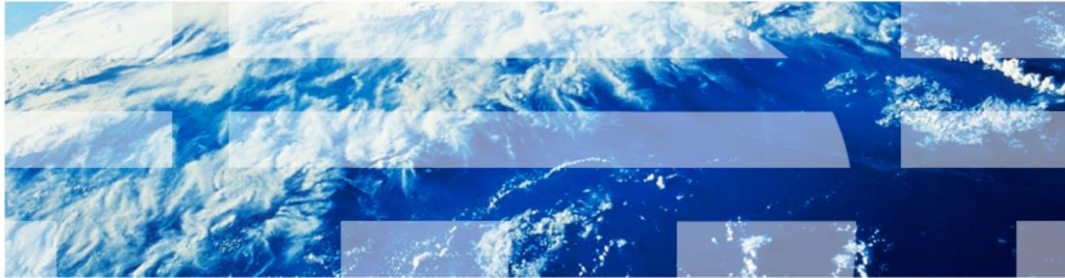# IBM Tivoli NetView for z/OS V5.4

Resource Object Data Manager

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This presentation is an introduction to RODM, the Resource Object Data Manager in NetView® for z/OS®.

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Objectives

When you complete this module, you can perform these tasks:

- Load Resource Object Data Manager (RODM)

- Identify basic problems with loading, connecting, and authorizing RODM

- Identify certain RODM storage-restricted conditions

- Format the RODM log and set RODM log levels

Resource Object Data Manager

When you complete this module, you can perform these tasks. Load RODM. Identify basic problems with loading, connecting, and authorizing RODM. Identify certain RODM storage-restricted conditions. Format the RODM log and set RODM log levels.

Define RODM

- Resource Object Data Manager (RODM) is an object-oriented data cache
  - Objects in RODM can represent resources in your network
  - Graphic Monitor Facility host subsystem (GMFHS), the Graphic Monitor Facility host subsystem, uses RODM to keep the network resource configuration data and related view information for the Network Management Console (NMC)
  - Users can write code to interface to RODM, which provides a *user application programming interface* (user API)

- For more customization information, see the *RODM and GMFHS Programming Guide*

RODM is a large, object-oriented data cache. Objects in RODM can represent resources in your network. GMFHS is the Graphic Monitor Facility host subsystem. It uses RODM to keep the network resource configuration data and related view information for NMC, the Network Management Console. The NMC is the graphics tool that displays the resources stored in RODM.

You or other users can write code to interface to RODM which provides a *user application programming interface*, or user API.

For more customization information, see the RODM and GMFHS Programming Guide.

RODM basics

- Resource Object Data Manager (RODM) is in its own address space
- EKGCUST is the customization file
- EKGXRODM is the startup procedure

　　Resource Object Data Manager　　

RODM is in its own address space, separate from the NetView address space.

EKGCUST is the sample RODM customization file that you can use to define and tailor RODM to meet the needs of your environment. If you choose to not customize your RODM, the default values apply. EKGXRODM is the sample RODM start procedure that performs an initialization object definition load.

Loading RODM

- EKGLOADP is the load JCL for Resource Object Data Manager (RODM) load
- When you use EKGIN1 for a structure load, **LOAD=STRUCTURE**, includes the data models that you use:
  - Graphic Monitor Facility host subsystem (GMFHS) data model: **DUIFSTRC** (required)
  - SNATM data models: **FLBTRDMx**
  - MSM data models: **FLCSDMx**
  - RCM samples: **DUIFRNMx**
- The loader uses EKGIN2 to find the method name table, sample EKGINMTB
- EKGNOTF is the method that is coded in the sample table
- EKGIN3, which is used for an instance load, LOAD=INSTANCE, identifies object instance definitions
  - A sample object load file, DUIFSNET, is provided

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EKGLOADP is the load RODM data cache procedure that can be modified to run on your system. CNMSJ003 is the job that copies EKGLOADP into one of your system PROCLIB data sets. When you use EKGIN1 for a structure load, include the class structure data models that you use.

The GMFHS data model DUIFSTRC is required. The other three data models are optional.

The loader uses EKGIN2 to find the method name table, for example EKGINMTB. EKGNOTF is the method that is coded in the sample table.

