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IBM WebSphere® Everyplace® Client Toolkit Version 6
Overview

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This presentation introduces the IBM WebSphere Everyplace Client Toolkit Version 6.

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Goals

- Understand IBM WebSphere Everyplace Client Toolkit Version 6, including its tools and capabilities

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The goal of this presentation is to understand the IBM WebSphere Everyplace Client Toolkit Version 6.

Agenda

- Integrated Development Environment

- IBM WebSphere Everyplace Client Toolkit Version 6
  - ▶ Application development tools
  - ▶ Platform builder tools
  - ▶ Samples
  - ▶ Guides
   - Developer's Guide
    - System Administrator's Guide

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The agenda of this presentation is to explain the end-to-end Integrated Development Environment (IDE) you use to develop client applications and the IBM WebSphere Everyplace Client Toolkit Version 6, which includes application development tools, platform builder tools, samples, a developer's guide and a system administrator's guide.

Section

Integrated Development Environment

Let's start with an overview of the end-to-end integrated development environment.
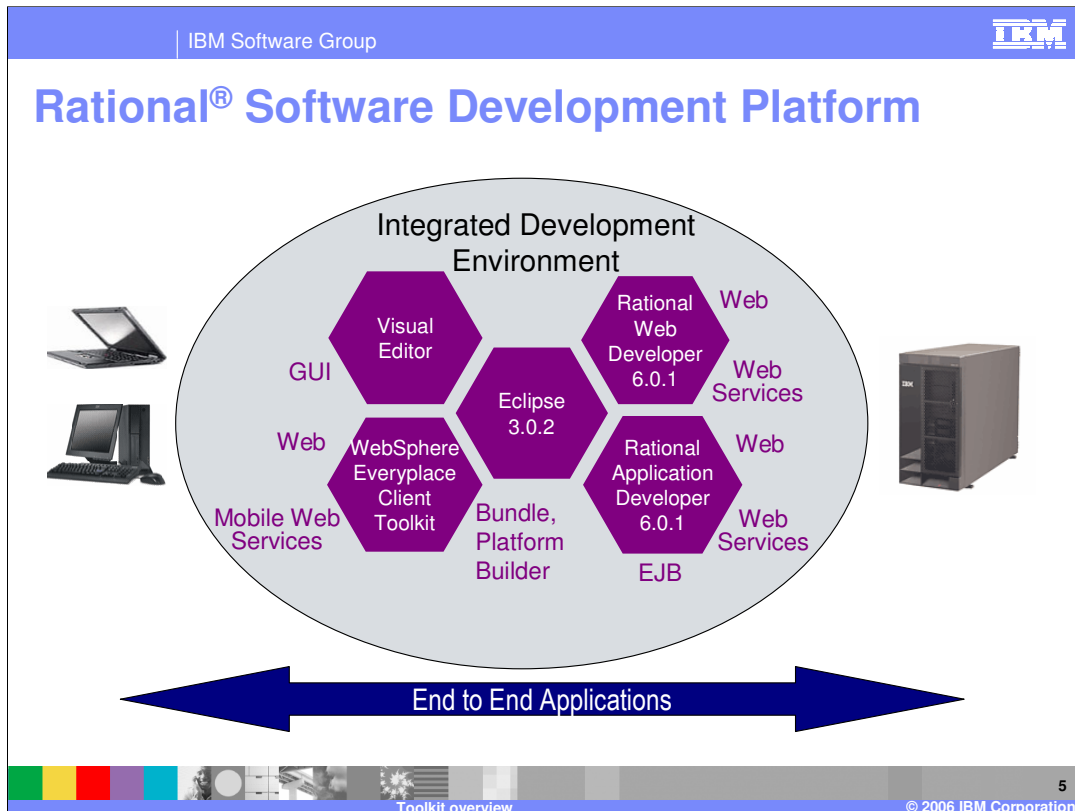
IBM provides end-to-end tools that enable you to develop client and server applications in the same integrated development environment (IDE) built on Eclipse 3.0.2. You use the Rational tools to develop Enterprise server applications. Rational Web Developer 6.0.1 provides the tools to develop Web applications and Web Services. Rational Application Developer 6.0.1 provides the tools to develop Web applications, Web Services and EJB's. The WebSphere Everyplace Client Toolkit extends these tools so you can develop client applications for desktops and laptops. In addition, the toolkit enables you to build a custom client platform. The Visual Editor for Java™ from Eclipse assists in the development of rich client applications, which provide a graphical user interface (GUI).

