IBM® Rational® Application Developer V7.5

Assembly and deployment tools

This presentation will cover the assembly and deployment tools for WebSphere® Application Server that are available in Rational Application Developer V7.5.

Agenda

- Overview

- New WebSphere Application Server tools

- Connecting to WebSphere Application Server

The first section of the presentation provides an overview of the deployment tools available in Rational Application Developer V7.5. The second section describes new features in the deployment workbench for working with WebSphere Application Server. The last section contains information on getting started with application deployment to WebSphere Application Server and shows how to create a new server profile and define a server connection in the Rational Application Developer workbench.

Section

Overview

This section provides an overview of the deployment tools available in Rational Application Developer V7.5.

Overview

- Deployment tools allow you to define servers and runtimes and publish applications from within Rational Application Developer
  - ▸ Enable integrated development, testing, debugging of enterprise applications
  - ▸ Specialized Java™ EE application testing tools, like application client launcher, table and data source creator
  - ▸ Web-based universal test client for testing interface methods of enterprise beans

Assembly and deployment tools

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The deployment tools components in Rational Application Developer provide the necessary framework and adapters for connecting to an application server. This allows you to use these server connections to deploy and test your applications from the development workbench. The workbench provides an integrated development environment, allowing you to quickly build, deploy, test, and debug your enterprise applications. You can also use specialized Java EE application testing tools, like the table and data source creator that allows you to generate database tables for testing, based on the structure of your applications. The workbench also includes a specialized test client for testing enterprise beans. The assembly and deployment tools in Rational Application Developer can connect to multiple server runtimes, including local and remote servers. You configure the defined runtimes within the development workbench.

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Overview – WebSphere Application Server

- Specialized tools for connecting to WebSphere Application Server
  - ▸ Integrated WebSphere test environment for WebSphere Application Server
  - ▸ Ability to connect to external WebSphere Application Server runtime
  - ▸ Tools to launch administrative scripts, debug Jython scripts
  - ▸ Java EE 5 support for WebSphere Application Server V7

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The workbench provides specialized tools for connecting to WebSphere Application Server. You can install integrated runtime test environments with Rational Application Developer, or you can you the tools to connect to an external installation of the application server, either on the local system or a remote system. These tools provide a test environment where you can test Java EE applications, including artifacts such as enterprise beans, JavaServer pages, servlets, and HTML. The tools also allow you to test other application components using the application client launcher, table and data source creator, Jython editor, or the launcher for administrative scripts. WebSphere Application Server V7 is a Java EE 5 compliant application server, so the tools for working with WebSphere Application Server V7 support Java EE 5 applications.

New features in assembly and deploy tools

- Server connection updates for WebSphere Application Server connections
  - ▸ IPC connection type
  - ▸ Connection testing

- Viewing application server properties

- Tools to identify unresolved runtime targets

- Support for feature packs

- Jython script library

In Rational Application Developer V7.5, there are several new features in the assembly and deployment tools. For WebSphere Application Server connections, there is a new connection type – InterProcess Connector, or IPC. This offers a more stable and robust connection between the workbench and a local instance of WebSphere Application Server V7. When creating a server connection, the tools will automatically generate some of the connection information for you, and you also have the option of testing the connection. After defining an application server connection, you can view server properties that include information about the runtime location and direct access to server log files. To help with workspace migration, a new dialog opens when you open a workspace that contains an undefined server runtime. The wizard helps guide you through defining a new server runtime. In addition to supporting WebSphere Application Server V7, the workbench provides support for connection to feature packs that are available for WebSphere Application Server V6.1, like the feature pack for EJB 3.0 and the feature pack for Web 2.0. The workbench also provides support for doing Jython script development using new objects that are a part of the Jython script library provided with WebSphere Application Server V7.

Section

New WebSphere Application Server tools

This section describes new features in the deployment workbench for working with WebSphere Application Server.

Specification level support

Specification	Supported levels
EAR	1.2, 1.3, 1.4, 5.0
EJB	1.1, 2.0, 2.1, 3.0
WAR	2.2, 2.3, 2.4, 2.5
Application client	1.2, 1.3, 1.4, 5.0

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The workbench now includes support for IBM WebSphere Application Server V7. The table on this slide summarizes the specification levels that each V7 supports. Note that Rational Application Developer supports the latest Java EE 5 specification in the development environment for WebSphere Application Server V7. The workbench no longer supports tools for WebSphere Application Server V5.1 or WebSphere Application Server Network Deployment environment. However, using WebSphere Application Server Network Deployment, you can continue to run the profile management tool from the workbench to create and augment profiles.

