

RACF & STORAGE ADMINISTRATION

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OPERATIONS



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STORAGE ADMINISTRATION

Tasks & Functions

- **Manage Storage Management Subsystem (SMS*) configuration, constructs, and Automatic Class Selection (ACS) routines**
- **Copy and move data between devices and systems**
- **Backup (dump) and restore data**
- **Manage space - compress, defrag, and release**
- **Migrate, recall, catalog, and delete (scratch) data**
- **Merge, move, and fix catalogs**
- **Manage DASD devices**
- **Manage Removal Media (tape)**

* SMS - a.k.a. System Managed Storage

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STORAGE ADMINISTRATION

Tools - DFSMS/MVS

- **DFSMSdfp** **Data Facility Product (IDCAMS utility)**
- **DFSMSdss** **Data Set Services (ADRDSSU utility)**
- **DFSMShsm** **Hierarchical Storage Manager**
- **DFSMSrmm** **Removal Media Manager**
- **DFSMSopt** **SMS Optimizer**
- **ICKDSF** **Device Support Facilities**
- **ISMF** **Interactive Storage Management Facility**

IDCAMS - Access Method Services

STORAGE ADMINISTRATION

RACF Authorities

- **Normal Dataset Authorization**
- **Console Operator Approval**
- **OPERATIONS Authority**
- **Catalog Authorization**
- **DASDVOL Profiles**
- **Storage Admin Profiles**
- **ISMF Program Authorization**
- **DFSMSHsm Authorities**
- **Miscellaneous Issues & Authorities**

Storage Admin authorities can be used to replace OPERATIONS authority

CONSOLE OPERATOR APPROVAL

Unless permitted by DASDVOL or ADMINSTRATOR, operator approval required for updates to:

- **Volume Table of Contents (VTOC)**
- **VTOC Index Dataset**
- **VSAM Volume Dataset (VVDS)**
- **Checkpoint / Restart Dataset**

Operator only prompted once for first dataset encountered for one of the above types in processing a single command

Required to use ICKDSF to initialize (INIT) a volume with PURGE (delete all data)

Required to activate SMS configuration if FACILITY resource STGADMIN.IGD.ACTIVATE.CONFIGURATION not defined

OPERATIONS AUTHORITY

Grants ALTER level access to resources whose classes have been defined with OPER=YES in the Class Descriptor Table

DATASET	DASDVOL/GDASDVOL	PSFMPL
TAPEVOL	VM Resources	RODMMGR
NETCMDS	NETSPAN	

Scope of authority

- **SYSTEM / USER-Attribute**

ALU userid attribute

```
USER=JSMITH1  NAME=JOHN SMITH          OWNER=SECGRP1  CREATED=01.067
DEFAULT-GROUP=USRGRPA  PASSDATE=00.351  PASS-INTERVAL= 30
ATTRIBUTES=OPERATIONS
```

Authority applies across entire RACF system

- **GROUP / CONNECT-Attribute**

CO userid GROUP(groupid) attribute

```
GROUP=DASDMGT  AUTH=USE  CONNECT-OWNER=RJONES2  CONNECT-DATE=92.181
CONNECTS=      00  UACC=NONE  LAST-CONNECT=UNKNOWN
CONNECT ATTRIBUTES=OPERATIONS
```

Authority limited by Scope-of-Groups

OPERATIONS AUTHORITY

OPERATIONS authority ...

- **Applies to both SMS and non-SMS managed data**
- **Grants ALTER access to datasets unless restricted**
- **Allows creation of group dataset profiles (implicit group CREATE authority)**
- **Allows defining or renaming RACF-indicated datasets and discrete profiles**

Can be restricted by ...

- **Adding a permit in a profile's Standard Access List to the USERID or a connect Group of an OPERATIONS user limits access to the level permitted (e.g., READ)**
- **Connecting the USERID of an OPERATIONS user to the Group matching a dataset HLQ with USE authority ...**
 - **Prevents the creation of new datasets under that HLQ unless explicitly permitted ALTER access**
 - **Prevents the creation of group dataset profiles under that HLQ**

OPERATIONS AUTHORITY

Best practices

- **Implement Storage Admin authorities as an alternative**
- **Assign OPERATIONS only to alternate "emergency" IDs for senior storage administrators**
- **Create access blocking group, and minimally permit access to ...**
 - **Catalog profiles**
 - **DASDVOL profiles**

Barriers to best practice implementation

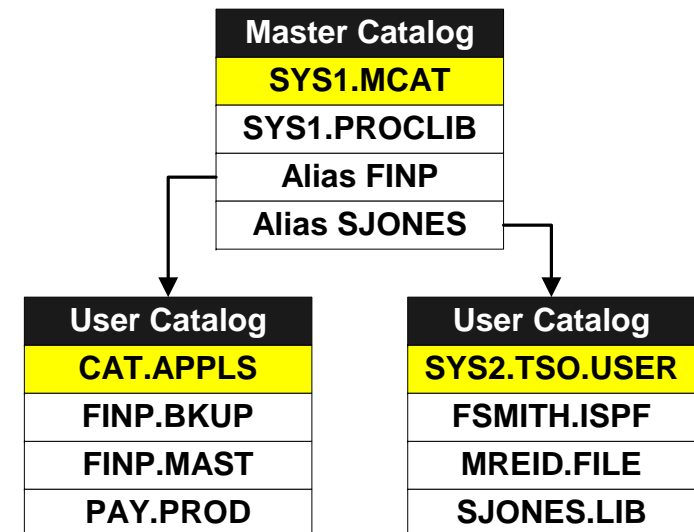
- **Politics | Inertia | Fear, Uncertainty, and Doubt (FUD)**
- **Assigned responsibilities require access to any/all files**
 - **Technical Assistance - help with dataset problems**
 - **Dataset Allocation - pre-allocate production files**
 - **Production Fixes - production job reruns**
 - **Problem Resolution ("Firecall") - fix any production problem**

CATALOG AUTHORIZATION

A catalog is a dataset that contains information about other datasets and provides users with the ability to locate a dataset by name, without knowing where the dataset resides

Typical catalog structure & entries

- **Master catalog**
 - SYS1 datasets
 - Key system datasets - referenced in IPL (e.g., RACF databases, PARMLIBs)
 - User catalogs
 - Aliases (dataset prefixes with pointers to user catalogs)
- **User catalogs**
 - Application datasets
 - User datasets



