

V8 Migration steps & considerations

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V8 Migration agenda

- New migration process
- Pre-requisites
- Pre-migration
- Compatibility Mode
- Enabling New Function Mode
- New Function Mode

New Migration process

New migration approach

- One step migration process would be too complex
 - Largest release ever
 - Almost the whole catalog changes
- Simplification of transitional migration process
 - Smaller steps for better management
 - Less complication
- Help to protect systems during the migration process
- Tighter more robust migration process
 - The user is in control over when to complete the ENFM process

New Phases

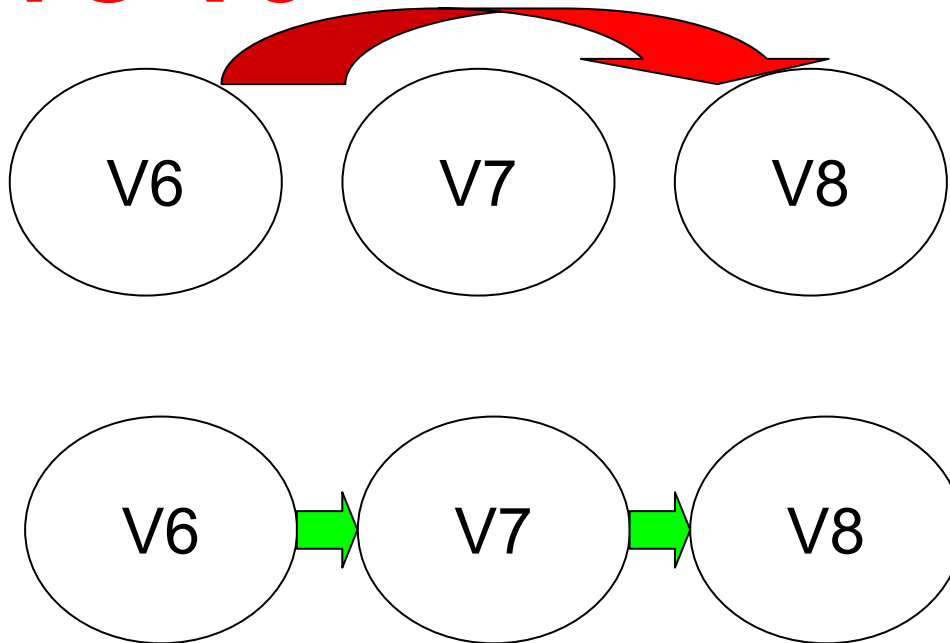
- Compatibility Mode (CM)
- Enabling New Function Mode (ENFM)
- New Function Mode (NFM)

V8 Controls

- Mandatory requirement for the fallback SPE installed and activated on V7
 - Smaller prerequisite PTF chain
- Separate phases
- New functions are **ONLY** available once DB2 is in New Function Mode

No migration from V6

**THERE IS NO MIGRATION FROM
V6 TO V8**





Pre-requisites

Pre-requisites

- **DB2 for z/OS & OS/390 V7**
- **Migrate to z/OS V1R3** or later
 - z/OS V1R3 requires WLM goal mode
 - Some functions require z/OS V1R4, V1R5
- zSeries, z/Architecture **64 bit mode**
 - **z800; z900; z990; z890**
- z/OS Unicode Conversion Services

Pre-requisites

- COBOL:
 - IBM COBOL V2 R2
 - Enterprise COBOL V3 R2
 - **No OS/VS COBOL or VS COBOL II compiles**
 - Can run old COBOL load modules under LE
- PL/1 :
 - PLI for z/OS V3R2
 - PLI for MVS V1R3
- Other products
 - IMS V7, V8, V9
 - CICS TS V1.3, V2.2, V2.3
 - WebSphere Application Server 5655-I35 V05.00.00
 - WebSphere Application Server 5655-F31 V04.00.00

