



IBM Software Group

Session 408163

WebFacing 5250 Applications with WebSphere  
Development Studio Client for iSeries

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**WebSphere.** software



iSeries  
WebFacing

2005 | WDS V5R4 and WDSC 5.1 - 6.0.1

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This presentation reviews the components of a Web application, the WebFacing Tool and how it is packaged, how the WebFacing Tool development time and runtime works and the steps to Web-enable a 5250 application using the WebFacing Tool.

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Reference materials

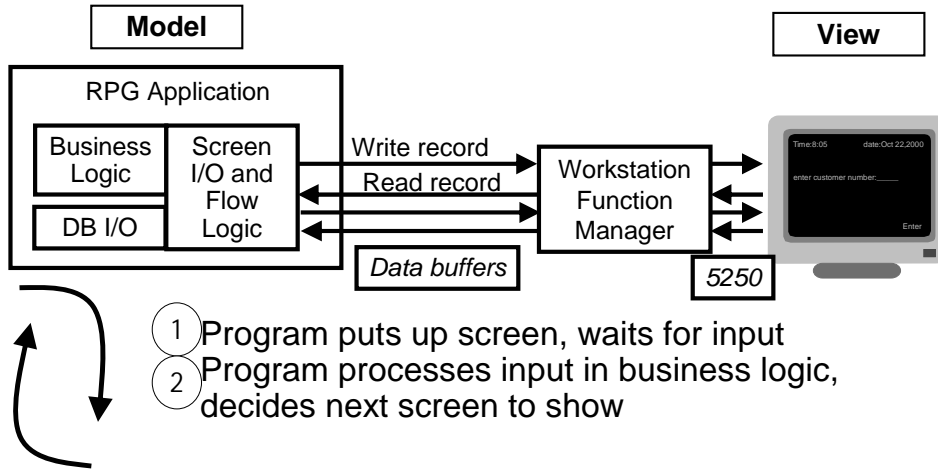
In the first section of this presentation we review what e-business is all about. Then we look at WebFacing and what it is. Next we introduce Development Studio Client. The WebFacing Tools are described in more detail. WebFacing customization is described followed by a review of the new WebFacing Tool Version 5.0 features.

## e-business Primer

- Program Models
- Servlets
- JSPs

In this section we review the programming models and their associative technology, servlets and JSPs.

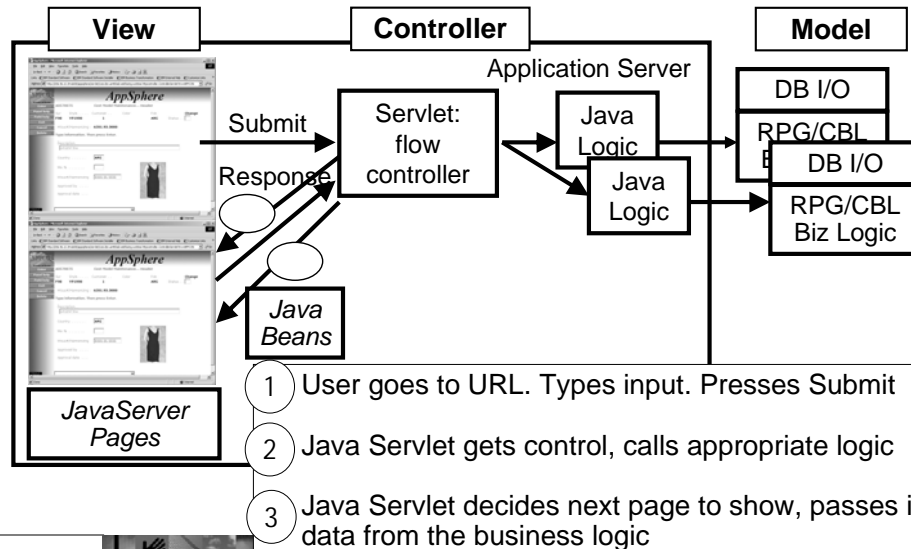
## iSeries Classic Program Model



In the green-screen environment, the application performs READs and WRITEs to the workstation. The application data is sent to Workstation Data Manager. The Workstation Data Manager merges application data with the display file. The Workstation Data Manager generates a 5250 datastream that is sent to the display.

In this model, you typically have one model object and multiple views on that object. A view is a window onto the model. Presentation logic typically goes in the view. Business logic goes in the model.

## E-business Program Model



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The e-business program model follows the Model-View-Controller paradigm, organizing the application into three separate components:

- Model: the application model with corresponding data representation and business logic
- View: data presentation, providing views for user input
- Controller: to dispatch requests and control data flow

Here you can see the controller is added. The controller handles the interactions between the view and the model. When the model changes it updates the view, when the user does something with the view the controller informs the model.

First the application is converted. This creates JSPs for each record format as well as Java beans. When the program performs a READ on a record format, control as well as the application data is sent to the controller.

Because the job was started by the WebFacing server, the controller knows this is a WebFacing request and passes the data and control to the WebFacing server which runs on the iSeries. Control returns to the Webfacing runtime servlet that runs in WebSphere Application Server. The WebFacing servlet locates the appropriate JSPs and Java beans. The WebFacing servlet tells WebSphere Application Server to return the JSP back to the browser. The JSP is compiled and the resultant HTML is returned to the browser. Note that no 5250 datastream is generated in this flow.

## What Are Servlets?

J2EE  
Servlet  
Spec 2.3

- **Servlets are . . .**  
Java classes (programs written in Java)
- **Servlets run . . .**  
On an application server such as WebSphere
- **Servlets are called . . .**  
By a user pressing Submit, or clicking a link, that is mapped to the servlet
- **The input to Servlets are . . .**  
User-entered data from a Web page
- **The output of a Servlet is . . .**  
Control passed to a JavaServer Page

Servlets are server-side Java programs that use the *Sun Microsystems Java Servlet API* and its associated classes and methods, as defined in the *Sun Microsystems Java Servlet 2.3 Specification*. These Java programs extend the functionality of a Web server by generating dynamic content and responding to Web client requests. When a browser sends a request to the server, the server can send the request information to a servlet, so that the servlet construct the response that is sent back to the browser.

Just as applets run on a Web browser and extend the browser's capabilities, servlets run on a Java-enabled Web server, such as the WebSphere Application Server, to extend the server's capabilities. Servlets are commonly used to allow businesses to connect databases to the Web, due to their flexibility, scalability, and the their processing economy when developed in the WebSphere Studio Web development environment.

## What Are JSPs?

J2EE  
JSP Spec  
1.2

Just  
like a  
\*DSPF

- **JavaServer Pages (JSPs) are . . .**

.jsp files containing html tags plus JSP tags

- **JSP tags . . .**

Allow dynamic data to be inserted into the static HTML

Data is extracted from Java Beans passed to the JSP

- **JSPs are called by . . .**

Your servlet

- **The input to JSPs are . . .**

Java Beans passed from your Servlet

- **The output of a JSP is . . .**

A fully resolved Web page, displayed to user

Can be just HTML, or DHTML = HTML+CSS+JavaScript

JavaServer Pages enable you to generate dynamic web content, such as HTML, DHTML, XHTML, and XML files, to include in a Web application. JSP files are one way that the WebSphere Studio implements server-side dynamic page content. JSP files allow a Web server, such as WebSphere Application Server or Apache Tomcat, to dynamically add content to your HTML pages before they are sent to a requesting browser.

When you deploy a JSP file to a Web server that provides a servlet engine, it is preprocessed into a servlet that executes on the Web server. This is in contrast with client-side JavaScript (within `<SCRIPT>` tags), which is executed in a browser. A JSP page is ideal for tasks that are better suited to execution on the server, such as accessing databases or calling Enterprise Java beans.

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Reference materials

Now you know what an e-business application is and what technology it uses. Now we introduce what WebFacing is.

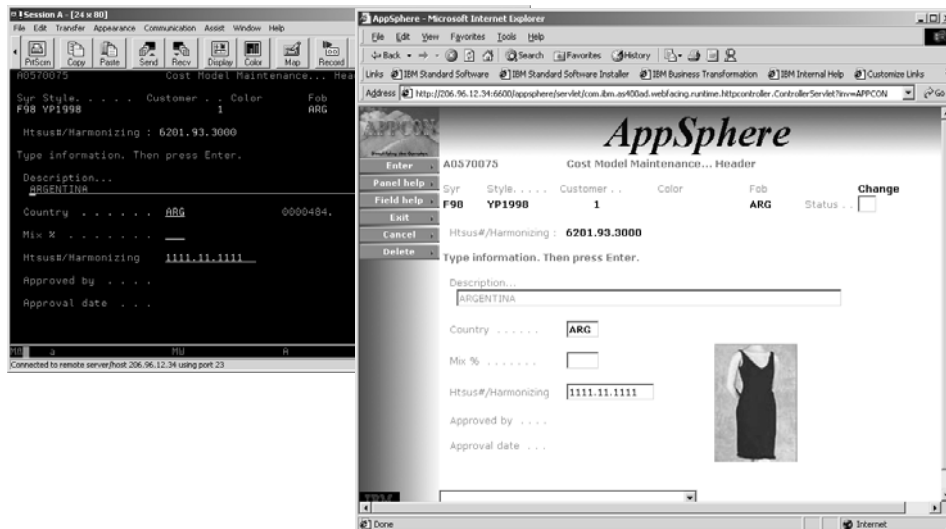


## What is WebFacing?

- Overview
- Goals
- History

In this section we first give you an overview of the WebFacing Tool followed by goals and history.

## WebFacing



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iSeries WebFacing | IBM eServer iSeries Application Development

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This slide shows a sample "before and after" of a green screen that has been WebFaced. These screens are courtesy of APPCON, an IBM iSeries business partner. See more at [www.appcon4.com](http://www.appcon4.com).

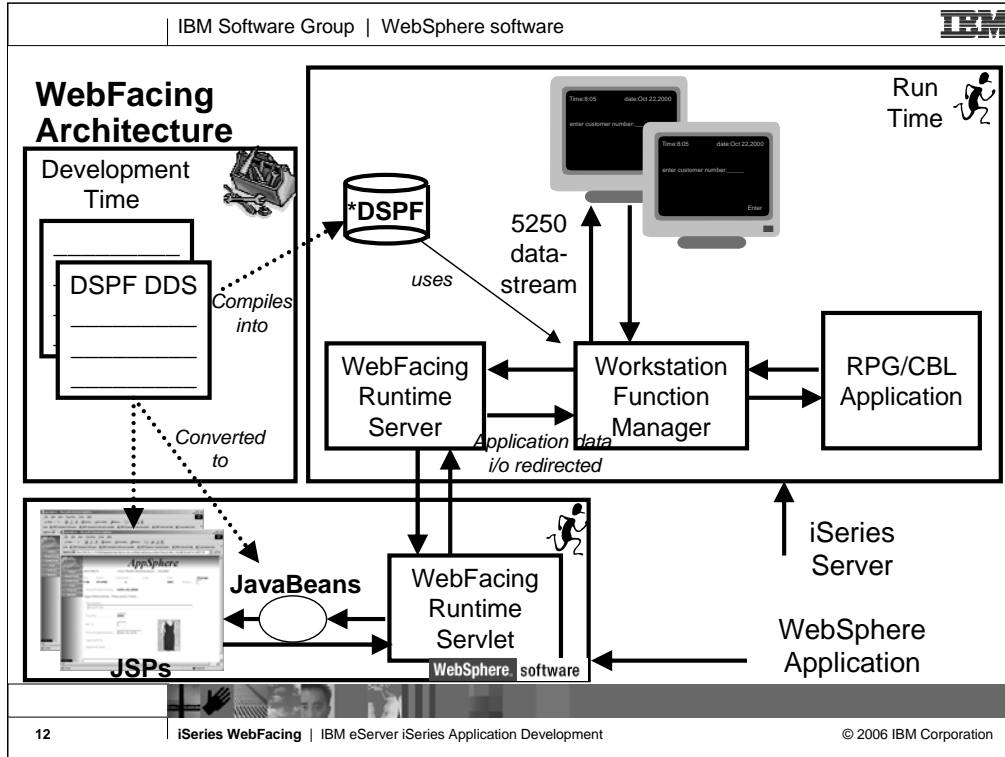
As you can see IBM's new WebFacing Tool converts existing 5250 interfaces to browser-based graphical user interfaces. With little or no modification to your original iSeries applications, you can extend the use of your programs to the Internet or an Intranet. Whether your applications are new or were written before the Internet became a viable platform for conducting business, with the WebFacing Tool, your applications can be available anywhere that users have access to a browser. You can use the WebFacing Tool with applications where DDS source code was used to create 5250 display screens. The tool has user-friendly wizards that facilitate selecting your original application's DDS source, converting the source, and deploying the new browser-based interface to your program as a WebSphere application. The conversion creates JavaServer Pages and JavaBeans that substitute for your DDS code and make Web access possible. After your DDS code has been converted, you can access the application through a browser or continue to use 5250 displays. Having the interface to your applications based on JavaServer Pages allows for more flexibility in customizing their appearance. Before your DDS code is converted, you can use the Style properties pages to change the look and feel of the pages that will be generated for you. Styles allow you to define attributes in your Web pages such as graphics, fonts, colors, and layouts. You can use one of the supplied styles or create your own. If you would like to update the appearance of a previously converted project, simply run the WebFacing Tool again and select a new style.

## What is WebFacing?

- A Re-Facing **tool** and **runtime** for iSeries 5250 applications
- **Development-time conversion**
  - Of 5250 display file DDS source into Web page source (JavaServer Pages or JSPs)
- **Run-time intercept**
  - Of workstation manager I/O to pass application data to generated Web application, prior to creation of 5250 data stream
  - Web-enables existing 5250 applications to run without change, indeed without even knowing they have been WebFaced

With the WebFacing Tool, you can quickly convert your DDS display file source members so that the user interface of your iSeries programs can run in a browser. When you convert your DDS display files, JSPs and Java beans are generated for you that substitute for the DDS code and make Web access possible. In the WebFacing Project wizard, you can select one or more DDS source members to convert, and select a Web look and feel from one of several predefined styles, or you can design your own Web style for use with your applications. The tool creates three Java beans and one JSP per record format; the Java beans hold the data for the record format, or control its appearance or other characteristics, and the JSP handles displaying the Web version of the screen, prompting for data, and handling input errors. The wizard generates an application home page to launch the Web-enabled version of your program.

When a user invokes a converted application from the browser, the WebFacing server on the iSeries system starts the host program. The server intercepts all calls to READ, WRITE, and EXFMT operations to DSPFs, so that in many cases your program (\*PGM) can run without modifications, and without even detecting that it is being accessed using WebFacing. You might need to make coding changes if your application uses DDS keywords that are not supported by WebFacing, or if you want to modify the DDS screens so that the conversion to Web format produces a more attractive or consistent result.



