IBM Education Assistance for z/OS V2R1

Item: New Release Content
Element/Component: DFSMSdfp Catalog, AMS and VSAM

Summary of Included Presentations

- CATALOG
  - Record Level Sharing for Catalog
  - GDG Support for PDSEs
  - New CSI Field Names
  - Contention Detection
  - PARMLIB Enhancements
  - GDG Enhancement
  - Externals Enhancement
  - Health Check
- AMS
  - Delete PDS/PDSE With Member Name Mask
  - Large Block Size Support
  - RLS Support
  - RAS
  - DIAGNOSE GDG

- Base VSAM
  - SMB Enhancement
  - SHOWCB Enhancement
  - 64 bit Rules enforcement
  - RAS
- VSAM RLS
  - Dynamic Volume Count
  - Directory Only Caching
  - 64 bit Constraint
  - RAS - Lock Structure Rebuild Serialization

Summary: Catalog

- ## Record Level Sharing (RLS) for Catalog
    - Optionally access individual user catalogs with VSAM RLS in a parallel sysplex.
    - RLS record level locking replaces catalog level sharing (SYSIGGV2).
    - RLS 64 bit buffering and CF caching replaces VLF/ICS and ECS.
    - Sysplex wide command /ALTER support to:
        - Quiesce/Enable catalogs for RLS access.
        - Suspend/Resume catalog access.
        - Lock/Unlock catalog access.
    - New Vendor interface (IGGQUIES)
        - Programmable interface for sysplex command/alter support
        - Programmable interface to quiesce updates to RLS catalogs (point in time copy).
    - Benchmarks
        - Up to 90% elapse time and 80% CPU improvement in catalog update workload RLS.
    - Full "RLS for Catalog Overview" presentation available on request.

Summary: Catalog (cont.)

- GDG Support for PDSEs
  - GDSs can contain PDSEs.
- New CSI Field names
  - Support new individual fields: for ASSOC, ASSOCSYB, BUFND, BUFNI, HILVLRBA, INDXLVLS, SEQSTRBA, STRNO, TRACKS
- Contention Detection
  - Add support for SYSIGGV2, SYSZVVDS, Allocation Lock.
- PARMLIB Enhancements
  - Add support for TASKMIN, TAPEHLQ, SYS%, ECSHR AUTOADD, DUMP, MLA, Contention parms, DUMPON, TASKTABLESIZE, CATMAX.
- GDG Enhancement
  - New DEFINE/ALTER option (LIFO/FIFO) on GDGs to determine the order MVS Allocation will allocate the associated GDSs.

Summary: Catalog (cont.)

- Small Externals Enhancements
  - F CATALOG,LIST to show latch number
  - F CATALOG,ABEND async tasks
  - ICFRU Provide date and time from export data set used by ICFRU
  - HSM Message Enhancement: HSM Message Enhancement: Fix return reason code returned to HSM as described in APAR OA23698.
  - IEC363D should accept 'Yes' and 'No' for message IEC363D IS THIS RESTART RELATED TO AN EXISTING CATALOG PROBLEM (Y OR N)? We do not intend changing the text of the message, only the acceptable responses.
  - Change STGADMIN.IGG.DEFINE.RECAT and STGADMIN.IGG.DEFDEL.UALIAS from LOG=NONE to LOG=NOFAIL
- Remove the SMS requirement for EF LDSs
- Health Check - Check Catalog related Reserves/ENQ match IBM recommendations.

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Summary: Base VSAM

- System Managing Buffering (SMB) Enhancement
  - Add SMB ACCBIAS options to DATACLAS
    (ACCBIAS=(SO,SW,DW,DO),RMODE31=(ALL,BUFF,CB,NONE))

- 64 Bit Rules Enforcement – enforce SYSSTATE in access method macros (started in Release 13)

- SHOWCB Enhancement
  - Add support for BUFNOL and BUFUSE (#LSR buffers and in use).

- RAS
  - PLH header length change (ICN distributed)

Summary: VSAM RLS

- Dynamic Volume Count.
  - Add DVC support in the DATACLAS for RLS accessed VSAM files.

- Directory Only Caching.
  - Provide new DIRONLY option to the RLSCFCACHE option in the STORCLAS
  - Allows the RLS cache structure to be used for directory entries only, no data elements will be stored in the cache.

- 64 bit constraint.
  - Move RLS buffer/cache related blocks to 64 bit storage.

- RAS Lock Structure Rebuild Serialization.
  - Redesign internal serialization for quiescing activity to RLS CF lock structures for rebuild.

Summary: AMS

- Delete PDS/PDSE members via mask (e.g. DELETE pdsname(mem*)).

- REPRO and PRINT support for data sets that have a block size that is larger than 32 KB.

- RLS support for VSAM data sets/catalogs accessed via PRINT, REPRO, IMPORT and EXPORT.

- DIAGNOSE GDG enhancement to improve diagnosing inconsistencies in GDG BCS record and actual number of GDSs.

Item: Catalog Contention Relief Manager Enhancements
Element/Component: DFSMSdfp Catalog

Agenda

- Trademarks

- Presentation Objectives

- Overview

- Usage & Invocation

- Installation

- Presentation Summary

- Appendix

Trademarks

- See url http://www.ibm.com/legal/copytrade.shtml for a list of trademarks.

Presentation Objectives

The initial version of Catalog Contention Detection (release V1R12) provided the framework for checking contention of resources (e.g. only SYSZTIOT) and a means to notify the operator and provide information required to address the potential Catalog contention.