To find a dataset, the Master catalog is searched first, and then the User catalog pointed to by the alias

CATALOG AUTHORIZATION

READ access is required to locate a dataset via the catalog

UPDATE access is required to add or change an entry when creating, deleting, renaming, cataloging, and uncataloging a dataset (ALTER access to the target dataset also required)

UPDATE access authorization to a User catalog is not checked when creating or renaming an SMS controlled dataset

CATALOG AUTHORIZATION

ALTER access to the catalog allows:

- **Uncataloging any non-SMS managed dataset *without* ALTER access to the dataset itself**
- **Deleting any SMS managed dataset or VSAM file *without* ALTER access to the dataset itself**
- **Changing certain dataset catalog entry attributes *without* ALTER access to the dataset itself**
- **Listing catalog and VSAM passwords (now ignored)**
- **Performing catalog administration functions not governed by STGADMIN profiles**

ALTER access to the catalog along with READ access to FACILITY Class profile IGG.CATLOCK allows locking and unlocking of the catalog for copy and recovery processing

CATALOG AUTHORIZATION

Common / Best Practices

- **UACC READ for Master Catalog**
- **UACC UPDATE for User Catalogs**
- **UACC equivalent entries in the Global Access Table**
- **UPDATE granted to Master Catalog to users and processes managing datasets cataloged in the Master Catalog**
- **ALTER granted to Catalog Administrators**
- **ALTER granted to dataset cleanup processes (e.g., tape catalog maintenance routine)**
- **UACC or ID(*) equivalent access permitted to an OPERATIONS authority blocking group**
- **If RACF Administration maintains catalog aliases for TSO users, permit them access to FACILITY STGADMIN.IGG.DEFDEL.UALIAS instead of UPDATE to the Master Catalog**

DASDVOL PROFILES

Controls who can manage and manipulate data on an entire DASD volume via certain facilities

- **DFSMSdss ADRDSSU utility (non-SMS managed volumes)**
- **DFSMSdfp DADSM Scratch Macro (non-SMS managed volumes)**
- **ICKDSF utility**
- **AMASPZAP utility VTOC Update**

General Resource

- **Classes - DASDVOL / GDASDVOL**
- **Resource - DASD volume-serial number (e.g., SYS011)**

DASDVOL PROFILES

ICKDSF - Access Levels & Authorities

Command / Function	DASDVOL Access Needed	Description
BUILDIX	ALTER	Builds VTOC index
INIT	ALTER	Initialize and formats a volume
INSPECT	ALTER	Checks for and flags defects
REFORMAT EXTINDEX	ALTER	Rebuilds index to expanded VTOC
REFORMAT EXTVTOC	ALTER	Expands VTOC in place
REFORMAT IPLDD	UPDATE	Changes IPL text
REFORMAT NEWVTOC	ALTER	Moves and expands VTOC
REFORMAT REFVTOC	ALTER	Rebuilds VTOC
TRKFMT	ALTER	Performs track functions (erase)

With INIT, INSPECT, & TRKFMT, dataset access authority is also checked if volume not defined to DASDVOL

DASDVOL PROFILES

DFSMSdss ADRDSSU - Access Levels & Authorities

FUNCTION		DASDVOL Access Needed		
Command	Volume	Full	Tracks	Dataset
BUILDSA	Target	UPDATE		
COMPRESS	Source			UPDATE
CONSOLIDATE	Source			UPDATE
COPY	Source	READ	READ	READ
	Target	ALTER	ALTER	UPDATE
COPY DELETE	Source			ALTER
	Target			UPDATE
DEFRAG	Source			UPDATE
DUMP	Source	READ	READ	READ
DUMP DELETE	Source			ALTER
PRINT	Source		READ	READ
RELEASE	Source			UPDATE
RESTORE	Source			READ
	Target	ALTER	ALTER	UPDATE

For RESTORE RENAME, must have READ access to dataset's original dsname (unless IMPORT is specified)

For DEFRAG, insufficient access abends the task with a system code of 913

DASDVOL PROFILES

DASDVOL Authority	ICKDSF Command / Function	ADRDSU Command / Function	DADSM	AMASPZAP
ALTER	BUILDIX	COPY to target - Full / Tracks	Scratch	
	INIT	COPY DELETE from source - Dataset		
	INSPECT	DUMP DELETE		
	REFORMAT EXTINDEX	RESTORE to target - Full / Tracks		
	REFORMAT EXTVTOC			
	REFORMAT NEWVTOC			
	REFORMAT REFVTOC			
UPDATE	REFORMAT IPLDD	BUILDSA to target		VTOC Update
		COMPRESS - Dataset		
		CONSOLIDATE to source - Dataset		
		COPY to target - Dataset		
		COPY DELETE to target - Dataset		
		DEFRAG - Dataset		
		RELEASE - Dataset		
		RESTORE to target - Dataset		
READ		COPY from source - Full / Tracks / Dataset		
		DUMP		
		PRINT - Tracks / Dataset		
		RESTORE from source - Dataset		

DASDVOL PROFILES

Other products using DASDVOL profiles

- FDR - backup/restore authorization by DASD volume
- DITTO & File Manager
 - Control use of DITTO's and File Manager's functions to manipulate DASD datasets with full disk volume processing
 - Only applicable if product is running APF-authorized
 - *prefix*.DISK.FULLPACK (*prefix* = DITTO or FILEM)
 - ◆ READ - Read and update access to specific volsers
 - To read, requires READ to associated DASDVOL profile
 - To update, requires ALTER to associated DASDVOL profile
 - ◆ UPDATE - Read access to all volsers, update to specific ones
 - To update, requires ALTER to associated DASDVOL profile
 - ◆ ALTER - Read and update access to all volsers
- ISMF - RAUTH - Remote access codes to a 3990 Control Unit
 - ALTER authority required to volume request is made against

DASDVOL PROFILES

Considerations

- **DASDVOL access authority supersedes dataset authority**
 - **Allows backup/restore without requiring dataset access**
- **UPDATE access allows VTOC changes using AMASPZAP**
 - **Overrides requirement for console operator authorization**
- **ALTER access allows use of DADSM Scratch to delete datasets**
- **OPERATIONS authority grants ALTER level access**

DASDVOL profiles do not ...