First the application is converted. This creates JSPs for each record format as well as Java beans. When the program performs a READ on a record format, control as well as the application data is sent to the Workstation Data Manager.. Because the job was started by the WebFacing Runtime Server, Workstation Data Manager knows this is a WebFacing request and passes the data and control to the WebFacing Runtime Server which runs on the iSeries. Control returns to the Webfacing Runtime Servlet that runs in WebSphere Application Server. The WebFacing Runtime Servlet locates the appropriate JSPs and Java beans. The WebFacing Runtime Servlet tells WebSphere Application Server to return the JSP back to the browser. The JSP is compiled and the resultant HTML is returned to the browser. Note that no 5250 datastream is generated in this flow.

## WebFacing objectives

- **Quick conversion**

Stepping through a set of wizards

- **Unlimited refinement for Web**

Either use CODE Designer to add web settings to DDS

Or, add web code to generated web pages

- **Cost effective**

Tool part of ubiquitous tool set (WDS*c*)

Runtime is part of operating system

Only pre-req is WebSphere Application Server Express or higher

You can get your RPG/COBOL programs running on the Web in a short time. Conversion is straight forward. After creating a project and specifying the DDS to convert, just choose Convert from the pop-up menu. Typically there is no change required by the host program. After the initial conversion, the new style can be applied to give the application a new look. With knowledge of SDA or JSPs and Cascading style sheets (CSS), you can modify shipped styles to create your own. You don't require other skills such as Java to WebFace an application. There are no additional costs from a previous version.

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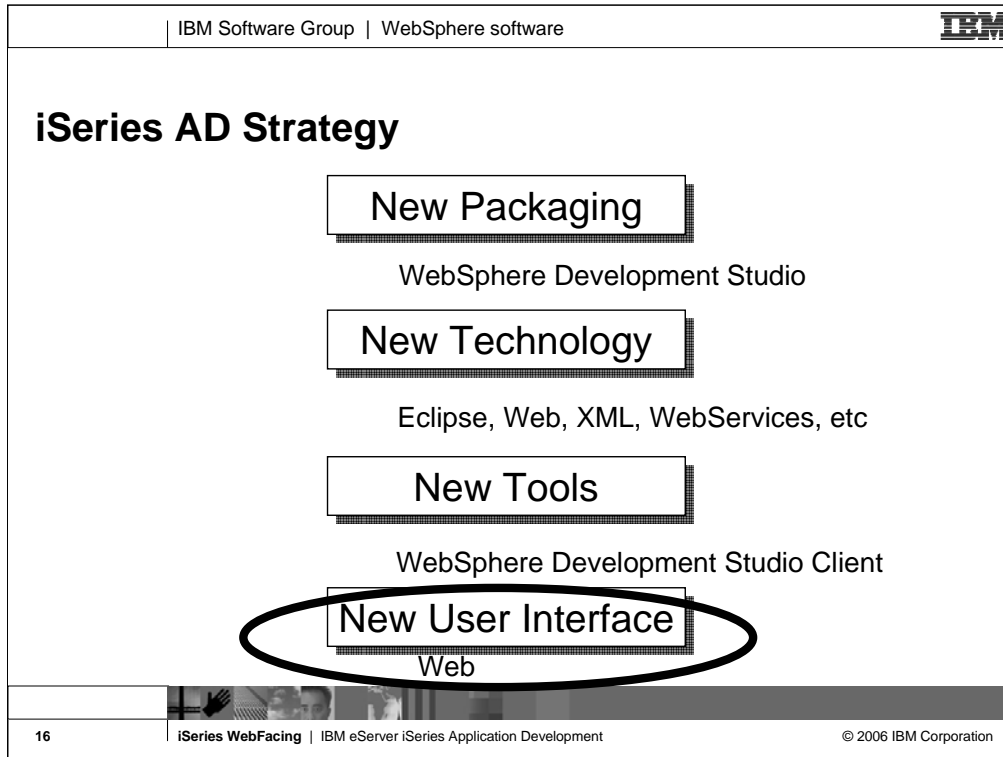
Reference materials

Previously we introduced WebFacing and reviewed the goals and history of WebFacing. Now lets introduce Development Studio Client.

## WebSphere Development Studio Client

- Strategy and packaging
- Tools

This section introduces the strategy behind Development Studio Client including the new packaging and new tools.




Here we see IBM's strategy is to reach its goals of building community and building excitement through 4 areas: New Packaging, New Technology, New Tools and New User Interface. The new packaging was actually done in May 2001, with the introduction of WebSphere Development Studio for iSeries, which as we will see offers a single product with all the host and client tools needed for all application development needs, from traditional to e-business.

With the 4.0 release of the client tools in June 2002, we introduced new Eclipse technology and totally new Eclipse-based tools. Further, for technology we also plan to keep up with technology both in the compilers and the tools, so iSeries programmers are very current. This was evident in the V5R2 release of the compilers in Sept 2002, and will be again in the V5R3 release of the compilers. With the April 2003 new 5.0 release of the client tools, we are in the second release of the eclipse-based technology and continue to improve the tools and introduce new technology.

The preferred user interface for iSeries applications is now a Web browser, versus a 5250 green screen or even a client/server GUI. There are exciting new and enhanced tools to make it easy to convert 5250 user interfaces into Web user interfaces, and to build new Web user interfaces on top of new or existing business logic.



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## WebSphere Development Studio - one product has all you need

Current 5722-WDS customers with software subscription to V5R2, V5R3, V5R4 can receive upgrades using feature #: 2656

**Unlimited Licenses**

iSeries	iSeries	iSeries	iSeries	<b>Web Facing</b>	iSeries Projects	<b>+CODE</b>	
Java™	Debug	Struts Web	Web Service		RSE	<b>+VisualAge RPG</b>	
Profiling	Trace	JSF	XML	WAS Test Env.	DB	EGL Java generation	HATS Toolkit

WebSphere Development Studio Client V5.1.2, 6.0, 6.0.1 [www.ibm.com/software/awdtools/series](http://www.ibm.com/software/awdtools/series)

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**Q: How many have RPG or COBOL or C/C++ or ADTS?**

**Q: How many have WDSC?**

There is one family of application development product sold by IBM, for iSeries, as of V4R5. This is WebSphere Development Studio (Development Studio), which includes all four host compilers, all traditional tools (ADTS = PDM+SEU+SDA+RLU+DFU+AFP+CGU), and **unlimited licenses** of the workstation-based toolset named WebSphere Development Studio Client (formerly WebSphere Development Tools).

If you are an existing customer who has a **subscription**, you can upgrade to Development Studio free of charge. Without a Software Subscription, there is an upgrade fee. New licenses of Development Studio are priced very **competitive compared to the combined prices of all constituent products**. As of V5R1, there is no way to **purchase the compilers or tools individually**. So if you have RPG at V5R1 or higher, you must have Development Studio and hence are entitled to Development Studio Client.

For **consultants** who do not have an iSeries of their own, but still wish to have the client tools, Development Studio Client is also made available as a passport advantage product so it can be purchased "off the shelf" from IBM Direct.

Development Studio has been a huge success, with **over 80,000 licenses sold**. Just as every development machine used to have PDM and SEU, every development machine will now have all the modern Application Development tools from IBM. This ubiquity is especially important for business partners who build and sell software. These **Business Partners are now free to build software using any of the technologies or tools** in Development Studio, and can assume their customers will have the tools required to tailor everything from RPG to Java and Web user interfaces. This effectively raises the lowest common denominator to a level unparalleled by any other operating system.



## WebSphere Development Studio Client Advanced Edition V5.1.2, 6.0.1


*Workstation License*  
*order through Passport Advantage*  
[http://www.lotus.com/services/passport.nsf/WebDocs/Passport\\_Advantage\\_Home](http://www.lotus.com/services/passport.nsf/WebDocs/Passport_Advantage_Home)

**+CODE**  
**+VisualAge**  
**RPG**

iSeries	iSeries	iSeries *	iSeries	Web Facing *	iSeries Projects		
Java	Debug	Struts Web	Web Service		RSE		
Profiling	Trace	JSF	XML	WAS Test Env.	DB	EGL Java generation	HATS Toolkit
			EJB *	Portal *	Test *	EGL *	
			J2EE *	Toolkit	Cases	COBOL generation	

[www.ibm.com/software/awdtools/iseries](http://www.ibm.com/software/awdtools/iseries)

- AE
- Functionality to step up to when you need it
- Addiitonal tools in it
- Q: how many have it?
- PPA – per seat (if you have it)

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## WebSphere Development Studio Client

- *Tools for ebusiness and your business*
  - For **RPG and COBOL**  
Remote System Explorer and iSeries Projects perspectives
  - For **WebFacing**  
WebFacing perspective
  - For **Java**  
Java perspective and iSeries enhancements
  - For **Web Services**  
Web Services perspective and iSeries enhancements
  - For **Web**  
Web perspective and iSeries enhancements
  - For **XML**  
XML perspective
  - For **Database**  
Database perspective

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You will most likely be working in the **WebFacing perspective** to quickly convert classic application's UI components like DDS, help, and message files into Web GUI components. A perspective is a specific arrangement of views and tools in the workbench, depending on what role you have, you will use a different perspective. The **Remote Systems Explorer (RSE)** perspective in the workbench is for PDM-like access to OS/400® resources, and iSeries Projects for disciplined team development that leverages the excellent team capabilities of Eclipse. A Java developer who wants to develop Java applications or applets with Interfaces to iSeries classic applications will use the **Java perspective**. A Web developer who wants to use the Web tools iSeries Extensions to develop and maintain Web GUIs to iSeries applications will use the **Web perspective**. An XML developer who wants to work in the Visual XML Development Environment will use the **XML perspective** and the Database developer who wants access database tools will use the **Database perspective**.

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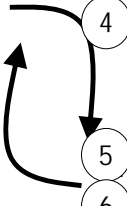
Customizing WebFacing

What's new in WebFacing 5.0, 5.1.0, 5.1.2, 6.0, 6.0.1

Reference materials

Previously we introduced Development Studio Client. Now lets look at how you create a WebFaced application, test it and deploy it.

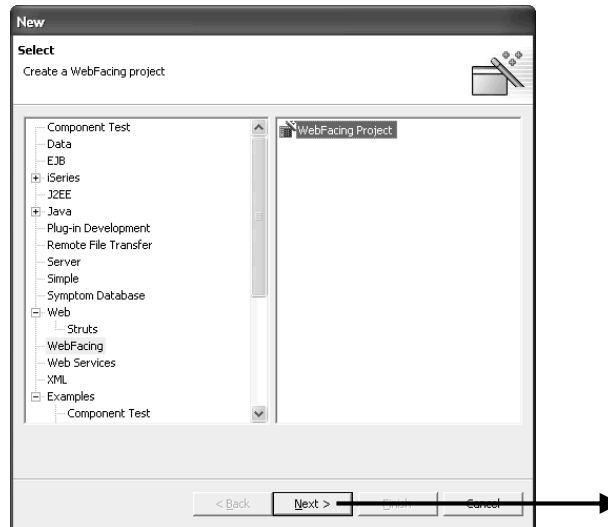
## WebFacing Scenario

- 1 **Create new WebFacing project**  
Specify members to convert, look-and-feel style, how to call/invoke the application
  - 2 **Convert the project**  
Creates Web stuff from the DDS and UIM source
  - 3 **Run it!**  
Select "Run on Server" to run in built-in WebSphere
  - 4 **Refine it**  
Using Web Settings in CODE Designer (launched from WebFacing)  
Using project's Properties dialog
  - 5 **Repeat**
  - 6 **Export as EAR file, import into WebSphere Application Server on iSeries**  
Or use built-in server-tools support to publish to WebSphere Application Server on iSeries
- 

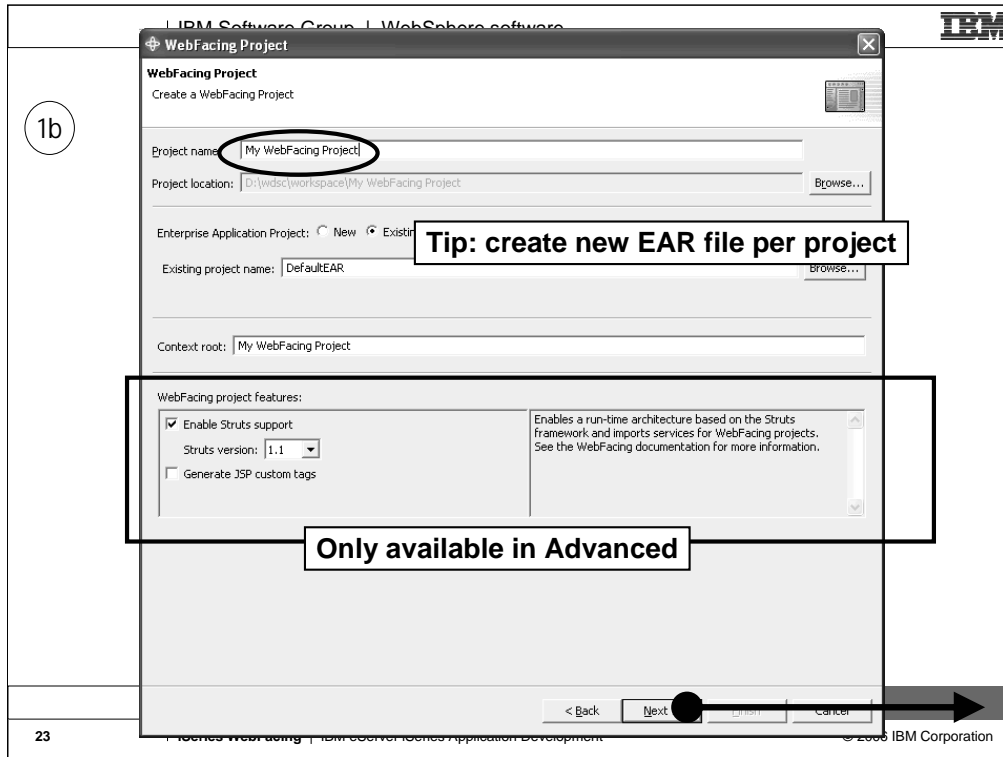
Here is a typical WebFacing scenario. After you start the workbench and open the WebFacing perspective, you create a WebFacing project. When you create this project you select the DDS source on the server that you want to convert, the CL command to start the application and the text for the Web page link and the style you want to use for your new Web pages. Next you convert the DDS to JSPs, beans. After conversion you are ready to run your JSPs using the Run on Server option which starts the WebSphere Test Environment, a local copy of the built-in WebSphere Application Server. Now you can iteratively improve the look of your new Web pages by using the Web Settings in CODE Designer and the Web Project's Properties dialog. You can then re-test your changed WebFaced application. You can continue to refine it and retest your new Web pages until you have a design that you like. Finally you can move the new WebFaced application to a production server.