- Objective is to introduce the following Enhancements to Contention Detection added by this line item.
    1) Added support for detecting contention on these additional resources, SYSIGGV2, SYSZVVDS, and the CAS allocation lock (e.g. ALLOCLCK).
    2) Removed current contention information from Catalog's general report, and create a contention specific report and supporting interface commands.
    3) Added a re-drive action when detection of a resource is detected.
    4) Added contention related parameters to the new Catalog Parmlib Member added in Release V1R13, and enhanced in this release.
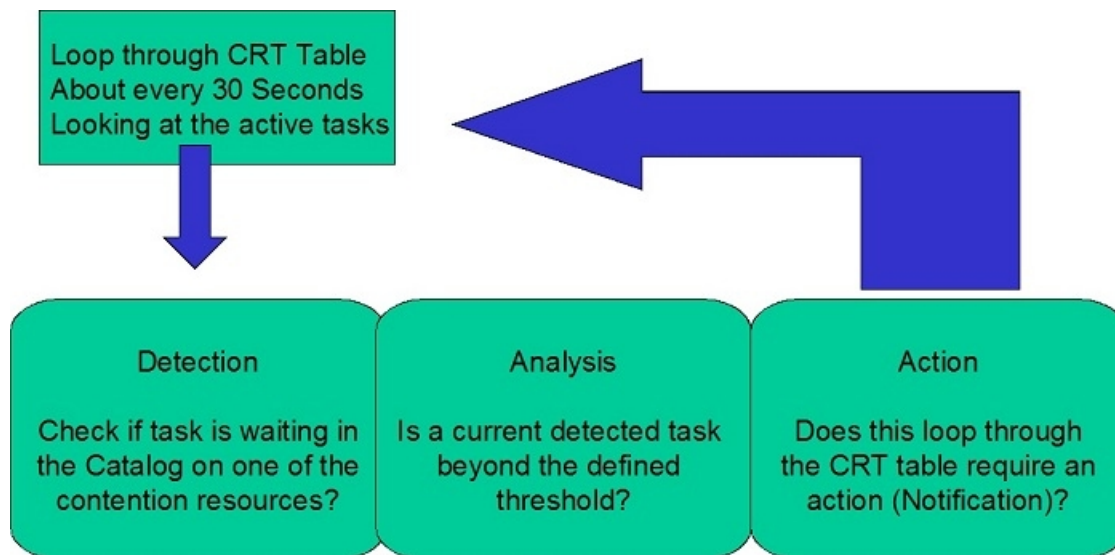
Overview

- Problem Statement / Need Addressed
  - Catalog is a critical system service. Contention present in the Catalog service is difficult to detect, and can result in significant overall system performance and job failure. This line item extends the number of resources evaluated for contention and introduces an automatic contention activated action (re-drive).

- Solution
  - Catalog contention detection automatically detects specific types of contention and automatically logs and notifies the operator. Additionally, Catalog contention detection can be configured to take additional limited action (i.e. Re-drive request in contention).

- Benefit / Value
  - 1) It identifies Catalog contention to the operator, providing actionable information which the operator may use in a remedy.
  - 2) When configured to re-drive requests in contention, under limited circumstances, it can automatically remove contention.

Usage & Invocation

Catalog Contention Detection, again, is installed and runs by default for all resources implemented, unless set to inactive, by Catalog's ParmLib, or explicitly set to inactive by Catalog modify commands.

Below is a simple overview of Catalog Contention Detection. The CRT is the list of current Catalog work tasks. If a task is found waiting, and it is beyond the current wait time, a notification is generated. In this release the task could also be re-driven, if configured, in an attempt to resolve contention.

Loop through CRT Table
About every 30 Seconds
Looking at the active tasks

Detection	Analysis	Action
Check if task is waiting in the Catalog on one of the contention resources?	Is a current detected task beyond the defined threshold?	Does this loop through the CRT table require an action (Notification)?

New Resources

Three new resources have been added for contention detection.

1) SYSZVVDS

This resource involves serialization required in order to read or write to Catalog's VVDS's (VSAM Volume Data Set).

2) SYSIGGV2

This resource involves serialization critical to cross-system sharing of catalogs.

3) ALLOCLCK

This resource involves serialization in which Catalog requires in order to allocate Catalog datasets or allocate extents to those datasets (i.e. catalog's, VVDS's).

New Interface and Messages

The CATALOG,REPORT panel will be changed. The "CONTENTION SYSZTIOT TIME" line will be removed.

```
*CAS*********************************************************
* CATALOG COMPONENT LEVEL   = HDZ1C10                       *
* CATALOG ADDRESS SPACE ASN = 0028                          *
* SERVICE TASK UPPER LIMIT  = 180                           *
* SERVICE TASK LOWER LIMIT  = 60                            *
* HIGHEST # SERVICE TASKS   = 7                             *
* CURRENT # SERVICE TASKS   = 7                             *
* CONTENTION SYSZTIOT TIME  = 10              "<== LINE REMOVED" *
* MAXIMUM # OPEN CATALOGS   = 1,024                         *
* ALIAS TABLE AVAILABLE     = YES                           *
* ALIAS LEVELS SPECIFIED    = 1                             *
* SYS% TO SYS1 CONVERSION   = OFF                           *
* CAS MOTHER TASK           = 009FF370                      *
* CAS MODIFY TASK           = 00996E88                      *
* CAS ANALYSIS TASK         = 00996A28                      *
* CAS ALLOCATION TASK       = 00996C58                      *
* VOLCAT HI-LEVEL QUALIFIER = SYS1                          *
* NOTIFY EXTENT             = 80%                           *
* DEFAULT VVDS SPACE        = ( 10, 10) TRKS                *
* ENABLED FEATURES          = DSNCHECK SYMREC UPDTFAIL      *
* ENABLED FEATURES          = AUTOTUNING                    *
* DISABLED FEATURES         = DELFORCEWNG VVRCHECK BCSCHECK *
* INTERCEPTS                = (NONE)                        *
*CAS*********************************************************
```

A new panel will be added to display the status of resources managed under contention detection.