Server connection settings

A new option to automatically determine connection settings is available under the server connection type and administrative ports section of both the new server wizard and the server editor. When you use this option, the workbench automatically selects which available connection type to use. A new test connection link is available under the server connection type and administrative ports section of both the new sever wizard and the server editor. Use this link to test the connection between the server and the workbench to determine if there are any connection problems. When a connection fails, messages display with possible explanations and solutions

Server properties page

Access the SystemOut and SystemErr log files from the server properties; clicking a link opens the log file in the workbench editor
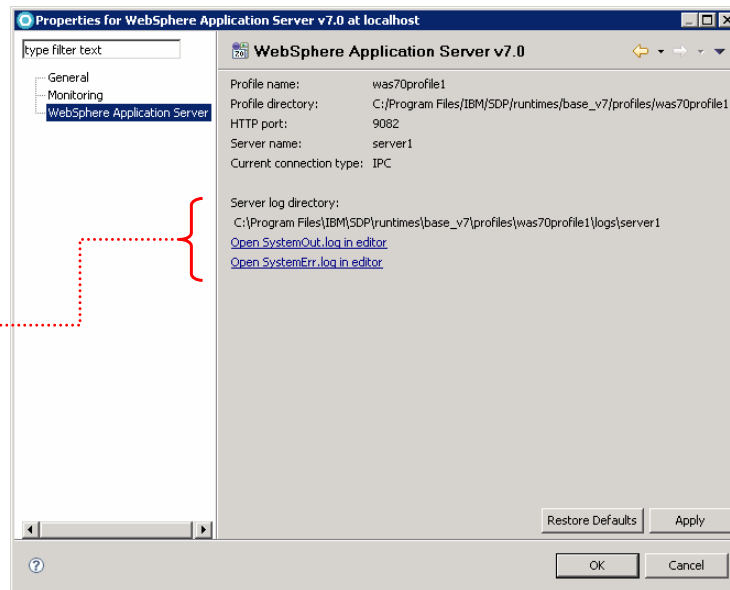
When you right-click a server in the Servers view, there is a new properties option in the pop-up menu. Use the properties pages to find general information about the server, such as the name of the server, server type, vendor, and the location of its metadata. You can also use the properties pages to monitor data sent to the server ports. For WebSphere Application Servers, you can also use the properties pages to view the log files, profile name, and directory.

Workspace migration assistance
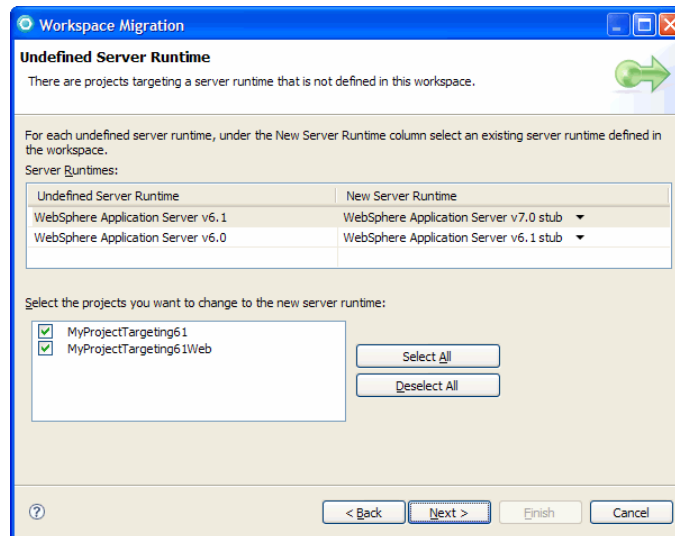
A new workspace migration dialog opens when opening a workspace that contains projects targeting a server runtime that is not defined in the workspace. Use this dialog to replace undefined server runtimes with runtimes already defined in the workspace. This helps resolve errors such as unbound classpath container and target runtime WebSphere Application Server V6 is not defined.

