

IBM® Content Manager V8.7

Moving a resource manager from z/OS to another platform

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1 About this document

This document describes how to move an IBM Content Manager V8.6 fix pack 4 (or higher) resource manager on z/OS, including its contents and its metadata, to another resource manager on another platform that is under the same library server, and then decommission the source resource manager that is on z/OS.

This document supplements the information that is in [Replicating existing objects from a resource manager on z/OS to another](#). It adds information about how to replace the source resource manager on z/OS with a resource manager on another platform, so that the source resource manager can be decommissioned.

This document assumes that you have a good understanding of your IBM Content Manager environment and databases, the operating system, all software components, and Db2.

Disclaimer

Moving data and metadata can be expensive, time consuming, complex, and prone to error. You must test the procedure and validate it before using it in a production system.

This document is only one example of how to perform the procedure; specific steps are different for every environment. This procedure is not included in standard product support: before trying this procedure, consult a service such as IBM Lab Services.

2 Scenario

IBM Content Manager is an enterprise class application, which comprises several specialized components. The core components of every IBM Content Manager implementation are the library server and one or more resource managers.

The library server is mostly a database application. Its logic is implemented in the database as stored procedures, and its data is stored in database tables and views. The library server implements functions such as authentication and authorization, data modeling, document routing, search and the storage of descriptive information for each object (so called metadata). The library server can also maintain relationships between different objects and can provide referential integrity.

The resource manager stores the actual content (files). The resource manager on z/OS logic is implemented as a web application, running under an HTTP server. The content is stored by using DFSMS OAM onto any media that it supports. The resource manager also maintains internal information, which is stored in a relational database.

Aim of this scenario

The aim of this scenario is to move a source resource manager on z/OS to a target resource manager on a different platform (that is, a IBM Content Manager Enterprise Edition system). Both resource managers use the same library server.

Each collection that is in the source resource manager will be moved to a new collection that is in the target resource manager. The source collection must contain only objects that were stored as primary collections. It must not contain replicated objects: you must delete any replicated objects before trying to move the collection.

Example setup

The example setup contains two main components:

- A source resource manager on z/OS that is to be deleted. It is part of an IBM Content Manager system that uses a library server on Windows.

The system contains 1000 items. Each item has two ICMBASE parts, which are stored in collections in the z/OS resource manager. The collections are the primary; that is, they do not have any items that are replicated from other resource managers.

- A resource manager on Windows has been installed and configured to be used as the target. It is not yet part of the IBM Content Manager system, but it will be used in the following procedure.

This document uses Windows as an example. However, similar steps apply to any platform that is supported by IBM Content Manager Enterprise Edition. The source platform must be z/OS.

3 Moving data to the target resource manager

3.1 Preparing the system

- 1 Back up the databases for the library server and the resource manager.

If moving the objects fails, you can restore the databases from the backup, and then try again.

- 2 Run the following jobs for the source resource manager in turn.

Job	Description	Run the job until
ICMMRMAP	Asynchronous replication job	The ICMRMASYNCH table is empty
ICMMRMAR	Asynchronous recovery job	The ICMRMTRK table is empty
ICMMRMAL	Asynchronous logging job	The ICMRMAUDIT table is empty
ICMMRMDI	Asynchronous delete job	Either: <ul style="list-style-type: none"> ▪ the ICMSTItemsToDelete table has no entries for the RMCode of the source resource manager, <i>or</i> ▪ the log shows that there are no more entries to be deleted for the source resource manager.

- 3 Backup the databases again, so that you do not have to run the asynchronous jobs again if you need to restore the databases.

- 4 Make sure that there is enough time to run the stages.

You can run the replication stage while the systems are active. This stage might take a long time: possibly *months*.

However, you can move the metadata only when the systems are *inactive*. This stage runs much faster, but requires a lot of manual steps.

