



**CDB Software, Inc.**

# **Application and Online Reorg Coexistence**

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### “So, let’s flip for who get’s the data...”

Online reorganizations are a fairly new addition to the world of DB2 application programs. All online reorganizations, at some point in processing, must have exclusive use of the objects of the reorg to complete processing. The activities associated with requiring exclusive access to the objects are the application of changes that occurred during the reorg and the renaming of the datasets from the shadow copies to live copies.

CDB is the only vendor that can provide full RW access to the DB2 datasets (tablespace and indexes) with DB2 application programs. All other REORG providers lock out user applications for a short or long period of time during these two activities.

Like all REORG providers, CDB does require exclusive access to the datasets for these two activities. Every vendor but CDB at some point must use the DB2 -STOP command to gain access, while CDB can leave the object in RW the entire time. Unlike all other REORG providers, CDB does not lock out applications during the application of changes and rename periods. Even during the rename (or fastswitch) period, the object remains in RW.

By issuing a managed DRAIN ALL, CDB gains exclusive access to the underlying datasets and is able to apply all saved changes and rename datasets, while in RW mode, and not cause applications to get resource unavailable conditions (SQLCODE -904) or cause applications to time out (SQLCODE -911).

The other consideration for online reorganizations to coexist with user applications is that REORG must be able to obtain a DRAIN. In order to

obtain a DRAIN, applications must be issue COMMITS at some interval, and an interval that is in line with the REORG’s ability to wait for a DRAIN without causing problems for applications (typically, an SQLCODE -911). In other words, if the SQL transaction issues a commit at the end of processing, but processing takes 3 days, online reorg coexistence will not fair well.

In CDB’s case, if the drain is not obtainable because of application considerations, after a default or user specified number of retry attempts have completed, CDB’s Online Reorg will terminate and the reorg will not complete. There is no impact whatsoever to applications if a CDB Online Reorg cannot complete because a DRAIN could not be obtained. No changes will have been lost and the DB2 objects remain in RW status for the entire execution, and applications will not have been affected.

The final consideration deals with indexes. Some Online Reorgs utilize a BUILD2 method when encountering non-partitioned indexes (NPIs). This period is very disruptive. For every row moved during the reorg process, the BUILD2 phase must make two updates to the NPI, a delete and an insert of the new RID. A reorg of 50 Million rows would have to make 100 Million updates to the NPI. Imagine if you tried to reorg 1 Billion rows! During this update period the logical partition of the NPI is in UTUT status and the table is unavailable through the index.

Compounding the problem is the fact that once the update has been done, you have now updated the NPI 100 million times! The NPI now will most likely require a separate Reorg Index step. So, your data was unavailable to applications and your index is now worse off than when you started so application performance will suffer.



CDB does not utilize a BUILD2 technique. Through advanced processing, CDB/Online Reorg always reorganizes indexes. This is only possible because of the extreme speeds that CDB can achieve. Indexes can be reorganized at upwards of 1G/minute. A 30G NPI can be reorganized in around 26 minutes! During this time, the object is still completely available to the application and all objects are completely reorganized.

### **About CDB Software**

CDB Software, Inc. is a leader in data management solutions for DB2 z/OS. CDB focuses its business on DB2 for z/OS to provide unique and innovative solutions that enable companies to expand their DB2 system to meet business needs while controlling the overall cost of the mainframe. Founded in 1985, CDB is a privately held corporation based in Houston, Texas with offices worldwide.

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