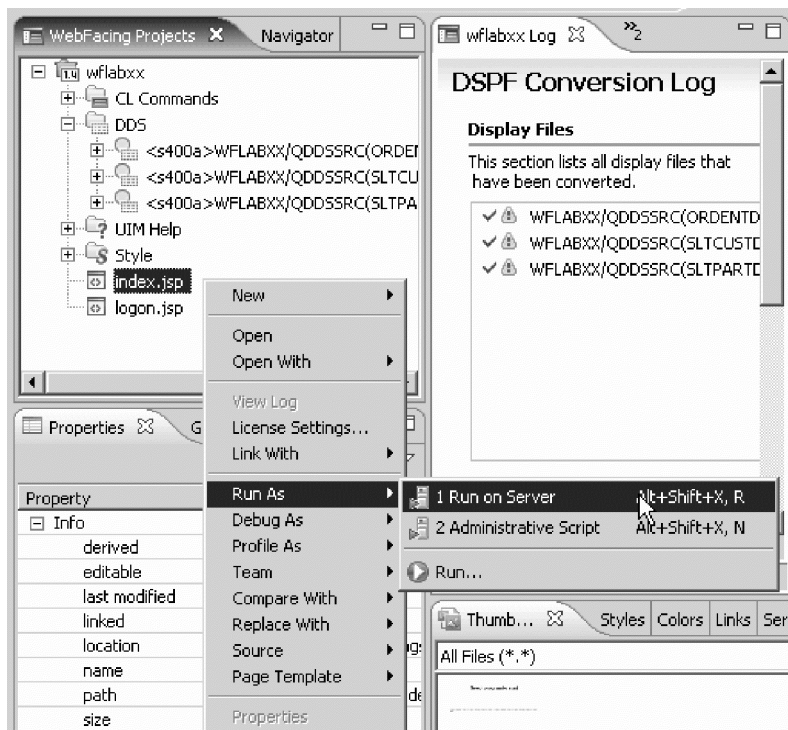


2. Click **Run As > Run on server** on the pop-up menu.

   A Server Selection dialog opens.
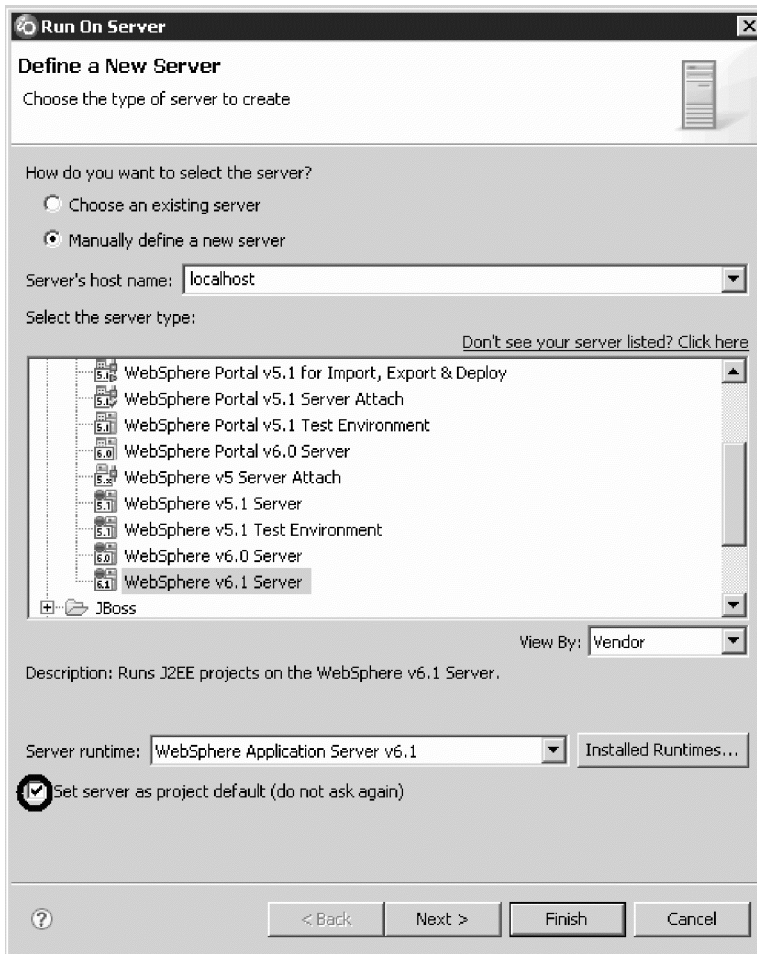
You can avoid having this dialog open every time you select run on server by selecting the **Set server as project default (do not ask again)** check box.

3. Leave the **Manually define a server** radio button selected.
4. Click **WebSphere v6.1 Server**. This is the WebSphere Test Environment for Version 6.1.
5. Select the **Set server as project default (do not ask again)** check box.
6. Click **Finish**.

The WebSphere Application Server test environment starts. A Server Selection information message dialog may open. Click **Run in Background** . After a few moments the browser opens in the upper right view area of the workbench. Be patient; it takes time for the application server to start on your workstation.

The minimum memory requirement for running the WebSphere Application Server test environment is 768 MB. You can run this WebFacing project successfully on systems with 512 MB. It will take more time for the application server to start if you are working on a workstation that has less than the required memory. The system speed will also have an impact on the application server start up time. Eventually you will see the index.jsp page that has been generated by the IBM WebFacing Tool opening in the workbench's built-in browser.

Here you see the browser inside the workbench with the index.jsp page displayed.
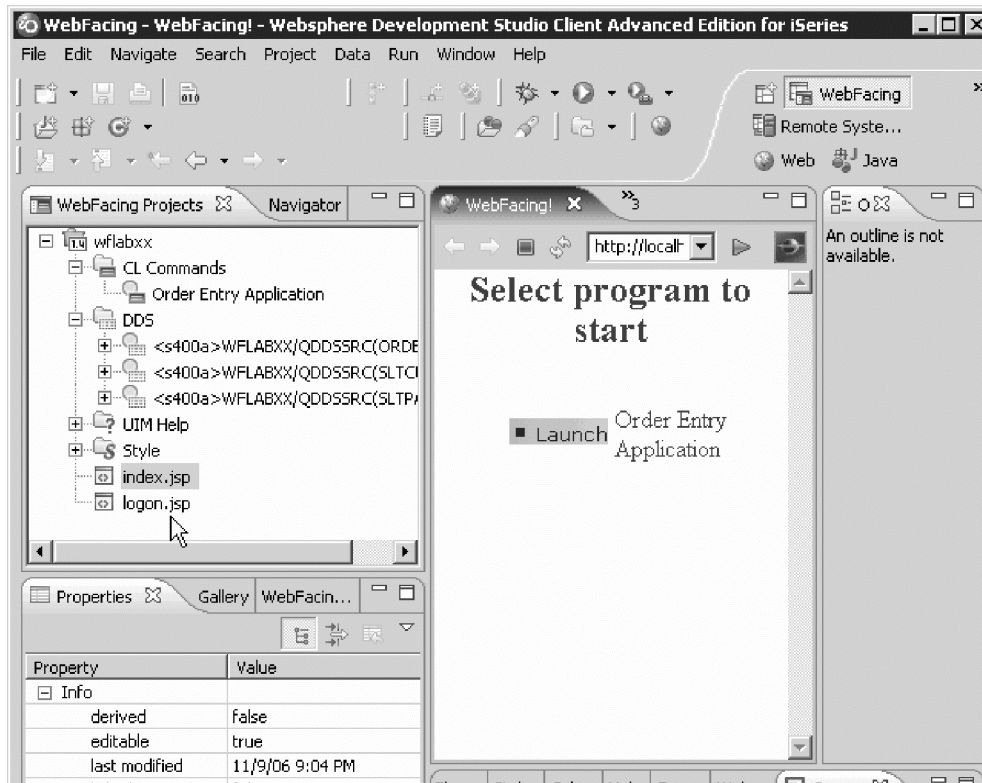
**Tip:** To enlarge the browser window to the size of the workbench window, double-click the browser title bar. To get it back to its original size in the upper right hand workbench view area, double-click the enlarged browser window title bar.

You have a choice of running WebSphere Application Server Version 5.1, Version 6.0 or Version 6.1 in the workbench test environment. In this tutorial you will be using WebSphere Application Server Version 6.1 in the Test Environment and J2EE level 1.4.

You have set the WebSphere Test Environment to test the application locally.

### Lesson checkpoint

You learned the following:
- About the minimum memory required for WebSphere Application Server
- How to start the order entry application
- How to enlarge the browser window

## Testing the WebFacing application

Now you are ready to run the WebFacing application that you just created.

To run the Web application:
1. In your browser pane, click the **Launch** button.
   After a few moments the first application page opens in the browser.
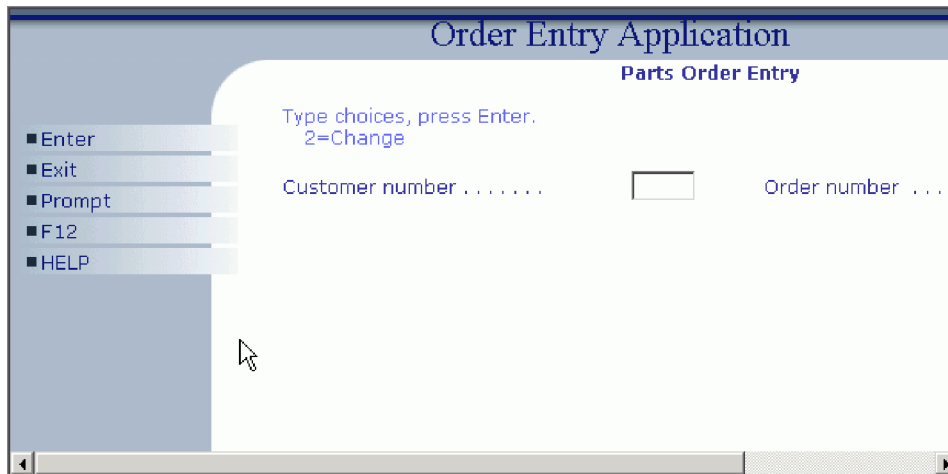
If you find the response time slow, keep in mind that the first time the JSP file is requested, it has to be compiled into a servlet the first time. If you run the application a second time, you will see improved performance since the servlet already exists. This is normal application server behavior.

Now you want to go through the same steps as in "Reviewing the 5250 order entry application" on page 3 to review the results of the WebFacing conversion. This will give you a sense of how the default conversion will change your original application. You will then have a chance to improve the conversion results.

2. Click the **Prompt** button, or press command key **F4** to open the selection list window.
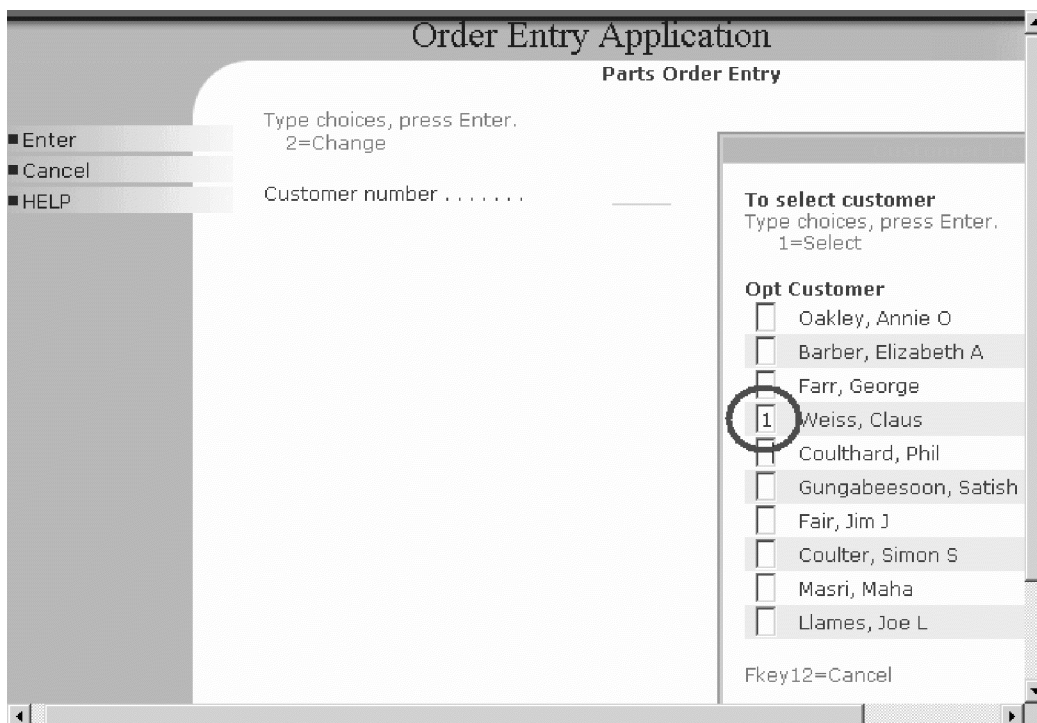


3. Select a customer from the list (this is your converted subfile).
4. Press the **Enter** key.
5. Click the **Prompt** button, or press command key **F4** to display the parts selection list.

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6. Select a part.
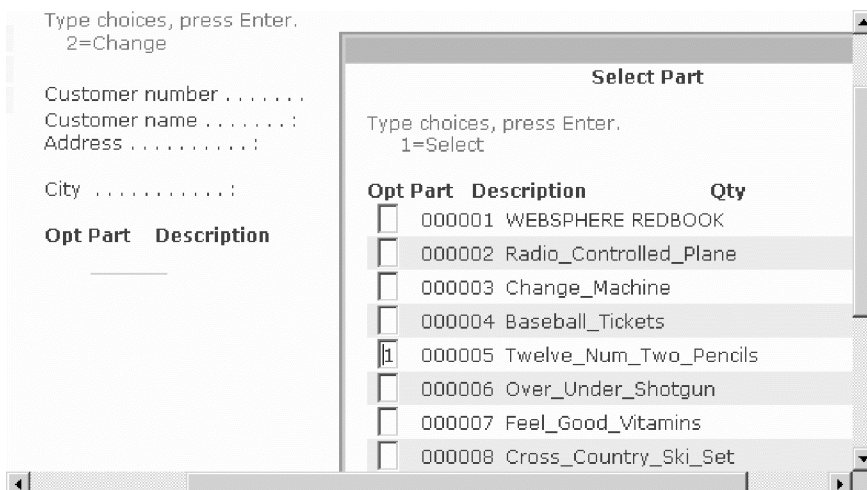


7. Press the **Enter** key.

   The Parts Order Entry window opens.
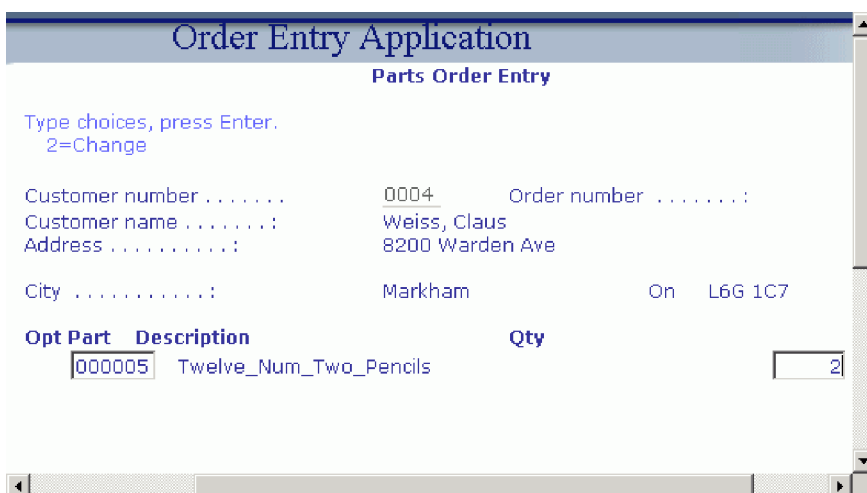


8. Enter a quantity.
9. Press the **Enter** key.
10. Continue ordering one or two more parts.
11. Press command key **F6** to accept the order.

The application works the same way as before in a 5250 environment; but the application now has a browser user interface.

You have launched the WebFacing application, prompted for a customer, selected a customer from the list of customers, prompted for a part, selected a part from a list of parts and entered a quantity for a part.

**Lesson checkpoint**

You learned the following:
- How to test the WebFacing application locally in the WebSphere Test Environment

## Testing the help support

Next you test the display help that you also converted in the WebFacing application.

To test the help in the WebFacing application:

1. Press the **F1** key.

   Another browser window opens with the help information.
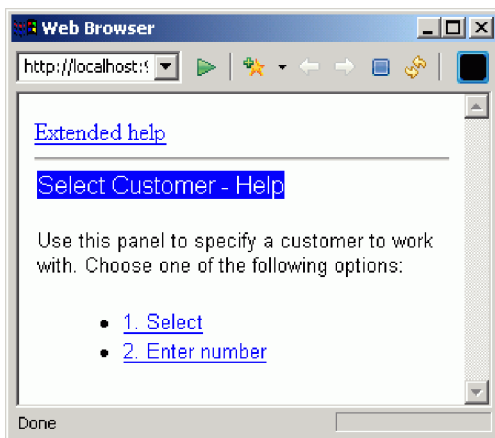


2. Now try the links:
   - 1. Select
   - 2. Enter number
   - Extended help

   Your UIM based help panels are all available in the WebFacing application.

3. Close the help browser window and press **F3** to end the application.

You have displayed the help for the customer selection list.

**Lesson checkpoint**

You learned the following:
- How to see the help in the WebFacing application

## Module summary

In this module you saw how an application looks after converting the user interface with the WebFacing Tool. You also saw one of the standard styles available (gradient) with the WebFacing Tool. You can customize these styles.

Next you want to improve the user interface generated by the WebFacing Tool. You want to improve the customer selection subfile. The Web user interface for selecting a record from this subfile does not work like a Web application. You have to key 1 into the options column to select a record; this is how the green screen application works. You want a Web user interface where you can click on a link to select a customer.

You will be guided through Screen Designer and the Web Setting view to make the necessary modifications. You will change the second column in the customer selection subfile, which contains the customer name, from a simple text output field to a link. When you click on this new customer name link, the correct information your program expects is sent. You might ask what is the correct information? What is your program expecting? It is expecting a 1 in the subfile options field for the selected customer record. The program will receive the same information after you change the user interface.

The WebFacing conversion will add logic to the user interface, so that the options field is filled with a 1 and the Enter key event is invoked when the link is pressed. You enhance the user interface and don't have to change the application, this sounds pretty impressive doesn't it.

## Lessons learned

By completing this module, you learned about the following concepts and tasks:
- Set the WebSphere Test Environment to test the application locally
- Launch the WebFacing application
- Prompt for a customer
- Select a customer from a list of customers
- Prompt for a part
- Select a part from a list of parts
- Enter a quantity for a part
- Display help for the customer selection list

## Assessment
- What is the WebSphere Test Environment?
- How do you launch the WebFacing application in the WebSphere Test Environment?
- How do display help in the WebFacing application?

# Changing the user interface using Web Settings and Screen Designer

In this section Screen Designer is used for illustration only, the same could be accomplished from the LPEX view. Screen Designer is a technology preview that provides the capability to graphically design and modify the content of DDS display files. Screen Designer should not be used in production.

Working in the WebFacing perspective you will learn how to select a DDS source member, open this DDS member in Screen Designer, use Web Settings view to change the Web look, reconvert the DDS member, and then deploy and run the modified WebFaced application in the Websphere Test Environment.

## Learning objectives
- Locate a DDS source member
- Open a DDS source member in Screen Designer
- Change CUSTOMER field to hyperlink
- Hide the OPTION field
- Hide the heading for the OPTION field
- Change the appearance of text

- Close Screen Designer
- Reconvert the DDS source member
- Launch the reconverted WebFacing application
- Prompt for a customer
- Verify the changes in the customer selection window

## Time required

This module will take approximately 15 minutes.

## Opening DDS display file source in Screen Designer

First you start the product and open the WebFacing perspective. Skip this step if the product and WebFacing perspective are already open.

1. Start the product, open the WebFacing perspective, and view Window object in its default look and feel:

   a. Start the product and open the WebFacing perspective, if it is not up and running already.

   b. In the WebFacing perspective, make sure that you are in the WebFacing Projects view and not the Navigator view.

   c. Expand your project in the WebFacing Projects view by clicking on the plus sign (+) beside the WebFacing project icon if not already. Next you open Screen Designer.

   d. Display initial look and feel of the window by starting Order Entry application and clicking the Prompt button.
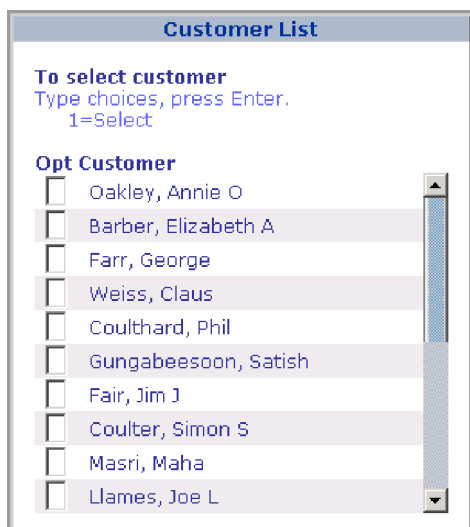


2. Open DDS member in Screen Designer:

   a. Locate the DDS display file source named STLCUSTD.

   b. Right-click SLTCUSTD and click **Open with > Screen Designer** on the pop-up menu.
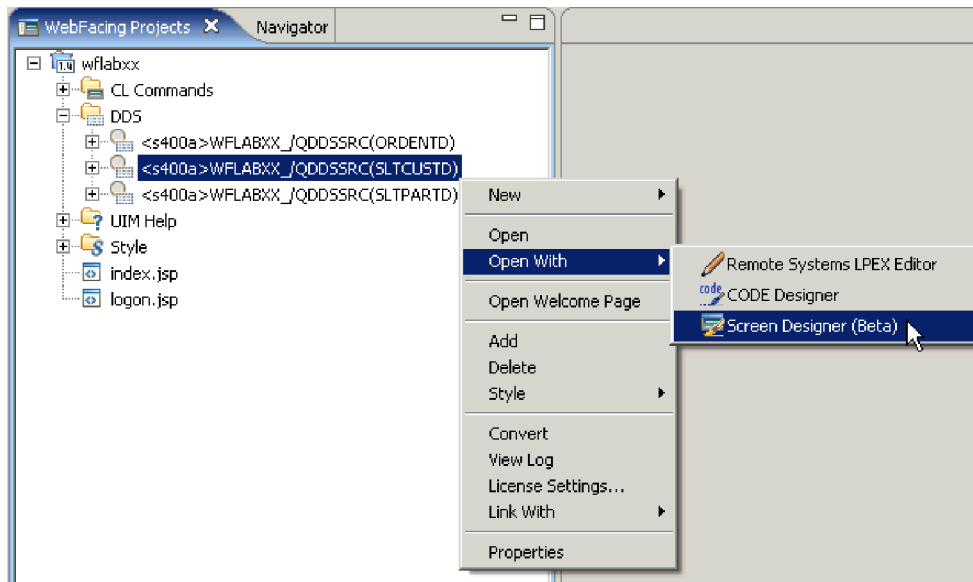
You have located the DDS source member and opened it with Screen Designer.

## Lesson checkpoint

You learned the following:

- How to open the WebFacing perspective
- How to open Screen Designer

# Applying Web Settings

Screen Designer view should be open displaying contents of **SLTCUSTD** DSPF. In this section the Web Settings view will be used to implement a series of changes.