3.2 Creating the target resource manager

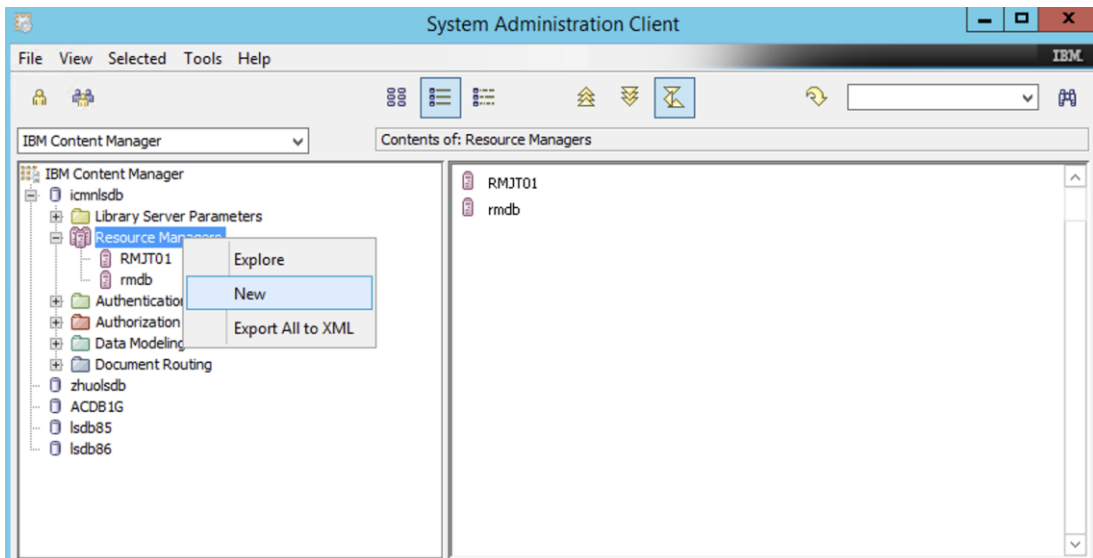
The source resource manager and the target resource manager must be identical; that is, they must:

- must be in the same IBM Content Manager domain
- contain the same number of collections
- map the collections one-to-one: that is, the target resource manager must have a collection for each collection that is in the source resource manager, and each collection in the source resource manager must map to a different collection in the target resource manager.

You must create a new resource manager as the target; do not assign it or any of its collections to any users or any item types. This is because the target resource manager definition will be deleted after migration is completed.

Creating a target resource manager and its collections

- 1 In the system administration client, right-click **Resource Managers**, and then click **New**.



The pane might already contain other resource managers (in the example screen, there is one called “rmdb”), but you must still create a new one.

- 2 Enter the resource manager information, and then click **OK**.

The screenshot shows a configuration dialog box for a resource manager. The fields are as follows:

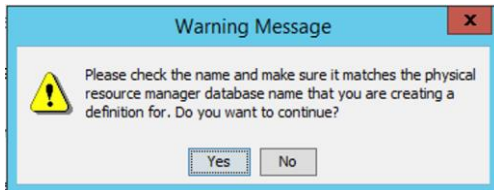
- Name: * rmdb2
- Hostname: * 10.1.212.131
- Application server operating system: Windows (dropdown menu)
- User ID: * radmin
- Password: * [masked]
- Enable LAN cache
- Server is unavailable
- Token duration (seconds): * 14700 Seconds

Access types table:

Protocol	Port number	Access data
http	9081	/icmm/ICMResourceMa...
https	9444	/icmm/ICMResourceMa...