Support for feature packs

- Support for WebSphere Application Server V6.1 with Feature Pack for EJB 3.0
  - ▸ Java EE 5 support available for EAR and EJB modules
  - ▸ Container-managed persistence beans at 2.1, 2.0, or 1.1 are not supported in an EJB 3.0 module

- Support for WebSphere Application Server with Feature Pack for Web 2.0
  - ▸ In the development workbench, the Feature Pack for Web 2.0 can be used with WebSphere Application Server V6.1 and V7

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When publishing an application to a WebSphere Application Server V6.1 with EJB 3.0 feature pack, Java enterprise Edition (Java EE) 5 support is available for both enterprise archive (EAR) and enterprise JavaBeans (EJB) modules; however, container-managed persistence (CMP) beans at 2.1, 2.0, or 1.1, are not supported in an EJB 3.0 module. In addition, the Web module must remain at Web 2.4, 2.3, or 2.2 specification-level and the application client module must remain at Java 2 platform enterprise Edition (J2EE) 1.4, 1.3, or 1.2 specification level. Although, the WebSphere Application Server V6.1 with the feature pack for EJB 3.0 does not support Servlet 2.5 Web archive (WAR) files and Java EE 5 application client modules, the application server does support annotated injections for Servlet 2.4 WAR files and J2EE 1.4 application clients as a common annotations extension. The feature pack for Web 2.0 can be installed with WebSphere Application Server V6.1 and V7. Although the WebSphere Application Server with feature pack for Web 2.0 can be installed on top of WebSphere application server V6.0.2, the IBM Rational software delivery platform currently does not support this runtime configuration.

Jython tools
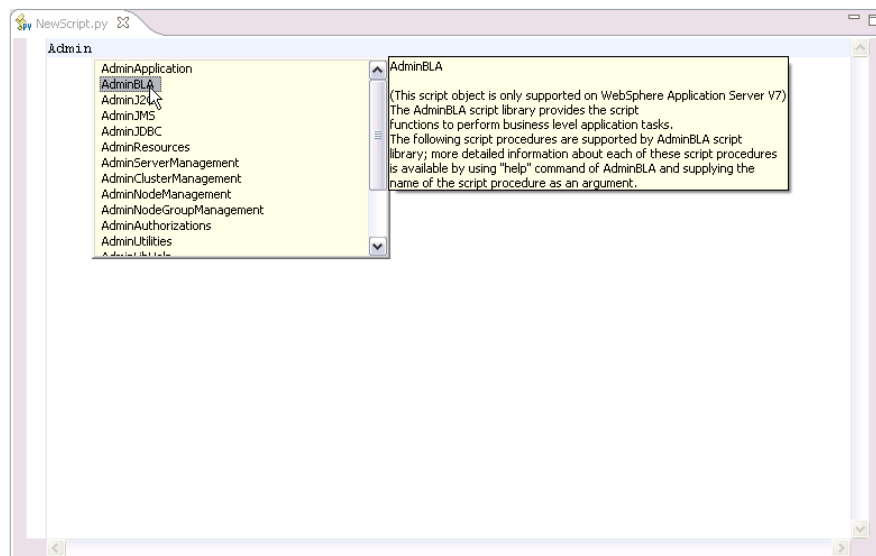
WebSphere Application Server V7 adds numerous WebSphere Administrative (wsadmin) objects to the Jython scripting libraries, in addition to the standard five wsadmin objects: AdminControl, AdminConfig, AdminApp, AdminTask, and Help. In the Jython preferences (**Window > Preferences > Jython**), select **Enable content assist for WebSphere Application Server V7.0 script libraries**. Then, the additional wsadmin objects are available when using content assist (Ctrl+Space) in the Jython editor. The additional wsadmin objects are supported only for Jython scripts running on WebSphere Application Server V7.

Creating tables and data sources

The table and data source creator wizard now supports creating tables and data sources for testing Java Persistence API (JPA) beans on a WebSphere Application Server. When you use the wizard shown above to create tables, the tables do not get created immediately. Instead, the persistence.xml file gets marked-up to generate the tables automatically, and the tables are created during runtime when the tables are needed.

Section

Connecting to WebSphere Application Server

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This section contains information on getting started with application deployment to WebSphere Application Server and shows how to create a new server profile and define a server connection in the Rational Application Developer workbench.

