CA Database Management for Db2 for z/OS 20.0 (Db2 Tools) Customer Community Update

Team Product Owners

April 12th, 2021

BROADCOM®

Disclaimer

Certain information in this presentation may outline general product direction of Broadcom. This presentation shall not serve to (i) affect the rights and/or obligations of Broadcom or its licensees under any existing or future license agreement or services agreement relating to any Broadcom software product; or (ii) amend any product documentation of specification for any Broadcom software product. This presentation is based on current information and resource allocations as of February 8th 2021 and is **subject to change or withdrawal by Broadcom at any time without notice. The development, release and timing of any features or functionality described in this presentation remain at Broadcom's sole discretion.**

Notwithstanding anything in this presentation to the contrary, upon the general availability of any future Broadcom product release referenced in this presentation, Broadcom may make such release available to new licensees in the form of a regularly scheduled major product release. Such release may be made available to licensees of the product who are active subscribers to Broadcom maintenance and support, on a when and if-available basis. The information in this presentation is not deemed to be incorporated into any contract.

Copyright© 2021 Broadcom. All rights reserved. The term "Broadcom" refers to Broadcom Inc. and/or it's subsidiaries. Broadcom, the plus logo, Connecting everything, CA Technologies and the CA Technologies logo are among the trademarks of Broadcom.

THIS PRESENTATION IS FOR YOUR INFORMATIONAL PURPOSES ONLY. Broadcom assumes no responsibility for the accuracy or completeness of the information. TO THE EXTENT PERMITTED BY APPLICABLE LAW, BROADCOM PROVIDES THIS DOCUMENT "AS IS" WITHOUT WARRANTY OF ANY KIND, INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTEIS OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NONINFRINGEMENT. In no event will Broadcom be liable for any loss or damage, direct or indirect, in connection with this presentation, including, without limitation, lost profits, lost investment, business interruption, goodwill, or lost data, even if Broadcom is expressly advised in advance of the possibility of such damages.

BROADCOM®

Product Owners

Andrew Badgley   andrew.badgley@broadcom.com

Jakub Hofman   jakub.hofman@broadcom.com

Javier Estrada Benavides   javier.estradabenavides@broadcom.com

Rabah Beggar   rabah.beggar@broadcom.com

Srinivas Adupa   srinivas.adupa@broadcom.com

BROADCOM®

Agenda

CA Plan Analyzer

- Compare Summary

CA Detector

- Improved Performance for Batch Unloads

Fast Recover

- Recovery Simulation: Keeping or discarding the Recovery dataset

Log Analzyer

- Bypassing the creation of Log Extracts

CA SYSVIEW for Db2

- Interval Delta Processing for IFCID 148
- Counter for Number of Index Traversal
- VTAM Data Stream Compression Option
- Syntax Check and Unload Support for UIBATCH
- SYSVIEW for Db2 Digital Badge

BROADCOM®

Please Provide Feedback…

BROADCOM®

CA Plan Analyzer: Compare Summary (LU00440)

Andrew Badgley

andrew.badgley@broadcom.com

BROADCOM®

What are the challenges from our customers?

- Comparing access paths one package at a time reruns the Compare process every time, requires a lot of panel navigation, and can only be done Online.

- Comparing access paths for multiple packages via Explain Strategy Services runs the Compare process once to generate the report and can generate the report via Batch. However, the report can be time consuming to go through.

BROADCOM®

New Compare History function

```
20.0          ---------------- PPA Explain Reports --------------- 2021/04/11 23:09
COMMAND ===>


Summary Reports:            Stmt Level Reports:          Group Level Reports:
  Summary ===> Y              Access        ===> S         Planrule    ===> N
  Cost    ===> Y              Predicate     ===> L         RI          ===> N
                             Dependency    ===> S         Tree        ===> N
                             Sqlrule       ===> L         Statistics  ===> N
                             Physrule      ===> N         Compare     ===> H
                             Predrule      ===> L
                             IX Probe Stats ===> N



Report Formatting Options:
  Compare Options      ===> N
  Compare Cost Options ===> N
  Cost Filtering       ===> N
  Suppress Reports     ===> N
```

```
20.0          --------- Plan Analyzer Error Message PP598E -------- 2021/04/11 23:07
COMMAND ===> _


    PP598E is an error message that indicates you have entered an invalid
    value for the compare report option.

    Valid values for the compare report option are:

      Y - Generates the Compare Explain Versions report.

      B - Generates the Compare Explain Versions report and the
          Compare Versions Cost Compare report.

      C - Generates the Compare Versions Cost Compare report.

      H - Collect explain versions and stores the information in the
          Explain Strategy Compare History table.  This value does
          not generate a report.

      N - Do not generate the report.
```

