DB2 Administration Suite Overview

Steve Thomas – Thursday May 31st – 2.15

Prague Technology Days

May 30 - June 1, 2018

For Informational Purposes Only

This presentation was based on current information and resource allocations as of **May 2018** and is subject to change or withdrawal by CA at any time without notice. Not withstanding anything in this presentation to the contrary, this presentation shall not serve to (i) affect the rights and/or obligations of CA or its licensees under any existing or future written license agreement or services agreement relating to any CA software product; or (ii) amend any product documentation or specifications for any CA software product. The development, release and timing of any features or functionality described in this presentation remain at CA's sole discretion. Notwithstanding anything in this presentation to the contrary, upon the general availability of any future CA product release referenced in this presentation, CA will make such release available (i) for sale to new licensees of such product; and (ii) to existing licensees of such product on a when and if-available basis as part of CA maintenance and support, and in the form of a regularly scheduled major product release. Such releases may be made available to current licensees of such product who are current subscribers to CA maintenance and support on a when and if-available basis. In the event of a conflict between the terms of this paragraph and any other information contained in this presentation, the terms of this paragraph shall govern.

Certain information in this presentation may outline CA's general product direction. All information in this presentation is for your informational purposes only and may not be incorporated into any contract. CA assumes no responsibility for the accuracy or completeness of the information. To the extent permitted by applicable law, CA provides this presentation "as is" without warranty of any kind, including without limitation, any implied warranties or merchantability, fitness for a particular purpose, or non-infringement. In no event will CA be liable for any loss or damage, direct or indirect, from the use of this document, including, without limitation, lost profits, lost investment, business interruption, goodwill, or lost data, even if CA is expressly advised in advance of the possibility of such damages. CA confidential and proprietary. No unauthorized copying or distribution permitted.

Agenda

DB2 ADMINISTRATION – INTRODUCTION AND STRATEGY

REVIEW OF RELEASE 19 FEATURES

MAINFRAME TEAM CENTER – DB2 ADMINISTRATION

OTHER RELEASE 20 FEATURES

Q&A

CA Database Administration for DB2 for z/OS

- CA RC/Query®

- CA RC/Secure™

- CA RC/Migrator™ (includes RC/Merger)

- CA RC/Compare™

- CA RC/Update™

- CA RC/Extract™

- CA Endevor® SCM Interface for DB2

Roadmap: *CA Administration Suite for DB2*

Timeline as of January 1st 2018

	Delivered	Planned	Under Consideration
Product/ Releases	**CA Admin Suite**	**CA Admin Suite**	**CA Admin Suite**
Marquee Features/ Business Value	▪ **DB2 12 Toleration** ▪ **DB2 Version Support for DB2 schema management** of objects with DB2 11 exploitative schema attributes ▪ **Simplified, Smarter Usability** including new report definitions and additional line commands in reports ▪ **Improved usability** through 'Out of the Box' template/listdef usage in IBM utility models.	▪ **Modernization** and continued streamlining of processes through batch APIs in RC/Migrator ▪ **Continued acceleration of DB2 Version Support for DB2 schema management** of objects with DB2 11 and 12 exploitative schema attributes ▪ **Tighter Data Governance/Compliance** through integrated Data Masking	▪ **Continued acceleration of DB2 Version Support for DB2 schema management** ▪ **Analytics based Autonomics** - Intelligent Data Migrator, Utility Profile integration ▪ **Tighter Data Governance/Compliance** through Data Access Auditing with minimal performance and storage issues ▪ **Continued Modernization** and simplification of user experience including RC/Query, Migration Strategies, harmonization of Analysis Options.

Data Governance and Compliance

Emerging Needs in the Era of Compliance and Security

Db2
Administration
• RC/Migrator
• RC/Compare
• RC/Update
• RC/Query
• RC/Secure

PLANNED FEATURE

- Almost 100% of Data breaches target corporate data

  - 80% of world's corporate data resides on the Mainframe

  - Data breach impact – at least $5M per incident

- Tighter Data Governance/Compliance through integrated Data Masking

  - Integrated Data masking while extracting / unloading data

  - Data at rest and data in motion

ca
technologies

OFS – Object Framework Services

- The path continues to enable OFS to be THE component in order to expedite DB2 version exploitation.

