



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

**Javier Estrada Benavides**

July 19<sup>th</sup>, 2021

# 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 or specification for any Broadcom software product. This presentation is based on current information and resource allocations as of February 8<sup>th</sup> 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 its 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 WARRANTIES 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.

# 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

# Agenda

## Recovery Estimation

- Verifying if backup resources are available.

## CA Fast Recover

### Recovery Simulation:

- New tutorial video on Recovery Simulation
- Using the OPTIONS Utility to simulate recoveries

## CA Log Analyzer

- Table mapping for object name changes in DML reports
- Assessing current PARMLIB options.

# Please Provide Feedback...





# Recovery Estimation: Verifying if backup resources are available



# For how long do you keep your Image Copies and Db2 logs?

Making backups and securing your Db2 archive logs is just one part of the story. What happens in many cases...

- The SMS Management Class thresholds kicked in and your Image Copies are gone.
- Retention period on Db2 archive logs was reached and the tapes were scratched.

Before you can tell if you can indeed recover an object, **how do you know you have the resources you need?**

*And try to answer as fast as you can*

# Your options

You can always look for your Image Copies and Db2 archive logs in Data set Listing, but that's not what you want.

Additionally, you can also use Recovery Simulation and find out if resources are there and are usable... but that takes more time.

Now you can use Recovery Estimator to quickly find out if:

- You are recoverable to the desired point.
- If the resources pointed to by SYSCOPY and BSDS are indeed there.

Verification is done by querying the z/OS ICF Catalogs.

# How to check for your backup resources

A new keyword was added to Recovery Estimation.

```
//SYSIN DD *  
RECOVER-TOOL ESTIMATE-RECOVERY  
TABLESPACE <DBNAME>.<TSNAME>  
PIT COPY LAST-FULL  
VERIFY-DATASETS COPIES  
/*
```

## Values:

NONE – (Default) -> Does not verify the data sets

COPIES -> Verifies the required Image Copy data sets

LOGS -> Verifies the Db2 logs that are required.

ALL -> Verifies Image Copies and Db2 log data sets.

# How to tell if the data sets were not found

You'll have a couple messages if the data sets were not located:

```
EST2020I - TABLESPACE <DBNAME>.<TSNAME> DSNUM 0 (of 0 partitions)
EST2021I - TO '000000000ED62270AB64' (RBA)
EST3010I - RECOVERABLE : YES
EST3011I - WARNING : Some image copies considered in the estimation
                  were not found in the catalog.
```

```
EST4030I - The following copies will be used in the recovery :
EST4031I - <HLQ>.TSTDTGEN.TC9012.IC#ICF1.P00001 (NOT FOUND)

EST5010I - Estimated 1 object(s), found 1 recoverable (1 with warning) and 0
          unrecoverable.
```

# Please Provide Feedback...





# CA Fast Recover: Recovery Simulation updates



# | New video on Recovery Simulation

You can watch a short 5 min video on what Recovery Simulation means, and how you can use it in CA Fast Recover

Go to [Broadcom Communities > Db2 Tools > Discussions](#) and find the link

[https://youtu.be/k4J\\_endfo\\_0](https://youtu.be/k4J_endfo_0)

## 1. New video: Prove you can recover your Db2 objects with no impact to running applications

0 Recommend



Broadcom Employee

Javier.Estrada  
Benavides

Posted 2 days ago

REPLY ▾

On the topic of Db2 application recovery, or better said, assessing if a recovery is needed, we as DBAs hear a lot of questions:

- How many recovery choices can you give me?
- Are they safe?
- How much would it take? And please don't guess, tell me something more reliable.
- Is it totally certain that it's possible?

This is the concept that we call "**Recovery Simulation**", and it's possible to accomplish with Fast Recover. On this video, you will learn how to use Recovery Simulation to prove in a safe way that you can recover your Db2 objects while the applications run, that is, with no impact on the availability of your Db2 Tables.

[https://youtu.be/k4J\\_endfo\\_0](https://youtu.be/k4J_endfo_0)

# I Using the Options Utility with Recovery Simulation

**REMINDER:** You can invoke Recovery Simulation in CA Fast Recover by adding the keywords “PREVIEW SIMULATE” in a CA Fast Recover Statement

```
//SYSIN DD *  
RECOVER TABLESPACE <DBNAME>.<TSNAME> DSNUM ALL  
TOCOPY IMGCPY.IMGC.TS1#C02  
PREVIEW SIMULATE  
/*
```

What happens if you want to simulate recoveries for multiple objects?

# | Simulating multiple recoveries

Options for multiple recoveries:

- Use a **LISTDEF**

```
//SYSIN DD *
LISTDEF MYLIST INCLUDE TABLESPACE <DBNAME>.* PARTLEVEL

RECOVER LIST MYLIST
SORT-LOG YES
PREVIEW SIMULATE
KEEP-SIMULATION-SHADOWS YES
//*
```

- Use an **OLM (Object List Manager) List**

... But I already had a JCL that I want to test first, and it has 20 RECOVER statements... do I have to change all 20 statements and add PREVIEW SIMULATE? Not really

You can use the **OPTIONS utility** to declare JCL wide behavior, and use it for Recovery Simulation, let's see how

# | Using the OPTIONS Utility

The Recovery Simulation related keywords were added to the OPTIONS Utility to allow for JCL wide usage

- You won't need to change all your 1000000 RECOVER statements in the JCLs.

```
//SYSIN DD *  
  OPTIONS PREVIEW SIMULATE KEEP-SIMULATION-SHADOWS NO  
  
  RECOVER TABLESPACE <DBNAME>.<TSNAME> DSNUM ALL  
  TOCOPY IMGCPY.TSTDTGEN.TC9012.D12A.IC#ICF1.P00001  
/*
```

