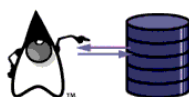




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WebSphere software

JDBC/SQLJ for z/OS Update



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JDBC Driver Overview

| WebSphere Version | API Level | SDK | TYPE | DB2 Version |
|-------------------|-----------|-------|------|-------------|
| 1.2 SE | 1 | 1.1.8 | 1 | 5-6 |
| 3.02 SE | 1.1 | 1.1.8 | 2 | 5-6 |
| 3.5 SE | 1.2 | 1.3 | 2 | 5-6-7 |
| 4.0,4.01 | 2 | 1.3 | 2 | 7 |



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JDBC/SQLJ 2000

- New Type-2 JDBC driver for OS/390 that bypasses the Type-1 ODBC layer
 - ▶ 50%-90% faster than previous OS/390 driver
 - ▶ V5 APAR PQ19814
 - ▶ V6 APAR PQ36011
 - ▶ V7 Standard
 - ▶ Both drivers are on JDBC 1.2 API level
 - ▶ Both drivers can be used with JDK 1.1.8 or SDK 1.3
- SQLJ support
 - ▶ static SQL for the fastest possible performance
 - ▶ better authorization characteristics
 - ▶ easier for application programmer than JDBC
- Java stored procedures
 - ▶ DB2 V6 or higher
 - ▶ Using either JDBC or SQLJ
 - ▶ HPCJ required for DB2 V6 and JDK 1.1.8
 - ▶ Java SPs with DB2 V6 can be compiled Java only (using HPCJ + JDK 1.1.8)
 - ▶ No HPJ with SDK 1.3, i.e. no Java SPs possible if DB2 V6 + SDK 1.3
 - ▶ Java SPs with DB2 V7 can be:
 - Compiled Java using PRJVM and SDK 1.3
 - Interpreted Java using JVM



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JDBC/SQLJ 2001

- No new functions in SQLJ. Still SQLJ Part-0 specification level.
- Type-2 driver at JDBC 2.0 level only available with DB2 V7 (optional, no-charge feature)
- Two different SQLJ/JDBC drivers available for DB2 V7 SQLJ/JDBC support.
 - ▶ One driver based on the JDBC 1.2 specification
 - can be used for DB2 V6
 - can be used with JDK 1.1.8 or SDK 1.3
 - ▶ One driver based on the JDBC 2.0 spec. level
 - can only be used for DB2 V7
 - can only be used with SDK 1.3
- JDBC/SQLJ in WebSphere V4 for z/OS requires DB2 V7 and driver on 2.0 spec. level./390. No DB2 V6 access possible.
- JDBC/SQLJ in WebSphere V3.5 for z/OS can use JDBC driver at 1.2 (with JDK 1.1.8) to access DB2 V6 or at 2.0 level (with SDK 1.3) to access DB2 V7.
- Always same driver for JDBC and SQLJ



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JDBC/SQLJ 2001 (cont.)

- JDBC 2.0 API consist of 2 parts:
 - ▶ the core JDBC 2.1 API
 - ▶ JDBC 2.0 Optional Package API
- JDBC specifications at <http://java.sun.com/products/jdbc>
- Various suppliers of JDBC drivers for various databases. See <http://java.sun.com/products/jdbc/jdbc.drivers.html>
- JDBC 2.0 adds (see "jdbc2_1-spec.pdf" chapter 3):
 - ▶ Result set enhancements
 - ▶ Batch updates
 - ▶ Advanced data types
 - ▶ Rowsets
 - ▶ JNDI for naming databases (i.e. for obtaining IP address and port)
 - ▶ Connection Pooling
 - ▶ Distributed transaction support (2-phase commit via JTA)
 - ▶ Support for Advanced Database Features:
 - scrollable cursors
 - row sets
 - Binary Large Objects (BLOBs)



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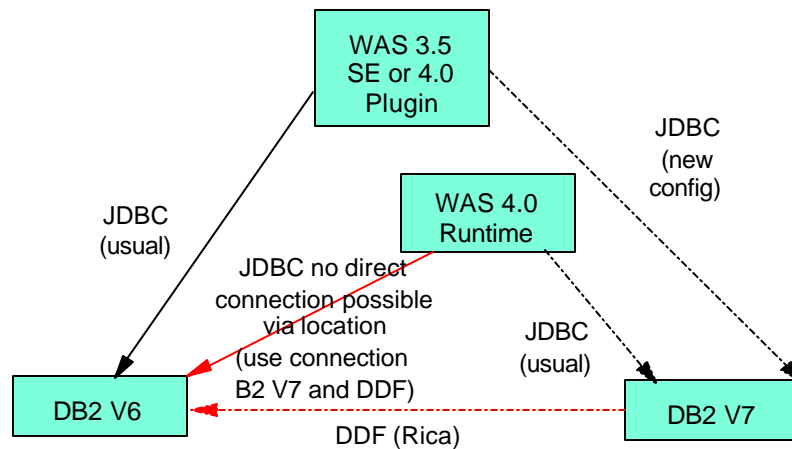
JDBC/SQLJ 2001 (cont.)

- DB2 V7 JDBC/SQLJ corrections and performance enhancements:
 - ▶ Connection pooling inside JDBC and DataSource support
 - ▶ PTF UQ56929, APAR PQ48381
- DB2 V6 and V7 JDBC/SQLJ major performance enhancements:
 - ▶ With JAVA Service Release 10 (SR10) for SDK 1.3
 - ▶ Correspong to PTF UQ58208
 - ▶ These changes are integrated in builds after cm130-20010726
 - ▶ For some applications heavily using date and time functions a throughput boost up to factor 2 has been observed
- **Que sera**
 - ▶ **BLOB support on z/OS planned for JDBC 2.0 driver and DB2 V7 for 4Q2001**
 - ▶ **JDBC Type 4 in DB2 V7 not in 2001**



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DB2/WebSphere connectivity



DB2 JDBC driver allows either DB2 V6 or DB2 V7 access



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Appendix

DB2 and RPJVM

Static SQL authorization

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PRJVM: New IBM JVM

- The new PRJVM is designed for Java programs running in all the key OS/390 environments:
 - ▶ WebSphere
 - ▶ CICS TS V2.1
 - ▶ IMS V7
 - ▶ DB2 V7 (Java Stored Procedures)
 - ▶ Unix System Services (USS)
- Key design points:
 - ▶ minimize CPU cost and storage consumption
 - ▶ minimize overhead of JIT, garbage collection
 - ▶ share in-memory Java classes across multiple JVM instances



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Static SQL Authorization

- Static SQL is associated with "program"
 - ▶ plans/packages identify "programs" to DB2
 - ▶ program author's table privileges are used
 - ▶ end users are granted EXECUTE on program
- Dynamic SQL is associated with "user"
 - ▶ no notion of "program"
 - ▶ end users must have table privileges



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