



Using the New  
IBM Data Studio 1.1  
to Write IDS Web Services

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IBM

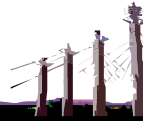
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2008 IIUG Inform*i*x Conference



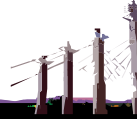
## Agenda

- What is IBM Data Studio?
- Creating database connections
- Creating a data project
- Creating a web service
- Deploying a web service



## What is Data Studio?

- Eclipse-based tool
  - Integrated Development Environment (IDE)
  - Full release or plug-in (Eclipse 3.2.x)
  - Available since October 30, 2007
- Data Server supported
  - IBM Informix Dynamic Server (IDS), versions 9.x, 10.0, 11.10
  - DB2 LUW, versions 8, 9.1, 9.5
  - DB2 for i5/OS, versions 5R2, 5R3, 5R4
  - DB2 for zOS, versions 7, 8, 9
  - Derby, versions 10.x



## What is Eclipse?

- Developed by IBM
- Open-Source, managed by eclipse.org
  - Open-source community
- An open extensible Integrated Development Environment (IDE)
  - Integration platform for tools
  - Java development environment
- Expanded through plug-ins
  - Subjects: Application development, editors, modeling, performance and testing, programming languages



# Workbench Terminology

The screenshot shows the Eclipse IDE interface with the following components labeled:

- Menu bar:** Located at the top, containing File, Edit, Source, Refactor, Navigate, Search, Project, Run, Window, and Help.
- Tool bar:** Located below the menu bar, containing icons for file operations and development tools.
- Perspective and Fast View bar:** Located on the left side, containing icons for switching between different IDE perspectives.
- Resource Navigator view:** A tree view on the left showing the project structure, including folders like bin, src, com, and helloworld.
- Text editor:** The central area displaying the source code for `HelloWorld.java`. The code is:

```
package com.example.hw;

public class HelloWorld {

    public static void main(String[] args) {
        System.out.println("Hello world");
    }
}
```
- Message area:** Located at the bottom left, containing a search input field.
- Stacked views:** A row of views at the bottom, including Properties, Tasks, and Bookmarks.
- Editor Status area:** Located at the bottom right, showing the current cursor position: `Writable Insert 6 : 16`.

## IBM Data Studio – Key Benefits

### **Increase productivity for all roles throughout the data life cycle**

- Slash development time up to 50% with an integrated data management environment
- Promote collaboration across roles to optimize data server and application performance
- Accelerate Java development productivity with new pureQuery data access
- Simplify development of applications implementing industry specific XML standards
- Monitor data server operation & performance anywhere, anytime from a Web browser

### **Simplify and speed development of new skills**

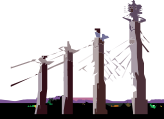
- Learn once, use with all supported data servers
- Easy-to-use and integrated user interface, compatible with Rational Software Development Platform
- Extensible with Eclipse plug-ins to customize the environment for each team member

### **Accelerate data as a service for Service Oriented Architecture**

- Develop and publish data as a Web service without programming
- Info 2.0 Ready - support for Web 2.0 protocols and format

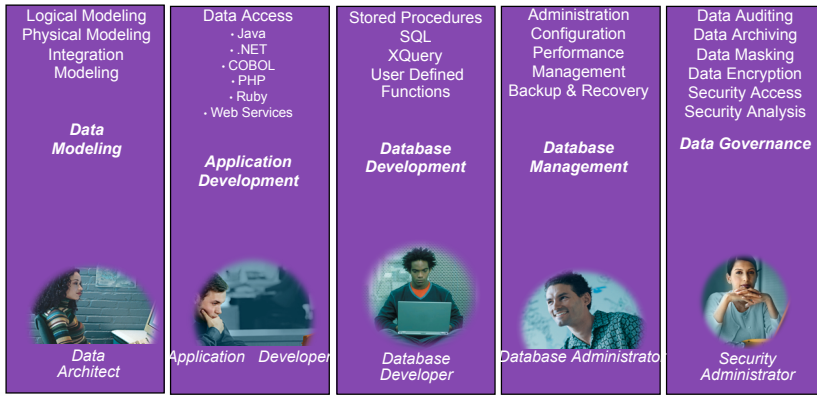


*An Integrated data management environment*



# IBM Data Studio – Who Will Use It?

← **Data Management Life Cycle** →



← **Design**      **Develop**      **Deploy**      **Manage**      **Govern** →

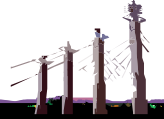


## IBM Data Studio 1.1 - Features

- ER Diagramming Visualizer
- Data Distribution Viewer
- Integrated Query Editor
- SQL Builder
- XML Editor
- XML Schema Editor
- pureQuery for Java
- Data Web Services
- Object Management
- Data Management
- Security Access Controls
- Project Management



