



Defense Procurement eBusiness Conference

SPS Database Maintenance *Maintaining Quality Database Performance*

Semy Rosemond
04/07/2009

Basic Elements for Quality Performance

1. Update Statistics
2. Reorganizing Tables (reorg compact)
3. Database Consistency Checks (dbccs)
4. Performing Proper Backup Procedure

Step 1. Update Statistics

- **Purpose:** **Update Statistics** is used to make sure that data distribution statistics used by the query optimizer are always up to date.
- Ensures that data can be accessed quickly by updating the indexes on the tables.
- Similar to updating the table of contents or index when you add more chapters to a book. Or updating the card catalog in your local library.

Step 1. Update Statistics Continued

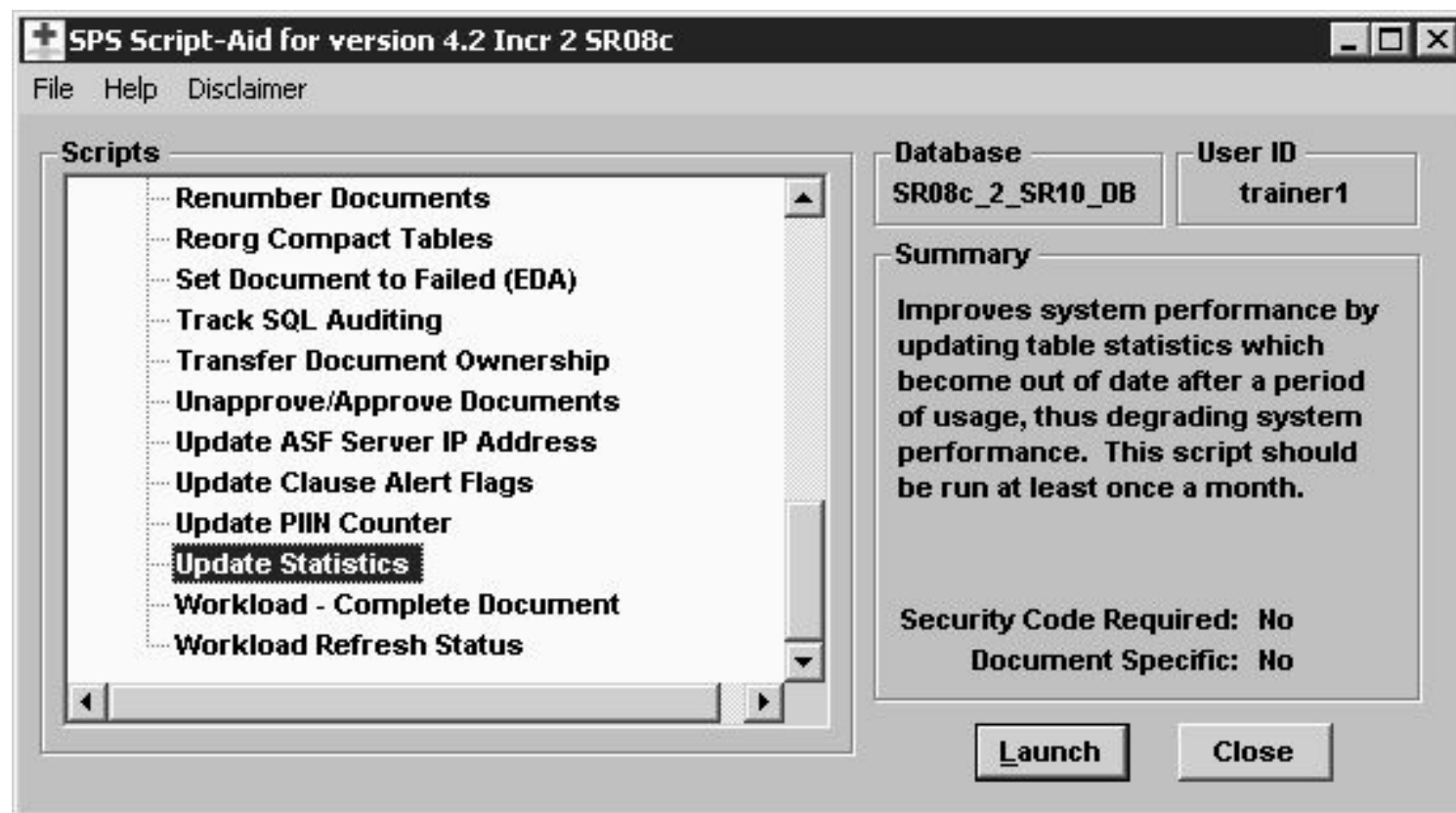
- **Advantage:** Major performance improvement
- Run update statistics
 - All tables
 - Weekly or at least once a month
- First step in resolving performance issues
- Use SPS Script-Aid to execute the update statistics command
- Lock out users before performing this task

