Advanced Technology Group

Accelerate with IBM Storage:

Toy Phouybanhdyt
Storage Technical Specialist – Tape Solutions SME

Panelists:
Ben Smith, Tape Solutions SME
Bob Sommer, Tape Solutions SME
Mike Berish, Tape Solutions SME
Sandra Browning, Tape Solutions SME

Accelerate with ATG Technical Webinar Series

Advanced Technology Group experts cover a variety of technical topics.

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May 2 – IBM Storage Ceph S3 Object Storage Demo

May 23 – IBM GDPS 4.6 Update

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Meet the Speakers

Toy Phouybanhdyt is a Principal Storage Technical Specialist, Tape Solutions SME, at IBM with over 30 years of experience in the field of tape hardware, both physical and virtual, and System-Managed Storage. He held various IT positions, including 8 years as MVS system programmer who was responsible for maintaining the MVS system, capacity and performance management, storage management and disaster recovery. After joining IBM, he eventually chose a storage career path supporting both disk and tape. After the surge in IBM Virtual Tape Server interest, he dropped disk to concentrate on tape. He is responsible for architecting the TS7700 Grid solution and providing the technical recommendations on various TS7700 projects such as capacity planning, performance management, technology refresh, data center move, cyber resiliency protection, etc...

Sandra Browning has been with IBM 10+ years, she previously worked in sales as a Client Technical Specialist, mainly supporting large IBM storage customers. Recently, she joined the Advanced Technical Group specializing in Tape. Sandy has a strong background in tape as she worked for a tape vendor for many years before joining IBM.

Bob Sommer is a graduate of the Michigan State University in Math Education and Montclair State College in Computer Science. After 7 years of teaching high school math, he joined IBM as a Systems Engineer. With 38 years at IBM, he has always been on the front lines with customers. He supported both Tape and Storage starting in 1990's and has been dedicated to selling and supporting Virtual Tape and Physical Tape since 1999. He is currently with the Advanced Technology Group specializing in Tape Sales and technical support.

Session objectives

The IBM TS7700 provides the capability to perform Disaster Recovery (DR) testing without interrupting production processing and replication. There are multiple DR testing options available, and the objective of this session is to provide and share the various DR testing options. Plan to join the Advanced Technology Group for this session to gain the knowledge on which option to select that will best suit your company's needs.

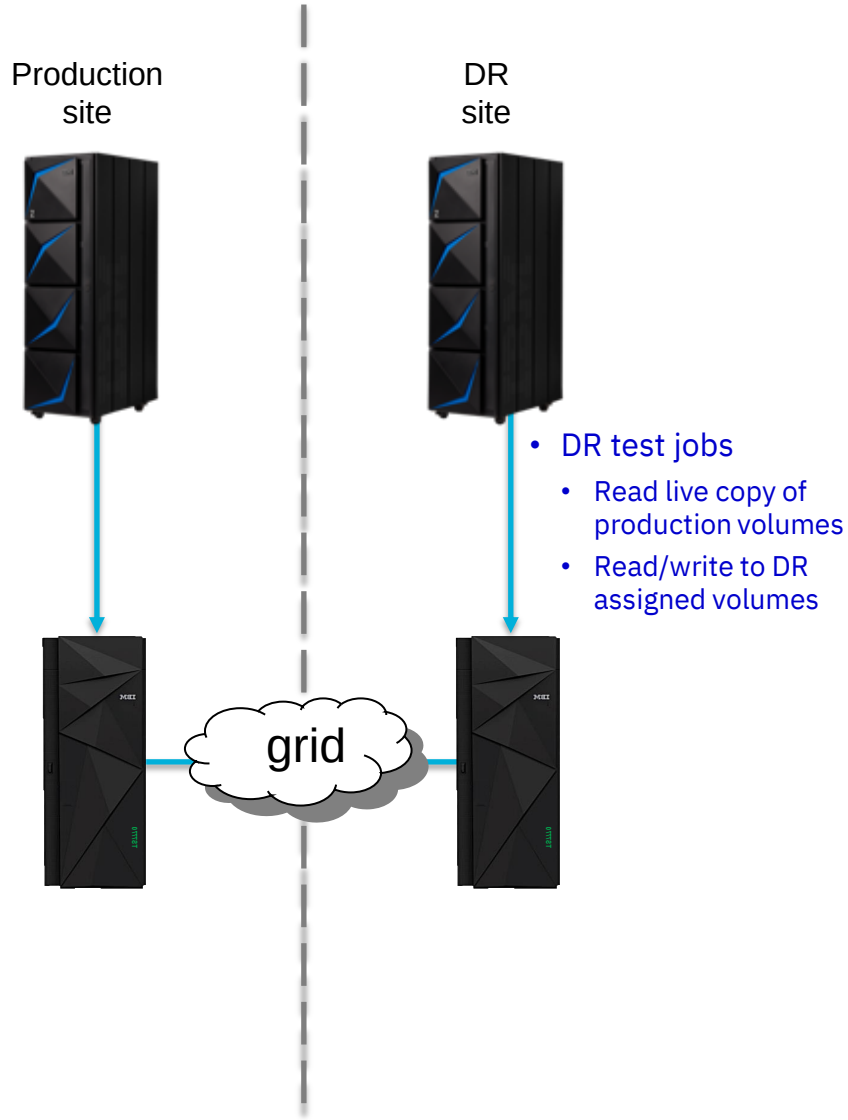
Agenda

- DR test overview
- DR test with Write Protect Mode disabled and without point in time (flash) copy
- DR test with Write Protect Mode enabled and without point in time (flash) copy
- DR test with Write Protect Mode enabled and with point in time (flash) copy

DR test overview

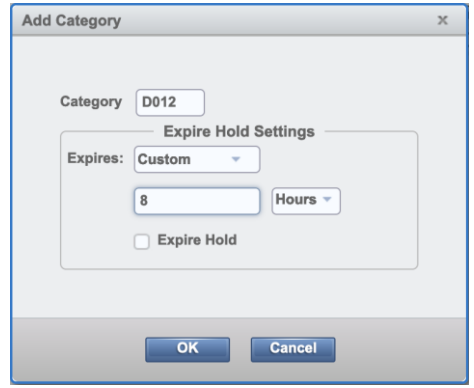
DR test with TS7700 grid overview

- Full support of concurrent testing
  - DR test can be executed while production continues
    - No interruption to production processing and replication
  - Production data continues to replicate during the entire DR test
    - Highly recommend to keep replication links active during DR test
    - Considerations with disabling replication
      - Data consistency and DR recovery exposures
        - RPO impact
      - Replication backlog
  - DR test with TS7700 grid options
    - With Write Protect Mode disabled and with FlashCopy for DR testing disabled
    - With Write Protect Mode enabled and with FlashCopy for DR testing disabled
      - All clusters in the grid must be running R1.7 code or higher
    - With Write Protect Mode enabled and with Flashcopy for DR testing enabled
      - All clusters in the grid must be running R3.1 code or higher