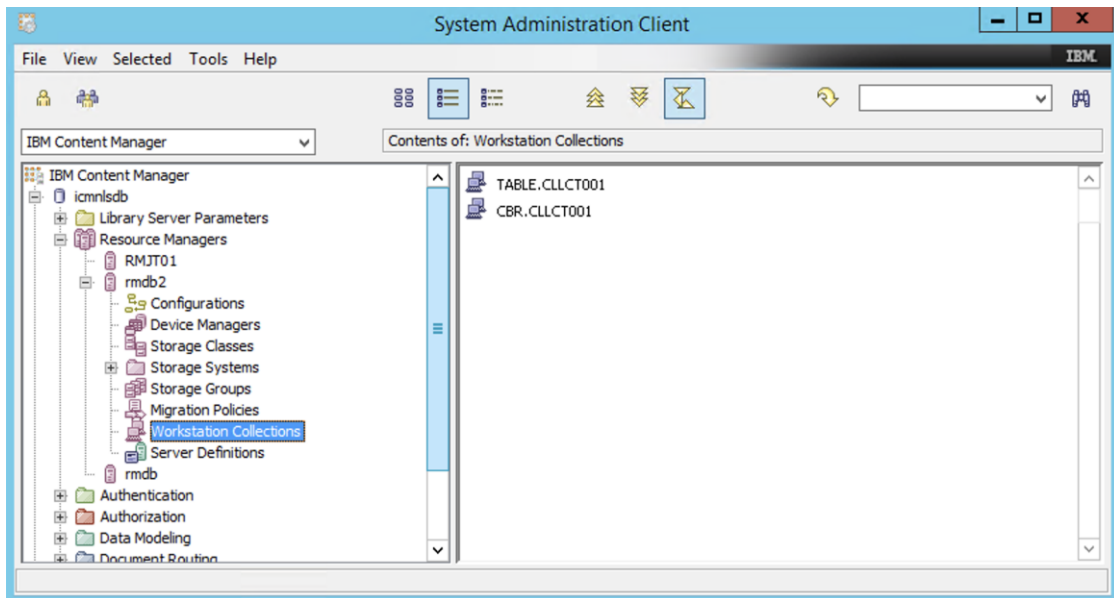
Buttons: Add..., Remove, Modify, OK, Cancel, Apply, Help

- 3 Check that the name is the same as the resource manager database name, and then click **Yes**.

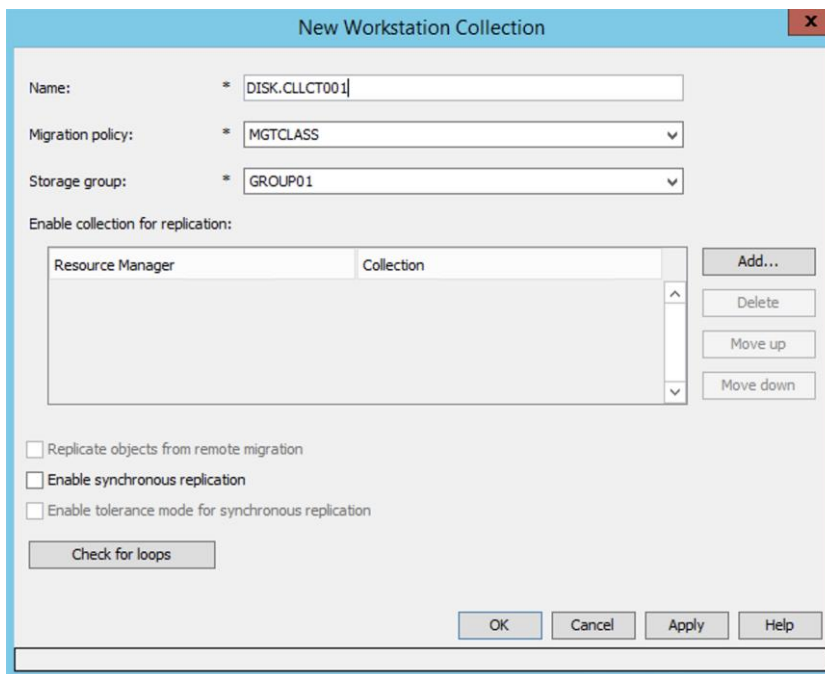


- 4 Go to **Resource Managers > rmdb2 > Workstation Collections**.

