

IBM WebSphere Development Studio Client for iSeries

Refacing an iSeries Green Screen Application using
WebSphere Development Studio Client Version 5.0

Exercises

Overall Lab Guide

The objective of this lab is to have the students work with an existing 5250 application and use the WebFacing Tool to create a browser based user interface, and then run this application as an e-business application. This lab is an extension of the WebSphere Application Server — Express for iSeries Configuration and Administration lab demonstrated how to create and test WebSphere instances. At the end of the lab, the student should know how to use the IBM WebFacing Tool. This lab will guide the student through most of the steps involved in the WebFacing process. This lab also shows how to create a WebSphere Application Server — Express V5.0 Web Application in the WebSphere Application Server — Express V5.0 Administration Console.

The Steps in this Lab

1. A Brief Look at 5250 Application
2. Creating a WebFacing project in WebSphere Development Studio Client
3. Convert the DDS to JSPs
4. Running the WebFaced Application in WebSphere Application Server — Express V5.0 Test Environment in WebSphere Development Studio Client
5. Creating the Web Archive (WAR) file
6. Creating a Enterprise Application in the WebSphere Application Server
7. Run the WebFaced application

A brief look at the 5250 application

Exploring the 5250 application

During this first section of the lab, you will be familiarizing yourself with the 5250 screens of the application you are about to WebFace during this lab exercise.

You will explore the 5250 application by:

- ? Running it in an Emulation window
- ? Learning how to invoke it
- ? Learning what screen it provides
- ? Learning what command keys are supported and what functions they allow

What You Should be Able to Do

As a result of this exercise, you will be able to go through the application's screens. You will understand how to invoke the application. You will understand how to navigate through the application.

- ? Invoke the application
- ? Use the application screen and command keys
- ? Know the functionality of the application

Setup

Download the apilib.savf file from the Web site. Restore the contents of this save file to a library called APILIB on the iSeries server. Add the APILIB library to the library list for the user profile to be used in this lab.

For the purposes of this lab, you are team number 1. When asked for a team number xx, assume team01.

Signing on to your iSeries server

Start 5250 Emulator Session to Lab iSeries system (Refer to Lab Information Sheet)

You should see an iSeries 5250 emulation window with the sign-on screen on your desktop.

- ? Sign on using a valid userid and password.
- ? On the command line of the 5250 screen, invoke the Order Entry Application by keying in:

CALL ORDENTR

- ? The first panel that you see requires a customer number
 - ? Press **command key 4**
- You will be presented with a list of customers in a window
- ? Select a customer by keying in **1** in the Options entry field
 - ? Press the Enter key to proceed.
- You will see a screen with the **detail customer data**.
- You will notice that an order number has been assigned as well.

IBM WebFacing Tool Conversion and Deployment

You are ready to order some parts.

? Press **command key 4** to get a list of parts in a window.

? Select a part that has several quantities left by keying in a **1** in the option field
Back on the order screen, the part appears on the order on the first line.

? Change the quantity field to **1** or **2**

? Press Enter, the detail order line is now part of this order

? You can press **command key 6** to accept the order

When you feel as though you understand how the application works, stop adding orders.

? Press **command key 3** to exit the application.

You are now ready to put a brand new user interface onto this application.

Creating a Project using the IBM WebFacing Tool

Using the Project Wizard within the IBM WebFacing Tool

During this section of the lab, you will use the IBM WebFacing Tool project wizard inside the WebSphere Development Studio Client Integrated Development Environment to create a new WebFacing project. This project using the IBM WebFacing Tool will then be used to facilitate the conversion of your DDS source and to test the generated output.

You will explore the IBM WebFacing tool project wizard by:

- ? Invoking the IBM WebFacing tool project wizard
- ? Stepping through the IBM WebFacing tool project wizard pages ✎
- ? Providing the correct input for the project wizard ✎
- ? Start the creation of a new IBM WebFacing tool project ✎

What You Should be Able to Do

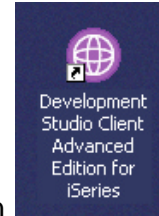
As a result of this exercise, you will be able to create a new project using the IBM WebFacing Tool.

- ? Start WebSphere Development Studio Client ✎
- ? Start the IBM WebFacing Tool project wizard ✎
- ? Step through the project wizard pages ✎
- ? Provide the correct information to the project wizard ✎
- ? Browse through the new project in the IDE

1. Invoking WebSphere Development Studio Client

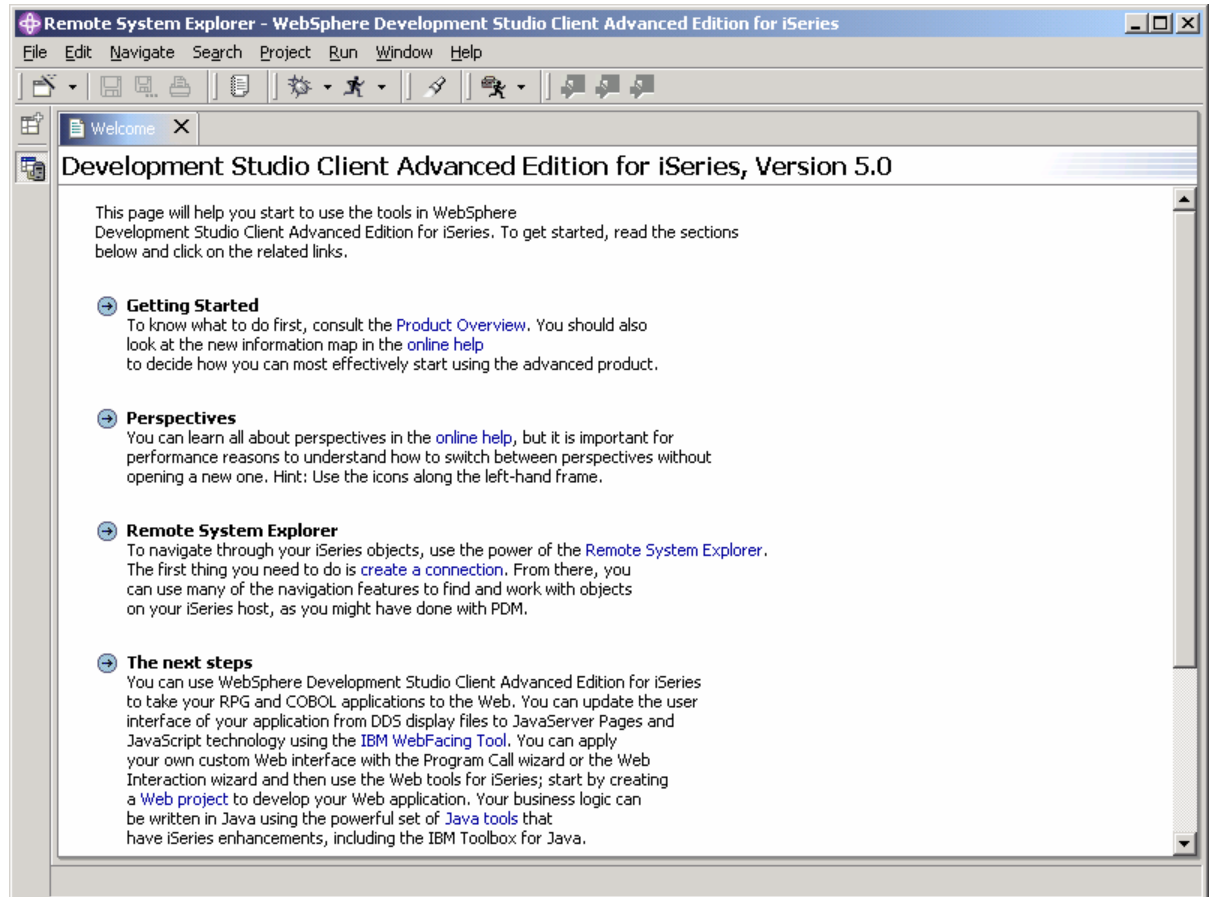
To start WebSphere Development Studio Client, press the **Start** button on the task bar of your desktop

Choose **Start** *≡* **Programs** *≡* **IBM WebSphere Studio** *≡* **WebSphere Development Studio Client Advanced Edition for iSeries**

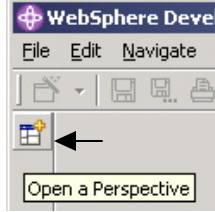


or click on the WebSphere Development Studio Client icon on the desktop (if available)

After a few moments of loading, the workbench appears. If the workbench has been used previously, it will already show a perspective.



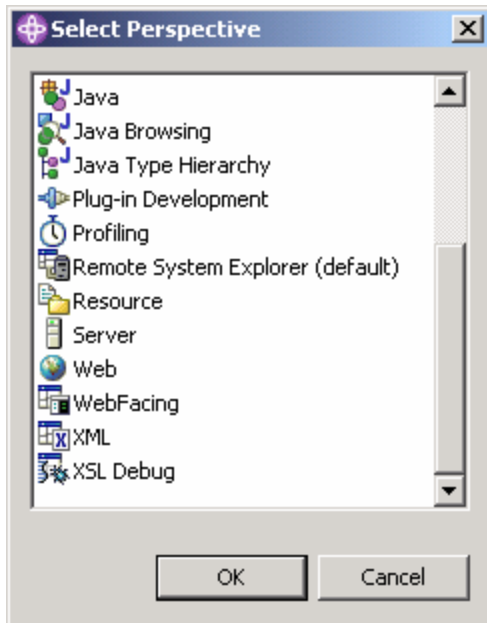
- ___ **2. Start the WebFacing perspective**, by selecting the Perspective menu item on the workbench Menu bar.



If there is a **WebFacing option** available on the submenu, select **WebFacing** and skip the next step.

Otherwise, select the **Other....** option on the submenu

A list similar to the figure below will appear:



Select WebFacing from the list

Click **OK**.

- ___ **3. Create Web Facing Project**

- ? Select the **File** option from the Workbench menu bar
- ? Select **New** from the Menu pull down
- ? Select **WebFacing Project** from the next sub menu

The **WebFacing project** wizard will appear.

