# H02

## Hands-on Workshop: Enabling IMS Java and JDBC



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# Workshop Overview

This workshop features hands-on labs to configure the new IMS Java Message Processing Region and to validate the configuration using the IMS Java Classes IVP. You will also use the new DLI Model Utility to generate IMS Java Classes Metadata.

During the exercises, you will have the opportunity to:

- configure and work with your own IMS Java Dependent Region
- use the IMS Java IVP program to get first-hand experience on how it interacts with IMS
- and create IMS Java Classes Metadata using the DLI Model Utility.

The workshop provides step-by-step instructions and is designed to be self-paced. Instructors are available to assist in any problems encountered.

# Exercise 1.   Review Environment
## What This Exercise is About

In this exercise you become familiar with how to access the mainframe.

## Exercise Steps

____ 1.   If your system is not already started, proceed through the following:

        a.   Start your system.  When the logon panel appears,  use the following
          **USERID ==> admin,   PASSWORD ==> admin**

____ 2.   Logon to TSO

        a.   Left mouse click the **CM650** icon.  This will establish the connection to the z/OS system.

        b.   **Logon information:    Userid=TEAMxx     Password=TEAMxx**

```
                    CUSTOMPAC MASTER APPLICATION MENU
   OPTION ===>                                          SCROLL ===> PAGE

     IS  ISMF      - Interactive Storage Management Facility
     P   PDF       - ISPF/Program Development Facility
     IP  IPCS      - Interactive Problem Control Facility
     HC  HCD       - Hardware Configuration Definition
     SM  SMP/E     - SMP/E Dialogs
     R   RACF      - Resource Access Control Facility
     SD  SDSF      - System Display and Search Facility
     OS  Support   - OS/390 ISPF System Support Options
     OU  User      - OS/390 ISPF User Options
     DI  DITTO     - Data Interfile Transfer, Testing and Operations
     S   SORT      - DF/SORT Dialogs
     BMR BMR READ  - BOOKMANAGER READ (Read Online Documentation)
     BMI BMR INDX  - BOOKMANAGER READ (Create Bookshelf Index)
     BMB BMR BLD   - BOOKMANAGER BUILD (Create Online Documentation)
     IC  ICSF      - Integrated Cryptographic Service Facility
```

**Use OPTION 'P' to access the  PDF environment and  OPTION 'SD' to access the Console**

# Exercise 2. Install the IMS Java IVP

The activities will involve copying the IMS Java samples.tar to your /teamxx directory then use untar to install the IMS Java IVP in your OMVS teamxx directory.

1. Create the teamxx directory
     # mkdir /teamxx
2. Copy the samples.tar file to your teamxx directory
     # cp /usr/lpp/ims/imsjava71/samples/samples.tar /teamxx/.
3. Change to your teamxx directory
     # cd /teamxx
4. Untar the samples.tar file
     # tar -vxf samples.tar
     USTAR Version
     x samples/dealership/AutoDealership.java, 16342 bytes, 32 tape blocks
     x samples/dealership/AUTPSB11DatabaseView.java, 17214 bytes, 34 tape blocks
     x samples/dealership/cics/CICSAuto.java, 3369 bytes, 7 tape blocks
     ...
5. Display the contents of the teamxx directory to make sure the command worked
     # ls -l
     total 1104
     drwxrwxr-x   4 OMVSKERN SYS1        8192 Aug 30 16:08 samples
     -rw-r--r--   1 OMVSKERN SYS1       40600 Jun 13 16:25 samples.jar
     -rwxr-xr-x   1 OMVSKERN SYS1      491520 Aug 30 16:08 samples.tar

# Exercise 3. Configure IMS Java Dependent Region

The activities will involve configuration, set-up and starting an IMS Java Dependent Region address space and ensuring that it can run an IMS Java IVP. The IMS Java Dependent Region is a new Dependent Region type that support a Java Virtual Machine(JVM).

## Exercise Steps

____ 1.  Logon to z/OS.  Your USERID ==> TEAMxx,  PASSWORD ==> TEAMxx.

____ 2.  Access "TEAMxx.PROCLIB" and edit member DFSJVMMS.   Make sure the profile is "NUMS OFF".  The TSO command is "unnum".  Check that columns 72-80 are blank.

   a.  DFSJVMMS is shipped as a sample member in IMS.PROCLIB and is used to define the OMVS path to your IMS Java Applications and the OMVS path to the IMS Java Classes jar file. In also defines the storage areas(called heaps) for the JVM. The application path needs to be set to your OMVS team path.

```
******************************************************************
* JVMOPMAS= DFSJVMMS member used for IMS Java Workshop           *
******************************************************************

******************************************************************
* The following two JVM options are required.  The pathname is:  *
* '/teamxx/samples/samples.jar                                   *
******************************************************************
-Dibm.jvm.shareable.application.class.path= >
/teamxx/samples/samples.jar
*
-Dibm.jvm.trusted.middleware.class.path=   >
/usr/lpp/ims/imsjava71/imsjava.jar
******************************************************************
* The following JVM options are a subset of the options allowed  *
* under JDK 1.3.1S                                               *
******************************************************************
-Xinitacsh128k
-Xinitsh128k
-Xmaxf0.6 -Xminf0.3
-Xmx64M
-Xoss400k
```