Note: The toolkit can also run on Rational Software Architect 6.0.1, which includes Rational Application Developer plus the Rational Modeler. Also, the toolkit can also run on Rational Web Developer, Rational Application Developer and Rational Software Architect V6.0.0.1.

Section

IBM WebSphere Everyplace Client Toolkit Version 6

Next, let's explain the tools and capabilities of the IBM WebSphere Everyplace Client Toolkit Version 6.

IBM WebSphere Everyplace Client Toolkit V6

- Re-engineered to extend familiar Eclipse and Rational tools
- Toolkit update for the Rational Software Development Platform
  - Installs as a <u>single</u> Eclipse Feature into the Rational Software Development Platform for easier installation
    - Installs into Rational Web Developer, Rational Application Developer, or Rational Software Architect
    - WebSphere Studio Device Developer no longer required!
  - Complements Eclipse Visual Editor for Java to create rich client applications (SWT)
  - Works with Rational Web tools to deploy Web applications to client
  - Works with Rational EJB tools to deploy Embedded Transaction applications (EJB 2.0 subset) to client
  - Enables client applications to securely consume and provide Web Services
  - Supports development of messaging and database applications
  - Enables building of custom client platforms
  - Supports scripting using Ant Tasks and command line tools
- Prerequisites
  - Environment and hardware for client platform
  - Plus Rational Web Developer, Rational Application Developer or Rational Software Architect 6.0.1

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Toolkit overview

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The IBM WebSphere Everyplace Client Toolkit Version 6 provides a complete, integrated set of tools that allows you to develop, debug, test, package and deploy client applications. The toolkit installs as an Eclipse Feature into the Rational Software Development Platform so you can use your existing IDE to develop a variety of client applications. In WCTME-EO 5.8.1, the tools and client platform ran on different versions of Eclipse. As a result, developers had to perform extra tasks to deploy applications from their IDE to the client platform. The client platform and toolkit are now both built on Eclipse 3.0.2. As a result, all tools can now directly target development and deployment of applications onto the client platform.

The Visual Editor for Java complements the toolkit to build rich client applications with SWT. The toolkit works with Rational Web tools to deploy Web applications to the client platform. The Toolkit also works with the Rational EJB tools to deploy Embedded Transaction Applications to the client. The toolkit supports development of applications that securely consume or provide Web Services. The toolkit also provides a platform builder tool that enables you to build custom client platforms.

Please ensure that each development machine meets the hardware requirements for the client runtime platform and has the capacity to run Rational Web Developer, Rational Application Developer or Rational Software Architect 6.0.1.
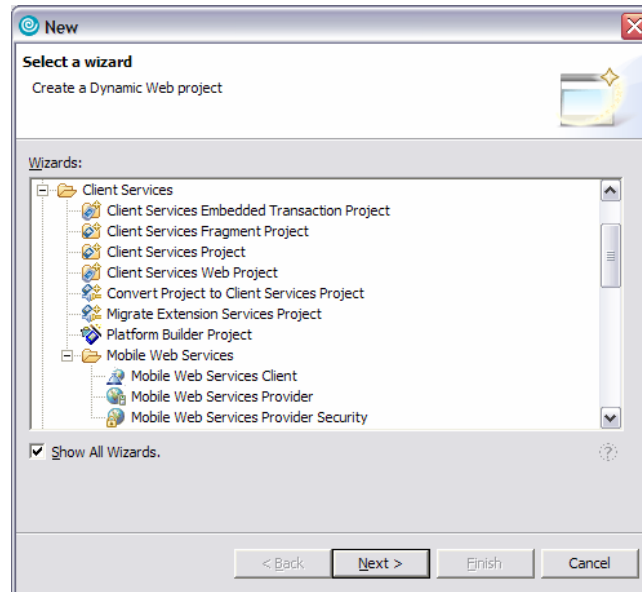
The toolkit provides wizards that enable you to create Client Services projects to develop client applications and build custom platforms. The following slides provide more information about each of these projects.

