



IBM Software Group

IBM® Rational® Web Developer V6.0
IBM® Rational® Application Developer V6.0
Java™ 2 Enterprise Edition (J2EE) Tools



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Goals

- Understand the support for J2EE application modules
- Detail the different options for importing and exporting J2EE application modules
- Describe additional capabilities for working and developing around J2EE application modules

Agenda

- J2EE Application Organization
- J2EE Migration
- Import Support
- Export Support
- Project Properties
- Utility JARs
- Deployment Descriptors
- J2EE Application Client Launcher
- Summary

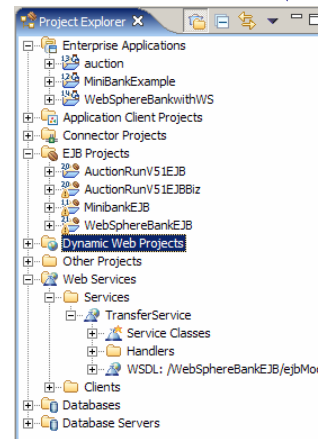
Section

Overview of Features

J2EE Application Organization



- Full support for J2EE 1.2, J2EE 1.3 and J2EE 1.4 projects
- Visual difference between specification levels
 - ▶ Full visual icons may be enabled
- Project Explorer View
 - ▶ Simplified view of workspace artifacts
 - ▶ Provides a single view for artifacts stored across the workspace
 - ▶ Combination between Project Navigator and J2EE Hierarchy view
 - ▶ Web Service enabled projects grouped
- Drag and Drop capabilities between Windows™ Explorer and Project Navigator view
 - ▶ Drag J2EE modules from into the workspace while pressing the Control key

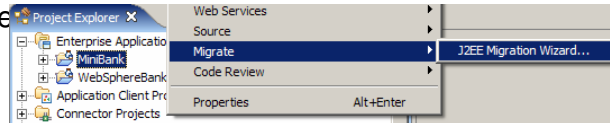


The "Allow nested project overwrites" option is off by default, and allows overwriting EJB/Web projects from the new EAR if those projects already exist in the workspace

J2EE 1.2, 1.3 to 1.4 Migration



- Web, EJB, Java Connector Architecture (JCA) projects and Web services can be migrated to J2EE 1.4 with the J2EE Migration Wizard
- Migration primarily of the deployment descriptors
- New migration options
 - ▶ Project migration structure is independent from J2EE specification level migration
 - ▶ Target server must be set for a migrated application
- Some Manual migration required
 - ▶ Secured Web services
 - ▶ EJB 1.1 projects



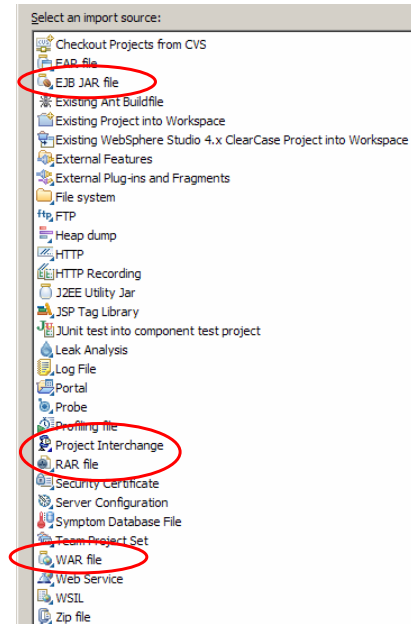
Import Support for Enterprise Applications (EARs)

- J2EE 1.2, 1.3, and EAR files may be imported into a workspace
- Modules in an EAR may be imported without creating the EAR project
- Target Server must be specified
 - ▶ Sets up proper build path and other settings
- Partial import of modules
 - ▶ Helpful when working in a team environment where EAR files are the primary method of sharing information
 - ▶ Specific modules can be imported from an EAR rather than the entire EAR
 - ▶ Modules may overwrite existing projects or new projects can be specified
- Metadata within EAR file and modules will be set in projects in the workspace