- **Restrict who can allocate data on a DASD device**
- **Grant access through other utilities or facilities (e.g., TSO)**
- **Allow define or rename of RACF-indicated datasets**
- **Apply to the manipulation of data on SMS-managed volumes**
- **Log unsuccessful access attempts (dataset logging is applied)**
- **Grant access to migrated datasets (dataset access required)**

DASDVOL PROFILES

Common / Best Practices

- **Define a catch-all profile ** to cover all volumes**
- **Restrict access to storage administration staff and processes**
- **Block OPERATIONS authority with access-excluding group permit of NONE**
- **RACLIST the DASDVOL class, especially if using GDASDVOL**

Recommended profile for comprehensive protection:

```
RDEF DASDVOL ** UACC(NONE)
PERMIT ** CLASS(DASDVOL) ID(stgadmin-group) ACCESS(ALTER)
PERMIT ** CLASS(DASDVOL) ID(operations-users) ACCESS(NONE)
[ PERMIT ** CLASS(DASDVOL) ID(backup-user) ACCESS(READ) ]
[ PERMIT ** CLASS(DASDVOL) ID(dr-restore-user) ACCESS(ALTER) ]
```

STORAGE ADMIN PROFILES

Controls who can manage catalogs and data using DFSMS/MVS utilities and services

General Resource

- **Class- FACILITY**
- **Access level - READ - Perform Function (except RMM)**
- **Resources - STGADMIN.service(.STGADMIN | ENDUSER).function**
 - **STGADMIN.ADR.STGADMIN.function** DSS - ADMINISTRATOR
 - **STGADMIN.ADR.command[.parm]** DSS
 - **STGADMIN.ANT.component.function** Data Mover
 - **STGADMIN.ARC.ENDUSER.cmd[.parm]** HSM - End-User
 - **STGADMIN.ARC.command[.parm]** ABARS & HSM
 - **STGADMIN.EDG.function** RMM
 - **STGADMIN.HMT.function** StorWatch HSM Monitor
 - **STGADMIN.ICK.command** ICKDSF
 - **STGADMIN.IDC.command[.parm]** IDCAMS
 - **STGADMIN.IGG.function** IDCAMS - SMS-managed entries

STORAGE ADMIN PROFILES

Resources - STGADMIN.service(.STGADMIN).function

▫ STGADMIN.DFSMSOPT.function	SMS Monitor/Tuner
▫ STGADMIN.DPDSRN.oldname	IDCAMS
▫ STGADMIN.DMO.CONFIG	SMS
▫ STGADMIN.IFG.READVTOC.volser	DFP
▫ STGADMIN.IGD.ACTIVATE.CONFIGURATION	SMS
▫ STGADMIN.IGWSHCDS.REPAIR	IDCAMS
▫ STGADMIN.DMS.STGADMIN[.function]	CA-DISK

Other related resources

- IGG.CATLOCK IGG - ICF Catalogs
- IHJ.CHKPT.volser Create checkpoints on shared DASD

ADRDU utility ADMINISTRATOR keyword

- Protected by STGADMIN.ADR.STGADMIN prefixed profiles
- Supersedes dataset authority - allows operations without requiring dataset access
- Does not allow define or rename of RACF-indicated dataset

STORAGE ADMIN PROFILES

Profiles where UACC other than NONE is acceptable or recommended

- STGADMIN.ARC.LIST READ
- STGADMIN.ARC.QUERY READ
- STGADMIN.IDC.DCOLLECT READ
- STGADMIN.IDC.DIAGNOSE.CATALOG READ
- STGADMIN.IDC.DIAGNOSE.VVDS READ
- STGADMIN.IDC.EXAMINE.DATASET READ
- STGADMIN.IDC.LISTDATA READ
- STGADMIN.IGG.DELGDG.FORCE READ
- STGADMIN.ARC.ENDUSER.** READ
- STGADMIN.EDG.MASTER READ
- STGADMIN.EDG.RELEASE READ
- STGADMIN.EDG.VRS READ
- STGADMIN.EDG.LABEL.*volser* UPDATE
- STGADMIN.EDG.NOLABEL.*volser* UPDATE
- STGADMIN.EDG.LISTCONTROL CONTROL

STORAGE ADMIN PROFILES

When not defined to RACF, many functions can be executed by any user - but not use of the ADMINISTRATOR keyword

Common / Best Practices

- **Restrict access to storage administration staff and processes**
- **Define profiles out to second node (service) (e.g., STGADMIN.ADR)**
- **Define a catch-all STGADMIN.** with UACC(NONE) and no permits**
- **Limit access to STGADMIN.DPDSRN.oldname**
- **Strictly control authority to use ADMINISTRATOR keyword**

Considerations

- **During full volume restores, DFSMSdss does not create profiles for RACF-indicated datasets**
- **ADRDSSU can be set to ignore RACF-indicated bit on COPY DELETE or RESTORE operations using ADRPATCH Serviceability Aid flags**
- **DFSMSdss functions that call catalog services or invoke IEBCOPY result in dataset authorization checks**

ISMF PROGRAM AUTHORIZATION

ISMF provides programs and ISPF panels for interactively invoking DFSMS functions

ISMF programs do not check FACILITY STGADMIN profiles

ISMF programs must be protected to guard their functionality

- **Fully restrict access by protecting ISMF program libraries**

ADDSD 'SYS1.DGTLLIB' GEN UACC(NONE)

ADDSD 'SYS1.DGTPLIB' GEN UACC(NONE)

- **PROGRAM class profile protect ISMF programs**

RDEF PROGRAM DGTxxxxx UACC(NONE) -

ADDMEM('SYS1.DGTLLIB'//NOPADCHK)

RDEF PROGRAM DGTxxxxx UACC(NONE) -

ADDMEM('SYS1.DGTPLIB'//NOPADCHK)

- **Installation library names may vary**

ISMF PROGRAM AUTHORIZATION

User must be in 'Storage Administrator Mode' to perform high level management functions

- **Program DGTFPF05 changes the mode in the user's ISPF options dataset**
- **Simply protecting DGTFPF05 is not fool-proof; knowledgeable user could manipulate option in own ISPF dataset**

Options / Best Practices

- **Restrict access to ISMF libraries to storage administrators**
- **Restrict access to ISMF programs**
 - **Individually define programs all users are to be permitted to use with default access of READ**
 - **Use catch-all profile DGT* grant storage administrators access to all other programs**
 - **Protect ISMF libraries with UACC(NONE) and place in LINKLST to allow user execution without copying the programs**

DFSMSHsm CONSIDERATIONS

When the FACILITY class is active, DFSMSHsm command authority relies strictly on explicit permission to the profile covering each STGADMIN.ARC. resource - **No profile = No access**

If using RRSF to propagate commands, IBM recommends giving the DFSMSHsm Started Task ID on all recipient systems either ...