New Interface and Messages

```
*CAS*********************************************************************
* CATALOG CONTENTION DETECTION:                                         *
* Resource          THRESHOLD (MIN)      ACTIONS                        *
************************************************************************
* SYSZTIOT          5                    N                              *
* SYSZVVDS          INACTIVE             N                              *
* SYSIGGV2          10                   NR                             *
* ALLOCLCK          999                  N                              *
************************************************************************
* ACTION KEY                                                            *
* N = NOTIFY OPERATOR  R = REDRIVE REQUEST                              *
*CAS*********************************************************************
```

MODIFY CATALOG,CONTENTION (New)

This command will print a table which will display the reason classes or Catalog resources for which contention detection is available. It will also indicate the current wait-time in minutes, and any associated actions other than notification. Currently, notification is always on and can not be turned off.

New Interface and Messages

MODIFY CATALOG,CONTENTION(<reasonclass>, <wait-time>) (Enhanced)

This is an existing Catalog modify command introduced in release V1R12. This command in the new release will support three new reason classes or resources (i.e. SYSZVVDS, SYSIGGV2, ALLOCLCK).

Reason Class – Must be SYSZTIOT,SYSZVVDS, SYSIGGV2, or ALLOCLCK.

Wait Time – Can be 0 to inactivate the contention check for the resource, or it may be the numbers 5 to 999. Wait-time roughly indicates the number of minutes before a resource is considered in contention and will generate a notification and possibly an action.

New Interface and Messages

MODIFY CATALOG,CONTENTION(<reasonclass>, <wait-time> , <action-flags>) (New)

This new command will modify the current reason class / resources wait time and associated actions. A wait-time of zero will deactivate contention detection for this Catalog resource. Syntax errors or invalid values will produce a IEC353I INVALID DATA VALUE message.

Action Flags - Action flags will be inputted as a single character per action.
  R - Redrive
  N - Notification

Notification and symrec generation will always on by default, and do not have to be specified. As long as a resource is active, it will generate both notifications to the console and to the logrec in a symrec. So specifying no action in the above command will lead to only notification and symrec.
Since notification is on constantly it does not require to be listed as an action.

For Example,
F Catalog,Contention(SYSZVVDS,5,R) --> will result in the action field displaying NR for notification plus re-drive.
F Catalog,Contention(SYSZVVDS,10,NR) --> will also result in the action field displaying NR.
F Catalog,Contention(SYSZVVDS,8,N) --> will set the action field to N only. It will remove the R from NR if that was the previous setting.

New Interface and Messages

This is the current existing operator message generated when contention is found. which The message will be enhanced to now include the additional resource's SYSZVVDS, SYSIGGV2, and ALLOCLCK. (Update Existing Message)

```
{{*12.19.16 SYSTEM1 * IEC393I CATALOG CONTENTION
*WARNING: CATALOG TASK CONTENTION WAIT-TIME WAS EXCEEDED.
*RESOURCE(SYSZTIOT)JOBNAME(<JOBNAME>)ASID(003C)#TASKS( #)


or


*RESOURCE(SYSZTIOT)JOBNAME(<JOBNAME>)ASID(<ASID>)TCB(<TCBaddr>)
IF more than Five lines needed
*( #)remaining tasks past set threshold.}}
```

1) <Resource> : Represents a class of possible contention or resources: SYSZVVDS, SYSIGGV2, ALLOCLCK, and SYSZTIOT. Previeously only SYSZTIOT was a valid resource.
2) <Jobname> : Job name associated with the CAS task over the wait limit.
3) <ASID> : Application id associated with the CAS task over the wait limit.
4) <number of tasks> : The number of tasks over the limit associated with this jobname.

New Action Re-drive

When re-drive is active and the catalog task is past the wait threshold, the task is abended, and a new request (same user request) is restarted. Re-drive does not fail the job. It drops all of its current resources, and abends the CAS task, and restarts it from the initial incoming request.

Re-driving a task may relieve the contention, under some deadly embrace scenarios. For example, if the task re-driven was holding resource A while requesting resource B, and another task was holding resource B and requesting A (i.e. Deadly embrace), restarting either task could relieve the contention.

It is also possible that re-driving the task can also lead to the task returning to a contention condition. It should also be noted, that re-driving the task could lead to a request failure, and may require actions to clean-up the failed attempt.

Not all tasks are by nature are re-drivable. For example, when defining a KSDS, the index may get created and contention occurs only on the data portion of the KSDS. Re-driving the request would lead to the request failing since the index is already created, and the orphaned index would require cleaning up.

Installation

- There are no steps required for installation. This solution installs with DFSMS Catalog, and Contention Detection is installed with the following default policies.

- In the absence of Catalog ParmLib values, all Contention Detection resources are active, with a wait-time 10 minutes, and the default action of notify.

- In both IPL and CAS RESTART, ParmLib values will take precedence.

- If the user has modified setting through the Catalog modify commands, these setting will be retained through a CAS RESTART, given that there are no ParmLib values associated with the resource.