Pre-Migration

Fallback SPE

- **UQ81009 must be applied first**
- Applies to non-data sharing as well as data sharing
 - Information stored in BSDS /SCA
- ***MUST START DB2 V7 AT LEAST ONCE AFTER THE SPE HAS BEEN APPLIED***

Notes

To migrate to V8 compatibility mode, the V7 subsystem needs to have the fallback SPE (UQ81009) applied. This is enforced for both data sharing and non-data sharing. The information is kept in the SCA/BSDS, which is checked at start-up time. The migrating subsystem must be started at least once in V7 after the fallback SPE has been applied before the V8 catalog maintenance is allowed to run.

This supersedes PTF PQ48486

Health Check

- **DSNTIJPM**
 - Checks code page configuration
 - **Evidence of multiple CCSIDs in the same encoding scheme**
 - Type 1 Indexes
 - Data Capture on Catalog tables
 - Partitioned tables that use selective partition locking
 - Partitioned tables that have truncated limit key (PQ48024 in V6/V7)
 - Stored procedures that use LANGUAGE COMPJAVA
 - Stored procedures that use DB2 SPAS
 - Use of DSNWZPR module by DSNWZP
- Shipped with DB2 V7 as DSNTIPJ8 via PQ84421

Unicode Conversion Services

- Conversion definitions need to be set up for your environment
 - **Mappings must be included for every possible combination of code page translation**
- Most of DB2 operates in Unicode even in CM
- Prerequisite UCS maintenance
- OW56073 adds 64 bit support for UCS
 - **UA01885 for z/OS 1.3**
 - **UA01886 for z/OS 1.4**
- OW56074 provides DB2 and UCS enhancements
 - **UA01925 for z/OS 1.3**
 - **UA01926 for z/OS 1.4**
- UA05790 for z/OS 1.5 Unicode Conversion Services

Unicode Conversion Services

- Define and customise z/OS Unicode support
 - *z/OS V1R3 Support for Unicode using Conversion services SA22 7649-01*
 - *DB2 UDB for z/OS V8 Installation guide GC18-7418*
- Generate the conversion table
 - Invoke **CUNMIUTL** utility to generate conversion image table
 - Copy conversion image **CUNIMGxx** to **SYS1.PARMLIB**
 - Create new **SYS1.PARMLIB** member **CUNUNI01**
 - With Image Parameter referencing conversion image table
- Activate Unicode table
 - T UNI=01
- Verify Unicode table facilitation
 - D UNI, ALL
- IPL required for first activation of Conversion Services
- SET UNI=xx dynamically alters conversion images

Exploiting 64 bit architecture

- **DB2 V7**
 - Running DB2 V7 in 64-bit real mode
 - Bufferpools using dataspaces
 - EDM DBD cache in dataspace
 - EDM Dynamic statement cache
- **On migration to V8 in 64-bit real and virtual**
 - Bufferpools above the 2Gb bar
 - Dataspaces are no longer used
 - EDM pool / RID pool / SORT pool / compression stored above the 2 Gb bar
 - EDM POOL DATASPACE SIZE becomes EDMPOOL DBD CACHE SIZE
 - EDM POOL DATASPACE MAX to EDMPOOL STATEMENT CACHE SIZE
 - Cross system restart considerations for data sharing for 64bit
 - IRLM above 2Gb bar and PC=YES
 - CTHREAD may be able to be increased

New Bufferpools

- **Create New Bufferpools & change defaults**
 - ADD BP8K0 default 1000
 - ADD BP16K0 default 500
 - BP0 min size 2000 default 20000
 - BP32K default 250
- **Bufferpool sizing**
 - For Virtual Pools & data spaces
 - V8 BP size is VPSIZE & data space size
 - For Virtual pools & hiperpool
 - V8 BP size is (VPSIZE + HPSIZE)
 - Maintains original virtual pool and hiperpool sizes for fallback

