Watching Apache Derby: Eclipse Tools for Administration and Monitoring

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Goal

Learn how to architect and build applications using the Eclipse Rich Client and Data Tools platforms with Apache Derby

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Agenda

Eclipse Rich Client Platform Overview

Eclipse Data Tools Platform Overview

DTP in RCP

Apache Derby Overview

Working with Apache Derby

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Eclipse: Basic Facts

- Extensible platform for application development
- Distributions
    - Eclipse SDK
    - Rich Client Platform (RCP)
- Often perceived as an IDE
    - Eclipse Development Tools for the Java™ Platform (JDT)
    - Plug-in Development Environment (PDE)
- Can be delivered without JDT and PDE

Eclipse: Ecosystem

- Nine top-level projects
- ~ 500 committers
- 40+ books
- EclipseCon, EclipseWorld
- Web sites
  - www.eclipse.org
  - www.eclipsezone.org
  - www.planeteclipse.org

Eclipse Rich Client Platform

- RCP
  - Base
  - SDK (includes source)
- RCP is a range not a choice
- Eclipse SDK is a sophisticated RCP application
- DTP works with RCP
  - Depends on what you want to do
  - Depends on your target users

DEMO

RCP Tour and Sample Applications

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Eclipse Data Tools Platform

- DTP

- Managed by
  - Sybase, Inc.
  - IBM Corporation
  - Actuate Corporation

- Proposed by Sybase in February, 2005

- Accepted as top-level project at Eclipse.org in June 2005

- First release (0.7) in March 2006

- Member of the Eclipse 3.2 synchronized release train, Callisto, for June 2006

DTP Projects

- Model base
- Connectivity
- SQL development tools

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DTP Model Base

- Uses the Eclipse Modelling Framework (EMF)
- Model: think EMF not data modelling
- Provides DTP domain models
    - SQL
    - Database definition
    - SQL query
    - SQL XML query
- Generic support for standards
- Specialize for vendor specific support

DTP Connectivity

- Frameworks
  - Driver management
  - Connection management
  - Open Data Access (ODA)
- Tools
  - Data Source Explorer (DSE)
  - ODA flat-file and design UI

DTP SQL Development Tools

- Frameworks
    - Routine editor
    - Routine debugger
    - Execution plan
    - SQL query parser
- Tools
    - SQL editor
    - Results view

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Model Base in RCP

- Requires Eclipse Modelling Framework (EMF)
    - Brings in resource support
    - And hence file system support
- Base SQL model
    - One plugin for SQL model
    - 12 dependencies
- However
    - Only two additional dependencies
    - To get the rest of the model base plugins

Connectivity in RCP

- Driver and connection management
  - Two plugins and nine dependencies

- Data source explorer
  - One plugin and five dependencies
  - Crosses into IDE territory

- Database connectivity
  - Seven plugins and 13 dependents

- Open Data Access (ODA)
  - Two plugins and ten dependents for basics
  - Five plugins and 12 dependents for UI support

SQL Dev Tools in RCP

- SQL development tools
- Designed primarily for IDE use in DTP 0.7
- Depends on
  - Model base
  - Connectivity
- Perhaps isolate components later
- SQL query parser
  - Depends on model base
  - Can be used outside IDE environment

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Apache Derby: Basic Facts

- Relational database written completely in Java™ programming language

- Two modes of deployment

  - Embedded in a VM instance

  - In network (client/server) mode

- Light-weight

- Easy to install

Source: http://db.apache.org/derby/

Apache Derby in DTP

- Used as exemplary database for DTP
- Connection profiles:
  - Apache Derby embedded
  - Generic JDBCTM software for client/server mode
- Content provider for DSE
- SQL dev tooling works with Apache Derby too

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DTP Using Apache Derby

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Sample Application: Useful Sources

- Eclipse

  - Eclipse Rich Client Platform
    by Jeff McAffer and Jean-Michael Lemieux
    Addison Wesley, 2006

  - Contributing to Eclipse
    by Erich Gamma and Kent Beck
    Addison Wesley, 2003

- Apache Derby

  - Apache Derby—Off to the Races
    by Paul C. Zikopoulus, Dan Scott, and
    George Baklarz
    IBM Press, 2005

Sample Application: Requirements

- Small application container
  - RCP
  - DTP
- Use samples from DTP
- Management console style configuration
- Add sample support for
  - Administration
  - Monitoring

Administration and Monitoring

- Administration
  - Create a simple table
  - Import data into the table
- Monitoring
  - Run a simple application that uses the table
  - Collect and display statistics
- Need to
  - Execute SQL statements via connection profile
  - Execute stored procedures via connection profile
  - Display results in sample application

DEMO

Sample Application

Summary

- Eclipse RCP is a great platform for application hosting

- Eclipse DTP provides core functionality for data-centric applications

- The Apache Derby examples in Eclipse DTP are a great place to start

- The demonstrations show how easy it is to build applications, given the platforms provided

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For More Information

- www.eclipse.org/datatools
- news.eclipse.org/eclipse.dtp
- www.eclipse.org/mail
- wiki.eclipse.org/index.php
- dataplat.blogspot.com/

Q&A

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