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DFSMSdfp OAM

V2R3 Publication Update Document

The z/OS DFSMS OAM Planning, Installation, and Storage Administration Guide for Object Support (Publication number: SC23-6866-30) to be updated as follows...

- Note:
1. Red text with strikethrough should be removed.
 2. Blue text is new text that should be added.
 3. Black text is existing text for reference.
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Specialized OAM installation procedures

~~It might be necessary to move the OAM application from one system to another to accommodate changes within an installation's storage management policy. The following information can assist you in moving OAM from one system to another (SYS1 and SYS2 are used as example system names).~~

The following procedural information is used as a step by step reference or “cheat sheet” for performing a variety of different OAM setup type tasks during migration, installation, or customization of your OAM environment. Within this section you can find the following procedures:

1. Procedures for moving OAM to another system.
2. Procedures for merging OAMs into an OAMplex.
3. Procedures for adding OAM systems to an existing OAMplex.
4. Procedures for setting up a DB2 DASD only environment for OAM objects for both a classic or multiple OAM configuration.

Procedures for moving OAM to another system

This section provides information on moving OAM from one OAM system to another OAM system, *neither of which is part of an OAMplex*. (SYS1 and SYS2 are used as example system names) To merge OAMs into an OAMplex, perform the procedure in “Merging OAMs into an OAMplex” on page 208.

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10. Start OAM on each system in the OAMplex. Display the DISPLAY SMS,OAMXCF command on each system to verify that they joined the OAMplex successfully.

Result: Now all of the OAM systems belong to the OAMplex.

Procedures for setting up a DB2 DASD only environment for OAM objects for both a classic or multiple OAM configuration

This section provides step by step instructions on how to minimally configure a new OAM environment to manage OAM objects using only DB2 DASD. These steps are different depending on whether you would like to configure OAM in a classic configuration versus a multiple configuration, therefore there are two different sets of steps according to the configuration used.

The following steps are used when defining a DB2 DASD only environment for objects in a classic OAM configuration:

1. Install and configure a DB2 subsystem to be used in conjunction with OAM.

For additional details on how to configure DB2 installation parameters for OAM use see section “Changing DB2 installation parameters” on page 113.

2. (Optional) If you plan on using CICS, then ensure that you install and configure CICS to be used in conjunction with OAM.

For additional details on how to configure CICS installation parameters for OAM use, see section “Changing CICS installation parameters” on page 114.

3. Update the IEFSSNxx PARMLIB member by adding an OAM subsystem definition.

The OAM subsystem definition is required to enable and start the OAM subsystem during IPL time. This subsystem is critical to OAM function and is required for OAM to be able to process objects within DB2.

For additional details on how to define an OAM subsystem definition, see section “Changing system libraries” sub section 5b “Update IEFSSNxx PARMLIB member to initialize the OAM subsystems.” on page 119.

4. Update the IGDSMSxx PARMLIB member by adding a DB2SSID (ssid) keyword.

The *ssid* value is the name of the DB2 subsystem you want to be used for OAM object storage.

This value is required for OTIS to establish a connection between the DB2 subsystem and the OAM subsystem.

For additional details on how to specify the DB2SSID keyword, see section “Changing system libraries” sub section 5a “Update IGDSMSxx PARMLIB member.” on page 118.

5. (Optional) If you plan on recording SMF records for OAM, then ensure you update the SMFPRMxx PARMLIB member with OAM type and subtype information.

For additional details on how to specify SMF related types and subtypes for OAM use, see section “Invoking the SMF PARMLIB member” sub section “Changing SMF recording” on page 625.

6. Run the CBRIPROC SAMPLIB job to define the OTIS procedure used by OAM.

Ensure to read the instructions within CBRIPROC as additional setup may be required to successfully run this job.

The OTIS procedure is required by OAM to manage and establish the DB2 connection between DB2 and the OAM subsystem. OTIS is also responsible for object collection related processing. OTIS is started at IPL time by the OAM subsystem.

For additional details on running the CBRIPROC SAMPLIB job, see section “Appendix b. Sample library members” sub section “CBRIPROC” on page 477.

7. Create DB2 databases for OAM administration, object, and directory tables.

These databases are essential to OAM functionality as each one of these databases contain vital information for OAM processing of objects.

Each job is found within the SAMPLIB data set specific to your installation. Ensure to modify each job specific to your environment and run them in the specified order...

- a) CBRIALCX
- b) CBRISQLX
- c) CBRIALCY
- d) CBRISQLY
- e) CBRIALC0
- f) CBRISQL0

For additional details on creating these DB2 databases, see section “Chapter 3. Migrating, installing, and customizing OAM” sub section “Creating DB2 databases for object tables and directories” on page 171.

8. Create and bind DB2 packages, plans, and grants.

These package and plan binds are essential for OAM (and for other applications) to establish and be granted access to DB2 resources critical to object related processing.