Compatibility Mode

Compatibility Mode process

- *Migration will be longer than moving from V6 to V7*
- **CATMAINT process DSNTIJTC remains as single commit scope phase**
- **Carries out following processes**
 - Authorisation checking
 - Ensuring DB2 catalog is at correct level
 - DDL processing
 - Additional processing and tailoring
 - Directory header page and BSDS/SCA updates
- **Catalog tables added**
 - SYSIBM.IPLIST
 - SYSIBM.SYSSEQUENCEAUTH
 - SYSIBM.SYSOBDS
- **Catalog tables removed**
 - SYSIBM.SYSLINKS
 - SYSIBM.SYSPROCEDURES

DSNTIJUZ

- DSNTIJUZ generates zparm module and DSNHMCID and DSNHDECP
 - Previously produced by customising DSNHDECP
 - **DSNTIJUZ has new steps to assemble and link edit DSNHMCID module**
- DSNHMCID is link-edited in SDSNLOAD and SDSNEXIT
- **Place DSNHMCID in SDSNLOAD and SDSNEXIT**
 - Linklist SDSNEXIT ahead of SDSNLOAD
 - JOBLIB or STEPLIB to SDSNEXIT then SDSNLOAD
- **Failure to deploy causes utilities and programs to abend with S806 or SA06**
- DB2 can no longer start with the DB2-supplied DSNHDECP

Compatibility Mode features

- Compatibility Mode is transitional phase
- Online REORG (SHRLEVEL REFERENCE) is now possible for the entire Catalog
- 64-bit architecture storage above the bar is available
 - Buffer pools which can be page fixed for performance
 - RID pool and SORT pool
 - compression dictionaries
 - EDM pool for DBD cache and dynamic statement cache
- Page fixing for performance
 - PGFIX(YES) by bufferpool
 - Frequent page read or writes when there is adequate real storage
 - Avoids processing time for fixing and freeing pages every time there is an I/O

Fallback & Coexistence

- Fallback
 - Fallback to V7 only permitted from V8 CM
 - The fallback SPE must be on.
 - The V8 catalog structure will remain in V7 after fallback
 - Returning from ENFM or NFM to CM mode is ONLY possible using restore processing
- Release coexistence
 - All data sharing members must be in CM before moving to ENFM
 - All data sharing members must be at least V7

CM considerations

- Consider migrating all subsystems to V8 CM before moving forward to ENFM phase
- **Expected that users will remain in Compatibility Mode for some time**
- Validate existing applications against V8 base code
 - **Go through all major business cycles before moving on to ENFM - 1 month, 3 months, 6 months**
- Ensure you have good backup and restore procedures in place before beginning the ENFM process

Enabling New Function Mode (ENFM)

Preparing for ENFM

- **DO NOT PLAN TO RUN ENFM UNTIL YOU ARE SURE YOU WILL NOT RETURN TO V7**
- **Cannot begin ENFM processing if any active DB2 V7 subsystems still exist in data sharing group**
 - **You will not be able to start a DB2 V7 member in this group once ENFM process begins**
- **Restoring entire system from backup copy is ONLY option**
- **Recommendation - Reorganise DB2 catalog objects prior to ENFM**
 - **(Provides useful estimation of time required to REORG the catalog during ENFM)**
- **Clean up catalog prior to ENFM, removing unwanted objects**
- **Take image copy of DB2 catalog and directory after job DSNTIJNE has completed processing or DSNTIJNE paused**

Preparing for ENFM

- **Ensure BP8K0, BP16K0 and BP32K are created**
 - For data sharing must also define GBP8K0, GBP16K0 and GBP32K buffer pools
- Increase size of the catalog table space and index space VSAM data sets prior to ENFM
 - 2 byte length to existing CHAR columns
- ***Recommendation - Backup entire subsystem prior to ENFM***
- Quiesce V8 CM system before running DFSMS to create copy of entire V8 CM subsystem
 - including DB2 catalog and directory, logs, BSDS and application data