**More to come!**



Future feature: Visual explain



## Data Studio Versions

### IBM Data Studio Developer

- Everything in the free download, plus
- Enhanced tools for binding pureQuery applications
- Advanced pureQuery runtime for static SQL development and test
  - More to come in 2008...
- **Priced at \$795/Authorized User**

### IBM Data Studio pureQuery Runtime

- Accelerates performance of Java applications
- Simplifies deployment for Java application servers
- Improves data server management, governance, and application response for IBM Data Servers
  - More to come in 2008...
- **Priced at \$22/Processor Value Unit\***

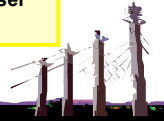
### IBM Data Studio

- **Free non-warranted download**
  - Includes standard pureQuery runtime and tools
  - Does not include advanced pureQuery tools/runtime for static SQL binding

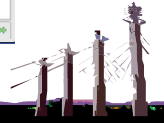
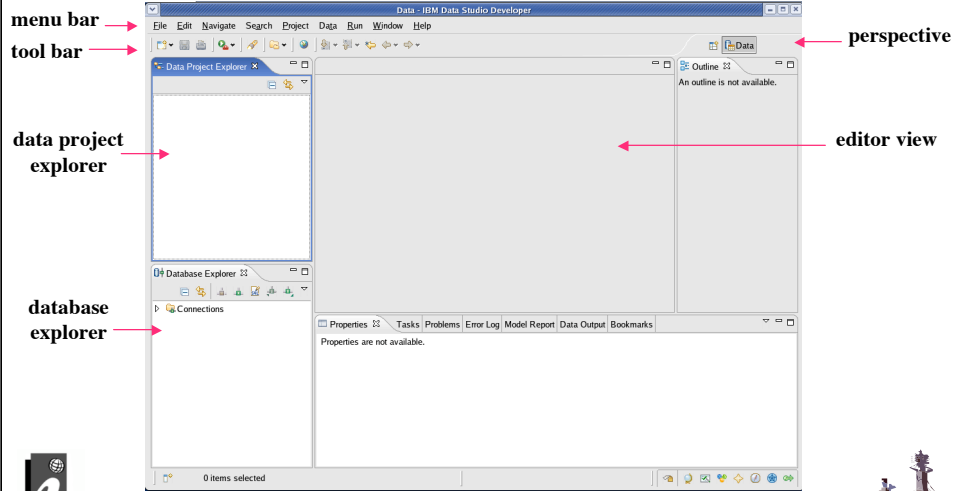


### Rational Data Architect

- Robust data modeling, plus
- Heterogeneous support of databases beyond the DB2 family.
- Mapping, compare and synchronize
- Naming Standards, Integration with existing Rational suite of products.
- **Priced at \$5,150/Authorized User**

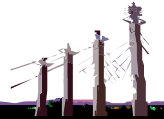
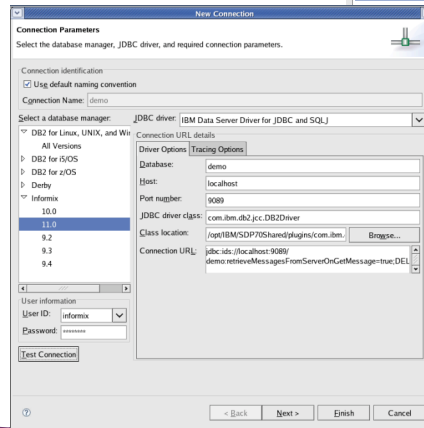


# IBM Data Studio - Workbench



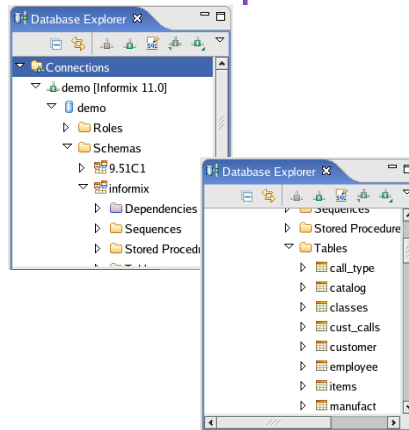
## Creating a connection

- Use the database explorer to create a new connection
- Choice of IDS versions
- Choice of JDBC driver



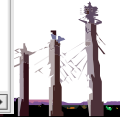
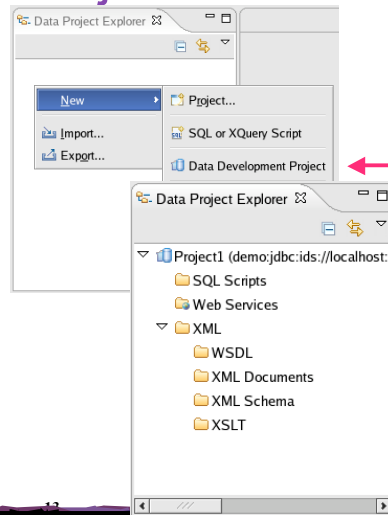
## Navigating the Database Explorer

- Look at table definition
- Alter table definitions
- Extract/load data
- Create an ER diagram
- More . . .