- SPECIAL and OPERATIONS
- TRUSTED

If using DFSMSHsm to backup Unix HFS and zFS datasets, give its ID either ...

- UPDATE access to UNIXPRIV resource SUPERUSER.FILESYS. QUIESCE
- UID(0)

'H'-prefixed ENDUSER commands require access permissions to the target datasets; for example ...

- HRECALL EXECUTE
- HMIGRATE UPDATE
- HDELETE ALTER

Administrator commands (e.g., RECALL) bypass dataset checking

- Administrator commands are invoked from TSO via the HSEND CMD command
- No RACF checking is performed for commands entered via the console

DFSMSHsm CONSIDERATIONS

AUTH command

- Defines (and removes) DFSMSHsm users and administrators
 - AUTH userid DATABASEAUTHORITY(CONTROL)
 - AUTH userid DATABASEAUTHORITY(USER)
 - AUTH userid REVOKE
- Initially defined in PARMLIB(ARCCMDxx)
- Can be issued by authorized users after initialization
- Ignored if FACILITY class is active - except for DFSMSHsm Monitor and unprotected ABARS commands

SETSYS Command

- Set DFSMSHsm options
 - RACFIND | NORACFIND - Retain RACF indicator bit on migrated dataset
 - PROFILEBACKUP | NOPROFILEBACKUP - Backup discrete profiles for later restore
- Initially defined in PARMLIB(ARCCMDxx)
- If discrete profiles not desired, change both to NO options

DFSMSHsm CONSIDERATIONS

ARCCATGP Group

- **Permits catalog operations on datasets while bypassing automatic recall**
- **User must be connected to and logged on under group**
- **To avoid recall during deletion, DELETE command must be the first command for a dataset**

OPER User

- **Enable Console operators to issue ABACKUP and ARECOVER commands from the console - executed by HSM**
- **Permit to STGADMIN.ABR.ABACKUP and/or ...ARECOVER profiles**
- **Best practices**
 - **Define user OPER to RACF to reserve it**
 - **Make it PROTECTED**
 - **REVOKE if not needed**
 - **Do not use for other purposes**
- **Can be set to a different ID with the PATCH command**

DFSMSHsm CONSIDERATIONS

Aggregate Backup And Recovery Support (ABARS)

- **Comprehensive Authorization**
 - All aggregates - bypass all dataset access authorization
 - STGADMIN.ARC.ABACKUP
 - STGADMIN.ARC.ARECOVER
- **Restricted Authorization**
 - Specific aggregates - ABACKUP also requires at least READ access to all datasets
 - STGADMIN.ARC.ABACKUP.*aggregate*
 - STGADMIN.ARC.ARECOVER.*aggregate*
 - STGADMIN.ARC.ARECOVER.*aggregate*.REPLACE
 - STGADMIN.ARC.ARECOVER.*aggregate*.RENTGT

Access checking

- First checks authorization to restricted '*aggregate*' resource
- If disallowed, checks authorization to comprehensive resource
- To enable use of comprehensive authority, disallow access to restricted '*aggregate*' resources

STGADMIN.ARC.ABACKUP.*

UACC(NONE)

STGADMIN.ARC.ABACKUP

UACC(NONE) / ID(backup-id) ACC(READ)

MISCELLANEOUS ISSUES & AUTHORITIES

Program Properties Table (PPT) NOPASS authority bypasses all dataset authorization checking

SMS data management and revoked USERID failures

- **When moving or restoring data, SMS attempts to validate the STORCLAS and MGMTCLAS for the USERID**
- **Attempts to perform RACROUTE REQUEST=VERIFYX and fails due to revoked ID**
- **Options**
 - **SMS option - PARMLIB(IDGSMSxx) - USE_RESOWNER=NO - uses authority of initiating user rather than dataset owner**
 - **ADR DSSU can be set to ignore revoked IDs using ADRPATCH Serviceability Aid flags**

CREATE (or greater) group connect authority

- **Allows creation of group datasets without ALTER authority**
- **Allows creation of group dataset profiles**

Permitting SMS testing without ALTER access

- **Global Access Table entry**
- **DATASET '*.*.#SMSTEST'/ALTER**
- **SETR AUDIT(DATASET) still records dataset creation and deletion for monitoring**