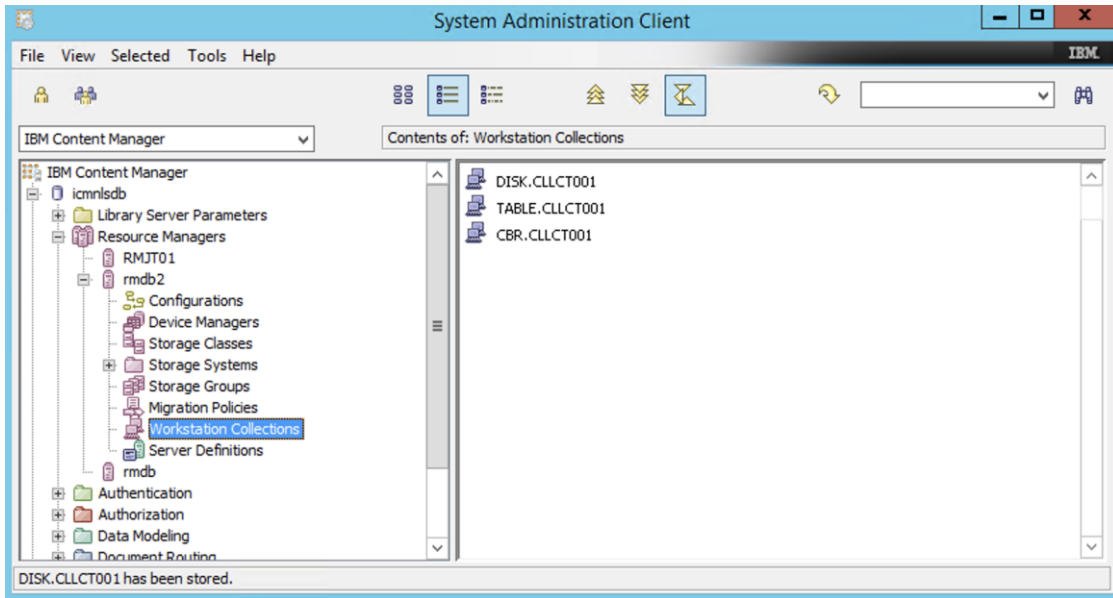
In the Contents of Workstation Collections pane, there are two default collections.



- 5 To create a new collection, right-click **Workstation Collections**, and then click **New**.
- 6 Enter the information for the workstation collection, and then click **OK**.

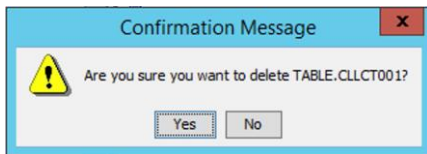


- 7 Repeat steps 5 and 6 to create a new collection in the target resource manager for each collection that is in the source resource manager.



- 8 Delete the default collections, because they will not be used for replication.

For example, you will not map any collection in the source resource manager to the TABLE.CLLCT001 collection, so you can delete it: right-click **TABLE.CLLCT001**, and then click **Delete**, and then click **Yes**.



3.3 Replicating the objects to the target resource manager

- 1 You can now replicate the objects from the source resource manager to the target resource manager. For information about how to do this, see [Enabling replication for objects that have already been stored on z/OS](#).

For example, the following table shows how you might replicate two collections from the source resource manager to the target resource manager:

Source resource manager		Target resource manager
OAMAC.CLLCT005	<i>replicates to</i>	CBR.CLLCT001
OAMAC.CLLCT000	<i>replicates to</i>	DISK.CLLCT001

- 2 After you have replicated all objects to the new resource manager, update the backup, to add the replicated objects to it.

3.4 Switching the primary resource manager

The target resource manager is now a replica of the source resource manager on z/OS.

The resource manager on z/OS still works; if you want to delete it, you must switch the resource manager definition in the library server tables, and then you can delete the definition of the resource manager on z/OS from the library server tables.