Each job is found within the SAMPLIB data set specific to your installation. Ensure to modify each job specific to your environment and run them in the specified order...

- a) CBRPBIND
- b) CBRIBIND
- c) CBRIGRNT

For additional details on creating and binding these DB2 packages, plans, and grants, see section “Chapter 3. Migrating, installing, and customizing OAM” sub sections “Creating and binding DB2 packages” and “OSR applications plans” on pages 178-179.

9. Specify the SMS construct definitions needed for OAM object processing.

Set the following values for each SMS construct within the ISMF Library Management panels:

- a) Define a Storage Group(s) with the following values...
 - 1) Type = OBJECT
 - 2) Qualifier = HLQ of the DB2 Object Directory table for this Object Storage Group.

- b) Define a Storage Class(s) with the following values...
 - 1) Initial Access Response seconds = 0
 - 2) Sustained Data Rate (MB/Sec) = "blank"
 - 3) OAM Sublevel = 1

- c) Define a Management Class(s) with the following values...
 - 1) Object Expiration Criteria = "blank"
 - 2) Object Backup Criteria -> Autobackup = NO
 - 3) Object Transition Criteria = "blank"

Note: Within a DB2 DASD only environment and without starting the OAM address space to utilize the OAM Storage Management Component (OSMC) support, OAM is not able to handle object expirations, backups or transitions which is why the management class specifications are set to bypass those options. If objects need to be expired, then that expiration management will need to be explicitly handled by the application or end user via OSREQ DELETES.

You may already be using (or planning on using) the OAM address space for OAM's system-managed tape support. If so, refer to the "Installation Procedures" section in Chapter 3 of the OAM Planning, Installation, and Storage Administration Guide for Tape Libraries for additional installation considerations. Though the OAM address space would not be used for OAM's object processing, in this case, it would be used for our system-managed tape support.

For additional details on updating and maintaining SMF constructs for OAM use, see section "Chapter 4. Administering OAM" sub section "Changing SMS construct definitions" on page 227.

10. Update your ACS routines to reflect your new SMS construct changes for OAM.

Note: Ensure to update the Storage Group, Storage Class and Management Class routines for the OAM Environment of STORE and CHANGE.

For additional details on how ACS routines are used within OAM, see section "Chapter 3. Migrating, installing, and customizing OAM" sub section "ACS routine input variables" on page 193 as well as section "Appendix B. Sample library members" sub section "Automatic class selection" on page 532 for provided examples of ACS routine logic.

11. Use the Installation Verification program (IVP) from TSO to test and validate your OAM environment.

For additional details on how to use the IVP utility, see section “Appendix B. Sample library members” sub section “OAM installation verification program and OAMUTIL” on page 526.

The following steps are used when defining a DB2 DASD only environment for objects in a multiple OAM configuration:

1. Install and configure a DB2 subsystem to be used in conjunction with OAM.

For additional details on how to configure DB2 installation parameters for OAM use see section “Changing DB2 installation parameters” on page 113.

2. (Optional) If you plan on using CICS, then ensure that you install and configure CICS to be used in conjunction with OAM.

For additional details on how to configure CICS installation parameters for OAM use, see section “Changing CICS installation parameters” on page 114.

3. Update the IEFSSNxx PARMLIB member by adding an OAM subsystem(s) definition.

The OAM subsystem definition is required to enable and start the OAM subsystem during IPL time. This subsystem is critical to OAM function and is required for OAM to be able to process objects within DB2.

Add subsystem definitions for each OAM subsystem that will be used in the multiple OAM configuration

D=xxxx keyword must be specified, where xxxx is either the SSID or Group Attachment name of the DB2 subsystem that will be used for this OAM subsystem.

Note: D=NONE should be specified for a tape library OAM subsystem.

For additional details on how to define an OAM subsystem definition, see section “Changing system libraries” sub section 5b “Update IEFSSNxx PARMLIB member to initialize the OAM subsystems.” on page 119.

4. (Optional) If you plan on recording SMF records for OAM, then ensure you update the SMFPRMxx PARMLIB member with OAM type and subtype information.

R85POSUB (OAM subsystem ID) and R85PSSID (DB2 subsystem ID associated with the OAM subsystem) SMF record fields can be used to identify which OAM subsystem issued the SMF records.

For additional details on how to specify SMF related types and subtypes for OAM use, see section “Invoking the SMF PARMLIB member” sub section “Changing SMF recording” on page 625.

5. Run the CBRIPROC SAMPLIB job to define the OTIS procedure used by OAM.

Ensure to read the instructions within CBRIPROC as additional setup may be required to successfully run this job.

The OTIS procedure is required by OAM to manage and establish the DB2 connection between DB2 and the OAM subsystem. OTIS is also responsible for object collection related processing. OTIS is started at IPL time by the OAM subsystem.

