

IBM DB2 Content Manager Validation Utilities for z/OS

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About the validation utilities

The IBM® DB2® Content Manager validation utilities for z/OS® are Java® programs that run on a Microsoft® Windows® system and validate the data stored on a resource manager OAM running on z/OS. The utilities use a JDBC connection between the Windows system and the z/OS system.

There are two utilities that you can run separately:

- Validation utility
- Cleanup utility for external object name (New)

Prerequisites

The library server and resource manager must be running DB2 Content Manager Version 8.3 FP9 or later. APAR PK64318 is required for the Cleanup utility.

The system where you plan to run the utilities does not require any DB2 Content Manager software. It does need the following software:

- Microsoft Windows 2003 or Windows XP
- JDK – refer to Content Manager prerequisites
- DB2 Connect V8.1 Fix Pack 7a or later

Installing and configuring the validation utilities

The validation utilities are provided as a .zip archive. Extract the archive on a computer running Windows. By default, the utilities extract to a directory named `zosValidator` in the location where the .zip archive is extracted.

If you want to change the installation location, select a different directory. There are no registry entries to update.

Configuring the environment

1. Set the `JAVA_HOME` variable in windows if it is not set:
 - a. Right-click the **My Computer** icon on your desktop and select **Properties**.
 - b. Click the **Advanced** tab.
 - c. Click **Environment Variables**.
 - d. Click **New**.
 - e. Enter `JAVA_HOME` as the variable name and the directory where you installed Java as the variable value.

Example:

```
Variabl e name:  JAVA_HOME
```

```
Variabl e val ue:  c: \j 2sdk1. 4. 2\j re
```

2. Catalog the library server database.
3. Catalog the resource manager database if it is different from the library server database.
4. Review the contents of the `ICMRM.properties` file located in the `\com\ibm\mm\icmrmm` directory. Substitute the correct values for your DB2 Content Manager system in place of the variables.
5. Review the contents of the `icmrmlscr.txt` file located in the installation directory. Substitute the correct values for your DB2 environment in place of the variables.
6. Specify the trace log file. The `icmrmm_validator_logging.xml` log file is located in the `\cmgmt` directory. The default priority value is set to TRACE and can be changed to other options listed in the xml file.

```
<pri ori ty val ue="TRACE"  
  cl ass="com. i bm. mm. i cmrm. uti l. I CMRMPri ori ty" />
```

Recommendations

- Run the asynchronous delete and recovery jobs (ICMMRMDI and ICMMRMAR) for z/OS prior to running this utility.
- For optimum results, run the validation utility during periods of little or no DB2 Content Manager or OAM activity.

Running the validation utility

Run the utility from a command prompt.

1. **Optional:** Create a directory for the validation utility reports and copy `icmrmmval.dtd` and `icmrmmval.xsl` located in the `\report` directory into this directory. If you do not create your own report directory, reports will be saved in a directory named `report` located in the validation utility's program directory.
2. Change to the `zOSValidator` directory. For example, enter:

```
cd c: \zOSVal i dator
```

3. Enter the following command (on a single line) to run the validation utility:

```
i cmrml sval 390. bat -f report_dir
-b start -e end
-l LS_user -w LS_password
-r RM_user -p RM_password
```

Where:

report_dir is the directory where the reports will be saved

start and *end* are, respectively, the start and end dates for the report, in the format YYYY-MM-DD-hh.mm.ss

LS_user and *LS_password* are, respectively, the library server database user ID and password

RM_user and *RM_password* are, respectively, the resource manager database user ID and password

For example:

```
i cmrml sval 390. bat -f . \report
-b 2005-09-01-00.00.00 -e 2005-12-07-00.00.00
-l lsadmin -w password1
-r rmadmin -p password2
```

4. Review the output report. After the utility finishes, you can find the generated reports in the directory specified by the `-f` parameter in the command. Please read Interpreting the reports section for details.

Running the cleanup utility

The cleanup utility is a separate utility to clean up the external object name in the library server tables. It can be used to detect, and optionally correct, situations in which a library server entry points to an incorrect or inaccessible resource manager entry. If requested, library server data found to be in error will be corrected either by blanking out external object names or by deleting the library server entry, depending on the nature of the problem found.

This new feature is implemented via a new cleanup option, with two sub-options:

- Cleanup-report: provides a list of cleanup items for the user to review and verify before execution
- Cleanup-update: executes the cleanup and updates the library server tables

Run the utility from a command prompt.

To use this new feature, create the following index and run both REORG and RUNSTATS for improving performance.