1. Change **CUSTOMER** subfile cells to hyperlinks:
   a. Select the **CUSTSFL** record in **Screen Designer** .
   b. Select the **CUSTOMER** field in **Screen Designer** .
   c. Locate the **Web Settings** tab and select it. Notice that the view reflects the selection made in **Screen Designer**.
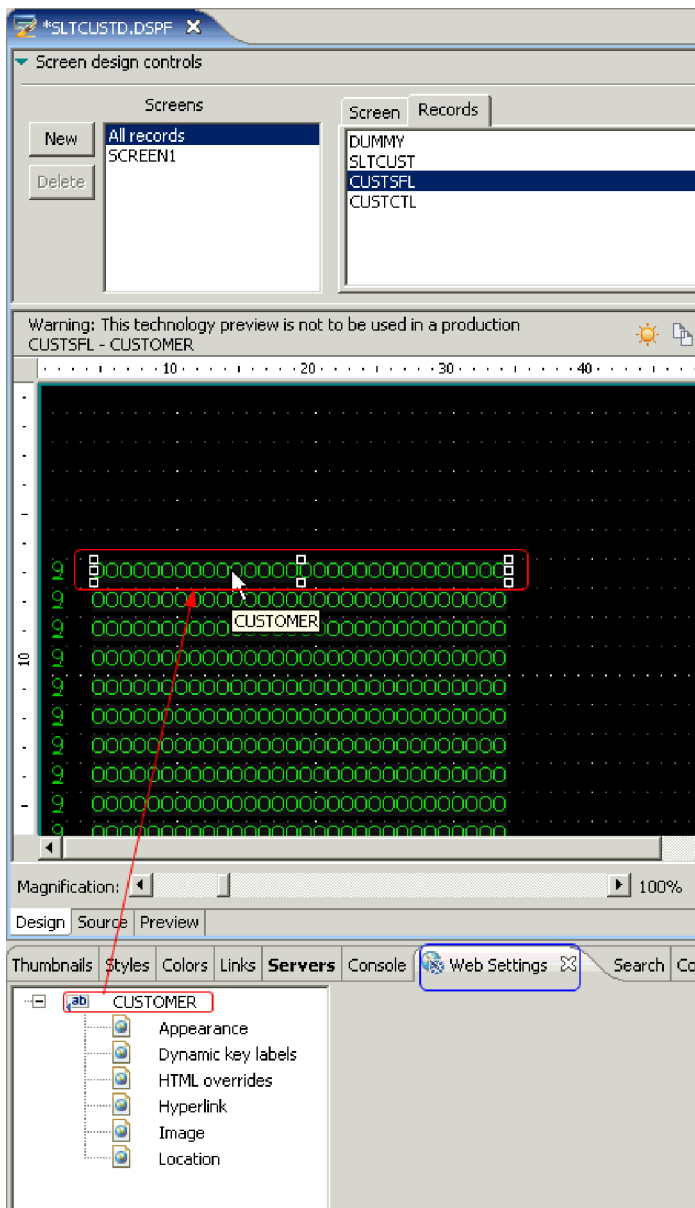
d. Select **Hyperlink** from the list and set as follows. At conversion time this causes **CUSTOMER** cells in the subfile to be rendered as links. At run time when a link is clicked cursor is positioned on corresponding **OPT** field, its value is set to '1', and the **ENTER** action is performed.
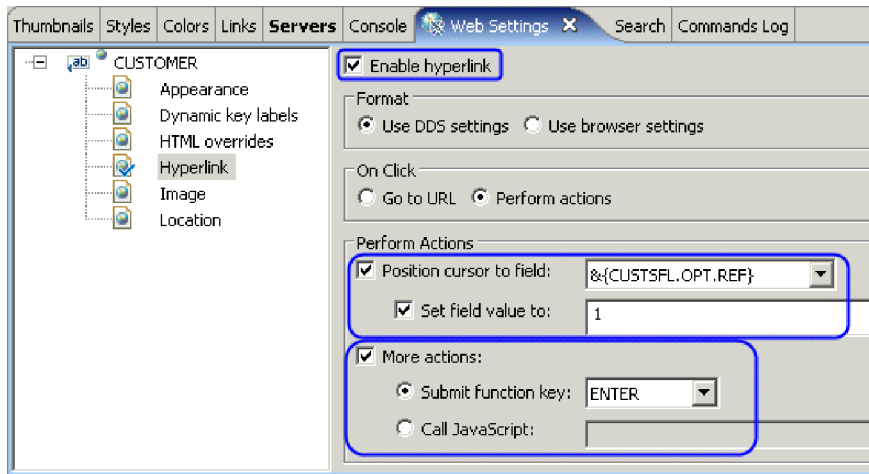
e. Select **Location** from the list. Select **Change position**, select **CSS position** and change column from 5 to 1. This causes the **CUSTOMER** subfile column to be shifted four spaces to the left.
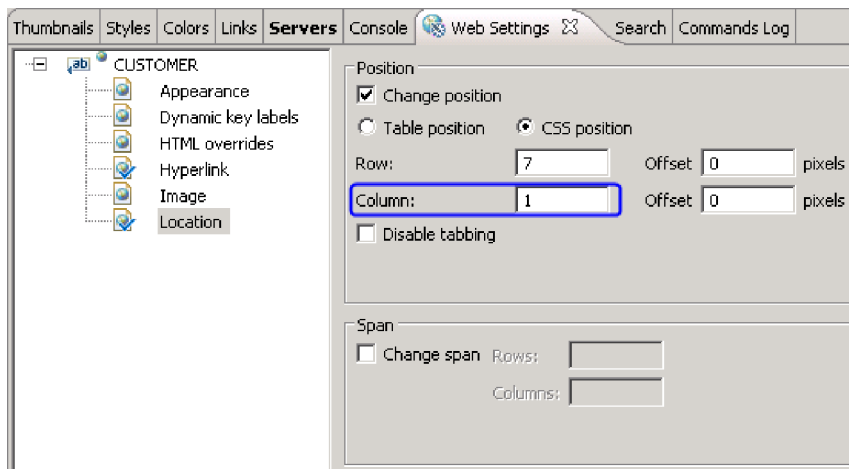


2. Hide **OPT** subfile cells, and modify subfile header string to match:

    a. Select the **OPT** field in record **CUSTSFL** from the **Outline** view.
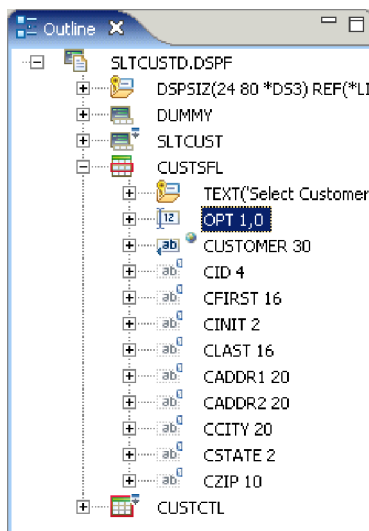


    b. Notice that selection is reflected in **Web Settings** view. From the **Web Settings** view select **Appearance** from the list, and **Hidden** from the resulting pane.
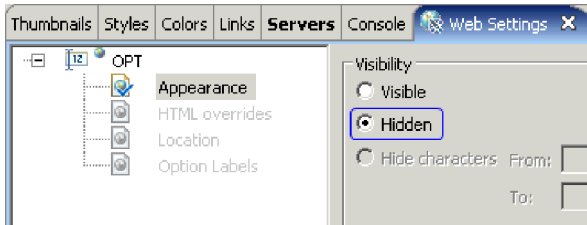
c. Next you need to hide the heading for the now hidden **OPT** subfile column. Select the **'Opt Customer'** field in **CUSTCTL** record from Outline view.
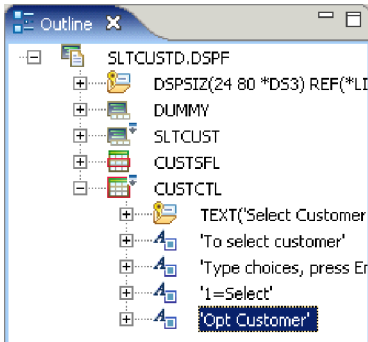


And set the Web Setting for this field as follows. This will cause the first four characters in the field to not be shown.
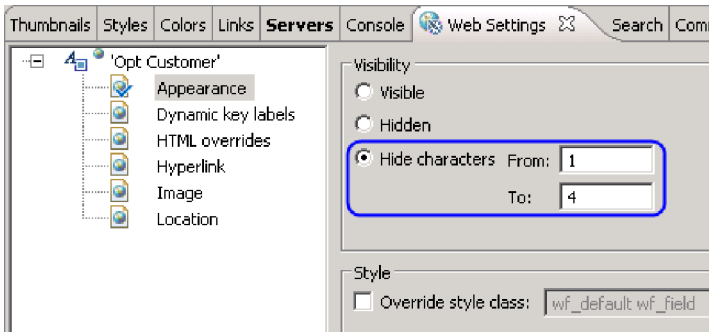


3. Re arrange top three lines in **CUSTCTL** record:

   a. Select **CUSTCTL** record then select **'1=Select'** field from **Screen Designer**. In **Web Settings** view select **Appearance** from list and then **Hidden**. This will cause **'1=Select'** field to not be shown.
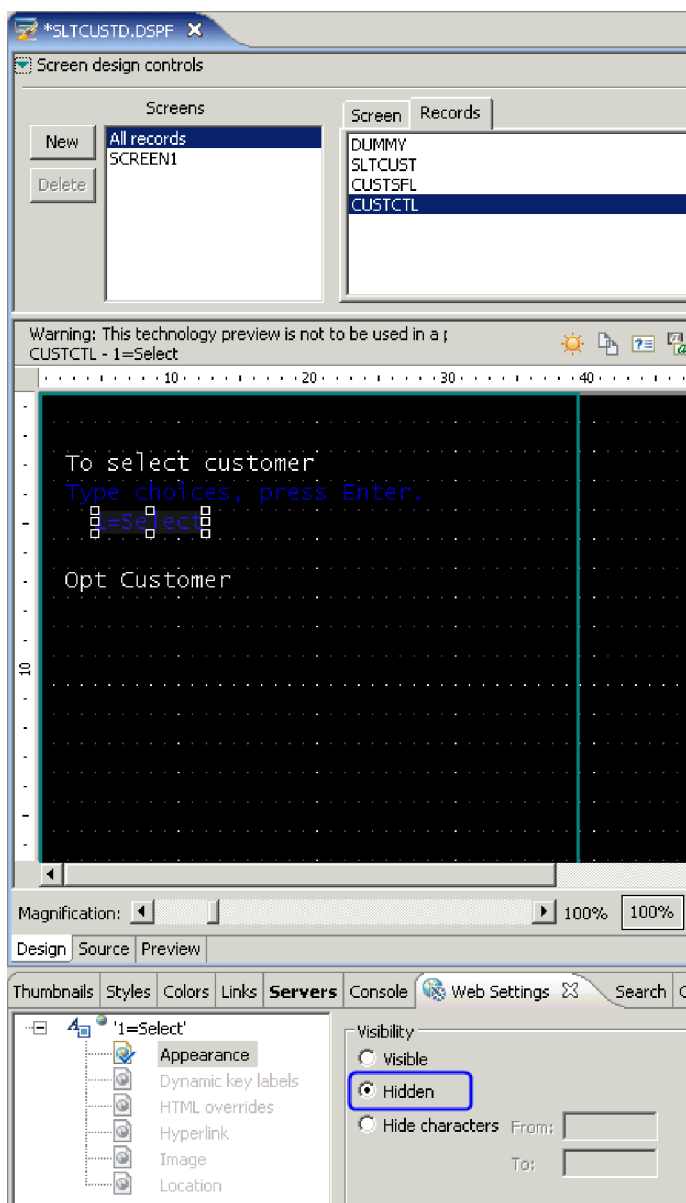
b. Repeat for field **'Type choices, press Enter'** in **CUSTCTL** record.
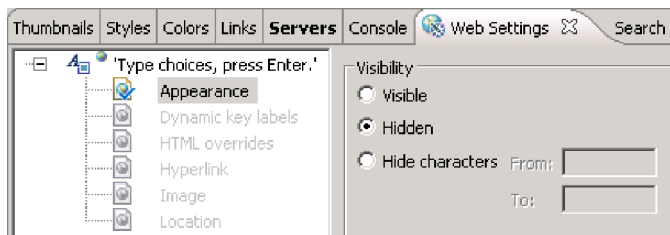


c. Finally select field **'To select customer'** in **CUSTCTL** record. And from the **Web Settings** view override field value to **'Click on link to select customer'** as shown below.
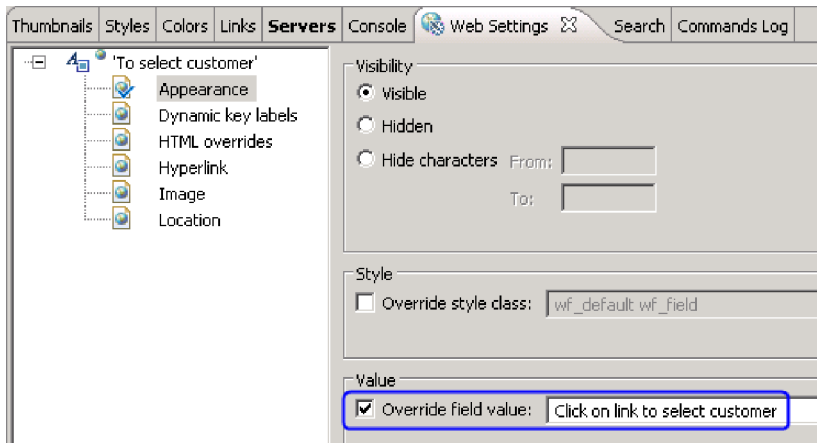
4. Close Screen Designer session and re-convert the DDS member:

   a. Click the **X** button in the Screen Designer tab.
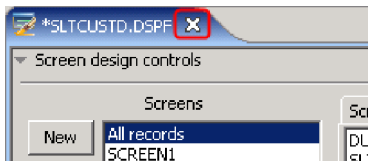
   

   b. Click **Yes** to save, when asked to do so.

      You return to the WebFacing perspective in the workbench.

   c. Locate and right click **SLTCUSTD** DDS object in **WebFacing Projects** view. Select **Convert**.
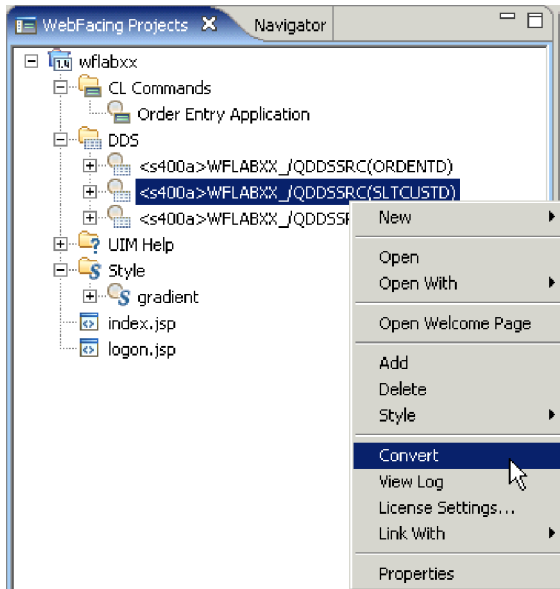
   

   Only this member will be converted. A conversion report opens after the conversion is finished.

   You return to the WebFacing perspective in the workbench.

You have changed the Customer column to hyperlinks, hidden the option field, changed the appearance of labels, saved the changes and reconverted the DDS source member.

## Lesson checkpoint

You learned the following:

- How to open and close a DDS member in Screen Designer

- How to apply Web Settings
- About Screen Designer
- Appearance, Hyperlink, Location Web Settings
- How to reconvert changed source

# Testing the changed application

Let's see the new user interface in your application.

To test the changed application:
1. Right-click `index.jsp` in the WebFacing Projects view.
2. Click **Run As > Run on Server** on the pop-up menu.

   **Note:** If you did not select the **Set server as the project default (do not ask again)** check box on the Run on Server dialog when you selected the server in "Showing the index.jsp page" on page 32, ensure that you select the same server on the dialog now. For example, if you had previously selected `WebSphere V6.1 Server`, ensure that you select that server now.
3. Go to the browser pane and click the **Launch** button.

   You will see the first screen of your application. Nothing has changed there.
4. Click the **Prompt** push button, or press command key **F4**.



   The customer selection window appears and the customer fields are shown as links. Also notice the changed text and the non-visible option column.

   **Tip:** If the customer selection window is still showing the old option selections, most likely the browser has cached the page and you need to close the browser window, and restart the application. This will open a new instance of the browser without cached content.
5. Select a customer from the list by clicking on the link.
6. Go through the same steps as in "Reviewing the 5250 order entry application" on page 3 to test the application.

You have launched a reconverted WebFacing application, prompted for a customer and verified the changes in the customer selection window.

## Lesson checkpoint

You learned the following:
- How to test the customized application

# Module summary

In this module you learned how to change the user interface for the WebFacing application using Web Settings and Screen Designer.

Next you want to improve the part selection subfile. The Web user interface for selecting a record from this subfile does not work like a Web application. You have to key 1 into the options column to select a record; this is how the green screen application works. You want a Web user interface where you can click on a link to select a part.

You will be guided through the Web Setting capabilities in the LPEX Editor to make the necessary modifications to the part selection subfile. You will change the second column in the part selection subfile, which contains the part name, from a simple text output field to a link. When you click on this new part name link, the correct information your program expects is sent. You might ask what is the correct information? What is your program expecting? It is expecting a 1 in the subfile options field for the selected part record. The program will receive the same information after you change the user interface.

The WebFacing conversion will add logic to the user interface, so that the options field is filled with a 1 and the Enter key event is invoked when the link is pressed. You enhance the user interface and don't have to change the application, this sounds pretty impressive doesn't it.

## Lessons learned

By completing this module, you learned about the following concepts and tasks:
- Locate a DDS source member
- Open a DDS source member with Screen Designer
- Create a hyperlink action for the customer field
- Hide the option field
- Hide the option heading for the option field
- Hide the select instruction
- Change the appearance of text
- Close Screen Designer
- Reconvert the DDS source member
- Launch the reconverted WebFacing application
- Prompt for a customer
- Verify the changes in the customer selection window

## Assessment
- What is Screen Designer?
- What are Web Settings?
- How do you apply Web Settings to customize the Web browser interface using Screen Designer?

# Changing the user interface using Web Settings in the LPEX Editor

To enhance the results of the WebFacing Tool, you will use the feature Web Settings in the LPEX Editor. LPEX Editor is a source editor available in the workbench. It allows you to change certain aspects of the user interface related to the WebFacing conversion process. The LPEX Editor stores the Web Setting information as comment lines in the DDS source. When you convert the application using the IBM WebFacing Tool, these DDS source comment lines are picked up and applied to the new user interface.

This module teaches you how to change the user interface of your WebFacing application with the LPEX Editor. In the WebFacing perspective you will learn how to select a DDS source member to work with; start the LPEX Editor to open this DDS member; work with Web Settings in the LPEX Editor to change the Web look, and then reconvert the DDS member.

**Learning objectives**

- Locate a DDS source member
- Open a DDS source member with the LPEX Editor
- Create a hyperlink action for the option field
- Hide the option field
- Hide the option heading for the option field
- Hide the select instruction
- Change the appearance of text
- Close the LPEX Editor
- Reconvert the DDS source member
- Launch the reconverted WebFacing application
- Prompt for a part
- Verify the changes in the part selection window

**Time required**

This module will take approximately 15 minutes.

## Opening DDS display file source in the LPEX Editor

Since you will use the WebFacing perspective to invoke the LPEX Editor you start this lesson using the product in the WebFacing perspective.

Skip this section if the product and WebFacing perspective are already open.

1. To start the product and open the WebFacing perspective (optional):
   a. Start the product and open the WebFacing perspective, if it is not up and running already.
   b. In the WebFacing perspective, make sure that you are in the WebFacing Projects view and not the Navigator view.
   c. Expand your project in the WebFacing Projects view by clicking on the plus sign (+) beside the WebFacing project icon if not already.
      Next you open the LPEX Editor.

      **Note:** This lesson is very similar to the previous lesson; you use a different tool to apply the Web Settings. When you create a WebFacing application and want to customize that WebFacing application, you can choose the tool you like more for applying Web Settings.

2. To open the LPEX Editor:
   a. Locate the DDS display file source named STLPARTD.
   b. Right-click SLTPARTD and click **Open with > Remote Systems LPEX Editor** on the pop-up menu.
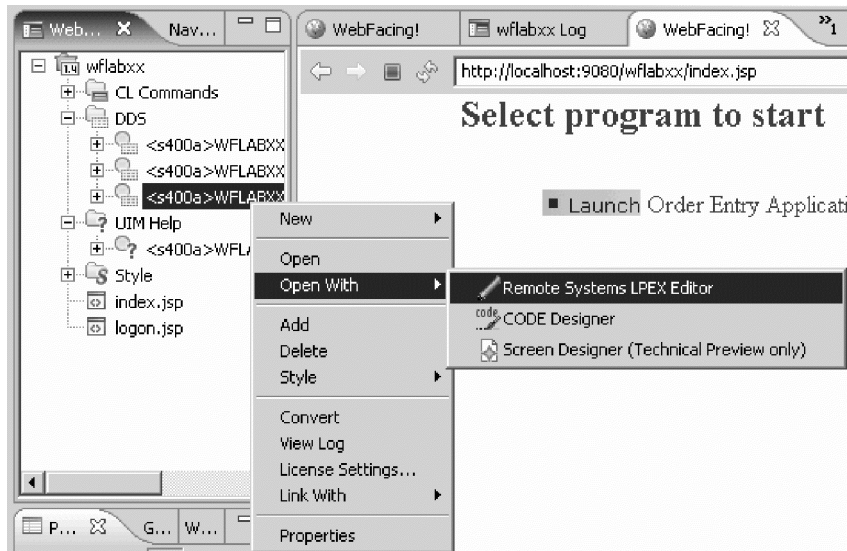
The LPEX Editor loads the DDS member.

You have located the DDS source member and opened it with the LPEX Editor.

### Lesson checkpoint

You learned the following:
* How to open the Remote Systems LPEX Editor
* How to open the WebFacing perspective

## Applying Web Settings in the LPEX Editor

Next, edit the part selection list so that it appears more Web-like. Therefore, you need to give focus to the record format named PARTSFL.

1. To create an hyperlink for the option field:

   a. In the Outline view, expand SLTPARTD.DSPF then expand PARTSFL and then select the IID field (the part number field). Notice the cursor is positioned on the IID field in the DDS source.

   b. Select the **Web Settings** tab at the bottom of the workbench.

   c. Scroll down to the list, and select **Hyperlink**.

   d. Check the **Enable hyperlink** check box to the right of the list.

   e. Select the **Use browser settings** radio button.

   f. Select the **Perform actions** radio button.

   g. Check the **Position cursor to field** check box.

   h. From the list under the **Position cursor to field** check box, select the option field **&{PARTSFL.OPT.REF}**.

   i. Select the **Set field value to** check box and change the value 1 in the field to the right of the check box.

      This indicates that you want a 1 to be entered in the **Opt** field when the hyperlink is clicked.

   j. Select the **More actions** check box.

   k. Select the **Submit function key** radio button.

   l. Select **ENTER** from the **Function key** list.
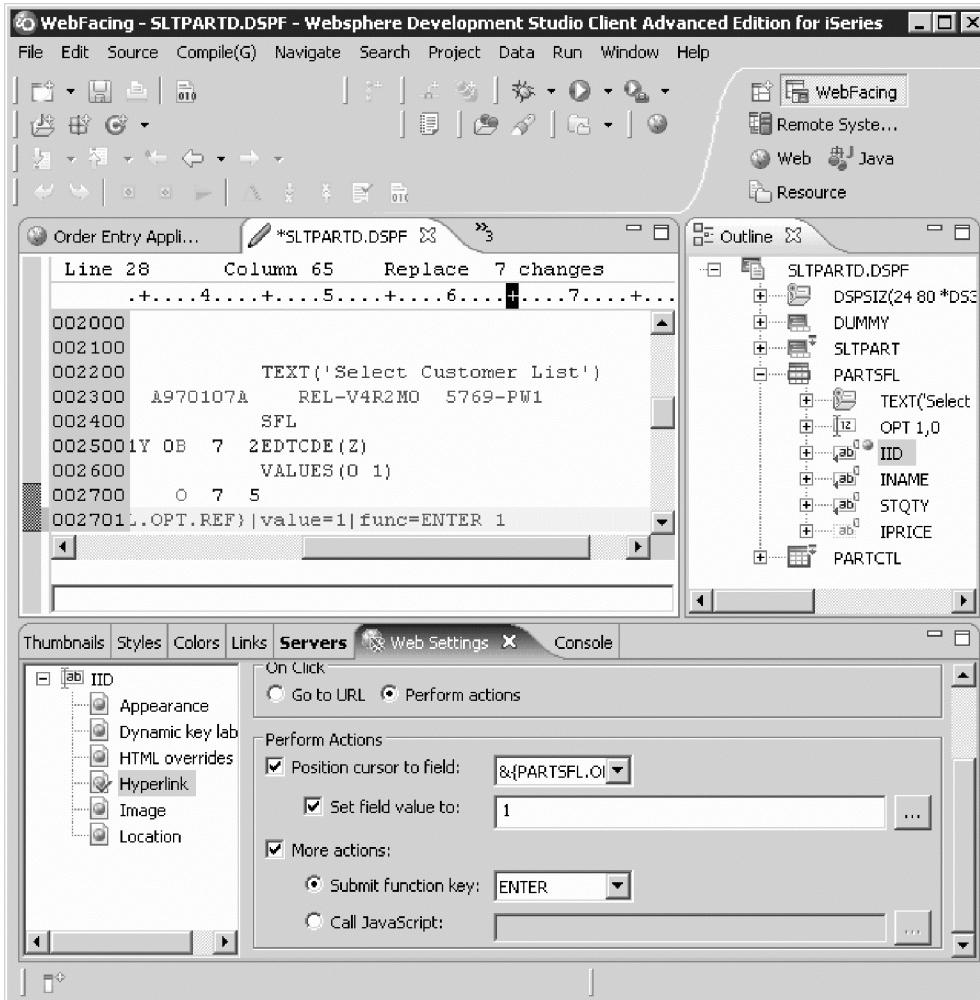
Just to recap, you specified the following, when the application gets converted with the WebFacing Tool; the part name cells in the subfile will be generated so they appear as links in the browser window. At run time, when the link is clicked, a 1 will be placed in the option field. Also, a submit request will be initiated to generate the equivalent of pressing the Enter key and the cursor will be positioned in the option field for the selected row.