When to run ENFM

- Size of catalog will determine planning of outages
- Complete REORG of catalog in CM before migrating
 - Estimate timing of ENFM event
- DSNTIJNE can be stopped after the REORG of any table space (with DSNTIJNH)
- **Do NOT stay in ENFM phase any longer than necessary**

ENFM process

- Run DSNTINST (install CLIST)
 - Enter ENFM in DSNTIPA1 panel
- Calculates preliminary space allocations for shadow data sets
- Lists image copy dataset allocation information
- Generates installation jobs
 - DSNTIJNE – ENFM processing
 - DSNTIJNH – halt DSNTIJNE
 - DSNTIJNF – turn NFM on
 - DSNTIJNG – update DECP for NFM
 - DSNTIJEN – return to ENFM status
 - DSNTIJNR – convert RLST for long name support

DSNTIJNE

- This is the key job in the ENFM processing
 - Changes types and lengths of existing catalog columns
 - Converts catalog data to Unicode
 - Changes buffer pools for several catalog table spaces
 - Changes catalog index with varying length columns to NOT PADDED
 - Changes page size of several catalog table spaces
- Catalog changes
 - SYSDUMMY1 is moved to SYSEBCDC
 - No columns added to existing catalog tables
 - Most catalog tables and directory have columns that change type
 - CHAR => VARCHAR(128 or greater)
 - VARCHAR => VARCHAR(128 or greater)

Unicode conversion step

- Tablespaces converted to Unicode using online REORG with SHRLEVEL REFERENCE
- FOR BIT DATA columns will not be converted to Unicode
- Tablespaces are marked 'UNICODE' during online REORG
- No special locking considerations for conversion
- If process fails, the old catalog data is maintained
- Once tablespace is Unicode – NO going back other than via restoring entire DB2 subsystem

DSNTIJNE

- Index padding
 - Many catalog indexes are changed to NOT PADDED
 - User indexes on the catalog will NOT be changed to NOT PADDED
- If space problems in DSNTIJNE the succeeding steps will be skipped
 - Last step performs –TERM UTIL
 - The old catalog data is still maintained
 - The tablespace switch does not take place

Notes

- User indexes on varchar columns that expand a lot will need a lot more space. The best process in most cases is to drop the user indexes on the catalog before running DSNTIJNE, and then to run DSNTIJNE, change to NFM, and then to recreate the user indexes with NOT PADDED indexes.

ENFM – DSNTIPA1

```
DSNTIPA1 DB2 VERSION 8 INSTALL, UPDATE, MIGRATE, AND ENFM - MAIN PANEL
---->

Check parameters and reenter to change:

1  INSTALL TYPE           ----> ENFM           Install, Update, or Migrate
                                or ENFM (Enable New Function Mode)
2  DATA SHARING         ----> ____           Yes or No (blank for Update or ENFM)

Enter the data set and member name for migration only. This is the name used
from a previous Installation/Migration from field 7 below:
3  DATA SET(MEMBER) NAME ---->

Enter name of your input data sets (SDENLOAD, SDENHACS, SDENSAMP, SDENCLST):
4  PREFIX                 ----> DSN810
5  SUFFIX                 ---->

Enter to set or save panel values (by reading or writing the named members):
6  INPUT MEMBER NAME     ----> DSMTIDcm   Default parameter values
7  OUTPUT MEMBER NAME    ----> DSMTIDmf   Save new values entered on panels

PRESS:  ENTER to continue  RETURN to exit  HELP for more information
```