## 1a Create a New WebFacing Project

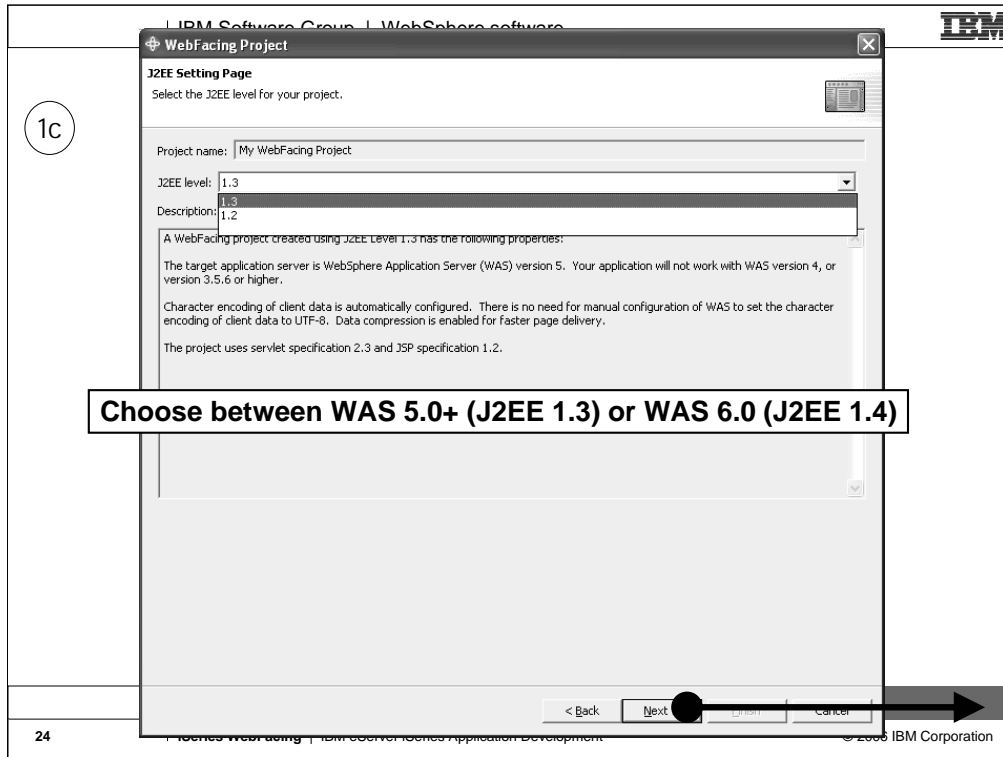
Use **File->New->Other**



To begin, you create a new project. If WebFacing doesn't appear in the menu you select Other and then select WebFacing from the next dialog.

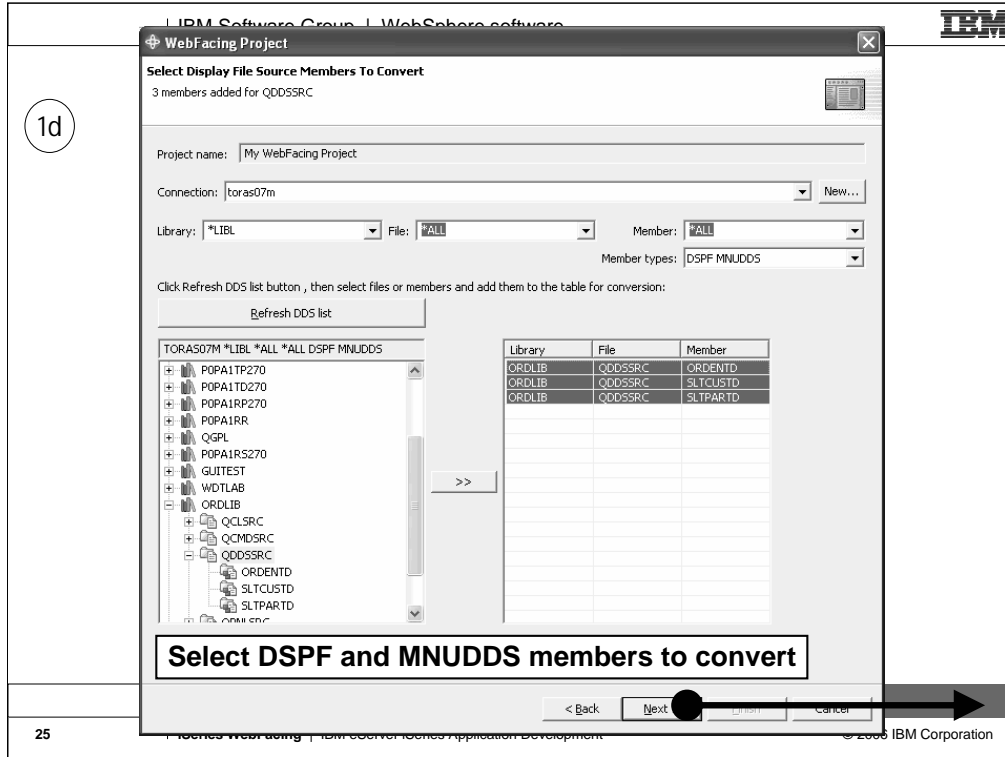


On this page of the wizard you give the project a name and specify where the files are to be stored. The default is to store them in the workspace directory. Web applications (which WebFACING is based on) are part of an EAR (Enterprise Archive) file, so we need to specify the EAR file name. The Context root is what you would specify as part of the URL in the browser to invoke the application. In Development Studio Client Advanced Edition you also can Enable Struts support. In doing so you comply with the Model-View-Controller paradigm. If you want to write a custom tag library for use with WebFACING, you would use the Generate JSP custom tags selection. This is an advanced edition feature only. What this means is that at conversion time the process of converting the DDS into JSPs can be influenced by user-written classes to change the JSP source that is emitted for fields.

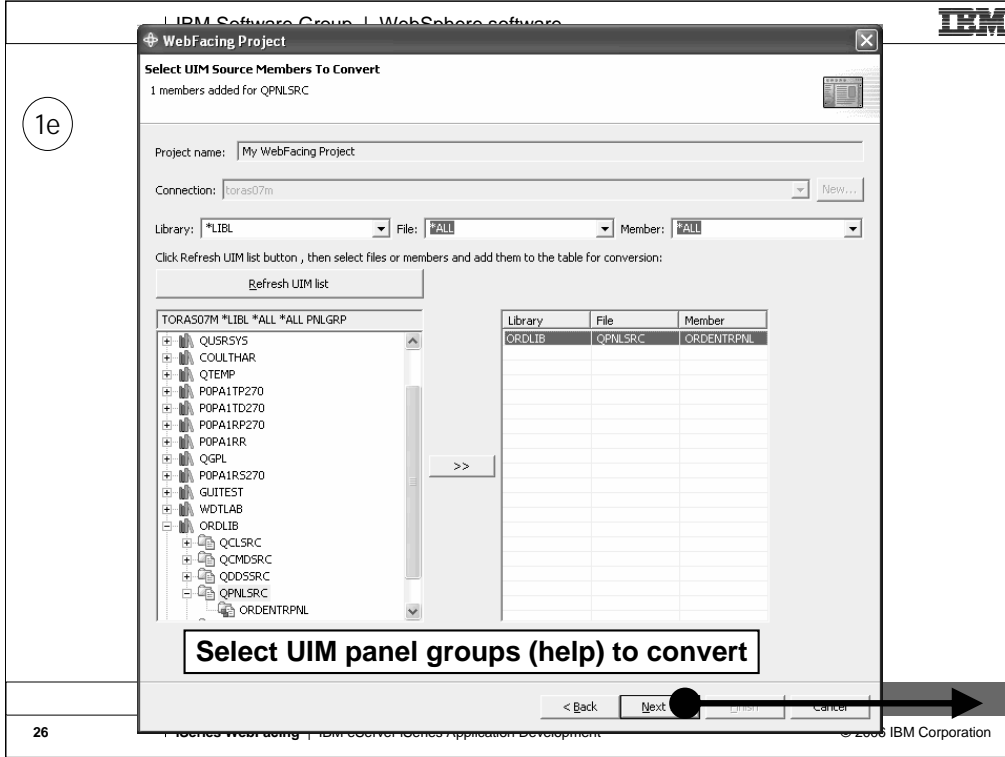


On this page of the wizard you to specify the J2EE level you want for the Web project to be created. You might wonder what that means to you. If you plan to use the WebSphere Application Server version 5 only then you should select J2EE level 1.3. If you are using previous versions of WebSphere Application Server in your environment and are planning to deploy the Web application to these versions then you should use J2EE level 1.2 since these older versions of WebSphere Application Server don't support the J2EE level 1.3. In this exercise you will use the Web application in the WebSphere Test Environment, which is version 5, so you will use J2EE level 1.3.

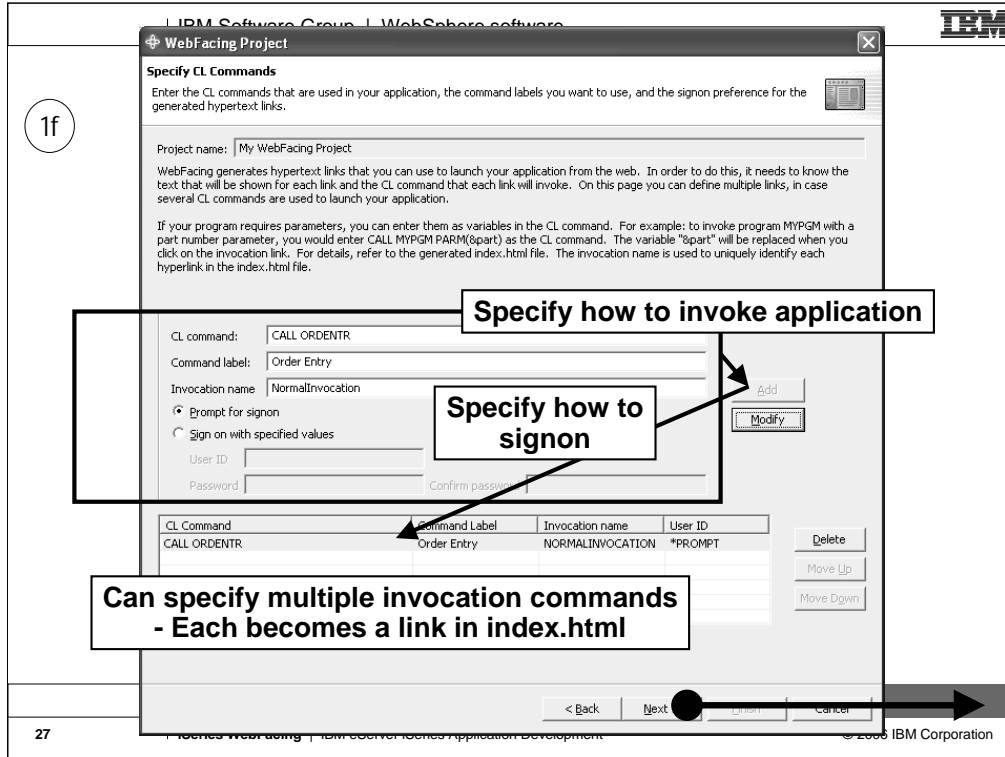




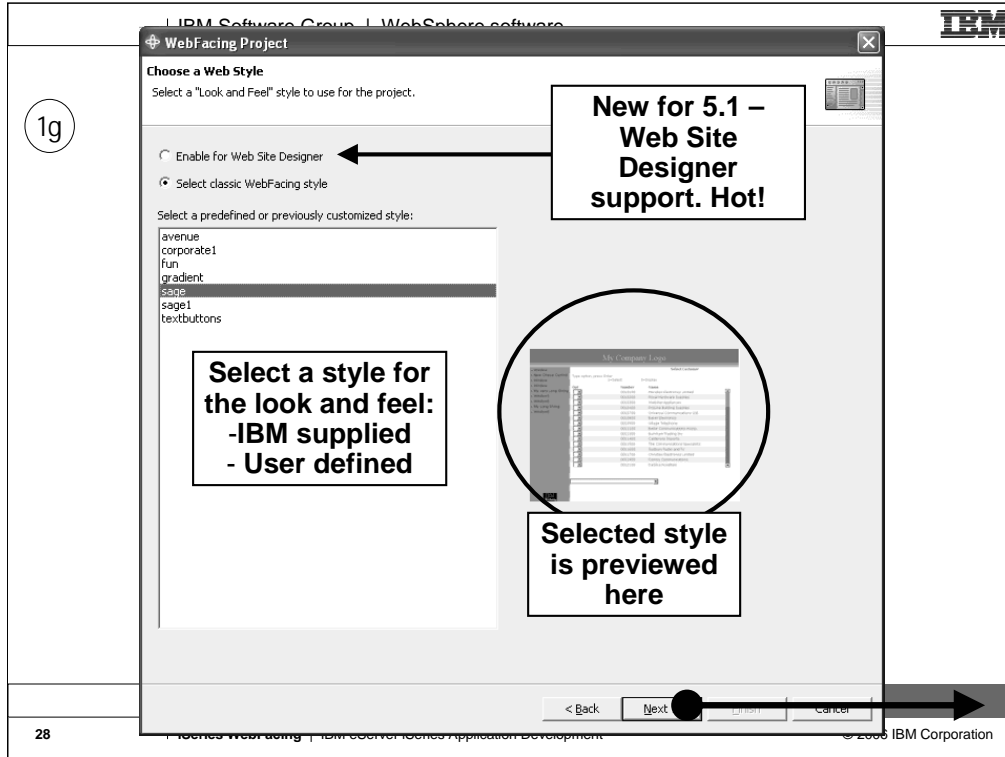
On this page of the wizard you select which connection (iSeries) contains the DDS. The member types allows you to select DSPF and/or MNUDDS (for menus). WebFacing supports menus. If you click Refresh list you will retrieve the library list, after you have signed on. From the library list you drill down to find the DDS source members you want to convert. When you click the >> push button, the selected members are moved to the list of members to be converted. If you click the folder all the members in the folder are moved to the list of members to be converted. In this case you don't need to select each member.



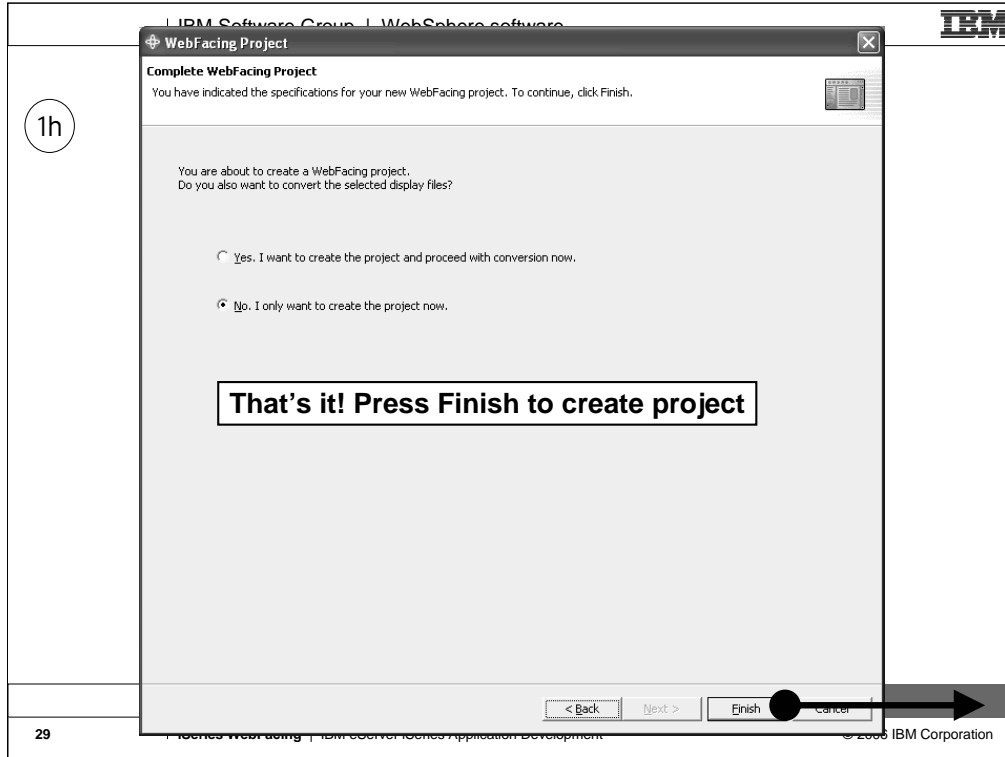
On this page of the wizard you select the UIM help members you want to convert. Again you drill down to locate the members.