DR test pre-req activities

- Select unique media category codes for DR test
  - Example: select D011...D01F if production media category codes are 0011...001F
- Create DR DEVSUPxx (example, DEVSUPDR) with selected media category codes
- Add DR scratch media category codes to TS7700 grid
  - Suggestion: set retention period to 1 day or less
- Select unique volser range for DR test
- Define DR selected volser range to tape management system
- Restrict production hosts to accept DR volser range during cartridge entry
  - Example: Use the RMM parameters PRTITION and OPENRULE
    - *PRTITION VOLUME(prefix) TYPE(ALL) SMT(IGNORE) NOSMT(IGNORE)*
    - *OPENRULE VOLUME(prefix) TYPE(ALL) ANYSUE(REJTECT) INPUT(ACCEPT)*
- Configure DR cluster MGMTCLAS to not replicate to production cluster(s)
  - Example: CCP = NNNND on 5-cluster grid where CL4 is the DR cluster
- Optionally, assemble and link OAM utility CBRSPLCS
  - Source: SYS1.SAMPLIB(CBRSPLCS)
  - APF authorized



CBRSPLCS specifications

```
**** START OF SPECIFICATIONS ***********************************************
*                                                                             *
*    MODULE NAME:       CBRSPLCS                                              *
*                                                                             *
*    DESCRIPTIVE NAME:  SAMPLE INSTALLATION MANAGEMENT PACKAGE FOR            *
*                       AUTOMATED TAPE LIBRARIES                              *
*                                                                             *
*  Licensed Materials - Property of IBM                                       *
*  5650-ZOS                                                                   *
*  COPYRIGHT IBM CORP. 1999, 2001                                             *
*                                                                             *
*    FUNCTION:                                                                *
*      MODULE CBRSPLCS IS PART OF THE SAMPLE INSTALLATION                     *
*      MANAGEMENT PACKAGE FOR AUTOMATED TAPE LIBRARIES.  IT HANDLES           *
*      REQUESTS ENTERED VIA AN INPUT TRANSACTION DATASET:                     *
*        1. EJECT A VOLUME FROM A LIBRARY                                     *
*        2. CHANGE A VOLUME USE ATTRIBUTE TO SCRATCH                          *
*        3. CHANGE A VOLUME USE ATTRIBUTE TO PRIVATE                          *
*        4. INITIATE AN IMPORT OPERATION                              @L1A*
*        5. INITIATE AN EXPORT OPERATION                              @L1A*
*        6. PERFORM CARTRIDGE ENTRY INTO AN MTL (MCE)                 @L2A*
*                                                                             *
```

CBRSPLCS sample JCL

```
//JOBCARD  JOB
//*
//* COLUMN 1: COMMAND
//*   E = EJECT VOLUME FROM LIBRARY
//*   P = CHANGE VOLUME ATTRIBUTE TO PRIVATE
//*   S = CHANGE VOLUME ATTRIBUTE TO SCRATCH
//* COLUMN 2: VERIFY VOLUME RESIDES IN LIBRARY
//*   V
//* COLUMN 3: BLANK
//* COLUMN 4: VOLSER
//* SEE SOURCE CODE FOR COLUMNS 11 TO 80 USAGE
//*
//LCS      EXEC PGM=CBRSPLCS
//STEPLIB  DD  DISP=SHR,DSN=APF.LOADLIB
//OUTDD    DD  SYSOUT=A
//INDD     DD  *
SV DR0000
SV DR00001
//* CHANGE DR0000 AND DR0001 VOLUME TO SCRATCCH
```

Pre-Req Activities – DR CEC HCD

- Each cluster has unique Libport-ID (see table)
  - Libport-ID's are assigned to cluster device addresses
    - All clusters in the grid attached to same CEC must have unique device addresses
    - Production and DR clusters in the grid can have the same device addresses
- Up to 256 device addresses per cluster
  - Up to 496 device addresses per cluster with additional license
- DR device address considerations
  - Use production device addresses
    - No change to operational procedures
    - Good option for site swap
  - Use unique device addresses
    - Change to operational procedures

Distributed Library	Logical CUs (hex)	Libport IDs (hex)
Cluster 0	0-1E	01-1F
Cluster 1	0-1E	41-5F
Cluster 2	0-1E	81-9F
Cluster 3	0-1E	C1-DF
Cluster 4	0-1E	21-3F
Cluster 5	0-1E	61-7F
Cluster 6	0-1E	A1-BF
Cluster 7	0-1E	E1-FF

DR testing with Write Protect Mode disabled and without point in time (flash) copy

DR testing with Write Protect Mode disabled and DR Testing for FlashCopy disabled

- DR volume cartridge entry verification on production host
  - Insert 1 DR volume
    - Verify volume status
      - zOS command: D SMS,VOL(volser)
      - MI volume details
    - If inserted DR volume does not remain in INSERT (x'FFFF' media category code) status, correct the problem.
- IPL DR host with pre-configured DEVSUPxx, i.e. DEVSUPDR, member
  - Verify active media category codes
    - zOS command: DS QL,CATS
    - If it is incorrect, update DEVSUPxx and re-IPL
      - Or, temporary correct media category codes
        - zOS command: DS QL,CATS(D01*)
          - Change is not persistent
          - Update DEVSUPxx
  - Insert 1 DR volume to verify cartridge entry processing
    - If inserted DR volume does not have correct media category code assignment, i.e. D012, correct the problem.
    - If inserted volume remains in INSERT status, check OAM CBRUXENT status and check tape management system configuration.
      - zOS command to verify AOM exits status: D SMS,OAM
  - Insert remaining DR volumes only after successful cartridge entry processing verification
  - Perform DR test

Recommendations and considerations

- Recommendations
  - Disable HSM processing
  - Disable tape management system scratch and clean
- Considerations
  - Clean up DR tape volumes prior to shut down DR host
    - Change DR volumes to scratch media category code, i.e. D012
      - IBM utility: CBRSPLCS
      - CA1 utility: CTSSYNC
      - No need to insert DR volumes on next DR test
    - Eject DR tape volumes, optional
      - IBM utility: CBRSPLCS
      - CA1 utility: CTSSYNC
      - Must insert DR volumes on every DR test