Creating a new application server profile
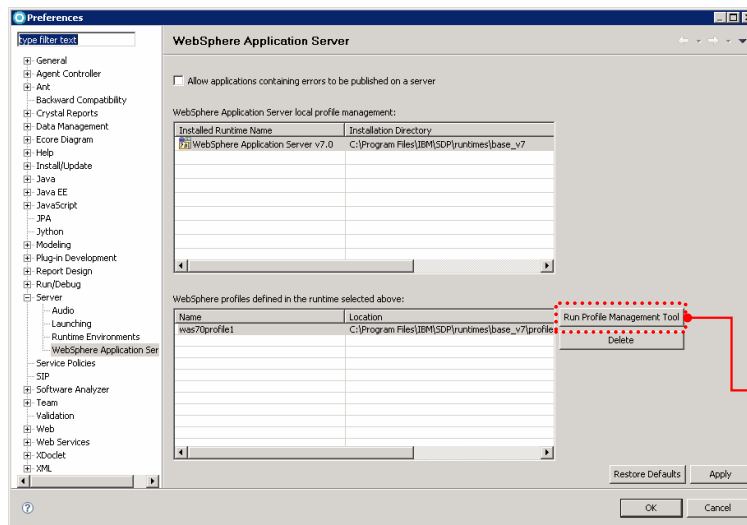
Open the **Window > Preferences** menu, then expand **Server > WebSphere Application Server**

Click **Run Profile Management Tool** to create a new profile for the selected runtime

You can access the WebSphere Application Server Profile Management Tool directly from the Rational Application Developer workbench. First, open the Window > Preferences menu, and then expand Server and choose the WebSphere Application Server section. From here, you can launch the Profile Management Tool for any of the local application server runtimes that you have defined in your workbench. Choose the runtime that you want from the list at the top of the panel. The profiles associated with that runtime are populated in the list at the bottom of the display. To create a new profile, click the Run Profile Management Tool button. This brings up the standard Profile Management Tool for WebSphere Application Server.

Creating a server connection

- Access the new server connection wizard under **File > New > Other > Server**

- Click **Next** to launch the wizard

- Alternatively, right-click in the Servers view and choose **New > Server** from the pop-up menu

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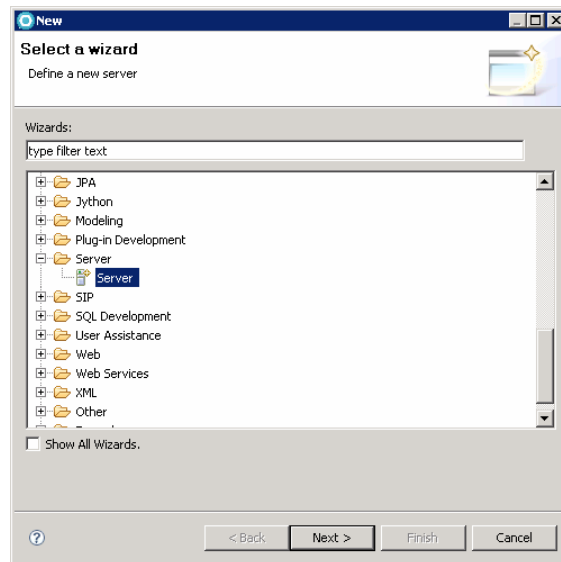
The process for creating a server connection is very similar to the previous release of Rational Application Developer. Access the server creation wizard either by using the product menus (under File > New > Other > Server), or by right-clicking in the Servers view in your workspace and choosing the option New > Server from the pop-up menu.

Creating a server connection

Provide a fully qualified host name if you are connecting to a remote server

Choose the server type, for example, WebSphere Application Server V7

Select the runtime environment that you want from the dropdown menu
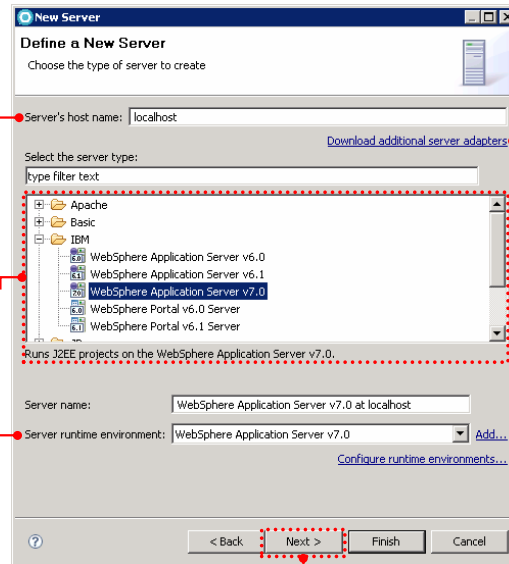
Optionally, download server adapters for other server types (for example, WebSphere Application Server Community Edition)