On this page of the wizard you specify the command to call the application. The Command label text is the text that will appear on the generated Index.html page to launch the application. The CL command is an iSeries command to start the program. Typically you just do a CALL to the program. If the program has parameters you specify them here. Specifying parameters results in input fields being generated on the index.html page where the user would enter their value. If Prompt for sign-on is selected, an authentication dialog (login.jsp) is displayed before the application is launched. Alternatively you can specify a User ID and password to be passed to the WebFacing server before the program is started. Either way, the User ID and password is used to start an interactive job on the iSeries and invoke the specified command.



On this page of the wizard you choose the style for your application. After the project has been created another style can be applied without performing conversion. After conversion the WebFacing Tool WebSettings option or the Properties dialog allows you to customize one of the pre-defined styles and save it as a new style that can then be used by other projects.



On this page of the wizard you choose just to create the project and perform conversion at a later time, or create the project and perform conversion when Finish is pressed. You click Finish to complete the creation of the WebFacing project

2

**Right-click and select Convert to do conversion**

**Can also selectively convert individual display files**

**Progress Information**


Converting 2 - 3.

Converting: <TORAS1FB>APILIB/RPGAPP(ORDENTD)

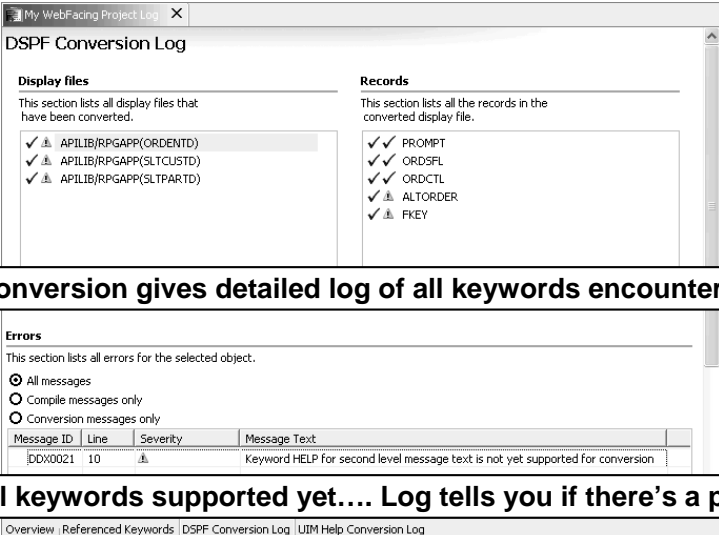
**Usually 1 – 5 minutes per member**

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To perform conversion, right click on the DDS folder and choose convert. This will convert all members in this folder. If you made changes to a single member, you could just select that member to convert. Note that the source remains on the iSeries. The conversion process reads the DDS members and performs conversion in memory. Conversion creates 2 JSPs and 3 Java beans for each record format. It is important to convert all DDS members that are part of the application. If a member is not converted you will get a 'class not found' message at run-time.

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2



**Conversion gives detailed log of all keywords encountered**

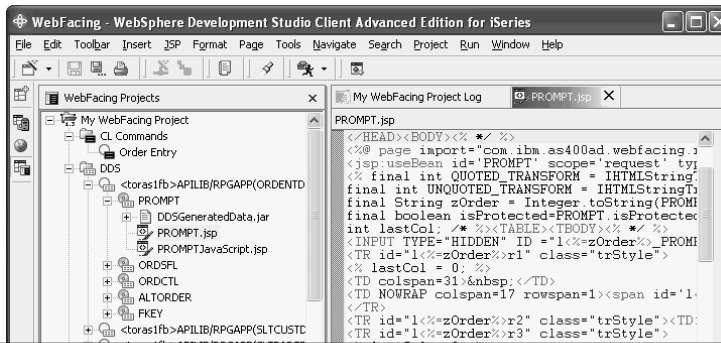
**Not all keywords supported yet.... Log tells you if there's a problem**

**See product help for list of unsupported keywords**

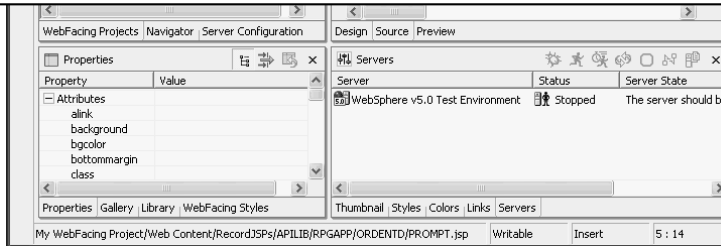
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Once conversion is complete, the conversion log is displayed in its own view. Note the tabs at the bottom of the log view to see different parts of the conversion log. Review the conversion log to be sure all members were converted. A red X symbol indicates conversion failed for that member. No JSPs or beans were created. See the Message Text to determine the cause of the failure and fix as necessary.

2

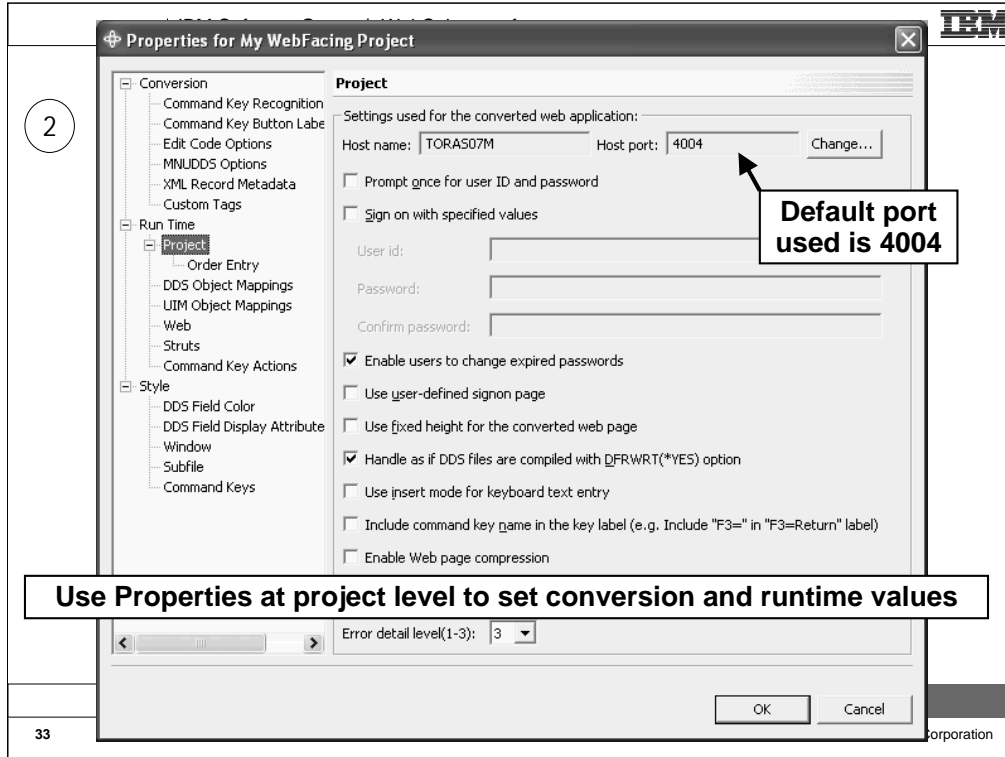


**After conversion, you can see generated files per record format**

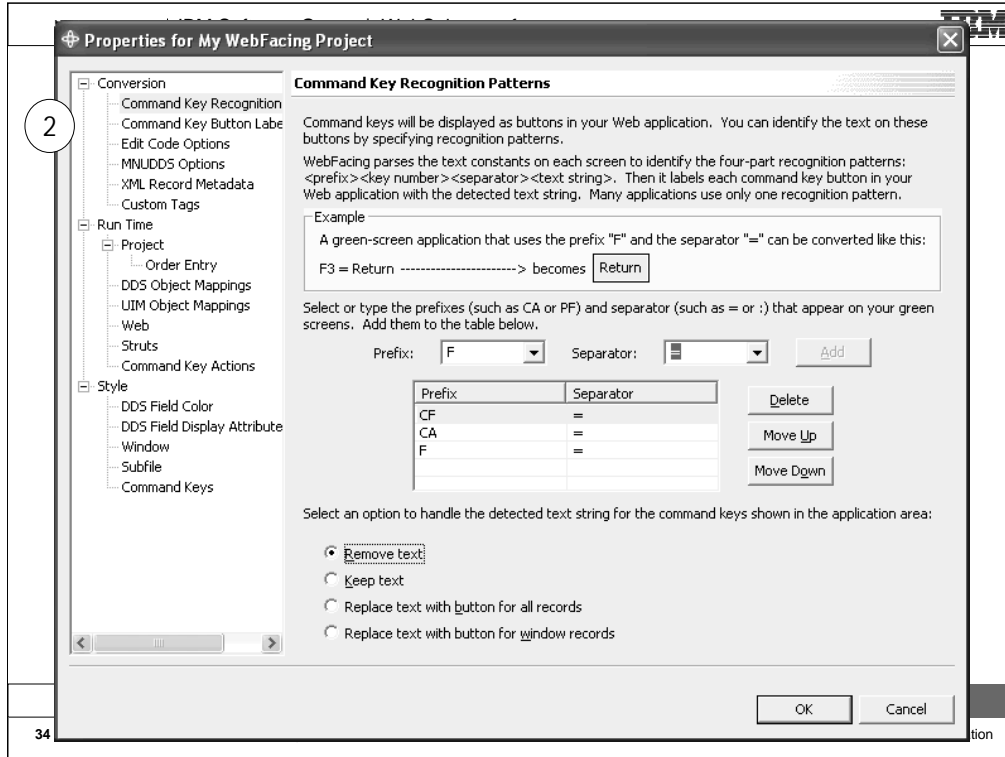


By switching to the WebFacing Projects view you can see the directory structure of the project after conversion. Note that there are 2 JSP files created for each record format. To see the generated JSP, double-click it to open it in Page Designer.

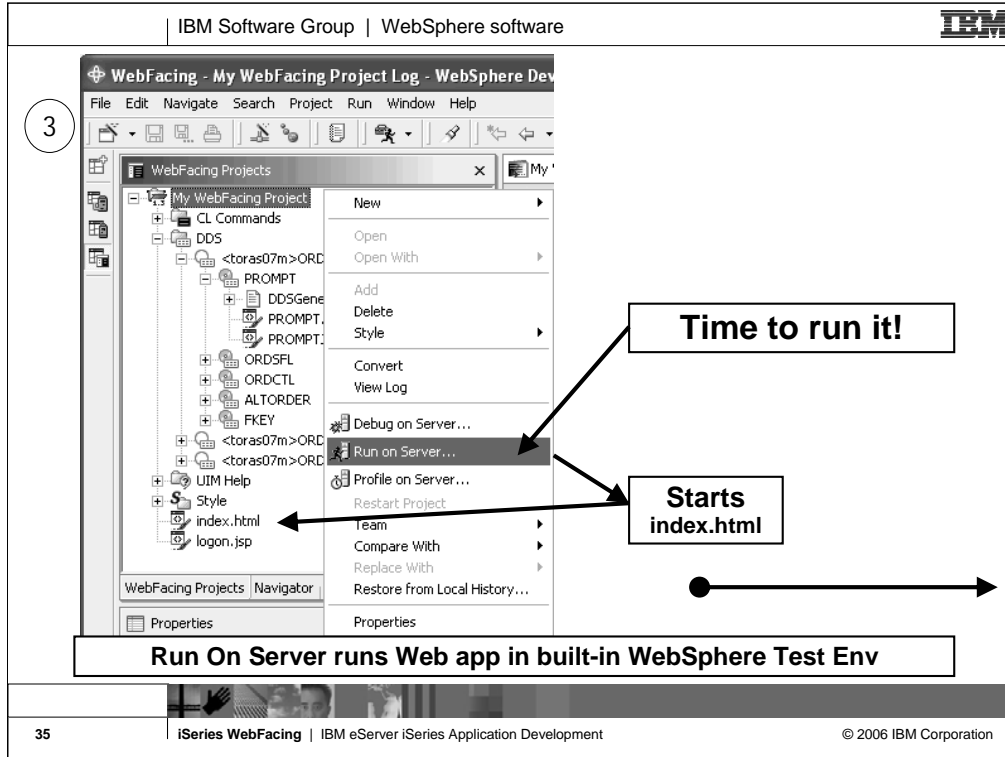




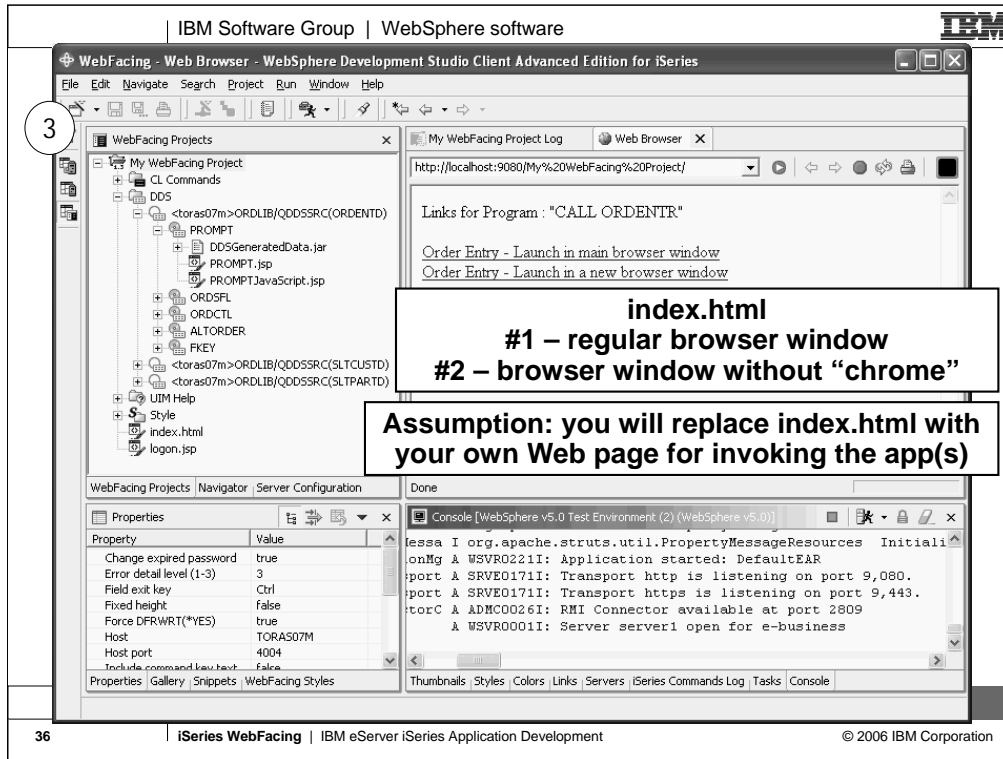
To make changes to the project right-mouse click the project and choose Properties to get the Properties dialog. The Host Port number is the port number the WebFacing run-time uses to invoke the program on the host. 4004 is the default and can be changed on the host with the WRKSVRTBLE command. If you change it on the host be sure to change it here also. You can indicate that the user will be prompted to sign-on to the application or sign-on will occur using the User ID and password specified here. By checking Retain user ID and password, the user will not be prompted to sign-on for subsequent calls to the program in the same session. If this is left unchecked, the user will be prompted each time they invoke the program. The JSP level indicates the amount of tracing detail to put in the log file. 3 outputs the most detail. The log is used by developers for debugging.