RACF Storage Administration

FACILITY PROFILE	STORAGE ADMIN COMPONENT & COMMAND
IGG.CATLOCK	IDCAMS Lock catalogs and access locked catalogs
IHJ.CHKPT.volser	DFSMS Define checkpoints on shared DASD
STGADMIN.ADR.CGCREATE	DFSMSdss CGCREATE
STGADMIN.ADR.CONSolid	DFSMSdss CONSOLIDATE command
STGADMIN.ADR.CONSolid.FLASHCPY	DFSMSdss FlashCopy with CONSOLIDATE
STGADMIN.ADR.CONVERTV	DFSMSdss CONVERTV command
STGADMIN.ADR.COPY.BYPASSACS	DFSMSdss BYPASSACS with COPY
STGADMIN.ADR.COPY.CNCURRNT	DFSMSdss CONCURRENT with COPY
STGADMIN.ADR.COPY.FCFREEZE	DFSMSdss FCCGFREEZE with COPY
STGADMIN.ADR.COPY.FCFRR	DFSMSdss FCFASTREVERSERESTORE with COPY
STGADMIN.ADR.COPY.FCSETGT	DFSMSdss FCSETGTOK
STGADMIN.ADR.COPY.FCTOPPRCP	DFSMSdss FCTOPPRCPPRIMARY with COPY
STGADMIN.ADR.COPY.FLASHCPY	DFSMSdss FlashCopy with COPY
STGADMIN.ADR.COPY.INCAT	DFSMSdss INCAT with COPY
STGADMIN.ADR.COPY.PROCESS.SYS	DFSMSdss PROCESS with COPY
STGADMIN.ADR.COPY.TOLERATE.ENQF	DFSMSdss TOLERATE(ENQF) with COPY
STGADMIN.ADR.DEFRAG	DFSMSdss DEFRAG command
STGADMIN.ADR.DEFRAG.FCTOPPRCP	DFSMSdss FCTOPPRCPPRIMARY with DEFRAG
STGADMIN.ADR.DEFRAG.FLASHCPY	DFSMSdss FlashCopy with DEFRAG
STGADMIN.ADR.DUMP.CNCURRNT	DFSMSdss CONCURRENT with DUMP
STGADMIN.ADR.DUMP.INCAT	DFSMSdss INCAT with DUMP
STGADMIN.ADR.DUMP.NEWNAME	
STGADMIN.ADR.DUMP.NEWNAMEU	DFSMSdss NEWNAMEUNCONDITIONAL with DUMP
STGADMIN.ADR.DUMP.PROCESS.SYS	DFSMSdss PROCESS with DUMP
STGADMIN.ADR.DUMP.TOLERATE.ENQF	DFSMSdss TOLERATE(ENQF) with DUMP
STGADMIN.ADR.PATCH	DFSMS SET PATCH for ADRDSSU
STGADMIN.ADR.RELEASE.INCAT	DFSMSdss INCAT with RELEASE
STGADMIN.ADR.RELEASE.PROCESS.SYS	DFSMSdss PROCESS with RELEASE
STGADMIN.ADR.RESTORE.BYPASSACS	DFSMSdss BYPASSACS with RESTORE
STGADMIN.ADR.RESTORE.DELCATE	DFSMSdss DELETCATALOGENTRY with RESTORE
STGADMIN.ADR.RESTORE.IMPORT	DFSMSdss IMPORT with RESTORE
STGADMIN.ADR.RESTORE.TOLERATE.ENQF	DFSMSdss TOLERATE(ENQF) with RESTORE
STGADMIN.ADR.STGADMIN.BUILDSA	DFDSS BUILDSA command with ADMINISTRATOR
STGADMIN.ADR.STGADMIN.COMPRESS	DFSMSdss COMPRESS with ADMINISTRATOR
STGADMIN.ADR.STGADMIN.CONSolid	DFSMSdss CONSOLIDATE with ADMINISTRATOR
STGADMIN.ADR.STGADMIN.COPY	DFSMSdss COPY with ADMINISTRATOR
STGADMIN.ADR.STGADMIN.COPY.DELETE	DFSMSdss COPY DELETE with ADMINISTRATOR
STGADMIN.ADR.STGADMIN.COPY.RENAME	DFSMSdss COPY RENAME with ADMINISTRATOR
STGADMIN.ADR.STGADMIN.DEFRAG	DFSMSdss DEFRAG with ADMINISTRATOR
STGADMIN.ADR.STGADMIN.DUMP	DFSMSdss DUMP with ADMINISTRATOR
STGADMIN.ADR.STGADMIN.DUMP.DELETE	DFSMSdss DUMP DELETE with ADMINISTRATOR
STGADMIN.ADR.STGADMIN.PRINT	DFSMSdss PRINT with ADMINISTRATOR
STGADMIN.ADR.STGADMIN.RELEASE	DFSMSdss RELEASE with ADMINISTRATOR
STGADMIN.ADR.STGADMIN.RESTORE	DFSMSdss RESTORE with ADMINISTRATOR
STGADMIN.ADR.STGADMIN.RESTORE.RENAME	DFSMSdss RESTORE RENAME with ADMINISTRATOR
STGADMIN.ANT.ESFC.COMMANDS	DFSMSdss Enterprise Storage Server FlashCopy commands
STGADMIN.ANT.ESFC.CQUERY	DFSMSdss Enterprise Storage Server FlashCopy Query
STGADMIN.ANT.PPRC.COMMANDS	DFSMSdss Advanced Copy PPRC commands
STGADMIN.ANT.PPRC.CQUERY	DFSMSdss Advanced Copy PPRC Query
STGADMIN.ANT.SNAPSHOT.COMMANDS	DFDMSdss Advanced Copy SNAPSHOT Commands
STGADMIN.ANT.SNAPSHOT.SQUERY	DFSMSdss Advanced Copy SNAPSHOT Query
STGADMIN.ANT.XRC.COMMANDS	DFSMSdss Advanced Copy XRC commands
STGADMIN.ANT.XRC.XQUERY	DFSMSdss Advanced Copy XRC Query
STGADMIN.ARC.ABACKUP	DFSMSShsm ABACKUP command
STGADMIN.ARC.ABACKUP.agname	DFSMSShsm ABACKUP command
STGADMIN.ARC.ADDVOL	DFSMSShsm ADDVOL command
STGADMIN.ARC.ALTERDS	DFSMSShsm ALTERDS command
STGADMIN.ARC.ALTERPRI	DFSMSShsm Prioritize Queued Requests
STGADMIN.ARC.ARECOVER	DFSMSShsm ARECOVER command
STGADMIN.ARC.ARECOVER.agname	DFSMSShsm ARECOVER command
STGADMIN.ARC.ARECOVER.agname.RENTGT	DFSMSShsm ARECOVER command
STGADMIN.ARC.ARECOVER.agname.REPLACE	DFSMSShsm ARECOVER command
STGADMIN.ARC.AUDIT	DFSMSShsm AUDIT command
STGADMIN.ARC.AUTH	DFSMSShsm AUTH command
STGADMIN.ARC.BACKDS	DFSMSShsm BACKDS command