4. WebFacing Project dialog

Enter following details:

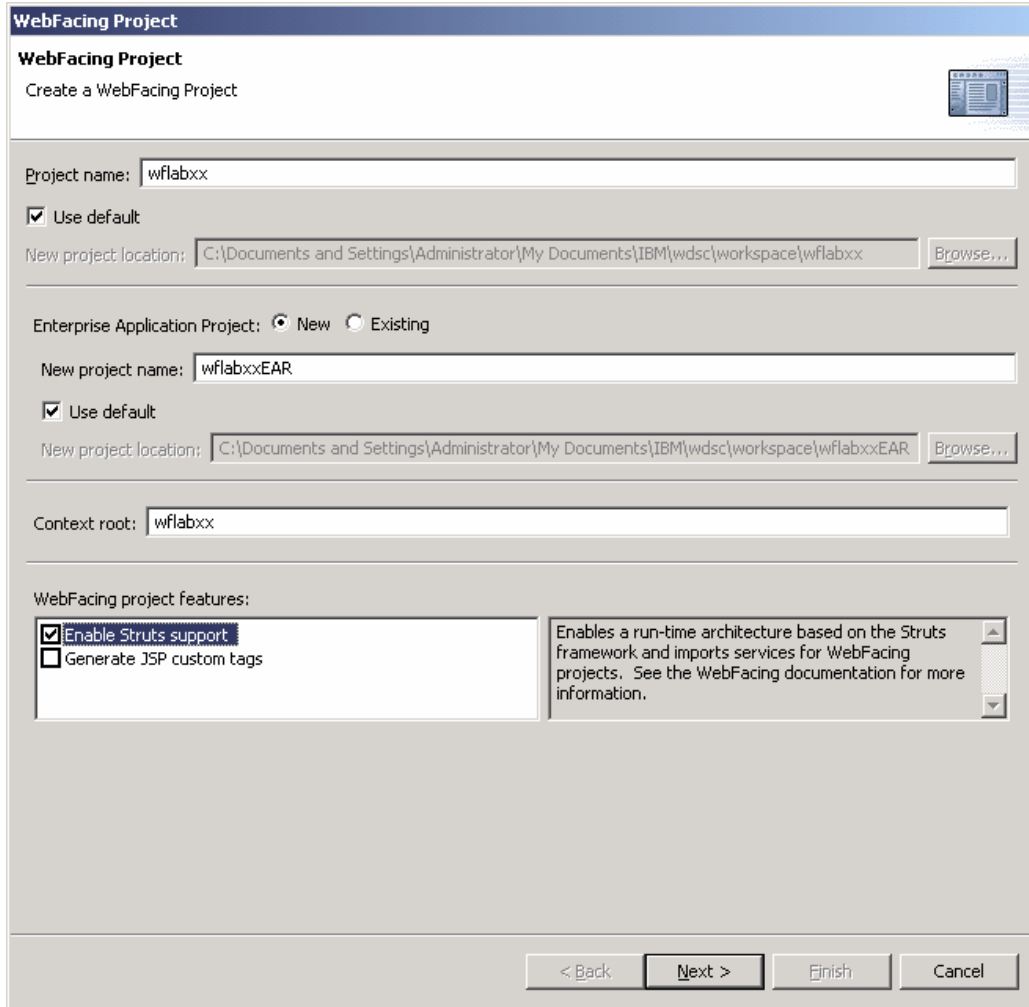
Project name: wflabxx

(where xx is your team number... refer to lab information sheet)

Enterprise Application Project name: wflabxxEAR

Context Root: wflabxx

(where xx is your team number... refer to lab information sheet)



Click **Next**.

5. Select the J2EE level.

On this second page, you need to set the J2EE level. For this lab, you will need to set it to J2EE 1.3.

Click **Next**.

___ 6. The Select display file source members to convert dialog

On this page of the new project wizard, you need to specify where your DDS source is located. Specifically, the IBM WebFacing Tool needs to know:

- ? Server name
- ? Library name
- ? Source file name
- ? Member name

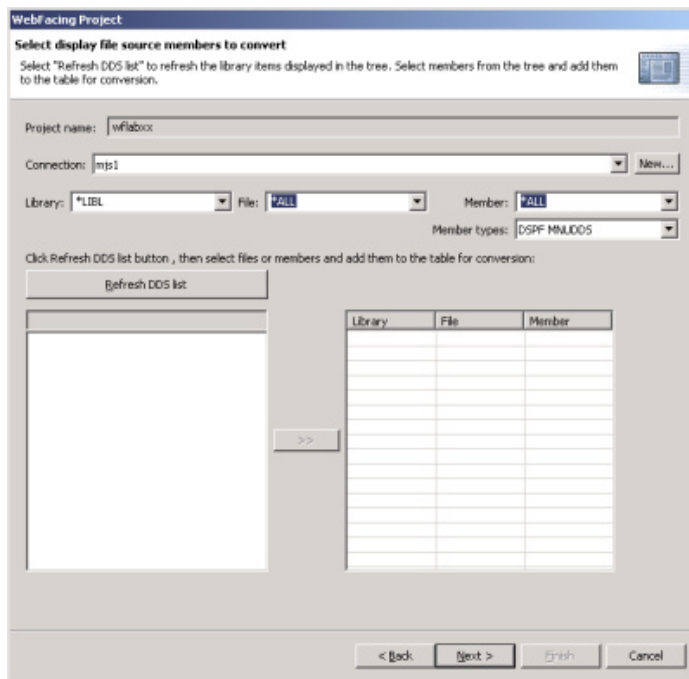
You need to specify the **server name** to be used in the **connection** combination box.

Select the correct iSeries server (refer to Lab Information Sheet) from the drop down combination box list.

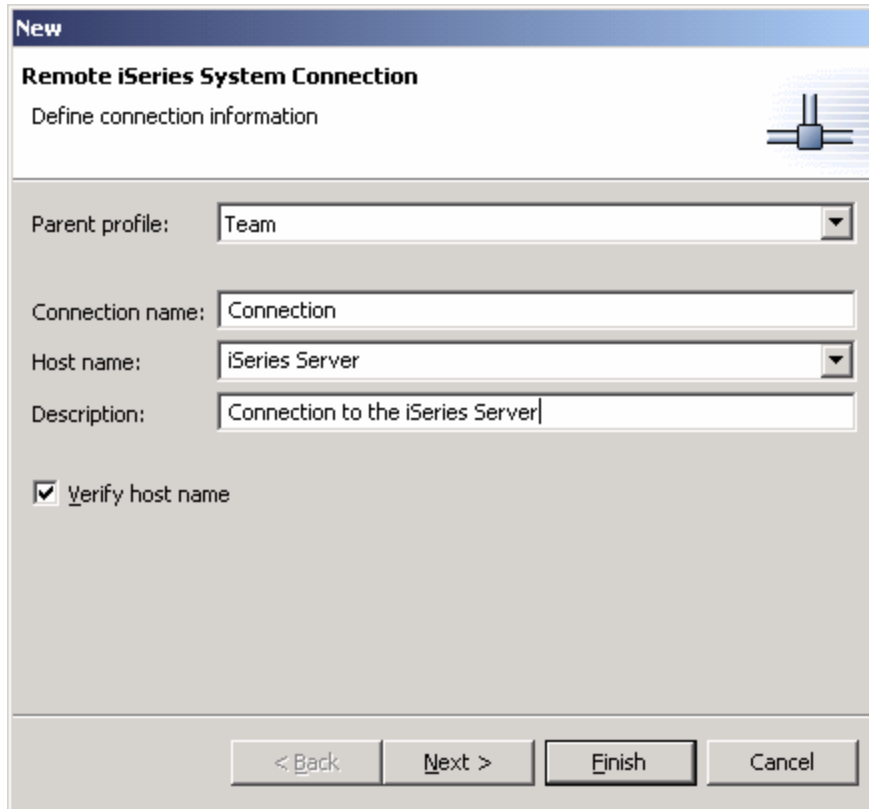
If your assigned server name appears in the list, select it and skip to the next step.

If the list does not contain your assigned server name, you need to add the server to the list.

You do this by pressing the **New...** button to the right of the Connections box.



When the **New Connection** dialog appears,



Select Parent Profile: Team

Enter Connection Name: same as iSeries Hostname
(refer to Lab Information Sheet)

Enter the Host Name: iSeries Server Name
(refer to Lab Information Sheet)

Enter Default User ID: iSeries User ID
(refer to Lab Information Sheet)

Press the Finish button in the **New Connection** dialog.

- ___ 7. Back in the WebFacing project wizard:
- ? Check that your iSeries server is selected in the connection combo box
 - ? Make sure *LIBL is selected in the library filter combo box
 - ? Select the *Refresh list* button
 - ? When prompted, enter iSeries password and press OK to continue.

The library list of your iSeries job is displayed in the tree view list on the project wizard page.

- ? Expand it by clicking on the **+** sign beside the library name
- ? Select source file **RPGAPP** (containing DDS source physical file members) from the expanded list
- ? Expand RPGAPP
- ? Select **all** members from the list
- ? Press the **>>** button in the middle to copy the selected members over to the list of selected members
- ? Press the **Next >** button at the bottom of the **Select Display file source** dialog to proceed to the next wizard page.

Now the IBM WebFacing Tool knows which DDS members to convert for this project.

The **Select UIM source members to convert** dialog appears.

If you have UIM help panels, you can specify the source locations of the source members on this page of the project wizard. However, in this application, we do not have UIM help so you can skip this panel.

Press the **Next >** button at the bottom of the **Select UIM source** dialog to proceed to the next wizard page.

8. The Specify CL commands Page

You will now provide the information that will allow the WebFacing wizard to create the initial **index.html** page to start the Order Entry application.

Remember what you keyed in on the command line in the 5250 emulation during the previous exercise to start the order entry application?

In case you forgot, it was: **CALL ORDENTR**

The WebFacing runtime needs to know the invocation command for your application in order to send this invocation command to the iSeries server to start your application from the browser.

The following page in the WebFacing project wizard will allow you to specify the necessary information.

WebFacing Project

Specify CL commands

Enter the CL commands that are used in your application, the command labels you want to use, and the signon preference for the generated hypertext links.

Project name:

WebFacing generates hypertext links that you can use to launch your application from the web. In order to do this, it needs to know the text that will be shown for each link and the CL command that each link will invoke. On this page you can define multiple links, in case several CL commands are used to launch your application.

If your program requires interactive parameters you should also enter them in the command line. For example: to invoke program MYPGM with a part number parameter, you would enter CALL MYPGM PARM('&part') as the CL command. The variable "&part" will be replaced when you click on the invocation link. For details, refer to the generated index.html file.

