z/OS 3.2 IBM Education Assistant

Solution Name: DFSMS Optimization Mode for Data Set Copy (aka Encryption/Compression Bypass Mode)

Solution Element(s): DFSMSdfp

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Agenda

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Trademarks

- See url http://www.ibm.com/legal/copytrade.shtml for a list of trademarks.
- Additional Trademarks:
  - None.

Objectives

Introduction of new function by z/OS DFSMS access methods to allow optimized copy processing for encrypted VSAM extended format data sets and encrypted and/or compressed format sequential extended format data sets.

This support is designed to allow applications to copy a source data set in its compressed and/or encrypted form to a target data set with like attributes, without the system going through the overhead of decompressing/decrypting when reading from the source data set and then re-compressing/re-encrypting when writing to the target data set.

IDCAMS REPRO exploits the access method API enhancements to perform efficient and secure copying.

NOTE: REPRO exploitation for encrypted VSAM extended format data sets in base z/OS 3.2. REPRO exploitation of encrypted and/or compressed format sequential extended format data sets to be delivered post-GA with APAR OA68062.

Note: Prior to this solution, IDCAMS REPRO already performed efficient copying for VSAM compressed format data sets with like attributes, by avoiding decompressing when reading from the source data set and re-compressing when writing to the target data set.

Overview

- Who (Audience)
  - Data Owners and/or Storage Administrators
- What (Solution)
  - Ability to copy data sets with like attributes without having to decompress/recompress or decrypt/re-encrypt user data from source to target.
- Wow (Benefit / Value, Need Addressed)
  - IDCAMS REPRO provides more efficient processing when copying a data set where source and target have like attributes. Also, processing is more secure as the copy operation will not require access to the key label when dealing with encrypted data sets since the data will remain encrypted.

This solution provides enhanced access method APIs that can be exploited by end users to perform more efficient and secure processing. Refer to Optimization Mode for Data Set Copy in DFSMS Using Data Sets for a description of the new function.

Usage & Invocation

- IDCAMS REPRO performs the efficient copy when the source and target data sets have like attributes without requiring any change to externals.

  - IDCAMS REPRO is modified to detect if the source and target data sets are encrypted VSAM extended format data sets with like attributes, or if the source and target data sets are encrypted and/or compressed format sequential extended format data sets with like attributes.
    If the source and targets have like attributes, IDCAM REPRO internally invokes the access method enhanced APIs to perform the efficient copies.

NOTE: REPRO exploitation for encrypted VSAM extended format data sets in base z/OS 3.2.
REPRO exploitation of encrypted and/or compressed format sequential extended format data sets to be delivered post-GA with APAR OA68062.

Interactions & Dependencies

- Software Dependencies
  - None
- Hardware Dependencies
  - None
- Exploiters
  - IDCAMS REPRO

Upgrade & Coexistence Considerations

- To exploit this solution, all systems in the Plex must be at the new z/OS level:
  - No
- List any toleration/coexistence APARs/PTFs.
  - OA68430
- List anything that doesn't work the same anymore.
  - N/A
- Upgrade involves only those actions required to make the new system behave as the old one did.
  - N/A
- Coexistence applies to lower level systems which coexist (share resources) with latest z/OS systems.
  - As part of this copy optimization support, a change was made to set the compression type of sequential compressed format data sets in the active dictionary token in the catalog at allocation time, instead of at first open for output. Coexistence APAR OA68430 on 2.5 and 3.1 allows a first open for output of a generic or tailored compressed data set to recognize the dictionary token set at allocation time.

Installation & Configuration

- List anything that a client needs to be aware of during installation and include **examples** where appropriate - clients appreciate these:
  - Are any APARs or PTFs needed for enablement? N/A
  - What jobs need to be run? N/A
  - What hardware configuration is required? N/A
  - What PARMLIB statements or members are needed? N/A
  - Are any other system programmer procedures required? N/A
  - Are there any planning considerations? N/A
  - Are any special web deliverables needed? N/A
  - Does installation change any system defaults? N/A

Summary

- The DFSMS access methods are enhanced to allow optimized copy processing for encrypted VSAM extended format data sets and encrypted and/or compressed format sequential extended format data sets.
- IDCAMS REPRO will, transparently, take advantage of the enhanced access method APIs when the source and target data sets have like attributes.

NOTE: REPRO exploitation for encrypted VSAM extended format data sets in base z/OS 3.2.
REPRO exploitation of encrypted and/or compressed format sequential extended format data sets to be delivered post-GA with APAR OA68062.

Appendix

- Publications – IDCAMS Repro
  - z/OS DFSMS Access Method Services Commands (SC23-6846)
- Publications – Access method API enhancements
  - z/OS DFSMSdfp Advanced Services (SC23-6861)
  - z/OS DFSMS Using Data Sets (SC23-6855)
  - z/OS DFSMS Macro Instructions for Data Sets (SC23-6852)
  - z/OS MVS System Management Facilities (SMF) (SA38-0667)
  - z/OS MVS System Messages, Vol 6 (GOS-IEA) (SA38-0673)
  - z/OS MVS System Messages, Vol 7 (IEB-IEE) (SA38-0674)
  - z/OS MVS System Messages, Vol 8 (IEF-IGD) (SA38-0675)