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____ 1.  DFSJVMEV is shipped as a sample member in IMS.PROCLIB and is used to define the OMVS path to your Java  Virtual Machine and IMS Java Classes using the LIBPATH statement.

```
********************************************************************
* ENVIRON= DFSJVMEV member                                        *
********************************************************************
********************************************************************
* LIBPATH environment variable                                    *
* --------------------------                                      *
* /usr/J1.3/bin/classic is path to libjvm.so                     *
* /usr/J1.3/bin is path to libatoe.so                            *
********************************************************************
LIBPATH=/usr/lpp/javas13/J1.3/bin/classic: >
/usr/lpp/javas13/J1.3/bin: >
/usr/lpp/java/IBM/J1.3/bin: >
/usr/lpp/ims/imsjava71
```

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____ 1. DFSJVMAP is shipped as a sample member in IMS.PROCLIB and is used to map the 1-8 character IMS Application definition name to the OMVS path for your IMS Java Application Program

```
**********************************************************************
* The following JVM option is set for IMS Java Workshop             *
*                                                                   *
*  -Dibm.jvm.shareable.application.class.path=                      *
*    /teamxx/samples/ivp/ims/IMSIVP                                 *
*                                                                   *
**********************************************************************
* Mapping example for an IMS APPLCTN sysgen:                        *
*                                                                   *
*     APPLCTN  PSB=IMSJAVAP,PGMTYPE=TP                              *
*                                                                   *
* and for an IMS PSB genned as:                                     *
*                                                                   *
*     PSBGEN PSBNAME=IMSJAVAP,LANG=JAVA                             *
*                                                                   *
* With the java application package name                            *
*        samples.ivp.ims                                            *
* With the actual java application class file at pathname:          *
*                                                                   *
*     /teamxx/usr/lpp/imsjava71/samples.jar                         *
*                                                                   *
**********************************************************************
  IMSJAVAP=samples/ivp/ims/IMSIVP
```

# Exercise 4. Start Region and test IVP

____ 1. Submit your IMS Java Dependent Job to start your teamxx Java Dependent Region

- To determine the status of your IMS Java Dependent Region. Enter '/**rr**/DIS ACTIVE' where '**rr**' is the outstanding prompt for IMS. Note also that there is a '/' after **rr** since this is an IMS command.

____ 2. Logon to IMS

   a. Use your TEAMxx name as your LOGON ID

b. Use /FOR TEAMxx for your IVP input panel and Enter DISPLAY for PROCESS CODE and LAST1 for LAST NAME.

```
PROCESS CODE (*1) :DISPLAY
                                            (*1)PROCESS CODE
LAST NAME :LAST1                                 ADD
                                                 DELETE
FIRST NAME :                                     UPDATE
                                                 DISPLAY
EXTENSION NUMBER :                               TADD
                                                 END
INTERNAL ZIP CODE :
```

If IMS Java is properly installed, the output shown is

```
PROCESS CODE (*1):DISPLAY
                                            (*1)PROCESS CODE
LAST NAME :LAST1                                 ADD
                                                 DELETE
FIRST NAME :FIRST1                               UPDATE
                                                 DISPLAY
EXTENSION NUMBER :8-111-1111                     TADD
                                                 END
INTERNAL ZIP CODE :D01/R01
```

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# Exercise 5. DLI Model Utility

In this exercise you will use the DLI Model Utility to generate the IMS Java Classes Metadata.

1.  Create the control statement file
    a. cd/teamxx
    b. oedit cntrstmt
    c. Add the following lines to the file:
        OPTIONS PSBds=IVP.PSBS          DBDds=IVP.DBDS
                    GenJavaSource=YES
                    Package=samples.ivp
                    Outpath=samples/ivp
                    PSB psbName=DFSIVP37

2.  Set up the classpath
        #export CLASSPATH =        .
          .:/usr/lpp/ims/imsjava71/dlimodel/dlimodel.jar:/usr/lpp/ims/imsjava71/dlimodel/xerces.jar:
          /usr/lpp/ims/imsjava71/dlimodel/mofrt.jar:/usr/lpp/ims/imsjava71/dlimodel/ctccobol.jar:
          /usr/lpp/ims/imsjava71/dlimodel/tdlang.jar
2.  Run the DLI Model Utility
        #java com.ibm.ims.metagen.DLIModel cntrstmt pds
3.  Review Java Report and Java Source
        Located in /teamxx/samples/ivp directory