BROADCOM®

New Compare Summary Report

New Compare Summary Report

```
20.0         -------- PPA Explain Strategy Compare Summary ------- 2021/04/11 23:25
COMMAND ===>                                            SCROLL ===> CSR
                                                        LINE 1 OF 13    >
Select 1 or more Categories:
S Degraded: 2          S Improved : 11              _ Non-Paired: 0
_ Changed : 62         _ Unchanged: 9              _ Error      : 2
----------------------------------------------------------------------------
                                        TA
Cmd    C  Stmt  Group        Object     CC MS Diff        SU Diff        TC Diff
    _  I  1372  PPAMP200_TE> PPA$ESDM    A           -4        -158 -.10865 E+03
    _  I  2378  PPAMP200_TE> PPA$ESDM    A           -1         -39 -.41289 E+02
    _  I  2390  PPAMP200_TE> PPA$ESDM    A           -4        -157 -.10865 E+03
    _  I  2466  PPAMP200_TE> PPA$ESDM    A           -1         -40 -.40802 E+02
    _  I  445   PPAMP200_TE> PPA$ESES    A           -4        -158 -.10865 E+03
    _  I  629   PPAMP200_TE> PPA$ESES    A           -4        -157 -.10865 E+03
    _  I  1079  PPAMP200_TE> PPA$ESM     A           -4        -157 -.10870 E+03
    _  I  1777  PPAMP200_TE> PPA$ESM     A           -1         -39 -.41289 E+02
    _  D  1783  PPAMP200_TE> PPA$ESM     A           81       2,998 +.30542 E+02
    _  I  1789  PPAMP200_TE> PPA$ESM     A           -4        -157 -.10865 E+03
    _  I  1826  PPAMP200_TE> PPA$ESM     A           -1         -37 -.41114 E+02
    S  D  1831  PPAMP200_TE> PPA$ESM     A          275      10,190 +.10627 E+03
    _  I  1836  PPAMP200_TE> PPA$ESM     A           -3        -142 -.10773 E+03
******************************* BOTTOM OF DATA *******************************
```

BROADCOM®

Old Access Path Analysis:

 Cost: (ms) 240   (su) 8871   (tc) +.10021 E+03

 PQbkNo: 0   PPlnNo: 0   QblkNo: 1   PlanNo: 1   MxOpSq: 0
 Access: IXDATA   TSLock: IX   Prefet: L   QblkTy: DEL   TBType: TABLE
 Tb#1   : PTI.PTPA_ES_VOUTP_1200
 Index : PTI.PTPA_IX_VOUTP_1200
 MCols : 2   DIRECT: FWD
 Encode: EBCDIC   SCCSID: 500   MCCSID: N/A   DCCSID: N/A   VI_ACT:

New Access Path Analysis:

 Cost: (ms) 515   (su) 19061   (tc) +.20648 E+03

 PQbkNo: 0   PPlnNo: 0   QblkNo: 1   PlanNo: 1   MxOpSq: 0
 Access: IXONLY   TSLock: IX   Prefet: S   QblkTy: DEL   TBType: TABLE
 Tb#1   : PTI.PTPA_ES_VOUTP_1200
 Index : PTI.PTPA_IX_VOUTP_1200
 MCols : 2   DIRECT: FWD
 Encode: EBCDIC   SCCSID: 500   MCCSID: N/A   DCCSID: N/A   VI_ACT: N

SQL Statement:

 DELETE
    FROM PTI.PTPA_ES_VOUTP_1200
  WHERE "NAME" = :ES_NAME
    AND CREATOR = :ES_CREATOR

Please Provide Feedback…

PTF: LU00440

Andrew Badgley
andrew.badgley@broadcom.com

BROADCOM®

Detector:
Improved Performance for Batch Unloads (LU00565)

Andrew Badgley

andrew.badgley@broadcom.com

BROADCOM®

PDTBATCH w/ NORMALIZE=Y

CA Detector® for DB2 for z/OS now provides better performance when the PDTBATCH job is used with NORMALIZE=Y to unload collection data from the data store.