ENFM - DSNTIPT

```
DSNTIPT                ENFM DB2 - DATA SET NAMES PANEL 1
===>

Data sets allocated by the installation CLIST for edited output:
  1  TEMP CLIST LIBRARY  ==> DSN810.NEW.SDSNTEMP
  2  SAMPLE LIBRARY     ==> DSN810.NEW.ENFM.SDSNSAMP
Data sets allocated by the installation jobs:
  3  CLIST LIBRARY      ==> DSN810.NEW.SDSNCLST
  4  APPLICATION DBRM   ==> DSN810.DBRMLIB.DATA
  5  APPLICATION LOAD   ==> DSN810.RUNLIB.LOAD
  6  DECLARATION LIBRARY==> DSN810.SRCLIB.DATA
Data sets allocated by SMP/E and other methods:
  7  LINK LIST LIBRARY  ==> DSN810.SDENLINK
  8  LOAD LIBRARY       ==> DSN810.SDENLOAD
  9  MACRO LIBRARY      ==> DSN810.SDENMACS
 10  LOAD DISTRIBUTION  ==> DSN810.ADSNLOAD
 11  EXIT LIBRARY       ==> DSN810.SDENEXIT
 12  DBRM LIBRARY       ==> DSN810.SDENDBRM
 13  IRLM LOAD LIBRARY  ==> DSN810.SDXRRESL
 14  IVP DATA LIBRARY  ==> DSN810.SDENIVPD
 15  INCLUDE LIBRARY    ==> DSN810.SDENC.H

PRESS:  ENTER to continue  RETURN to exit  HELP for more information
```

Create shadow datasets

```

DSNTIP00      ENABLE NEW FUNCTION MODE FOR DB2 - SHADOW DATA SET ALLOCATION
===>
   OBJECT      DASD DEVICE      VOL/SERIAL      PRIMARY RECS      SECONDARY RECS
1  SPT01       ==> SYSDA           ==> DSNV02       ==> 636            ==> 636
2  SYSDBASE    ==> SYSDA           ==> DSNV02       ==> 7049           ==> 7049
3  SYSDBAUT    ==> SYSDA           ==> DSNV02       ==> 478            ==> 478
4  SYSDDF      ==> SYSDA           ==> DSNV02       ==> 144            ==> 144
5  SYSGPAUT    ==> SYSDA           ==> DSNV02       ==> 3060           ==> 3060
6  SYSGROUP    ==> SYSDA           ==> DSNV02       ==> 48             ==> 48
7  SYSGRTNS    ==> SYSDA           ==> DSNV02       ==> 144            ==> 144
8  SYSHIST     ==> SYSDA           ==> DSNV02       ==> 144            ==> 144
9  SYSJAVA     ==> SYSDA           ==> DSNV02       ==> 144            ==> 144
10 SYSOBJ      ==> SYSDA           ==> DSNV02       ==> 616            ==> 616
11 SYSPKAGE    ==> SYSDA           ==> DSNV02       ==> 9673           ==> 9673
12 SYSPLAN     ==> SYSDA           ==> DSNV02       ==> 13373          ==> 13373
13 SYSSEQ      ==> SYSDA           ==> DSNV02       ==> 144            ==> 144
14 SYSSEQ2     ==> SYSDA           ==> DSNV02       ==> 144            ==> 144
15 SYSSTATS    ==> SYSDA           ==> DSNV02       ==> 53355          ==> 53355
16 SYSSTR      ==> SYSDA           ==> DSNV02       ==> 661            ==> 661
17 SYSUSER     ==> SYSDA           ==> DSNV02       ==> 1675           ==> 1675
18 SYSVIEWS    ==> SYSDA           ==> DSNV02       ==> 7093           ==> 7093
19 INDEXES     ==> SYSDA           ==> DSNV02       Catalog and directory index shadows
PRESS:  ENTER to continue  RETURN to exit  HELP for more information
  
```

Image copy data set

```
DSMTIP01  ENABLE NEW FUNCTION MODE FOR DB2 - IMAGE COPY DATA SET ALLOCATIONS
```

```
---->
```

