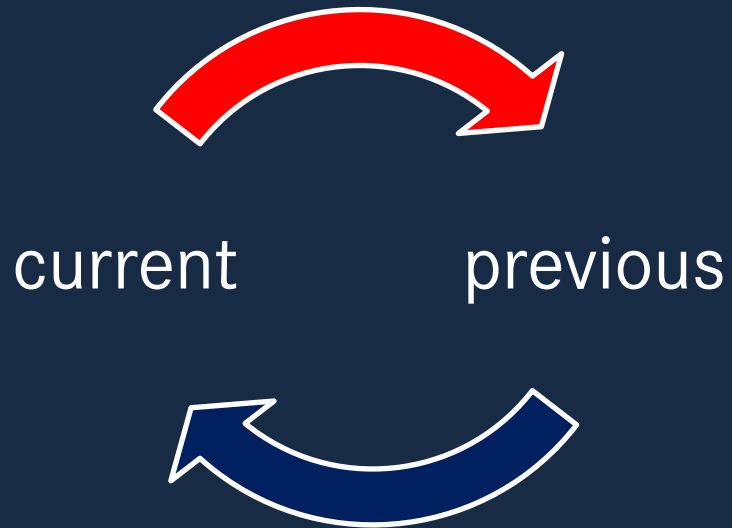


DB2 10 for z/OS Plan Stability Usage Guide



Topic

Titel: DB2 Plan Stability Usage Guide

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- Current system and package setting
- Plan Management EXTENDED
- REBIND SWITCH(PREVIOUS)
- REBIND SWITCH(ORIGINAL)
- SWITCH package copy
- FREE inactive package copies and set up a new original copy

Current system and package Setting for PLANMGMT

- In DB2 10 the default (dsnzparm) system setting for plan management is EXTENDED.
 - ZPARM parm PLAMMGMT(EXTENDED) is the default in DB2 V10.
- You can also use it in the BIND/REBIND COMMAND.
 - REBIND PACKAGE(collid.name) PLANMGMT(EXTENDED) is the default in DB2 V10
- Check current collection , package setting by a DB2 Catalog query for your Collections (column PLANMGMT).

SQL Example:

```
SELECT COLLID, NAME, PLANMGMT FROM SYSIBM.SYSPACKAGE  
WHERE COLLID = 'mycollection' AND NAME = 'name';
```

Plan Management PLANMGMT(EXTENDED)

1. Bind creates a current (active) copy of the package.

Current
(Package
Copy1)

2. First rebind creates a new current (active) copy and a previous and original copy.

Current
(Package
Copy2)



Previous
(Package
Copy1)

Original
(Package
Copy1)

3. Further rebinds create a new active copy and replace the previous one. The original one keeps untouched.

Current
(Package
Copy3)



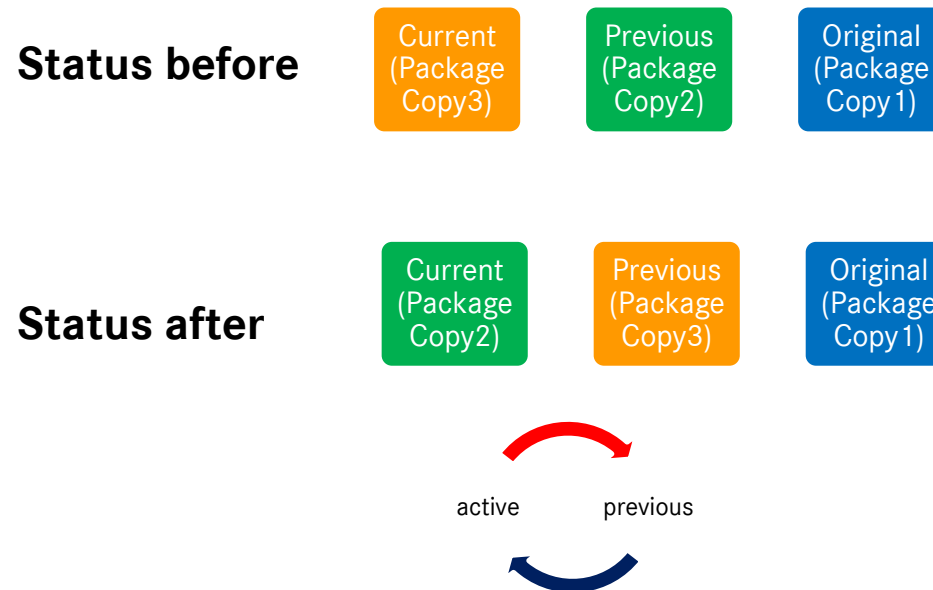
Previous
(Package
Copy2)

Original
(Package
Copy1)

REBIND PACKAGE(collid.package) SWITCH(PREVIOUS)