Resource manager information in the library server tables

In the library server database, information about the resource manager and its collections are stored in the following tables:

- ICMSTRESOURCEMGR
- ICMSTRMACCESSTYPES
- ICMSTCOLLNAME

These tables have foreign keys.

Switching the primary resource manager

In this section, “RMJT01” is the source resource manager, and “rmdb2” is the target resource manager’s.

- 1 Make sure that:
 - both resource managers are offline
 - no asynchronous tasks for the resource managers are running. These tasks include replication, deletion, recovery, logging, and so on.
- 2 Backup the library server database.
- 3 Find the RMCODE values for the resource managers. Run an SQL statement like this:

```
SELECT RMCODE, RMNAME FROM ICMSTRESOURCEMGR WHERE RMNAME in ('RMJT01', 'rmdb2')
```

RMCODE	RMNAME
2	RMJT01
3	rmdb2

- 4 Copy the resource manager information tables, so that you can restore them if any problems occur in the update process.

```
CREATE TABLE RMMGR LIKE ICMSTRESOURCEMGR
INSERT INTO RMMGR (SELECT * FROM ICMSTRESOURCEMGR)
CREATE TABLE ACCESSTYPES LIKE ICMSTRMACCESSTYPES
INSERT INTO ACCESSTYPES (SELECT * FROM ICMSTRMACCESSTYPES)
```

```
CREATE TABLE COLLNAME LIKE ICMSTCOLLNAME
INSERT INTO COLLNAME (SELECT * FROM ICMSTCOLLNAME)
```

- 5 Look in the ICMSTCOLLNAME table to identify which collections in the source resource manager must be mapped to which new collections in the target resource manager.

A collection is defined by using these columns: RMCODE and SMSCOLLCODE.

The following SQL statement replaces two collections in the source resource manager (RMCODE=2):

OAMAC.CLLCT005 (2,3) and OAMAC.CLLCT000(2,4)

with two collections in the target resource manager (RMCODE=3):

CBR.CLLCT001(3,1) and DISK.CLLCT001 (3,3)

To replace the collections, you replace the following pairs of (RMCODE, SMSCOLLCODE) from the table:

Replace (2,3) with (3,1)

Replace (2,4) with (3,3)

```
SELECT a.RMCODE, substr(b.RMNAME, 1, 20) RMNAME, a.SMSCOLLCODE, substr(a.SMSCOLLNAME,1,30)
SMSCOLLNAME, a.DOMAINID from ICMSTCOLLNAME a, ICMSTRESOURCEMGR b where a.RMCODE=b.RMCODE and
a.RMCODE in (2,3)
```

RMCODE	SMSCOLLCODE	SMSCOLLNAME	DOMAINID
2	3	OAMAC.CLLCT005	2
2	4	OAMAC.CLLCT000	2
3	1	CBR.CLLCT001	2
3	3	DISK.CLLCT001	2

- Replace the RMCODE and SMSCOLLCODE values in the example SQL statement with the values for your source resource manager and target resource manager.

- 6 Make sure that there are no “to be deleted” rows for the source resource manager and the target resource manager. To do this, run the following SQL statement, and then make sure that the result is 0:

```
SELECT COUNT(*) FROM ICMSTITEMSTODELETE WHERE RMCODE IN(2,3)
```

- 7 Update the ICMSTCOLLNAME table using the information from step 5:

```
UPDATE ICMSTCOLLNAME SET
(USERID, CREATED, PREFETCHIND, DOMAINID, SMSCOLLNAME, COLLOPTIONS) = (SELECT
USERID, CREATED, PREFETCHIND, DOMAINID, SMSCOLLNAME, COLLOPTIONS FROM ICMSTCOLLNAME WHERE RMCODE
= 3 AND SMSCOLLCODE = 1) WHERE RMCODE = 2 AND SMSCOLLCODE = 3
```

```
UPDATE ICMSTCOLLNAME SET
(USERID, CREATED, PREFETCHIND, DOMAINID, SMSCOLLNAME, COLLOPTIONS) = (SELECT
USERID, CREATED, PREFETCHIND, DOMAINID, SMSCOLLNAME, COLLOPTIONS FROM ICMSTCOLLNAME WHERE RMCODE
= 3 AND SMSCOLLCODE = 3) WHERE RMCODE = 2 AND SMSCOLLCODE = 4
```

