

HiPerformance Software GmbH

DB2 10 - New Function Mode

DB2 10 Release SQL Incompatibilities

- Changes to string formatting of decimal data (CHAR Function)
 - DB2 10 CHAR built-in function no longer returns
 - Leading zeros
 - Trailing decimal point character
 - Leading blanks for positive decimal value
- If ZPARAM=CURRENT (Standard SQL Format)

Current Setting Proposal: BIF_COMPATIBILITY=V9

Recommendations and Planned procedure

- Prepare for V10 standard
 - Use Trace Output(IFCID 366) to identify applications to be changed to handle the new format returned in DB2 10.
- Change any affected applications to handle the new Version 10 CHAR behavior
- Change ZPARAM Setting to CURRENT (ANSI Standard)

Performance Enhancements with NFM

Performance enhancements requiring NFM (out of the box)

- DB2 catalog concurrency and productivity
 - Compress on insert
 - Most utility enhancements
 - LOB streaming between DDF and rest of DB2
 - Faster fetch and insert, lower virtual storage consumption
 - SQL Procedure Language performance improvements
 - Workfile spanned records, partition by growth
 - Insert improvement for universal table spaces
 - Locking improvement for multirow insert
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- ✓ CPU reduction
 - ✓ Virtual Storage
 - ✓ Elapsed Time
 - ✓ Concurrency
 - ✓ Availability

NFM Benefits needing DBA Changes

| Some Improvements needing DBA Changes | Comment |
|---|---|
| Insert improvement for universal table spaces (UTS) | Migrate to UTS |
| Inline LOBS | Identify LOB TS candidates and migrate |
| Additional Columns in Unique Index (Index include columns) | Only UTS, identify candidate indexes |
| MEMBER CLUSTER option in TS (Data Sharing) | Only UTS (high insert rate in Data Sharing) |
| HASH ACCESS | Only UTS, only Primary Key Access |
| Utility enhancements like Runstats (TABLESAMPLE SYSTEM option), | Elapsed Time, CPU |
| Use Profile for Utilities | Easier Handling |

DB2 10 NFM Benefits - Application

| Application change needed | Comment | Topic |
|--|--|---------------------------|
| Efficient caching of dynamic SQL dynamic SQL statements with literals | Literal Replacement Usage Activation (JCC Connection (JCC Connection or Property, ODBC init, Prepare Stmt | Performance |
| SQL Procedure Language performance | Native SQL procedure | Productivity, Performance |
| Access to currently committed data | Bind option ,USE CURRENTLY COMMITTED' (UTS | Concurrency, Quality |
| Special Null Indicators für INSERT/UPDATE/MERGE | Program change | Productivity |
| High Performance DBATs | Configuration (ZPARM, Bind) | Performance |
| Bi-Temporal Tables | Productivity | Productivity |
| Timestamp precision | Precision 9 (with timezone) | Productivity |

NFM Benefits— Security and Compliance

| Some Improvements needing Changes | Comment |
|--|---|
| <ul style="list-style-type: none"> specific rights for specific roles (Security-, System-, Database-System-, Database-Administrator, Performance Analyst) | SECADM, SYSADM, DBADM ON DBADM ON SYSTEM, SQLADM, SQLADM, GRANT EXPLAIN |

Advantages

- Reduction of SYSADM Authorizations
- Security Administrator does not need Data Access
- Performance Analyst can do explains without data access rights

DB2 10 Usable features – Hash Access

- Hash Access versus Index Only access
 - Choose hash candidates carefully: High NLEVELS in index (≥ 3)
 - Purely direct row access by primary key
 - Truly random access
 - No range queries
 - Low insert/update activity

DB2 10 Usable features – Include Columns in Primary Index

- ADDITIONAL non-key columns in a UNIQUE index
 - V10 expands the index functionality of new-function mode by adding the optional INCLUDE clause to the CREATE INDEX and ALTER INDEX statements.
 - The use of INCLUDE columns is supported only on unique indexes, with the purpose of decreasing the index maintenance and the physical storage that is required for additional indexes.

DB2 10 Usable features – Concurrency

- Access to Currently Committed Data
 - Prior to DB2 10
 - Read applications acquire locks on data
 - Resulting in overhead, contention, concurrency issues
 - UR avoids contention
 - But can return uncommitted data as well as committed
 - Could result in timeouts
 - DB2 10 NFM
 - Allows access to version of data that was last committed
 - Version of data that existed before the blocking unit-of-work has changed the row
 - But has not yet committed the change
 - Ability to return currently committed data without waiting for locks
 - For uncommitted inserts or deletes
 - **Not for uncommitted updates, means only for uncommitted inserts and delete operations**
 - **Referenced data must be in a UTS**

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