You have accomplished the basic task, but the user interface now has an option column that doesn't belong there since it is not needed with the new link. Also the instructions on the page on how to select a part are wrong. You want to fix this with Web Settings as well, before you test this new feature.

Next you hide the option field.

Back in the Outline view, select the option field to indicate that you want to work with it.
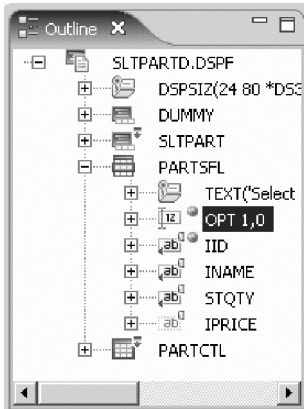
2. To hide the option field:
   a. Click the **Opt** field in the Outline view to select it.
   b. On the Web Settings page select **Appearance** from the list.
   c. Click the **Hidden** radio button.
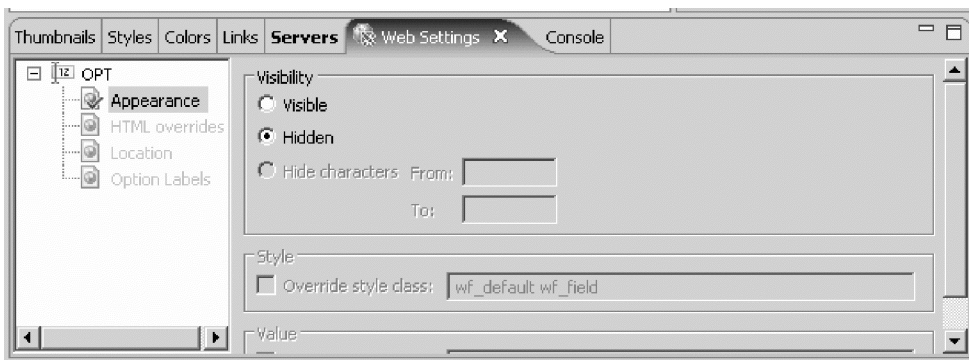


   Now this column in the subfile will be hidden.

   You need to hide the heading for the option field as well. The heading is not in the subfile record; it is located in the subfile control record. Therefore you need to give focus to a different record format in the Outline view.
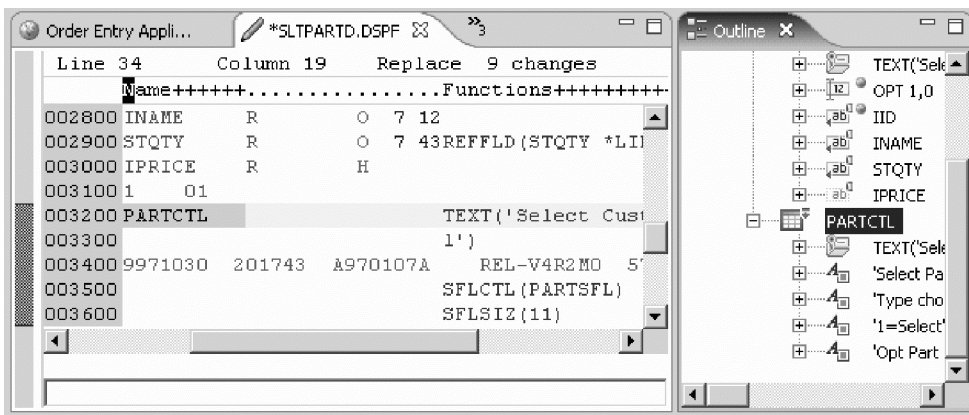


3. To hide the option heading Opt:
   a. Expand PARTCTL in the Outline view, select the **Opt Part Description Qty** constant.
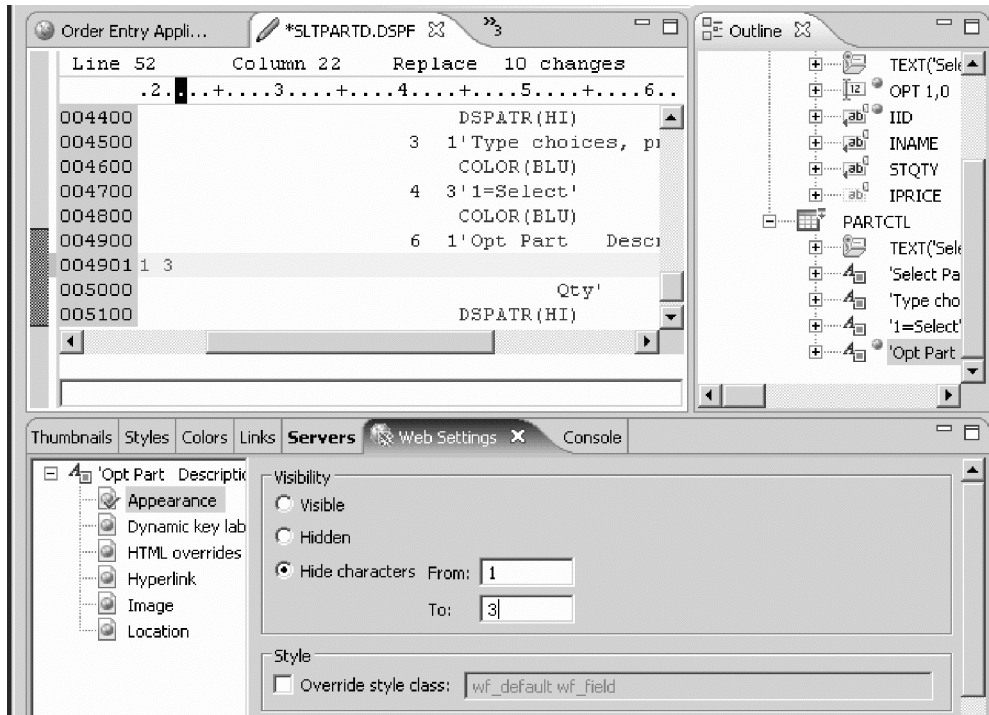
b. On the Web Settings page, select **Appearance** from the list.

c. Select the **Hide characters** check box.

d. Leave 1 in the **From** field.

e. Type 3 in the **To** field.

   This hides the heading Opt. Now you need to remove the instructions on the panel that guide the user to put a 1 into the **Opt** field to select a specific part.

   You don't have to give focus to a different record format since this constant is also located on the PARTCTL subfile control record format.

4. To hide the select instruction:

   a. Select the constant **1=Select** in the Outline view.
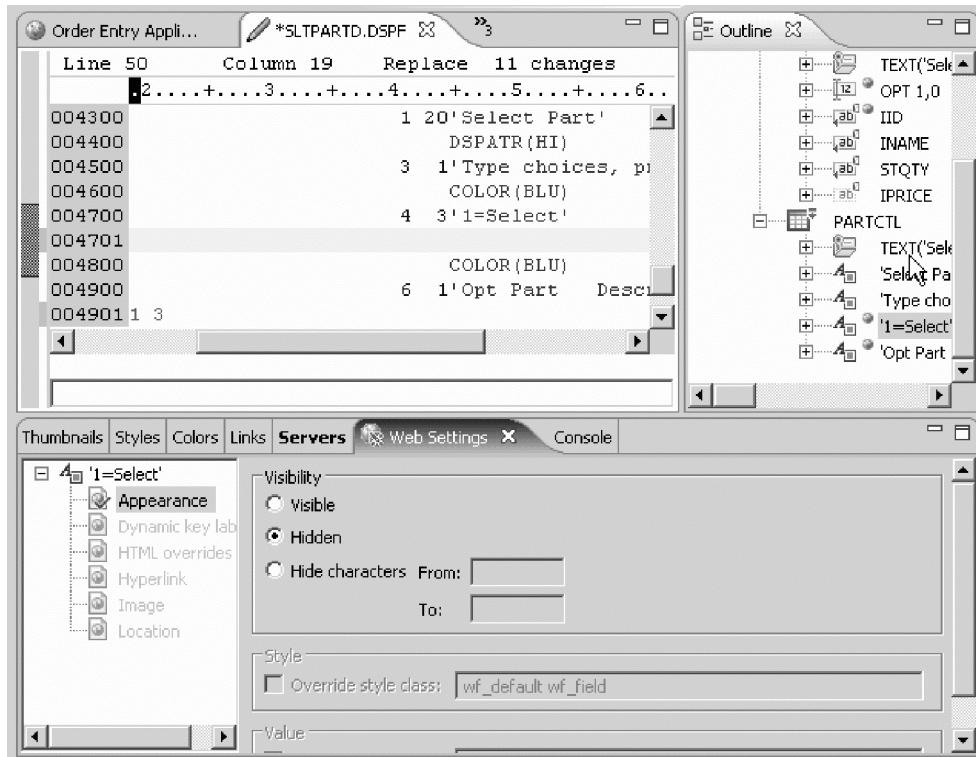
b. On the Web Settings page select **Apppearance** from the list.

c. Click the **Hidden** radio button.

Now you need to add new instructions for the WebFacing page, so the end user knows to click the link to select a part.

**Note:** You can't just change the 5250 constant because you might still use this screen in a 5250 environment, you have to use Web Settings to apply this change to the Web user interface only.

5. To change the instruction text:

a. Select the instruction constant **(Type choices press Enter)** on the Outline view.
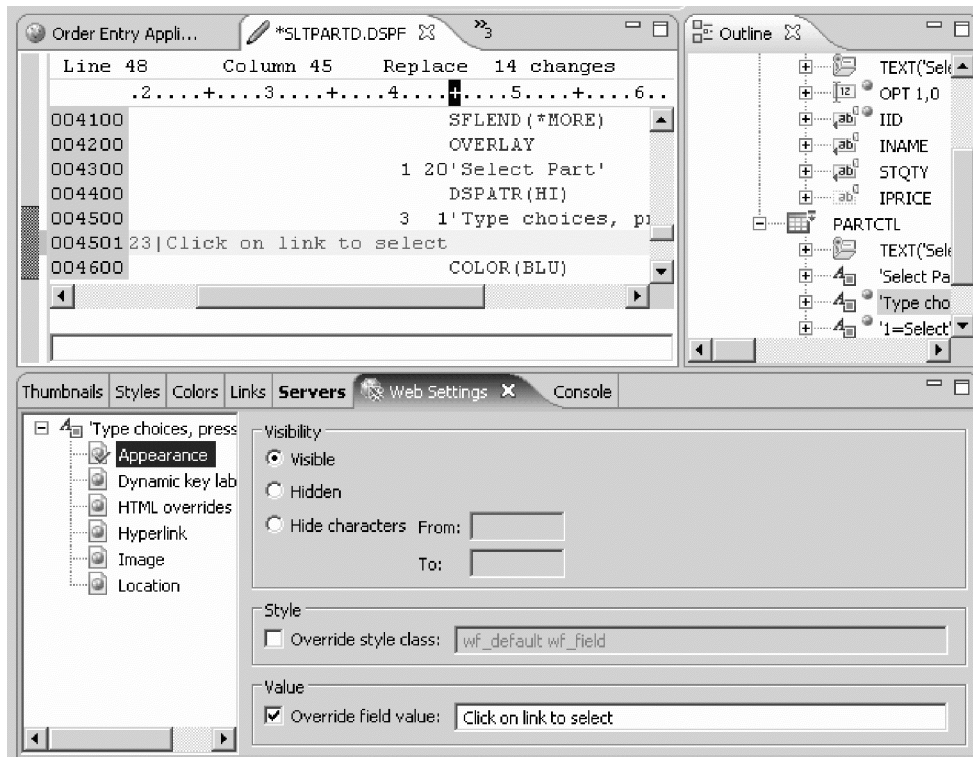
b. On the Web Settings page, select **Appearance** from the list.

c. Select the **Override field value** check box, and type the new text `Click on link to select` in the field to the right of the check box.

Now all Web Settings are in place and you can go ahead and save the DDS source and reconvert this DDS member.

6. To close the LPEX Editor and re-convert the DDS member:

a. Click the **X** in the SLTPARTD tab in the LPEX Editor.



b. Click **Yes** to save, when asked to do so.

You return to the WebFacing perspective in the workbench.

c. Select your project wflabxx in the WebFacing Projects view.

d. Expand the project by clicking on the plus sign (+) in front of its icon, if you can't see the DDS folder as part of the project.

e. Expand the DDS folder, if it is not expanded already, to show all members in this folder.
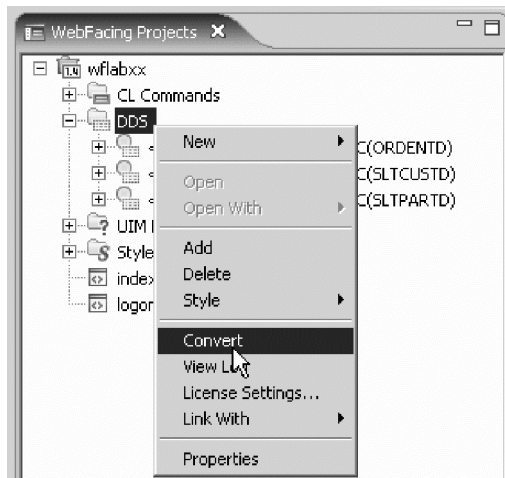
f. Select the member SLTPARTD that you just changed.

g. Right-click SLTPARTD member icon.

h. Click **Convert** on the pop-up menu.

Only this member will be converted. A conversion report opens after the conversion is finished. Now you test the new user interface.

You return to the WebFacing perspective in the workbench.

You have created a hyperlink action for the option field, hidden the option field, the option heading and the select instruction, changed the appearance of text, closed the LPEX Editor and reconverted the DDS source member.

### Lesson checkpoint

You learned the following:

• How to apply Web Settings in the LPEX Editor to change the Web user interface of the application

## Testing the changed application

Let's see the new user interface in your application.

To test the changed application:

1. Right-click index.jsp in the WebFacing Projects view.

2. Click **Run As > Run on Server** on the pop-up menu.

   **Note:** If you did not select the **Set server as the project default (do not ask again)** check box on the Run on Server dialog when you selected the server in "Showing the index.jsp page" on page 32, ensure that you select the same server on the dialog now. For example, if you had previously selected `WebSphere V6.1 Server`, ensure that you select that server now.

3. Go to the browser pane and click the **Launch** button.

   You will see the first screen of your application. Nothing has changed there.

4. Click the **Prompt** push button, or press command key **F4**.

The customer selection window appears and the customer fields are shown as links. Also notice the changed text and the non-visible option column.

**Tip:** If the customer selection window is still showing the old option selections, most likely the browser has cached the page and you need to close the browser window, and restart the application. This will open a new instance of the browser without cached content.

5. Select a customer from the list by clicking on the link.
6. Click the **Prompt** push button on the **Parts** field.
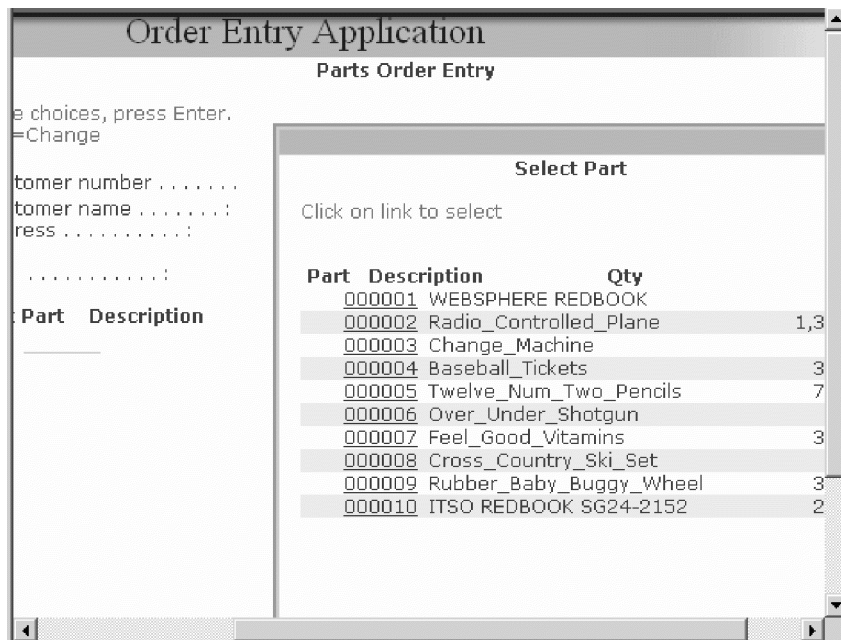


The parts selection window appears and the part fields are shown as links. The instruction text has changed (click on link to select) and the Opt heading and Opt field are gone.

**Tip:** If the part selection window is still showing the old option selections, most likely the browser has cached the page and you need to close the browser window, and restart the application. This will open a new instance of the browser without cached content.

7. Click the hyperlink and notice that the corresponding part number is set in the **Part number** field on the Order Entry panel.
8. Exit the application.

You have launched a reconverted WebFacing application, prompted for a part and verified the changes in the part selection window.

### Lesson checkpoint

You learned the following:
- How to test the customized application

# Module summary

In this module you learned how to change the user interface for the WebFacing application using Web Settings in the LPEX Editor.

When you tested the changed application, you found that you didn't like the way the WebFacing Tool mapped some of the display attributes to colors and text styles available in the browser. You wanted to change the default WebFacing style rules that determine how certain 5250 parts are displayed in a browser to give the Web user interface a better look. Now you will make these changes.

### Lessons learned

By completing this module, you learned about the following concepts and tasks:
- Locate a DDS source member
- Open a DDS source member with the LPEX Editor
- Create a hyperlink action for the option field
- Hide the option field
- Hide the option heading for the option field
- Hide the select instruction
- Change the appearance of text
- Close the LPEX Editor
- Reconvert the DDS source member
- Launch the reconverted WebFacing application
- Prompt for a part
- Verify the changes in the part selection window

### Assessment
- What is the LPEX Editor?
- What are Web Settings?
- How do you apply Web Settings to customize the Web browser interface using the LPEX Editor?

# Changing the style of the Web user interface

This module teaches you how to change the user interface of your WebFacing application by using the WebFacing style properties dialog. The style changes are applied on a project level; so all pages in a project will be displayed with these changes applied. In this module you will change the text color and font for all highlighted fields. You will also locate the style file where these changes have been stored.

### Learning objectives
- Start the Style Properties dialog
- Change the DDS Field Display Attributes
- Locate the cascading style sheet file

- Edit the cascading style sheet file
- Check the new styles

## Time required

This module will take approximately 5 minutes to complete.

# Changing the rules for highlighted fields

You will use the Style Properties dialog in the IBM WebFacing Tool to tailor your Web user interface. You will change the rules for highlighted fields in the 5250 panels so they appear more visible in the Web user interface. The style for highlighted fields will be altered so at runtime the text font will be different and a larger font size will be applied.

To change the rules for highlighted fields:

1. Start the workbench of the product and open the WebFacing perspective, if it is not up and running already.
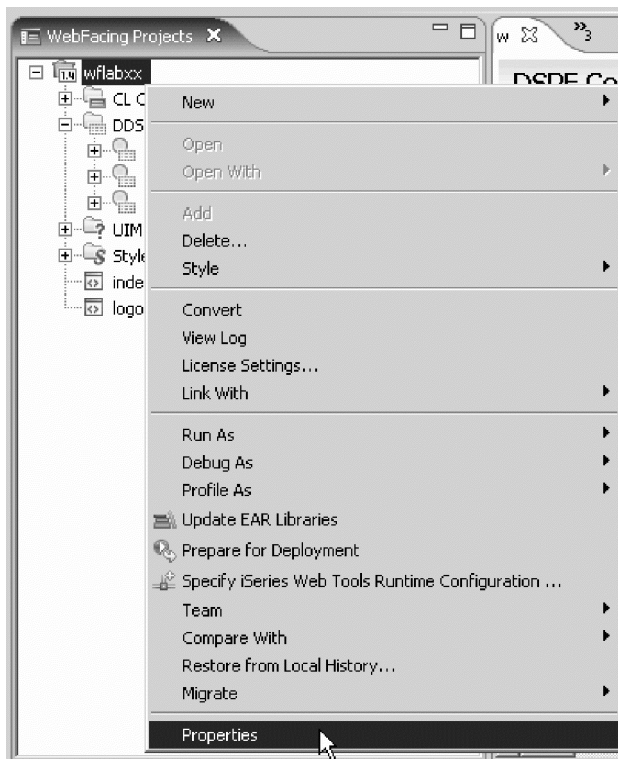


2. Right-click the wflabxx project.
3. Click **Properties** on the pop-up menu.

   The WebFacing project properties dialog opens.
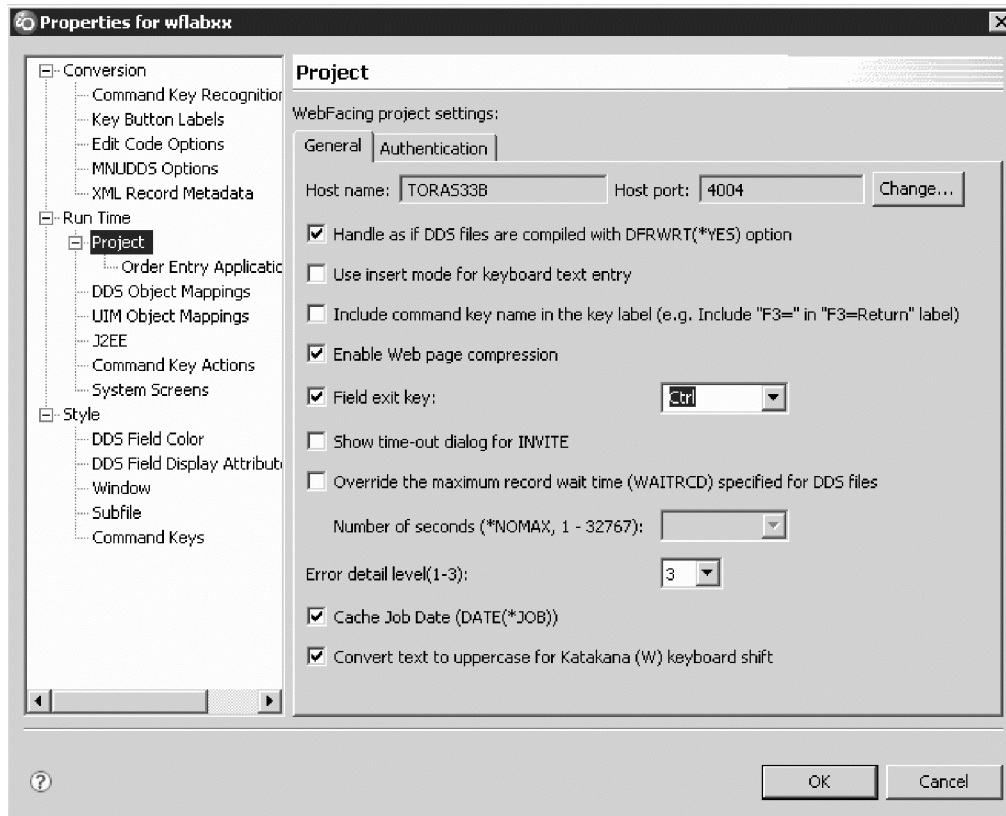
4. Under **Style** in the left pane of the Properties for wflabxx, click **DDS Field Display Attributes**.