A new property for release 5.1, which was highly requested, allows the function-key buttons to be placed within the window for windowed records only, while remaining on the left for non-windowed records.



Once the application has been converted it can be tested in the built-in WebSphere Test Environment. Locate the index.html page and choose Run on server. If not yet started, the WebSphere Test Environment will start. The index page will appear in the internal browser view.

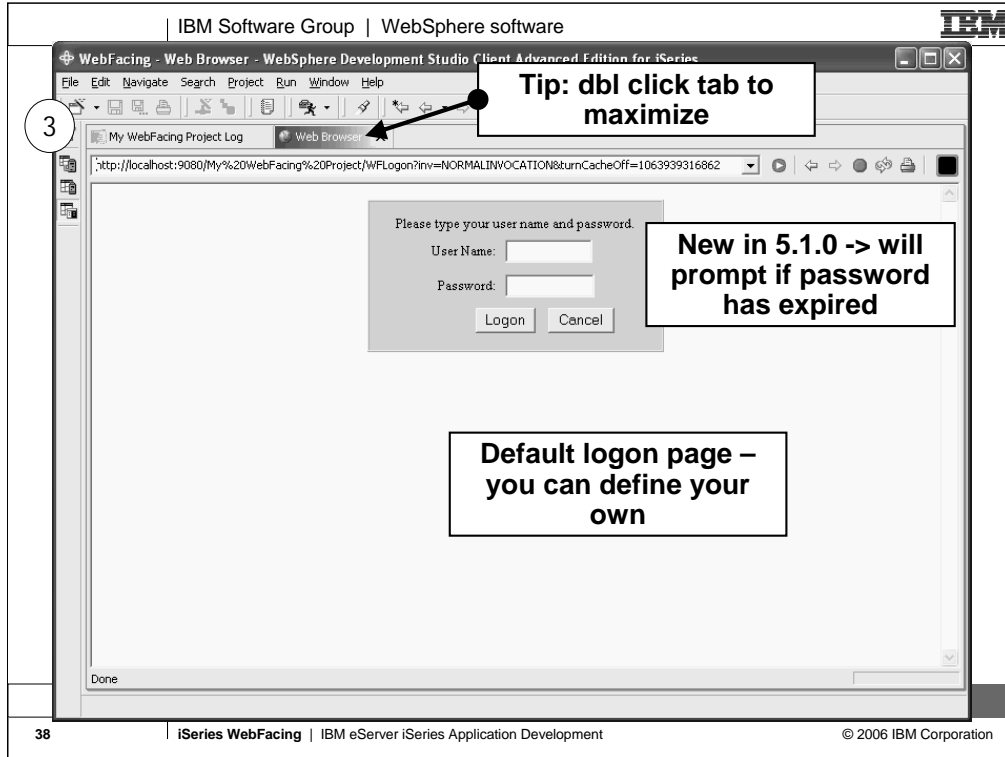


This is the index.html page that was generated based on your choices during conversion or by settings in the Properties dialog. If you click on a link, the WebFacing run-time servlet will be invoked (in WFRun.jar). Passed as a parameter is the invocation file that contains the system name and the name of the program to call. To see how WebFacing is invoked choose View/Source from the browser window.

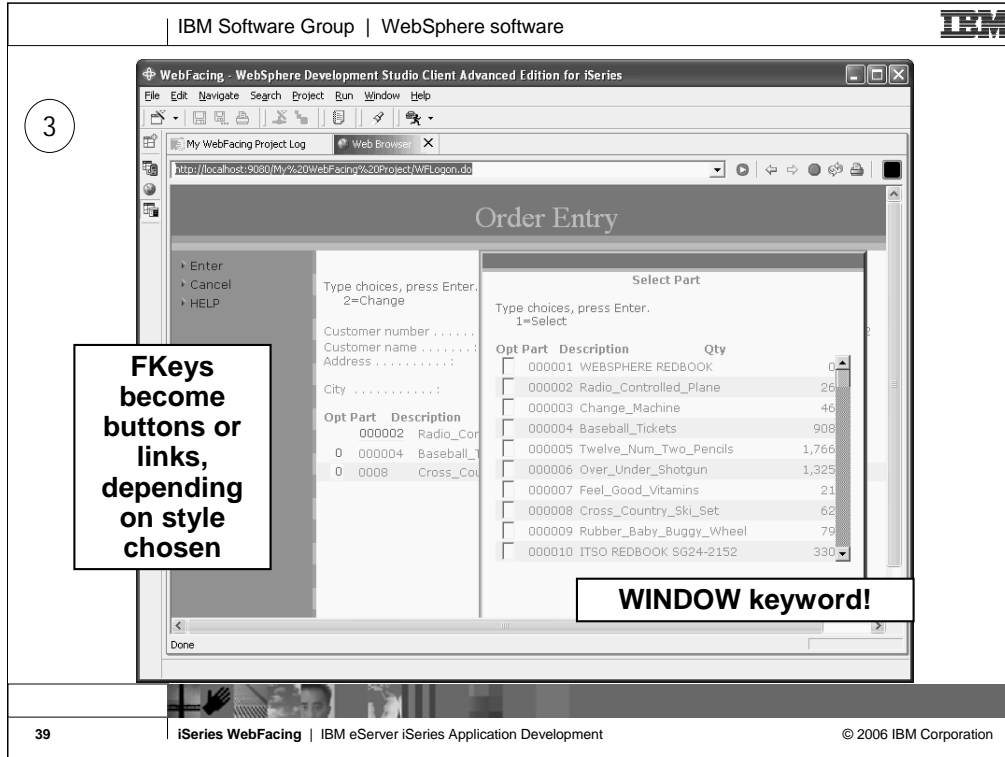
## Invocation Sequence

- Generated link calls WebFacing Servlet runtime
  - Extracts CALL information from web.xml
  - Extracts user ID information from web.xml, or prompts for it
  - Starts server job, in WebFaced mode
  - Calls/invokes application
    - Application runs, writing dspf formats and then reading
    - Workstation Function Manager passing data to WF Server
    - Which passes it on to WebFacing Servlet
    - Which puts it in a bean and passes it to the JSPs
      - All written JSPs up to the read are collected into one
    - User sees screen, presses Enter
    - Control goes back to WF Servlet, which passes to WSFM
    - WSFM passes data back to application as usual

Here you see the invocation sequence. The generated link calls the WebFacing Runtime Servlet which extracts the call information from web.xml. Then the user ID information is extracted from web.xml or user ID information is prompted. The server job is started in WebFaced mode. This calls the application. The application runs and writes dspf formats and then reads. The Workstation Data Manager passes data to the WebFacing Runtime Server which passes it to the WebFacing Runtime Servlet which puts it in a bean and passes it to the JSPs. The user sees the screen and presses Enter. Control returns to the WebFacing Runtime Servlet which passes to the WorkStation Data Manager. Workstation Data Manager passes data back to the application.



The Sign-on dialog opens. This is default sign-on page. You can design your own sign-on page.



Here's the result of a WebFaced application. running in a browser. In this case, the DDS used the WINDOW keyword. In that case windows are created that can be moved around the browser. Notice that subfiles are fully supported. If you click the up/down arrows in the subfile scroll bar, this action will navigate the subfile.

## WebSphere Test Environment

### ▪ WebSphere Test Environment ( WTE )

A full copy of **WebSphere Application Server** is embedded:

Instant/easy testing of Web projects within Development Studio Client

Standalone all-in-one testing

No dependency on WAS installation or availability

Easily debug prior to publish/deploy

Supports configuring multiple Web apps

Access to WebSphere Application Server Administration Client

### ▪ Server Tools

Supports start, stop, restart, publish actions for WTE, local or remote WebSphere Application Server or local TomCat

When using "Run on Server" you are by default running the full fledged copy of WebSphere Application Server that is built into Development Studio Client. The purpose of this is to enable extremely easy testing of your Web application prior to publishing or deploying to your test or production server. The Server perspective that "Run on Server" switches you to is in fact quite rich in its function, allowing starting, stopping and publishing of the server through the right click popup menu. You can even bring up the full WebSphere Application Server Administration console directly from this perspective. Very handy! In addition to managing the built-in copy of WebSphere Application Server, this Server perspective can be configured to manage any local copy of WebSphere Application Server or TomCat, or any remote copy of WebSphere Application Server including WebSphere Application Server on iSeries. You can associate any Web project with any such local or remote WebSphere Application Server, and it will automatically be published and configured there for you when you "Run on Server" or explicitly "publish"! There is simply nothing more productive for Web Development than the Server perspective. You cannot imagine living without it after using it. Be aware though, that WebSphere Application Server requires at least 512MB of memory, so you will need this much to use this awesome function effectively.



## 6 Deploying to Remote WebSphere

- **Use File->Export to export EAR file**

  - Export to a mapped IFS drive

  - Use WebSphere Administrator Console to import EAR file

  - Bring up Browser, enter URL to start application

- **Or, configure a server in Server Tools for iSeries WebSphere Application Server** and use Publish to push to it, and then Run On Server to run it

  - This requires a PTF still coming at time of press

  - This also replaces the server's configuration file

    - So use a dedicated WAS instance for testing

- **Tip:** look at Change Management tools like SoftLanding's to automate delta deployments

Once the application has been tested and is running properly it is deployed to the production WebSphere Application Server.

Choose File Export and specify the EAR file name you specified when you created the project. Once the EAR file has been deployed, use the WebSphere Application Server Administration console to install the application in WebSphere Application Server.

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□ □  **Customizing WebFacing**

What's new in WebFacing 5.0, 5.1.0, 5.1.2, 6.0, 6.0.1

Reference materials

Previously we reviewed a typical WebFacing application scenario including application testing and deployment. Now lets look at customizing a WebFaced application.

## 3 Ways to Customize WebFaced Applications

### 1 By Properties

Much can be affected in the conversion and runtime, including overall style, by use of properties and style wizard

### 2 By Web Settings

These are DDS comments for affecting the conversion results. Easy to set with the CODE Designer tool

### 3 By Editing the Output

Because of the built-in Java and JSP editors, you can always edit what WebFacing generates

But be careful....

There are 3 ways to customize WebFaced applications.

1. Before conversion, use properties dialog to change conversion, runtime and style properties.
2. Before conversion use the WebSettings feature of CODE designer. WebSettings are stored as comments in the DDS. With WebSettings you may have certain fields that may not be relevant on the Web. You can specify that a field contains an image name, and an <IMG> tag should be created for that field. You can specify that a field is a hyper-link. Clicking on the link at run-time will launch the URL specified in WebSettings.
3. After conversion, WebFacing copies the Cascading Style Sheet (CSS) to the project. With some knowledge of CSS you can modify it to customize your pages. You can use Page Designer to edit the created JSPs. Note, conversion will overwrite customized JSPs

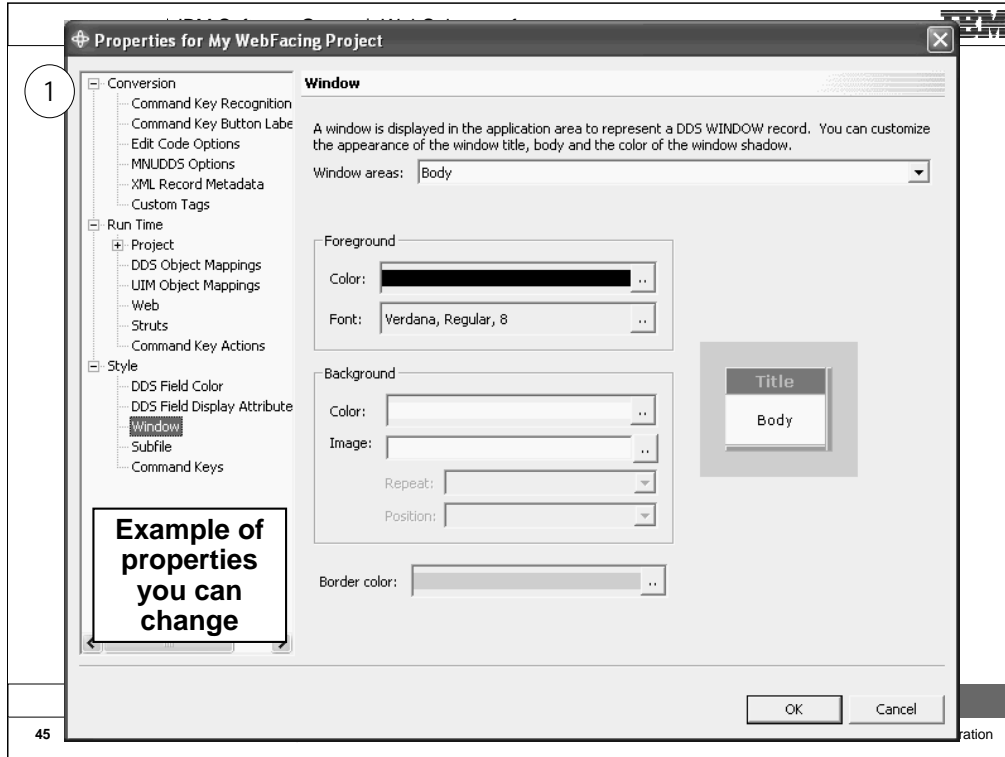
## 1 Customizing By Properties

The screenshot shows the 'Properties for My WebFacing Project' dialog box. The left pane lists the following categories and their sub-items:

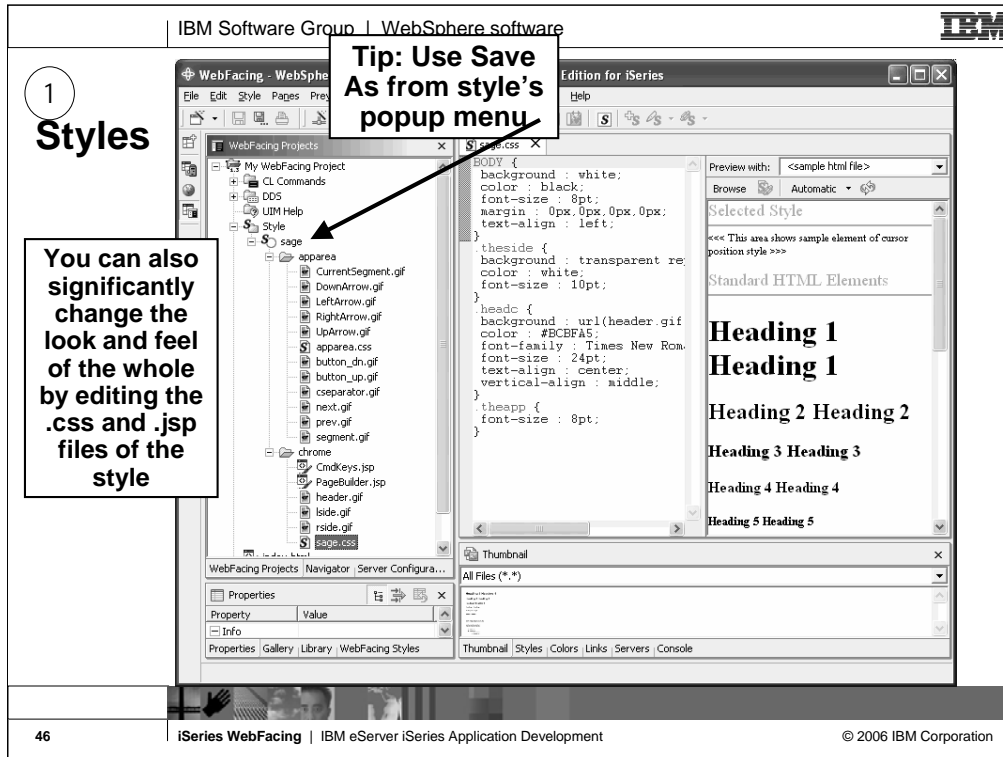
- Conversion**
  - Command Key Recognition
  - Command Key Button Label
  - Edit Code Options
  - MNUDDS Options** (highlighted)
  - XML Record Metadata
  - Custom Tags
- Run Time**
  - Project** (highlighted)
    - DDS Object Mappings
    - UIM Object Mappings
    - Web
    - Struts
    - Command Key Actions
- Style**
  - DDS Field Color
  - DDS Field Display Attribute
  - Window
  - Subfile
  - Command Keys

The right pane shows the 'MNUDDS Options' section with the following text: 'If you have selected DDS members of type MNUDDS for conversion, you can convert the menu options into hypertext links. The command option number and any text included in the same field where that number is found will be converted into a hypertext link.' Below this text is a checked checkbox labeled 'Convert menu options into hypertext links' and a dropdown menu labeled 'Separator:' with a period '.' selected.

To edit the properties for a WebFacing project, in the WebFacing Projects view, right-click the icon for your Project, CL commands, DDS, UIM Help, or Style folder and select **Properties**. Conversion properties control how selected DSPF and UIM files are being converted for WebFacing use. Values for conversion properties are stored in the file conversion.rules under the config directory of the WebFacing project. Run-time properties determine the behavior of the converted Web application when it is being used by an end user. You can customize the look of the application area and the command keys using the Style properties. If you want to change the look of the layout and frame surrounding these areas, you must use a CSS editor to update the style files stored in the chrome directory.



Here you see an example of changing the style property Window. You use the Window screen to indicate how you would like DDS WINDOW records to look when they are converted for Web use. You can customize the look of the title, body, and shadow of the window.

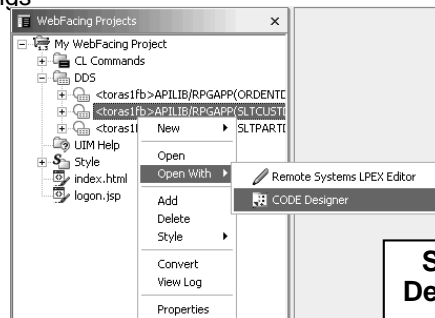


If you want to edit the style that is used for the application area and command key elements, you can use the Style properties pages or you can edit the apparea.css file directly using tools supplied in the IDE. The Style properties pages make it easier to visualize the modifications that are being made and shows you how these changes apply to the DDS elements such as window and subfile records. The changes made through the Style properties pages are then applied to the corresponding style class names in the apparea.css file.

If you want to edit the layout and the frame surrounding the application area and command keys, edit the user-defined CSS files in the \chrome directory. To use the IDE's CSS editor, right-click the file that you want to edit and choose **Open with --> CSS Designer**. If you want to edit the layout of the frame, edit the file PageBuilder.jsp. To edit the frame style, right-click **Style --> Edit Style**. PageBuilder.jsp can then be edited using the Page Designer tool supplied by the IDE. The CSS file in the \chrome directory can be edited using the CSS Designer in the IDE. The Web perspective can be useful when editing CSS files. To open the Web perspective, select **Window --> Open Perspective --> Other --> Web**.

## Customizing

### 2 By Web Settings



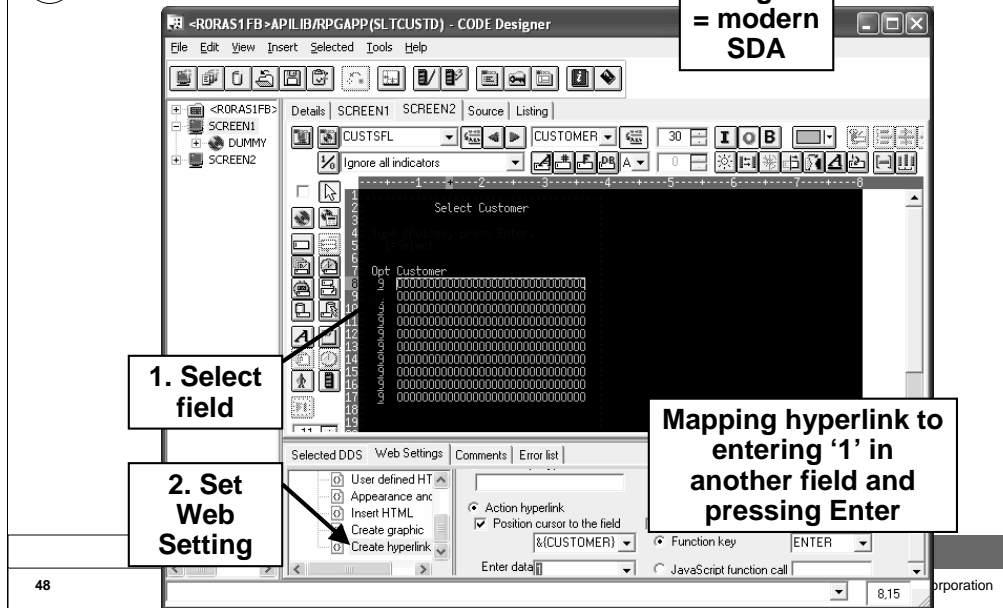
**Start CODE  
Designer from  
within  
WebFacing  
project**

You can use the Web Settings tab in CODE Designer to customize how your programs will look and function when accessed through a Web browser. Programs that use DDS source to describe 5250 display screens can be accessed with a Web browser after the DDS source has been converted with the WebFacing Tool. Use Web Settings when you want to manipulate the Web presentation of individual screens and individual fields within screens. If you want to change the Web presentation of multiple screens or of an entire WebFacing project, use Style properties.

Web Settings enable you to affect how your pages will appear before they are created using the WebFacing wizard. If you would like to modify your pages after conversion, you can use a text editor or a Web design tool such as WebSphere Studio. An advantage to customizing your pages with Web Settings is that the instructions for the customizations are embedded as comments in your DDS source; since Web Settings become part of your source, changes that you make are not lost if you later reconvert a WebFacing project.

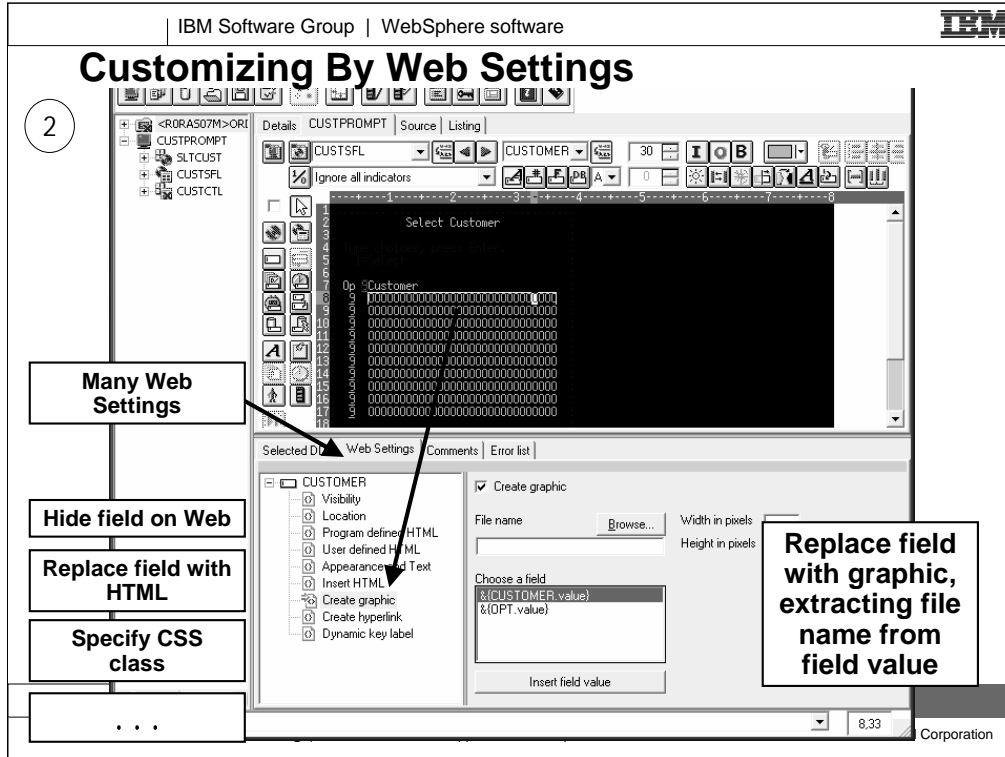
## 2 Customizing By Web Settings

CODE Designer = modern SDA

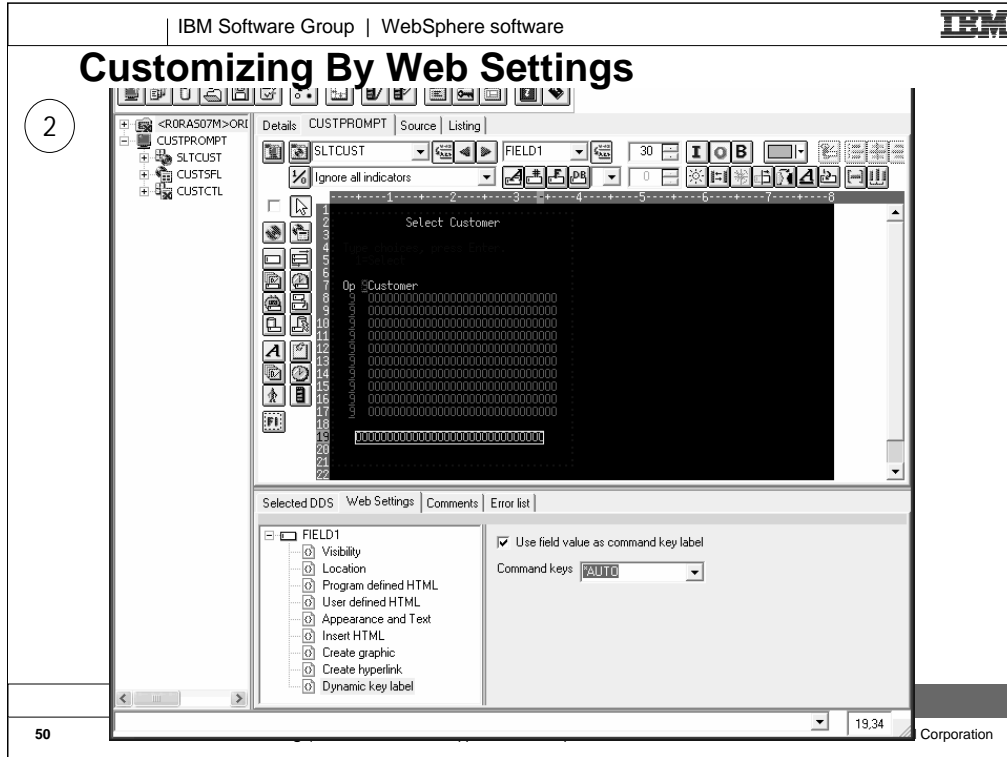


After a DDS source member has been loaded into CODE Designer, Web Settings can be accessed by clicking the icons in CODE Designer's DDS Tree. The DDS Tree is located on the left-hand side of the CODE Designer window. Web Settings are also accessible by selecting DDS objects from within CODE Designer's **Details** and **SCREEN** tabs. If Web Settings are available for the selected object, the Web Settings tab will be displayed in the bottom pane of CODE Designer.





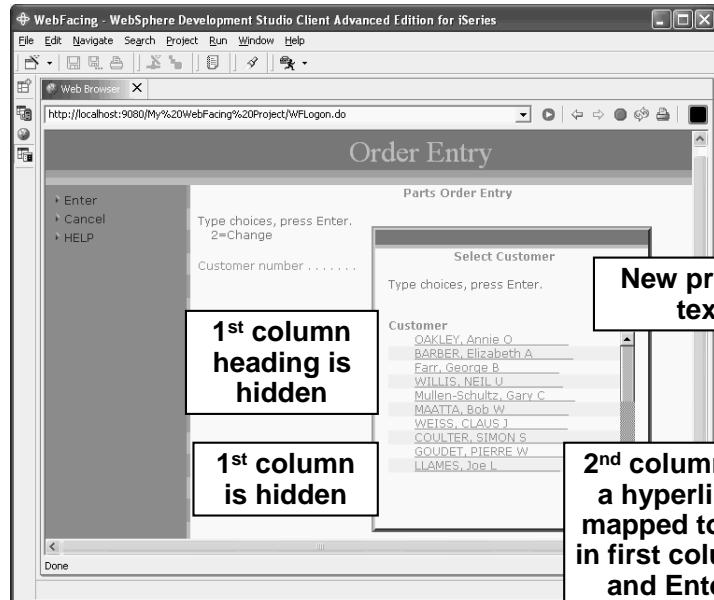
CODE Designer allows you to design DDS screens graphically. In CODE Designer, each DDS object is represented by an icon or push button. For example, there are push buttons so that you can easily create named fields or text constants for your DDS screen. The Web Settings available for each DDS object vary depending on the object that you are working with. The online help lists the Web Settings available for each DDS object. In the online help refer to the section of this document *Web Setting descriptions* for more details on each setting. When you use Web Settings for an object, special comments are added to your DDS source which later get processed by the WebFacing conversion. Web Setting comments begin with the characters \*%%WB.