Step 1. Update Statistics Continued

- <http://kb.caci.com/kb/content.cfm?id=6786> lists the current scripts in Script-Aid
- Script-Aid is used to execute those scripts

Simplified syntax (if not using Script-Aid):
update all statistics table_name

Step 1. Update Statistics Continued



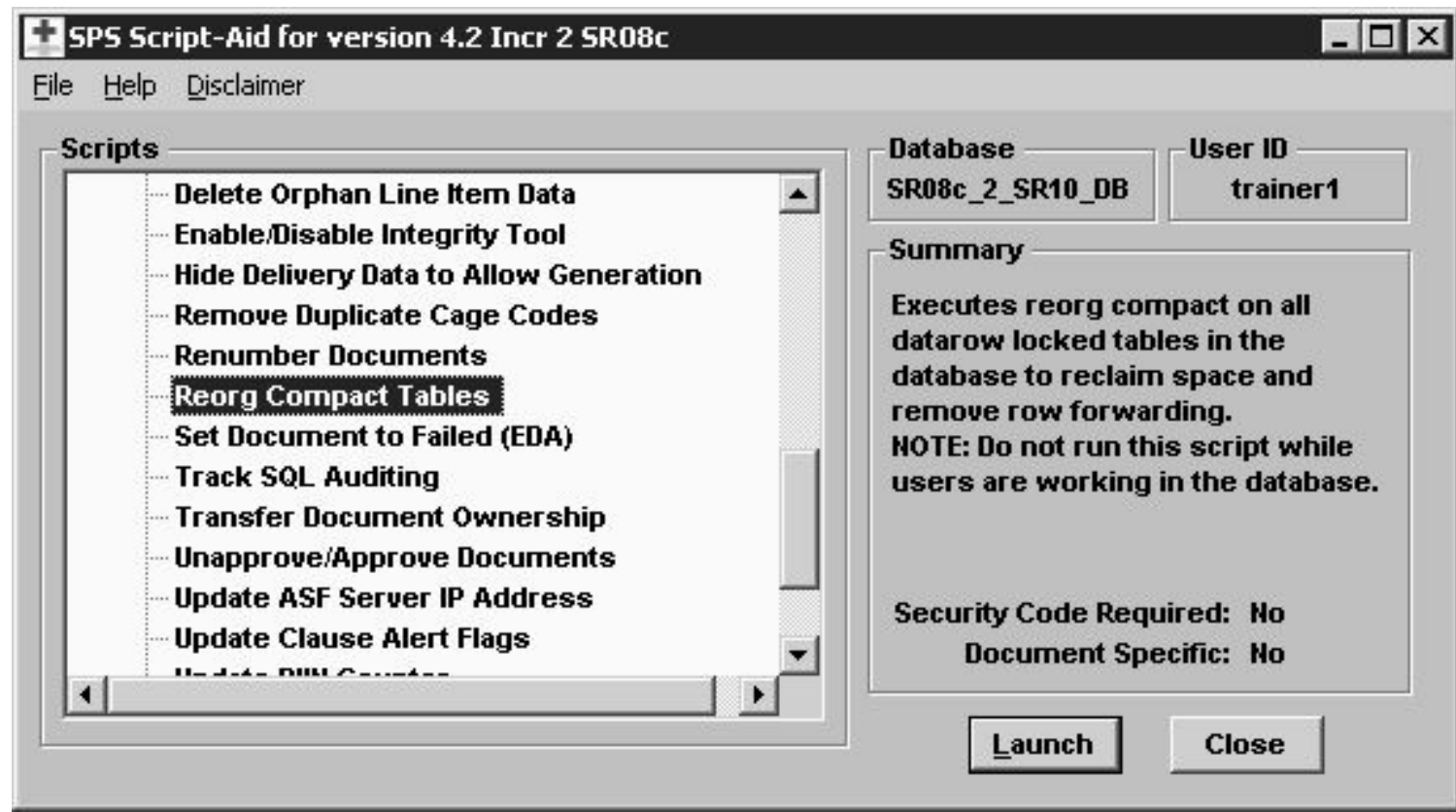
Step 2. Reorg Compact

- **Purpose:** Reclaims unused space on pages, removes row forwarding, or rewrites all rows in the table to new pages, depending on the option used.
- Similar to Defragmenting a hard disk drive.
- Syntax/Usage can be found at http://sybooks.sybase.com/onlinebooks/group-as/asg1251e/commands/@Generic__BookTextView/40411

Step 2. Reorg Compact Continued

- SPS Help Desk has a script in Script-Aid to reorg compact your 35 datarows tables.
- Simplified syntax (if not using Script-Aid) :
reorg compact table_name
- Lock out users before performing this task

Step 2. Reorg Compact Continued



Step 3. DB Consistency Check (dbcc)

- **Purpose:** Database administrators run database consistency checks (DBCCs) as standard procedure to determine if data is invalid because of corruption at the database level.
- Four commands are used to determine and correct table corruptions.
- Similar to running scandisk in the Windows environment.