RACF Storage Administration

FACILITY PROFILE	STORAGE ADMIN COMPONENT & COMMAND
STGADMIN.ARC.BACKVOL	DFSMSHsm BACKVOL command
STGADMIN.ARC.BDELETE	DFSMSHsm BDELETE command
STGADMIN.ARC.CANCEL	DFSMSHsm CANCEL command
STGADMIN.ARC.DEFINE	DFSMSHsm DEFINE command
STGADMIN.ARC.DELETE	DFSMSHsm DELETE command
STGADMIN.ARC.DELVOL	DFSMSHsm DELVOL command
STGADMIN.ARC.DISPLAY	DFSMSHsm DISPLAY command
STGADMIN.ARC.ENDUSER.HALTERDS	DFSMSHsm HALTERDS command
STGADMIN.ARC.ENDUSER.HBACKDS	DFSMSHsm HBACKDS command
STGADMIN.ARC.ENDUSER.HBACKDS.NEWNAME	DFSMSHsm HBACKDS command
STGADMIN.ARC.ENDUSER.HBACKDS.RETAINDAY	DFSMSHsm HBACKDS command
STGADMIN.ARC.ENDUSER.HBACKDS.TARGET	DFSMSHsm HBACKDS command
STGADMIN.ARC.ENDUSER.HBDELETE	DFSMSHsm HBDELETE command
STGADMIN.ARC.ENDUSER.HCANCEL	DFSMSHsm HCANCEL command
STGADMIN.ARC.ENDUSER.HDELETE	DFSMSHsm HDELETE command
STGADMIN.ARC.ENDUSER.HLIST	DFSMSHsm HLIST command
STGADMIN.ARC.ENDUSER.HMIGRATE	DFSMSHsm HMIGRATE command
STGADMIN.ARC.ENDUSER.HQUERY	DFSMSHsm HQUERY command
STGADMIN.ARC.ENDUSER.HRECALL	DFSMSHsm HRECALL command
STGADMIN.ARC.ENDUSER.HRECOVER	DFSMSHsm HRECOVER command
STGADMIN.ARC.EXPIREBV	DFSMSHsm EXPIREBV command
STGADMIN.ARC.FB.cpname	DFSMSHsm FRBACKUP command (z1.8)
STGADMIN.ARC.FD.cpname	DFSMSHsm FRDELETE command (z1.8)
STGADMIN.ARC.FIXCDS	DFSMSHsm FIXCDS command
STGADMIN.ARC.FR.cpname	DFSMSHsm FRRECOV command (z1.8)
STGADMIN.ARC.FRBACKUP	DFSMSHsm FRBACKUP command (pre z1.8)
STGADMIN.ARC.FRBACKUP.cpname	DFSMSHsm FRBACKUP command (pre z1.8)
STGADMIN.ARC.FRDELETE	DFSMSHsm FRDELETE command (pre z1.8)
STGADMIN.ARC.FRDELETE.cpname	DFSMSHsm FRDELETE command (pre z1.8)
STGADMIN.ARC.FREEVOL	DFSMSHsm FREEVOL command
STGADMIN.ARC.FRRECOV	DFSMSHsm FRRECOV command (pre z1.8)
STGADMIN.ARC.FRRECOV.cpname	DFSMSHsm FRRECOV command (pre z1.8)
STGADMIN.ARC.HOLD	DFSMSHsm HOLD command
STGADMIN.ARC.LC.cpname	DFSMSHsm LIST with COPYPOOL
STGADMIN.ARC.LIST	DFSMSHsm LIST command
STGADMIN.ARC.LOG	DFSMSHsm LOG command
STGADMIN.ARC.MIGRATE	DFSMSHsm MIGRATE command
STGADMIN.ARC.PATCH	DFSMSHsm PATCH command
STGADMIN.ARC.QUERY	DFSMSHsm QUERY command
STGADMIN.ARC.RECALL	DFSMSHsm RECALL command
STGADMIN.ARC.RECOVER	DFSMSHsm RECOVER command
STGADMIN.ARC.RECOVER.NEWNAME	DFSMSHsm RECOVER command with NEWNAME
STGADMIN.ARC.RECYCLE	DFSMSHsm RECYCLE command
STGADMIN.ARC.RELEASE	DFSMSHsm RELEASE command
STGADMIN.ARC.REPORT	DFSMSHsm REPORT command
STGADMIN.ARC.SETMIG	DFSMSHsm SETMIG command
STGADMIN.ARC.SETSYS	DFSMSHsm SETSYS command
STGADMIN.ARC.STOP	DFSMSHsm STOP command
STGADMIN.ARC.SWAPLOG	DFSMSHsm SWAPLOG command
STGADMIN.ARC.TAPECOPY	DFSMSHsm TAPECOPY command
STGADMIN.ARC.TAPEREPL	DFSMSHsm TAPEREPL command
STGADMIN.ARC.TRAP	DFSMSHsm TRAP command
STGADMIN.ARC.UPDATEC	DFSMSHsm UPDATEC command
STGADMIN.DFSMSOPT.CANCEL	DFSMSopt HSM Monitor/Tuner CANCEL command
STGADMIN.DFSMSOPT.GFTMONTR	DFSMSopt HSM Monitor/Tuner application access
STGADMIN.DFSMSOPT.PROFILE	DFSMSopt updates to HSM Monitor/Tuner profile
STGADMIN.DFSMSOPT.SWAPLOG	DFSMSopt swap HSM Monitor/Tuner logs
STGADMIN.DMO.CONFIG	DFSMSopt BUILDIX command for Rapid Index Rebuild.
STGADMIN.DMS.STGADMIN	CA-Disk Storage Administration
STGADMIN.DMS.STGADMIN.\$AUTORES	CA-DISK Storage Administration Command \$AUTORES
STGADMIN.DMS.STGADMIN.ARCHDUMP	CA-DISK Storage Administration Command ARCHDUMP
STGADMIN.DMS.STGADMIN.ARCHIVE	CA-DISK Storage Administration Command ARCHIVE
STGADMIN.DMS.STGADMIN.ARCHIVE.NEWHLQ	CA-DISK Storage Administration Command ARCHIVE.NEWHLQ
STGADMIN.DMS.STGADMIN.ARCHIVE.NEWNAME	CA-DISK Storage Administration Command ARCHIVE.NEWNAME
STGADMIN.DMS.STGADMIN.BACKUP	CA-DISK Storage Administration Command BACKUP