Bundle Tools

- Provides base Client Services for toolkit
- Extends Eclipse Plug-in Development Environment tools to develop software components
- Simplifies application development model
  - ▶ Before: Develop / deploy components with bundle server and perspective
  - ▶ Now: Code -> Build -> Debug
- Supports Eclipse style local launch
  - ▶ Select Run… -> WebSphere Everyplace Deployment -> New
- Provides an enhanced bundle manifest editor
  - ▶ Automates manifest management
  - ▶ Improves manifest validation
- Supports Eclipse 3.0 + OSGi R3 prerequisite checking
- Supports Platform Profiles (see subsequent slide)
- Complements Visual Editor for Java to create rich client applications (SWT)

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The toolkit has been re-engineered to extend the Eclipse Plug-in Development Environment to be more familiar to Eclipse developers and to simplify the application development model. In the previous release, you had to deal with the SMF Bundle Server and Bundle Perspective to develop and deploy software components. Now, a developer simply performs the code -> build -> debug tasks that are familiar to Eclipse developers, which reduces the number and complexity of tasks required to develop and deploy applications.

The bundle tools support an Eclipse-style local launch function so you can run their applications on a local instance of the client platform within your IDE. To create a configuration for the client platform, select Run… -> WebSphere Everyplace Deployment -> New When a developer runs this configuration, a local instance of IBM WebSphere Everyplace Deployment for Windows® and Linux® Version 6 is launched by the IDE for the defined configuration along with the OSGi console.

The bundle tools also provide a Bundle Manifest Editor, which extends the Eclipse Plug-in Development Environment plug-in manifest editor to include graphical editing of the MANIFEST.MF file for development of bundles and the ability to locally test / debug a plug-in / bundle on an instance of the client platform. In addition, bundle resources can be managed such as imported / exported packages and services, secondary dependencies, and native code clauses (implementation of native methods used by classes in the bundle).

The tools also give you the option of having the manifest file automatically managed. Import package headers or Require-Bundle headers, based on the user's preference, are automatically inserted as the code is built. Additionally, manifest validation logic is used to verify that entries in the manifest are formatted correctly and contain valid data.

These tools provide more advanced prerequisite dependency checking for components than is found in the Eclipse Plug-in Development Environment. Specifically, the tools check for OSGi prerequisites, such as imported packages and services. This dependency checking requires the toolkit to register the bundles, plug-ins and fragments in your target platform, which can occur in the background when you start your IDE.

wedv6_toolkit_overview.ppt

The tools also provide support for Platform Profiles, which will be discussed later in this

Web Tools

- Extends the Rational Web tools to develop and deploy applications for the embedded Web Container
- Provides Client Services Web project
- Supports Servlet 2.3 and 2.4 specifications
- Supports JSP 1.2 and 2.0 specifications
  - ▶ Pre-compiles and packages JSPs for Embedded Web Container
- Supports Java Server Faces and JSP Standard Tag Library
  - ▶ Runtime included in client platform
- Supports Struts
  - ▶ Must include runtime with each application
- Supports "Run on server" style launching

The Web Tools extend the Rational Web tools so you can develop and deploy Web applications for the embedded Web Container on the client platform. Web Tools allow you to develop and deploy Web applications that support the servlet 2.3 and 2.4 specifications and the JSP 1.2 and 2.0 specifications. The Web Tools pre-compile and package JSPs so this processing does not occur when running the Web application on the client platform. Web Tools also allow you to develop and deploy applications that use Java Server Faces and the JSP Standard Tag Library. The runtime for these specifications are included in the client platform. You can also develop and deploy Struts applications; however, the runtime is not included in the client platform so you must do so with each of your Struts applications. Finally, Web Tools support "run on server" style launching, which is consistent with the Rational tools and allows developers to easily move between test environments setup for server and client applications in the same IDE.