Presentation Summary

- Three new resources were added to the Catalog Contention Detection: SYSZVVDS, SYSIGGV2, and ALLOCLCK.

- Catalog Contention Detection has two new modify commands:
  - MODIFY CATALOG,CONTENTION – table of existing resource configuration.
  - MODIFY CATALOG,CONTENTION(<RESOURCE>,<WAITTIME>,<ACTION>) - allows user to add new action re-drive upon contention detection.
  - Existing Contention MODIFY commands updated for new resources, as well as existing console message when contention detected.

- Re-drive is now a configurable action per resource.

- ParmLib support for Catalog Contention Detection allowing user configuration to survive IPL.

Appendix

- *z/OS V2.1.0 DFSMS Managing Catalogs* (SC23-6853-0)

Item: PARMLIB Member Enhancements
Element/Component: DFSMSdfp Catalog

Agenda

Trademarks

Presentation Objectives

Overview

Usage & Invocation

Migration & Coexistence Considerations

Installation

Presentation Summary

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Trademarks

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Presentation Objectives

- Explain this is an enhancement to the Catalog PARMLIB member support provided in V1R13.

- Learn the additional parameters supported in this line item

- Understand the set-up needed to use the new support.

Overview

- Problem Statement / Need Addressed
- Today, the only way the customers can customize their Catalog environment is via SYS1.NUCLEUS(SYSCATxx) and SYS1.PARMLIB(LOADxx)
- Only 1 line (80 characters) is available and it has been long filled, preventing any new parameters from being added.
- It prevents customers from changing these parameters once the system has been IPL'ed.

- Solution
- For catalog to provide its own PARMLIB member and any number of parameters can be added and changed with and without a system IPL.

- Benefit / Value
- The system programmer can now create his own catalog PARMLIB member(s) to customize the catalog environment. The parameters can be changed by doing an IPL or a simple restart of the catalog address space (CAS).

Overview

The following parameters are supported in this line item:

- TASKMIN(n) – Catalog service task lower limit. Default is 60. Minimum is 24 and maximum is 180.

- TAPEHLQ(name) – High level qualifier of a Tape Volume catalog. Default is SYS1. Valid character set includes alphabets, numerics and the 2 national characters @,#,$.

- SYS%(ON|OFF) – Specifies whether SYS% to SYS1 conversion is permitted. Default is OFF.

- AUTOADD(ON|OFF) – Specifies whether ECS Autoadd is to be turned on or off. Default is OFF. When ON, catalogs will be added to ECS on their next reference if they are eligible for ECS.

Overview

- DUMP(ON|OFF) – Specifies whether dynamic dumping is to be turned on or off. Default is OFF.

- ALIASLEVEL(n) – The search level to used for aliases. Default is 1. Valid values between 1 to 4.

- DUMPON(rc,rsn,mod) – Specifies the catalog return code and reason code and the 2 character catalog module id to dump on when a match is found. No defaults for rc,rsn and mod. Valid values for rc and rsn are between 0 to 255 and a generic value of *. Valid values for mod is a 2 character suffix or generic value of **.

- DUMPON(rc,rsn,mod,cnt) – Same as DUMPON(rc,rsn,mod). The cnt parameter specifies how many times to skip before taking a dump on a match. Valid values for cnt are between 0 to 255. Default is 1.

Overview

- TASKTABLESIZE(n)– The maximum number of service tasks including catalog service tasks that can run at any particular time. Default is 200. Valid values are between 200 and 400. This parameter is only processed on a system IPL. It will be ignored on a restart of the Catalog Address Space.

- CATMAX(n) – The maximum number of catalogs that can be open at any given time on the system. Default is 1024. Valid values between 1 and 9999.

Overview

Contention Detection Aid parameters -

SYSZTIOT(time,action) – Specifies the time in minutes to wait before taking the desired action when a contention on the SYSZTIOT resource is detected

SYSZVVDS(time,action) – Specifies the time in minutes to wait before taking the desired action when a contention on the SYSZVVDS resource is detected

SYSIGGV2(time,action) – Specifies the time in minutes to wait before taking the desired action when a contention on the SYSIGGV2 resource is detected

ALLOCLCK(time,action) – Specifies the time in minutes to wait before taking the desired action when a contention on the Catalog Allocation Lock resource is detected

Valid values for the time parameter are between 0 and 65535. Any value above 9999 will be reset to 9999. Default is 10 minutes.

Valid values for the action parameter are N (notify operator via message on console only) and R (notify operator via message on console and redrive the request). Default is N (notify only)

Usage & Invocation

In order to use the new catalog PARMLIB member support, the system programmer must create one or more PARMLIB members (IGGCATxx) and populate it with the desired settings. The suffix (xx) is any 2 alphanumeric or national ($,#,@) characters; the default is "00" (zeros).

Sample IGGCATxx:

ALIASLEVEL(3)

TASKMAX(75)

--> Blank line allowed

DUMPION(19,5,ER)   --> DUMPON misspelled. Will be ignored and an error is issued.

Usage & Invocation – Important Syntax rules for IGGCATxx Member

Comments begin with /* and end with */. Must fit on a single line.

Multiple declarations of any parameters are allowed. The last valid value will be used for the parameter. For example , the following are allowed:

VVDSSPACE(10,10)

VVDSSPACE(14,14)

VVDSSPACE(14,14) will be used as the final value for VVDSSPACE in this case

No blanks will be allowed between digits. For example: VVDSSPACE(1 0, 14) is not valid for a VVDSSPACE(10,14) declaration

Input ends with the end of file (EOF).