The SMSCOLLNAME column and other columns of the entries for the source resource manager (RMCODE=2) now have the values for the target resource manager (RMCODE=3). The table looks like this:

RMCODE	SMSCOLLCODE	SMSCOLLNAME	DOMAINID
2	3	CBR.CLLCT001	2
2	4	DISK. CLLCT001	2
3	1	CBR.CLLCT001	2
3	3	DISK. CLLCT001	2

8 Update the ICMSTACCESSTYPES table by running these SQL statements:

```
DELETE FROM ICMSTRMACCESSTYPES WHERE RMCODE = 2

INSERT INTO ICMSTRMACCESSTYPES SELECT 2, RMACCESSTYPE, PORT, ACCESSDATA FROM
ICMSTRMACCESSTYPES WHERE RMCODE=3
```

9 Update the ICMSTRESOURCEMGR table:

```
UPDATE ICMSTRESOURCEMGR SET
(RMPLATFORM, USERID, CHANGED, RMFLAGS, TOKENDURATION, DOMAINID, RMUSERID, RMPASSWORD, INETADDR, CU
RRENTVERSION, CACHEOBSIZELIMIT, RMPASSWORD2) = (SELECT
RMPLATFORM, USERID, CHANGED, RMFLAGS, TOKENDURATION, DOMAINID, RMUSERID, RMPASSWORD, INETADDR, CUR
RENTVERSION, CACHEOBSIZELIMIT, RMPASSWORD2 FROM ICMSTRESOURCEMGR WHERE RMCODE = 3) WHERE RMCODE
= 2
```

- Replace the values for the RMCODE, SMSCOLLCODE and RMNAME for these two resource managers with the values from your system.
- This statement keeps the “RMJT01” RMNAME for the source resource manager (RMCODE=2) in the ICMSTRESOURCEMGR table. You have to keep it until you delete the target resource manager definition (RMCODE=3), because the RMNAME must be unique.

Before the update, the ICMSTRESOURCEMGR table looks like this:

RMCODE	RMPLATFORM	USERID	RMNAME
2	3 [z/OS]	ICMZ	RMJT01
3	0 [EE]	ICMEE	rmdb2

After the update, the ICMSTRESOURCEMGR table contains the values of the target resource manager in the RMPLATFORM and the USERID columns. The values in the RMCODE and RMNAME columns do not change.

RMCODE	RMPLATFORM	USERID	RMNAME
2	0 [EE]	ICMEE	RMJT01
3	0 [EE]	ICMEE	rmdb2

- 10 Make sure that the three tables are consistent and contain the information that you want. You check the two resource managers by using the system administration client.