Customers may experience significant improvement, depending on their site environments.

BROADCOM®

Please Provide Feedback…

PTF: LU00565

Andrew Badgley
andrew.badgley@broadcom.com

BROADCOM®
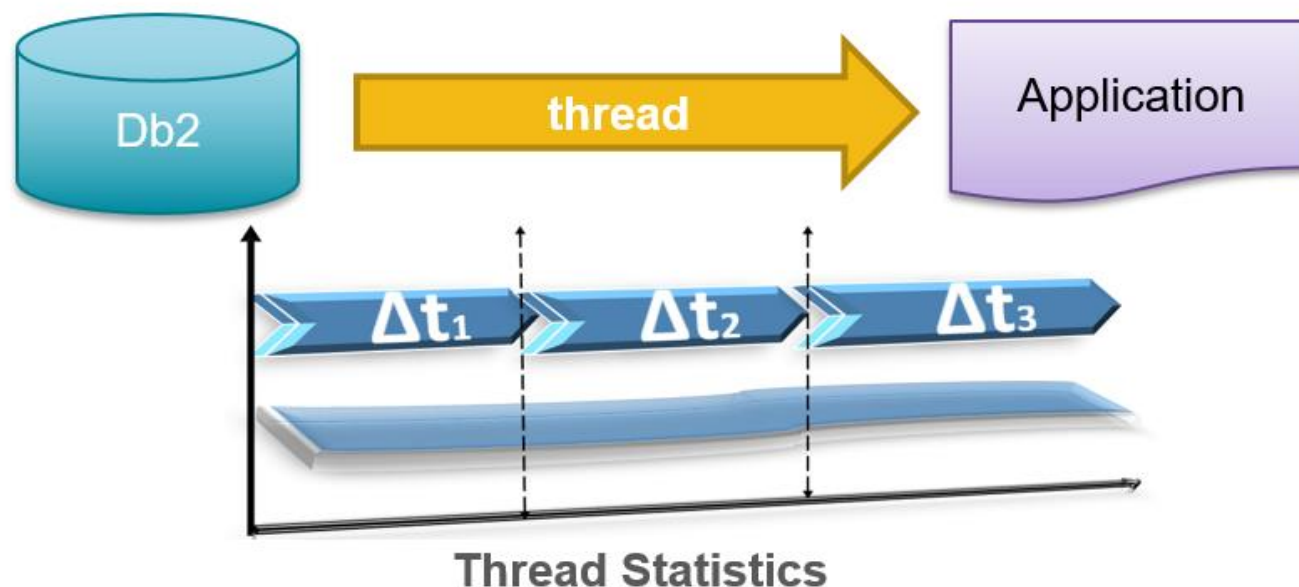
CA SYSVIEW for Db2

Denis Tronin

denis.tronin@broadcom.com

BROADCOM®

Interval Delta Processing for IFCID 148

Interval Delta Processing for IFCID 148 (THREAD-STATS)

- CA SYSVIEW for Db2 is enhanced for processing of active thread statistics by calculating gradual changes (delta's) in predefined time intervals and leveraging those in IQL exceptions

Db2

thread → Application

Δt_1 Δt_2 Δt_3

Thread Statistics

Now you can create IQL exceptions to monitor long-running active threads and trigger an alert for gradual changes

BROADCOM®

Interval Delta Processing for IFCID 148 (THREAD-STATS)

Commented out in the **STARTUP**!

```
INCLUDE  'THRDDETL'
INCLUDE  'THRDDYNP'
*INCLUDE  'THRDEXCP'
#IF  IQL-INCLUDE-ACC
```

- A new IQL request **THRDEXCP** is added to generate input for the two new IQL-based exceptions:

  ➢ **THDNOCMT** — Notifies about the threads that do not regularly commit (every 5 mins).
  ➢ **THRDLOOP** — Notifies about the threads that consume much CPU and do not access any data (zero getpages) – those might be **looping**!

```
                    List of External/IQL Shadow
Commands: ADD=Add exception, ACTALL/INACTALL=A
Actions: U=Update current and permanent, P=Upd
         C=Copy, D=Delete, A=Activate, I=Inact
  STATUS  SSN   Ext/IQL exception ID
_ ACTIVE ****  WARMSTRT
_ ACTIVE ****  WAITPOOL
_ ACTIVE ****  WAITNTRY
_ ACTIVE ****  THREADAB
_ ACTIVE ****  THRDLOOP
_ ACTIVE ****  THDNOCMT
_ ACTIVE ****  THDINUSE
_ ACTIVE ****  TESTJP01
_ ACTIVE ****  TBLCONST
_ ACTIVE ****  SYNCFAIL
_ ACTIVE ****  STALLED
_ ACTIVE ****  SNAERROR
_ ACTIVE ****  RESYNCH
_ ACTIVE ****  RECSSORT
_ ACTIVE ****  RBNDRQRD
_ ACTIVE ****  POOLTHRD
```

```
Menu  Print  Tools  Help    CA SYSVIEW for DB2  D12A CA31    01/27/21 04:49:57
                                   20.0          D12AENDK3           SNOOL01
 1 All    2 Subsystem   3 Application   4 Database   5 Ext/IQL   Type . IN-ALERT
                                                                (IN-ALERT, INUSE,
EXCDISP              External/IQL Exceptions In Alert            TRIPPED)

Actions: H=Help, G="Goto" screen, U=Update current and permanent,
         T=Temp update, B=Browse
------------------------- EXT/IQL BASED EXCEPTIONS ------------------------
_  INFO 04:46:59-04:49:39  THDNOCMT Thread with no commit Auth ID SNOOL01
                           Corr ID RUN0112A  Plan SNOOL01  Token   83143
_  INFO 04:40:21-04:49:39  THDNOCMT Thread with no commit Auth ID PLATDEV
                           Corr ID IDCD12AS  Plan IDB2TFKS Token   28337
_  INFO 04:40:21-04:49:39  THDNOCMT Thread with no commit Auth ID PLATDEV
                           Corr ID IDCD12AS  Plan IDB2TFKS Token   28338
_  INFO 04:40:21-04:49:39  THDNOCMT Thread with no commit Auth ID PLATDEV
                           Corr ID IDCD12AS  Plan IDB2TFKS Token   28350
_  INFO 04:40:21-04:49:39  THDNOCMT Thread with no commit Auth ID SNOOL01
                           Corr ID INSU312A  Plan IDB2993S Token   75415
_  INFO 04:40:21-04:49:39  THDNOCMT Thread with no commit Auth ID SNOOL01
                           Corr ID INSU312A  Plan IDB2993S Token   75436
_  INFO 04:40:21-04:49:39  THDNOCMT Thread with no commit Auth ID SNOOL01
                           Corr ID INSU312A  Plan IDB2993S Token   75455
_  INFO 04:40:21-04:49:39  THDNOCMT Thread with no commit Auth ID KALVI08
                           Corr ID KALVI08   Plan LAPBD200 Token   81783
_  INFO 04:40:21-04:49:39  THDNOCMT Thread with no commit Auth ID PLATDEV
                           Corr ID IDB2DCAD  Plan IDB2IFI  Token    6681
```

BROADCOM®

Counter for Number of Index Traversal

BROADCOM®

Counter for Number of Index Traversal – IFCID 389

- **The number of index traversals that occurred in the last 2-minutes interval** is added to online and historical reports based on IFCID (0389) INDEX-WITH-FTB

```
_    1 FTB Statistics   2 FTB Indexes   3 FTB Structures

R/IDSFTB              FTB Index Optimization
SORT OFF
Database  IndexSpace Partition Levels    FTB Size Traversals

DCDQANW1 XPKSUPPO              1      2     17152       2032
```

