z/OS 3.2 IBM Education Assistant

Solution Name: Cloud Compatible Data Sets

Solution Element(s): DFSMSdfp CDA

July 2025

Agenda

- Trademarks
- Objectives
- Overview
- Usage & Invocation
- Interactions & Dependencies
- Upgrade & Coexistence Considerations
- Installation & Configuration
- Summary
- Appendix

Trademarks

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

Objectives

- Cloud Data Access – GDKUTIL now supports VSAM data sets for upload/download from cloud object stores. RECFM=U data sets may also be used.
  - DFSMSdss backups are RECFM=U

Overview

- Who (Audience)
  - Storage Administrators, Application Owners
- What (Solution)
  - Allow a z/OS data set to be uploaded and downloaded from cloud object storage while maintaining record boundaries.
- Wow (Benefit / Value, Need Addressed)
  - Cloud object storage can be used as a shared area for z/OS data sets between SYSPLEXes. VSAM KSDS and ESDS data sets are supported for upload/download.

Usage & Invocation (1)

- GDKUTIL UPLOAD has a new keyword:
  - FORMAT(RECORD) – Indicates that the data uploaded to the object store should have information about the records, imbedded within the data from the data set.
- GDKUTIL DOWNLOAD new function:
  - If the object has metadata – “zos-filedata”: “record”, the object will be downloaded and recreated record by record.
  - If the data set does not exist, the data set will be created according to the metadata attributes associated with the object.
  - FORMAT(RECORD) – Optional. If the object is known to have imbedded record information, but does not have the “zos-filedata”: metadata tag with the value “record”, you can force CDA to interpret the imbedded record information, thus recreating the data set on z/OS.

Usage & Invocation (2)

- GDKUTIL UPLOAD has new supported CDA variables:
  - GDK_DSORGE – Resolves to the following values:
    - LIBRARY when data set is a PDSE
    - PO when data set is a PDS
    - PS_LARGE when the data set is a large format sequential data set
    - PS_EXT when the data set is an extended format sequential data set
    - PS when the data set is a basic format sequential data set
    - VSAMESDS when the data set is a VSAM Entry Sequenced Data Set
    - VSAMKSDS when the data set is a VSAM Key Sequenced Data Set
  - GDK_VSACCOUNT – 32 bytes of Accounting information from ACCOUNT for a VSAM data set
  - GDK_VSBUFFSPACE – BUFFERSPACE value for VSAM data set.
  - GDK_VSBWOTYPE – Backup-while-open (BWO) value for VSAM data set.
  - GDK_VSDCISIZE – Data component Control Interval Size for a VSAM data set
  - GDK_VSICISIZE – Index component Control Interval Size for a VSAM data set
  - GDK_EATTR – Extended Attributes (EATTR) value for a VSAM data set. (OPT or NO)
  - GDK_VSERASE – ERASE value for a VSAM data set.
  - GDK_VSFREESPACE – FREESPACE value for a VSAM data set.

Usage & Invocation (3)

- GDKUTIL UPLOAD has new supported CDA variables:
  - GDK_VSKEYLABEL – Key Label name for a VSAM data set
  - GDK_VSKEYS – Primary Key field information for a VSAM KSDS data set. Resolves to len_nnn-off_nnn where len_nnn is the length of the key, and off_nnn is the offset of the key.
  - GDK_VSLOG – Value from the LOG keyword for the VSAM data set. Resolved values are: NONE, UNDO, ALL
  - GDK_VSLOGREPLICATE – Value for the VSAM log replication. Resolves to: LOGREPLICATE, NOLOGREPLICATE
  - GDK_VSLOGSTREAMID – Name for the forward log recovery for the VSAM data set.
  - GDK_VSOWNER – Value from the OWNER field for a VSAM data set.
  - GDK_VSRECORDSIZE – The average and maximum record lengths for fields in the VSAM data set.
  - GDK_VSREUSE – REUSE value for the VSAM data set
  - GDK_VSSHAREOPTIONS – The share options for a VSAM data set.
  - GDK_VSSPANNED – Value of the SPANNED attribute for a VSAM data set
  - GDK_VSPREFORMAT – Whether records should be preformatted for a VSAM data set.
  - GDK_VOLSER – hyphen separated list of the disk volumes for a VSAM data set.

Usage & Invocation (4)

- GDKUTIL DOWNLOAD has new keywords:
  - STORCLAS(<storclas_name>) – Override the SMS storage class value from object metadata. May be specified as empty to indicate no storage class name should be used. (download to non-SMS)
  - MGMTCLAS(<mgmtclas_name>) – Override the SMS management class value
  - DATACLAS(<dataclas_name>) – Override the SMS Data class value
  - VOLUMES(<volser_list>) – Override the volume serials for the data set to be allocated on.
  - LOCSIZE(<bytes>) – Override the primary allocation amount in bytes
- GDKUTIL LIST has new keywords:
  - LISTOUTDD(<ddname>) – Alternate output DD name for result of LIST command.
  - LISTDATEFMT('<format>') – Change the Date format for LIST results. <format> conforms to values for strftime() .

Interactions & Dependencies

- Software Dependencies
  - None.
- Hardware Dependencies
  - None.
- Exploiters
  - None.

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.
  - None
- List anything that doesn't work the same anymore.
  - DOWNLOAD to non-existing data set does not create default sequential data set with LRECL 1024.
- Upgrade involves only those actions required to make the new system behave as the old one did.
  - None
- Coexistence applies to lower level systems which coexist (share resources) with latest z/OS systems.
  - None.

Installation & Configuration

- Are any APARs or PTFs needed for enablement?
  - None.
- What jobs need to be run?
  - None.
- What hardware configuration is required?
  - None.
- What PARMLIB statements or members are needed?
  - None.
- Are any other system programmer procedures required?
  - CDA Provider file needs to be updated with METAHEADER objects in GETOBJECT/GETLARGEOBJECT resposeResults object. – See sample provider files in /usr/lpp/dfsms/gdk/samples/providers/
- Are there any planning considerations? - No
- Are any special web deliverables needed? - No
- Does installation change any system defaults? - No

Summary

- GDKUTIL uploads data sets, keeping record boundaries
- GDKUTIL DOWNLOAD can create data set based on object metadata
- GDKUTIL LIST usability enhancement

Appendix

- z/OS MVS Programming: Callable Services for High Level Languages
- z/OS DFSMSdfp Utilities
- strftime() - https://www.ibm.com/docs/en/zos/3.1.0?topic=functions-strftime-convert-formatted-time