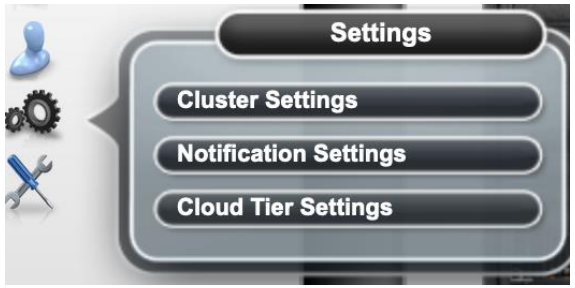
DR testing with Write Protect Mode enabled and without point in time (flash) copy

DR testing with Write Protect Mode enabled only

- DR volume cartridge entry verification on production host
  - Insert 1 DR volume
    - Verify volume status
      - zOS command: D SMS,VOL(volser)
      - MI volume details
    - If inserted DR volume does not remain in INSERT (x'FFFF' media category code) status, correct the problem.
- Define Write Protect exclusion media categories and enable Write Protect Mode via MI
- IPL DR host with pre-configured DEVSUPxx, i.e. DEVSUPDR, member
  - Verify active media category codes
    - zOS command: DS QL,CATS
    - If it is incorrect, update DEVSUPxx and re-IPL
      - Or, temporary correct media category codes
        - zOS command: DS QL,CATS(D01*)
          - Change is not persistent
          - Update DEVSUPxx
  - Insert 1 DR volume to verify cartridge entry processing
    - If inserted DR volume does not have correct media category code assignment, i.e. D012, correct the problem.
    - If inserted volume remains in INSERT status, check OAM CBRUXENT status and check tape management system configuration.
      - zOS command to verify AOM exits status: D SMS,OAM
  - Insert remaining DR volumes only after successful cartridge entry processing verification
  - Perform DR test

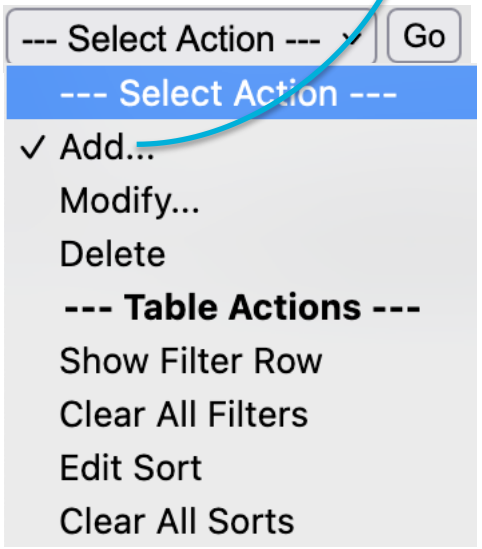
Define Write Protect exclusion media categories

- Add DR media category codes to exclusion list
  - Select 
  - Select *Cluster Settings* from *Settings* drop down box