CL command:

Command label:

Prompt for signon

Sign on with specified values

User ID:

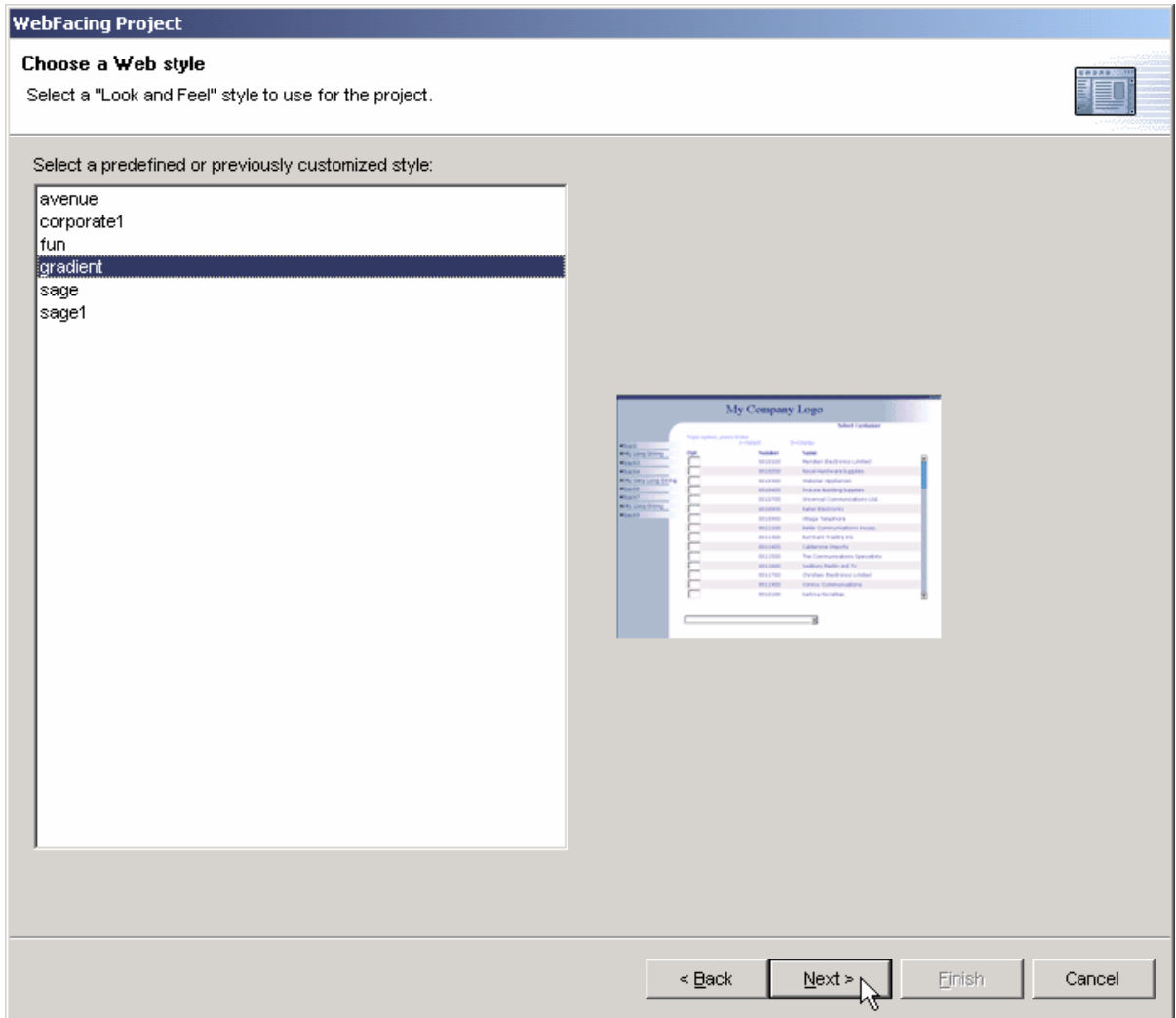
Password: Confirm password:

CL Command	Command Label	User ID
CALL ORDENTR	Call Order Entry	*PROMPT

- ? Enter **CALL ORDENTR** into the CL command entry field
- ? Enter **Order Entry Application** into the Command Label entry field
- ? Click the **Add** button on the right side of the dialog.
Make sure the text and command you keyed into the entry fields is shown in the list at the bottom of the dialog
- ? Click **Next >** button on this project wizard page

9. The Choose a Web style Page

The next page allows you to select a Web style for your converted screens.



- ? Select any style from the list of available styles.
- ? Click the **Next >** button at the bottom of this dialog.

10. The Complete WebFacing Project page

At this point, we want you to just create the project; we do not want you to convert the source now. Conversion is the next section of the lab.

The screenshot shows a dialog box titled "WebFacing Project" with a sub-header "Complete WebFacing project". The main text reads: "You have indicated the specifications for your new WebFacing project. To continue, click Finish." Below this, a question is posed: "You are about to create a WebFacing project. Do you also want to convert the selected display files?". There are two radio button options: "Yes. I want to create the project and proceed with conversion now." (which is unselected) and "No. I only want to create the project now." (which is selected). At the bottom of the dialog, there are four buttons: "< Back", "Next >", "Finish", and "Cancel". A mouse cursor is pointing at the "Finish" button.

- ? Select the **No, I only want to create the project now** button
- ? Click the **Finish** button

This completes the project set-up exercise.

You are now ready to convert and run your application.

Convert Selected Members

Converting selected DDS members

During this exercise, you will start the conversion of the DDS source that you selected in the previous lab

The following tasks will be covered in this lab:

- ? Selecting DDS source to convert
- ? Starting the conversion
- ? Work with the conversion log

As a result of this exercise, you will create JavaServer Pages, XML data bean definitions, and several other files that are needed for the WebFaced application.

What You Should be Able to Do

As a result of this exercise, you will be able to use the **IBM WebFacing Tool** to convert selected DDS source members:

- ? Use the IBM WebFacing Tool to select certain members for conversion
- ? Use the IBM WebFacing Tool to start the conversion process
- ? Analyze the conversion logs

Using the IBM WebFacing Tool to start the Conversion

___ 1. In the **WebFacing perspective**, select the project you have been working on in the previous exercise, **wflabxx**

? Expand this project by **clicking** on the **+** sign beside its icon in the tree view

? You should see an icon named **DDS** in the expanded tree

If you **do not** see a **DDS** folder:

You might be in the **Navigator** view,

☞ Check the pane title bar,

If it shows **Navigator**,

☞ Locate the **WebFacing projects** tab at the **bottom** of the list pane

☞ Click on it.

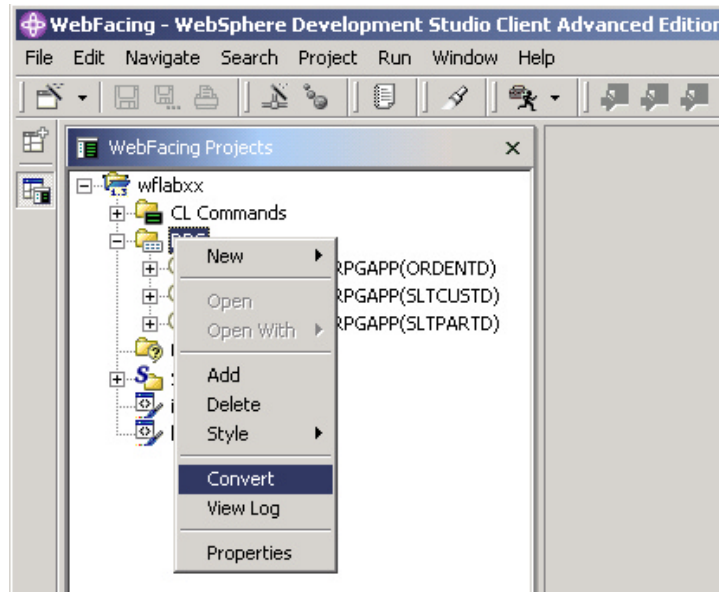
Now the **WebFacing projects** view should be active and you should be able to locate the **DDS** folder.

___ 2. Expand the DDS folder by clicking on the **+** sign beside it

You should see all **3 members** that you selected in the previous exercise.

Since you are converting all members in the project, you can work with the **DDS folder icon**.

Right mouse **click** on the **DDS** folder icon:



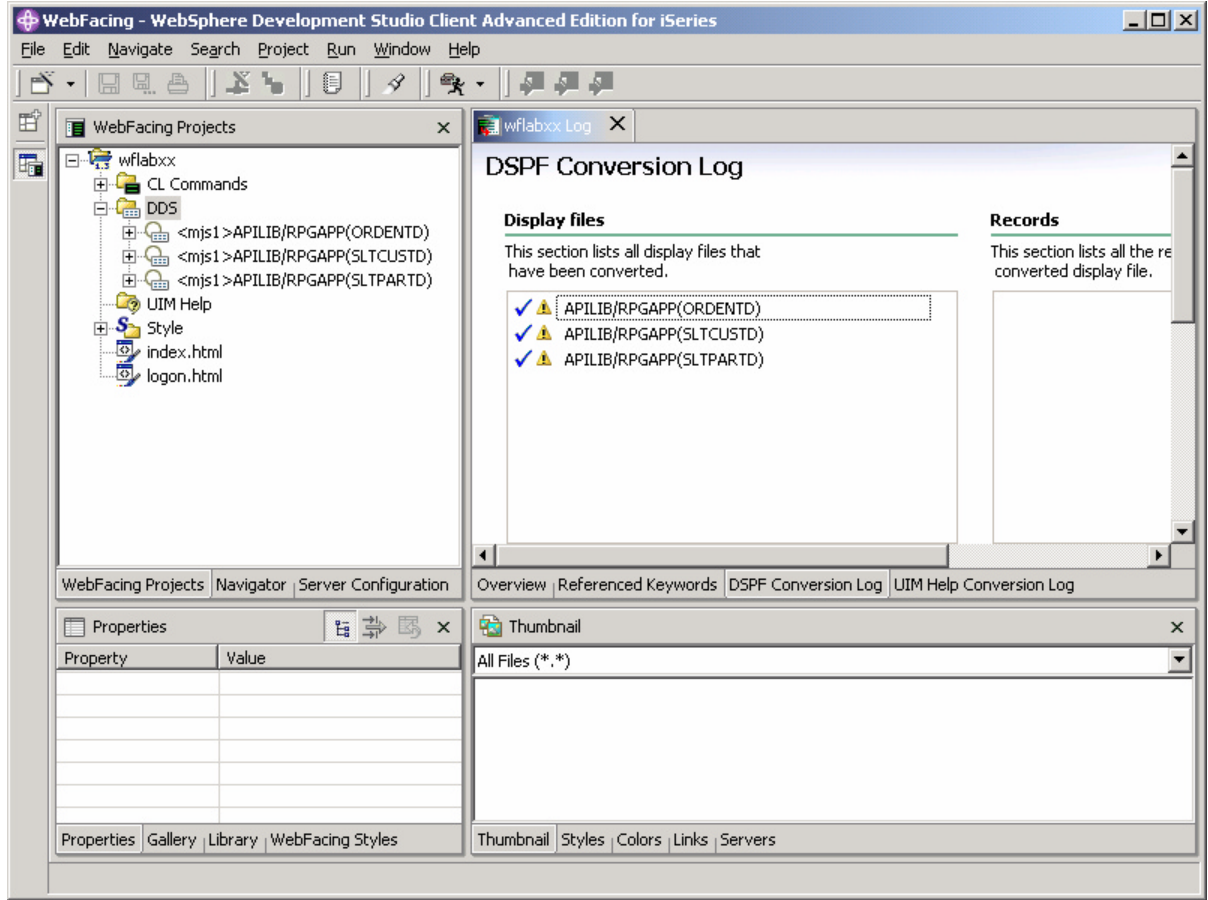
Select **Convert** from the pop-up menu.