Updated Reports :
- IDSFTB   : FTB Index Optimization (Online)
- HSTIFTB : FTB Index Optimization History
- HSUIFTB : FTB Index Optimization History Summary

```
R/HSTIFTB         FTB Index Optimization History
SORT OFF
From 01/27/21 06:37:00 To 01/27/21 06:38:00
Database  IndexSpace Partition Levels    FTB Size Traversals Interval

DCDQANW1 XPKSUPPO              1      2     17152          0 06:37:56
```

```
R/HSUIFTB         FTB Index Optimization History Summary          Item 1-38/60
SORT OFF
From 01/27/21 03:12:00 To 01/27/21 06:39:00
                                     Min   Max       Min        Max        Avg      Total       Avg
Database  IndexSpace Partition Levels Levels  FTB Size   FTB Size   FTB Size Traversals Traversals

DCDQANW1 XPKSUPPO              1      2     2     17152      17152    17152.0      17437     169.3
DANAL04F MYINDE2              1      2     3     49408      49408    49408.0      67776    1993.4
DANAL04F MYINDE3              1      2     3     49408      49408    49408.0      67776    1993.4
DANAL04F MYINDE4              1      2     3     49408      49408    49408.0      67776    1993.4
DANAL04F MYINDE5              1      2     3     49408      49408    49408.0      67776    1993.4
DANAL04F MYINDE6              1      2     3     49408      49408    49408.0      67778    1993.5
DANAL04F MYINDE7              1      2     3     49408      49408    49408.0      67776    1993.4
DANAL04F MYINDE8              1      2     3     49408      49408    49408.0      67776    1993.4
```

VTAM Data Stream Compression Option

VTAM Data Stream Compression Option

You can now decide how the data sent through VTAM will be compressed!

✓ A new data collector system parameter **VTAM-COMPRESS** is introduced with three options

COMPAT : Uses software compression,
Lower compression rate
Requires less CPU

❑ Use it when the data collector and user interface (UI) are at different maintenance levels and the UI level does not support the compression option.

YES : Uses hardware compression
Highest compression rate
Requires more CPU

NO : Does not compress data

❑ This option may be best if VTAM does your data compression.

COMPAT is the default!

✓ *No change to existing processing of VTAM SEND/RECEIVE traffic*

BROADCOM®

Syntax Check and Unload Support for UIBATCH

BROADCOM®

Syntax Check and Unload Support for UIBATCH

✓ The CA SYSVIEW for DB2 Batch User Interface program IUIBATCH now supports commands CHECK and UNLOAD

Use Case: *IQL request is updated by the automation, another batch job can be submitted to check if there is any syntax error and if no error is detected, then automation submits the updated IQL request.*

BROADCOM®

Syntax Check and Unload Support for UIBATCH

```
DBG00001I        07:57:31 CONTROL CARD INPUT:

------------------------------------------------------------------
           1    DEFAULTS
           2     COMMAND=CHECK
           3     REQUEST=('APPLIOX')
           4     DBSUB=DT11                      /* ON THIS SUBSYSTEM */
           5     PCSSID=PR20
           6     TESTVER=PR20
           7     APPLS=((DTGPPR20,DT11,NOAPPL,NOPASS)
           8        )

DBG00002I        07:57:31 SYNTAX PROCESSING SUCCESSFULLY COMPLETED
-<
DBG0A5I    DBG550A5I Usr SOLAY01,Grp PLATGRP,Menu BATCH,CA SYSVIEW for DB2 20.0
DBG034W    DBG55034W Request contains syntax errors
->
->
```

Example for the scenario with Syntax Error

```
DBG00001I        07:36:21 CONTROL CARD INPUT:

------------------------------------------------------------------
           1    DEFAULTS
           2     COMMAND=CHECK
           3     REQUEST=('APPLIO')
           4     DBSUB=DT11                       /* ON THIS SUBSYSTEM */
           5     PCSSID=PR20
           6     TESTVER=PR20
           7     APPLS=((DTGPPR20,DT11,NOAPPL,NOPASS)
           8        )

DBG00002I        07:36:21 SYNTAX PROCESSING SUCCESSFULLY COMPLETED
-<
DBG0A5I    DBG550A5I Usr SOLAY01,Grp PLATGRP,Menu BATCH,CA SYSVIEW for DB2 20.0
DBG012I    DBG55012I Request is free of syntax errors
->
```

Example for the scenario without Syntax Error

SYSVIEW for Db2 Digital Badge

CA SYSVIEW for Db2 : Digital Badge now Available!