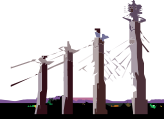
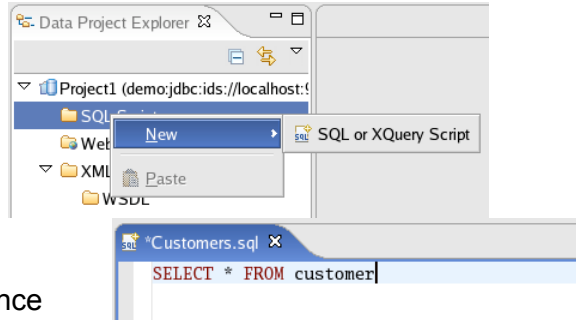
## Creating a Data Project

- Right-click in the Data Project Explorer
- Select New
- Select Data Development Project
- Associate the project to a database connection



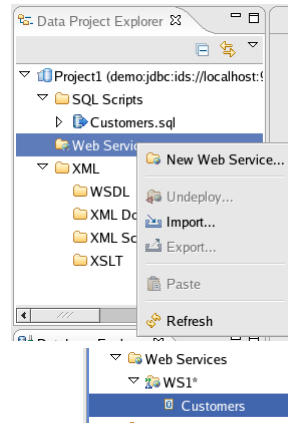
## Create a SQL Script

- Right-click on SQL Scripts
- Select New
- Use the SQL editor window
- Editor provides intellisense assistance



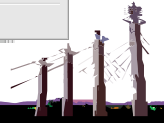
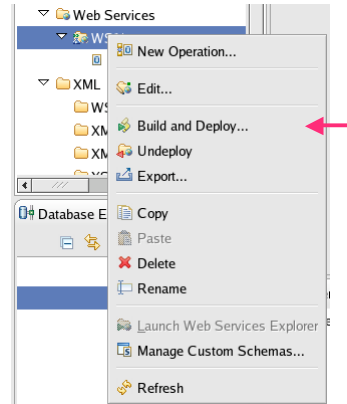
## Create a Web Service

- Right-click on Web Services
- Select New Web Service
- Provide a name for the web service
- Drag and drop the SQL script on the web service



## Building the Web Service

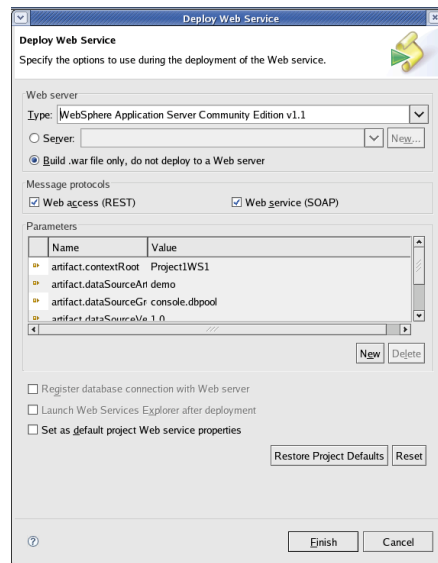
- Right-click on the web service name
- Select Build and Deploy
- Other operations available (as shown here)





## Building...

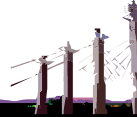
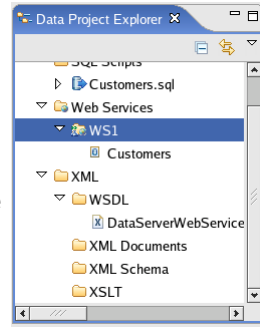
- Supported platforms:
  - Apache Tomcat 5.5
  - WAS CE 1.1
  - WAS 6.x
- Can be built or built and deployed to an accessible server
- Support for SOAP and REST



## Web Service. . .

- Also generates the WSDL
- Web service packaged as a WAR file
- Assumes a database pool with the name of the database connections attached to the project
- WAR file found in the workspace:

Project1/DataServerWebServices/WS1/Project1WS1.war



## Manual Deployment Preparation

- Example for WASCE
- May have to install the IDS JDBC driver
- Could install the IBM Data Server JDBC driver
- Create a Database pool in WAS CE

**Database Pools** - Step 1: Select Name and Database

Create Database Pool - Step 1: Select Name and Database

Name of Database Pool:

A name that is different than the name for any other database pools in the server (no spaces in the name please).