RACF Storage Administration

FACILITY PROFILE	STORAGE ADMIN COMPONENT & COMMAND
STGADMIN.DMS.STGADMIN.BACKUP.NEWHLQ	CA-DISK Storage Administration Command BACKUP.NEWHLQ
STGADMIN.DMS.STGADMIN.BACKUP.NEWNAME	CA-DISK Storage Administration Command BACKUP.NEWNAME
STGADMIN.DMS.STGADMIN.BACKUPCC	CA-DISK Storage Administration Command BACKUPCC
STGADMIN.DMS.STGADMIN.BILLING	CA-DISK Storage Administration Command BILLING
STGADMIN.DMS.STGADMIN.COMPRESS	CA-DISK Storage Administration Command COMPRESS
STGADMIN.DMS.STGADMIN.COPY	CA-DISK Storage Administration Command COPY
STGADMIN.DMS.STGADMIN.COPY.NEWNAME	CA-DISK Storage Administration Command COPY.NEWNAME
STGADMIN.DMS.STGADMIN.DBACKUP	CA-DISK Storage Administration Command DBACKUP
STGADMIN.DMS.STGADMIN.DEL3435	CA-DISK Storage Administration Command DEL3435
STGADMIN.DMS.STGADMIN.DELETE	CA-DISK Storage Administration Command DELETE
STGADMIN.DMS.STGADMIN.DERASE	CA-DISK Storage Administration Command DERASE
STGADMIN.DMS.STGADMIN.DISPOSEA	CA-DISK Storage Administration Command DISPOSEA
STGADMIN.DMS.STGADMIN.DISPOSER	CA-DISK Storage Administration Command DISPOSER
STGADMIN.DMS.STGADMIN.DRESTORE	CA-DISK Storage Administration Command DRESTORE
STGADMIN.DMS.STGADMIN.DRESTORE.\$AUTORE	CA-DISK Storage Administration Command DRESTORE.\$AUTORES
STGADMIN.DMS.STGADMIN.DRESTORE.DNAME	CA-DISK Storage Administration Command DRESTORE.DNAME
STGADMIN.DMS.STGADMIN.DRESTORE.INAME	CA-DISK Storage Administration Command DRESTORE.INAME
STGADMIN.DMS.STGADMIN.DRESTORE.NEWMAM	CA-DISK Storage Administration Command DRESTORE.NEWNAME
STGADMIN.DMS.STGADMIN.DSETMAP	CA-DISK Storage Administration Command DSETMAP
STGADMIN.DMS.STGADMIN.EXPIRE	CA-DISK Storage Administration Command EXPIRE
STGADMIN.DMS.STGADMIN.ISPF.ADSINDEX	CA-DISK Storage Administration Command ISPF.ADSINDEX
STGADMIN.DMS.STGADMIN.ISPF.AQUEUED	CA-DISK Storage Administration Command ISPF.AQUEUED
STGADMIN.DMS.STGADMIN.ISPF.CDSINDEX	CA-DISK Storage Administration Command ISPF.CDSINDEX
STGADMIN.DMS.STGADMIN.ISPF.DDSINDEX	CA-DISK Storage Administration Command ISPF.DDSINDEX
STGADMIN.DMS.STGADMIN.ISPF.DQUEUED	CA-DISK Storage Administration Command ISPF.DQUEUED
STGADMIN.DMS.STGADMIN.ISPF.LDSINDEX	CA-DISK Storage Administration Command ISPF.LDSINDEX
STGADMIN.DMS.STGADMIN.ISPF.LQUEUED	CA-DISK Storage Administration Command ISPF.LQUEUED
STGADMIN.DMS.STGADMIN.IXCATLG	CA-DISK Storage Administration Command IXCATLG
STGADMIN.DMS.STGADMIN.IXMAINT	CA-DISK Storage Administration Command IXMAINT
STGADMIN.DMS.STGADMIN.IXUPDATE	CA-DISK Storage Administration Command IXUPDATE
STGADMIN.DMS.STGADMIN.LOADLIB	CA-DISK Storage Administration Command LOADLIB
STGADMIN.DMS.STGADMIN.MIGRATE	CA-DISK Storage Administration Command MIGRATE
STGADMIN.DMS.STGADMIN.MOVE	CA-DISK Storage Administration Command MOVE
STGADMIN.DMS.STGADMIN.RECOVER	CA-DISK Storage Administration Command RECOVER
STGADMIN.DMS.STGADMIN.RECOVER.NEWHLQ	CA-DISK Storage Administration Command RECOVER.NEWHLQ
STGADMIN.DMS.STGADMIN.RELEASE	CA-DISK Storage Administration Command RELEASE
STGADMIN.DMS.STGADMIN.REPARCH	CA-DISK Storage Administration Command REPARCH
STGADMIN.DMS.STGADMIN.REPORT	CA-DISK Storage Administration Command REPORT
STGADMIN.DMS.STGADMIN.REPTAPE	CA-DISK Storage Administration Command REPTAPE
STGADMIN.DMS.STGADMIN.RESTORE	CA-DISK Storage Administration Command RESTORE
STGADMIN.DMS.STGADMIN.RESTORE.\$AUTORES	CA-DISK Storage Administration Command RESTORE.\$AUTORES
STGADMIN.DMS.STGADMIN.RESTORE.DNAME	CA-DISK Storage Administration Command RESTORE.DNAME
STGADMIN.DMS.STGADMIN.RESTORE.INAME	CA-DISK Storage Administration Command RESTORE.INAME
STGADMIN.DMS.STGADMIN.RESTORE.NEWNAME	CA-DISK Storage Administration Command RESTORE.NEWNAME
STGADMIN.DMS.STGADMIN.SEQMIG	CA-DISK Storage Administration Command SEQMIG
STGADMIN.DMS.STGADMIN.VBACKUP	CA-DISK Storage Administration Command VBACKUP
STGADMIN.DMS.STGADMIN.VRECOVER	CA-DISK Storage Administration Command VRECOVER
STGADMIN.DMS.STGADMIN.VREPORT	CA-DISK Storage Administration Command VREPORT
STGADMIN.DMS.STGADMIN.XCOPY	CA-DISK Storage Administration Command XCOPY
STGADMIN.DPDSRN.oldname	IDCAMS rename non-SMS while in use
STGADMIN.EDG.ACTIONS.action	DFSMSrmm Setting of Release Actions
STGADMIN.EDG.AV.status.volser	DFSMSrmm Setting of Volume Status
STGADMIN.EDG.CMOVE.location.destination	DFSMSrmm Confirmation of moves and ejects.
STGADMIN.EDG.CRLSE.action	DFSMSrmm Confirmation of Release Actions
STGADMIN.EDG.CV.HOLD.volser	DFSMSrmm setting volume HOLD attribte
STGADMIN.EDG.CV.NOHOLD.volser	DFSMSrmm removing volume HOLD attribte
STGADMIN.EDG.DV.SCRATCH.volser	DFSMSrmm Deletion of Scratch Volumes
STGADMIN.EDG.EDGUPDT.UPDATE	DFSMSrmm EDGUPDT utility UPDATE function
STGADMIN.EDG.FORCE	DFSMSrmm adding or deleting datasets
STGADMIN.EDG.HOUSEKEEP	DFSMSrmm inventory management
STGADMIN.EDG.HOUSEKEEP.RPTEXT	DFSMSrmm inventory management extract
STGADMIN.EDG.IGNORE.TAPE.NORMM.volser	DFSMSrmm volume serial
STGADMIN.EDG.IGNORE.TAPE.RMM.volser	DFSMSrmm volume serial
STGADMIN.EDG.IGNORE.TAPE.volser	DFSMSrmm volume serial
STGADMIN.EDG.INERS.WRONGLABEL	DFSMSrmm wrong label processing