All parameters should start and finish on the same line.

The parameters DO NOT have to start in column one. They must fit entirely within columns 1 and 71. Any text beyond column 71 will be ignored.

If an invalid parameter is detected on any line, processing for that line stops at the last valid parameter on that line. Processing continues at the next line.

Usage & Invocation

- The IGGCATxx parameters are processed both at IPL and when CAS is restarted.

- The IGGCATxx member(s) are optional but, if specified, the parameters specified within take precedence over the parameters specified in the LOADxx and SYSCATxx members.

- The suffixes should be specified in the new IEASYSxx parameter, CATALOG=(*list of suffixes separated by commas*). When multiple members are specified, the members are processed in the order specified.
    - Examples:
        CATALOG=AA (specifies one member. No parens needed if only one member)
        CATALOG=(AA,BB,05) (specifies multiple members. Values in IGGCAT05 will override those in IGGCATBB and IGGCATAA.)

Usage & Invocation

- If CATALOG= is specified, and a particular IGGCATxx member on it is not found, it is skipped. If none of the members are found, the default PARMLIB member (IGGCAT00) is searched.

- If CATALOG= is not specified, the default member (IGGCAT00) is searched.

- If IGGCAT00 does not exist, then default values are used for the parameters.

Messages

- **IEC385W IGGCATxx BYPASSED DUE TO xxxxxxxx ERROR. RETURN CODE IS rc**

  Explanation: An internal error was detected during a service which was called by catalog during parsing of the catalog PARMLIB member.

  In the message text:

  xxxxxxxx is "A LOAD" or "A STORAGE" or "AN IEEMB878"

  rc is the return code returned by the internal service

- **IEC386W INVALID KEYWORD DETECTED IN aaaaaaaa AT LINE: *text***

  Explanation: A syntax error was detected on a particular line during the parsing of IGGCATxx.

  In the message text:

  aaaaaaaa is the 8 character catalog PARMLIB member name starting with IGGCAT followed by the 2 character suffix

  text is the whole line of text with the invalid keyword up to position 71

Messages

- **IEC387W ERROR RELEASING IGGCATxx STORAGE. ERROR CODE IS *rc***

  Explanation: An internal error was detected while releasing storage obtained during IGGCATxx processing.

   In the message text:

   rc is the return code returned by the STORAGE service during storage release processing

For all messages refer to *z/OS MVS System Messages Vol. 7 (IEB-IEE)* for a more detailed explanation.

Migration & Coexistence Considerations

None. Down-level systems will not try to read the new IGGCATxx PARMLIB member(s)

Installation

- Need to create the new IGGCATxx PARMLIB member(s) and populate them with the desired settings.

- The list of suffixes must be specified on the new IEASYSxx system parameter, CATALOG=. If the CATALOG= parameter is not found, the default member IGGCAT00 is processed. If IGGCAT00 is not found, default values will be applied.

- IMPORTANT....the IGGCATxx members are processed during an IPL and a restart of the catalog address space (F CATALOG,RESTART)

Presentation Summary

- The Catalog PARMLIB member support can be used to customize the catalog environment.

- The PARMLIB member(s) must be created in the PARMLIB concatenation. The list of suffixes for the PARMLIB member(s) to be used must be specified via the new system parameter CATALOG= in IEASYSxx. If CATALOG= is not found then IGGCAT00 will be processed. If IGGCAT00 is not found, default values are applied.

- The PARMLIB members are processed during IPL and a restart of the catalog address space.

- If invalid values are detected in any of the PARMLIB member(s), the parameter is ignored and a message displaying the invalid parameter is issued in the syslog and also to the console if it is a CAS restart.

Appendix

- Publications

  Following publications were updated as a result of the enhancement

  z/OS DFSMS Managing Catalogs (SC23-6853-0) – explains the new PARMLIB member and its contents

  z/OS MVS System Messages Vol. 7 (IEB-IEE) (SA38-0674-0)– explains the new messages introduced in this support

  z/OS MVS Initialization and Tuning Reference (SA23-1380-0) – explains the new PARMLIB member and its contents

Item: Externals Enhancements
Element/Component: DFSMSdfp Catalog

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- Trademarks

- Presentation Objectives

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Presentation Objectives

- To explain the following externals enhancements to the Catalog component

    - Latch number added to F CATALOG,LIST
    - Provide date and time from export data set used by ICFRU
    - HSM Message Enhancement: Fix return & reason code
    - IEC363D to accept 'Yes' and 'No'
    - Support ABEND Async Events task Support
    - Change STGADMIN.IGG.DEFINE.RECAT and STGADMIN.IGG.DEFDEL.UALIAS from LOG=NONE to LOG=NOFAIL

Overview

- Problem Statement / Need Addressed
    - Diagnostics always can be improved
    - Allow simpler responses to message IEC363D

- Solution
    - Display more latch information
    - Give date and time to catalog recovery utility
    - Improve a message
    - Request RACF logging of failures

- Benefit / Value
    - Improved serviceability

- A number of requirements for Catalog externals enhancements are addressed by this line item. This presentation examines these enhancements.