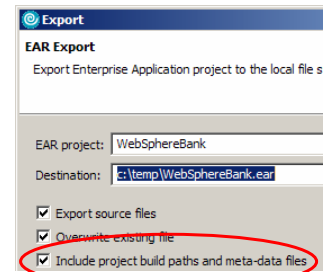
Additional Import Support

- Web, EJB, Application Client, and Resource Adapter modules may be imported individually into a workspace
 - ▶ Module may be added to an existing EAR or a new EAR may be created
- Project Interchange
 - ▶ Sets of projects compressed into a single file may be imported into a workspace
 - ▶ Any existing projects with the same name as a project to be imported will be deleted
 - ▶ Available for all projects (not limited to J2EE projects)
 - ▶ Recommended over copying entire workspace as a way of sharing workspace contents



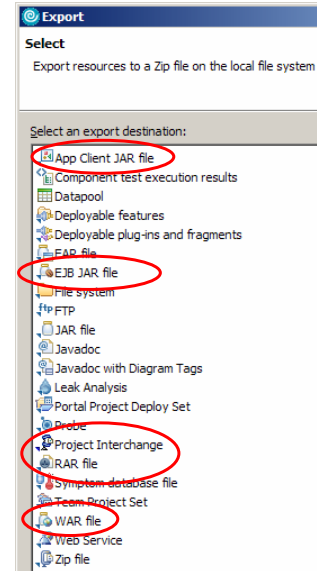
Export Support for Enterprise Applications (EARs)

- Option to export project settings with EAR
 - ▶ Only includes development environment settings
 - ▶ Settings are specific to Application Developer
- EAR file and Modules includes project information
 - ▶ .project
 - Included in EAR files and individual Modules
 - Information about contents, validators, and specific builds to run
 - ▶ .modulemaps
 - Only in EAR file
 - Mapping of Projects to Modules which make up the Enterprise Application
 - ▶ .websettings
 - Only in WAR file
 - Information about which Web development features are available for
 - ▶ .classpath
 - Only in EJB, WEB, and Application client Modules
 - Java build path information for module relative to IBM Rational Web and Application Developer
 - ▶ .j2ee
 - Identifies the J2EE level of the project
 - ▶ .runtime
 - Indicates the target server for the project
- Project information files are managed by Application Developer
 - ▶ Manual updates are not supported



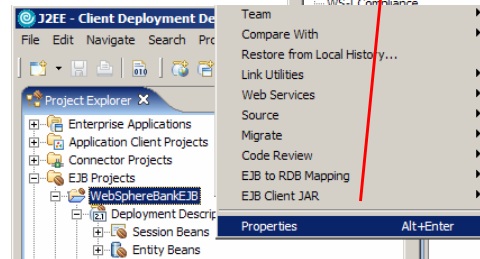
Additional Export Support

- Web, EJB, Application Client, and Resource Adapter projects may be exported individually from a workspace
 - ▶ Separate export wizards for each module
- Project Interchange
 - ▶ Different projects from the workspace can be exported as a single file
 - ▶ Dependencies between different projects is maintained
 - ▶ Option for sharing information between workspaces when Software Configuration Management (SCM) is not available



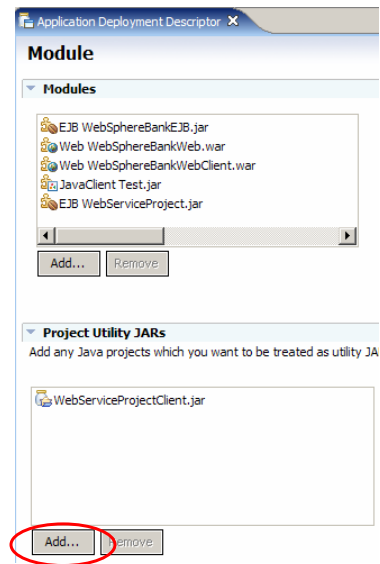
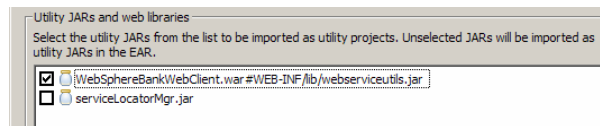
Project Properties