Transaction Container Tools

- Extends the Rational EJB tools to develop and deploy applications for the Embedded Transaction Container

- Provides Client Services Embedded Transaction project
    - Includes a deployment descriptor editor

- Supports a subset of the EJB 2.0 specification

- Packages Embedded Transaction Applications for Embedded Transaction Container

The <u>Transaction Container Tools</u> extend the Rational EJB tools so you can develop and deploy Embedded Transaction Applications for the embedded Transaction Container on the client platform. These tools provide a Client Services Embedded Transaction Project you use to develop and deploy Embedded Transaction Applications to client platforms that support a subset of the EJB 2.0 specification (see the WebSphere Everyplace Deployment Developer's Guide for more information).

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Mobile Web Services Tools

- Provide a client stub generator tool
  - ▸ Enables client applications to consume Web Services
  - ▸ Provides support similar to JSR 172
  - ▸ Generates a static stub with API based on WSDL
  - ▸ Applications invoke API to invoke WS provider

- Expose a local OSGi service as a Web Service
  - ▸ Enables local OSGi services to provide (host) Web Services

- Support WS-Security
  - ▸ Provides a WS-Security wizard and editor
  - ▸ Supports XML-based configuration

- Provides Mobile Web Services projects

Toolkit overview

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Mobile Web Services Tools enable you to develop Web Services applications that run on the client platform. These tools provide a client stub generator tool that enables client applications to consume Web Services in a manner similar to JSR 172 (J2ME Web Services). Basically, the developer specifies a WSDL URL and the tool generates a static stub class with an API that matches the API defined by the WSDL. Client applications can then call this API to invoke a Web Services provider.

Web Services Tools provides a wizard that enables you to expose a Java interface, which is defined in a local OSGi service, as a Web Service. As a result, this tool enables client applications to host Web Services.

Mobile Web Services Tools also allow you to configure security for Web Services by selecting an existing configuration or creating a new configuration through a wizard and editor.

Platform Profiles

- Provides a convenient method to select:
  - ▸ Application Services used by the runtime environment
  - ▸ Build-time environment for a Client Services project type
  - ▸ Set of components that can run on the client platform

- Three profiles available:
  - ▸ Default
  - ▸ RCP
  - ▸ Core
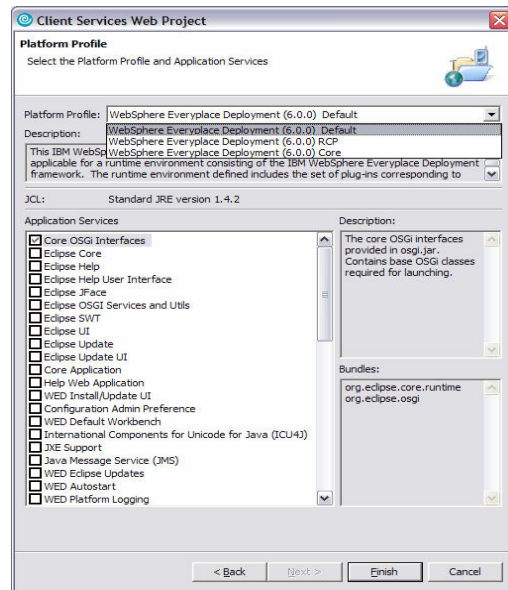
Next, we'll discuss Platform Profiles, which are a <u>key</u> element of the tools. The Platform Profile provides a method for you to define the Application Services used by the runtime environment, the build-time environment for a Client Services project, and the set of bundles that can run on the platform. A Platform Profile defines a set of Application Services. Application Services enable you to focus on the logical service requirements of the service instead of the requirements of the actual underlying bundles. When you create a Client Services project, you select a Platform Profile and a set of Application Services for the project. The WebSphere Everyplace Client Toolkit updates the Java Build Path for the project to reflect the Java Runtime Environment (JRE) of the platform, based on the Platform Profile you selected. The Application Services you selected are automatically added to the Java Build Path of the project.