   In the right pane of the Properties for wflabxx, the DDS Field Display Attributes pane opens.
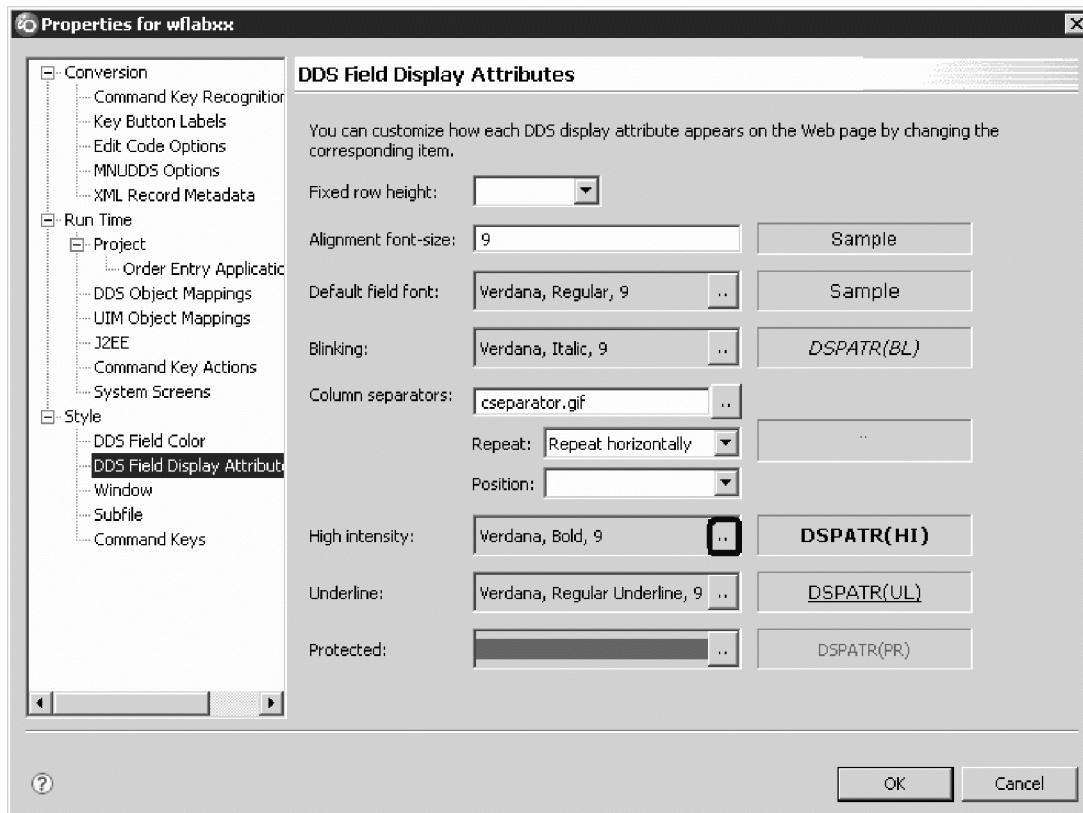


5. Click the **..** push button to the right of the **High intensity** field.

The Font dialog opens.
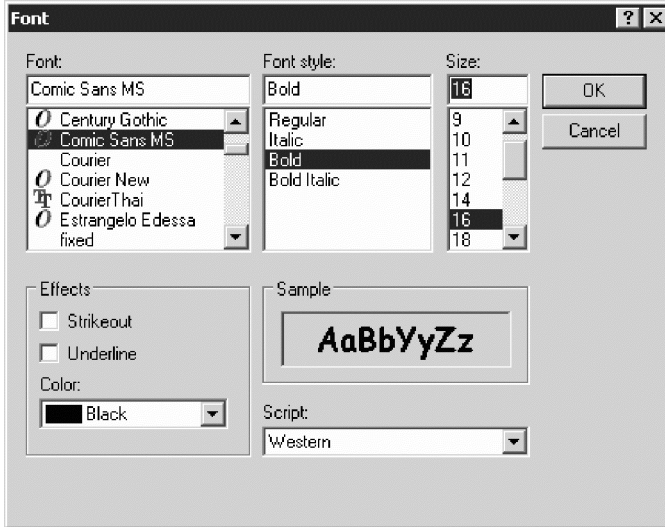


6. Under the **Font** list, select **Comic Sans MS**.
7. Under the **Font style** list, select **Bold**.
8. Under **Size**, select **16**.

   **Tip:** Don't try to change the color in this dialog, the color setting doesn't work, later in this module you will see how to change the color.

   This changes the font size and appearance for parts that have the high intensity attribute active.

9. Click **OK** on the Font dialog.
10. On the Properties page, click **OK**.

    Let's check the new style in your application.

11. To check the new style:
    a. Right-click index.jsp in the WebFacing Projects view.
    b. Click **Run As > Run on Server** on the pop-up menu.

       **Note:** If you did not select the **Set server as the project default (do not ask again)** check box on the Run on Server dialog when you selected the server in "Showing the index.jsp page" on page 32, ensure that you select the same server on the dialog now. For example, if you had previously selected WebSphere V6.1 Server, ensure that you select that server now.

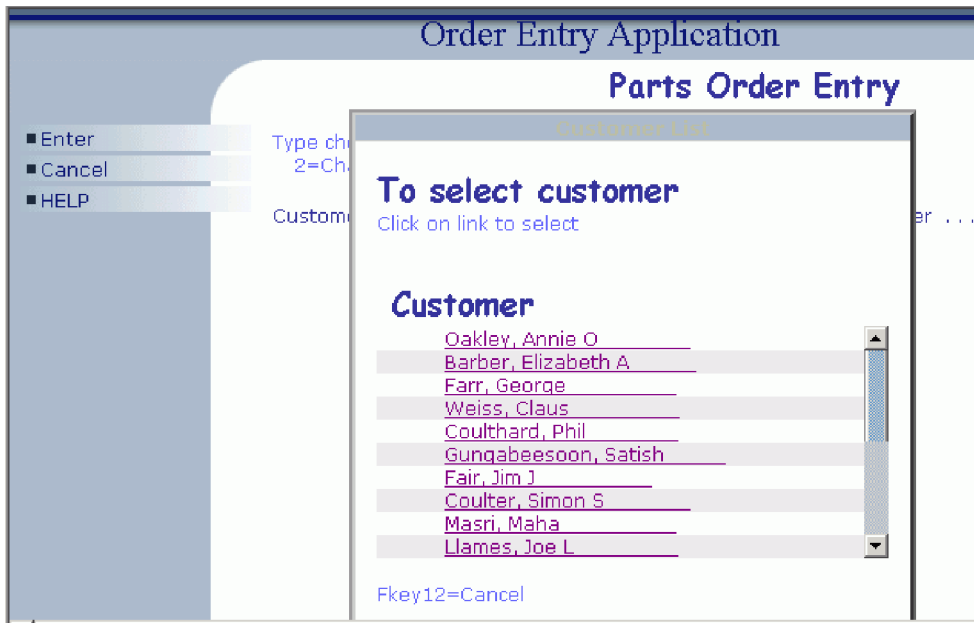    c. Go to the browser pane and click the Order Entry link.

       **Tip:** See the different font and font size of some of the text; these are the highlighted areas of your 5250 screen.

       You will see the first screen of your application.

    d. Prompt for the customer.

       The customer selection screen has highlighted text and this text should show in font Comic Sans MS and size 16.

**Tip:** If the text is still showing the old fonts, most likely the browser has cached the page and you need to close the browser window, and restart the application. This will bring up a new instance of the browser without cached content.

Next you see how to directly change WebFacing style classes.

You have started the Style Properties dialog, changed the DDS Field Display Attributes and checked the new style.

### Lesson checkpoint

You learned the following:
- How to start the Style Properties dialog
- How to change the DDS field display attributes
- How to check the changed style
- About style changes

## Changing styles directly

Instead of working with properties in the WebFacing project you can also change the styles being applied directly in the Cascading Style Sheet (.css) file that WebFacing uses. In this lesson you see where this file is located in the WebFacing Project structure and how to find your way around in this file.

To locate the Cascading Style Sheet file:
1. Click the **Navigator** tab to switch to the Navigator view.
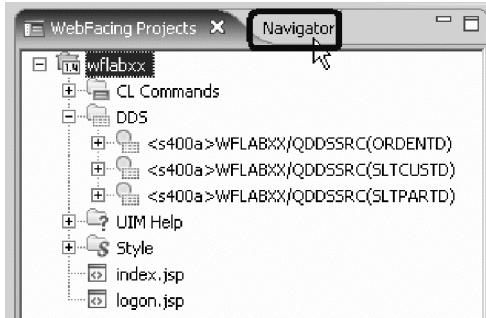
2. Locate the apparea.css file in the WebFacing project.
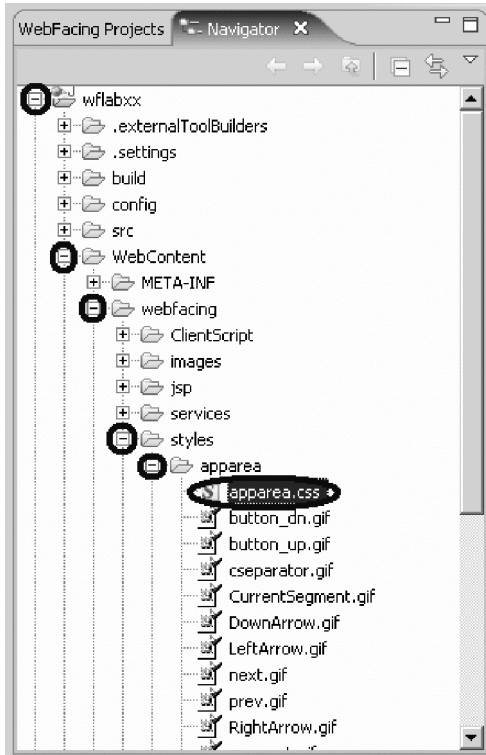


It is located in the following directory hierarchy: `wflabxx\WebContent\webfacing\styles\apparea\`

3. Double-click the apparea.css file icon in the Navigator view, to open an editor for this file.

Next you change the WebFacing highlighted style class.

The editor dialog will open and show the style source.

4. Scroll down the source file until you reach the **.wf-hi** class.

You'll notice your changes from the previous lesson are applied here. The WebFacing Tool has created style sheet classes for the different 5250 parts and attribute combinations and stored them here. Each of the lines starting with a dot is a style class name. The statements inside the braces after the class name describe the attributes of the class itself. The classes have been given descriptive names. For example .wf_hi defines how a part that has the high intensity keyword is displayed in the browser and wf_cs describes the column separator. You can change the display characteristics for any of the 5250 attributes.

Next you change the color attribute of the high intensity class.

5. Position the cursor at the end of the last line of the wf_hi class, before the ending brace (}).

6. Press the **Enter** key to insert a line.

7. Enter the color attribute you want to use, for example: `color: red;`

**Tip:** Don't forget the semicolon to delimit the line.

8. Look at the left beside the Style sheet editor.

   This feature available in the Style sheet editor allows you to look at the changes you have made to a class directly in the editor without actually invoking the page and showing in a browser.
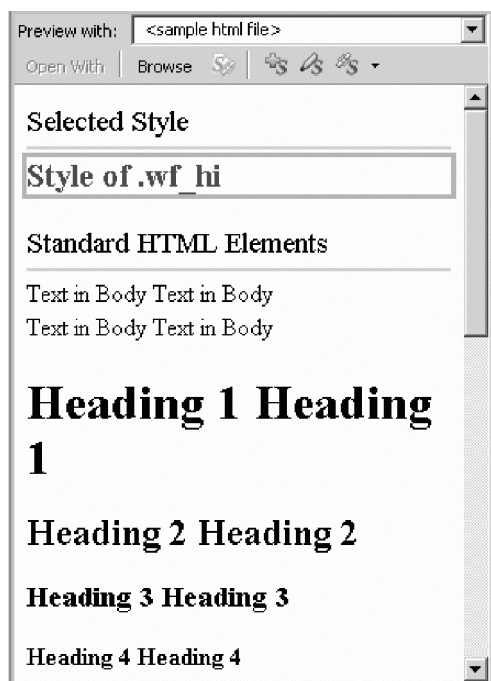


9. Save the change by clicking the Save icon in the workbench.
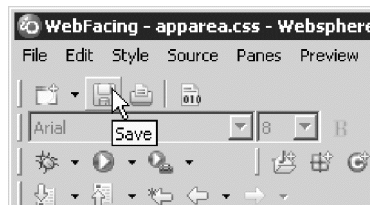


   To see the changed user interface, run the application again.

You have located the cascading style sheet file and edited it.

### Lesson checkpoint

You learned the following:

* How to locate the cascading style sheet file and edit it

## Testing the changed application

To test the changed WebFacing application:

1. Click the **X** in the Window bar of any editors or views still open at the right upper hand side of the workbench to close them all.

   Now let's check the new style attribute in your application.

2. Right-click index.jsp in the WebFacing Projects view or Navigator view in the WebFacing perspective.

3. Click **Run As > Run on Server** on the pop-up menu.

   **Note:** If you did not select the **Set server as the project default (do not ask again)** check box on the Run on Server dialog when you selected the server in "Showing the index.jsp page" on page 32,

ensure that you select the same server on the dialog now. For example, if you had previously selected `WebSphere V6.1 Server`, ensure that you select that server now.

4. Go to the browser pane and click the Order Entry button.

You will see the first screen of your application. Notice the different color of the text in the highlighted areas of your Web page. Prompt for the customer. The customer selection screen will show the same changed attributes; remember style changes are applied to all pages as shown.
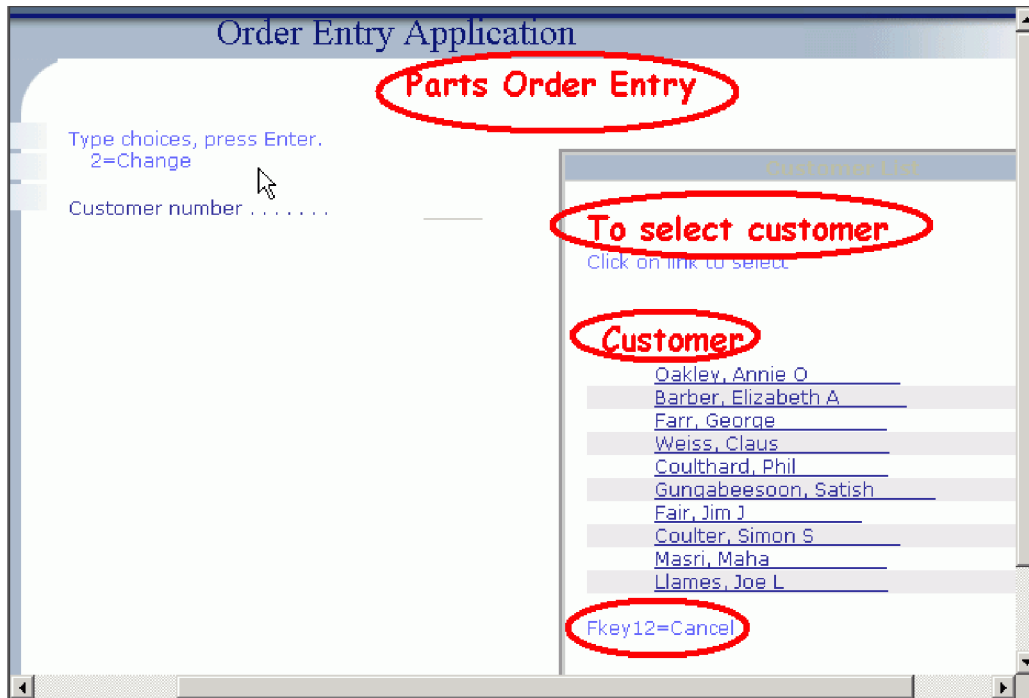


You might not have noticed it before, but there is still a command key description at the bottom of the Customer Selection list window.

You might have guessed it; you will fix this in the next module.

### Lesson checkpoint

You learned the following:

- How to test changes

## Module summary

In this module you learned how to change the user interface of your WebFacing application by using the WebFacing style properties dialog and editing the styles directly in the Cascading Style Sheet (.css) file that WebFacing uses.

In the sample Order Entry application, the Customer Selection list window doesn't follow the CUA® rules for command key descriptions. The WebFacing Tool will by default not recognize these command key descriptions and will not delete them. The Order Entry main screen has a command key enabled that has no description associated with it. The WebFacing Tool by default doesn't handle this situation and puts a default string in the push button label representing this command key. Next you learn how to enable the WebFacing Tool to deal with these common green-screen environments.

### Lessons learned

By completing this module, you learned about the following concepts and tasks:

- Start the Style Properties dialog

- Change the DDS Field Display Attributes
- Locate the cascading style sheet file
- Edit the cascading style sheet file
- Test the new styles

## Assessment

- What kinds of style changes can you make to the Web user interface?
- How do you change the Web user interface using style properties and CSS?

# Adding command key rules and labels

Most of the command key descriptions placed at the bottom of the original panels in the sample Order Entry Application have been removed from the WebFacing user interface. The removal happens automatically if the command key descriptions follow the Common User interface Access (CUA) rules (for example, F3=Exit). If they don't follow these rules you can supply the WebFacing Tool with the command key description rules you use in your user interface, and the WebFacing Tool will apply these rules to recognize your specific command key descriptions. One of the record formats in the sample application contains a command key description that doesn't follow the CUA rules.

This module teaches you how to use the WebFacing conversion properties dialogs to add your own command key description rule. Also, you might have enabled command keys without describing them in the user interface because they are only used for specific functions and your end user knows how they work. For example, command key 3 for ending an application or command key 12 for canceling a task are generally well known. Your user interface might not list them explicitly at the bottom of the panel. In these situations, the WebFacing Tool doesn't have a string to use as a label for the push buttons on the Web page, and will use default labels, for example CF12 for command key 12. As an alternative, the WebFacing Tool allows you to specify labels for common command keys so it can label the command key push buttons correctly.

## Learning objectives

- Start the Properties dialog
- Select Command Key Recognition Patterns
- Add a new command key rule
- Reconvert the DDS members
- Test the applied new rule
- Change the text for the F12 command key
- Reconvert the DDS members
- Test the new command key label

## Time required

This module will take approximately 10 minutes to complete.

# Adding a new command key description pattern

The prefix for the command key description in the SLTCUST record format is Fkey=.
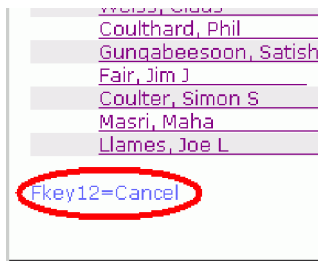


This doesn't follow the CUA rules normally used in i5/OS user interfaces, so the WebFacing conversion does not recognize this pattern and does not hide it. You have to add this prefix pattern to the WebFacing Tool conversion rules in the WebFacing Properties dialog.

To add a new command key description pattern to WebFacing conversion rules:
1. In the WebFacing Projects view, right-click your WebFacing project wflabxx.
2. Click **Properties** on the pop-up menu.
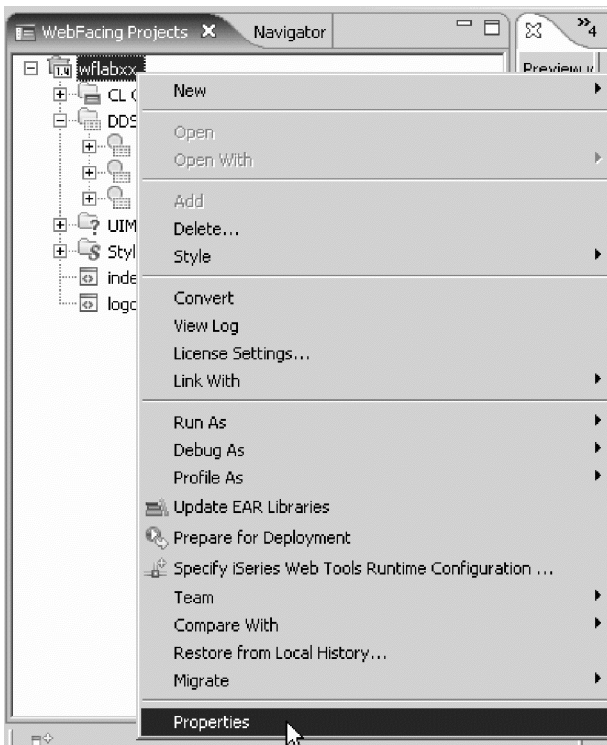


The Properties for wflabxx dialog opens.
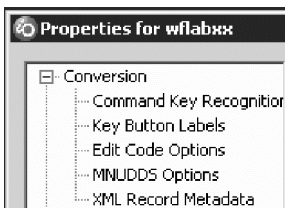


3. In the left pane of the Properties for wflabxx, under **Conversion**, select **Command Key Recognition Patterns**.

The right pane will switch to Command Key Recognition Patterns.



4. In the **Prefix** list, type Fkey
5. In the **Separator** list, leave =
6. Click **Add** to the right of these two lists.

   The additional rule is now part of this style.
7. Click **OK**.

   Next, you will test this feature by converting the DDS member and running the application.

   Since these are conversion properties you are changing and not style properties as in the previous module, you will need to reconvert all members that contain command key descriptions with this pattern. In the sample Order Entry application this is only member SLTCUSTD.
8. To reconvert DDS members:
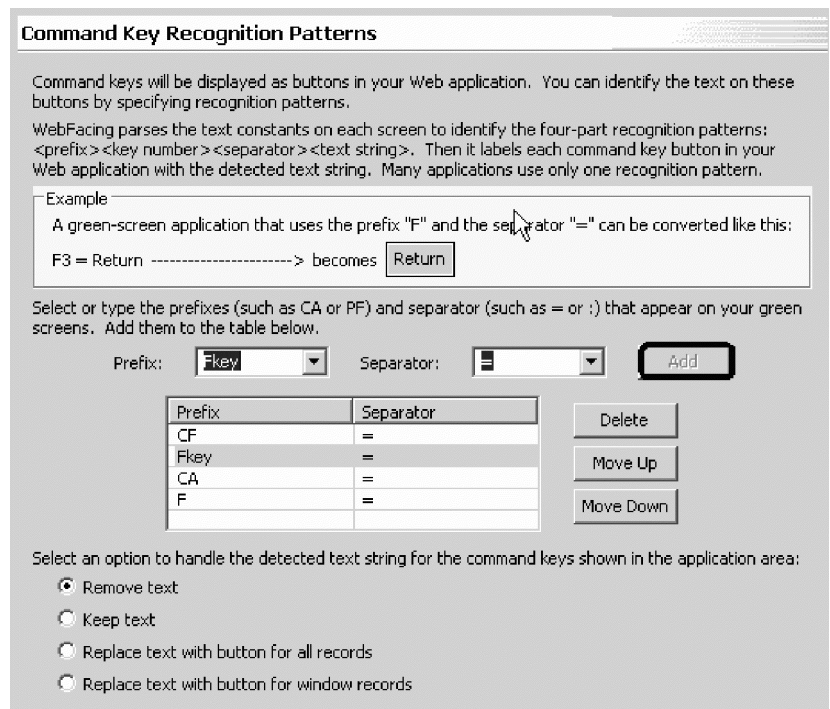   a. In the workbench in the WebFacing Project view, expand the wflabxx project, if not already expanded.
   b. Expand the DDS folder, if not already expanded.
   c. Right-click the SLTCUSTD member icon.
   d. Click **Convert** on the pop-up menu.

      After the conversion, take a look at the change.

      Let's see how the new rule is applied to your WebFacing application.
9. To test the applied new rule:
   a. Right-click index.jsp in the WebFacing Projects view.
   b. Click **Run As > Run on Server** on the pop-up menu.

      **Note:** If you did not select the **Set server as the project default (do not ask again)** check box on the Run on Server dialog when you selected the server in "Showing the index.jsp page" on page 32, ensure that you select the same server on the dialog now. For example, if you had previously selected WebSphere V6.1 Server, ensure that you select that server now.
   c. Go to the browser pane and click the Order Entry link.

      You will see the first screen of the sample application.

d. Click **Prompt** or press **F4**.

The Customer Selection list window opens.
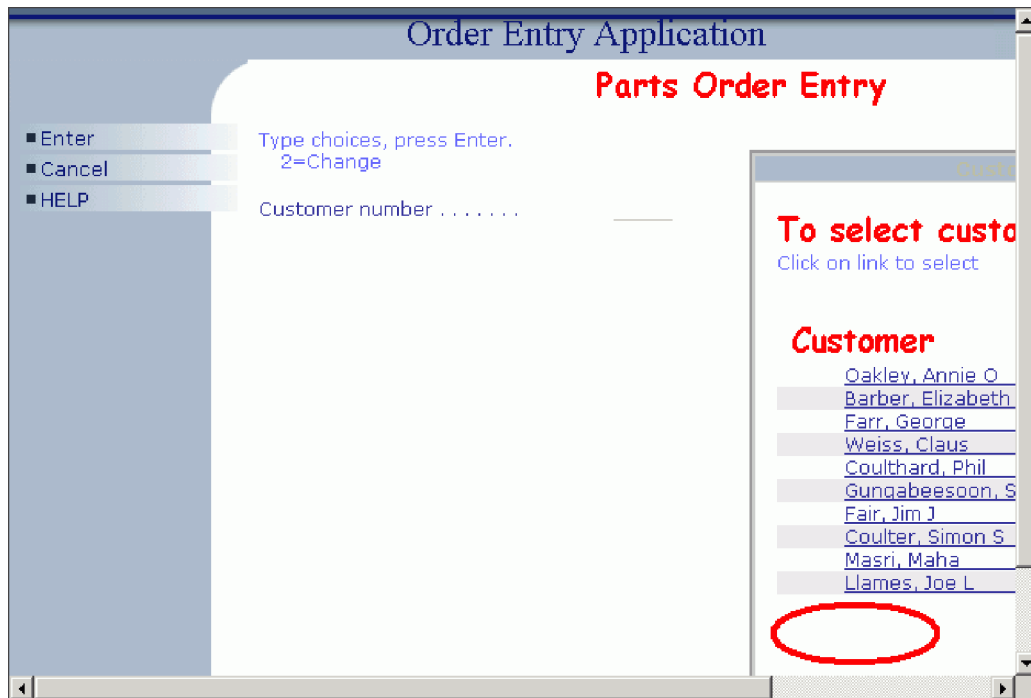


> **Note:** Notice that the command key text Fkey12=Cancel is gone from the bottom of the window.

e. If the push button still shows, restart the Application server.