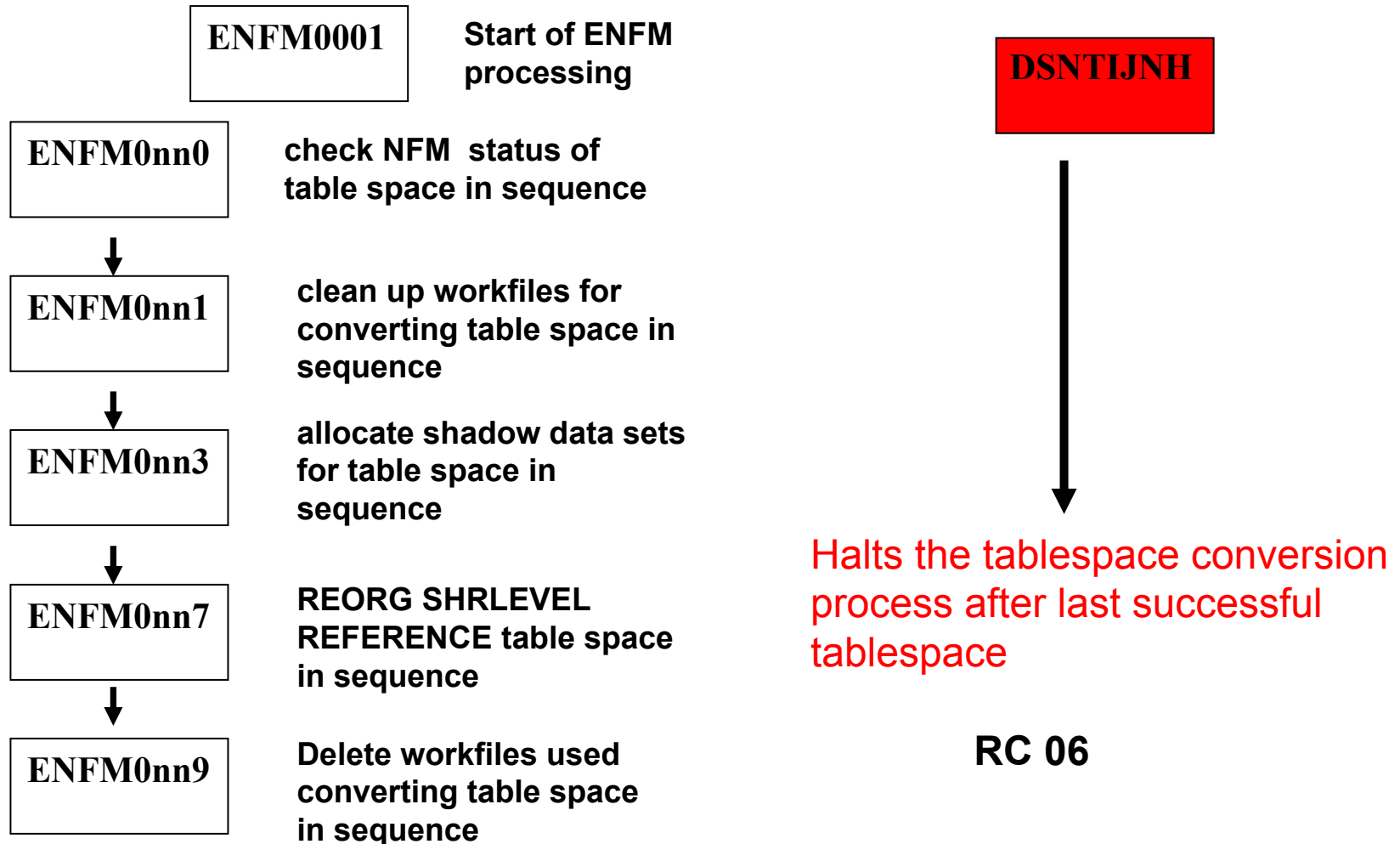
	OBJECT	IMAGE COPY DATA SET NAME	DEVICE TYPE
1	SPT01	--> DSN810.IMAGCOPY.SPT01	--> SISDA
2	SISDBASE	--> DSN810.IMAGCOPY.SYSDBASE	--> SISDA
3	SISDBAUT	--> DSN810.IMAGCOPY.SYSDBAUT	--> SISDA
4	SISDDF	--> DSN810.IMAGCOPY.SYSDDF	--> SISDA
5	SISGPAUT	--> DSN810.IMAGCOPY.SYSGPAUT	--> SISDA
6	SISGROUP	--> DSN810.IMAGCOPY.SYSGROUP	--> SISDA
7	SISCRTNS	--> DSN810.IMAGCOPY.SYSCRTNS	--> SISDA
8	SIS HIST	--> DSN810.IMAGCOPY.SYSHIST	--> SISDA
9	SISJAUXB	--> DSN810.IMAGCOPY.SYSJAUXB	--> SISDA
10	SISJAVA	--> DSN810.IMAGCOPY.SYSJAVA	--> SISDA
11	SISOBJ	--> DSN810.IMAGCOPY.SYSOBJ	--> SISDA
12	SISPKAGE	--> DSN810.IMAGCOPY.SYSPKAGE	--> SISDA
13	SISPLAN	--> DSN810.IMAGCOPY.SYSPLAN	--> SISDA
14	SISSEQ	--> DSN810.IMAGCOPY.SYSSEQ	--> SISDA
15	SISSEQ2	--> DSN810.IMAGCOPY.SYSSEQ2	--> SISDA
16	SISSTATS	--> DSN810.IMAGCOPY.SYSSTATS	--> SISDA
17	SISSTR	--> DSN810.IMAGCOPY.SYSSTR	--> SISDA
18	SISUSER	--> DSN810.IMAGCOPY.SYSUSER	--> SISDA
19	SISVIEWS	--> DSN810.IMAGCOPY.SYSVIEWS	--> SISDA

```
PRESS:  ENTER to continue  RETURN to exit  HELP for more information
```