The client platform provides three profiles:

Default - This profile defines services that are available and applicable for the IBM WebSphere Everyplace Deployment for Windows and Linux Version 6 client. The runtime environment defined includes the set of plug-ins corresponding to the Typical installation of the IBM WebSphere Everyplace Deployment for Windows and Linux Version 6 client product.

RCP - This profile defines services that are available and applicable for a runtime environment consisting of an Eclipse Rich Client Platform framework. The runtime environment defined includes only the minimal set of plug-ins necessary to run the Eclipse Rich Client Platform.

Core - This profile defines services that are available and applicable for a minimal runtime environment consisting of an OSGi framework.

Platform Builder

- Allows packaging of applications and custom client platform for easy deployment

- Platform Builder project and editor manages configuration

- Produces a platform containing:
  - User selectable client platform libraries
  - User applications and components
  - Optional inclusion of JVM (J2SE, custom, none)
  - Startup parameters

- Utilizes prerequisite checking to build platform

The Platform Builder tool enables customers to package applications and a customized client platform into a file for easy deployment on a target device and operating system. Available package formats are zip for Windows XP, tar for Linux, and tar.gz for Linux.

The Platform Builder provides a wizard and editor that allows you to create and manage the configuration of your custom client platform. This configuration can include user selectable client platform libraries from WebSphere Everyplace Deployment, your own applications and components, optional inclusion of the J2SE JVM provided by IBM, another J2SE JVM or no JVM, and configuration of startup parameters such as the type of workbench to start.

The Platform Builder utilizes the improved prerequisite checking to ensure the custom client platform contains all the components necessary to make the platform operational.

Please check your licensing agreement before you deploy custom client platforms.
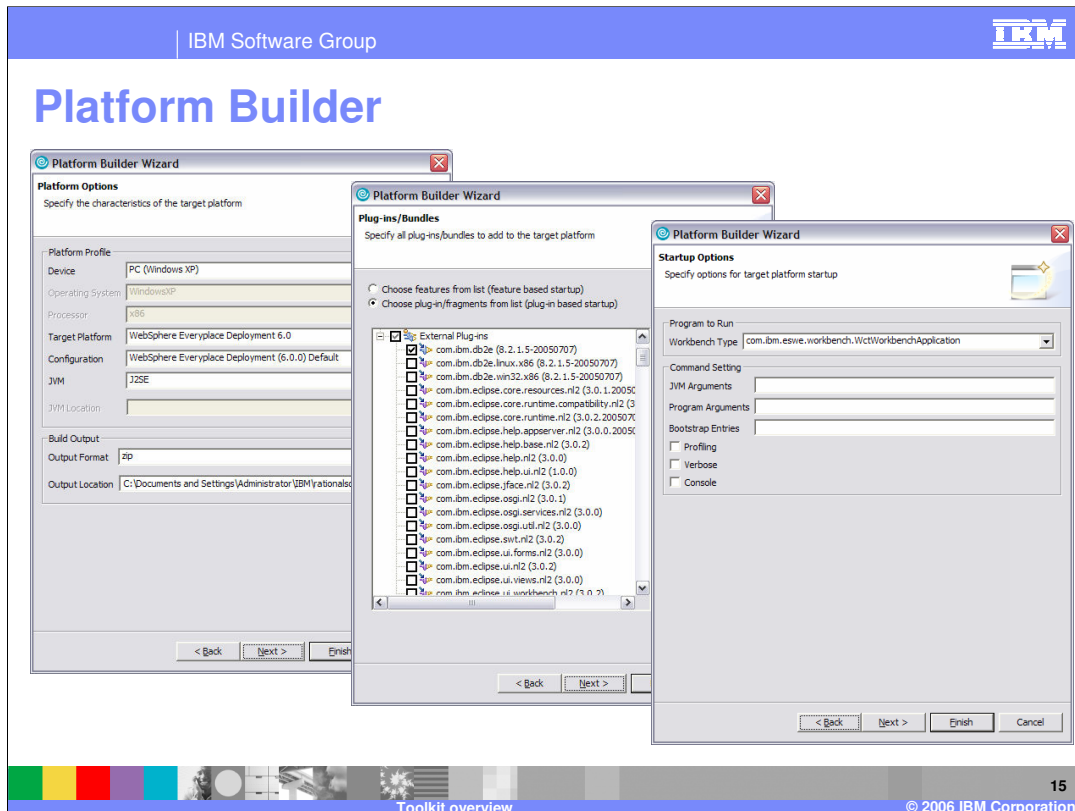
Platform Builder