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For an explanation of the ?TOKENS?, please refer to the sample job from a data set that was copied from the SMP/E installed data set ?ICM?.SICMINS1(ICMMLSCR).

```
CREATE INDEX ?CREATOR?. ICMUX0030000TEMP
      ON ?CREATOR?. ICMUT00300001

(

CREATETS ASC

)

USI NG STOGROUP ?STOGROUP?

PRI QTY ?PRI I ND X?

SECQTY ?SECI ND X?

BUFFERPOOL ?BPV4?

;

COMMI T;
```

Run DB2 REORG and RUNSTATS utilities on ?CREATOR?.ICMUT00300001 table which is in the tablespace ICUT301. For example,

```
REORG TABLESPACE ?DATABASENAME?. I CUT301 LOG NO;

RUNSTATS TABLESPACE ?DATABASENAME?. I CUT301 TABLE ALL INDEX
      ALL SHRLEVEL REFERENCE;
```

Run the utility from a command prompt with the same two steps described in the validation utility. To use this new feature, enter the additional option: -c cleanup-report or -c cleanup-update. For example:

```
i cmrml sval 390. bat -f report_dir
      -b start -e end
      -l LS_user -w LS_password
      -r RM_user -p RM_password

      -c cleanup-report
```

After the utility finishes, drop the index created previously by issuing:

```
DROP INDEX ?CREATOR?.ICMUX0030000TEMP;  
  
COMMIT;
```

Review the cleanup report. You can find the generated report in the directory specified in the -f parameter in the command. Please read Interpreting the reports section for details.

Interpreting the reports

The z/OS Data Validation utility generates several reports, each one identifying a data inconsistency in your DB2 Content Manager for z/OS system.

The report file names are composed of icmrmlsval + *time stamp* + _ + *report type* and have an .xml extension, except for the new cleanup report which has a .txt extension. The *time stamp* is of the format *YYYYMMDDhhmmss* where *YYYYMMDD* represents the date (year, month, day) and *hhmmss* represents the time that the utility ran.

Examples of default names with the default report type are:

```
i cmrml sval 20051208093045_ORPHAN.xml  
  
i cmrml sval 20051208093045_NOTI NRM.xml  
  
i cmrml sval 20051208093045_SI ZEMI SMATCH.xml  
  
i cmrml sval 20051208093045_COLLECTI ONMI SMATCH.xml  
  
i cmrml sval 20051208093045_DATEMI SMATCH.xml  
  
i cmrml sval 20080717113310_CLEANUP-REPORT.txt
```

In each of the preceding sample report names, the name indicates that the utility ran on December 8, 2005 at 9:30 AM (2005-12-08 at 09:30:45). The new report indicates that the cleanup utility ran on July 17, 2008 at 11:33 AM (2008-07-17 at 11:33:10).

Orphan

There is an object on the resource manager with no parent reference on the library server.

Action

Verify that the z/OS resource manager's tracking table is not empty and start the z/OS asynchronous recovery job, ICMMRMAR. After the asynchronous recovery completes, run the validation utility again.

If the problem persists and the system is online, confirm that the objects are orphans and contact IBM Software Support.

Not in resource manager (NOTINRM)

The library server has a reference to an object, but the object is not on the resource manager.

Action

Verify that the z/OS resource manager's tracking table is not empty and start the z/OS asynchronous recovery job, ICMMRMAR. After the asynchronous recovery completes, run the validation utility again.

Use the data from the validation utility report to manually search for the object reference in the library server. With a client application, search and retrieve the objects. If the retrieve fails with the message that the object was not found in the resource manager, then you can import the object again if you still have it stored somewhere else. If you need further assistance, contact IBM Software Support.

Size mismatch

The size of an object on the library server does not match the size of an object on the resource manager.

Action

Verify that the z/OS resource manager's tracking table is not empty and start the z/OS asynchronous recovery job, ICMMRMAR. After the asynchronous recovery completes, run the validation utility again.

If the problem persists and the system is online, verify that the collection mismatch exists and contact IBM Software Support.

Collection mismatch

The collection referenced in the library server for the object does not match the collection that contains the object in the resource manager.

Action

Verify that the z/OS resource manager's tracking table is not empty and start the z/OS asynchronous recovery job, ICMMRMAR. After the asynchronous recovery completes, run the validation utility again.

If the problem persists and the system is online, verify that the collection mismatch exists and contact IBM Software Support.

Date mismatch

The object creation or update date of an object that is referenced on the library server does not match the dates of the object stored on the resource manager, but the size and collection name do match.

Action

Verify that the z/OS resource manager's tracking table is not empty and start the z/OS asynchronous recovery job, ICMMRMAR. After the asynchronous recovery completes, run the validation utility again.

If the problem persists, contact IBM Software Support.

Cleanup for external object name

Shows objects on the library server that point to incorrect or inaccessible entries on the resource manager. This problem might be caused by migration or by multiple versions pointing to the same resource manager object.

Action

Review and verify the report of proposed changes. There are three columns in the report: ItemId, VersionId and External Object Name. Each is associated with the data before and after cleanup. Compare the data before cleanup and after cleanup to validate the proposed changes are correct.

After verifying the cleanup report, run the Cleanup utility with the cleanup-update option. Cleanup-update will correct the library server tables either by blanking out external object names or by deleting the library server entry.

If the problem persists, contact IBM Software Support.

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