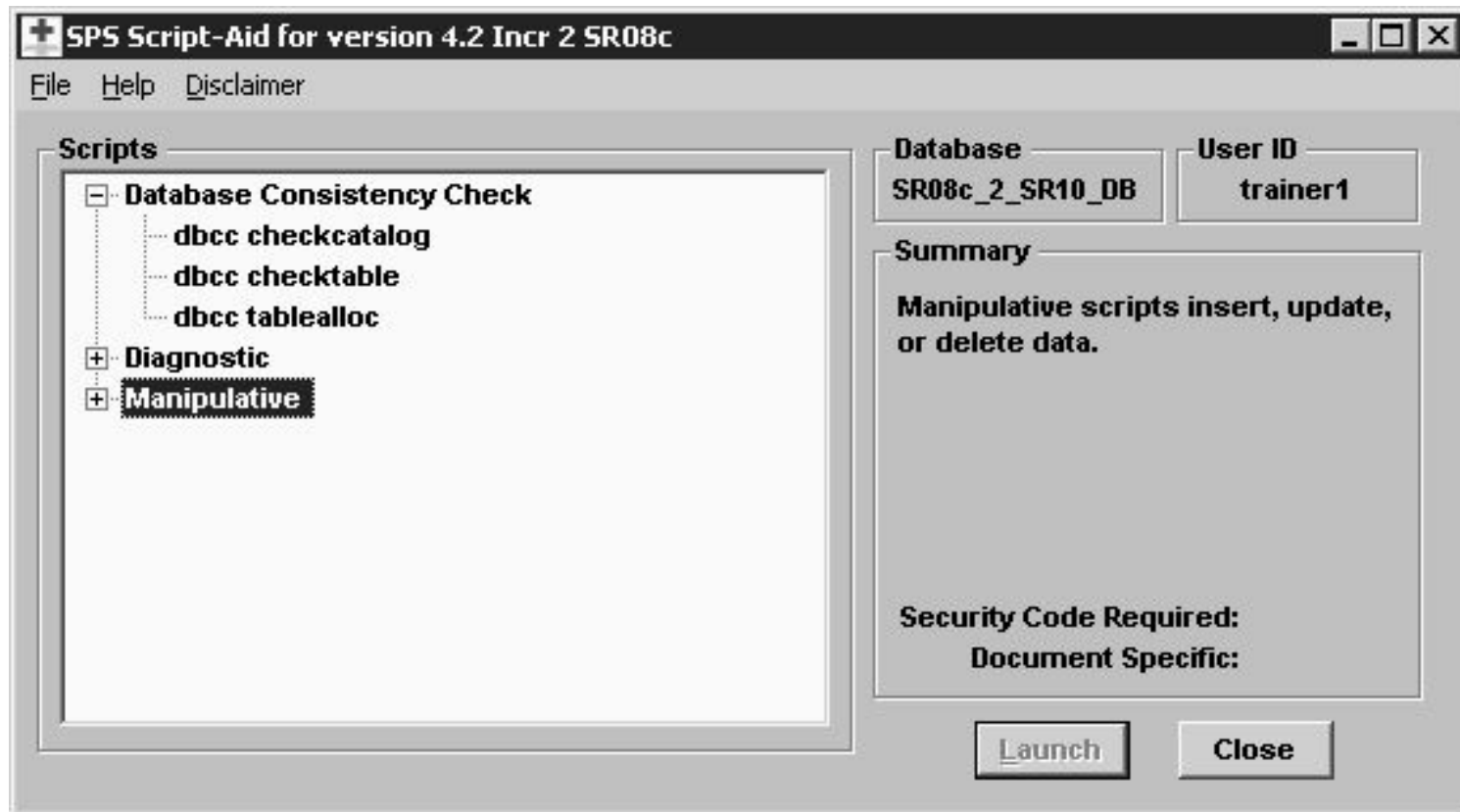
Step 3. DB Consistency Check (dbcc) Continued

- `dbcc checkdb` - Checks integrity of data and index pages in a database
- `dbcc checkalloc` - Checks database-wide allocation
- `dbcc checkcatalog` - Checks database system catalog consistency
- `dbcc checkstorage` - Checks the consistency of database objects (combines the checks above) without blocking access for other tasks

Step 3. DB Consistency Check (dbcc) Continued

- To thoroughly check the database:
 - Lock out user
 - Place the database in single user mode in order to check the system tables.
- Depending on the size of your database, dB consistency check may take a long time to complete, therefore plan accordingly.

Step 3. DB Consistency Check (dbcc) Continued



Step 3. DB Consistency Check (dbcc) Continued

- **Recommendation:** These checks should be performed prior to executing your backup procedures
- An error free backup is crucial to a successful database recovery if the need arises.

Step 4. Proper Backup Procedure

- The key to a successful database recovery is performing a proper backup
- Improper backup procedures will potentially make up to date database recovery next to impossible



Step 4. Proper Backup Procedure Continued

- Dump production database to disk or tape dump device
- Recommend database be dumped to disk then dump file copied to tape
 - Direct tape dumps have a high failure rate.

Step 4. Proper Backup Procedure Continued

- Check backup log for errors
 - Check the error log is crucial
 - Dumps that have errors make recovery difficult



Step 4. Proper Backup Procedure Continued

- Restore dump into the test database (if available)
 - This step should not be skipped
 - You want to ensure that the dump can be loaded successfully
 - In case recovery is needed



Step 4. Proper Backup Procedure Continued

- Do not overwrite your most recent backup
 - If you have clean error free backup, don't run the risk of destroy it with a potential bad backup



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Questions & Answers