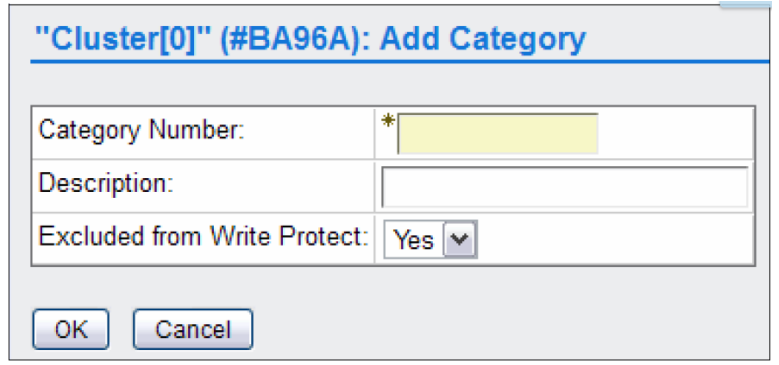


  - Click Write Protect Mode

  - Select *Add* from *Select Action* drop down box



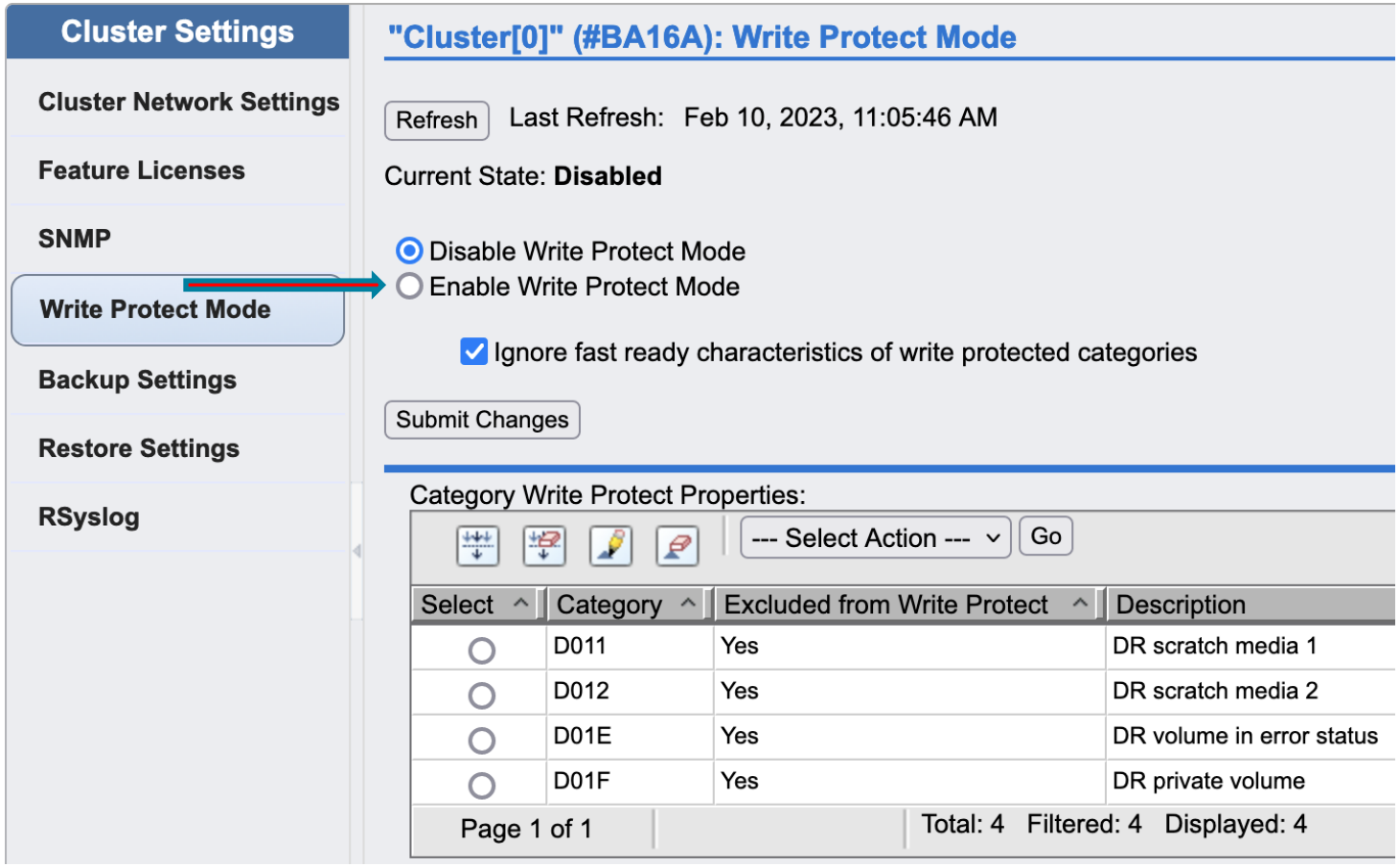
  - Click *Go*



- Write protect exclusion media categories
  - Add DR media categories
    - D011 - SCR
    - D012 - SCR
    - D01E - Error
    - D01F – PVT
- Enter *category number*
  - Optionally, enter *description*
- Select *Yes* on *excluded from Write Protect*
- Click *Go*

Enable Write Protect Mode

- Verify write protect exclusion media categories
- Select *Enable Write Protect Mode* radio button
- Click *Submit*

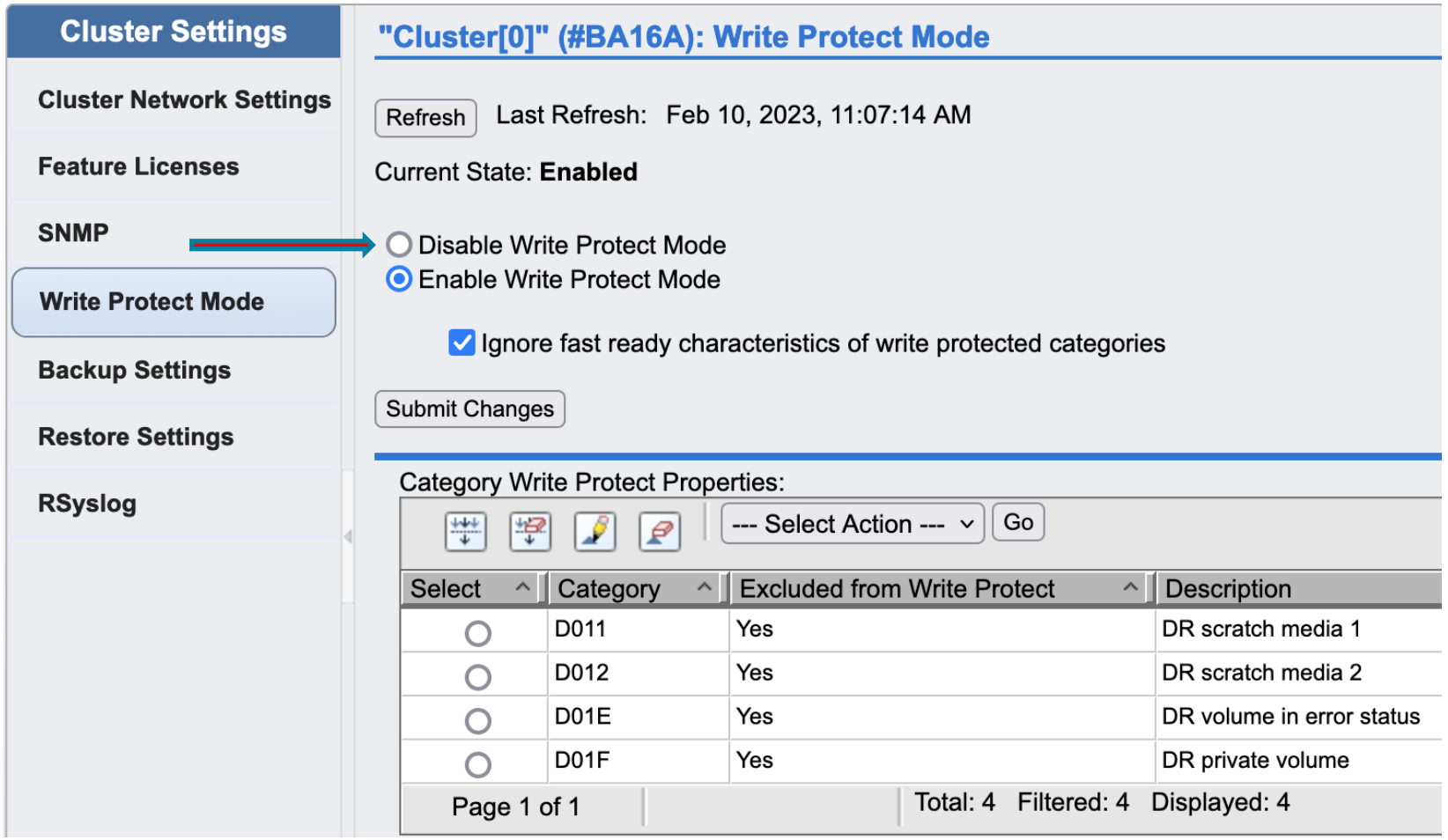


Considerations

- Disable HSM processing, optional
  - Disable it for double protection
- Disable tape management system scratch and clean, optional
  - Disable it for double protection
- Clean up DR tape volumes prior to shut down DR host
  - Change to scratch media category code, i.e. D012
    - IBM utility: CBRSPLCS
    - CA1 utility: CTSSYNC
    - No need to insert DR volumes on next DR test
  - Eject DR tape volumes, optional
    - IBM utility: CBRSPLCS
    - CA1 utility: CTSSYNC
    - Must insert DR volumes on every DR test