Usage & Invocation

- # Latch number added to F CATALOG,LIST
  - – Added to message IEC347I when there is latch contention

```
IEC347I LIST CATALOG TASK(S)

*CAS*****************************************************************

* FLAGS - TASK ADDRESS - JOBNAME / STEPNAME - ELAPSED TIME - ID     *

* ------ NOACTIVE / NONE 00.00.00                                   *

********************************************************************

* O-OLDEST, W-WAIT, A-ABEND, E-ENQ, R-RECALL, L-RLS                 *

*CAS*****************************************************************
```

is changed to:

```
IEC347I LIST CATALOG TASK(S)

*CAS*****************************************************************

* FLAGS - TASK ADDR - JOBNAME / STEPNAME - ELAPSED TIME - ID        *

* ------ 00891D78 DUMPSRV / DUMPSRV 00.01.55 02                     *

*   WAITING FOR Get LatchShr # 00001 FROM 09F06730 FOR 00.01.23     *

********************************************************************

* O-OLDEST, W-WAIT, A-ABEND, E-ENQ, R-RECALL, L-RLS                 *

*CAS*****************************************************************
```

where 00001 is the latch number in hexadecimal. Note that the "WAITING FOR" line is indented an additional space to help indicate it is related to the line above.

Usage & Invocation

- Provide date and time from export data set used by ICFRU
  - Added new line to CRURRAP as follows in red:

```
INTEGRATED CATALOG FORWARD RECOVERY UTILITY R1M0
CRURRAP      SYSPRINT                    01/31/13 (13.031) 11:16:39 PAGE 01
                        RECORD SELECTION AND VALIDATION REPORT
                                EXECUTION PARAMETERS
CATALOG NAME                        CATEI001.UCAT1
RECORD SELECTION START              01/31/13 (13.031)  11:16:11
RECORD SELECTION STOP               01/31/13 (13.031)  11:16:29
SIGNIFICANT GAP TIME                0030 MINUTES
MAXIMUM CLOCK DIFFERENCE            NONE SECONDS
CATALOG WAS EXPORTED ON             01/31/13 AT 11:16:11
```

Usage & Invocation

- HSM Message Enhancement: Fix return & reason code returned to HSM as described in APAR OA23698

  - Enhances the HSM message ARC0936I so that it is more meaningful when the system detects an error other than in the VVDS

  - ARC0936I ERROR RETRIEVING SMS VTOC/VVDS DATA, FUNC = (ACCESS | FREE), RC=retcode, REASON=reas1, SUBREAS=reas2

    - It might end with "RC=12, REASON=98-CATALOGENTRYMGR SUBREAS=reas2" where reas2 is four characters:

      - 1 - Catalog RC (See IDC3009I)

      - 2 - Catalog reason. (See IDC3009I)

      - 3, 4 - Catalog module identifier

Usage & Invocation

- IEC363D to accept 'Yes' and 'No'
  - For message IEC363D IS THIS RESTART RELATED TO AN EXISTING CATALOG PROBLEM (Y OR N)?
    - Added capability to respond with "YES" or "NO" in addition to "Y" or "N"
    - Message text was not changed and remains as seen above
    - Follow on message IEC364D will also accept "YES" or "NO"

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Usage & Invocation

- Support ABEND Async Events Task Support
  - Support added so three additional CAS specialty tasks (Async Events, Sysplex Command, and Sysplex Quiesce) can be ABENDed by the Modify command.
  - Added TCB addresses for each task to the F CATALOG,REPORT output in message IEC359I
  - Added new keywords for each task to the F CATALOG,ABEND command.

Usage & Invocation

▪ **Support ABEND Async Events Task Support**

`F CATALOG,REPORT output changed from:`

```
*CAS*********************************************************************
* CATALOG COMPONENT LEVEL = HDZ2210                                     *
* CATALOG ADDRESS SPACE ASN = 002A                                      *
  .
  .
  .
* CAS ANALYSIS TASK = 00995A28                                          *
* CAS ALLOCATION TASK = 00995C58                                        *
* CAS ECS TASK = 009957F8                                               *
* VOLCAT HI-LEVEL QUALIFIER = SYS1                                      *
```

Usage & Invocation

▪ Support ABEND Async Events Task Support

To (note "ECS" changed to "ASYNC":

```
16.48.03 SYSTEM1 IEC359I CATALOG REPORT OUTPUT

*CAS***********************************************************

* CATALOG COMPONENT LEVEL = HDZ2210                           *

* CATALOG ADDRESS SPACE ASN = 002A                           *

 .

 .

 .

* CAS ANALYSIS TASK = 00995A28                               *

* CAS ALLOCATION TASK = 00995C58                             *

* CAS ASYNC TASK = 009957F8                                  *

* CAS SYSPLEX COMMAND TASK = 00996AC8                        *

* CAS SYSPLEX QUIESCE TASK = 00996BC0                        *

* VOLCAT HI-LEVEL QUALIFIER = SYS1                           *
```

Usage & Invocation

▪ Support ABEND Async Events Task Support

Added to F CATALOG,ABEND command as follows:

```
F CATALOG,ABEND(ASYNC)

F CATALOG,ABEND(SYSPCMD)

F CATALOG,ABEND(SYSPQUI)
```

Usage & Invocation

- Change STGADMIN.IGG.DEFINE.RECAT and STGADMIN.IGG.DEFDEL.UALIAS from LOG=NONE to LOG=NOFAIL
  - These RACF facility classes are used by catalog administrators to perform REPRO MERGECATs without having ALTER access to the catalogs involved
  - Done so that unauthorized use can be detected (logged) and audited.