- Different properties can be configured on different projects
- Target Server
 - ▶ Establishes appropriate WebSphere Application Server™ references for Java Build Path and enables certain development capabilities
- Builders
 - ▶ Builders executed on a project
- Java Build Path
 - ▶ Location of source, other projects, and JARs which should be used in builds
- Links Validation and Refactoring
 - ▶ Override global values for link validation and refactoring
- Validation
 - ▶ Validators which should be executed when project is built
- Other properties also available



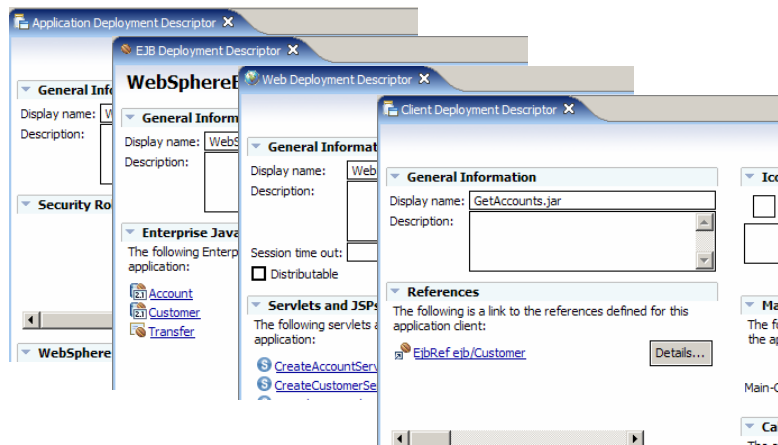
Utility JAR Support

- Java Projects can be added to applications as utility JARs
 - ▶ Project added to application through application deployment descriptor
- Utility JAR file import options
 - ▶ JAR files packaged in EAR files can be placed as JAR files in the EAR project
 - ▶ Java projects can be created for each JAR file



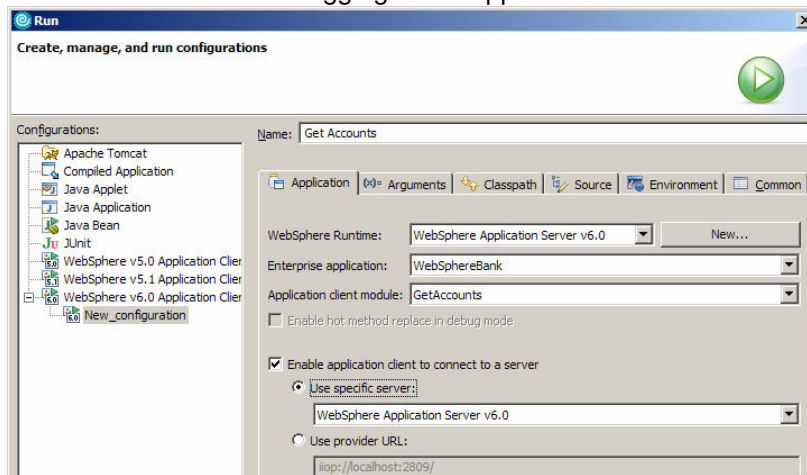
J2EE Deployment Descriptor Editors

- Separate Deployment Descriptor editors for the different J2EE modules
- WebSphere Application Server specific extension and binding information can also be specified



J2EE Application Client Launcher

- J2EE Application Clients can be launched through a configured Launcher
 - Program and VM arguments, Classpath, and Environment settings available to be set for each client
- Launcher also available for debugging J2EE Application Clients



Section

Summary

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- IBM Rational Web and Application Developer provides all the support for managing J2EE applications and modules
- Migration support provided for updating applications to J2EE 1.4
- Additional capabilities provide a robust development environment for J2EE modules

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