Note: Only one OTIS is needed for the multiple OAM environment.

For additional details on running the CBRIPROC SAMPLIB job, see section “Appendix b. Sample library members” sub section “CBRIPROC” on page 477.

6. Create DB2 databases for OAM administration, object, and directory tables.

These databases are essential to OAM functionality as each one of these databases contain vital information for OAM processing of objects.

Each job is found within the SAMPLIB data set specific to your installation. Ensure to modify each job specific to your environment and run them in the specified order...

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- b) CBRISQLX
- c) CBRIALCY
- d) CBRISQLY
- e) CBRIALC0
- f) CBRISQL0

Note: These jobs will need to be run for each DB2 subsystem associated with an OAM subsystem.

For additional details on creating these DB2 databases, see section “Chapter 3. Migrating, installing, and customizing OAM” sub section “Creating DB2 databases for object tables and directories” on page 171.

7. Create and bind DB2 packages, plans, and grants.

These package and plan binds are essential for OAM (and for other applications) to establish and be granted access to DB2 resources critical to object related processing.

Each job is found within the SAMPLIB data set specific to your installation. Ensure to modify each job specific to your environment and run them in the specified order...

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For additional details on creating and binding these DB2 packages, plans, and grants, see section “Chapter 3. Migrating, installing, and customizing OAM” sub sections “Creating and binding DB2 packages” and “OSR applications plans” on pages 178-179.

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- c) Define a Management Class(s) with the following values...
 - 1) Object Expiration Criteria = “blank”
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Note: Within a DB2 DASD only environment and without starting the OAM address space to utilize the OAM Storage Management Component (OSMC) support, OAM is not able to handle object expirations, backups or transitions which is why the management class specifications are set to bypass those options. If objects need to be expired, then that expiration management will need to be explicitly handled by the application or end user via OSREQ DELETES.

You may already be using (or planning on using) the OAM address space for OAM’s system-managed tape support. If so, refer to the “Installation Procedures” section in Chapter 3 of the OAM Planning, Installation, and Storage Administration Guide for Tape Libraries for additional installation considerations. Though the OAM address space would not be used for OAM’s object processing, in this case, it would be used for our system-managed tape support.

For additional details on updating and maintaining SMF constructs for OAM use, see section “Chapter 4. Administering OAM” sub section “Changing SMS construct definitions” on page 227.

9. Update your ACS routines to reflect your new SMS construct changes for OAM.

Note: Ensure to update the Storage Group, Storage Class and Management Class routines for the OAM Environment of STORE and CHANGE

The &DB2SSID read only variable is available to assist in controlling ACS logic pertinent to a particular OAM subsystem. This variable will contain the 4 character SSID of the DB2 subsystem associated with the request.

For additional details on how ACS routines are used within OAM, see section “Chapter 3. Migrating, installing, and customizing OAM” sub section “ACS routine input variables” on page 193 as well as section “Appendix B. Sample library members” sub section “Automatic class selection” on page 532 for provided examples of ACS routine logic.

10. Use the Installation Verification program (IVP) from TSO to test and validate your OAM environment.

The DB2ID(xxxx) keyword, should be specified on the IVP OSREQ command, where xxxx is the SSID or group attachment name of the DB2 subsystem associated with the OAM subsystem that is associated with the OSREQ request.

For additional details on how to use the IVP utility, see section “Appendix B. Sample library members” sub section “OAM installation verification program and OAMUTIL” on page 526.

11. Applications that do not explicitly handle DB2 connections before invoking the OSREQ API, will need to specify the DB2ID keyword on OSREQ ACCESS.

The DB2ID value contains a pointer to a 6 byte field. The first 2 bytes should contain the length of the passed SSID or group attachment name. The last 4 bytes should contain the SSID or group attachment name value.

This notifies OAM to handle the DB2 connection and ensures that subsequent OSREQ requests under this access are directed to the appropriate OAM subsystem.

For additional details on how OSREQ ACCESS is used, see the “z/OS DFSMS OAM Application Programmer’s Reference”

■ 5a ■ Update IGDSMSxx PARMLIB member.

Perform the following steps for a classic OAM configuration or to automatically start the tape library address space during IPL in a multiple OAM configuration.

~~Do not perform this step if you are using only DB2 sublevel storage (no file system, optical volumes, or tape devices), and do not start the OAM address space for processing objects.~~

1. Update PARMLIB member IGDSMSxx to include the OAM-related keywords:
OAMPROC(procname)

Appendix A. Sample optical hardware configurations

Note: If you are in a **multiple classic** OAM configuration and need to list or delete Optical libraries, the DB2SSID needs to be specified in the IGDSMSxx parmlib member in order for ISMF to connect to the correct DB2 subsystem and for the deletion of the optical library to be successful.