Presentation Summary

▪ **These enhancements are added in z/OS V2R1:**

- Latch number added to F CATALOG,LIST
- Provide date and time from export data set used by ICFRU
- HSM Message Enhancement: Fix return & reason code
- IEC363D to accept 'Yes' and 'No'
- Support ABEND Async Events task Support
- Change STGADMIN.IGG.DEFINE.RECAT and STGADMIN.IGG.DEFDEL.UALIAS from LOG=NONE to LOG=NOFAIL

Appendix

- *z/OS V2R1.0 DFSMS Managing Catalogs,* SC23-6853-0

- *z/OS V2R1.0 MVS System Messages, Vol 7 (IEB-IEE),* SA38-0674-0

Item: Alias Enhancements
Element/Component: DFSMSdfp Catalog

Agenda

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Trademarks

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Presentation Objectives

The objective is to cover the following topics:

- What is a catalog alias?

- Why would creation dates for aliases prove beneficial ?

Overview

- Problem Statement / Need Addressed
- Clients are attempting to cleanup obsolete HLQs (High Level Qualifiers). If an alias has no associated data sets, there is no easy way to determine whether this is a new alias and no data sets have been created or this is an obsolete alias that should be deleted.

- Solution
- Providing a creation date for aliases would help determine whether the alias is obsolete or does have associated data sets.

- Benefit / Value
- The system programmer can now identify an obsolete alias and delete it if it is no longer needed.

Usage & Invocation

- The IDCAMS DEFINE ALIAS command will pull the creation date and put it in the alias record that is created.

- Only the IDCAMS LISTCAT ALL and LISTCAT HISTORY versions of LISTCAT will display the creation date of the alias.

 Below is an excerpt from the IDCAMS LISTCAT ENT(aliasname) ALL output showing the creation date.

ALIAS --------- TEST.ALIAS

 HISTORY

    RELEASE---------------2   CREATION--------2012.135

 ASSOCIATIONS

    NONVSAM--TEST.NONVSAM

Migration & Coexistence Considerations

None. Down-level systems will not display the creation date for aliases.

Presentation Summary

- The support allows users to determine obsolete aliases.

Appendix

- *z/OS V2R1.0 DFSMS Managing Catalogs* (SC23-6853-00)

- *z/OS V2R1.0 DFSMS Access Method Services Commands* (SC23-6846-00)
  - Previously *DFSMS Access Method Services for Catalogs*

Item: Non-SMS VSAM LDS Extended Addressable
Element/Component: DFSMSdfp Catalog

Agenda

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Presentation Objectives

The objective is to cover the following topics:

- Benefits of removing the Extended Addressibility dependency on Extended Format and SMS.

Overview

- Problem Statement / Need Addressed
  - Customers are looking to migrate their non-SMS managed version root HFS to zFS.

  - HFS data sets are not restricted to being SMS-managed. zFS data sets are VSAM linear data sets (LDS).

  - Today, IBM requires a data set to be SMS managed and Extended Format (EF) in order to be Extended Addressable (EA). In short, for a data set to grow beyond 4 GB it should reside on an SMS-managed volume

- Solution
  - The solution would be to remove the EA dependency on EF and allowing non-SMS managed VSAM LDS's to grow beyond 4 GB i.e EA.

- Benefit / Value
  - This will help system programmers to migrate their greater than 4 GB non-SMS version root HFS to zFS.

Usage & Invocation

- Define a new or alter an existing DATACLAS via the ISMF DATACLAS panels to create a DATACLAS with Recorg = LS and EA = YES. The DATACLAS should look like below

Data Class Name . . : DATACLEX

    ....

Data Set Name Type . . . . . :

 If Extended . . . . :

 Extended Addressability . . : YES

  ...

  Recorg . . . . : LS

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Usage & Invocation

- A new parameter EXTENDEDADDRESSABLE or EXTADDR will be provided on the IDCAMS ALTER command which will allow users to convert their existing non-EA non-SMS VSAM LDS's to EA non-SMS VSAM LDS's.

- An EA non-SMS VSAM LDS cannot be converted to a non-EA non-SMS VSAM LDS.

- The data set must be closed during the ALTER.

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Migration & Coexistence Considerations

- DFSMSdss RESTORE of a EA non-SMS VSAM LDS from a V2R1 system to a pre-V2R1 system will be supported.

- HSM functions including Recall and Recover of a EA non-SMS VSAM LDS from a V2R1 system to a pre-V2R1 will be supported.

- IDCAMS IMPORT of a EA non-SMS VSAM LDS to a pre-V2R1 system will also be supported.

- The EA non-SMS VSAM LDS can extend beyond 4 GB from a pre-V2R1 system.

- Coexistence APARs OA39618, OA39619, OA39620 and OA39619 will be needed to be installed.

Presentation Summary

- The support will allow non-SMS VSAM linear data sets to extend beyond 4 GB.

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Appendix

- *z/OS V2R1.0 DFSMS Access Method Services Commands,* SC23-6846-0

Items: Large Block Size Support
         PDS/PDSE Member DELETE With Mask
         IDCAMS Support for RLS
         ALTER NULLIFY Management Class
         DIAGNOSE GDG Crosscheck Extension Cell
Element/Component: Access Method Services (IDCAMS)

Agenda

- Trademarks

- Presentation Objectives

- Overview

- Usage & Invocation

- Presentation Summary

- Appendix

Trademarks

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Presentation Objectives

- To explain the new features and Functions in IDCAMS:

    - Large Block Size Support
    - PDS/PDSE Member DELETE With Mask
    - VSAM RLS Support
    - ALTER NULLIFY Management Class
    - DIAGNOSE GDG Crosscheck Extension Cell

Overview

- Problem Statement / Need Addressed
    - Customers requested:
        - large block size support,
        - more flexible partitioned data set member deletion,
        - support for VSAM RLS data sets,
        - the ability to nullify a data set management class in a catalog record,
        - and enhanced GDG cross checking with VSAM extension cells.

