REORGADON Introduction

REORGADON is a tool for reorganizing IBM's Hierarchical Storage Manager (DFSMShsm) control data sets (CDS). HSM uses three different control data sets; the Backup Control Data Set (BCDS), the Migration Control Data Set (MCDS) and the Offline Control Data Set (OCDS). These control data sets may be used by HSM in a multi-host environment on single or multiple systems. REORGADON provides HSM control data set reorganization while the files are active and online to HSM and without having to shutdown and restart HSM.

REORGADON reclaims and reorganizes fragmented space in HSM control data sets. REORGADON allows the selection and processing of a control data set segment that is "in-use" by HSM on an active single or multi-system environment.

REORGADON utilizes a number of facilities to ensure control data set integrity. To facilitate an on-line reorganization, an HSM/R control address space must be initiated on all connected systems to handle and synchronize cross system communications. Other component files, a communications, a log file and a journal file all work together to ensure update integrity while HSM is active. To reorganize a control data set segment, a new segment must first be defined. REORGADON allows the cloning of an existing segment with the exact data set characteristics. The size of a segment can be changed during its definition and the segment can also be allocated on a new DASD volume. After the new segment is defined, all HSM/R address spaces are directed to manage updates on each system. After the contents of the original control data set segment and all updates are written to the new segment, HSM is internally quiesced momentarily while the old and new segment names are modified. Then control is released and HSM begins using the new physical segment.

Why is REORGADON Required?

HSM CDS's are VSAM Key Sequence Data Sets (KSDS). These CDS's contain records that describe data set entries that have been processed by HSM. As records are added to a KSDS, VSAM eventually generates CI and CA splits. The CI and CA splits fragment space within the KSDS eventually resulting in an out of space condition. HSM warns of impending out of space conditions by issuing the WTO ARC0909E and ARC0911E error messages. These messages indicate that the current threshold for space has been exceeded. This threshold can be changed via the SETSYS MONITOR command.

Further information about the CDS's can be obtained via the HSM QUERY command with CONTROLDATASETS parameter. Status is reported in the ARC0148I and ARC0948I messages.

To resolve HSM CDS reorganization issues without REORGADON, IBM documents:

➢ If the MCDS, BCDS, or OCDS is full enough to require action, DFSMShsm should be shut down.

Furthermore, IBM documents, prior to a DFSMShsm shutdown, there are some options you can use:

➢ Delete old or unneeded records, such as old statistics records, by using the DELETE parameter of the FIXCDS or REPORT command.
➢ Run migration cleanup using the SETSYS command with the SECONDARYSPMGMTSTART parameter and the DEFINE command with the SECONDARYSPMGMTCYCLE parameter.

Finally, IBM technical documentation suggests, after DFSMShsm shutdown:

➢ Reclaim fragmented space by performing an IDCAMS EXPORT and IMPORT of the data set or by copying the data set out and back using the IDCAMS REPRO command. If reclaiming fragmented space does not provide sufficient space, a larger control data set should be allocated.

REORGADON DFSMShsm CDS Online Reorganization

REORGADON eradicates the problems and restrictions associated with batch HSM control data set reorganization. REORGADON provides the HSM administrator with an online option for reorganization of HSM control data sets. While HSM is active, REORGADON:

1. Copies the current HSM CDS to the new CDS.
2. Applies all updates to the new CDS that HSM made while the CDS was being copied and updated (at this point, all the records in the current CDS and new CDS are identical).
3. Quiesces HSM momentarily on all systems. The current CDS is renamed (for posterity, the current CDS is preserved by rename), the new CDS is renamed to match the original CDS name, and the new CDS is ready to be used by HSM.
4. Releases HSM from its quiesced state and HSM continues processing using the new CDS which now has the original CDS name.

REORGADON maintains full cross system update integrity while the reorganization of a CDS segment is performed. Normal HSM processing is not inhibited or interrupted in any way on any of the connected systems during the copy process. HSM is quiesced momentarily on all systems while the current CDS is renamed and the new CDS is put in its place. Thus the HSM CDS's are reorganized, on-line, without impact to Batch Processing or HSM activity associated with backup, dump, migration, recall, et al…