✓ CA SYSVIEW® Performance Management Option for DB2 for z/OS - Intermediate - Digital Badge Assessment (Course Code/ID: **06SYS2026E**)
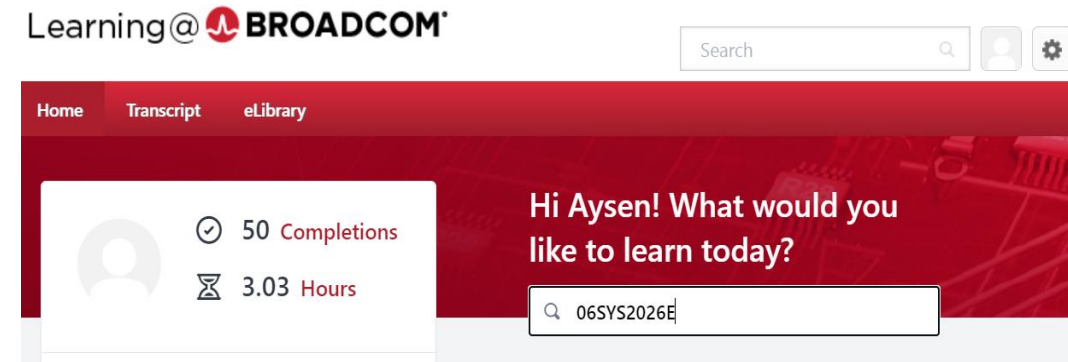

CA SYSVIEW® for Db2

Issued by Broadcom

Earners of this badge demonstrate intermediate expertise in the following CA SYSVIEW® Performance Management Option for Db2 for z/OS (CA SYSVIEW for Db2) related topics: product architecture, configuration, user interface, IQL, and performance warehouse database.

Type: Validation

Level: Intermediate

Assessment test is available at Learning@Broadcom

How to access Learning @Broadcom is also documented on Digital Badge page
https://www.youracclaim.com/org/broadcom/badge/ca-SYSVIEW-for-db2

Please Provide Feedback…

Denis Tronin
denis.tronin@broadcom.com

BROADCOM®

Fast Recover: Recovery Simulation

Javier Estrada Benavides

Javier.estradabenavides@broadcom.com

Short reminder on Recovery Simulation

How to invoke Recovery Simulation

```
RECOVER TABLESPACE <DBname>.<TSname>  DSNUM ALL
PREVIEW SIMULATE
```

Important messages to note in the SYSOUT output:

This is PREVIEW SIMULATE, and the real Tablespace will not be tampered with.

```
PFR0545I - PFR RUNS WITH THE PREVIEW SIMULATE  OPTION
           THE DB2 OBJECTS ARE NOT TOUCHED AND THEIR STATUS ARE NOT
           CHANGED AT RUN TIME.
           FOLLOWING OBJECTS  ARE PROCESSED CREATING A SHADOW DATASET:
           TABLESPACE 'PTDB.PDTST180'
```

Here we will know the name of the shadow dataset where the recovery will be performed.

```
PFR0546I - PFR PREVIEW SIMULATE SUMMARY FOR
           SHADOW-DATASETNAME                          OBJECT
           -<HLQ>.DSNDBD.PTDB.PDTST180.Y0001.A001      PTDB.PDTST180.0000
```

BROADCOM®

About shadow VSAM data sets

Shadow VSAMs for Recovery Simulation are allocated with the following naming convention:

`<HLQ>.DSNDBD.<DBname>.<TSname>.Y00<#>.A00<#>`

One shadow dataset is created for each TS partition

-We're using the same HLQ as the VCAT, therefore, shadows are allocated in the same SMS storage group as the original Tablespace

To prevent potential storage issues, the shadow VSAMs are deleted when the util terminates.

But what if I need the evidence of this Simulation?

BROADCOM®

Keeping the evidence of Recovery Simulation

To provide control and keep the shadow VSAMs for evidence or post-processing, we enable a keyword to control this (after applying PTF SO13586). Example:

The shadow VSAM will remain after the util ends with this keyword

```
RECOVER TABLESPACE DB9012LA.TS9012  DSNUM ALL
   TOCOPY ESTJA02.TSTDTGEN.TC9012.D12A.IC#ICF1.P00001
   PREVIEW SIMULATE
   KEEP-SIMULATION-SHADOWS YES
```

```
PFR0754I - PREVIEW SIMULATE SHADOW DATASETS WILL BE KEPT AFTER
           SIMULATION ENDS
```

BROADCOM®

Please Provide Feedback…

Javier Estrada Benavides
javier.estradabenavides@broadcom.com

BROADCOM®

Log Analyzer: Bypassing the creation of Log Extracts

Javier Estrada Benavides

Javier.estradabenavides@broadcom.com

Do you use Log Extracts? And what are they?