EKGIN3, which is used for instance load, identifies the sequential data set or concatenation of sequential data sets that contain the object definitions. You create these definitions to define your network.

DUIFSNET is a sample network member. You can load it for test purposes.

RODM load problems

- If loaded incorrectly, numerous **object not found** and **class not found**, or **invalid** messages write to the Resource Object Data Manager (RODM) log
    - These messages display return code 8,52 and return code 8,54
    - A few of these messages might indicate that only old resources are removed from the system and are not a load problem
    - Check for more RODM errors in the netlog, like the examples which indicate load modules failures
        Examples: DUI4018A, EKG1960E, EKG1903E, or EKG1961E
    - Graphic Monitor Facility host subsystem (GMFHS) starting before the data models are loaded can cause RODM loader problems, or even more likely, with GMFHS itself

- A zero return code on the RODM Loader JCL output means that you loaded what you uncommented in CNMSJH12
    - You can get **object not found** or **invalid class** messages even if you received a zero return code from the RODM loader job

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If loaded incorrectly, numerous "object not found" and "class not found", or "invalid" messages write to the RODM log. These messages display (return code 8, reason code 52) and (return code 8, reason code 54). If you see a few of these messages, they probably indicate old resources that are removed from the system and are not a data model load problem.

Check for more RODM errors in the netlog, such as DUI4018A, EKG1960E, EKG1903E or EKG1961E. These errors indicate load modules failures. These failures might occur because the module is not available to the address space where the load occurs, or there is not enough storage space to load the module. When GMFHS starts before the data models are completely loaded, it can cause RODM loader problems, or even more likely, with GMFHS itself.

A zero return code on the RODM Loader JCL output means that you loaded what you uncommented in CNMSJH12. Consequently, you can still get object not found or invalid class messages even if you have received a zero return code from the RODM loader job.

Connecting with RODM

- DSIQTSK task allocates storage and reads the DSIQTSKI initialization file
  - It also carries out Resource Object Data Manager (RODM) connections, disconnections, and checkpoint requests, and change fields and drive methods. It receives or distributes commands over the program-to-program interface (PPI).
  - DSIQTSK is defined to the Tivoli® NetView for z/OS program in the CNMSTYLE member
  - If DSIQTSK does not initialize, you ensure that PPI (versus NOPPI) is coded in the SSI start procedure
- Verify that the SSI address space is started
- If your topology manager cannot connect with RODM, it stops because it cannot do any work
  - Topology managers include SNATM or MSM
  - Typically, this failure occurs because SNATM or MSM is not authorized to connect to RODM

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The DSIQTSK task allocates storage and reads the DSIQTSKI initialization file. The task carries out RODM connections, disconnections, and checkpoint requests. It also carries out change fields, drive methods, and receive or distribute commands over the PPI from object independent method EKGSPP. DSQTSK is defined to the NetView program in the CNMSTYLE member. If DSIQTSK does not initialize, you want to make sure that PPI (versus NOPPI) is coded in the SSI start procedure.

Make sure that the SSI address space is started.

If your topology manager, SNATM or MSM, cannot connect with RODM, it stops because it cannot do any work. Typically, this failure occurs because SNATM or MSM it is not authorized for the connection to RODM.

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RODM authorization problems

- Resource Object Data Manager (RODM) return code 8,127 is an unauthorized user ID
- If you run the RODM loader when security is not active, you can get the 8,127 reason code
    - This code occurs because the loader first tries to connect with a blank user ID
    - The loader then attempts to connect with a nonblank user ID
    - In this case, you can ignore the reason code
- Incorrect passwords
    - **RODM return ccpde 8,128**
    - In MSM, an FLCARODM **2000,8,128 return code**
    - Check RODM log for the applid that gets this error
- To bypass SAF checking, use the value (*TSTRODM) for the SEC_CLASS name in EKGCUST

A RODM return code 8 reason code 127 is an unauthorized user ID.

If you run the RODM loader when security is not active, you can see the (8,127) reason code. This code occurs because the loader first tries to connect with a blank user ID. The loader then tries to connect with a nonblank user ID. In this case, the reason code can be ignored. Running with a blank user ID is allowed when RODM runs with security active because the user ID can be extracted from the SAF product.