4 Completing the process

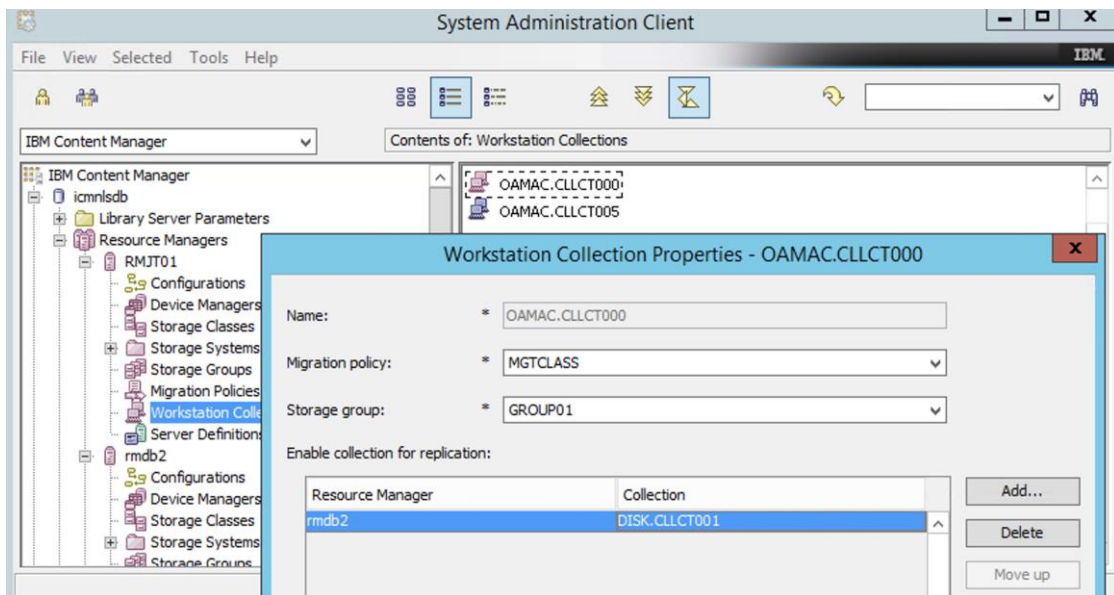
You can now delete the target resource manager definition, because it was needed only for the replication of items from the source resource manager. First, you must delete the replication rules and its server definition from the target resource manager, and then you can delete the definition of the target resource manager itself.

Deleting the replication rules from the target resource manager

- 1 In the system administration client, go to **Resource Managers > RMJT01 > Workstation Collections**.

The Contents page displays two collections.

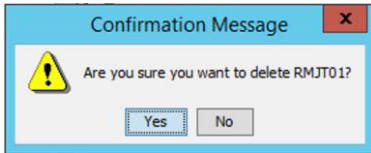
- 2 Right-click **OAMAC.CLLCT000**, and then click **Properties**.
- 3 In the Workstation Collection Properties dialog box, click the row for **rmdb2**, and then click **Delete**.



- 4 Repeat these steps to delete the replication rule for **OAMAC.CLLCT005**.

Deleting the server definition from the target resource manager

- 1 Go to **Resource Managers > rmdb2 > Server Definitions**.
- 2 In the Contents of Server Definitions pane, right-click **RMJT01**, click **Delete**, and then click **Yes**.



Deleting the target resource manager definition

- 1 Make sure that there are no “to be deleted” rows for the target resource manager. To do this, run the following SQL statement, and then make sure that the result is 0:

```
SELECT COUNT(*) FROM ICMSTITEMSTODELETE WHERE RMCODE=3
```

- 2 Delete all the items in the replicas table that is the target resource manager. You can delete the target resource manager definition only when this table is empty. To delete all the items, run this SQL statement:

```
DELETE FROM ICMSTREPLICAS WHERE RMCODE = 3
```

- 3 In the system administration client, go to **Resource Managers**, right-click **rmdb2**, and then click **Delete**.
- 4 Change the source resource manager’s **RMNAME** to the original target resource manager’s **RMNAME**. To do this, run this SQL statement.

```
UPDATE ICMSTRESOURCEMGR SET RMNAME= 'rmdb2' where RMCODE=2
```

The ICMSTRESOURCEMGR table now looks like this:

RMCODE	RMPLATFORM	USERID	RMNAME
2	0 [EE]	ICMEE	rmdb2

Checking the results

Make sure that all the data can still be accessed from the new resource manager.

The source resource manager on z/OS is no longer used and is ready to be archived.

5 More information

General information about using IBM Content Manager:

https://www.ibm.com/support/knowledgecenter/SSRS7Z_8.7.0/

Enabling replication for objects that have already been stored on z/OS:

<https://www.ibm.com/docs/en/content-manager/8.7.0?topic=suar-enabling-replication-objects-that-have-already-been-stored-zos>