Disable Write Protect Mode after completing DR testing – optional

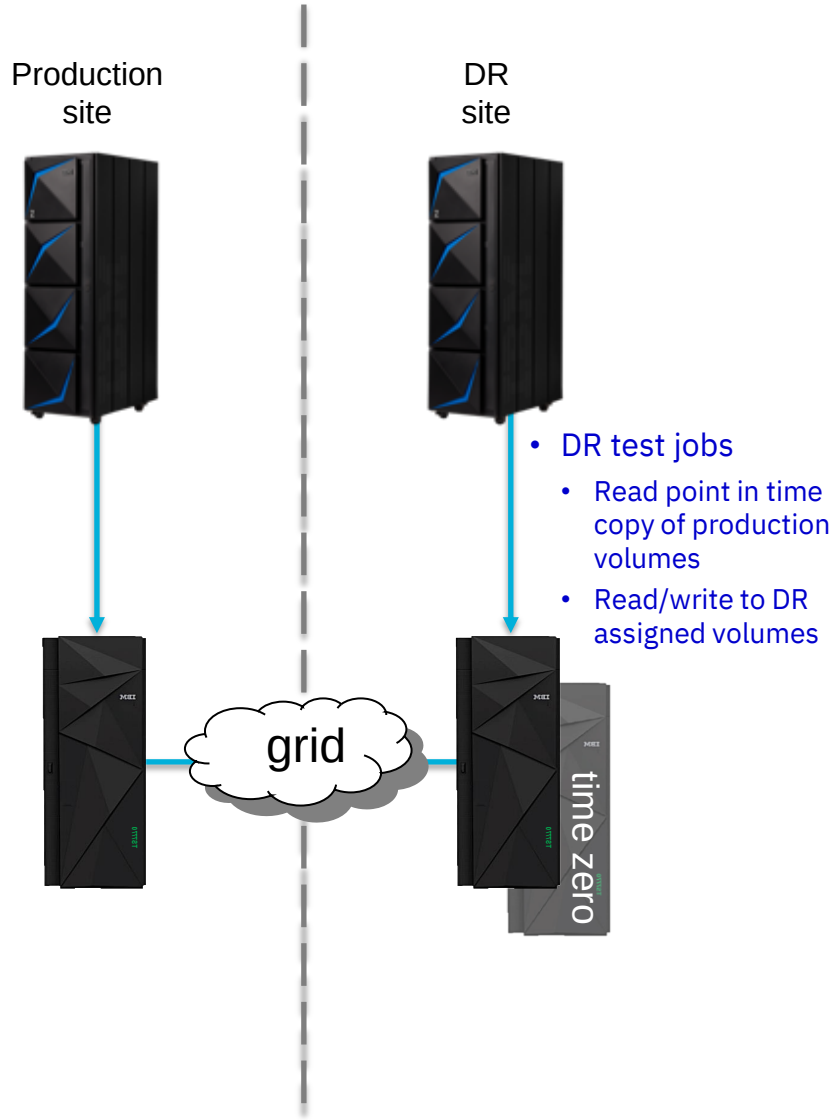
- Select *Disable Write Protect Mode* radio button
- Click *Submit*



DR testing with Write Protect mode enabled and with point in time (flash) copy

FlashCopy for DR Testing overview

- Full support of concurrent testing
  - DR test host can run while production continues
  - Production data continues to replicate during the entire test
  - Mount the same volumes at both production and DR at the same time
  - Data contained within any TS7700 DR cluster is accessible for DR testing and the content at time zero is provided
  - DR host can create new content to segregated read/write volume ranges
- Production data protection
  - Use TS7700 Write Protect Mode to isolate DR test volumes by category for full read/write access while only allowing read access to production volumes
  - All access to write protected volumes will access a point in time flash copy
  - Access to production volumes which have been returned to scratch as private volumes within DR location
  - No need to disable return to scratch processing
- Enablement
  - Configure “DR Families” via zOS LI REQ command
  - Enable Write Protect Mode and Flash from zOS LI REQ command aginst all clusters in a DR Family



FlashCopy supported configurations

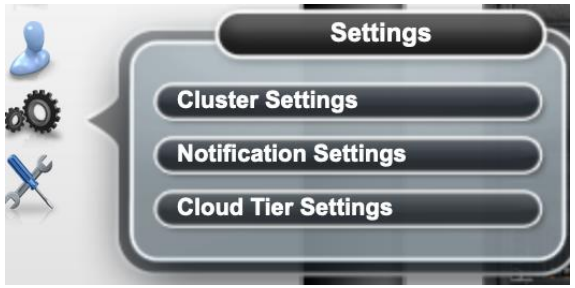
- Supported configurations
  - Only TS7700 Grid configurations where all clusters are running R3.1 or later and at least one TS7700 cluster exists at the DR location are supported
  - Disk cache snapshot occurs to one or more TS7700 clusters in a DR family within seconds
  - TS7700 clusters within the DR location should be increased in size to accommodate the delta space retained during the test
    - Any volume which was deleted in production is not deleted in DR
    - Any volume which is reused in production results in two DR copies (old at time zero and new)
  - Auto removal as well as the delete/expire processing will be disabled on all clusters which are members of a DR family that is currently in a snapshot state
- See TS7700 best practices – FalshCopy for DR testing for more information: https://www.ibm.com/support/pages/ts7700-best-practices-flashcopy-dr-testing-v16c

Flash Copy for DR Testing – Basic Steps

1. Preparation
   a) Set up the write protection excluding categories on each cluster to be added to DR family; DO NOT enable Write Protect.
   b) Define a DR family using Library Request (LI REQ) command.
   c) Enable Write Protect for the DR family using Library Request (LI REQ) command.
   d) Insert DR tape volumes.
2. Execution
   a) Initiate Flash Copy using Library Request (LI REQ) command.
   b) Bring up DR host and start testing.
   c) Dissolve the Flash Copy data using Library Request (LI REQ) command.

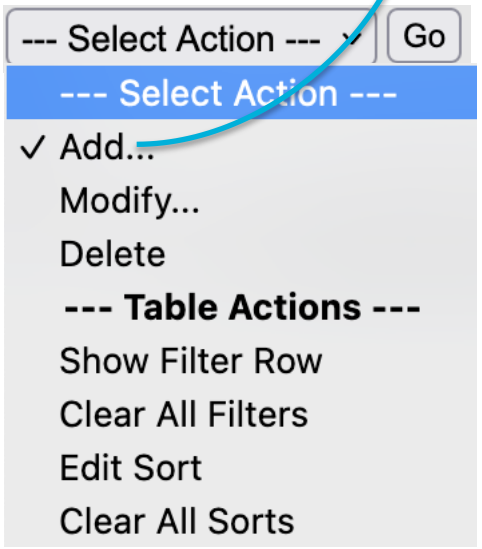
Prep task – define Write Protect exclusion media categories

- Add DR media category codes to exclusion list
  - Select 
  - Select *Cluster Settings* from *Settings* drop down box