Now that you know how to change the command key recognition patterns in the WebFacing Tool, you can add text to frequently used command keys that don't have a text description in the DDS source.
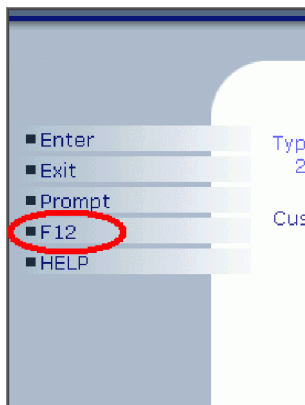


Back on the Order Entry panel, you can see that the push button for F12 does not have a description and is labelled F12. You will learn how to change this in the next lesson.

You have started the Properties dialog, selected Command Key Recognition Patterns, added a new command key rule, reconverted the DDS members, and tested the applied rule.

## Lesson checkpoint

You learned the following:

- About conversion rules

- How to add a new command key description pattern
- How to reconvert and test the applied new rule

## Adding key button labels

The WebFacing Tool allows you to specify command key descriptions for command keys that are commonly used in your application but not described in your DDS source and on your screens. This way the push button labels on the Web pages can automatically be changed during conversion to the correct text. You will add the description Cancel to the WebFacing conversion properties so the push button will get created to show a Cancel label instead of F12.

To add key button labels:

1. Right-click your WebFacing project wflabxx.
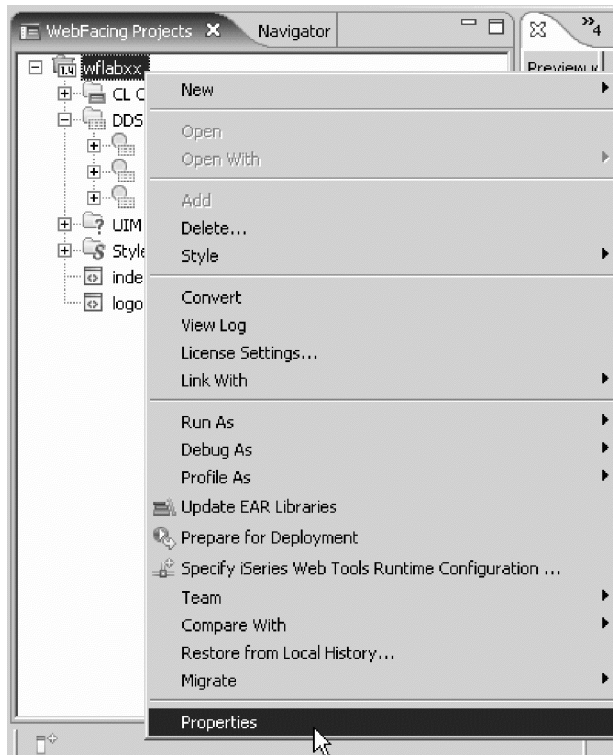


2. Click **Properties** on the pop-up menu.

   The Properties for wflabxx dialog opens.

3. In the left pane of this dialog, under **Conversion** select **Key Button Labels**.

   In the right pane of this dialog, the Button Labels opens.
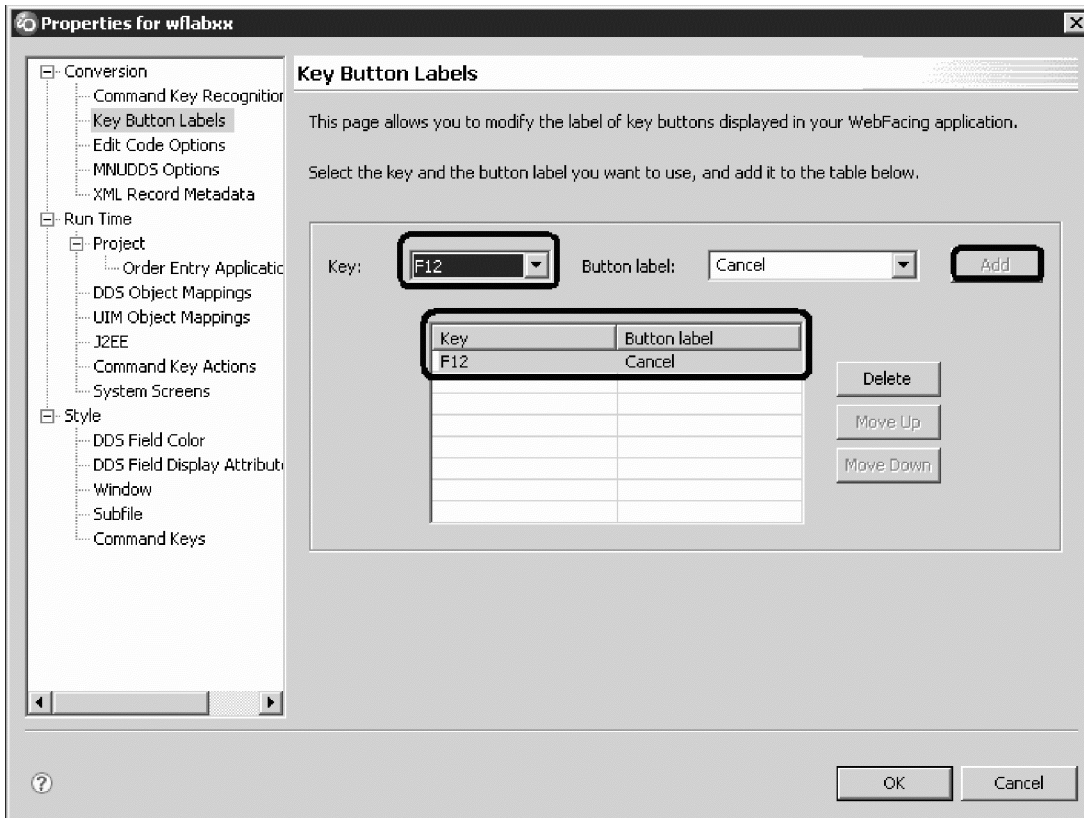
4. Under the **Key** list, select **F12**.

5. Under the **Button label** list, select **Cancel**.

6. Click **Add** to the right of these two lists.

   The additional label is now part of the WebFacing conversion properties for this WebFacing project.

7. Click **OK** at the bottom of the Properties dialog.

   Next, back in the workbench, convert the changed application.

8. To convert the application in the workbench:

   a. Expand the wflabxx project if not already.

   b. Expand the DDS folder if not already.

   c. Right-click the ORDENTD member icon.

   d. Click **Convert** on the pop-up menu.

      After the conversion, take a look at the change.

      Let's see the new label for the F12 push button in your WebFacing application.

9. To test the new label:

   a. Right-click index.jsp in the WebFacing Projects view.

   b. Click **Run As > Run on Server** on the pop-up menu.

      **Note:** If you did not select the **Set server as the project default (do not ask again)** check box on
      the Run on Server dialog when you selected the server in "Showing the index.jsp page" on page
      32, ensure that you select the same server on the dialog now. For example, if you had previously
      selected WebSphere V6.1 Server, ensure that you select that server now.
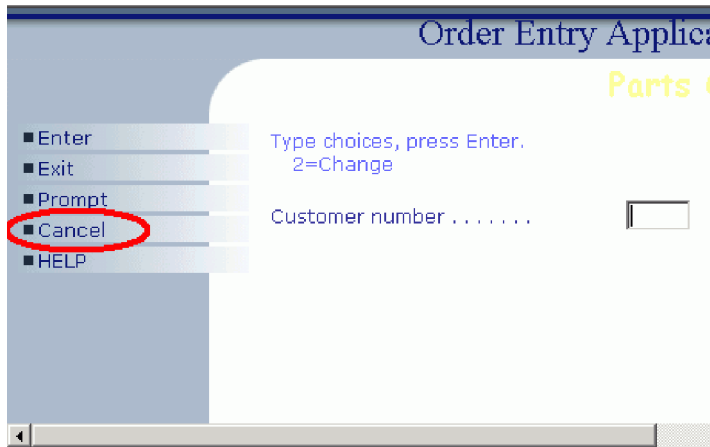
c. Go to the browser pane and click the Order Entry button.

d. Check that the **Cancel** push button on the first page now shows the correct label as shown.

e. If the push button still has the old text, restart the Application server.

   1) Click the **Servers** tab at the top view in the workbench.

   2) Right-click the server icon.

   3) Click **Restart > Start** on the pop-up menu.
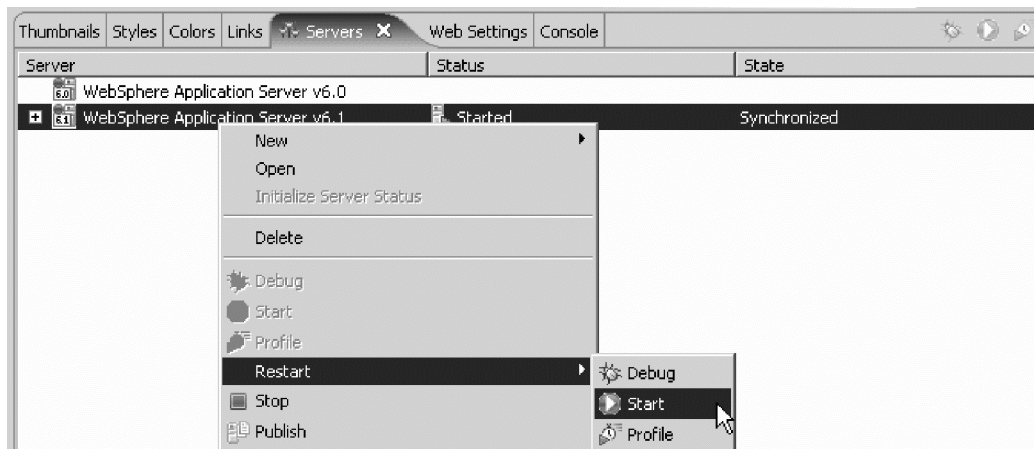


   4) Run the application again.

You have changed the text for the F12 command key, reconverted the DDS members and tested the command key label.

### Lesson checkpoint

You learned the following:
- How the change the text for a command key in the user interface
- How to reconvert and test the changed application

## Module summary

In this module you learned how to use the WebFacing conversion properties dialogs to add your own command key description rules and labels.

Now that you have a Web user interface where the green screen doesn't show through as much as after the first WebFacing conversion you did in "Converting selected source members" on page 27; you want to add some more refinements to the appearance of your Web pages.

## Lessons learned

By completing this module, you learned about the following concepts and tasks:
- Start the Properties dialog
- Select Command Key Recognition Patterns
- Add a new command key rule
- Reconvert the DDS members
- Test the applied new rule
- Change the text for the F12 command key
- Reconvert the DDS members
- Test the new command key label

## Assessment
- What is the Style Properties dialog?
- How do you change command key recognition patterns?
- How do you add a new command key rule?
- How do you change the text of a command key?
- How do you reconvert and test these changes?

# Working with more style properties

This module teaches you how to change the user interface further, using style properties. You will learn to work with WebFacing Tool style properties and check the changes by refreshing the style and running the application.

## Learning objectives
- Start the Properties dialog
- Change the window style
- Change the subfile style
- Change the command key style
- Test the changed properties

Since a style is used on a project level, all Web pages in your project will contain the changes you apply to a particular style.

## Time required

This module will take approximately 10 minutes to complete.

# Starting the WebFacing properties style dialog

First, you will use the WebFacing Style properties dialog to tailor your Web user interface. You will apply changes to the window layout of your screens, the subfile appearance, and the command key push buttons.

To start the WebFacing properties dialog:
1. In the WebFacing Projects view, select the wflabxx project.
2. Right-click the wflabxx project, and click **Properties** on the pop-up menu.
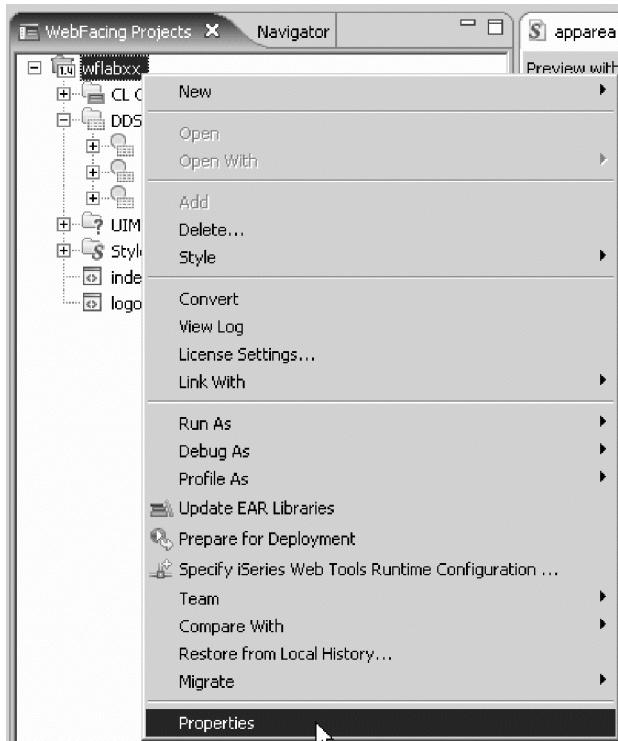
The Properties dialog opens.

3. Under **Style** in the left pane of the Properties dialog, select **Window**.

   The right pane of the Properties dialog shows the Window properties.
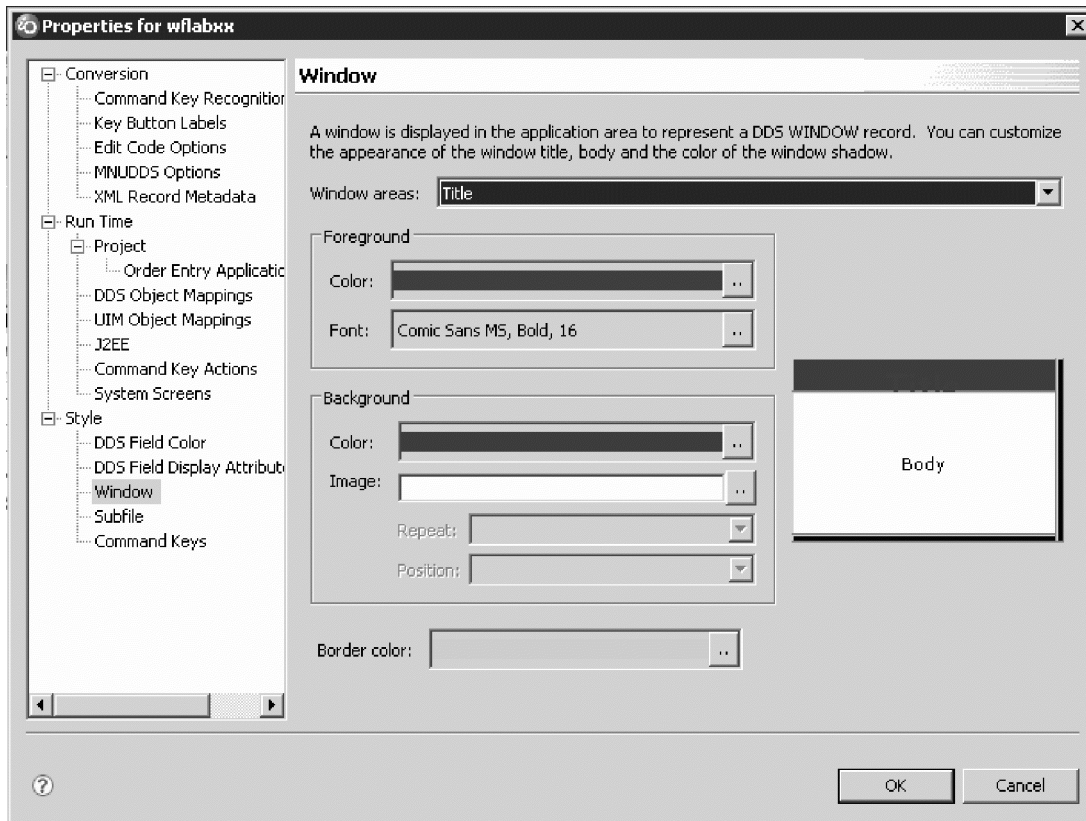


4. Select **Title** from the **Window areas** list.

5. Under **Foreground** click the **..** push button to the right of the **Color** field.

6. On the Color Chooser dialog, click red.
7. Then click **OK** in the Color Chooser dialog.
   The Window Properties page reappears.
8. Click the **..** push button to the right of the **Font** field.
9. Select font **Comic Sans MS**, size **16**.
10. Click **OK** on the Font dialog.
11. Under **Background**, click the **..** push button to the right of the **Color** field.
12. On the Color Chooser dialog, click green.
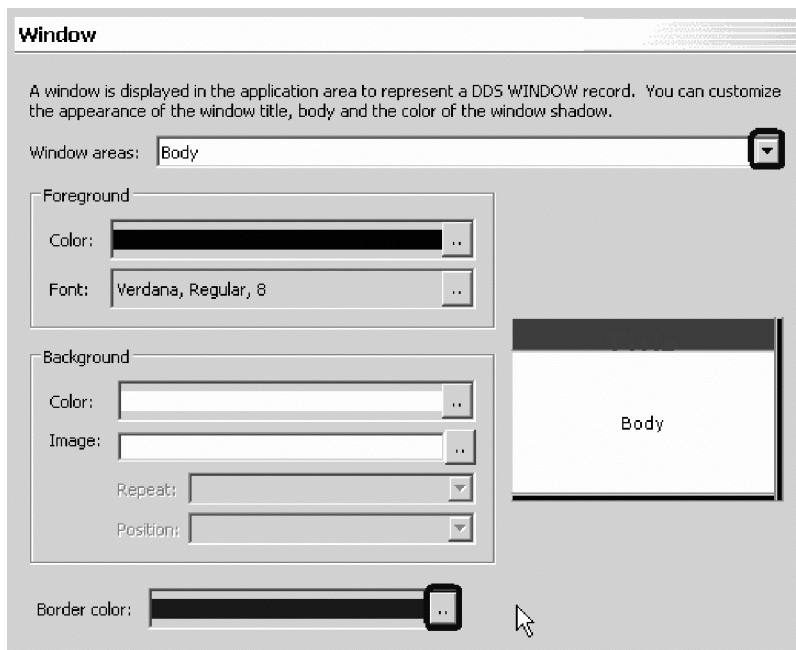13. Click **OK** on the Color Chooser dialog.
    The Windows properties dialog reappears.
14. Select **Body** in the **Window areas** list at the top of the page.



15. In the **Border color** field at the bottom of the page click the **..** push button to the right of the **Border color** field.
    The Color Chooser dialog opens.
16. Click blue.
17. Click **OK** in the Color Chooser dialog.

You have started the Properties dialog and changed the window style.
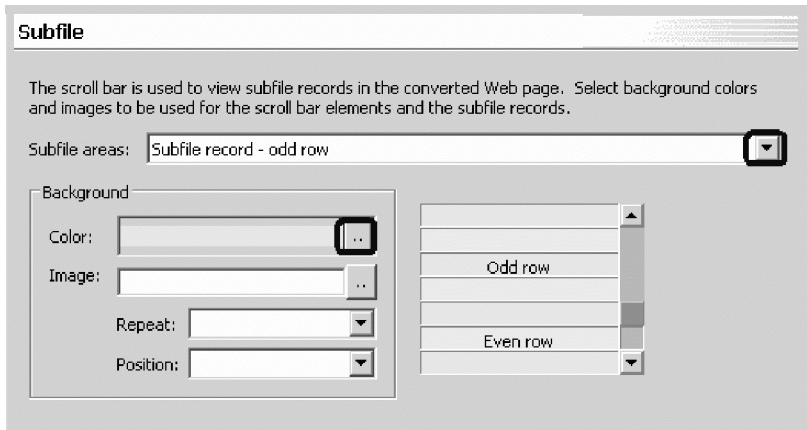
### Lesson checkpoint

You learned the following:
• How to start the Properties dialog and change the window style

## Changing the appearance of the subfile

To change the appearance of the subfile:
1. Back in the Properties dialog, under **Style**, select **Subfile**.
   The Subfile properties page opens on the right pane of the dialog.

2.  Select **Subfile record - odd row** in the **Subfile areas** list.
3.  Under Background, click the **..** push button to the right of the **Color** field.

    The Color Chooser dialog opens.
4.  Click **light yellow**.
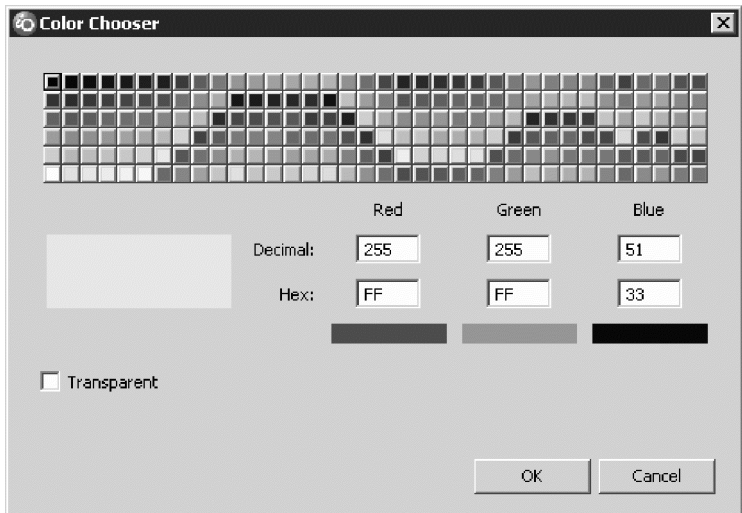


**Tip:** If you are interested in the hex value of certain colors as they are used in the style classes, the Color Chooser dialog displays the hex values; see the value ″FFFF33″.

5.  Click **OK** in the Color Chooser dialog.

    You return to the Properties dialog.
6.  Select **Subfile record - even row** in the **Subfile areas** list at the top of the page.
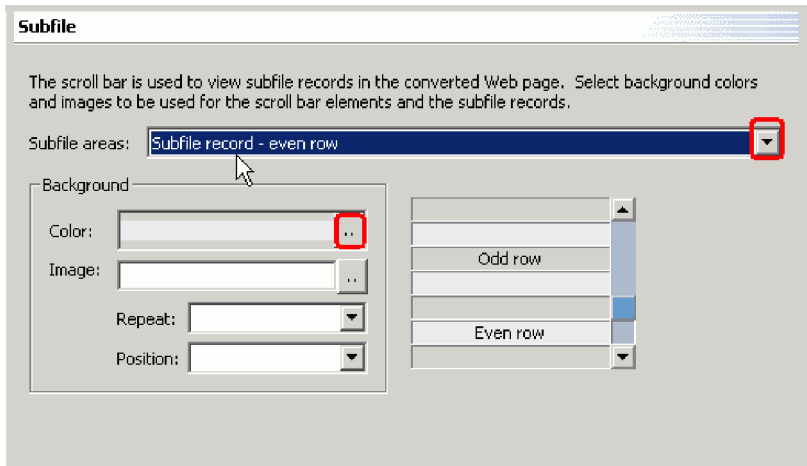
7. Under Background, click the **..** push button to the right of the **Color** field.

   The Color Chooser dialog opens.

8. Click green.

9. Click **OK** on the Color Chooser dialog.

   Now at runtime the odd and even records will be displayed with different background colors. Next you will customize the appearance of the command key push buttons.

You have changed the subfile style.