The conversion process starts.

(You **may** be prompted for a sign-on and password. Look for the screen and use your team id and password. If you do not see a prompt, it is OK, just continue.)

Wait until the conversion finishes

___ 3. Notice the conversion log in the right hand pane:

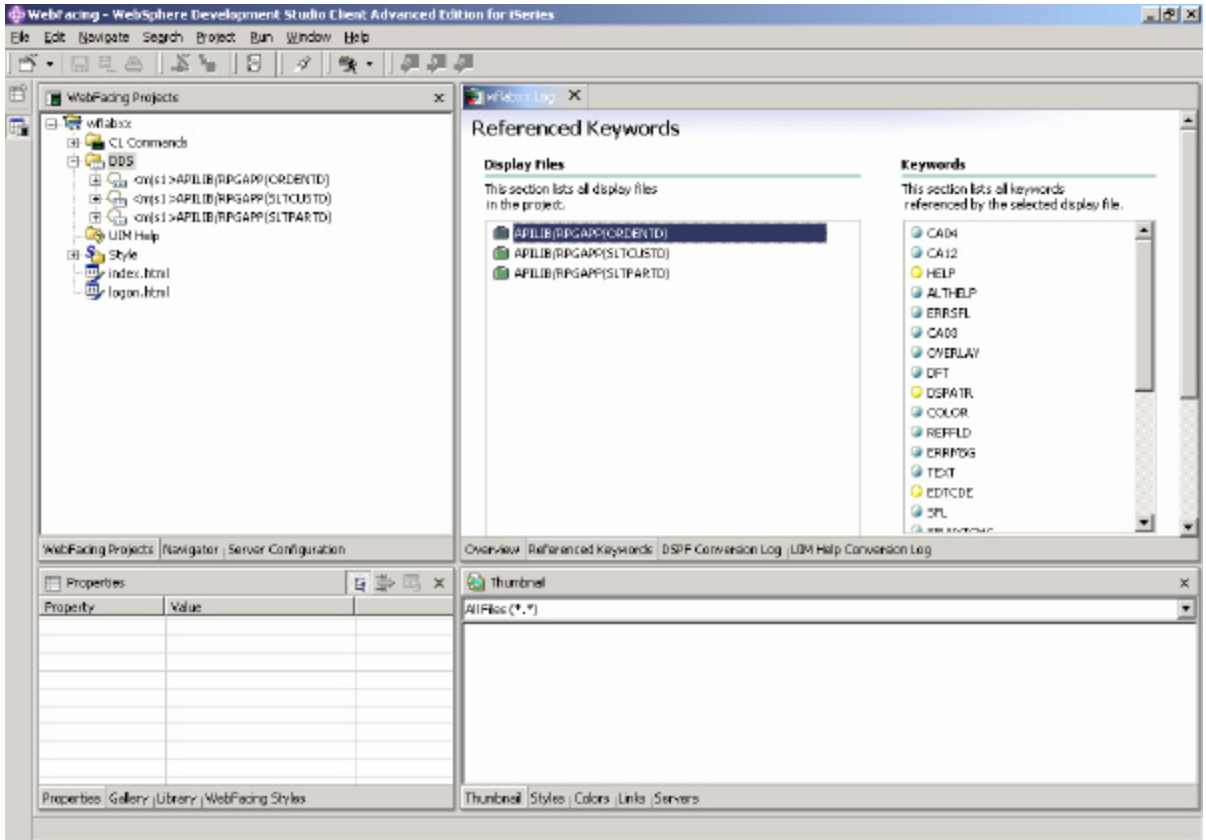


Check the log.

✎ At the bottom of the log are tabs:

- ? Overview
- ? Referenced Keywords
- ? DSPF Conversion Log
- ? UIM Help Conversion Log

On these pages, you can get more details on the conversion (e.g. Referenced Keywords).



Check out the information on the other log pages.

Then, proceed to the next lab exercise and run the application with its new User Interface.

Running the WebFaced Application

Running the WebFaced application

During this exercise, you will use the **WebSphere Application Server — Express V5.0 test environment** that is embedded in WebSphere Development Studio Client. Using the test environment will make the process of testing your application a lot easier than doing the testing in a remote WebSphere Application Server — Express V5.0 environment. After you have tested your application, you would move the files and use WebSphere Application Server — Express V5.0 on a server to do the final testing and then move the files from the WebFacing conversion onto your production WebSphere Application Server — Express V5.0 environment.

The following tasks will be covered in this lab:

- ? Starting the application in the test environment
- ? Selecting the correct link on the invocation index.html page to invoke the WebFaced application
- ? Using the WebFaced application

As a result of this exercise, you will specify in the WebFacing perspective that you want to run your project in the WebSphere Development Studio Client test environment. From the initial web page, you will select the link created by the IBM WebFacing Tool to invoke the WebFaced application.

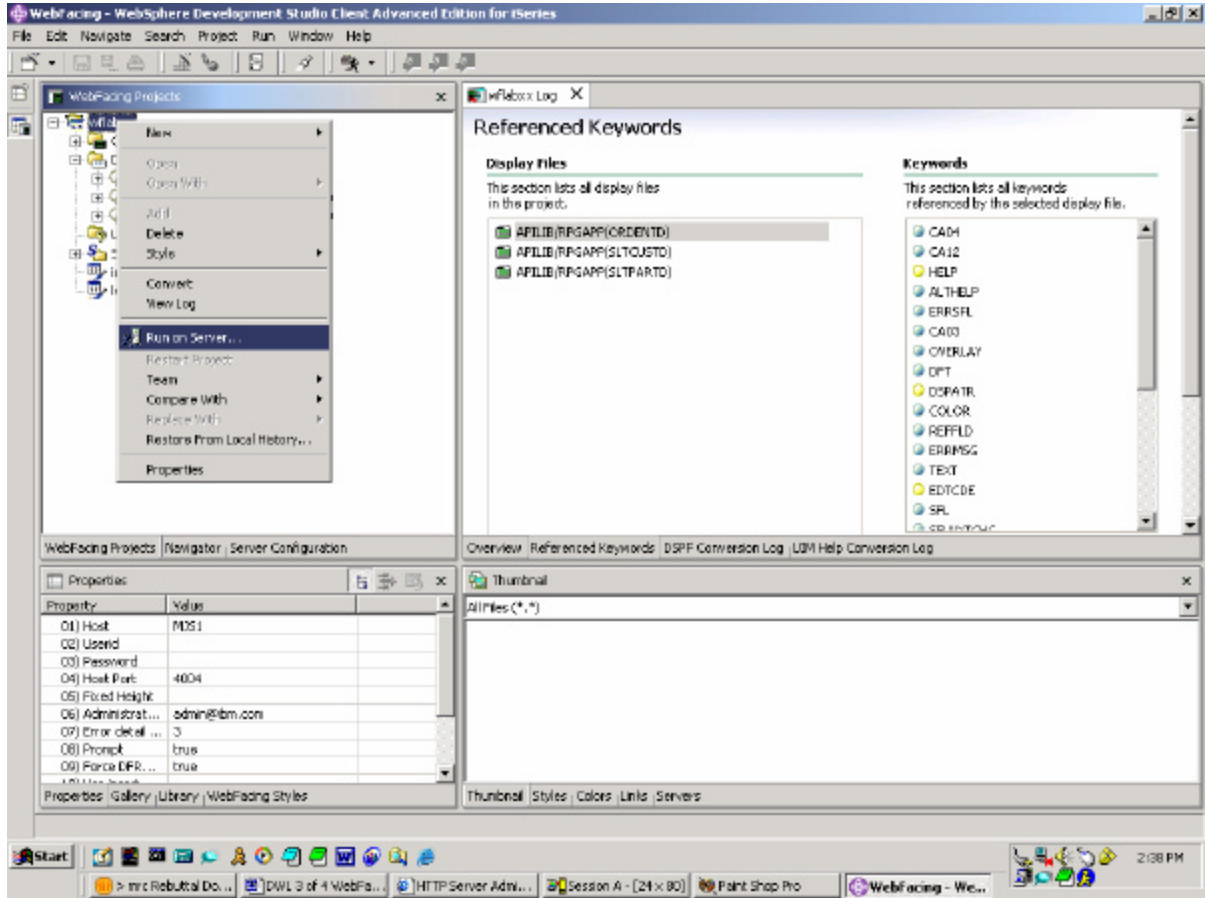
What You Should be Able to Do

As a result of this exercise, you will be able to load the initial invocation page and invoke the WebFaced application in the browser that is included in WebSphere Development Studio Client. You will understand how to navigate through the converted User Interface.