A RODM (return code 8, reason code 128), or in MSM (a FLCARODM 2000,8,128) indicates an incorrect password. Check the RODM log for the **application ID** that gets this error.

To bypass SAF checking, use the value **(*TSTRODM)** for the SEC_CLASS name in EKGCUST.

Sometimes, because of a timing window, the RODM log displays a return code 8, reason code 127 with incomplete hex data in the **eyecatcher** field, but then connects. You can ignore this type of a timing "hiccup."

RODM storage-restricted condition

- If you take checkpoints, check the size of your checkpoint data sets
  - As your system resources grow over time, so does the storage that is required for these data sets
  - A Resource Object Data Manager (RODM) return code 12 with reason code 121 indicates that the system rejected a request because of a lack of translation window storage, as defined in EKGCUST
  - All of these symptoms occur with this condition:
    - MVS issues message IEC161I 203 - 204
    - RODM issues message EKG1101E
    - A type 2-log record is written if the value of EKG_LogLevel in customization member EKGCUST is less than or equal to 12
- The MVS IEFUSI/IEALIMIT exit overrides, which limit the region or database size, often cause perplexing RODM storage problems
  - **MVS D SMF, O** has active SMF parmlib information

If you take checkpoints, check the size of your checkpoint data sets. As your system resources grow over time, so do the storage needs for these data sets. RODM (return code 12 with reason code 121) is because the system rejected a request because of a lack of translation window storage as defined in EKGCUST. All of these symptoms occur with this condition: MVS issues message IEC161I 203-204; RODM issues message EKG1101E; a type 2-log record is written if the value of **EKG_LogLevel** in customization member EKGCUST is less than or equal to 12.

To solve the problem, you can do the following steps. 1) Take a checkpoint of RODM and end RODM. 2) Copy the data in the existing translation-window data set to a larger data set and warm start RODM with the new translation-window data set. 3) Warm start RODM.

If the checkpoint data sets you defined are not large enough, or if you did not define checkpoint data sets, use the IBM Tivoli NetView for z/OS Tuning Guide to calculate the size of the translation-window data set.

The MVS IEFUSI/IEALIMIT exit overrides that limit the region or database size often cause perplexing RODM storage problems. **MVS D SMF, O** gives active SMF parmlib information.

RODM log

- The formatted Resource Object Data Manager (RODM) log is needed for most RODM problems
    - The default for LOG_LEVEL and MLOG_LEVEL (for methods) is error level 8
    - This value is typically enough
- LOG_LEVEL 4 for warning level
- LOG_LEVEL 12 for critical level
- To capture what is happening, these settings must be set to zero
    - Zero is processor and input/output (I/O) intensive because of the large number of records that are written to the log
    - Use the zero settings only during a re-creation scenario

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The formatted RODM log is needed for just about any RODM problem. The default value for **LOG_LEVEL** and **MLOG_LEVEL**, which is for methods, is set to **error level 8**. This value is typically enough to provide you the information you need.

Use LOG_LEVEL 4 to include warning level request information.
Use LOG_LEVEL 12 to get critical level request information.

To capture what is really going on, these settings need to be set to zero. However, level zero is processor-intensive and I/O-intensive because of the large number of records that are written to the log. Use these 0-log level settings only during a re-creation scenario.

Formatting the RODM log

- **F RODM, LOGQ** queries the active log before you flush the log
- **F RODM, LOGF** flushes the buffers to active log
- **F RODM, LOGS** switches to secondary log
- **EKGRLOG** formats or prints the inactive log

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You can use F RODM, LOGQ to query the active log right before you flush the log.

F RODM, LOGF flushes the buffers to active log, which is normally your primary log.

F RODM, LOGS switches to the secondary log, which normally is your inactive log.

EKGRLOG formats or prints the inactive log.

Summary

Now that you completed this module, you can perform these tasks:

- Load Resource Object Data Manager (RODM)
- Identify basic problems with loading, connecting, and authorizing RODM
- Identify certain RODM storage-restricted conditions
- Format the RODM log and set RODM log levels

Now that you completed this module, you can perform these tasks. Load RODM. Identify basic problems with loading, connecting, and authorizing RODM. Identify certain RODM storage-restricted conditions. Format the RODM log and set RODM log levels.

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