### Lesson checkpoint

You learned the following:
* How to change the subfile style

## Customizing the appearance of command keys

To customize the appearance of command keys:

1. In the left pane of the Properties dialog under **Style**, select **Command keys**.

   The Command Keys properties opens on the right pane of the dialog.
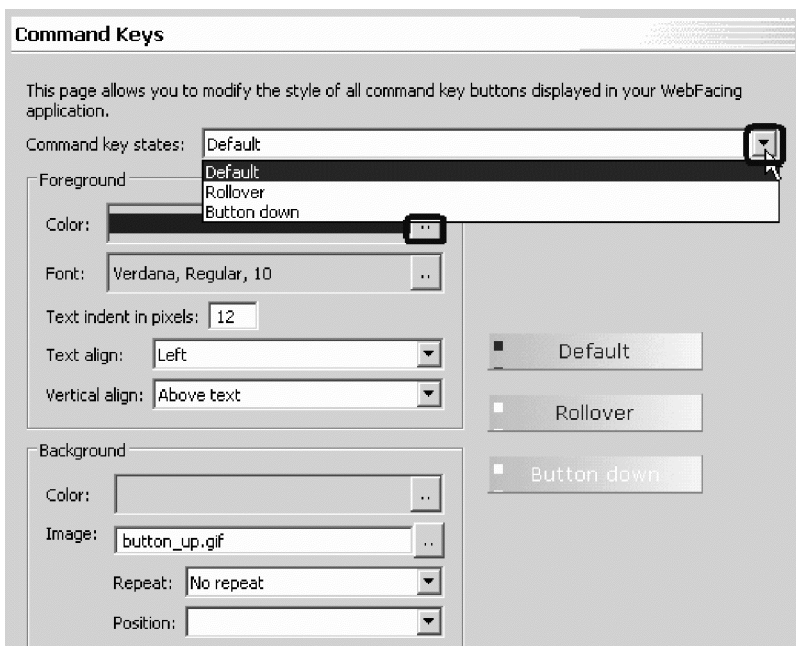


2. Change the Foreground color for all three states of the buttons:
   * Default
   * Rollover
   * Button down

   Now you have finished customization.

3. Click **OK** on the Properties dialog.

You have changed the command key style.

### Lesson checkpoint

You learned the following:
* How to change the command key style

# Checking the new style

Let's see the new look of your application.

To check the new style:
1. Right-click index.jsp.
2. Click **Run As > Run on Server** on the pop-up menu.

   **Note:** If you did not select the **Set server as the project default (do not ask again)** check box on the Run on Server dialog when you selected the server in "Showing the index.jsp page" on page 32, ensure that you select the s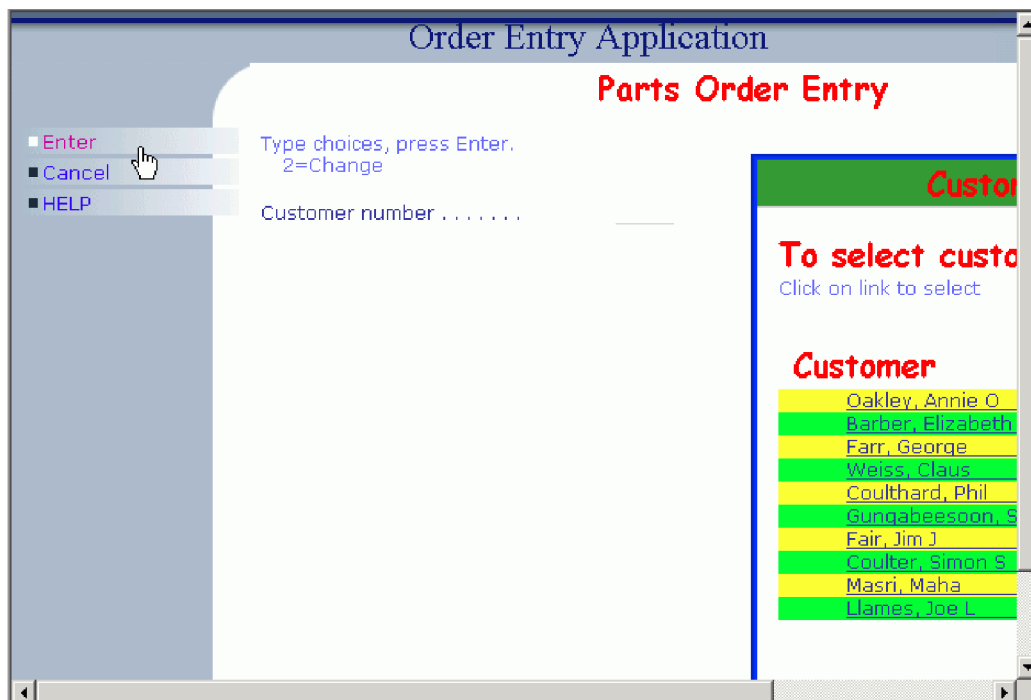ame server on the dialog now. For example, if you had previously selected WebSphere V6.1 Server, ensure that you select that server now.
3. Run the application.
4. Click **Prompt**.



The application window shows different colors, and the subfile records are colored. The command key push buttons change color, depending on their state.

**Tip:** If the text is still showing the old colors, most likely the browser has cached the page and you need to close the browser window, and restart the application. This will open a new instance of the browser without cached content.

You have tested the changed properties.

## Lesson checkpoint

You learned the following:
- How to check the new style

# Module summary

You have tested your WebFacing application with updated style properties and now you want to customize the style further by updating the look and feel for a fictional company.

## Lessons learned

By completing this module, you learned about the following concepts and tasks:
- Start the Properties dialog
- Change the window style
- Change the subfile style
- Change the command key style
- Test the changed properties

## Assessment
- What is the Properties dialog?
- How do you change the window style, subfile style and command key style?
- How do you check the changed style?

# Customizing the default style

Rational® Application Developer contains editors for HTML and Cascading Style Sheet (CSS) files. When you created the WebFacing Web project, you selected a default style to your Web-enabled application.

This module teaches you how to customize that style, updating the look and feel for a fictional company. You will change the color of the application and add a company logo as shown below.

## Learning objectives

- Locate the existing style
- View the design of the existing style
- Import the company logo
- Edit the style sheet to include the company logo
- Edit PageBuilder.jsp to remove and resize fields for your logo
- Change the color

## Time required

This module will take approximately 15 minutes to complete.

# Opening Pagebuilder.jsp

First you open the JSP file called PageBuilder as you want to edit this file to add a new company logo in a follow-on lesson. PageBuilder.jsp is the main JSP for the WebFacing project.

To open the PageBuilder.jsp:

1. Open the product in the WebFacing perspective, if it is not already open.
2. Expand **wflabxx > Style > gradient > chrome > html** in the WebFacing Projects view.
3. Open PageBuilder.jsp by double-clicking the file.
4. Click the **Design** tab to see the existing style, shown below.
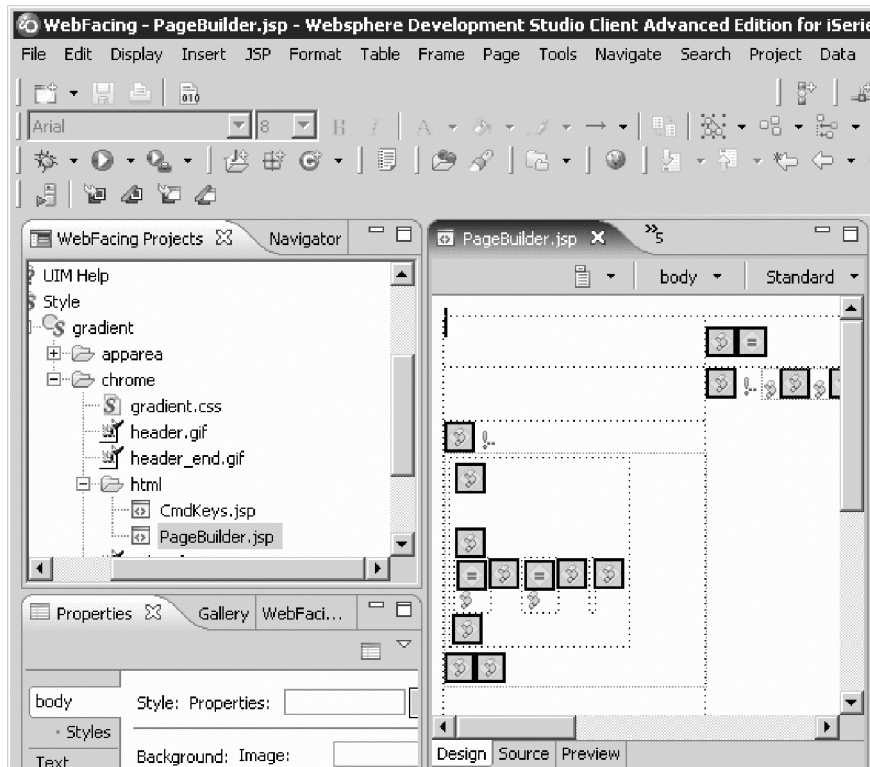


You will now change the style to reflect a fictitious XYZ Company.

You have seen the design of the existing style.

## Lesson checkpoint
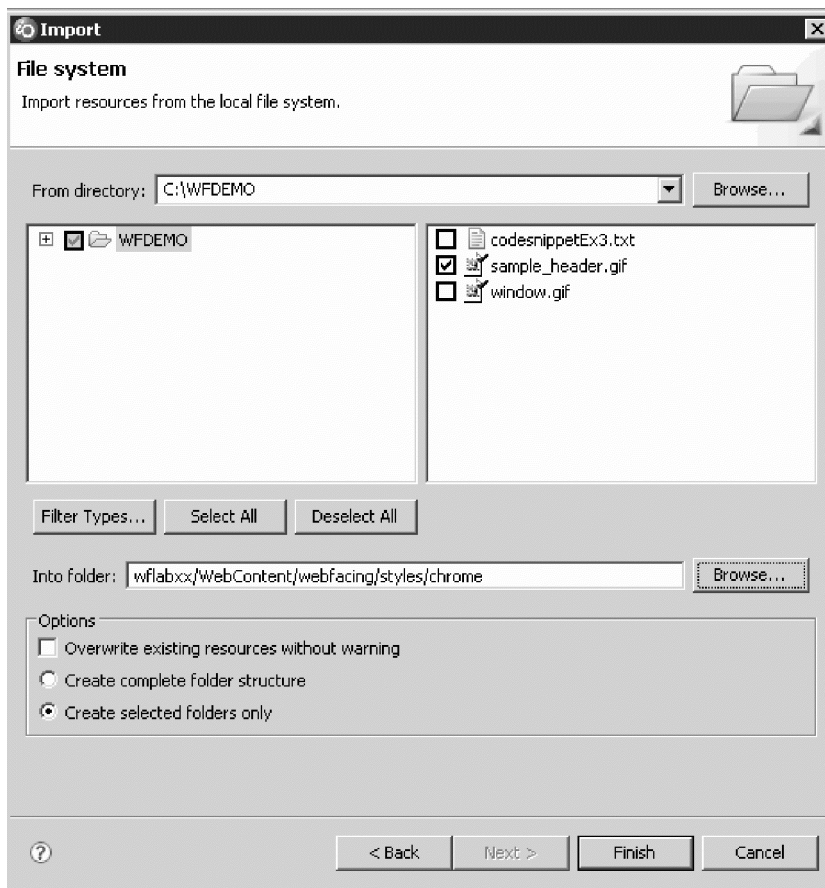
You learned the following:
* About PageBuilder
* How to open a JSP file called PageBuilder

# Importing the company logo

The first step is to import the company logo.

To import the company logo:
1.  Select **chrome** in the WebFacing Projects view, then click **File > Import** from the workbench menu.
2.  Expand **General** then click **File System** in the Import wizard, and click **Next**.
3.  On the next page of the wizard, click **Browse** and go to the C:\WFDEMO folder and click **OK**.
4.  Select the check box next to **sample_header.gif** in the right list.
5.  Make sure that the destination folder is set to **wflabxx/WebContent/webfacing/styles/chrome**, where xx is replaced by your unique team number.



6.  Click **Finish**.

You have imported the company logo.

## Lesson checkpoint

You learned the following:
* How to import the company logo

# Editing the style sheet and PageBuilder.jsp

You must now edit the style sheet to configure the header to include the company logo that you just imported. Then you edit PageBuilder.jsp to resize the table to add the new company logo. Finally you make further changes to the style sheet to remove existing images (side_curve.gif and side.gif) and to change the color of these areas of your application.

To edit the style sheet and then PageBuilder.jsp:

1. Expand **wflabxx > Style > gradient > chrome** in the WebFacing Projects view, right-click gradient.css and click **Open** from the pop-up menu.
2. In the Styles view, double-click **.headc** to edit that style.
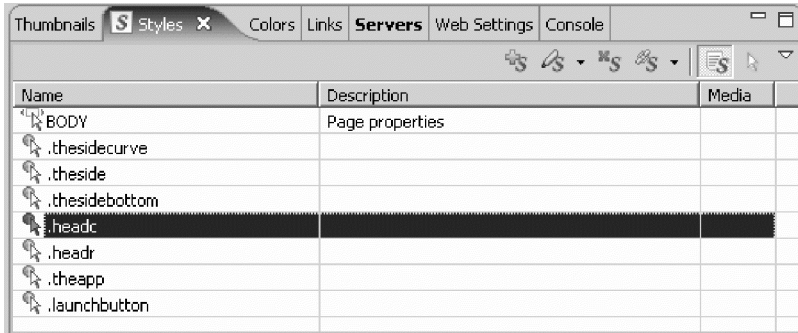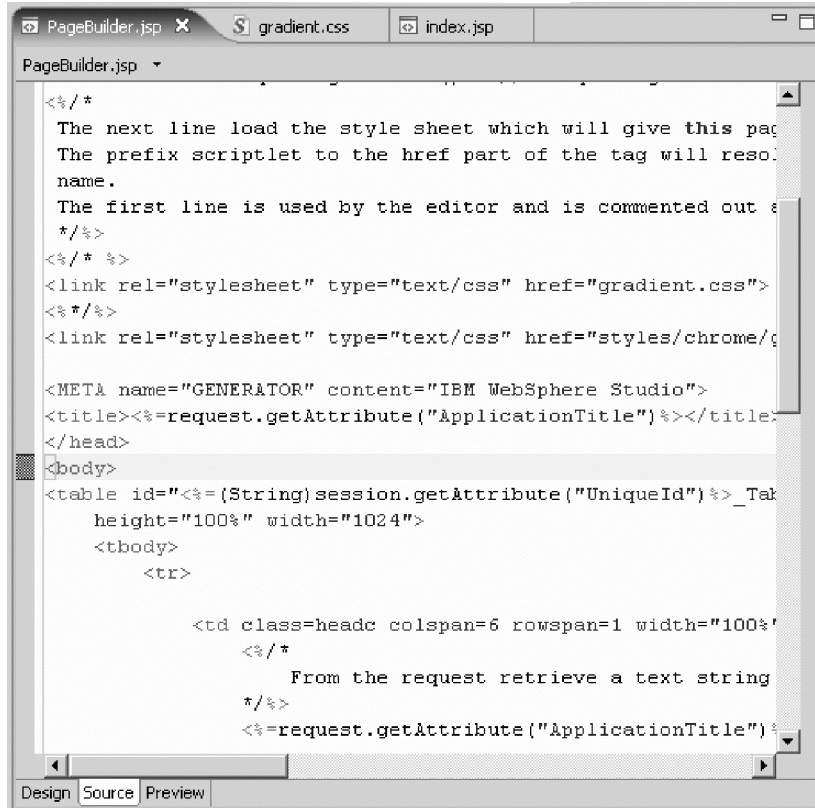


3. Select **\*Background**.
4. Update the **Image** field to `sample_header.gif`, change the **Repeat** field to **No repeat** and the **Left** field to **Left** as shown.
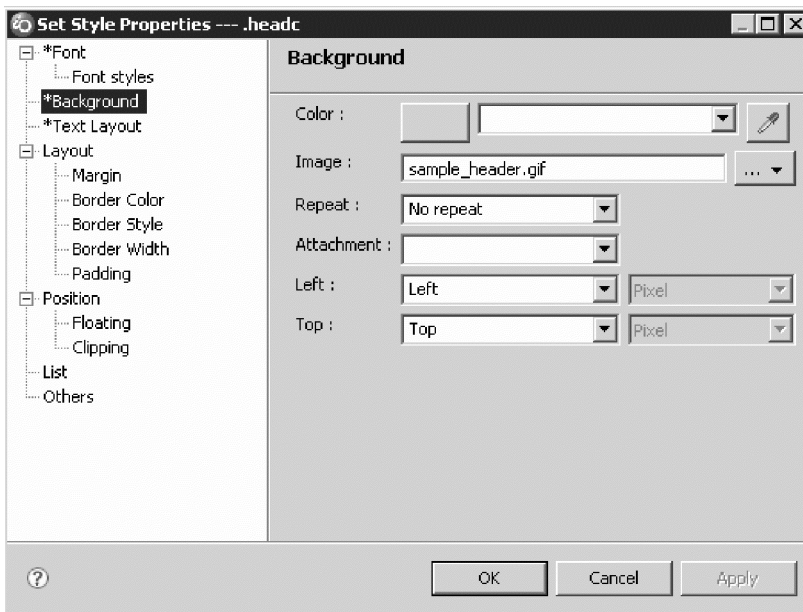


5. Click **OK**.
6. Save gradient.css by pressing **CTRL-S**.
7. Now you must edit PageBuilder.jsp.

8. Click the **PageBuilder.jsp** tab. Then go to the **Source** tab.



9. Change the table height to 100 and width to 1024.
10. Delete the first <td>...</td>.
11. Change: <td class=headc colspan=4 rowspan=1 width="441" height="33"> to:

    <td class=headc colspan=6 rowspan=1 width="100%" height="100">

12. Delete the next <td>...</td>.

    This removes the extra fields in the table and resizes the remaining ones for your logo.

    Your code should now look like this:
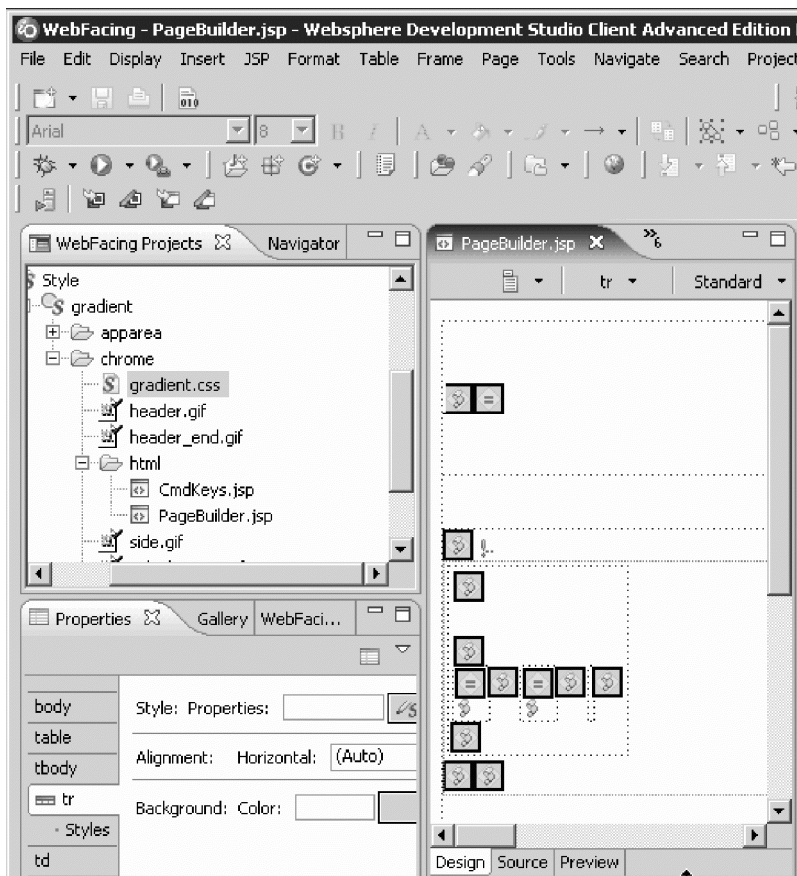
```
<table id="<%=(String)session.getAttribute("UniqueId")%>_Table"
 border="0" cellspacing="0"
 cellpadding="0" frame="box" height="100" width="1024">
  <tbody>
   <tr>
     <td class=headc colspan=6 rowspan=1 width="100%" height="100">
       <%=request.getAttribute("ApplicationTitle")%>
     </td>
```

13. Save PageBuilder.jsp
14. Click the **Design** tab.

    It should look as shown below:

15. Now update the color of the side by selecting the **gradient.css** tab again.
16. In the Styles view, double-click **.thesidecurve**.
17. Select **\*Background**.
18. Remove **side_curve.gif** from the **Image** field, leaving it blank.
19. From the drop-down list next to the **Color** field, select the color **Gray**.
20. Click **OK** again to update the Style property.
21. Open **.theside** style from the Styles view.
22. Remove **side.gif** from the **Image** field, leaving it blank.
23. From the drop-down list next to the **Color** field, select the color **Blue**.
24. Click **OK** again to update the property.
25. Save gradient.css by pressing **CTRL-S** .

26. Run the wflabxx application on the test server to see the new style, shown below:



You will now update another style sheet to make changes to the buttons and text.

You have edited the style sheet to include the company logo and edited PageBuilder.jsp to remove and resize fields for your logo.

### Lesson checkpoint

You learned the following:
- How to edit the style sheet to configure the header to include a company logo

## Module summary

You have customized the default style to update the look and feel for a fictional company. Now you need to move the application into production and you need the WebFacing application to prompt the users for signon information when it starts.

### Lessons learned

By completing this module, you learned about the following concepts and tasks:
- Locate the existing style
- View the design of the existing style
- Edit the style sheet to include the company logo

- Edit PageBuilder.jsp to remove and resize fields for your logo
- Change the color

**Assessment**
- What is PageBuilder?
- How do you view an existing style?
- How do you add a company logo to an existing Web page?

# Adding authentication

This module teaches you how to secure your application by forcing authentication before the application is invoked.

**Learning objectives**
- Start the Properties dialog
- Open the project run-time properties
- Change the signon properties for the order entry application
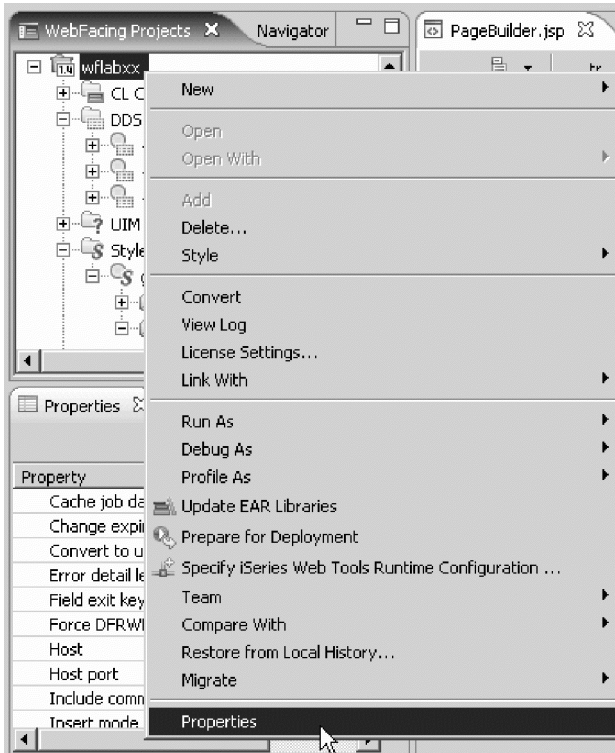- Test the signon dialog appears

**Time required**

This module should take approximately 5 minutes to complete.

# Removing the default user ID and password

You will use the CL command properties page of the runtime to remove the default user ID and password information.

In the WebFacing perspective in the WebFacing Projects view:
1. Right-click wflabxx project.
2. Click **Properties** on the pop-up menu.

The Properties for wflabxx dialog opens.

3. Under **Run Time** in the left pane of the Properties dialog, select **Order Entry Application**.

   The Order Entry application properties pane opens.



4. Make sure the **Override project settings for this command** check box is selected.

5. Clear the **Specify i5/OS signon values** check box.

6. Click **OK** at the bottom of the Properties dialog.

   You are back in the WebFacing Projects view. You have changed the authentication behavior for this link (application). In this WebFacing project you only have one link, but imagine that you have multiple entry points into your application like a menu. You could specify a different authentication behavior for each of these links. On the other hand, if you have multiple links in a WebFacing project and the authentication should be the same for each different link, then you can specify an authentication rule on the project level. To do this, just go to the project properties page instead of the CL command properties page and specify the desired authentication behavior there.

You have started the Properties dialog, opened the project run-time properties and changed the signon properties for the order entry application.

### Lesson checkpoint

You learned the following:
- About authentication
- How to add signon properties to the WebFacing order entry application

## Testing the authentication dialog

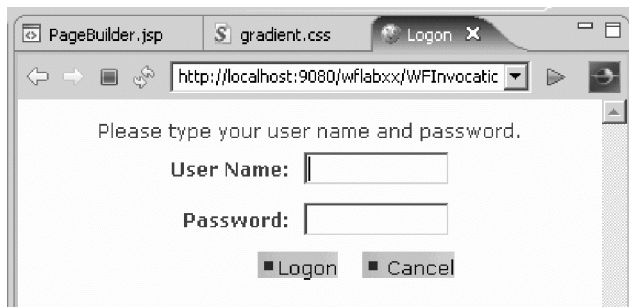As before, you run your application in the WebSphere Application Server Test Environment.

To test the authentication dialog:
1. Right-click index.jsp.
2. Click **Run As > Run on Server** on the pop-up menu.

