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IBM WebSphere Application Server Feature Pack for EJB 3.0

Development tools overview



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Converted to video July 8, 2015

This presentation will introduce you to the development tools currently available for developing WebSphere® Application Server applications that use EJB 3.0.

Agenda

- Command-line build environments
- IBM Application Server Toolkit for WebSphere Application Server
 - ▶ Dali Java™ persistence tools
- Rational® Application Developer



This presentation will focus on three main development environments – command-line environments, the application server toolkit, and Rational Application Developer.

Command-line build environments

- Ant, maven, others
 - ▶ Require little or no change for this feature pack
- Require `<WAS_HOME>/lib/j2ee.jar` on the compiler classpath
 - ▶ Same as is required by other versions of WebSphere Application Server
- Sample Ant configuration for EJB 3.0 is contained in the *samples* directory
 - ▶ Found within the directory of profiles created after installing the feature pack

If you are using command-line tools, like Ant or Maven, to build WebSphere Application Server applications, there is very little change required to build applications with EJB 3.0. `j2ee.jar` must be on your compiler's classpath, as usual. Once you have installed the Feature Pack for EJB 3.0, `j2ee.jar` will contain the classes necessary to build EJB 3.0 applications. Ant was used to build the sample application that is provided with the Feature Pack for EJB 3.0, and the Ant configuration file can be found in the "samples" directory after installing the Feature Pack.

Application server toolkit

- Current version not enhanced for EJB 3.0
 - ▶ No wizards for developing EJB 3.0 beans, or for working with JPA entities
- EJB 3.0 projects can be developed and built
 - ▶ Must be created as Java projects, not EJB projects
 - Prevents J2EE 1.4 deployment descriptor from being added to the module
 - application.xml must be manually edited to include the JAR as an EJB module (can also be deleted entirely – the application server will correctly recognize modules in an EAR with no application.xml)
 - ▶ Must add `<WAS_HOME>/lib/j2ee.jar` from an installation with the Feature Pack for EJB 3.0 to the build path
 - ▶ Code assist works correctly for EJB 3.0 methods

The application server toolkit that is provided with WebSphere Application Server V6.1 has not been updated to for use with EJB 3.0, but it can be used to develop EJB 3.0 applications. If a WebSphere Application Server installation has been updated with the Feature Pack for EJB 3.0, and that installation's j2ee.jar file is in the build path for a project, the AST will understand EJB 3.0 syntax and be able to build EJB 3.0 applications. Keep in mind that there are no wizards for creating EJB 3.0 beans, or for creating JPA entities. Additionally, if you create an "EJB project", the AST will create an EJB 2.1 module. To create an EJB 3.0 module, you should create a Java project instead of an EJB project, so that the AST will not expect the module to contain an EJB 2.1 deployment descriptor. You will then need to manually edit your application deployment descriptor to include the project as an EJB module. A lab exercise can be found in this section of IBM Education Assistant that will walk you through the steps required to create an EJB 3.0 module in the application server toolkit.

Eclipse Dali toolkit

- Dali is a set of plug-ins that provide Java persistence tools for Eclipse-based development environments
 - ▶ Dali 0.5 is compatible with AST V6.1.1.3
- Adds a “Java persistence” perspective
 - ▶ Wizards for defining database connectivity
 - ▶ Wizards for creating entities or database tables based on the other
- Download and more information:
<http://www.eclipse.org/dali>



The Dali toolkit is a project from the Eclipse foundation that adds JPA development tools to Eclipse-based development environments. Version 0.5 of Dali is compatible with Version 6.1.1.3 of the application server toolkit. It provides database connectivity wizards, and tools that can be used to for top-down or bottom-up development. Meaning you can use your JPA entities to create a DDL file, or use a set of database tables to generate matching entity classes. You can find more information about this toolkit at www.eclipse.org/dali.

Rational Application Developer V7.5

- Public beta version available
<https://www14.software.ibm.com/iwm/web/cc/earlyprograms/rational/RAD75OpenBeta/>
- EJB 3.0 and JPA wizards
- XML file editors:
 - ▶ Deployment descriptors
 - ▶ Bindings files
 - ▶ Persistence.xml and orm.xml
- Feature pack for EJB 3.0 can be installed into the test environment



The publicly available beta version of Rational Application Developer V7.5 contains graphical tools for EJB 3.0 development, alongside several other enhancements. The product contains wizards for creating EJB 3.0 beans, tools for creating JPA entities from database tables (or tables from entities), and graphical editors for all of the different XML files you might be working with, from deployment descriptors, to JPA XML files, to the new IBM bindings files. For more information on the Rational Application Developer V7.5 beta, follow the link on this slide.

Section

Summary and references

This section will summarize the presentation.

Summary

- Several development options are available for EJB 3.0 applications
 - ▶ Command-line tools
 - ▶ IBM Application Server Toolkit for WebSphere Application Server V6.1
 - ▶ IBM Rational Application Developer V7.0
 - ▶ Rational Application Developer V7.5 beta



There are several tools available for developing EJB 3.0 applications for use with WebSphere Application Server. Command-line tools, including Ant and Maven, work as they always have in a WebSphere Application Server environment. Version 6.1 of the application server toolkit and Rational Application Developer V7.0 have not been enhanced to support graphical development of EJB 3.0 artifacts, but these products do tolerate and support EJB 3.0 development. Rational Application Developer V7.5 contains new graphical tools and editors for EJB 3.0 development. It is currently available through a public beta program.

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