When you generate a DML or DDL report in Log Analyzer, you have the option of saving a portion of the Db2 Log for future reports.

-If you want to report again using the same time interval, and/or..

-You want to apply further filters to a previous report.

```
LOG EXTRACT FILE SPECIFICATIONS
  Extract Scope  ==> F   ( F - Filter log data, A - Extract all data )
```

Values:

F -> This Log Extract will contain a portion of the Db2 log that matches your filters.

A -> This Log Extract will contain the full portion of the Db2 log.

BROADCOM®

And if you don't use the Log Extract?

With PTFs LU00131, LU00132, LU00133, now you have an option to bypass the creation of the Log Extract

```
MISCELLANEOUS OPTIONS
  Create Extract File  ==> Y ( Y / N )
```

*Note: The default option is to create the Log Extract.

This way, you will not need to specify file allocations for the Log Extract or the Control Data set.

You will also notice the following changes in the generated syntax.
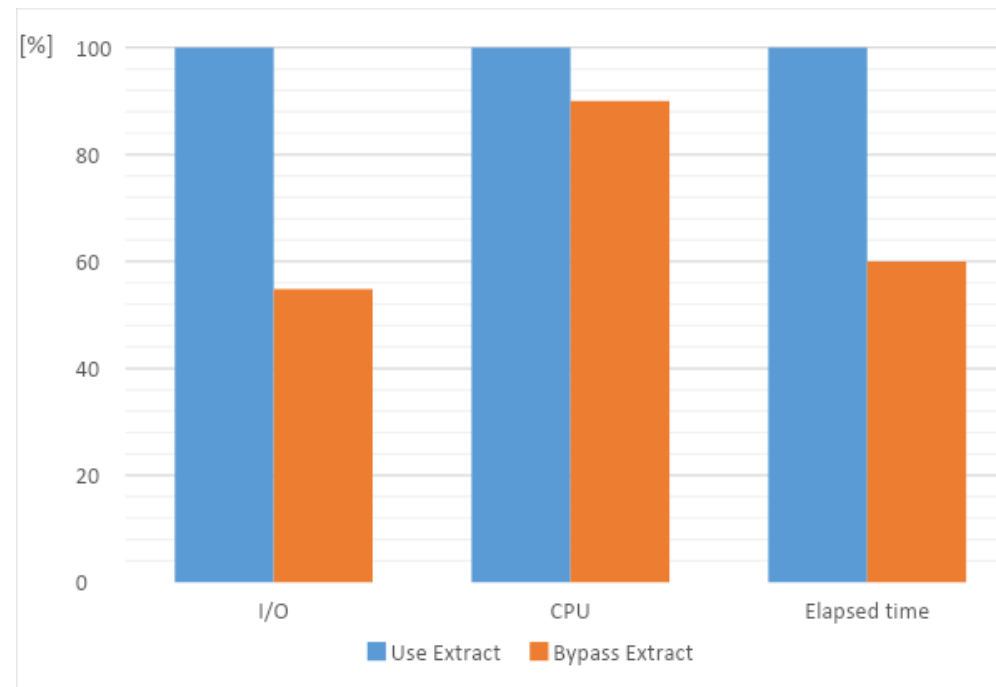
```
EXTRACT  = (NO)
```

BROADCOM®

What happens if I bypass the creation of the Log Extract?

Do I have to regenerate my Log Analyzer jobs and Strategies if I don't really use the Log Extract?

Not at all. There is no impact to existing jobs or Strategies.

So what's the benefit of this new option?

- Up to 40% of savings in Elapsed time for

high volume reports.

- I/O operations have been reduced

Please Provide Feedback…

Javier Estrada Benavides
javier.estradabenavides@broadcom.com

BROADCOM®

In Closing…

BROADCOM

When is the next Community Update call?

The 2nd Monday of each month

Our next call will be Monday May 10th, 2021

Did you miss last months call?

The replay is available here.

BROADCOM®

CA Db2 Tools 20.0 Validation Project

https://validate.broadcom.com/key/DB2Tools200

BROADCOM®

Thank You

BROADCOM®