Return to the previous access path by activating the previous package copy

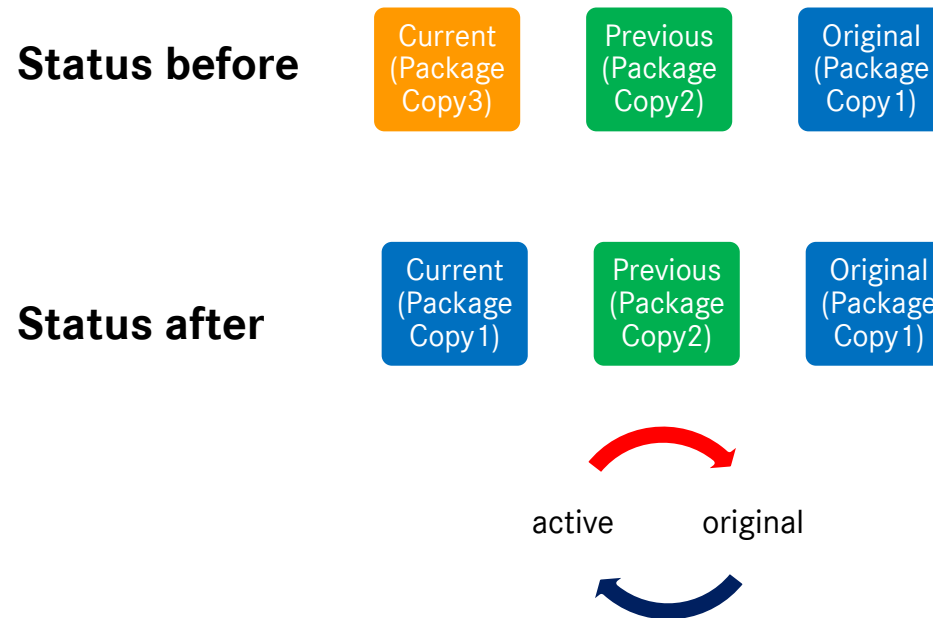
REBIND PACKAGE(collid.package) SWITCH(PREVIOUS)



REBIND PACKAGE(collid.package) SWITCH(ORIGINAL)

Return to the previous access path by activating the previous package copy

REBIND PACKAGE(collid.package) SWITCH(ORIGINAL)



SWITCH – to what copy?

Before you switch back...

If PLAN_TABLE entries are available.

- Check access path in PLAN_TABLE .
 - What was the ,good‘ access path and what’s the corresponding EXPLAIN_TIME.

If no PLAN_TABLE entries are available.

- Explain the package copies and check the access paths.

```
EXPLAIN PACKAGE COLLECTION 'collid' PACKAGE 'name'  
COPY 'ORIGINAL'/'PREVIOUS'/'ORIGINAL'
```

- Creates PLAN_TABLE entries of the **used** access path of that package copy

Check SYSIBM.SYSPACKCOPY

- EXPLAIN_TIME in PLAN_TABLE > BINDTIME in SYSIBM.SYSPACKCOPY > COPYID (1 means previous, 2 means original)

SWITCH – to what copy?

Before you switch back...

Check SYSIBM.SYSPACKDEP.

- Get all dependent objects of the package copies.
- Is the package you want to use valid?
 - Check PLAN_TABLE to find missing Indexes (compare to SYSPACKDEP to get the gap).

REBIND PACKAGE(collid.package) SWITCH(PREVIOUS/ORIGINAL) .

- If not all indexes are there, DB2 will do an automatic rebind at the next package execution.

REBIND PACKAGE(collid.name) EXPLAIN(ONLY)

Don't forget:

- Rebind with EXPLAIN(ONLY) does a **NEW** Explain on the active copy.
- It does **NOT** extract the ,internal' access path to the PLAN_TABLE.

Get the access path information into the PLAN_TABLE with:

```
EXPLAIN PACKAGE COLLID ,collid' PACKAGE ,name' COPY 'PREVIOUS' /  
      'ORIGINAL' or 'CURRENT'
```

Package Cleanup – FREE PACKAGE (ALL/INACTIVE)

- **Delete old copy information from Catalog and Directory by**

DB2 Command: FREE PACKAGE (collection. package) PLANMGMTSCOPE (INACTIVE)

- **Deletes entries in Directory Table SPT01 of the original and previous copy**
- **Deletes rows of the original and previous copy in Catalog Tables**
 - **SYSIBM.SYSPACKCOPY**
 - **SYSIBM.SYSPACKDEP**

Appendix – Test Scenario

1. To make plan management visible we used a program with static SQL accessing a Table TBTEST1. First we created Index XTBTEST1 and bound the packagee.
2. Then we created Index XTBTEST2 and rebound the package. Finally we created Index XTBTEST3 and rebound the package.