- ? Use the WebSphere Application Server — Express V5.0 test environment to run the Web Application
- ? Select the Link on the invocation web page to invoke the RPG application
- ? Use the html based user interface to step through the WebFaced application

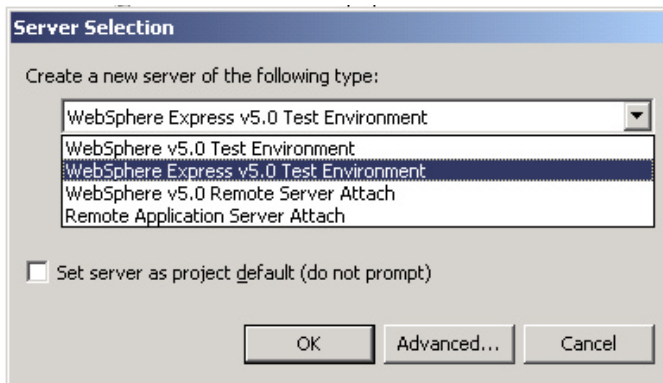
1. Using the WebSphere Application Server — Express V5.0 test environment to show the Index.html page

? Right mouse click on the **wflabxx** project icon:



? Select **Run on server** from the pop-up menu

A pop-up window will ask for you to choose which server you would like to run on. Select WebSphere Application Server — Express v5.0 Test Environment. Click **OK**.

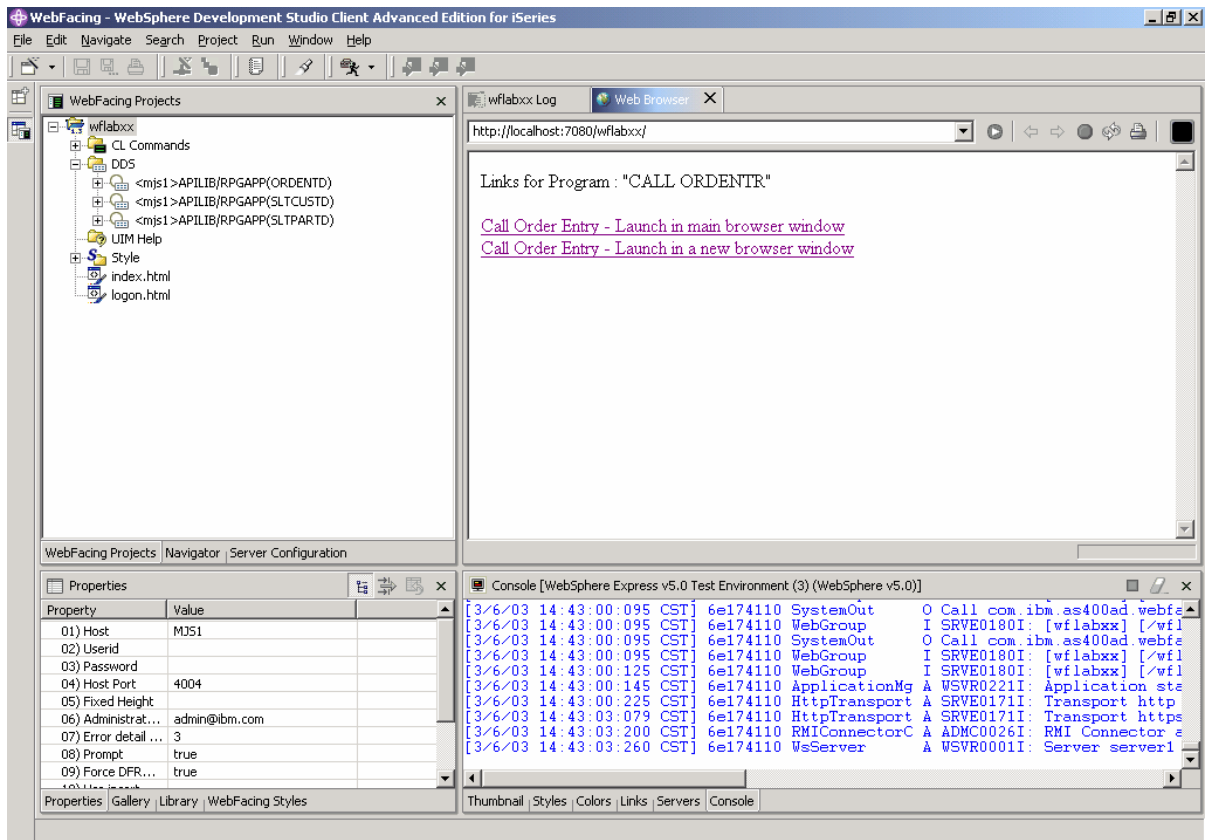


IBM WebFacing Tool Conversion and Deployment

After a few moments (be patient), the WebSphere Application Server will be started on your PC.

? The browser will appear in the right-hand pane of the workbench.

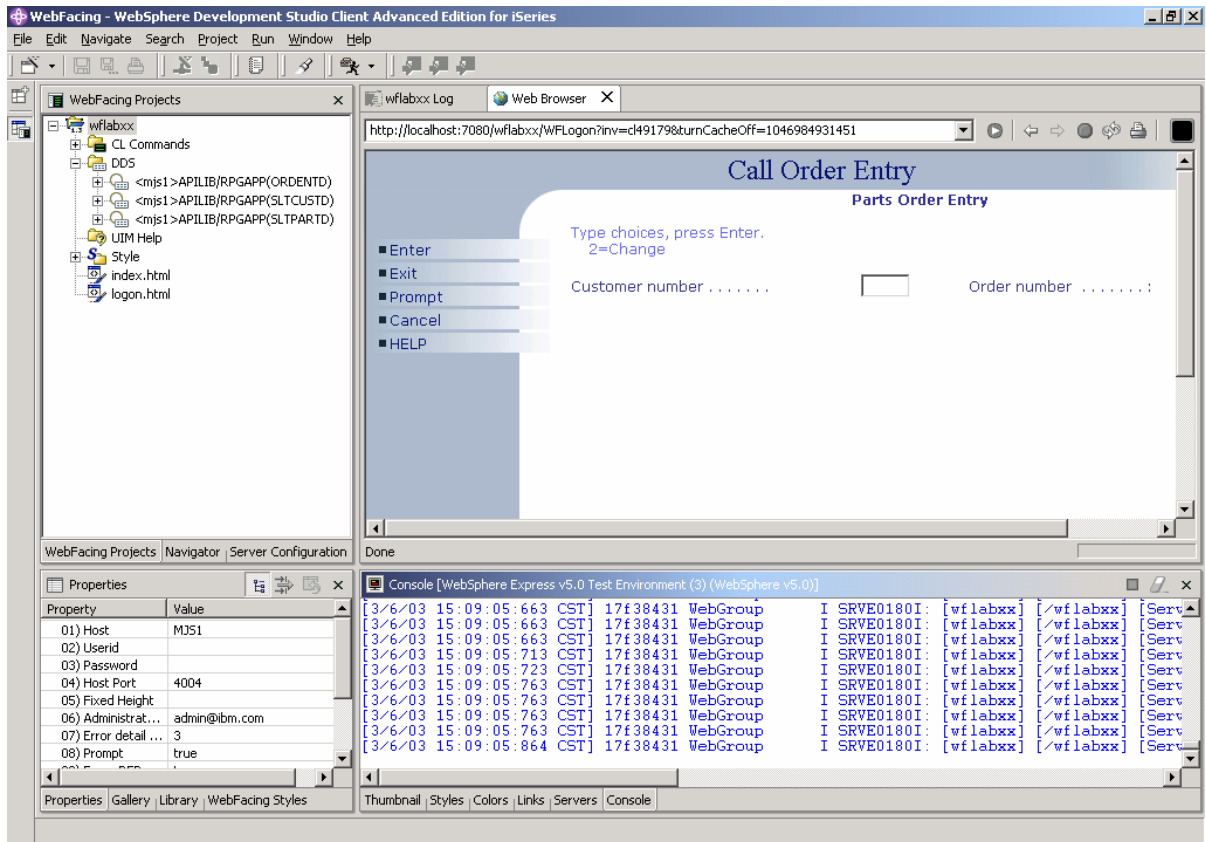
You will see the index.html page that has been generated by the IBM WebFacing Tool. Notice that your perspective has been changed to Server Perspective.



? In your browser pane, click on the top Order Entry Application link and sign in with your iSeries user name and password, when prompted.



- ? After a few moments, you will see the following screen. (Keep in mind the first time the JSP is requested, it has be compiled into a servlet. If you run the application a second time, you will see performance is improved)
- ? You will see the first WebFaced screen of your application.



Click the **Prompt** button.

Select a **customer** from the pop-up window (subfile)

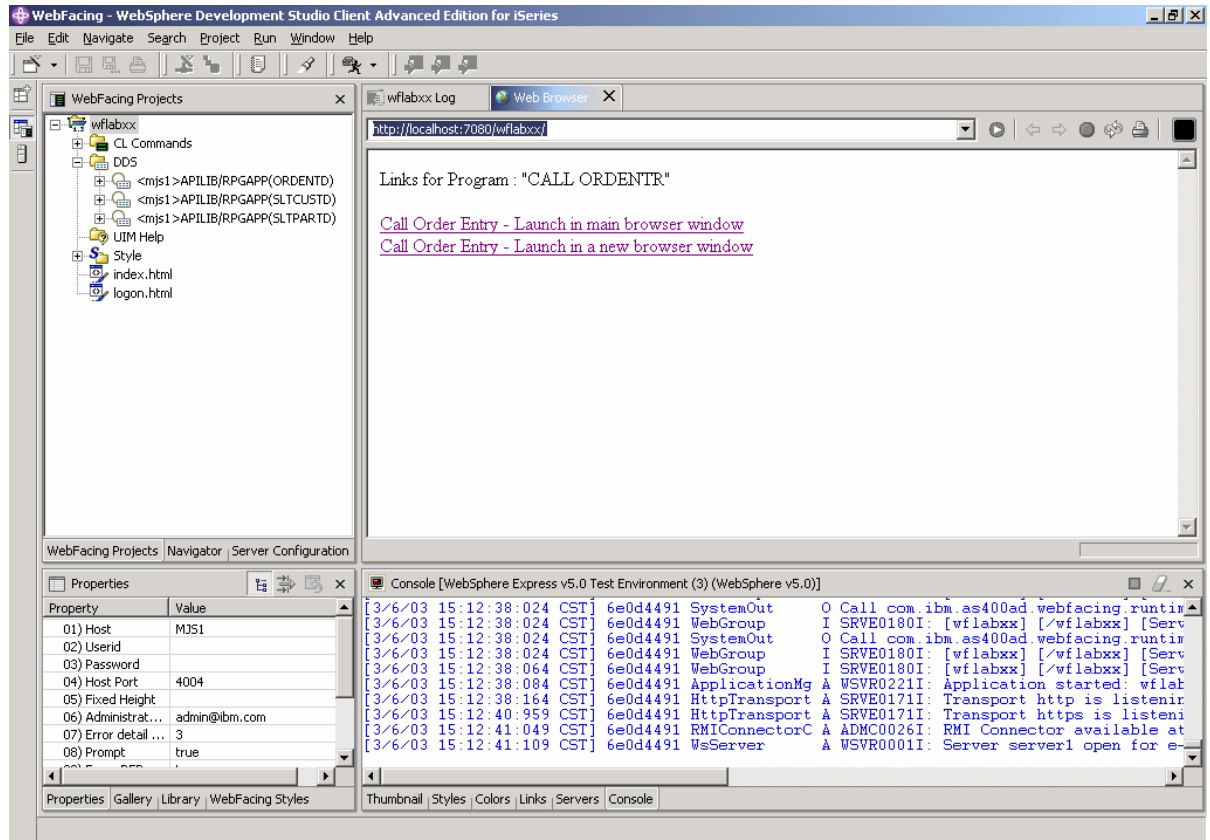
Go through the same steps as you did in exercise 1 (at the beginning of the lab) and try the different options to create an order.