   **Note:** If you did not select the **Set server as the project default (do not ask again)** check box on the Run on Server dialog when you selected the server in "Showing the index.jsp page" on page 32, ensure that you select the same server on the dialog now. For example, if you had previously selected WebSphere V6.1 Server, ensure that you select that server now.
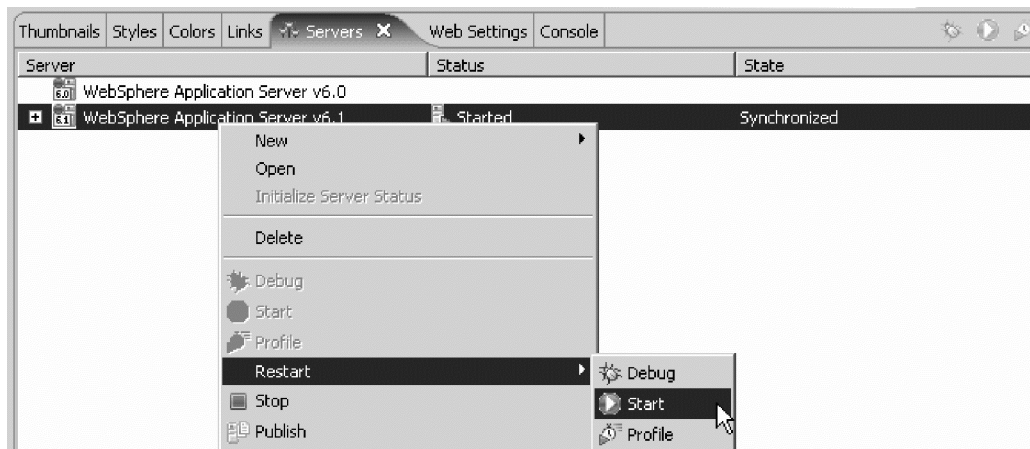3. Click the **Launch** button.

   You will see the authentication dialog.



4. Specify your **User Name** and **Password**.
5. Click the **Logon** push button on the Authentication dialog.

   The application will run like before, if the job environment for the user ID you specified is setup correct for this application.
6. If the LOGON dialog doesn't appear, restart the Application server.
   a. Click the **Servers** tab at the top view in the workbench.
   b. Right-click the server icon.

c. Click **Restart > Start** on the pop-up menu.

d. Run the application again.

You have tested that the signon dialog appears.

### Lesson checkpoint

You learned the following:
* How to test authentication for the WebFacing application

## Module summary

You have added authentication to the WebFacing application and now want to enhance the look of the index.jsp page to give the start page of this application a professional appearance. The workbench contains several tools to design and enhance Web pages. Also with the workbench you have access to sample pictures, icons, animations, and more. You will use some of these tools and samples and enhance the page so it becomes more attractive.

### Lessons learned

By completing this module, you learned about the following concepts and tasks:
* Start the Properties dialog
* Open the project run-time properties
* Change the signon properties for the order entry application
* Test the signon dialog appears

### Assessment
* What is authentication?
* How do you add authentication to a WebFacing application?
* How do you test that authentication works in the WebFacing application?

## Enhancing index.jsp page

This module teaches you how to use the Web tools in the workbench to update the index.jsp file. The index.jsp file created by the IBM WebFacing Tool that allows you to start your WebFacing application is plain. In this module you will add some color to it, as well as some pictures to make it a more interesting Web page.

## Learning objectives

- Open the application start page (index.jsp) in Page Designer
- Change the window title to Order Entry
- Add a style to the Order Entry Web page
- Insert a heading
- Add a picture to the Order Entry Web page
- Add a marquee to the Order Entry Web page
- Change the color of the window title
- Remove default text added by the WebFacing Tool

## Time required

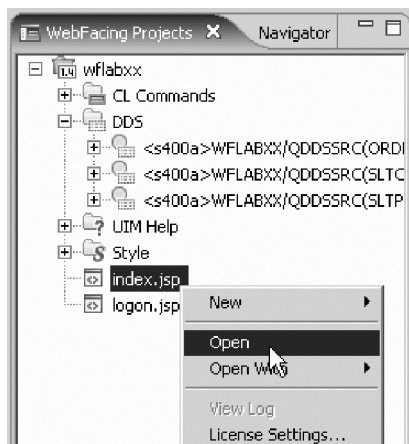This module should take approximately 20 minutes to complete.

# Opening Page Designer

First you need to open the start page of the application in Page Designer.
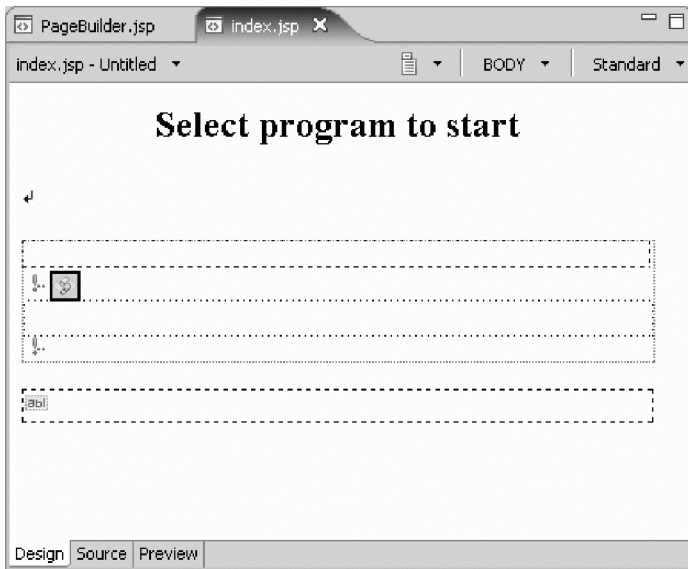
To open Page Designer:
1.  Open the WebFacing perspective, if not already open.

    You should now have the WebFacing Projects view in your workbench environment.



2.  Expand the wflabxx WebFacing project.
3.  Right-click the index.jsp icon.
4.  Click **Open** on the pop-up menu.

    The Page Designer opens in the upper right pane of the workbench and shows the index.jsp page as the WebFacing Tool created it.

Make sure that you are on the Design page in Page Designer.

5. Click the **Design** tab.

You have opened the application start page (index.jsp) in Page Designer.

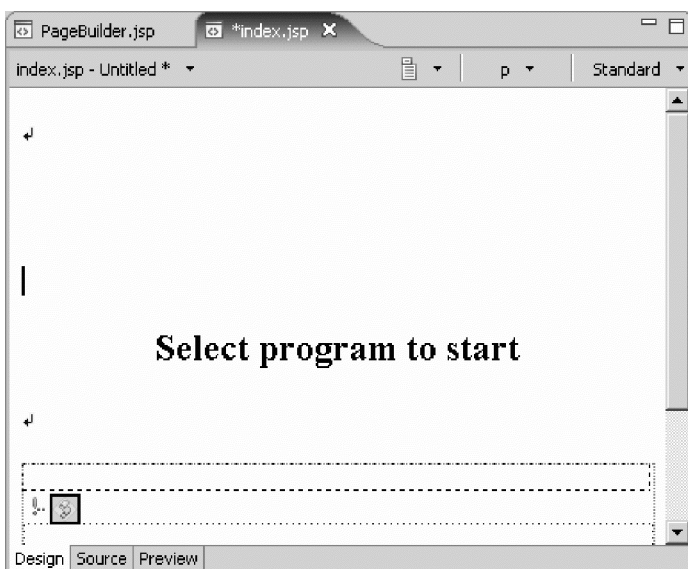### Lesson checkpoint

You learned the following:

- How to open the application start page in Page Designer
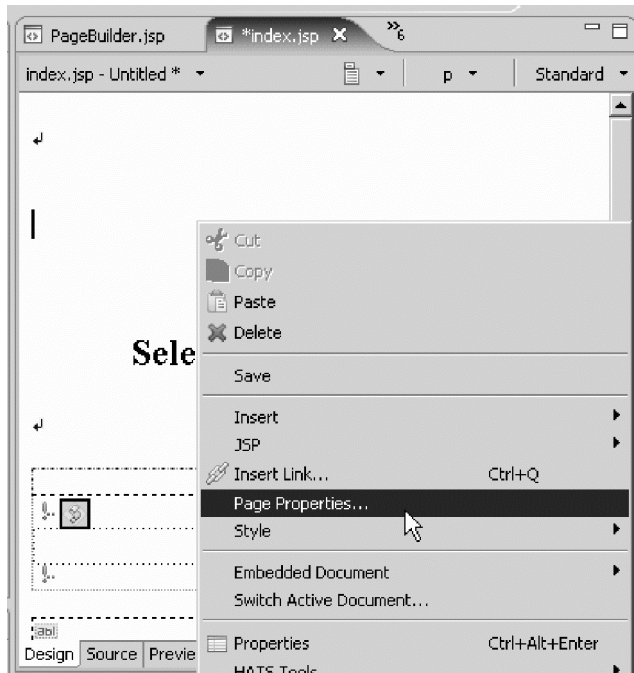
## Working with page properties

Next you work with page properties to move the links down on the page and change the title of the window to Order Entry.
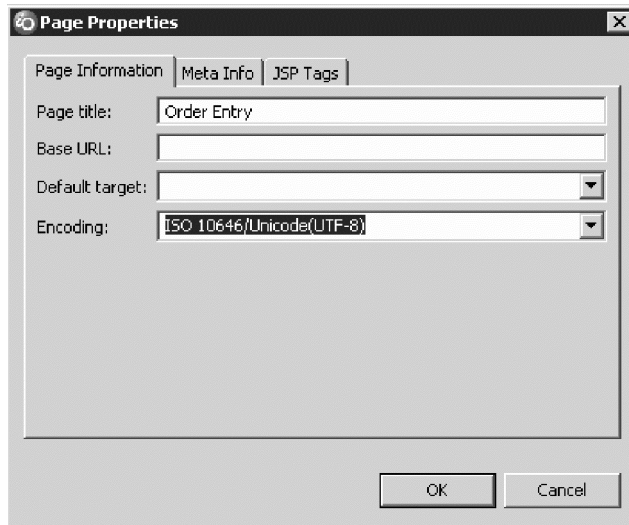
To work with page properties:

1. Click before the `Select program to start` title.
2. Press the **Enter** key a number of times.

3. Right-click the background of the index.jsp page in Page Designer.
4. Click **Page Properties** on the pop-up menu.



The Page Properties dialog opens.



5. In the **Page title** field, type `Order Entry`.
6. Click **OK** on the Page Properties dialog.

   When this page is shown in a browser, the Window title bar of the browser will now display Order Entry.

You have changed the window title to Order Entry.
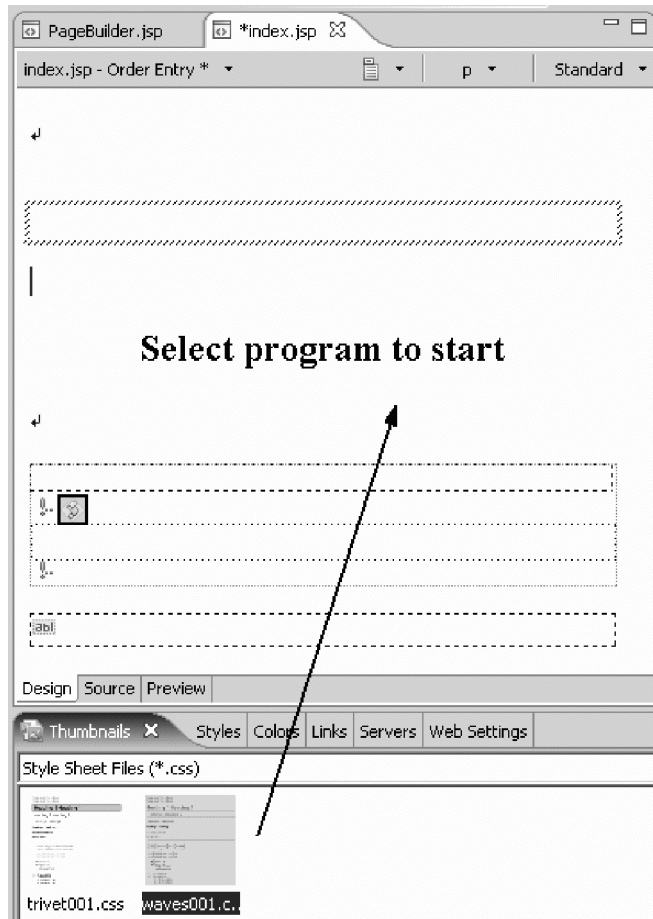
## Lesson checkpoint

You learned the following:
* How to change the window title to Order Entry

# Linking a cascading style sheet to a Web page

Now you will add a style to the Web page. You can use a style that is used in your company or you can use one of the sample style sheets that are provided in the product.

Next you open the Gallery view in the workbench.

To link a style sheet:



1. Click the **Gallery** tab, if the Gallery view isn't already displayed in the left of the workbench.



2. Click the **Style Sheet** icon, to select it.
3. Click the **Thumbnails** tab on the right bottom pane in the workbench.
   You should see thumbnail icons of all the styles available.
4. In the thumbnail view, scroll down to the bottom, until you see style sheet waves001.css in the list, or select a style sheet that you like best.
5. Click the thumbnail picture of waves001.css with the left mouse button.
6. Hold the left mouse button down and drag the cursor to the Page Designer window.

7. The cursor will change from this shape ⊘ , to this shape [cursor icon] . When the latter cursor shape appears in the Page Designer window, release the left mouse button.

After a short while the Style sheet properties will be applied and the colors in the page will change to the style sheet definitions.



You have added a style to the Order Entry Web page.

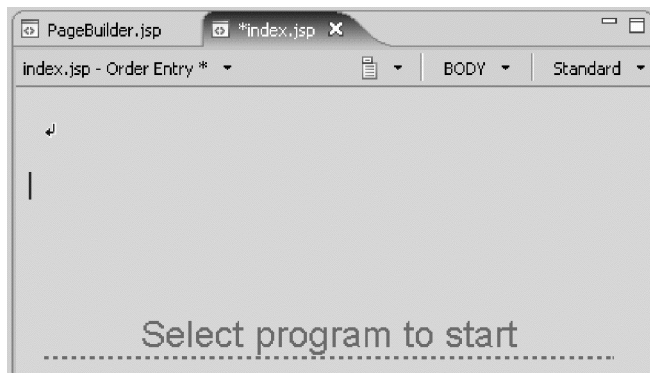### Lesson checkpoint

You learned the following:

- How to add a style to your Order Entry Web page

## Adding a heading 1 tag to the page

Now you want to insert a heading below the logo.

To add a heading 1 tag:

1. Position the cursor just below the first BR tag.



2. Click **Insert** from the workbench menu.
3. Click **Paragraph > Heading 1** on the pop-up menu.

A line appears that allows you to enter text.

4. Enter your `company name Order Entry Application`.



Now you want to use one of the sample pictures included with the product and place this picture on the page.

You have inserted a heading.

### Lesson checkpoint

You learned the following:

- How to insert a heading

## Adding a picture to the page

Next you want to add a picture to the Order Entry Web page.

To add a picture to the page:

1. Move the cursor to below the heading



2. In the workbench in the Navigator view, select the **Gallery** tab.
3. Expand the **Image** folder.
4. Select the **Illustration** folder.
5. In the Thumbnails view on the right bottom pane of the workbench, select one of the sample illustrations, for example, use file 005il.gif.

    **Note:** The sample illustrations change between releaseses so 005il.gif might not be available in your environment.

6. Drag a picture onto the Design page below the heading.

    The Design page now contains a picture.

You are almost done. Next you add moving text to the page.

You have added a picture to the Order Entry Web page.

### Lesson checkpoint

You learned the following:

- How to add a picture to the Order Entry Web page
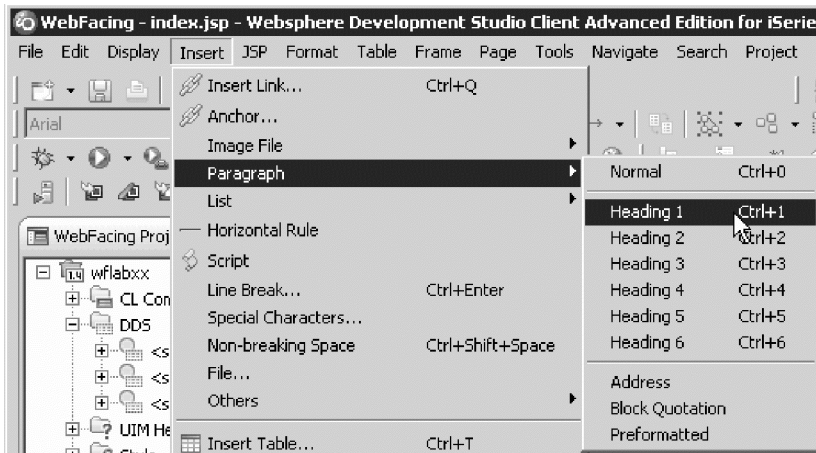
## Adding moving text to the page

Now you add moving text to the page.

To add moving text:

1. Position the cursor in the Design page underneath the picture.
2. Click **Insert** from the workbench menu.
3. Click **Paragraph > Heading 3** on the pop-up menu.

4. Leave the cursor positioned inside the heading 3 frame.



5. Click **Insert** from the workbench menu.
6. Click **Others > Marquee** on the pop-up menu.

   The Insert Marquee dialog opens.



7. Enter into the **Text** field, `Please click button to start application`.
8. Under **Behavior**, select **Slide** in the **Movement** list.
9. Under **Behavior**, select **Right** in the **Direction** list.
10. Under **Repetition**, select **Finite** in the **Repetition** list.
11. Under **Repetition**, type 1 in the **Count** field.

The two last selections just avoid the text sliding in forever and not standing still. If you want more movement on the page you can change these settings.

12. Select **Lime** in the **Background color** list. Click **OK** on the Color palette.
13. Click **OK** on the Insert Marquee dialog.

    The Design page should look like this.



Next you save some space by removing some of the line break tags.

14. Position the cursor just after "Please select link to start application".
15. Press the **Delete** key until the SELECT PROGRAM TO START title appears on your page.



Next you look at the page, as it would appear in a browser.

16. Click the **Preview** tab at the bottom of the Design page.

    You will notice that your heading 3 text is sliding in.



You have added a marquee to the Order Entry Web page.

## Lesson checkpoint

You learned the following:
- How to add moving text to the Order Entry Web page

# Changing the text color
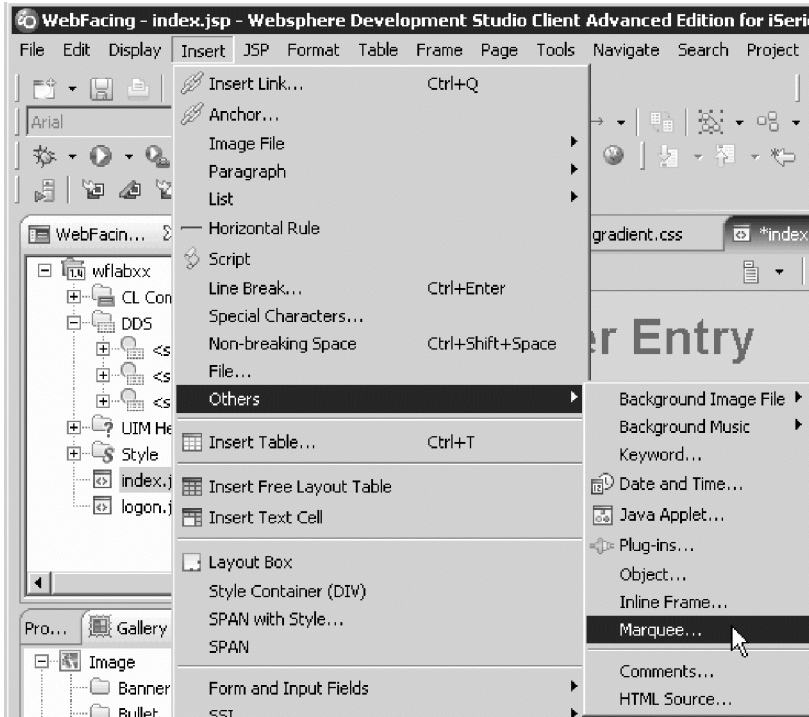
You notice that the text color and the background are not easy to distinguish from each other. One way of changing this, is to apply another color to a certain area of the text. To do that you return to the Design page.

To change the text color:
1. Click the **Design** tab.

2. Select the company text (IBM) you want to change color on, by selecting the text area with the mouse cursor.
3. Under the Design page, select the **Colors** tab.
4. In the Colors view, select a color with your mouse cursor.
5. Click the down arrow next to the **Text Color** from the Colors view.
6. Click **Set as Text Color** on the pop-up menu.

   You are done; now the selected text will be displayed with the color you selected for it.

You have changed the color of the window title.

### Lesson checkpoint

You learned the following:
• How to change the text color of the Window title and background of the Order Entry Web page

## Deleting default text from the page

Now you want to remove the default text that was added by the WebFacing Tool.

To delete default text from the page:

1. Select the text.
2. Press the **Delete** key.
3. Select the **Preview** tab to view your completed page.



4. Close the file index.jsp.
5. Click **Yes** to save the changes.

   Page Designer is closed.
6. In the Navigator view or WebFacing Projects view, right-click index.jsp.
7. Click **Run As > Run on Server** on the pop-up menu.

   **Note:** If you did not select the **Set server as the project default (do not ask again)** check box on the Run on Server dialog when you selected the server in "Showing the index.jsp page" on page 32, ensure that you select the same server on the dialog now. For example, if you had previously selected WebSphere V6.1 Server, ensure that you select that server now.

   Your new designed index.jsp page opens and you can run your application.

You have removed the default text added by the WebFacing Tool.

### Lesson checkpoint

You learned the following:
* How to remove the default text added by the WebFacing Tool

## Module summary

In this module you learned how to enhance the look of the index.jsp page using several Web tools.

After creating and testing your completed WebFacing application, you can deploy the WebFacing application, if you have WebSphere Application Server Express installed on your i5/OS server. If you want to deploy your WebFacing application, continue to "Exporting to i5/OS WebSphere Application Server (Optional)" on page 104.

### Lessons learned

By completing this module, you learned about the following concepts and tasks:
* Open the application start page (index.jsp) in Page Designer
* Change the window title to Order Entry
* Add a style to the Order Entry Web page
* Insert a heading
* Add a picture to the Order Entry Web page
* Add a marquee to the Order Entry Web page
* Change the color of the window title
* Remove default text added by the WebFacing Tool

### Assessment
* What is Page Designer?
* How do you change the window title?
* How do you add a style?
* How do you insert a heading on the page?

- How do you add a picture to the page?
- How do you add a marquee to the page?
- How do you change the color of the window title?
- How do you remove the default text added by the WebFacing Tool?

## Exporting to i5/OS WebSphere Application Server (Optional)

You have tested the WebFacing application in the WebSphere Application Server Test Environment and you are ready to move it to your i5/OS WebSphere Application Server production environment. You are running WebSphere Application Server on your i5/OS server.

### Learning objectives
- Use the RSE to move the EAR file from your local drive to the IFS on the i5/OS server
- Export the EAR file
- Start an existing HTTP server console
- Install and manage the application
- Run the application on the production server

### Time required

This module should take approximately 30 minutes to complete.
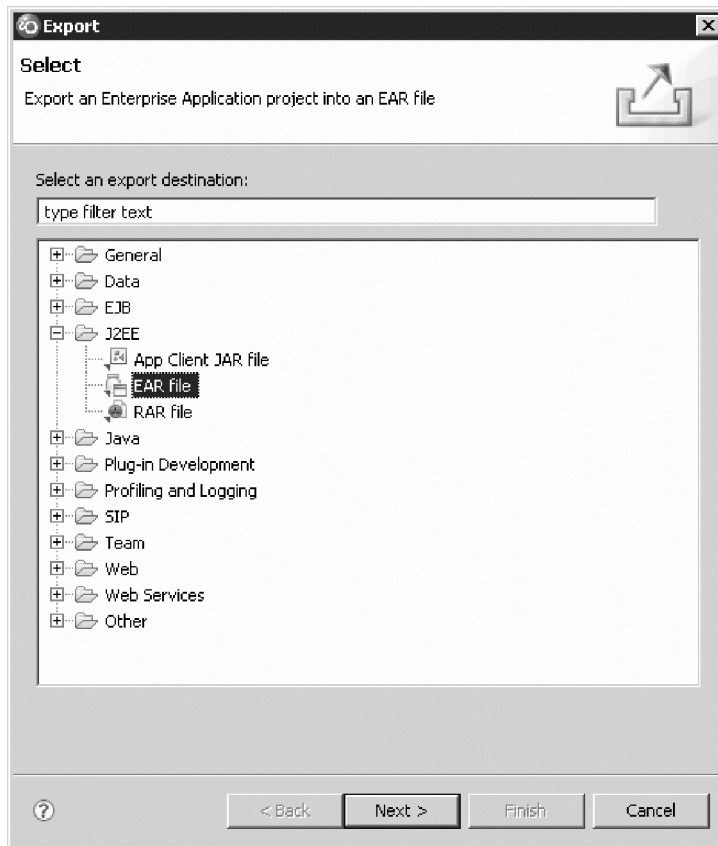
## Exporting your EAR file

The J2EE standard has the concept of an Enterprise Archive File (EAR). This file is an archive that contains all information about your Web application. In the workbench, this file is built automatically for Web projects. Since your WebFacing project is a Web project, the wflabxxEAR file exists already. You only have to copy it to the application server, point to it, and then install the application.