Database Type:

The type of database the pool will connect to.

**Database Pools** - Step 2: Select Driver, JAR, Parameters

Create Database Pool - Step 2: Select Driver, JAR, Parameters

JDBC Driver Class:

See the documentation for your JDBC driver.

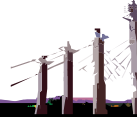
Driver JAR:

The JAR(s) required to make a connection to the database. Use CTRL-click or SHIFT-click to select multiple jars.  
The JAR(s) should already be installed under GERONIMOrepository (or [Download a Driver](#))

DB User Name:

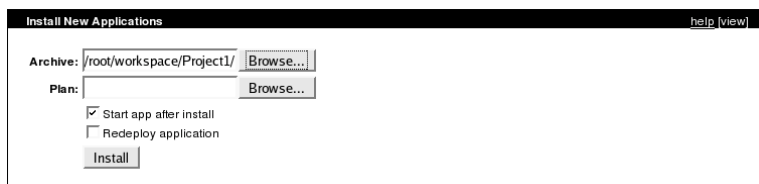
The username used to connect to the database

DB Password:



## Manual Deployment

- Use the Deploy New option
- Enter the path of the WAR file
- Leave the plan blank
  - Plan included in the WAR file

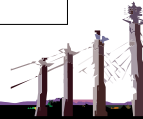


Install New Applications help [view]

Archive: /root/workspace/Project1/

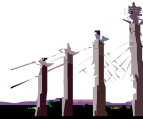
Plan:

Start app after install  
 Redeploy application



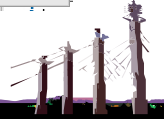
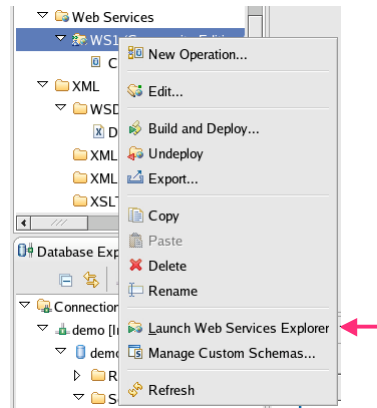
## Accessing the Service

- Web service definition
  - <http://localhost:8080/Project1WS1/wsdl>
- SOAP interface
  - <http://localhost:8080/Project1WS1/services/WS1>
- REST interface
  - <http://localhost:8080/Project1WS1/rest/WS1/Customers>

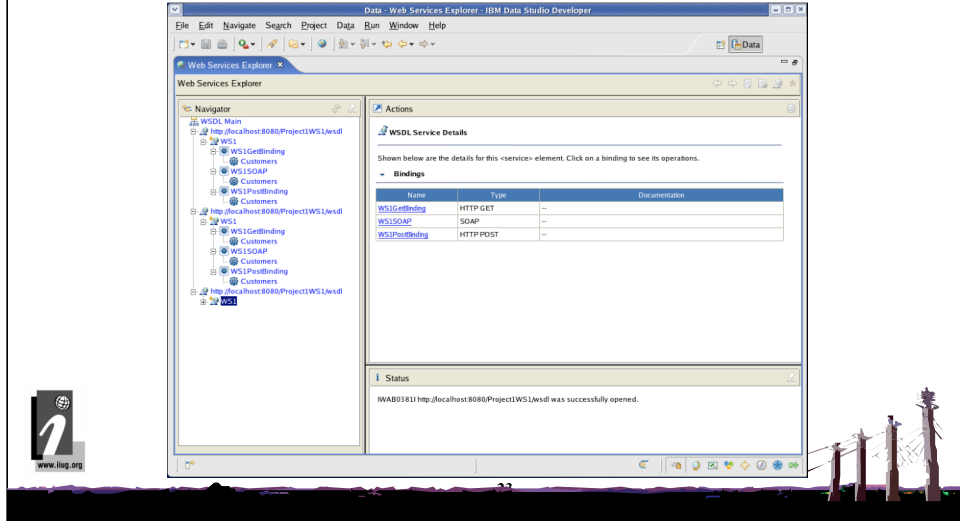


## Web Service Explorer

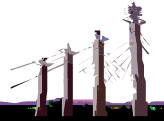
- Available when deploying through IBM Data Studio
- Opens a browser window to a menu selection
- Gives access to the defined methods
  - SOAP, GET, POST
- See the result of web services calls



# Web Service Explorer View



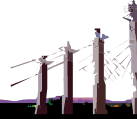
# DEMO





## Conclusion

- It is easy to create data-centric web services for IDS
- IBM Data Studio is a great environment to manipulate database objects
- Download Data Studio Now!  
<http://www.ibm.com/software/data/studio/>



Session ###

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