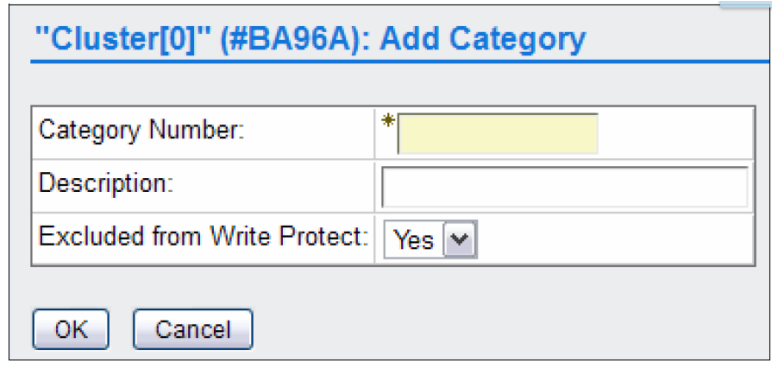


  - Click Write Protect Mode

  - Select *Add* from *Select Action* drop down box



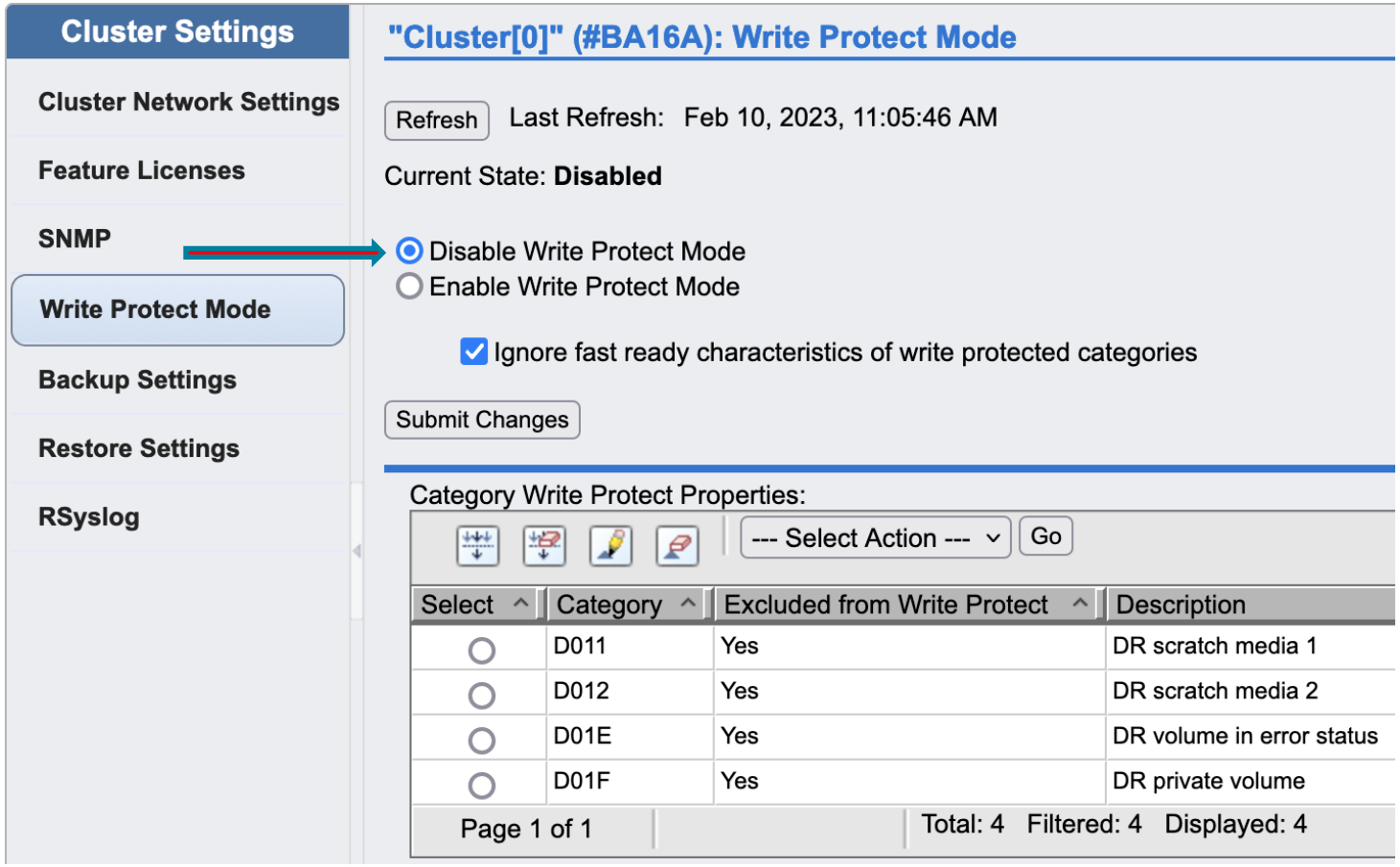
  - Click *Go*



- Write protect exclusion media categories
  - Add DR media categories
    - D011 - SCR
    - D012 - SCR
    - D01E - Error
    - D01F – PVT
- Enter *category number*
  - Optionally, enter *description*
- Select *Yes* on *excluded from Write Protect*
- Click *Go*

Prep task – Verify Write Protect Mode

- Write Protect Mode must be disabled
  - It will be enabled via LI REQ command at a later step



Prep task – Define DR Family using Library Request

- zOS Library Request command syntax
  - LI REQ, <clib_name>, DRSETUP, <family_name>, ADD, <cluster id>
    - <clib_name> is the composite library name of the TS7700 grid
    - <family_name> is the eight characters alphanumeric name for this family
    - <cluster id> is the cluster index number 0-7
- Example
  - LI REQ,*ABCVTS1*,DRSETUP,*ABCDR1*,ADD,*1*
  - Example of command response

```
CBR1280I Library ABCVTS1 request.
Keywords: DRSETUP,ABCDR1,ADD,1
------------------------------------------------------------
DRSETUP V1 .0
DR FAMILY ABCDR1 WAS NEWLY CREATED
CLUSTER 1 WAS ADDED TO DR FAMILY ABCDR1 SUCCESSFULLY
```

DR testing with Write Protect Mode enabled and DR Testing for FlashCopy enabled

- DR volume cartridge entry verification on production host
  - Insert 1 DR volume
    - Verify volume status
      - zOS command: D SMS,VOL(volser)
      - MI volume details
    - If inserted DR volume does not remain in INSERT (x'FFFF' media category code) status, correct the problem.
- Enable Write Protect via LI REQ console command
- Initiate FlashCopy for DR Testing
- IPL DR host with pre-configured DEVSUPxx, i.e. DEVSUPDR, member
  - Verify active media category codes
    - zOS command: DS QL,CATS
    - If it is incorrect, update DEVSUPxx and re-IPL
      - Or, temporary correct media category codes
        - zOS command: DS QL,CATS(D01*)
          - Change is not persistent
          - Update DEVSUPxx
  - Insert 1 DR volume to verify cartridge entry processing
    - If inserted DR volume does not have correct media category code assignment, i.e. D012, correct the problem.
    - If inserted volume remains in INSERT status, check OAM CBRUXENT status and check tape management system configuration.
      - zOS command to verify AOM exits status: D SMS,OAM
  - Insert remaining DR volumes only after verifying cartridge entry processing
  - Perform DR test