New feature in 5.1, often requested! If you use a named output field to hold f-key descriptions which are determined and sent at runtime, then WebFacing now supports you.

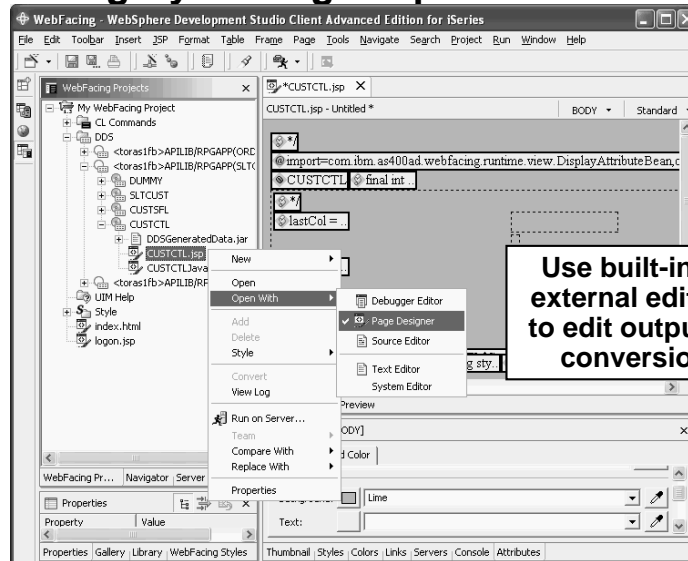


2 After Customizing By Web Settings



Here you can see the results of customizing your WebFaced application style using Web Settings. 1<sup>st</sup> column heading is hidden, new prompt text appears and the 2<sup>nd</sup> column heading is a hyperlink.

### 3 Customizing By Editing Output



If you want to edit the layout and the frame surrounding the application area and command keys, edit the user-defined CSS files in the \chrome directory. To use the IDE's CSS editor, right-click the file that you want to edit and choose **Open with --> CSS Designer**. If you want to edit the layout of the frame, edit the file PageBuilder.jsp. To edit the frame style, right-click **Style --> Edit Style**. PageBuilder.jsp can then be edited using the Page Designer tool supplied by the IDE. The CSS file in the \chrome directory can be edited using the CSS Designer in the IDE. The Web perspective can be useful when editing CSS files. To open the Web perspective, select **Window --> Open Perspective --> Other --> Web**.

### 3 Customizing By Editing Output

What happens on subsequent conversion?

The file is replaced with new file!

However, the edited version is available in history

- Open
- Open With
- Add
- Delete
- Style
- Convert
- View Log
- Run on Server...
- Team
- Compare With
- Replace With
- Properties

Compare with Local History

Local History of 'CUSTCTL.jsp'

Today (Jun 11, 2003)

- 9:50:43 PM
- 9:41:53 PM

Text Compare

Workspace File	Local History (Jun 11, 2003 9:50:43 PM)
<%@ page contentType="text/html; charset	<%@ page contentType="text/html; char
<% /* %><HTML><HEAD>	<% /* %><HTML><HEAD>
<META http-equiv="Content-Type" content=	<META http-equiv="Content-Type" conte
<META name="GENERATOR" content="WebFaci	<META name="GENERATOR" content="WebF
</HEAD><BODY bgcolor="lime">% %>	</HEAD><BODY bgcolor="lime">% %>
<%@ page import="com.ibm.as400ad.webfaci	<%@ page import="com.ibm.as400ad.webf
<jsp:useBean id='CUSTCTL' scope='request	<jsp:useBean id='CUSTCTL' scope='requ
<% final int QUOTED_TRANSFORM = IHTMLStr	<% final int QUOTED_TRANSFORM = IHTML
final int UNQUOTED_TRANSFORM = IHTMLStri	final int UNQUOTED_TRANSFORM = IHTMLS
final String zOrder = Integer.toString(C	final String zOrder = Integer.toStrin
final boolean isProtected=CUSTCTL.isProt	final boolean isProtected=CUSTCTL.isP
int lastCol; /* %><TABLE><BODY>% %>	int lastCol; /* %><TABLE><BODY>% *
<INPUT TYPE="HIDDEN" ID="1<%zOrder%>_C	<INPUT TYPE="HIDDEN" ID="1<%zOrder%
<TR id="1<%zOrder%>r1" class="trStyle">	<TR id="1<%zOrder%>r1" class="trStyl
<% lastCol = 0; %>	<% lastCol = 0; %>
<TD colspan=10>&nbsp;</TD>	<TD colspan=10>&nbsp;</TD>
<TD NOWRAP colspan=15 rowspan=1><span id	<TD NOWRAP colspan=15 rowspan=1><span
</TR>	</TR>

Either replace or manually merge

Changes to the styles made through the property pages or by direct editing apply only to the current project. To save them for use in other projects, right-click **Style** --> **Save as** and give your style a name. Then this named style becomes available for selection the next time you choose a Web style during project creation or the next time you select a style to replace the current project style using right-click **Style** --> **Select Style**.

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□ □ □ **What's new in WebFacing 5.0, 5.1.0, 5.1.2, 6.0, 6.0.1**

Reference materials

Previously we reviewed WebFacing customization features. Now lets review what new enhancements were added for Version 5.0 of the IBM WebFacing Tool.

## What's New in WebFacing 5.0

- Standard
- Advanced

In this section we look at the WebFacing Tool packaged in the standard edition of Development Studio Client followed by the IBM WebFacing Tool packaged in the Advanced edition of Development Studio Client.

## WebFacing Version 5.0 Enhancements

- WebFaced applications are non-interactive on 8xx models, starting V5R2
- J2EE 1.2 and 1.3 support
- Automatic configuration of UTF-8 in WebSphere Application Server 5.0
- Web page compression when using WebSphere Application Server 5.0
- Use web.xml versus proprietary config file
- Support for function key buttons to be placed anywhere
- Support to replace function key descriptions with buttons
- Now generate one xml file versus two Java beans, per record
  - WAR file is much smaller, faster to create and deploy. Less memory

Some Version 5.0 WebFacing enhancements include:

- Yes, on the new 8x0 boxes, there is no interactive charge for WebFaced applications
- J2EE 1.2 and 1.3 support
- Automatic configuration of UTF-8 in WebSphere Application Server 5.0
- Web page compression when using WebSphere Application Server 5.0 (performance)
- Use web.xml versus proprietary config file
- Support for function key buttons to be placed anywhere
- Support to replace function key descriptions with buttons
- Now generate one xml file versus two Java beans, per record



## WebFacing 5.0 Enhancements (continued)

- User edit code support
- Programmatic invocation
- Web session management for coexistence with other Web apps
- Web browser management for back button and closing
- iSeries load balancing and WebSphere Application Server cluster support
- Reply to DSPPGMMSG, application error
- Many performance, scalability, usability and functional enhancements . . .

Enhancements to the IBM WebFacing Tool in Version 5.0 include:

- User edit code support
- Programmatic invocation
- Web session management for coexistence with other Web applications
- Web browser management for back button and closing
- iSeries load balancing and WebSphere Application Server cluster support
- Reply to DSPPGMMSG, application error
- Many performance, scalability, usability and function enhancements

## WebFacing Advanced Version 5.0 Enhancements

- **Support for Struts**

WebFaced applications can be Struts-enabled

- **Support for services**

Extensions through Struts. Roll your own with Struts Builder

- **Support for working with, viewing and printing spool files**

Supplied as an example of a Struts action

IBM is also making it easier to leverage and extend Web applications created with the IBM WebFacing Tool. IBM has provided an option during the code generation phase to output Struts-compliant Web application infrastructure that can be easily enhanced. The Struts-compliant runtime can now leverage the Struts tools to provide more customization capability. Also included in the IBM WebFacing Tool are:

- Conversion-time extension points to allow developers to replace the default HTML
- Option to use IBM and user-defined custom tags to enhance customization
- Ability to override command-key actions to invoke user-defined functions
- Support for displaying and printing iSeries spool files from inside your Web-enabled applications generated using the IBM WebFacing Tool

The iFrame portlet that makes it easy to add existing Web applications (including the IBM WebFacing Tool applications) to the WebSphere Portal environment



## Advanced

Address <http://localhost:9080/wflabcal/RetrieveListOfReports.do>

### List of Spooled Files

Views 1,2,3

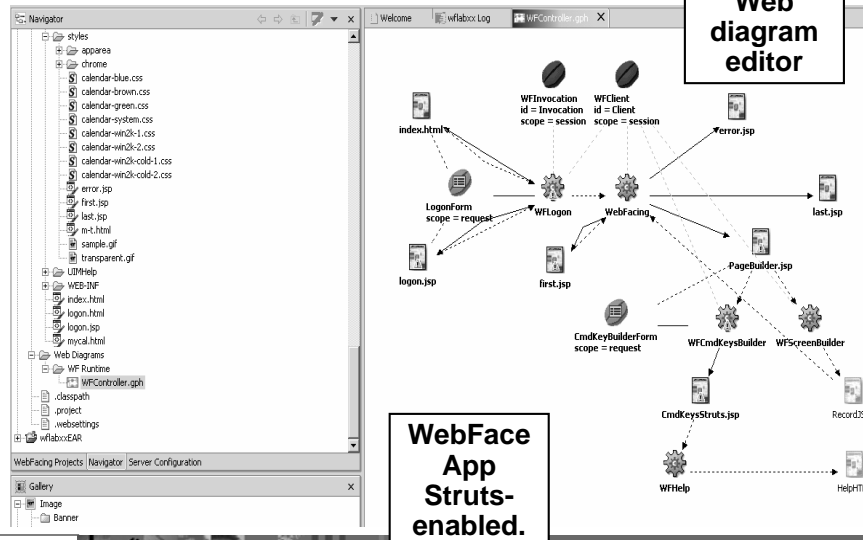
File	User	Device or Queue	User Data	Sts	Total Pages	Cur Page	Copy	Form Type	Pty	File Nbr	Job	Number
OPUDPRTF	WEISS	/SYS.LIB/OPPLIB/OPRINT.OUTO		*READY	1	0	1	*STD	5	248	OPRTJOB	256400
PAYROLL	WEISS	/SYS.LIB/OPPLIB/OPRINT.OUTO		*READY	27	0	1	*STD	5	217	OPRTJOB	256400
OPUDPRTF	WEISS	/SYS.LIB/OPPLIB/OPRINT.OUTO		*READY	1	0	1	*STD	5	247	OPRTJOB	256400
GETDATA	WEISS	/SYS.LIB/OPPLIB/OPRINT.OUTO		*READY	9	0	1	*STD	5	227	OPRTJOB	256400
OPDDOTALOG	WEISS	/SYS.LIB/OPPLIB/OPRINT.OUTO		*READY	1	0	1	*STD	5	1	OPDEV000X	013209
GETDASOL	WEISS	/SYS.LIB/OPPLIB/OPRINT.OUTO		*READY	9	0	1	*STD	5	226	OPRTJOB	256400
SLTCUSTR	WEISS	/SYS.LIB/OPPLIB/OPRINT.OUTO		*READY	15	0	1	*STD	5	1	WEISS	013207
GETDASOL	WEISS	/SYS.LIB/OPPLIB/OPRINT.OUTO		*READY	9	0	1	*STD	5	225	OPRTJOB	256400
A	WEISS	/SYS.LIB/OPPLIB/OPRINT.OUTO		*READY	10	0	1	*STD	5	1	A	013234
PAYROLL	WEISS	/SYS.LIB/OPPLIB/OPRINT.OUTO		*READY	27	0	1	*STD	5	214	OPRTJOB	256400
PAYROLL	WEISS	/SYS.LIB/OPPLIB/OPRINT.OUTO		*READY	27	0	1	*STD	5	213	OPRTJOB	256400
OPDSPJOB	WEISS	/SYS.LIB/OPPLIB/OPRINT.OUTO		*READY	7	0	1	*STD	5	2	OPDEV000X	009682
A	WEISS	/SYS.LIB/OPPLIB/OPRINT.OUTO		*READY	10	0	1	*STD	5	240	OPRTJOB	256400
GETDATA	WEISS	/SYS.LIB/OPPLIB/OPRINT.OUTO		*READY	9	0	1	*STD	5	229	OPRTJOB	256400
PAYROLL	WEISS	/SYS.LIB/OPPLIB/OPRINT.OUTO		*READY	23	0	1	*STD	5	221	OPRTJOB	256400
GETDATAS	WEISS	/SYS.LIB/OPPLIB/OPRINT.OUTO		*READY	9	0	1	*STD	5	230	OPRTJOB	256400
WDCSETUPP	WEISS	/SYS.LIB/OPPLIB/OPRINT.OUTO		*READY	9	0	1	*STD	5	236	OPRTJOB	256400
SLTCUSTR	WEISS	/SYS.LIB/OPPLIB/OPRINT.OUTO		*READY	15	0	1	*STD	5	1	WEISS	013270
WDCSETUPP	WEISS	/SYS.LIB/OPPLIB/OPRINT.OUTO		*READY	9	0	1	*STD	5	3	OPDEV000G	095678
GETDASOL	WEISS	/SYS.LIB/OPPLIB/OPRINT.OUTO		*READY	9	0	1	*STD	5	224	OPRTJOB	256400
WDCSETUPP	WEISS	/SYS.LIB/OPPLIB/OPRINT.OUTO		*READY	9	0	1	*STD	5	2	OPDEV000G	095678
GETDASOL	WEISS	/SYS.LIB/OPPLIB/OPRINT.OUTO		*READY	9	0	1	*STD	5	223	OPRTJOB	256400
WDCSETUPP	WEISS	/SYS.LIB/OPPLIB/OPRINT.OUTO		*READY	9	0	1	*STD	5	1	OPDEV000G	095678
SLTCUSTR	WEISS	/SYS.LIB/OPPLIB/OPRINT.OUTO		*READY	13	0	1	*STD	5	1	WEISS	013286
SLTCUSTR	WEISS	/SYS.LIB/OPPLIB/OPRINT.OUTO		*READY	13	0	1	*STD	5	1	WEISS	013285

**Report service running**

You can now work with spooled files in the WebFacing Tool. You define the reporting service through the use of command key override, whereby you override one of the function keys, such as F12, and instead, use the key to define your report service. These command keys override the existing function keys and can connect to a Web application URI or an external URL.

To define a report service command key to work with your spooled files in the WebFacing perspective, right-click your project and select **Project Properties > Runtime > Command key actions**.

## Advanced



When you enable Struts support, you can develop Struts-based WebFacing services with the Struts builder, a visual development environment for building Struts services. Using the builder, you can drag and drop JSPs, action mappings, form beans, and Java beans onto a Web diagram. In the diagram, you make connections between items on the palette, and then activate those items by double-clicking and editing them through a wizard or source code.