- All new exploitative features will require OFS
  - Default path is currently the legacy path – will be switched to OFS shortly
  - ENABLExx settings to use OFS path.
  - OFS can be chosen for online usage.
    - OFS command available various places
    - Includes the OFACCESS parameter for analysis
    - Will create new parameters for the analysis
    - Not available in ANALYSIS PROFILE since this is a temporary solution until everything converted to OFS
    - Allows the user to chose legacy / OFS in case issues arise with OFS

OFS – Object Framework Services – r20

- Specify whether to generate or suppress the column names in a CREATE view statement with SELECT(*)
  - Generate column names with SELECT(*)
    - <u>New Option O (default)</u> - This new option extracts the original view text from SYSIBM.SYSVIEWS and generates a column list when the original CREATE VIEW statement has a column list.
    - Existing options - Y (generate) and N (suppress)

RC/Query - What was in r19?

- New Reports
  - Table Permissions/Mask (T-PM) and Accelerator Information (T-IF)
  - User System Authorization (U-SA)

- Analytics Accelerator Support enhanced - details to follow

- Intelligent Utility Processing – generate Utilities from child objects

- QECOMP – invokes PPA Rebind Compare Analysis

- LREBIND support for UDF's

- HDDL Enhancements and HGRANT – details to follow

RC/Query – More r19 changes

- Security Changes
  - UPDATEC when using LGRANT for Tables
  - Support for new "separation of duties" authorizations in Db2

- More catalog columns in frequently used RC Query reports

- Defaulting space L, to list the Higher level objects
  - Eliminates the need to type "TS L" etc.

- Short Versions of START, STOP and DISPLAY commands

- Case Sensitivity in RCQ Header

- DSNAME (or DSN) line command

CA RC/Query – IDAA Support

- IBM DB2 Analytics Accelerator support expanded
  (remember the "?" is Your Best Friend)

```
DB2 ANALYTICS ACCELERATOR COMMANDS
_  ACCEL          - Add table to the DB2 Analytics Accelerator for z/OS
_  ACCALT         - Alter Accelerated table Dist. & Org Keys
_  ACCARCH        - Archive Accelerated table
_  ALOAD          - Load table to the accelerator
_  DACCEL         - Remove table from the DB2 Analytics Accelerator for z/OS
_  DACCELF        - Forcely Remove Table from DB2 Analytics Accelerator
_  DISABLE        - Disable table acceleration
_  DISRPL         - Disable table replication
_  ENABLE         - Enable table for acceleration
_  ENARPL         - Enable table for replication
_  RESARCH        - Restore the archived moved partitions data
```

```
.CALL PROCEDURE ACCEL SYSPROC.ACCEL_LOAD_TABLES
.DATA
  NAME     (DB2GIDAA)
  SSID     (DB0G)
  LOCKMODE (TABLE)
  TABLE    (RASST02.STEENS_IDAA_TABLE)
  FFRELOAD (N)
  DETCHANGE (NONE)
.ENDDATA
```

- CA Batch Processor batch interface available too

- More commands and integration points planned

CA RC/Query – HDDL and HGRANT

- HDDL improvements

  - Option to generate RI (RI chain)

  - SET PATH in HDDL

  - CREATEDBY / user as SQLID

  - Include GRANTs as an option

- HGRANT - similar to HDDL but generates grants only

```
RQTUA   19.0    ------ RC/Q Table User Authorization Inq ------ 2016/10/24 15:58

------------- RC/Query Hierarchical DDL Request Options -------------
                                                            More:      +

On Object: Type T   Name CU05TB01_BSDRNOINS

  Execution Specifications:              RI Chain Setting:
    Mode . . O ( O - Online, B - Batch )    RI Chain . . Y  (Y or N)

  Batch Output Library:        SPUFI options Setting:
    Project . . PTIDEVL        SPUFI Compatible . . . N   (Y or N)
    Group . . . VIRTUEL        Object Selection:
    Type  . . . DB2            SG DB TS T  I  V  S  A  TG R  SQ PM
    Member . .                    _  _  _  Y  Y  _  _  _  _  _  _  _

  Other Partitioned or Sequential File:
    Name . . . . . . _____
    Volume Serial . . _____ (If not cataloged)

  SQL Teminator Setting:   SQL ID Setting:        Grants Setting:
    Terminator. ;            CreatedBy. N  (Y or N)   Grants. N  (Y or N)

_____      RASST02        AUTHID      RASST02    2014/02/11 10:34:50
       CSLOBTB2                         RASST02
```

RC/Migrator & RC/Compare – What was in r19?

- Huge list of changes – too many to go into details
  - See Enhancements in docops.ca.com for full information

- DB2 12 toleration up to M500

- IBM LOAD support for TEMPLATE and Parallelism (via UPS)

- Full IBM UNLOAD support

- Honor High Limitkey converting from ICP to TCP

RC/Migrator & RC/Compare – more r19 changes

- Fast UNLOAD with IBM LOAD for LOB and XML columns

- Improved SET TERMINATOR support
  - Massive improvement when processing Triggers, NSPs etc.