Creating the Web Archive (WAR) file

In this exercise, we describe how to create a WAR file, which will be used to deploy the application on WebSphere Applications Server — Express V5.0.

1. Go back to the WebFACING Perspective from Server Perspective.

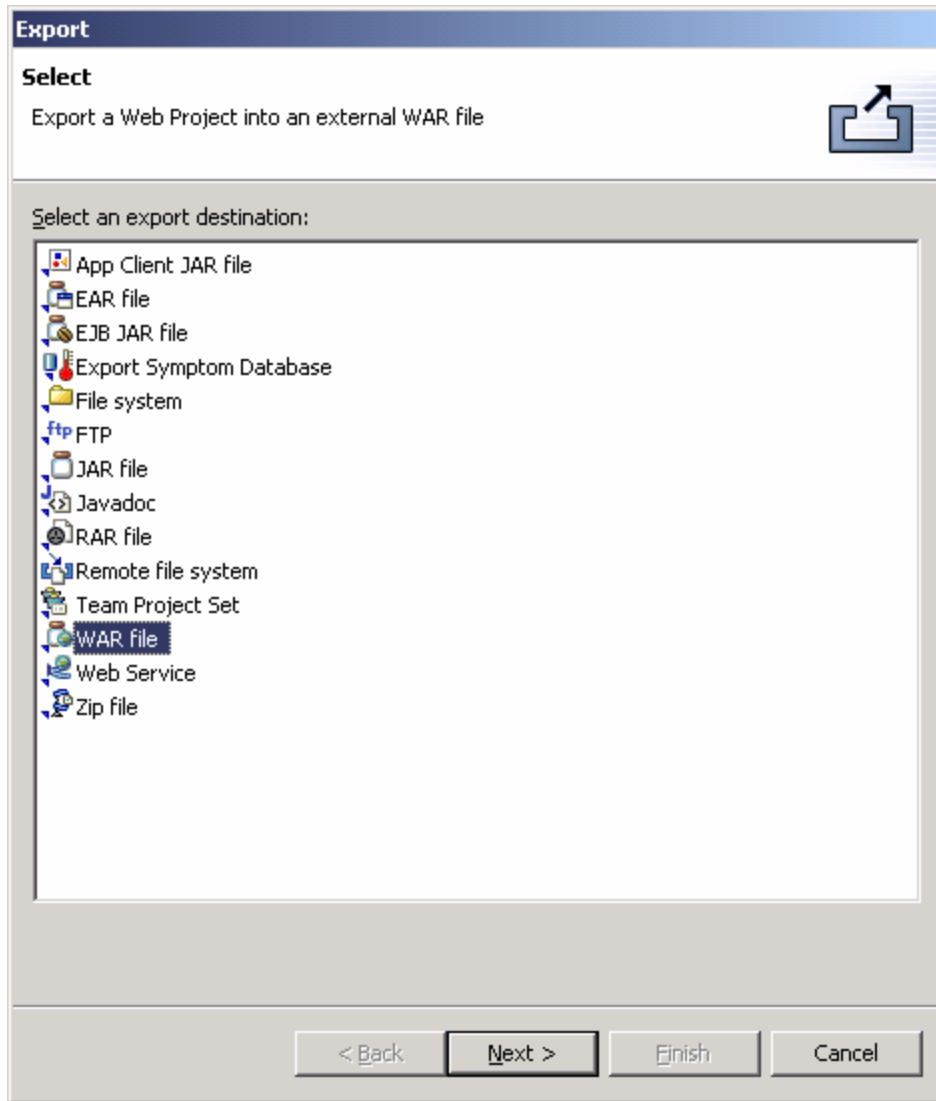
Click on the WebFACING Perspective icon in the left icon bar.



2. Make sure you have mapped your iSeries server as a Network Drive so that you can create the WAR files in your team directory.
3. Select **wflabxx** project under WebFACING Projects

From Menu option, select **File** → **Export**

___ 4. Select WAR file in Export window (This is the **Web AR**chive format.)



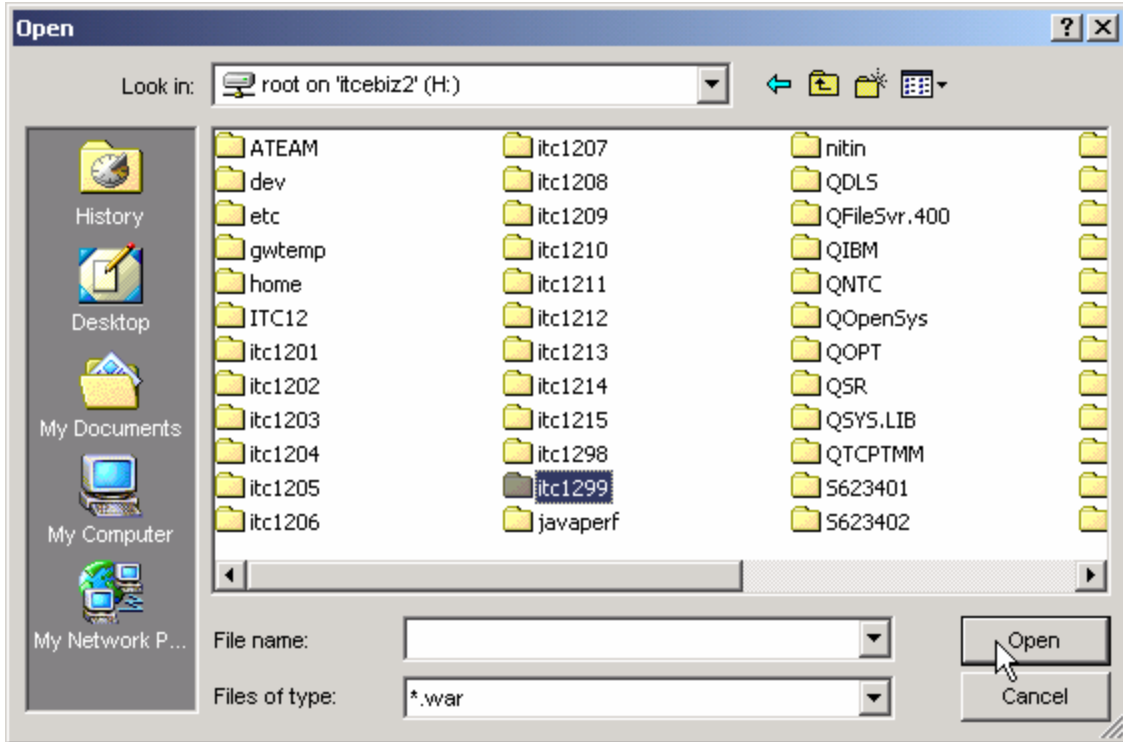
Click the Next button.

___ 5. **WAR Export**

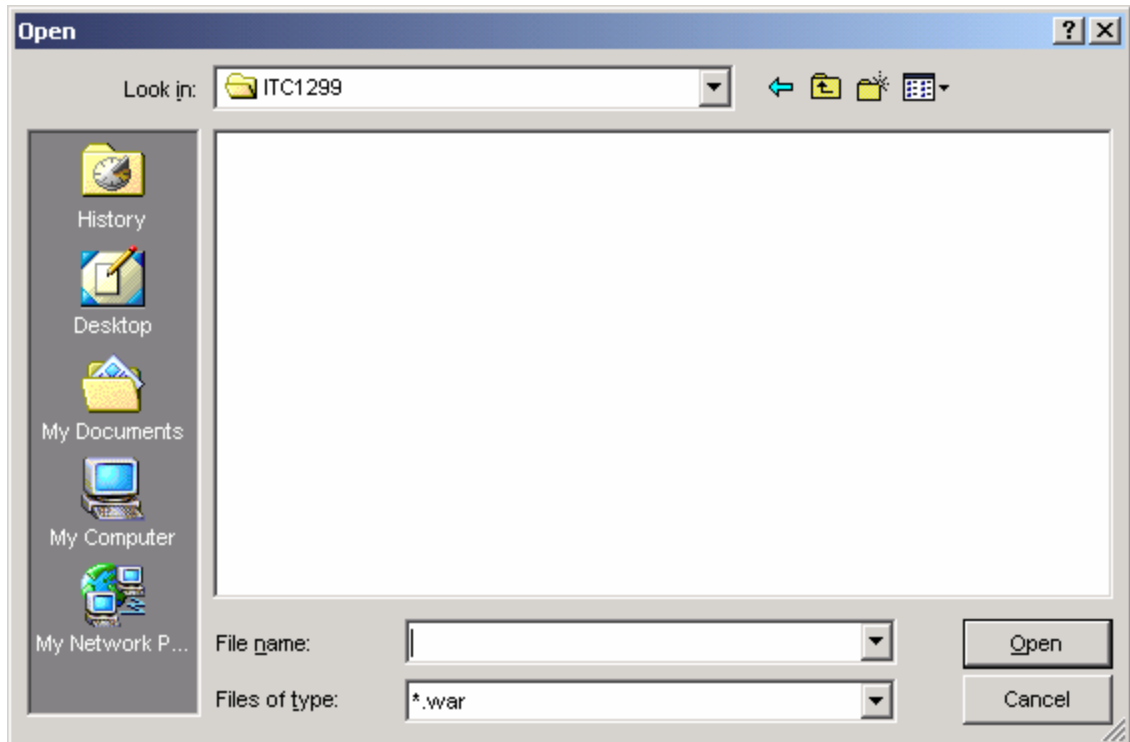
Select **wflabxx** for the resources you want to export,

Click the **Browse** button to choose a location to export your project to.