# | New messages

This is Recovery Simulation, so you will see the confirmation message:

```
PUT0018I - Invoking Utility OPTIONS - Statement Number:  
OPTIONS PREVIEW SIMULATE KEEP-SIMULATION-SHADOWS NO
```

```
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 '<DBNAME>.<TSNAME>'
```

# Please Provide Feedback...



**Javier Estrada Benavides**

[javier.estradabenavides@broadcom.com](mailto:javier.estradabenavides@broadcom.com)



# CA Log Analyzer updates



# | How do you replicate changes?

There are two main ways to do DML activity replication

- Using DML REDO reports

```
FORMAT OPTIONS
Output Format    ==> S ( R -Rept, S -RedoSQL, U -UndoSQL, L -Load Fmt, P -Updt)
Level of Detail ==> D ( S - Smry, D - Detail, T - Tot, K - Key, I - ImageCopy)
```

- Using DML Load Format reports. Here you have more choices:
  - Use Log Apply
  - Use Fast Load or IBM Load

```
FORMAT OPTIONS
Output Format    ==> L ( R -Rept, S -RedoSQL, U -UndoSQL, L -Load Fmt, P -Updt)
Level of Detail ==> D ( S - Smry, D - Detail, T - Tot, K - Key, I - ImageCopy)
```

```
OUTPUT OPTIONS
Utility program  ==> L ( A -Apply, L -DB2 LOAD, T -Unload, F -FASTLOAD)
```

# | Common scenarios

Now, what would you do in these cases?

- You need to replicate DML activity outside of Db2
- The table names for source and target objects are different

Load Format output can support object name changes:

```
LOAD UTILITY TABLE SPECIFICATIONS
      ---- Source Table Mask ----      ---- Target Table Mask ----
Cmd  Creator  Table Name                Creator  Table Name
-----
```

But if I replicate outside of Db2 (outside of Mainframe), then I can't use this option. What can I do in that case?

# | Table mapping in DML SQL reports

We've added Table mapping support in DML SQL reports:

## FORMAT OPTIONS

Output Format ==> S ( R -Rept, S -RedoSQL, U -UndoSQL, L -Load Fmt, P -Updt)

Level of Detail ==> D ( S - Smry, D - Detail, T - Tot, K - Key, I - ImageCopy)

You might have noticed the new option "Redo/Undo SQL Opt"

Redo/Undo SQL Opt ==> y ( Y , N )

# | DML Redo/Undo SQL options

Here you'll find a way to change the resulting SQL report to have different Table names.

```
ADDITIONAL SQL OPTIONS

Application Commits ==> N ( Y , N )
URID Header ==> N ( Y , N )

TABLE MASK SPECIFICATIONS

---- Source Table Mask ----      ---- Target Table Mask ----
Cmd Creator Table Name          Creator Table Name
  USERID1 *                      JAVIER *
_____                          _____
||||| BOTTOM OF PAGE |||||
```

# | Resulting JCL

The new generated syntax will include the keywords for the change of Table names:

```
,GENSQL (REDO
          ,COMMIT (50)
          ,AUTHID ()
          ,RI (NO)
          ,TRIGGER (YES)
          ,HISTTAB (NO)
          ,URHEAD (NO)
          ,TBMASK (SRC (USERID1."*")
                  ,TARG (JAVIER."*")
                  )
          )
)
```

# | When to use this option

Table mapping is most useful in the following cases:

- When the SQL output has to be reviewed by the DBA to confirm it's the correct output. (To confirm the changes done).
- When then Db2 Table names need to be “masked” for security reasons.
- When replicating activity outside of Db2 and the table names are different in the target database.

# Please Provide Feedback...



# | Assessing PARMLIB options

Maintenance PTFs often come with new keywords or PARMLIB options.

As a DBA who works with 100000 tools at once, this is a common pain and it comes with several questions (or wishes).

How can I know that the new values are correctly set?

How can I know that a value for an existing PARMLIB option is still valid?

How can I avoid learning by memory each and every single PARMLIB option?

We have a new quick way to check your options and values.

# | Log Analyzer, verify environment

On the main panel, to the bottom right, you'll find a new option in the Miscellaneous Functions section

## Miscellaneous Functions

P - Profile

BP - Batch Processor

VE - Verify environment

T - Tutorial

X - Exit Log Analyzer

No parameters or extra options are needed.

# | Assessing PARMLIB options

In a quick report you'll have advice on items that you might be missing:

- Deprecated options
- When a different value for a given parameter is preferred.

```
Report Date: 2021/07/16          CA Log Analyzer for DB2 for z/OS
      Time: 08:58:45             Environment Status
LAE0472W The ASCII option is deprecated.
LAE0473W The current value of the PURSRC option is not optimal.
      The recommended value is PURSRC (U)
LAE0474I To remove deprecated options, go to the option "Edit Parmlib
      Members" from the main CA Db2 tools panel to generate an
      updated PLA member.
LAE0475I To update suboptimal options, go to the option "Edit Parmlib
      Members" from the main CA Db2 tools panel to generate an
      updated PLA member.
```

# Please Provide Feedback...





# In Closing...

# When is the next Community Update call?

The 2<sup>nd</sup> Monday of each month

Our next call will be Monday August 9<sup>th</sup>, 2021

## Did you miss last months call?

The content is available [here](#).

# CA Db2 Tools 20.0 Validation Project

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



Thank You