- Model Services Import Command
  - Much easier to migrate Models between subsystems

- EXCLUDE strategy wide option for Unpaired Targets in RC/Compare
  - Allows a mass exclude to be defined, saving manual effort

- Intelligent CLONE table processing

- Intelligent BIND/REBIND processing (retrofitted from r20 - SO00974)

RC/Migrator & RC/Compare – DB2 Version support

- DSSIZE now supported for 128Gb and 256Gb values
  - \>256Gb is included in r20 as a Db2 12 feature (PBR RPN)

- PCTFREE FOR UPDATE

- INLINE LOB length

- BIND and REBIND Options
  - APRETAINDUP, APREUSE, PLANMGMT

- XMLSCHEMA

- EDITPROC WITH/WITHOUT ROW ATTRIBUTES

RC/Migrator & RC/Compare – Pending Changes in r19

- Improved support for Online Schema changes
  - ALTER TABLESPACE DSSIZE
  - ALTER INDEX BUFFERPOOL
  - ALTER TABLE DROP COLUMN
  - ALTER TABLESPACE SEGSIZE

- Utility Profile Services support for Deferred Schema Changes
  - Improves Management
  - Easier for us to add future changes

RC/Merger enhancements in r19

- SQL ONLY option
  - Avoids the need to perform a full analysis

- VERIFY ONLY option

- SNAPSHOT support to exploit Flashcopy
  - Huge benefits – could be supported before but required manual process

- QUIESCE support option

CA RC/Merger – more r19 changes

- REBUILD INDEX(ALL) an alternative to MERGER (move/copy) of index pagesets

- Dynamically add needed partitions for PBG
  - LOAD REPLACE DUMMY
  - ALTER MAXPARTITIONS
  - REORG

- Dynamically remove data from extraneous partitions if target has more partitions than source

- Support for object types
  - Clone Tables
  - Identity columns
  - TCP's with rotated partitions

ca
technologies

New changes in r19 via PTF (May 2018)

- Changes added due to Customer Issues but available to all

- Preserve Formatting & Comments for Native Stored Procedures
  - Single line comments and Formatting in Procedure SQL Body
  - Appropriately splits SQL and comments over 72 characters long

- Generates DROP PROCEDURE statements in RCM analysis with BND/DAT/STA/SQL/GRNT/RI ==> N and DROP OBJECTS ==> Y options

- **Published PTF # SO01339, SO01340**

ca
technologies

MTC Database Administration UI - work in progress

- Follows the Architecture discussed yesterday for Detector

- Initial Support will be for:
  - Catalog Browsing
  - RC/M Quick Migration

- Some sample screens (wireframes) follow to get your reaction
  - These will not be in the downloadable slides
  - We will feed back any comments to the R&D team

ca
technologies

RC/Query – new in ir20

- Implicit Object DDL generated as Comments

- REPAIR generation
  - New INSERTVERSIONPAGES and SETCURRENT VERSION options supported
  - New REPAIRTS option on SG, DB, TS and T reports for subsidiary objects

- Isolation Level support - see next slide

- More List and Detail reports display all Catalog Columns

- Reduced White Space in reports to maximize data displayed

- I-C report now includes Keywords and Index on Expression

CA RC/Query – Isolation Level Support in ir20

- Isolation Level Support
  - Cursor stability (CS) and uncommitted read (UR) isolation level support has been added for all SELECT queries
    - BROWSE command via RCQ or RCU
  - This feature prevents queries from locking the tables when the table is being extracted and changed simultaneously by multiple users.
  - CS and UR are supported at the global and user level.
    - CDBAPARM (RCQ) and (RCEDIT)
    - User profiles

RC/Migrator & RC/Compare – ir20 changes

- Continuing Accelerated DB2 version support and exploitation
  - DSSIZE now up to 1024Gb
  - Tablespace PAGENUM (for PBR RPN objects)
  - Partition Level REORG support for Limitkey changes
  - INCLUDE/EXCLUDE NULL KEYS

- Continuing to improve Deferred Schema Change support
  - ALTER Tablespace Bufferpool size
  - ALTER TABLE limitkey

- Migrating Archive Tables – first step in Associated Table feature
  - Speak to me or Steen if you need more details

Call for Speakers Now Open

Share your experience. Be the teacher. Enhance your resume.

Register your session today!

Learn more: **ca.com/caworld**

Steve Thomas

Principal Architect
Steve.Thomas@ca.com

@Steve_Db2

Slideshare.net/CAInc

Linked-in/company/ca-technologies

technologies