## WebFacing 5.1.0 enhancements

- Support for WebSphere Application Server 5.0.2
- Preference to compress/not-compress xml files.
- Better error-handling of userId/password prompt, including support to prompt for expired password.
- New properties affecting conversion / runtime:
  - Show function-key buttons within windowed records
  - Compress web pages before sending to browser
  - Mapping a key to field-exit behavior
- Support for dynamic function key fields
  - Web setting to identify output fields that hold function key descriptions
- Support for new IBM Site Designer
  - Create web sites easily, and contribute WebFaced apps to them
- Less resources used for subfiles, aiding scalability (large # users)
- Support for Struts 1.1 in advanced edition.

In the new 5.1 release, IBM continues the tradition of many enhancements to this strategic tool.

## What's new in WebFacing for Version 5.1.2 Standard Edition

### DDS INVITE

- Support for applications that use the DDS keyword INVITE and CL commands, such as SNDRCVF or RCVF WAIT(\*NO), to perform asynchronous input/output of data to the screen

### DDS DSPATR(pf)field

- Support for applications that use program-to-system fields for setting the display attributes of protected fields

### Job / System attributes

- Performance improvement for applications that require job attributes information for resolving certain DDS keywords

### Project Migration

- Project migration facility for migrating projects from the previous release to the new release

In the new 5.1 release, IBM continues the tradition of many enhancements to this strategic tool.

## What's new in WebFacing for Version 5.1.2 Advanced Edition

### Portal

- Access DDS based RPG, COBOL, or CL applications from portal pages by generating portlets.
  - The generated portlets can be run locally from the IDE provided by WDSC for testing and can be deployed to IBM's WebSphere Portal Server for running in production mode.

### Authentication

- Use single signon to allow users who have been authenticated by the WebSphere server to traverse WebFacing web or portlet applications without having to re-login
  - Uses Enterprise Identity Manager (EIM) (V5R2 and up)

### System Screens

- Support applications that display system screens during the application flow

In the new 5.1 release, IBM continues the tradition of many enhancements to this strategic tool.

## What's new in WebFacing for Version 6.0

### WebFacing decoupled from CODE components

- WebFacing conversion is now based on a new DDS engine running in Eclipse
  - CODE Designer install is optional
- Positions WebFacing for future DDS to Web customization tooling running in Eclipse
- New WebSettings view in Eclipse
  - Driven from a new DDS outline view
  - On any perspective you can add the web settings view by the following action: Open View > Other > WebFacing > Web Settings

In the new 5.1 release, IBM continues the tradition of many enhancements to this strategic tool.



## What's new in WebFacing for Version 6.0.1

Integration with HATS: WebFacing supports calls to non-WebFaced applications

- WebFacing will dynamically transform non-WebFaced applications
  - Deployed runtime is chargeable
  - Requires the purchase of WDHT licenses
    - **WebFacing Deployment Tool with HATS Technology**
  - Does not require the HATS toolkit
  - Does not support HATS customization of screens
- Works in both Standard and Advanced version of WDS*c*
- Supported on i5/OS V5R4 and up
- Requires the following products:
  - WDS*c* 6.0.1 - GAed 01/2006
  - WDHT 6.0.1 - GAed 03/2006
  - Remember to download and apply WDS*c* service update 6.0.1.1

In the new 5.1 release, IBM continues the tradition of many enhancements to this strategic tool.



# Integrated WF development environment

The screenshot displays the IBM Rational Software Development Platform interface for WebFacing. The main editor window shows a code editor with the following content:

```
Line 11 Column 48 Replace  
.....3.....4.....+.5...  
000100 ESC R O 4 6REFFLD  
000101 fld=;(PAICAT.REF)|value= 1  
000110 SFLCTL (:  
000120 0302 120112 RHARVEY REL-  
000130 SFLSIZ (1  
000140 SFLPAG (1  
000150 WINDOW (:  
000160 KEEP  
000170 RTNCSRL  
000180 BLINK
```

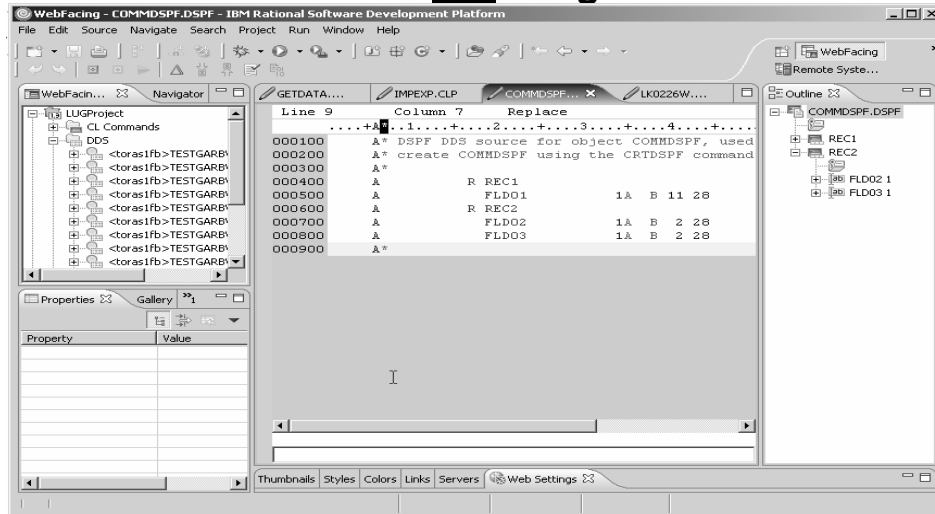
The 'Outline' pane on the right shows a project structure for 'LK0215D.DSPF' with the following items:

- ↳ DSPSIZ(24 80 \*DS3) PRINT CF12 ROLLUP
- ↳ DSPSIZ(24 80 \*DS3)
- ↳ PRINT
- ↳ CF12
- ↳ ROLLUP
- ↳ SFL
- ↳ SFL
- ↳ SFL
- ↳ PAICAT
- ↳ REFFLD(RPMCAT/PAICAT \*LIBL/PMCAT)
- ↳ Reference \*LIBL/PMCAT RPMCAT/PAICAT
- ↳ PADESC
- ↳ REFFLD(RPMCAT/PADESC \*LIBL/PMCAT)
- ↳ Reference \*LIBL/PMCAT RPMCAT/PADESC

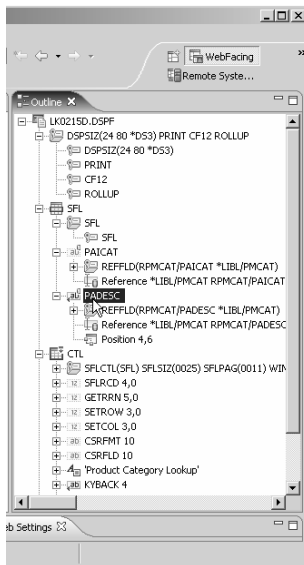
The 'Properties' pane at the bottom left shows a table with columns 'Property' and 'Value'. The 'Web Settings' pane at the bottom right shows a 'Dynamic key labels' section with a checkbox 'Use the field value as the label for the function key:' and a dropdown menu set to '\*AUTO'.



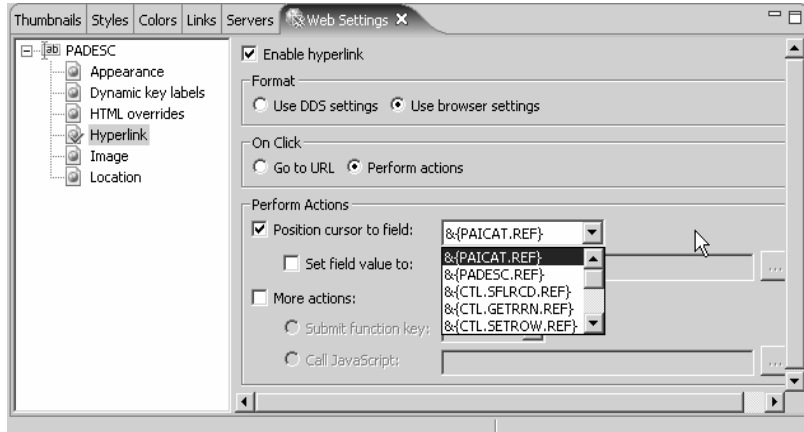
## Better DDS *edit* integration



## Outline view for display files



## Web setting view in eclipse



Real-time source update!

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e-business Primer


What is WebFacing?

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WebFacing Tools

Customizing WebFacing

What's new in WebFacing 5.0, 5.1.0, 5.1.2, 6.0, 6.0.1

□ □  Reference materials

## Reference Materials

This presentation reviewed what e-business was all about. Then we looked at WebFacing and what it is. Next we introduced Development Studio Client. The steps to WebFace an application were described in detail. WebFacing customization was described followed by a review of the new WebFacing Tool Version 5.0 features.



http://www.ibm.com/software/awdtools/wdt400/

The screenshot shows the IBM website for the WebSphere Development Studio Client for iSeries. The main heading is "WebSphere Development Studio Client for iSeries". Below this, there is an "Overview" section and a "Features and benefits" section. The "Features and benefits" section lists several key points:

- IBM offers the WebSphere® development package as the comprehensive solution to your iSeries development needs. [More information about the WebSphere® packaging...](#)
- IBM WebSphere® Development Studio Client for iSeries™ (Development Studio Client) V6.0 inherits and extends Rational Web Developer (RWD) V6.0 to deliver an integrated development environment (IDE) and tools for developing Java, Web, Web services, client/server, and iSeries server applications, in languages like RPG and COBOL. The iSeries enhancements to Development Studio Client V6.0 make it easy to create, test, deploy, and maintain sophisticated e-business applications with little Java, Web, or Web-service programming.
- IBM WebSphere Development Studio Client Advanced Edition for iSeries (Development Studio Client Advanced Edition) V6.0 inherits the improved Web, Enterprise Java Bean (EJB), and J2EE development capabilities from Rational Application Developer (RAD) V6.0. It also provides support that makes it easy to integrate Web and Web-enabled applications using the IBM WebFacing Tool into the IBM WebSphere Portal server.
- The client component of the overall package is designed

On the right side of the page, there is a "We're here to help" section with contact information: "Easy ways to get the answers you need." and "Call me" or "E-mail us". Below that, there is a "Highlights" section with a "New Article" link.

In the first section of this presentation we review what e-business is all about. Then we look at WebFacing and what it is. Next we introduce Development Studio Client. The WebFacing Tools are described in more detail. WebFacing customization is described followed by a review of the new WebFacing Tool Version 5.0 features.






http://www.ibm.com/software/awdtools/wdt400/  
 http://www.ibm.com/software/awdtools/wdt400/library/WebFacingAppDev.html

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## Redbooks

Address  <http://www-306.ibm.com/software/awdtools/wdt400/library/web/acngAppDev.html#Redbooks>

→ [The IBM WebFacing Tool: Converting 5250 Applications to Browser-Based GUIs](#)

This redbook explains how the application conversion works and how you can customize your Web interface. It explains how to work with JavaServer Pages and cascading style sheets. It also offers helpful performance considerations and troubleshooting tips. Plus it looks at how to deploy WebFaced applications to Apache Tomcat.

→ [Mastering the IBM WebFacing Tool](#)

This IBM Redbook provides helpful guidance to developers who are new to refacing applications using the IBM WebFacing Tool. It also offers advanced techniques to developers who have some experience in using the IBM WebFacing Tool and want to refine their Web applications.

→ [WebSphere Development Studio Client for iSeries: Bringing New Life into 5250 Applications](#)

This redbook discusses WebSphere Development Studio Client for iSeries, the IBM WebFacing Tool, and several more powerful tools which include WebSphere Studio Site Developer Advanced, Cooperative Development Environment (CODE), VisualAge RPG and IBM Distributed Debugger.

→ [WebSphere Development Tools for iSeries: Generating Web Front Ends to Existing Applications](#)

This IBM Redpaper shows you how to install, tailor, and configure WebSphere Development Tools for iSeries. In addition two other components are demonstrated: IBM WebFacing Tool and IBM WebSphere Studio for iSeries.

This redbook explains how the application conversion works and how you can customize your Web interface. It explains how to work with JavaServer Pages and cascading style sheets. It also offers helpful performance considerations and troubleshooting tips. Plus it looks at how to deploy WebFaced applications to Apache Tomcat.

This redbook is written for iSeries application developers who want an easy way to extend the life of existing host applications. It also applies to those who want to expand the reach of existing host applications to a wider set of clients.



SG24-6801-00  
[www.ibm.com/redbooks](http://www.ibm.com/redbooks)



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SG24-6961-00  
[www.ibm.com/redbooks](http://www.ibm.com/redbooks)



Java and e-business are key to the future of the iSeries server. Web-enabling your 5250 applications allows you to quickly participate in the e-business arena by using existing applications and programming skills.

This Redbook discusses WebSphere Development Studio Client for iSeries V5.0 of which the WebFacing tool is a part. Development Studio Client includes several powerful tools that target the iSeries application developers:

- WebSphere Studio Site Developer Advanced (in WebSphere Development Studio Client Standard Edition for iSeries V5.0) or WebSphere Studio Application Developer (in WebSphere Development Studio Client Advanced Edition for iSeries V5.0) - the new IDE for developing applications. The unique characteristic of this IDE is the ability to add new features in the form of the plugins. Anyone can develop a new plugin and install it into the tool without creating a "plumbing" infrastructure. WSSD and WSAD include the development environment for creating plugins.
- Development Studio Client includes several iSeries specific features, like the IBM WebFacing Tool and the iSeries Web development tools, that are installed as plugins.
- Cooperative Development Environment (CODE) - a workstation-based tool that supports the development of the applications in many different host languages, including RPG and Java.
- VisualAge RPG - If you are already an experienced RPG IV programmer, you can create graphical user interfaces to RPG programs very quickly in VisualAge RPG.
- Integrated iSeries Debugger.

ISBN: 1-931182-09-4

[www.mcpressonline.com/ibmpress](http://www.mcpressonline.com/ibmpress)


This book, the first in the IBM Press Guided Tour series, describes how to get started with IBM's new WebFacing tool and how to make progress with WebFacing efforts.

The systematic approach presented here takes readers through WebFacing a sample green screen application using IBM WebSphere Development Studio Client. It also demonstrates how to use the different features in the tool to enhance the application after the initial conversion. Even debugging strategies are discussed.

To maximize the speed and completeness of your learning experience, the author takes a practical, hands-on approach to explaining WebFacing features and how to use them. This approach, gained from involvement in defining the capabilities of the WebFacing tool allows you to benefit from both the step-by-step nature of the book as well as the most comprehensive treatment offered on WebFacing training.

The book's many exercises will teach you a variety of features in the WebFacing tool and the WebSphere Development Studio Client product. The relationship between these products will also be explained as well as the reason for each of the various exercises.

## Disclaimer

- **Acknowledgment:**

This presentation is a collaborative effort of the IBM Toronto iSeries Application Development presentation team, including work done by:

***Claus Weiss, Phil Coulthard, George Farr, Don Yantzi, Satish Gungabeesoon***

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