Go to your team directory on your iSeries server using a mapped network drive from previous step.

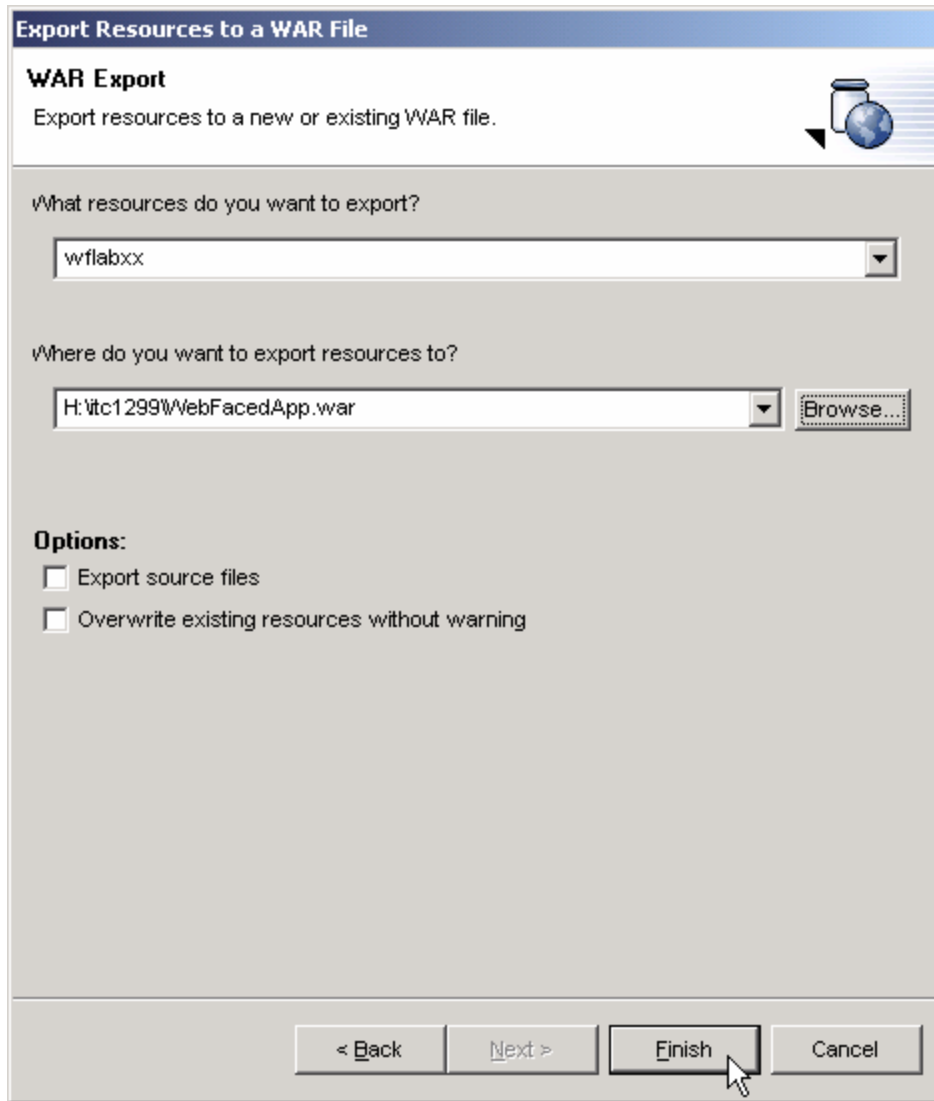


Select your **team directory** (refer to Lab Information Sheet) and click **Open**.



Enter filename: **WebFacedApp** and click **Open**.


This takes you back to the WAR export window.



Click **Finish**

This export to a WAR file will take a little while. It is copying the project information to your mapped drive, but also creating the descriptors and formatting required for a WAR file.

6. Validate what you just published on the mapped drive.

If you do not have a **Windows Explorer** session currently running, **right mouse click** on the Start button (lower left hand corner of the laptop display), select **Windows Explorer**. You also can click the icon that looks like this  on the bottom left edge of your PC display. If you have a session you already running, use that.

Check your team directory to ensure that the WebFacedApp.war file is there.

Creating a WebSphere Application Server — Express V5.0 Enterprise Application

Creating an Enterprise Application with the WebSphere Application Server — Express V5.0 Admin interface

During this exercise, you will start the WebSphere Application Server — Express V5.0 Administrative Browser Console. The console allows you to manage your WebSphere Application Server environment. The following tasks will be covered in this lab:

- ? Starting the admin. browser console
- ? Navigating through the WebSphere Application Server — Express V5.0 environment using the console
- ? Install the wflabxx WAR file as an Enterprise Application using the wizard
- ? Start the application

As a result of this exercise, you will create the Enterprise Application needed to run your WebFaced user interface.

What You Should be Able to Do

As a result of this exercise, you will learn how to use the WebSphere Application Server — Express V5.0 Browser Admin console. You will be able to start it and gain an understanding of the different parts in the console. You will be able to go through all steps needed to define the pieces needed to run WebFaced applications in WebSphere Application Server — Express V5.0:

- ? Use the WebSphere Application Server — Express V5.0 browser console
- ? Navigate through the Console environment
- ? Use the WebSphere Application Server — Express V5.0 browser console and its wizards to create an enterprise application needed to run the WebFaced application.
- ? Use the WebSphere Application Server — Express V5.0 browser console to start the application

__ 1. Starting the WebSphere Application Server — Express V5.0 browser admin

To start the WebSphere Application Server — Express V5.0 Admin, open up a browser. To do this, look on the bottom left of your screen and find an icon like this:



for Microsoft Internet Explorer (recommended) or click on Netscape Navigator. DO NOT RESIZE THE WINDOW in the middle of an activity, you risk losing the information). Click on the icon to bring up a browser.

When the browser appears, enter this URL:

http://<system_name>: 2001

- ? When prompted, enter your userid and password (Please refer to Lab Information Sheet)
- ? Click **IBM HTTP Server for iSeries** — an IBM HTTP Server for iSeries page should appear.
- ? Click the Manage tab and select your WebSphere Application Server — Express V5.0 server instance (WASxx) in the server list box.

__ 2. Install WebFaced Application

- ? Click on the **Install New Application** link in left navigation pane
- ? Specify the Application location
 - i. **Select Application is contained in a WAR file** radio button
 - ii. **IFS Path of WAR file**
 - 1. **Click Browse** and navigate to your team directory (i.e. ITC12xx).
 - 2. **Select WebFacedApp.war** file created in the previous step.
 - 3. **Click OK** in the file browse window.
 - iii. In the **Context Root** input field, enter **/wflabxx** (where xx is your team number). This is part of the URL for invoking the application from a browser. We will just point to the application itself.

Here is the screen shot for TEAM99:



iv. Click **Next**.

? **Provide Options to Perform Install**

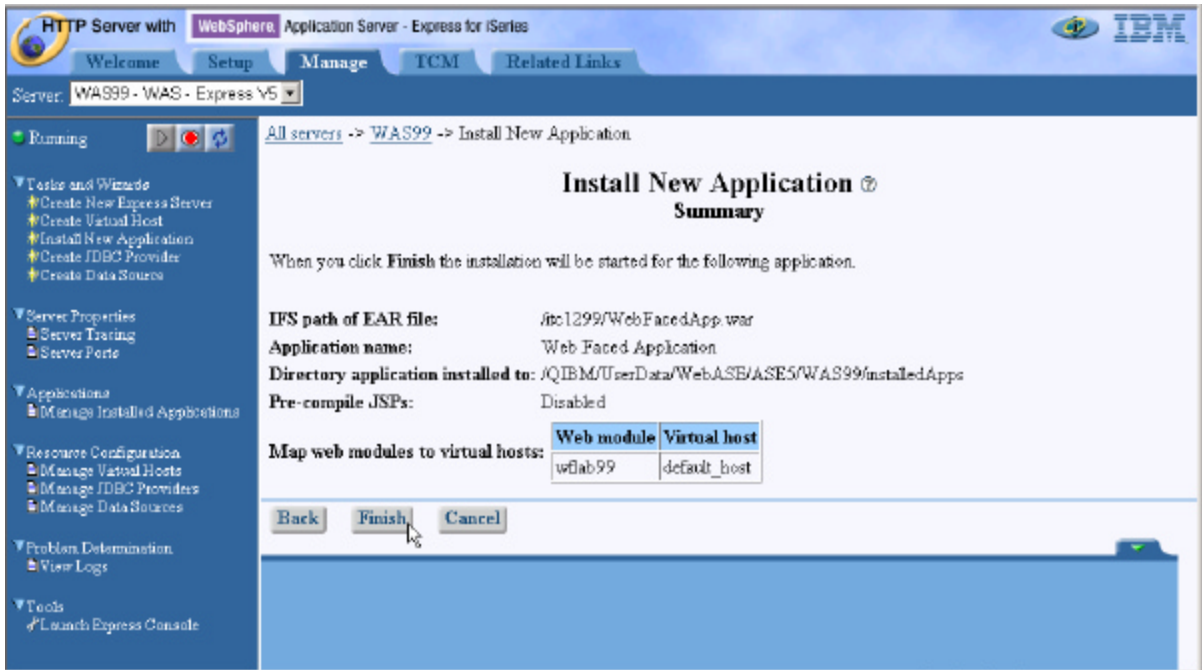
- i. Application Name: Enter **WebFaced Application** — do not select Pre-Compile JSPs option (Take Default)
- ii. Click **Next**.