To get started, use the Platform Builder Project Wizard to guide you through the process of building an initial target runtime image. Choose which plug-ins, bundles, features, and application components you want so that you can build the smallest runtime footprint. If you want to refine the runtime image at a later date, you can use the Profile Editor to update the platform.properties file of the project and rebuild the image.

Tools Roadmap

Task	Tool
Develop Rich Client Applications (SWT)	Client Services Project Eclipse Visual Editor (Optional)
Develop Web Applications	Client Services Web Project
Develop Embedded Transaction Applications	Client Services Embedded Transaction Project
Convert existing Web or EJB projects in RSDP to run on client	Convert Project to Client Services Project
Migrate existing Extension Services (WSDD 5.7.x) projects to run on client	Migrate Extension Services Project
Develop Messaging and Database applications	Client Services Project OR select messaging and/or database services in Client Services Web or Embedded Transaction Projects
Develop Web Services client Develop WS provider Use security with WS provider	Mobile Web Services Mobile Web Services Provider Mobile Web Services Provider Security
Build runtime platforms	Platform Builder Project
Develop / migrate Web applications built with other J2EE tools (i.e. not RSDP)	WAB tool / ANT scripts (WAR -> WAB) EJB tool / ANT scripts (EJB-JAR -> ETA)

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Toolkit overview

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Here is a roadmap that will help you understand which tools to use for a given task.

Toolkit Samples

To get started using the client platform or specific features of the client platform, review the collection of client platform samples in the Samples Gallery. The Samples Gallery is a facility that is available in the Rational product set. It acts as a centralized location or repository for samples. The gallery is accessible from both the Welcome panel and from the Help menu. The samples in the gallery are split into three categories: Showcase samples, Application samples and Technology samples. Showcase samples are end-to-end applications that follow best practices for application development. Application samples demonstrate more than one tool or API while Technology samples demonstrate a single tool or API. When you open a sample, you see a short explanation of the sample and a link for importing the sample into your workspace. Samples for the client are located in the WebSphere Everyplace Deployment section of each category.

Documentation

- IBM WebSphere Everyplace Deployment Developer's Guide
  - ▸ Application_Developers_Guide.pdf

- WebSphere Everyplace Deployment for Windows and Linux Version 6.0 System Administrator's Guide
  - ▸ System_Admin_Guide.pdf

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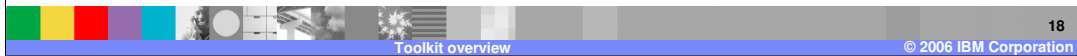
Here is a list of documentation available to help you develop applications for IBM WebSphere Everyplace Deployment for Windows and Linux Version 6.

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