**Note:** As indicated in System requirements section in the Introduction, check with your system administrator to ensure that your user ID has the necessary authority to create and access IFS folders.

To export your EAR file:
1. Return to the workbench.
2. In the WebFacing perspective, in the Navigator view, right-click wflabxxEAR and select **Export** from the pop-up menu.
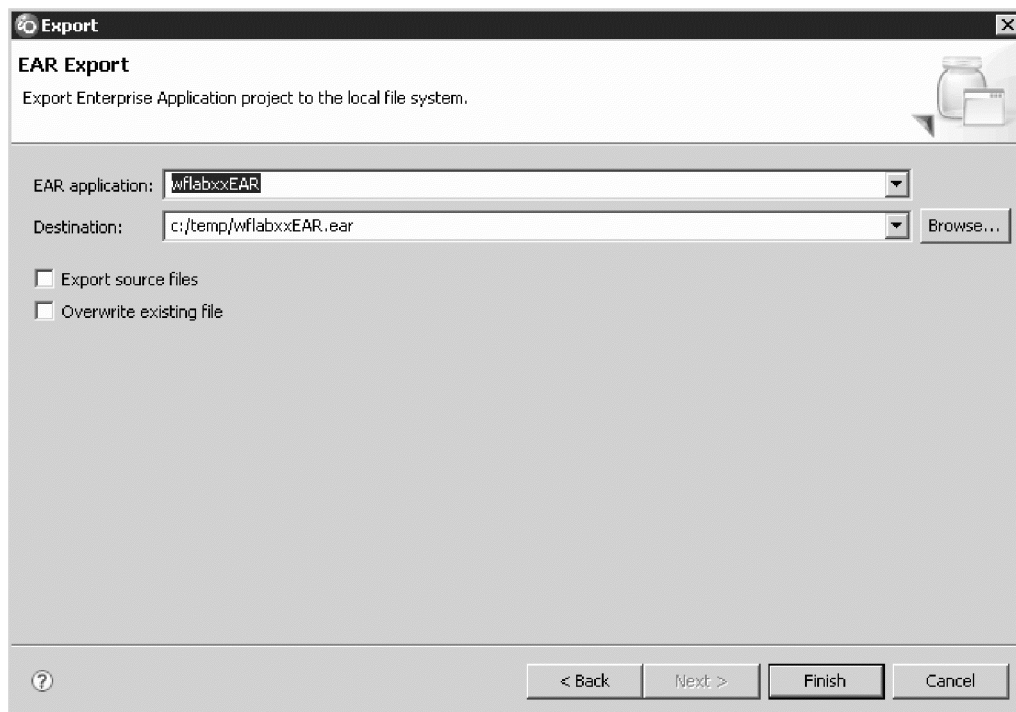   The Select page of the Export wizard opens.

An EAR file is a compressed Enterprise Application Archive, and it contains all the files needed for the Web application.

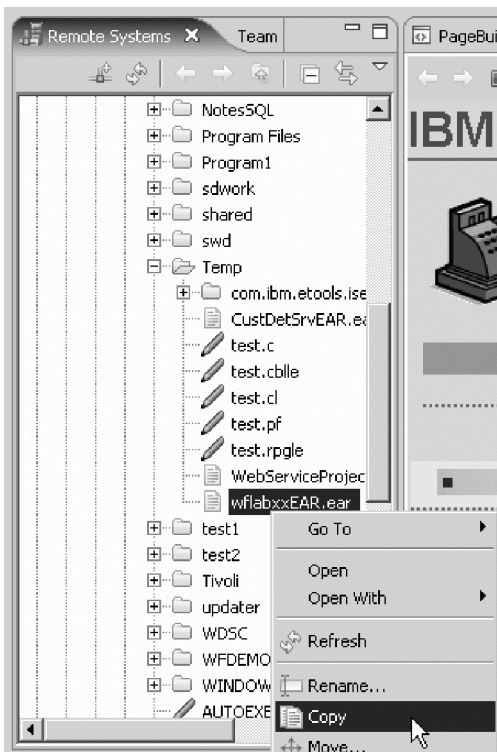3. Click **Next**.

The EAR Export page opens.

4. In the **Destination** field, specify where you want to put the EAR file by entering the drive and directory structure on the local file system. For example, `C:/temp/wflabxxEAR.ear`.

5. Select the **Overwrite existing files without warning** check box.

6. Click **Finish**.

   If you see a message asking you to create a directory or delete an existing file, Click **OK** or **Yes** and continue.

   Now that you have exported the EAR file to your local hard drive, you need to move it to a location where your WebSphere Application Server is running. In this tutorial, you use a server on an i5/OS system so you have to copy the EAR file to the IFS of the i5/OS server. You have two choices: you can map the IFS as a drive or you can use Remote System Explorer to move the EAR file from your local drive to the IFS.

7. Open the Remote System Explorer. Look for the RSE icon in the taskbar of the workbench and click it.

8. In the Remote System Explorer perspective, locate the directory where you placed the EAR file. In the Remote Systems view, expand **Local** then **Local Files** and then **Drives**.

9. Right-click the EAR file and click **Copy** on the pop-up menu.

10. Expand IFS Files in the Remote Systems view for your i5/OS connection.

11. Right-click the `QIBM\UserData\WebSphere\AppServer\V61\Base\profiles\default\installableApps` and click **Paste** on the pop-up menu.

    This is the default directory for installable applications for WebSphere Application Server.



You have exported the EAR file.

## Lesson checkpoint

You learned the following:

- About EAR files
- How to export the EAR file

# Installing the application

At this point, you already need to have set up and started the WebSphere Application Server and an associated HTTP server on your i5/OS server. You also need to find the port number of the HTTP servers Administrative Console (referred to as port#a) and the port number to run your application (referred to as port#b) The second one is the port number of your HTTP server that is set up to work with your application server.

To install the application:

1. Open any Web browser and type: `http://servername:port#a/` in the **Address** field.

   **Tip:** The default administrative port number for the HTTP server is 2001.

   The Login dialog appears.
2. Type your i5/OS user ID in the **user ID** field.
3. Type your i5/OS password in the **password** field.
4. Click **OK**.

   The browser opens.



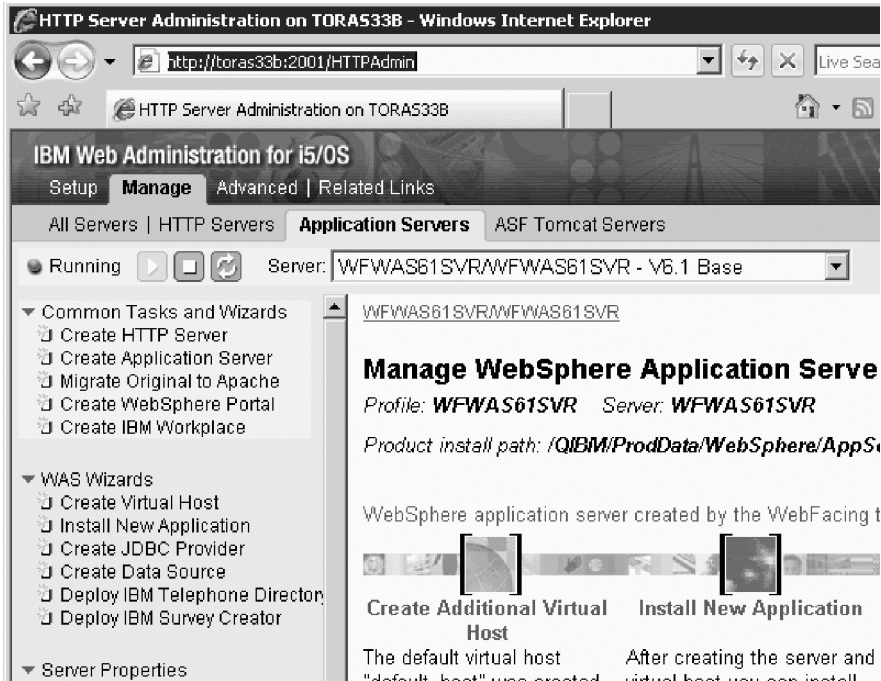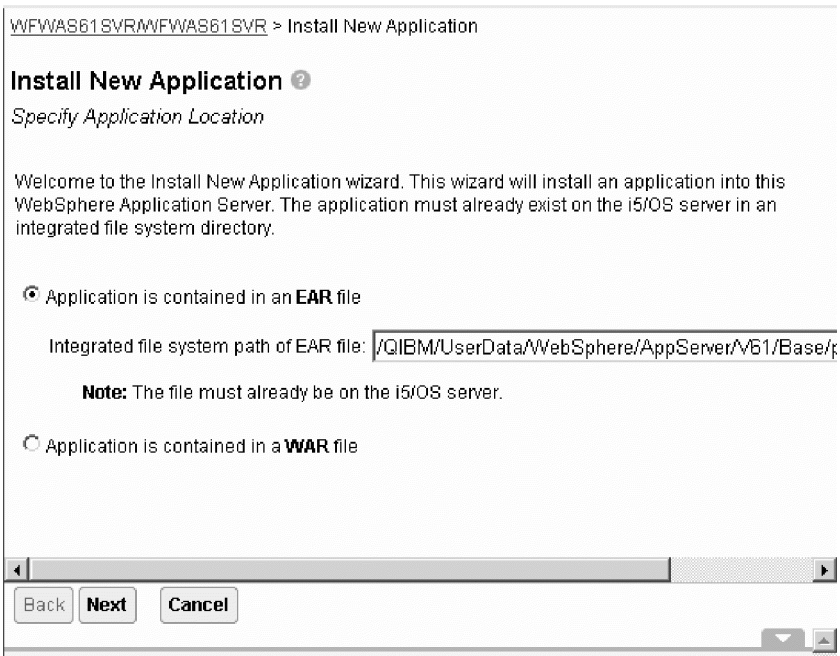5. Click **IBM Web Administration for i5/OS** from the i5/OS Tasks menu.

   The Administration pages for the HTTP and application servers display.
6. Select the **Manage** tab then the **Application Servers** tab.

   The Manage WebSphere Application Server page displays.

7. Select your WebSphere Application Server server instance from the **Server** list.

   Make sure the server instance is running by clicking the Run button to the left of the server instance.

8. Click **Install New Application** in the right pane.

   The Install New Application page displays.



9. Click the **Application is contained in an EAR file** radio button.

10. Specify the location of your EAR file; (the file that you exported in the previous step).

    You can use the **Browse** push button to locate the file.

11. Click **Next**.

    A page appears with options for application installation.

12. In the **Application name** field, type wflabxx.

13. You can select the **Pre-compile JSPs** check box to speed up the process of showing the page the first time. (JSPs are compiled into Servlets when first generated.)

14. Click **Next**.

    The Map Virtual Hosts Page appears.



15. Select the **virtual host** to be associated with the Web module.

16. Select a **virtual host** of your choice, or leave the default host selected.

17. Click **Next**.

    The application summary page displays.

## Install New Application ⊚

*Summary*

When you click **Finish** the installation will be started for the following application.

**Integrated file system path of EAR file**: /QIBM/UserData/WebSphere/AppServer/V61/Base/profiles.
**Application name**:          wflabxx
**Directory application installed to**:     /QIBM/UserData/WebSphere/AppServer/V61/Base/profiles.
**Pre-compile JSPs**:             Enabled

**Map Web modules to virtual hosts:**

| Web module | Virtual host | Web server |
|------------|--------------|------------|
| wflabxx | default_host | ✓WFWBSRVE61 |

Back    Finish    Cancel

18. Click **Finish**.

After the successful installation you see a page where you can manage the installed applications.

19. Click **Manage Installed Applications** under **Applications**.

A page with the installed applications displays.

20. Click the **wflabxx** radio button in the list of installed applications.

21. If the wflabxx application is disabled, click the **Properties** push button to enable the application.



22. Select **Enabled** from the **Application enablement** list.

23. Click **OK**.

Next you start the application with wflabxx in the enabled state.



24. Click the **wflabxx** radio button.

25. Click **Start**.

   If the Start button is not enabled, start the server first.

   Now you are ready to test your WebFacing application.

You have started the existing HTTP server, installed and managed the application.

### Lesson checkpoint

You learned the following:
- How to start the existing HTTP server, install and manage the application

## Testing the deployed WebFacing application

Next you test the deployed WebFacing application.

To test the Web application:

Open the Internet Explorer and type `http://servername:port#b/wflabxx` in the **Address** field.

**Tip:** This is the HTTP port name, most likely 80, not the application bootstrap port. You can find the port number of the HTTP server by clicking **Server Ports** under **Server Properties**.

Your application index.jsp page should open. If it does not, double-check the URL and the port number. Also try restarting the HTTP server and the application server. Refer to the Administrative Console Web site if you are having problems starting and running the HTTP server or the WebSphere Application Server. If you still encounter problems, there are troubleshooting guides, FAQs, and newsgroups on the Web where you can find an explanation of your situation with more detailed information.

You have run the application.

### Lesson checkpoint

You learned the following:
- How to test the deployed WebFacing application

## Module summary

In this module you learned how to deploy a WebFacing application to a production server.

The IBM WebFacing Tool in Host Access Transformation Services (HATS) for System i Toolkit allows you to mix a WebFacing application with a non-WebFacing application.

### Lessons learned

By completing this module, you learned about the following concepts and tasks:
- Map a network drive
- Open the Export wizard
- Export the EAR file
- Start an existing HTTP server console
- Install and manage the application
- Run the application on the production server

## Assessment

- How do you map a Network drive?
- How do you export an EAR file?
- What is an EAR file?
- How do you start an existing HTTP server?
- How do you install the EAR application?
- How do you test the installed application on the production server?

# Mixing a WebFacing and non-WebFacing application

If a WebFacing application encounters certain system screens or non-WebFacing 5250 applications, then the on-the-fly transformation capabilities, included with Host Access Transformation Services (HATS) today, are leveraged to deliver the screens in a browser using the same style as the WebFacing application.

This module teaches you how to mix a WebFacing and non-WebFacing application.

## Learning objectives

- Add a CL command to call a 5250 application
- Launch the mixed application
- Test the application

## Time required

This module should take approximately 15 minutes to complete.

# Adding another CL command to launch another application

You will now provide the information that will allow the WebFacing Web Project wizard to add another Launch button on the initial index.jsp page to start the Customer Inquiry application, another 5250 application that will take the user interface to this application and transform it on-the-fly to an HTML interface.

The WebFacing run time needs to know the invocation command for this additional application in order to send this invocation command to the i5/OS server to start your application from the browser. The page in the WebFacing Web Project wizard will allow you to add the necessary information CL command and Sign on information.

To specify the CL commands:

1. Right-click the CL commands under the wflabxx WebFacing project and click **Add** on the pop-up menu.

2. In the **CL Command** field, type `go celdial` and in the**Command Label**field, type `Customer Inquiry Application`.

   **Tip:** If you don't type anything into the Command Label field, the CL command input will be copied into this field.

3. Leave the default value `INV2` in the **Invocation name** field.

4. Click the **Specify i5/OS signon values** radio button and enter the user ID and password that you have used previously for the Order Entry Application.

5. Click **Add** on the right side of the page.

   **Tip:** Make sure the text and command you typed into the fields are actually shown in the CL Command table at the bottom of the page.

6. Click **Finish** at the bottom of the wizard page.

The CL command to call the additional Customer Inquiry application is added.



You have added another CL command to launch a 5250 application.

## Lesson checkpoint

You learned the following:

• How to add another CL command to launch a 5250 application

# Testing the non-WebFacing application

Recall that the IBM WebFacing Tool creates a Web interface to a 5250 application based on the DDS source code. The Web interface is created in a development time conversion. Starting in Development Studio Client Version 6.0.1 and with i5/OS® V5R4, the IBM WebFacing Tool can generate on-the-fly transformations.

You must purchase the IBM® Rational® Host Access Transformation Services (HATS) license to enable your WebFacing applications for use in a production environment. Without a valid license, you are limited to two concurrent trial WebFacing connections.

To run the non-WebFacing application for testing purposes:
1. Right-click index.jsp in the WebFacing Projects view.
2. Click **Run As > Run on Server** on the pop-up menu.

   **Note:** If you did not select the **Set server as the project default (do not ask again)** check box on the Run on Server dialog when you selected the server in "Showing the index.jsp page" on page 32, ensure that you select the same server on the dialog now. For example, if you had previously selected WebSphere V6.1 Server, ensure that you select that server now.
3. In the browser pane, click the **Launch** link for the Customer Inquiry Application.



   After a few moments the first application page opens in the browser.

4. Check the Console view for a message that indicates that a HATS license is needed to run this application with more than two connections.



5. Type 2 in the command field to open the Work with Inventory window. Press **Enter**.

**XYZ Company Inc.**      Customer Inquiry Appl

MAIN MENU    SUPP

```
                  7/02/28                      CelDial - Work with Inventor
 ■Enter
 ■F1          Type option, press Enter.
 ■F2            2=Change     4=Delete     5=Display     8=Print
 ■F3
 ■F4          Opt      Number       Description
 ■F5           □       00004        Message Base
 ■F6           □       00040        Battery Charger 12V
 ■F7           □       00062        Base Unit - Auto
 ■F8           □       00070        Module Puller-deluxe
 ■F9           □       00071        Carry Case - Deluxe
 ■F10          □       00072        Carry Case - Nylon
 ■F11          □       00074        Adapter - 120V
 ■F12          □       00085        Presentation Box
 ■F13          □       00087        Auto Antenna - mag
 ■F14          □       00091        Antenna -replaceable
 ■F15          □       00095        Porta-Case
 ■F16          □       00098        Auto Antenna - perm
 ■F17          □       00100        Rechargeable Battery
 ■F18          □       00234        pullar 2
 ■F19
 ■F20         F3=Exit            F6=Add a part          F10=Spool files
 ■F21
 ■F22
```
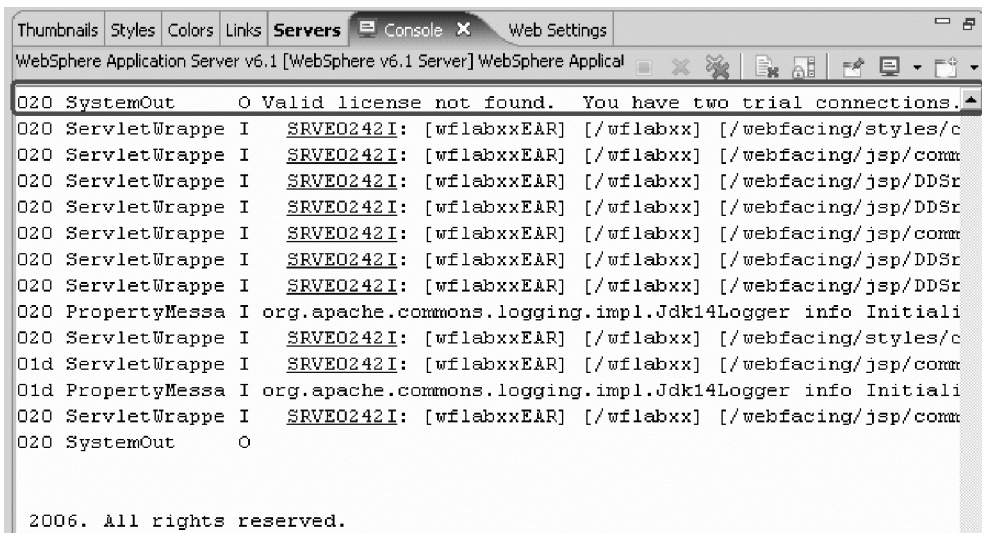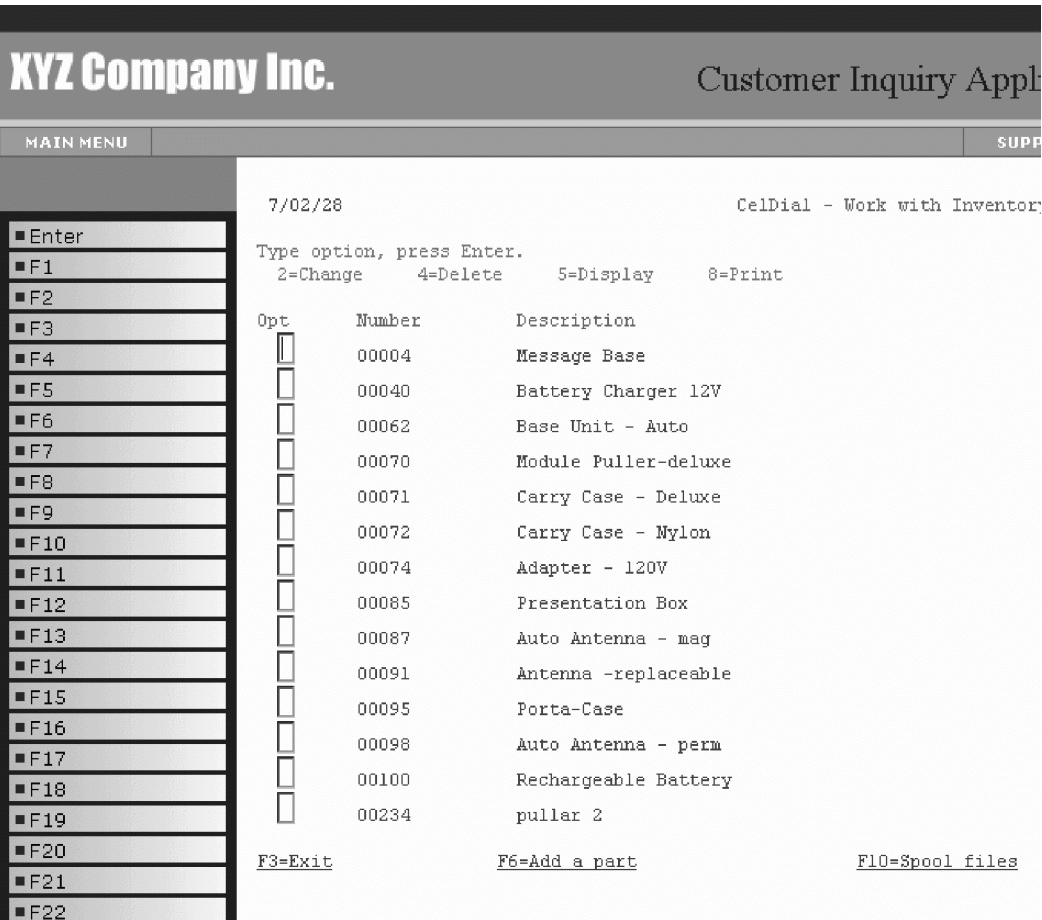
6. Play in the application as much as you like trying different function keys and options. When you are finished, exit the application.

You have seen the results of calling a non-WebFacing application on-the-fly and seeing the results in the browser.

### Lesson checkpoint

You learned the following:
- How to call a non-WebFacing application on-the-fly and see the results in the browser.

## Module summary

In this module, you learned how to use WebFacing Tool extensions to mix a WebFacing application with a non-WebFacing application. To learn more about mixing WebFacing applications with non-WebFacing applications, see the Create a combined WebFacing and HATS application tutorial.

### Lessons learned

By completing this module, you learned about the following concepts and tasks:
- Add a CL command to call a 5250 application
- Launch the mixed application
- Play in the application

### Assessment

- What is a HATS license?
- How do you add a CL command to call a 5250 application?
- How do you launch the mixed application?

## Summary

This tutorial has taught you how to convert the DDS screens in an existing 5250 order entry application to a Web browser user interface. While creating a browser user interface, you learned how to use the IBM WebFacing Tool. You also learned how to customize the output of the conversion process using the IBM WebFacing Tool, Screen Designer, the LPEX Editor and Page Designer. Next you learned how to run the WebFacing application in the WebSphere Test Environment that is part of the product. Finally, you learned how to mix a WebFacing and non-WebFacing application with Dynamic Data Stream Transformation.

If you have completed all of the modules, you should now be able to:
- Create a WebFacing Web Project
- Convert one or more DDS and UIM files
- Run the application in the WebSphere Test Environment
- Customize the WebFacing application
- Secure your application by forcing authentication before the application is called
- Make the input page of the application more interesting
- Deploy the WebFacing application to a production server (optional)
- Mix a WebFacing and non-WebFacing application

**More information**

For more information on the product and the IBM WebFacing Tool, see http://ibm.com/software/awdtools/iseries.

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