RACF Storage Administration

FACILITY PROFILE	STORAGE ADMIN COMPONENT & COMMAND
STGADMIN.EDG.INIT	DFSMSrmm Setting of INIT Action
STGADMIN.EDG.LABEL.volser	DFSMSrmm tape labels
STGADMIN.EDG.LIST	DFSMSrmm LIST command
STGADMIN.EDG.LISTCONTROL	DFSMSrmm LISTCONTROL command
STGADMIN.EDG.MASTER	DFSMSrmm control dataset access
STGADMIN.EDG.MOVES.location.destination	DFSMSrmm Initiation of Moves and Ejects
STGADMIN.EDG.NOLABEL.volser	DFSMSrmm unlabeled tapes
STGADMIN.EDG.OPERATOR	DFSMSrmm initialize and erase
STGADMIN.EDG.OWNER.userid	DFSMSrmm owned resources
STGADMIN.EDG.RELEASE	DFSMSrmm DELETEVOLUME command
STGADMIN.EDG.RESET.SSI	DFSMSrmm RESET facility
STGADMIN.EDG.VRS	DFSMSrmm vital records
STGADMIN.HMT.CANCEL	DFSMShsm StorWatch HSM Monitor CANCEL command
STGADMIN.HMT.GFTMONTR	DFSMShsm StorWatch HSM Monitor application access
STGADMIN.HMT.PROFILE	DFSMShsm Change and Store a StorWatch HSM Monitor
STGADMIN.HMT.SWAPLOG	DFSMShsm Swap StorWatch HSM Monitor logs
STGADMIN.ICK.ANALYZE	ICKDSF ANALYZE command
STGADMIN.ICK.BUILDIX	ICKDSF BUILDIX command
STGADMIN.ICK.CONTROL	ICKDSF CONTROL command
STGADMIN.ICK.FLASHCPY	ICKDSF FLASHCOPY command
STGADMIN.ICK.INIT	ICKDSF INIT command
STGADMIN.ICK.INSPECT	ICKDSF INSPECT command
STGADMIN.ICK.INSTALL	ICKDSF INSTALL command
STGADMIN.ICK.IODELAY	ICKDSF IODELAY command
STGADMIN.ICK.PPRCOPY	ICKDSF PPRCOPY command
STGADMIN.ICK.REFORMAT	ICKDSF REFORMAT command
STGADMIN.ICK.REVAL	ICKDSF REVAL command
STGADMIN.ICK.TRKFMT	ICKDSF TRKFMT command
STGADMIN.IDC.BINDDATA	IDCAMS BINDDATA command
STGADMIN.IDC.DCOLLECT	IDCAMS DCOLLECT command
STGADMIN.IDC.DIAGNOSE.CATALOG	IDCAMS DIAGNOSE command against catalogs
STGADMIN.IDC.DIAGNOSE.VVDS	IDCAMS DIAGNOSE command against VVDS
STGADMIN.IDC.EXAMINE.DATASET	IDCAMS EXAMINE command
STGADMIN.IDC.LISTDATA	IDCAMS LISTDATA command
STGADMIN.IDC.LISTDATA.ACCESSCODE	IDCAMS LISTDATA ACCESSCODE command
STGADMIN.IDC.SETCACHE	IDCAMS SETCACHE command
STGADMIN.IDC.SETCACHE.DISCARDPINNED	IDCAMS SETCACHE DISCARDPINNED command
STGADMIN.IDC.SETCACHE.PENDINGOFF	IDCAMS SETCACHE PENDINGOFF command
STGADMIN.IDC.SETCACHE.REINITIALIZE	IDCAMS SETCACHE REINITIALIZE command
STGADMIN.IDC.SETCACHE.SUBSYSTEM	IDCAMS SETCACHE SUBSYSTEM command
STGADMIN.IFG.READVTOC.volser	DFSMSdftp access to VTOC or VTOC index when MLSNAMES active
STGADMIN.IGD.ACTIVATE.CONFIGURATION	DFSMS activate SMS configuration
STGADMIN.IGG.ALTBCS	DFSMSdftp alter BCS catalog attributes
STGADMIN.IGG.ALTER.SMS	DFSMSdftp alter storage and management class
STGADMIN.IGG.ALTER.UNCONVRT	DFSMSdftp make VSAM dataset unmanaged
STGADMIN.IGG.DEFDEL.UALIAS	DFSMSdftp delete alias
STGADMIN.IGG.DEFNVSAM.NOBCS	DFSMSdftp define nonvsam with no BCS entry
STGADMIN.IGG.DEFNVSAM.NONVR	DFSMSdftp define nonvsam with no VVDS entry
STGADMIN.IGG.DELETE.NOSCRTCH	DFSMSdftp uncatalog but no scratch
STGADMIN.IGG.DELGDG.FORCE	DFSMSdftp DELETE FORCE on gdg
STGADMIN.IGG.DELGDG.RECOVERY	IDCAMS delete GDG catalog entries
STGADMIN.IGG.DELNVR.NOBCSCHK	DFSMSdftp delete nonvsam NVR with no BCS check
STGADMIN.IGG.DIRCAT	DFSMSdftp direct request to specific catalog
STGADMIN.IGG.DLVVRNVR.NOCAT	DFSMSdftp delete VVR or NVR with no catalog
STGADMIN.IGG.LIBRARY	DFSMSdftp manage volume entries in tape library
STGADMIN.IGWSHCDS.REPAIR	IDCAMS SHCDS functions