Add or modify runtime configurations using these links

Click **Next** to configure the server settings

New Server

Define a New Server
Choose the type of server to create

Server's host name: localhost

Download additional server adapters

Select the server type:

type filter text

- Apache
- Basic
- IBM
  - WebSphere Application Server v6.0
  - WebSphere Application Server v6.1
  - WebSphere Application Server v7.0
  - WebSphere Portal v6.0 Server
  - WebSphere Portal v6.1 Server

Runs J2EE projects on the WebSphere Application Server v7.0.

Server name: WebSphere Application Server v7.0 at localhost

Server runtime environment: WebSphere Application Server v7.0   Add...

Configure runtime environments...

< Back   Next >   Finish   Cancel

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The server connection wizard allows you to connect to either a local or a remote server. The default option is to connect to a local server, so the server host name defaults to localhost. To connect to a remote server, you need to provide the fully qualified host name for the remote server. You can create server connections for several types of servers, including Web servers and application servers. In order to create a server connection, you need to have a runtime environment defined for that server type. If you have installed any of the WebSphere Application Server integrated testing environments, those runtimes are automatically defined for you. If you are connecting to an external installation of WebSphere Application Server, you need to manually define that runtime environment.

Creating a server connection

Use the dropdown menu to choose which profile to connect to

Click **Next** to configure which applications to deploy, or click **Finish** to create the server connection

Wizard automatically determines connection settings (manual configuration is also an option)

Optionally, test the connection to the server before continuing

New Server

WebSphere Server Settings
Input settings for connecting to an existing WebSphere Application Server.

WebSphere profile name: was70profile1 | Configure profiles...

Server connection types and administrative ports
- ○ Automatically determine connection settings
- ○ Manually provide connection settings

Connection Type	Port	Default port	Description
☑ IPC	9635	9633	Recommended for local servers
☑ RMI	2811	2809	Designed to improve communicati
☑ SOAP	8882	8880	Designed to be more firewall com

☑ Run server with resources within the workspace
☑ Security is enabled on this server

Current active authentication settings:

User ID: wsbeta

Password: ●●●●●

WebSphere server name: server1

Test Connection

[< Back] [Next >] [Finish] [Cancel]

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On the WebSphere Server Settings panel, choose the WebSphere profile name for the server connection you are creating. All of the profiles defined in the runtime that you selected on the previous panel are available in the dropdown menu. For a local server connection, the configuration tools automatically determine connection settings, including port information for the server. The new IPC connector option is the default connection type for a local server. If you have administrative security enabled in the selected WebSphere Application Server profile, then you need to provide authentication information in order to be able to connect to the server. Before completing the configuration, you have the option of testing the server connection to make sure that the settings are correct. You can only test the server connection if the application server profile is running, otherwise, the connection test will fail.

WASv7_RAD_ServerTools.ppt

Section

Summary

Assembly and deployment tools

This section contains a summary of the content covered in this presentation.

Summary

- Support for Java EE 5 applications in WebSphere Application Server V7

- New server connection settings to automatically generate connection information and test the connection

- Server properties that allow you to directly access server log files

- Migration assistance for old workspaces with undefined runtimes

- Tools for Jython development

- Table and data source creator for working with JPA entities

- Support for feature packs

The assembly and deployment tools in Rational application developer V7.5 provide the capability to create connections to servers and directly deploy and test applications using those server runtimes. The workbench supports WebSphere Application Server V7, including Java EE 5 application development and deployment. The server connection creation process has been streamlined by enabling the tools to automatically detect server configuration information for local servers. The server properties allow you to directly access server information, including log files. If you attempt to open a workspace with an undefined server runtime, the tools will guide you through the process of configuring a supported runtime for that workspace. WebSphere Application Server V7 comes with an enhanced Jython script library, which is accessible from the development workbench. You can use the table and data source creator to generate testing artifacts for JPA applications that you are deploying to WebSphere Application Server. The development workbench also provides feature pack support for the feature pack for EJB 3.0 and the feature pack for Web 2.0 that run on WebSphere Application Server V6.1.

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