Extract of SYSIBM.SYSPACKDEP after first BIND of package.

	BNAME	BTYPE	DNAME	DTYPE
1	XTBTEST1	I	DB2PGM8	

Package uses Index XTBTEST1 (DTYPE =blank means active)

Appendix – Test Scenario Entries in SYSIBM.SYSPACKDEP

Extract of SYSIBM.SYSPACKDEP after **first** REBIND of package.

```
select * from sysibm.syspackdep
where dname = 'DB2PGM8' and btype = 'I'
```

	BNAME	BQUALIFIER	BTYPE	DLOCATION	DCOLLID	DNAME	DCONTOKEN	IBMREQD	DOWNER	DTYPE
1	XTBTEST2		I		TUNEC01	DB2P...	0x1998c2da...	N		
2	XTBTEST1		I		TUNEC01	DB2P...	0x1998c2da...	N		O
3	XTBTEST1		I		TUNEC01	DB2P...	0x1998c2da...	N		P



1. Package uses Index XTBTEST2 now (DTYPE =blank means active).
2. Previous version uses index XTBTEST2 (DTYPE=P means previous).
3. Original version is the same as previous version (DTYPE=O means original).

Appendix - Test Scenario Entries in SYSIBM.SYSPACKDEP

Extract of SYSIBM.SYSPACKDEP after **further** REBIND of package.

```
select * from sysibm.syspackdep
where dname = 'DB2PGM8' and btype = 'I'
```

	BNAME	BQUALIFIER	BTYPE	DLOCATION	DCOLLID	DNAME	DCONTOKEN	IBMREQD	DOWNER	DTYPE
1	XTBTEST3		I		TUNEC01	DB2PG...	0x1998c2da1a...	N		
2	XTBTEST2		I		TUNEC01	DB2PG...	0x1998c2da1a...	N		P
3	XTBTEST1		I		TUNEC01	DB2PG...	0x1998c2da1a...	N		O



1. Package uses Index XTBTEST3 now (DTYPE =blank means active).
2. Previous version uses index XTBTEST2 (DTYPE=P means previous).
3. Original version uses index XTBTEST1 (DTYPE=O means original).

Appendix - Test Scenario Entries in SYSIBM.SYSPACKDEP

Extract of SYSIBM.SYSPACKDEP after REBIND **SWITCH(PREVIOUS)** of package.

```
select * from sysibm.syspackdep
```

```
where dname = 'DB2PGM8' and btype = 'I'
```

	BNAME	BQUALIFIER	BTYPE	DLOCATION	DCOLLID	DNAME	DCONTOKEN	IBMREQD	DOWNER	DTYPE
1	XTBTEST3		I		TUNEC01	DB2PG...	0x1998c2da1a...	N		P
2	XTBTEST2		I		TUNEC01	DB2PG...	0x1998c2da1a...	N		
3	XTBTEST1		I		TUNEC01	DB2PG...	0x1998c2da1a...	N		O



1. Package uses Index XTBTEST2 now (DTYPE =blank means active).
2. Previous version uses index XTBTEST2 (DTYPE=P means previous).
3. Original version is the same as previous version (DTYPE=O means original).

Appendix - Test Scenario Entries in SYSIBM.SYSPACKDEP

Extract of SYSIBM.SYSPACKDEP after REBIND **SWITCH(ORIGINAL)** of package.

```
select * from sysibm.syspackdep
where dname = 'DB2PGM8' and btype = 'I'
```

	BNAME	BQUALIFIER	BTYPE	DLOCATION	DCOLLID	DNAME	DCONTOKEN	IBMREQD	OWNER	DTYPE
1	XTBTEST3		I		TUNEC01	DB2PG...	0x1998c2da1a...	N		P
2	XTBTEST1		I		TUNEC01	DB2PG...	0x1998c2da1a...	N		O
3	XTBTEST1		I		TUNEC01	DB2PG...	0x1998c2da1a...	N		



1. Package uses Index XTBTEST1 now (DTYPE =blank means active).
2. Previous version is unchanged and uses index XTBTEST2 (DTYPE=P means previous).
3. Original version is unchanged and the same as active (DTYPE=O means original).

Appendix - Entries in SYSIBM.SYSPACKCOPY

Extract of SYSIBM.SYSPACKCOPY.

	COLLID	NAME	BINDTIME	COPYID
1	TUNE...	DB2PGM8	2014-03-03 13:22:14.773866	1
2	TUNE...	DB2PGM8	2014-03-03 13:15:13.860724	2

1. COPYID 2 is the original copy.
2. COPYID 1 the previous copy.
3. BINDTIME shows when this copy was bound.
4. Current (active) copy metadata is in SYSIBM.SYSPACKAGE.

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