IBM Education Assistance for z/OS V2R1

Item: Launch PL/I
Element/Component: BCP Batch Runtime

Material is current as of June 2013

Agenda

- Trademarks
- Presentation Objectives
- Overview
- Usage & Invocation
- Interactions & Dependencies
- Installation
- Appendix

Trademarks

- See url http://www.ibm.com/legal/copytrade.shtml for a list of trademarks.

Presentation Objectives

- The purpose
- How to install
- How to invoke
- How to find information in the publications

Overview

- Problem Statement / Need Addressed
  - Allow interoperability of COBOL, PL/I, and Java within same unit of work while providing data base integrity
- Solution
  - Run application within Batch Runtime Environment
  - This line item adds PL/I as a supported language to Batch Runtime
    - Previously only COBOL and Java were supported
  - Transactional VSAM also supported
- Benefit / Value
  - Preserve COBOL and PL/I assets while migrating to Java applications

Usage & Invocation

- Batch Runtime is invoked through JCL
  - Sample JCL procedure BCDPROC
  - Sample invocation JCL BCDBATCH
- Customize BCDBATCH job
  - Application name and language type
  - Application arguments (if any)
  - CLASSPATH and LIBPATH needed by application
- Run BCDIVP job to verify installation

Usage & Invocation

- Batch Runtime launches user COBOL, PL/I, or Java application
  - Launched application can call another COBOL, PL/I or Java application
    - Any call depth

- All commit and rollback requests handled by Batch Runtime
  - Applications cannot use SQL commit or rollback
  - Commit and rollback must be coordinated by Batch Runtime
  - Batch runtime provides:
    - Java helper class to invoke commit and rollback
      - Call directly from Java or through JNI in COBOL and PL/I
    - New convenience helpers that can be called natively from COBOL and PL/I

Usage & Invocation

- DB2 connection management
  - Batch Runtime calls JDBC to obtain connection to DB2 at startup
  - Subsequent COBOL and PL/I SQL share this connection
  - Java getConnection will return the same connection

- Batch Runtime begins initial transaction (all transactions are global)
  - Calls RRS atrbeg

- For commit and rollback
  - Batch Runtime helpers call back to Batch Runtime
  - Batch Runtime calls RRS atrend (commit or rollback)
  - New transaction started (atrbeg)

Usage & Invocation

- Commit and rollback helpers
  - com.ibm.batch.spi.UserControlledTransactionHelper.commit()
  - com.ibm.batch.spi.UserControlledTransactionHelper.rollback()

  - For Java, call method directly
  - For COBOL, use INVOKE statement
  - For PL/I, use JNI calls as defined in PL/I ibmzjni include file
    - JNI_GetCreatedJavaVMs
    - JGetEnv
    - FindClass
    - GetStaticMethodId
    - CallStaticVoidMethod

Usage & Invocation

- New convenience commit and rollback helpers
  - For COBOL
    - Call 'bcdcommit' returning rc.
    - Call 'bcdrollback' returning rc.
  - For PL/I
    - %INCLUDE BCDPLIH (from SYS1.SAMPLIB)
    - rc=bcdcommit();
    - rc=bcdrollback();

Interactions & Dependencies

- Software Dependencies
  - IBM 31-bit SDK for Java Technology Edition, V6.0.1 or higher
    - jZOS Launcher required (distributed with SDK)
  - Enterprise COBOL V4R2
  - Enterprise PL/I V4R2
  - DB2 V9 or DB2 V10
- Hardware Dependencies
  - None
- Exploiters
  - None

Installation

- Batch Container is implemented in Java
  - Installs into existing path /usr/lpp/bcp
- BCDPROC is installed into SYS1.PROCLIB
  - Check for any modifications needed
- Sample JCL BCDBATCH is installed in SYS1.SAMPLIB
  - Copy to your private JCL data set and customize as needed
- Re-instrument your COBOL, PL/I, and Java applications to use Batch Runtime provided commit and rollback helper methods

Appendix

- Documentation
  - z/OS Batch Runtime: Planning and User's Guide (SA23-7270)