? **Map Virtual Hosts for Web Modules**

- i. Virtual Host: Select **default_host** (already selected)
- ii. Click **Next**

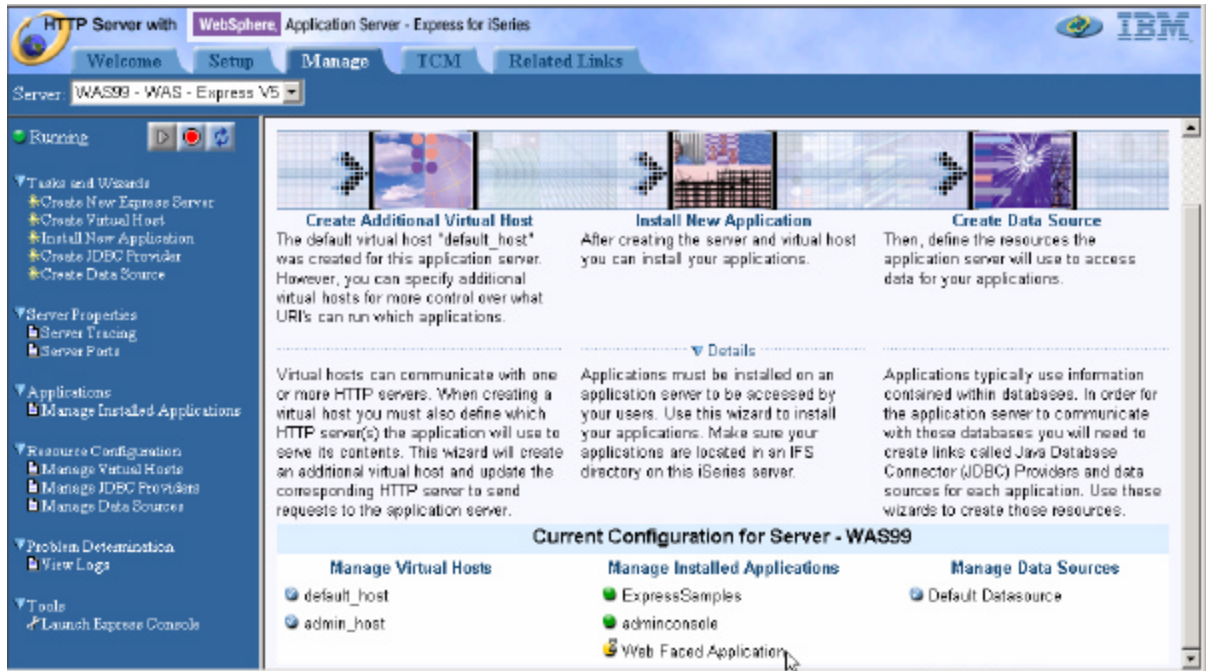
? **Summary**


- i. Review the Summary.




- ii. Click **Finish**.

? Wait until Application Installation is over ...



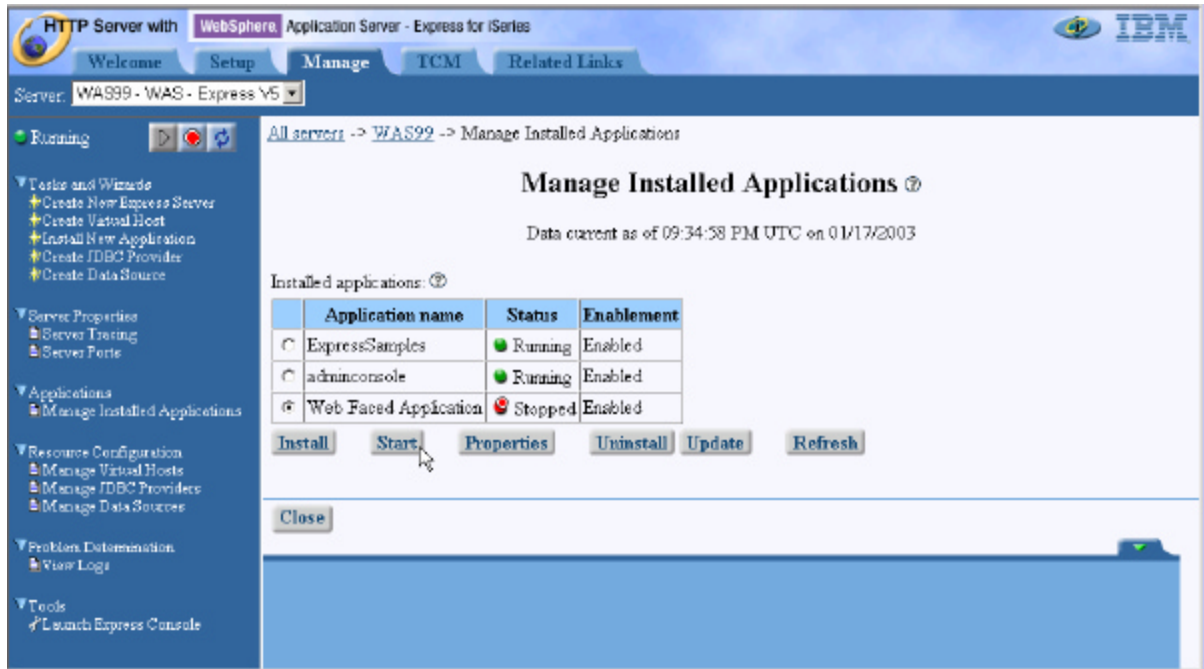
The yellow dot with an hour glass next to the application name ( Web Faced Application) indicates that it is currently installing the application.

Click on **Manage Installed Applications** under **Applications** in the left navigation pane.

Click the **Refresh** button () in the right navigation pane to refresh the status and wait until it turns to a red dot ( Web Faced Application) which indicates that the application installed but currently is in Stopped Status.

3. Start WebFaced Application

- ? Click on **Manage Installed Application** link in left navigation pane
- ? Select **WebFaced Application**

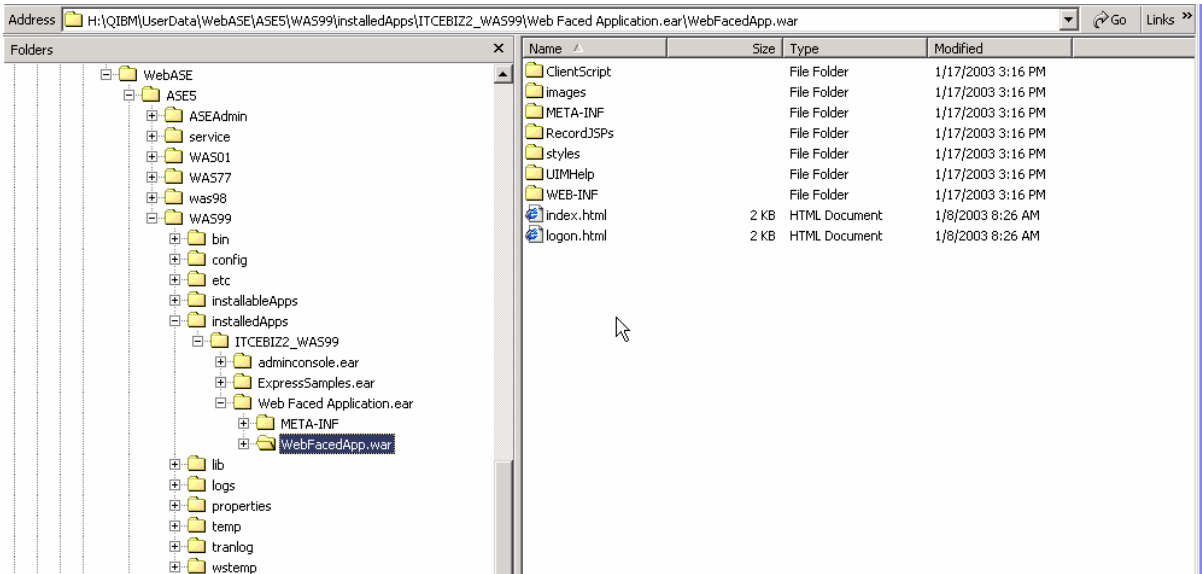


- ? Click **Start** and wait until the status shows that the application is running (**Running**).

4. Application Components on the server

Let's look at where the enterprise application ended up in your WebSphere instance files. Use your Windows Explorer to expand the IFS directories down to your instance.

/QIBM/UserData/WebASE/ASE5/WASxx/InstalledApps/<system_name>_WASxx/
WebFaced Application.ear



We are now ready to test our application.

Running the WebFaced application

During this exercise, you will start Internet Explorer and specify the URL to show the **index.html** page generated by the WebFacing tool. Then, select the WebFaced application and start it. The following tasks will be covered in this lab:

- ? Starting Internet Explorer
- ? Specifying the correct URL to load the **Index.html** page
- ? Selecting the correct link to invoke the WebFaced application
- ? Using the WebFaced application

As a result of this exercise, you will point the browser to the Web application that you just created. From the initial web page, you will select the link created by the WebFacing conversion to invoke the WebFaced application.

What You Should be Able to Do

As a result of this exercise, you will be able to invoke the web application in Internet Explorer. You also will be able to start the WebFaced application and understand how to navigate through the converted User Interface.

- ? Use the Internet Explorer to point to the Web Application
- ? Select the Link specified in earlier exercises to invoke the RPG application
- ? Use the browser to step through the WebFaced application

__ 1. Display Index page

Use an Internet Explorer (recommended) browser to show the Index.html page (this is the preferred browser for the WebFacing output).

Choose *Start*  *Programs*  *Internet Explorer* or use the shortcut 

The browser will appear on your desktop. Specify the following URL:

<http://<system name>:60xx/wflabxx>

where the xx is your team number.

If the application server is running and the URL is correct, you should see the **index.html** page that has been generated by the WebFacing program.

__ 2. Testing the WebFaced application

? Go to your browser window and click one of the **Order Entry** links.

If everything is in place, you should get the first screen of your application.

Please note, the first time a screen is invoked, it is being compiled as a JSP. This takes time. Further accesses to the same screen should appear faster.

Select a **customer** from the subfile

Go through the same steps as in **exercise 1** (at the beginning of the lab) and try the different options to create an order.

Congratulations, you have use the IBM WebFacing Tool to modernize your 5250-based RPG application and make it available on the Web.