Considerations

- Disable HSM processing, optional
  - Disable it for double protection
- Disable tape management system scratch and clean, optional
  - Disable it for double protection

Enable Write Protect for DR Family using Library Request

- zOS Library Request command syntax
  - LI REQ, <clib_name>, DRSETUP, <family_name>, WP, ENABLE
    - <clib_name> is the composite library name of the TS7700 grid
    - <family_name> is the eight characters alphanumeric name for this family
- Example
  - LI REQ,*ABCVTS1*,DRSETUP,*ABCDR1*,WP,ENABLE
  - Example of command response

```
CBR1280I Library ABCVTS1 request.
Keywords: DRSETUP,ABCDR1,WP,ENABLE
------------------------------------------------------------
DRSETUP V1 .0
WRITE PROTECT STATUS BEEN ENABLED SUCCESSFULLY
```

Verify Write Protect Status

- zOS Library Request command syntax
  - LI REQ, <clib_name>, DRSETUP, SHOW, <family_name>
    - <clib_name> is the composite library name of the TS7700 grid
    - <family_name> is the eight characters alphanumeric name for this family
- Example
  - LI REQ,*ABCVTS1*,DRSETUP,SHOW,*ABCDR1*
  - Example of command response

```
CBR1280I Library ABCVTS1 request.
Keywords: DRSETUP,SHOW,ABCDR1
------------------------------------------------------------ DRSETUP V1 .0
DR FAMILY VIEW
ID FAM NAME    FLASH FLASH TIME (UTC) LCOPY MEMBER CLUSTERS
1    ABCDR1    INACTIVE              N/A  NONE - 1 - - - - - -
-----------------------------------------------------------FAMILY MEMBER WRITE PROTECT
STATUS VIEW
CLUSTER  WRT-PROTECT EXCATS-NUM IGNORE-FR ENABLED-BY
CLUSTER1     ENABLED          4      TRUE      LIREQ
-----------------------------------------------------------CATEGORIES EXCLUDED FROM WRITE
PROTECTION WITHIN DR FAMILY ABCDR1
CLUSTER   ACTIVE EXCLUDED CATEGORIES
CLUSTER1  D011 D012 D01E D01F
```

Initiate FlashCopy for DR testing using Library Request

- zOS Library Request command syntax
  - LI REQ, <clib_name>, DRSETUP, <family_name>, FLASH, ENABLE
    - <clib_name> is the composite library name of the TS7700 grid
    - <family_name> is the eight characters alphanumeric name for this family
- Example
  - LI REQ,*ABCVTS1*,DRSETUP,*ABCDR1*,FLASH,ENABLE
  - Example of command response

```
CBR1280I Library ABCVTS1 request.
Keywords: DRSETUP,ABCDR1,FLASH,ENABLE
------------------------------------------------------------
DRSETUP V1 .0
FLASH COPY BEEN ENABLED SUCCESSFULLY
```

Verify FlashCopy status

- zOS Library Request command syntax
  - LI REQ, <clib_name>, DRSETUP, SHOW, <family_name>
    - <clib_name> is the composite library name of the TS7700 grid
    - <family_name> is the eight characters alphanumeric name for this family
- Example
  - LI REQ,*ABCVTS1*,DRSETUP,SHOW,*ABCDR1*

Verify Flash Copy Status

- zOS Library Request command syntax
  - LI REQ, <clib_name>, DRSETUP, SHOW, <family_name>
    - <clib_name> is the composite library name of the TS7700 grid
    - <family_name> is the eight character alphanumeric name for this family
- Example
  - LI REQ,*ABCVTS1*,DRSETUP,SHOW,*ABCDR1*
  - Example of command response

```
CBR1280I Library ABCVTS1 request.
Keywords: DRSETUP,SHOW,ABCDR1
------------------------------------------------------------ DRSETUP V1 .0
DR FAMILY VIEW
ID FAM NAME FLASH     FLASH TIME (UTC) LCOPY MEMBER CLUSTERS
1    ABCDR1   ACTIVE 2013-09-18-05.32.55  NONE - 1 - - - - - -
-------------------------------------------------------FAMILY MEMBER WRITE PROTECT
STATUS VIEW
CLUSTER  WRT-PROTECT EXCATS-NUM IGNORE-FR ENABLED-BY
CLUSTER1     ENABLED          3      TRUE      LIREQ
-------------------------------------------------------CATEGORIES EXCLUDED FROM WRITE
PROTECTION WITHIN DR FAMILY ABCDR1
CLUSTER   ACTIVE EXCLUDED CATEGORIES
CLUSTER1  D011 D012 D01E D01F
```

Verify FlashCopy usage using zOS Library Request command

- zOS Library Request command syntax
  - LI REQ, <dlib_name>, CACHE
    - <dlib_name> is the distributed library name of the DR cluster