- Solution
    - Provide the above

- Benefit / Value
    - Improved usability and reliability

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Usage & Invocation

- # Large Block Size Support
  - REPRO and PRINT can now use the Large Block Interface (LBI)
  - LBI used for tape, dummy, and z/OS UNIX files
  - Supports block sizes up to the access method limit, which currently is 256 KB
  - SYSIN and SYSPRINT do not support LBI

Usage & Invocation

- ## PDS/PDSE Member DELETE With Mask
  - Enhances the IDCAMS DELETE command to be more flexible in performing the deletion of the members in a partitioned data set (PDS/PDSE).
    - It allows a mask for member names to be specified in a DELETE command for PDS/PDSEs.
    - A mask for a member name can contain an asterisk (*) or percent sign (%).

      Asterisk means 0 or more characters

      % means 1 and only 1 character
    - A single asterisk (*) still means delete all members in the PDS/PDSE. Performed by issuing a STOW INIT
    - Double asterisk (**) means delete all members in the PDS/PDSE. Performed by issuing a STOW DELETE for each Member in the PDS/PDSE. Lists members deleted.

Usage & Invocation

- ## PDS/PDSE Member DELETE With Mask
  - Examples (assume A.PDS has members ABC, ABCDEFGC, AC, A1C and DEF before each DELETE command) :

    - ### DELETE A.PDS(A*C)

      Deletes members ABC, ABCDEFGC,AC and A1C but not DEF
      ```
      IDC0549I MEMBER ABC DELETED
      IDC0549I MEMBER ABCDEFGC DELETED
      IDC0549I MEMBER AC DELETED
      IDC0549I MEMBER A1C DELETED
      ```

    - ### DELETE A.PDS(A%C)

      Deletes members ABC and A1C, but not AC, ABCDEFGC or DEF
      ```
      IDC0549I MEMBER ABC DELETED
      IDC0549I MEMBER A1C DELETED
      ```

Usage & Invocation

- **PDS/PDSE Member DELETE With Mask**

- Examples (deleting all members) :

  - DELETE A.PDS(*) existing function in R13
    - Deletes all members in A.PDS
      ```
      IDC0553I ALL MEMBERS IN DATA SET A.PDS  DELETED
      ```
  - DELETE A.PDS(**)
    - Deletes all members in A.PDS
      ```
      IDC0549I MEMBER ABC DELETED
      IDC0549I MEMBER ABCDEFGC DELETED
      IDC0549I MEMBER AC DELETED
      IDC0549I MEMBER A1C DELETED
      IDC0549I MEMBER DEF DELETED
      ```

Usage & Invocation

- ## Support for VSAM RLS
    - PRINT, REPRO, IMPORT and EXPORT can open VSAM data sets using Record Level Sharing (RLS)
    - New optional keywords RLSSOURCE ({NO|YES| QUIESCE}) and/or RLSTARGET ({NO|YES|QUIESCE})
        - NO[*] – Default uses Non-Shared Resources (NSR). Abbreviation: N
        - YES - Indicates that the data set will be opened using record level sharing (RLS) and the data set will have consistent read integrity Abbreviation: Y
        - QUIESCE – Indicates that the data set will be quiesced before opening and processing any entries. Abbreviation: Q

- ## The abbreviation for RLSSOURCE and RLSTARGET are RLSS and RLST, respectively

*Note: NO is the current behavior without VSAM RLS support.

Usage & Invocation

- Support for VSAM RLS
  - PRINT: RLSSOURCE ({NO|YES|QUIESCE}) for the input data set
  - REPRO: RLSSOURCE ({NO|YES|QUIESCE}) and RLSTARGET ({NO|YES|QUIESCE})
  - IMPORT: RLSTARGET ({NO|YES|QUIESCE}) for the target data set
  - EXPORT: RLSSOURCE ({NO|YES|QUIESCE}) for the source data set

Usage & Invocation

- ALTER NULLIFY Management Class
  - Removes the Management Class from a Catalog record
  - ALTER entryname NULLIFY(MGMTCLAS)

Usage & Invocation

- **DIAGNOSE of GDG Crosscheck Extension Cell**
  - IDCAMS DIAGNOSE command does not currently detect a mismatch in the actual number of extension cells versus how many GDG BCS records exist. This can lead to GDG processing errors that are undetectable until batch processing fails.
  - AMS DIAGNOSE is enhanced to crosscheck the extension cells and the GDG BCS record, so the mismatch can be detected.
  - New Messages
    - IDC31378I GDG BASE EXT CELL COUNT IS ZERO, BUT EXT CELLS EXIST
    - IDC31379I GDG BASE EXT CELL COUNT DOES NOT MATCH THE EXT CELLS COUNT

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Presentation Summary

- New functions and capabilities for DFSMSdfp V2R1 exist in IDCAMS that:
  - Support large block sizes
  - Allow deletion of selected PDS/PDSE Members using a mask
  - VSAM RLS support
  - Allows ALTER NULLIFYing the management class in catalog record
  - Enhances DIAGNOSE GDG to crosscheck the extension cells

Appendix

- *z/OS V2R1.0 DFSMS Access Method Services Commands (SC23-6846-00)*
  - Previously *z/OS V2R1.0 DFSMS Access Method Services for Catalogs*