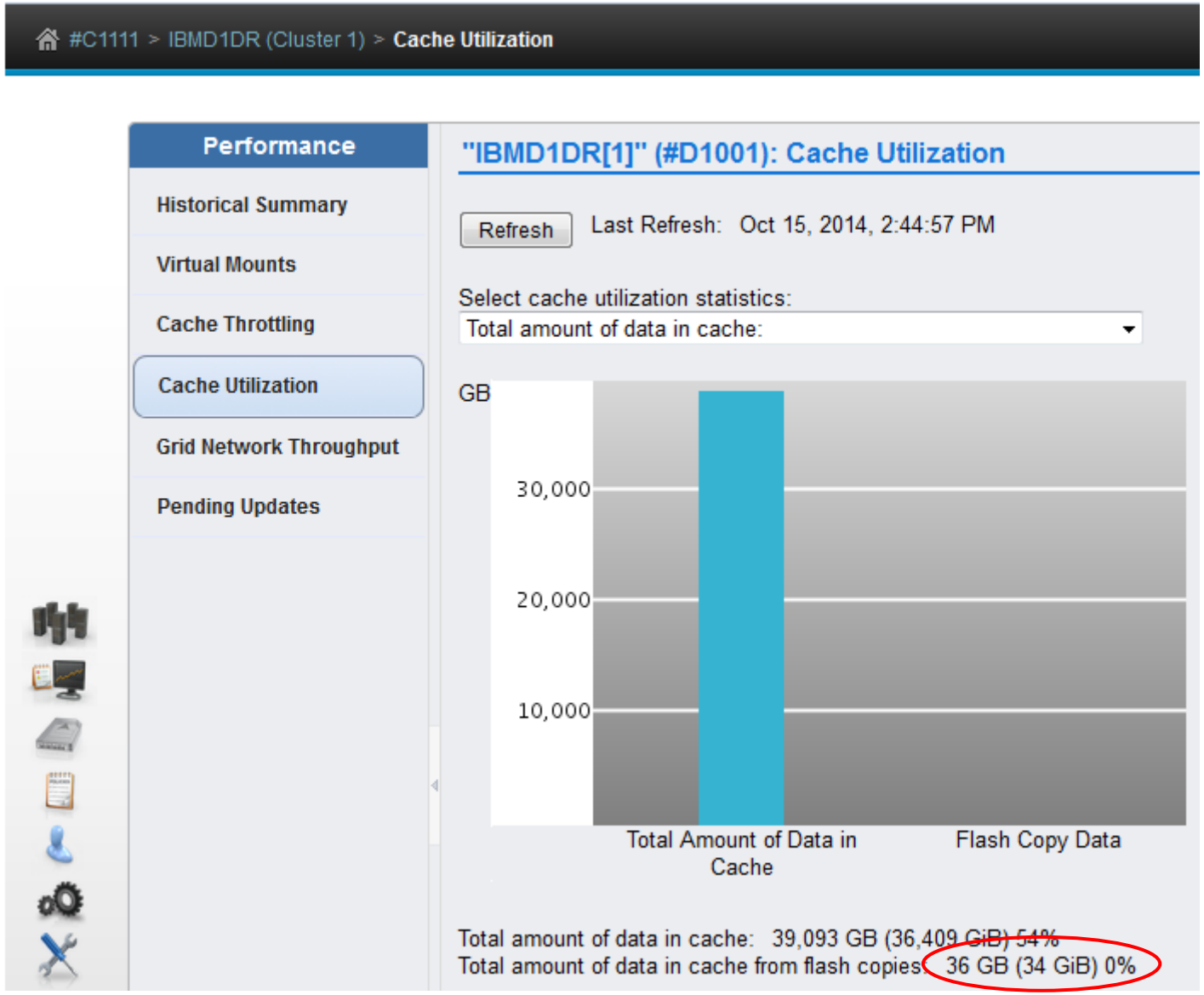
```
LI REQ,UHGDRCL,CACHE
CBR1020I Processing LIBRARY command: REQ,ABCVTS1,CACHE.
CBR1280I Library ABCVTS1 request. 642
Keywords: CACHE
------------------------------------------------------------------------
TAPE VOLUME CACHE STATE V3 .0
 PRIMARY TAPE MANAGED PARTITIONS
 INSTALLED/ENABLED GBS       0/     0
 CACHE ENCRYPTION STATUS:
 PARTITION    ALLOC    USED     PG0     PG1   PMIGR    COPY     PMT    CPYT
      0           0       0       0       0       0       0       0       0
      1           0       0       0       0       0       0       0       0
      2           0       0       0       0       0       0       0       0
      3           0       0       0       0       0       0       0       0
      4           0       0       0       0       0       0       0       0
      5           0       0       0       0       0       0       0       0
      6           0       0       0       0       0       0       0       0
      7           0       0       0       0       0       0       0       0
 PRIMARY CACHE RESIDENT ONLY INFORMATION
 INSTALLED/ENABLED GBS  71842/ 71842
ADJUSTED CACHE USAGE  37756
CACHE ENCRYPTION STATUS:  ENABLED-INTERNAL
ALLOCATED     USED      PIN      PKP      PRM     COPY     CPYT
    71842    37374        0    37373        0        0        0
FLASH COPY INFORMATION
INDEX ENABLED     SIZE
    1      YES       0
    2       NO       0
    3       NO       0
    4       NO       0
    5       NO       0
    6       NO       0
    7       NO       0
    8       NO       0
```

Time zero

```
LI REQ,UHGDRCL,CACHE
CBR1020I Processing LIBRARY command: REQ,ABCVTS1,CACHE.
CBR1280I Library ABCVTS1 request. 812
Keywords: CACHE
------------------------------------------------------------------------
TAPE VOLUME CACHE STATE V3 .0
 PRIMARY TAPE MANAGED PARTITIONS
 INSTALLED/ENABLED GBS       0/     0
 CACHE ENCRYPTION STATUS:
 PARTITION    ALLOC    USED     PG0     PG1   PMIGR    COPY     PMT    CPYT
      0           0       0       0       0       0       0       0       0
      1           0       0       0       0       0       0       0       0
      2           0       0       0       0       0       0       0       0
      3           0       0       0       0       0       0       0       0
      4           0       0       0       0       0       0       0       0
      5           0       0       0       0       0       0       0       0
      6           0       0       0       0       0       0       0       0
      7           0       0       0       0       0       0       0       0
 PRIMARY CACHE RESIDENT ONLY INFORMATION
 INSTALLED/ENABLED GBS  71842/ 71842
  ADJUSTED CACHE USAGE  39490
  CACHE ENCRYPTION STATUS:  ENABLED-INTERNAL
  ALLOCATED     USED      PIN      PKP      PRM     COPY     CPYT
      71842    39053        0    39053        0        0        0
  FLASH COPY INFORMATION
  INDEX ENABLED     SIZE
      1      YES      36
      2       NO       0
      3       NO       0
      4       NO       0
      5       NO       0
      6       NO       0
      7       NO       0
      8       NO       0
```

Time +hours

Verify FlashCopy usage using TS7700 MI



Disable FlashCopy and clean up

- Dissolve FlashCopy
  - zOS Library Request command syntax
    - LI REQ, <clib_name>, DRSETUP, <family_name>, FLASH, DISABLE
    - Optional, disable Write Protect Mode
      - LI REQ, <clib_name>, DRSETUP, <family_name>, WP, DISABLE
        - <clib_name> is the composite library name of the TS7700 grid
        - <family_name> is the eight characters alphanumeric name for this family
- Clean up DR volumes prior to shut down DR host
  - Change to scratch media category code, i.e. D012
    - IBM utility: CBRSPLCS
    - CA1 utility: CTSSYNC
    - No need to insert DR volumes on next DR test
  - Eject DR tape volumes, optional
    - IBM utility: CBRSPLCS
    - CA1 utility: CTSSYNC
    - Must insert DR volumes on every DR test

Thank you!

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