Notes

- For conversion, you must go through the installation CLIST to get new jobs created. Enter ENFM for option INSTALL TYPE. (DATA SHARING) must be set to blank.
 - Ensure INPUT MEMBER NAME field (specified for conversion to NFM) set to the OUTPUT MEMBER NAME (specified during migration to CM)
- DSNTIP00 panel is used for the shadow data set allocation. The migration process during ENFM is done via online reorg. The shadow data sets must be manually allocated, because they are user-defined table spaces.
- The values are based on values supplied in the CM migration .
- It is also mandatory that an image copy is taken as part of the reorganisation. Panel DSNTIP01 can be used to enter image copy names that follow the installation naming standards and output devices.

DSNTIJNE steps

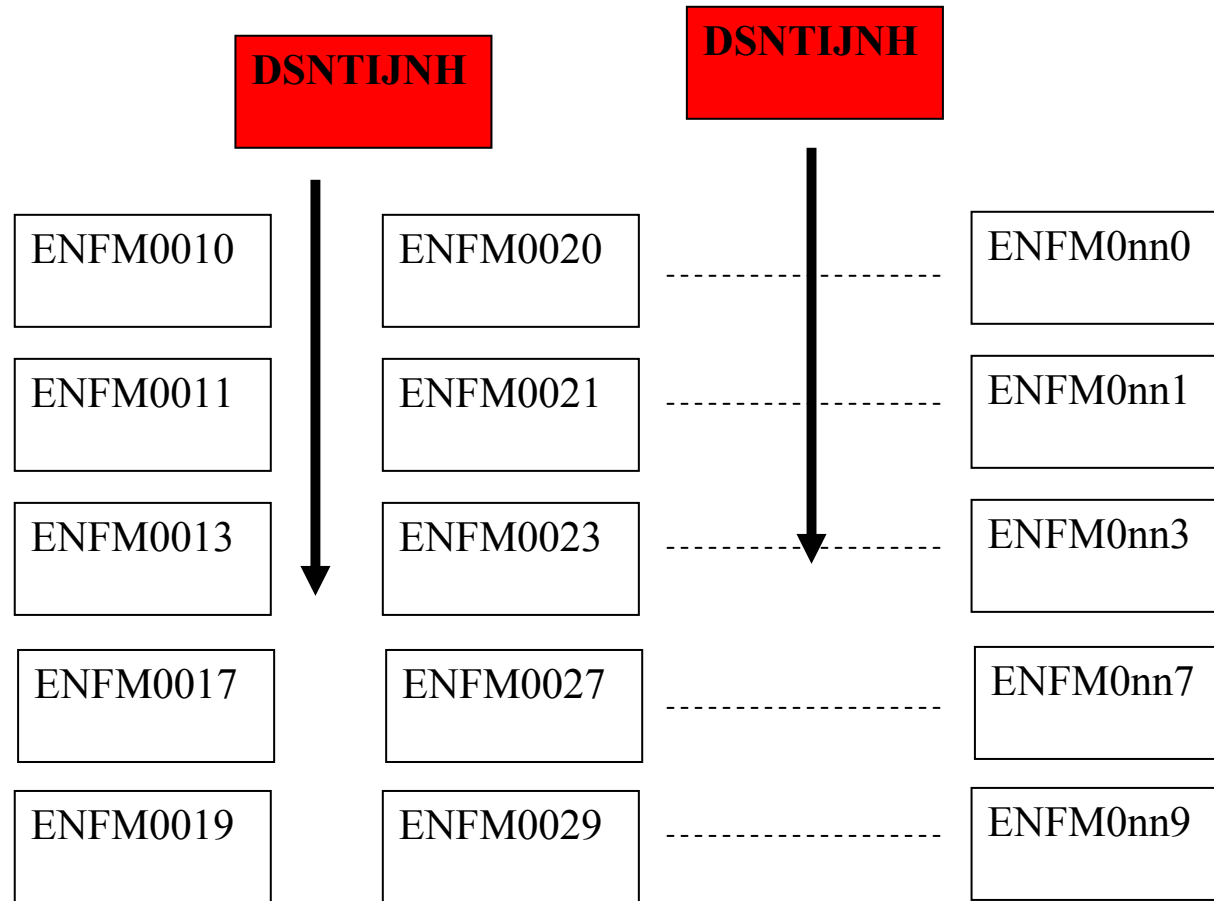


Notes

- DSNTIJNE performs the actual conversion of the table spaces in the catalog starting with SYSVIEWS and then in alphabetical sequence and finally the DB2 Directory.
- ENFM0001 – start of ENFM processing
- ENFM0nn0 – check NFM status of table space in sequence
- ENFM0nn1 – clean up workfiles for converting table space in sequence
- ENFM0nn3 – allocate shadow data sets for table space in sequence
- ENFM0nn7 – REORG SHRLEVEL REFERENCE table space in sequence
- ENFM0nn9 – delete workfiles used converting table space in sequence

- The conversion of the table spaces can be interrupted with the DSNTIJNH job. The DSNTIJNE job will continue to run until the conversion of the current catalog space is completed. It will then end with RC 06.
- **No other means of halting conversion processing should be used.**
- The tablespace is converted using Online Reorg with SHRLEVEL(REFERENCE). This migration is done one catalog table space at a time using the Online Reorg utility.
- The old datasets are deleted.
- The jobs can be restarted. The process will skip those tablespaces that have already been converted and continue for those tablespaces that have failed.
- Once a tablespace has been converted to Unicode, it cannot be changed back.

DSNTIJNE Steps



DSNTIJNH

- Submit when DSNTIJNE is running
- HALTS the current tablespace being reorganised.
- Will stop at the end of the current tablespace
- Continues with the next tablespace when DSNTIJNE restarts

Verifying status

- Use `-DISPLAY GROUP DETAIL` to determine current mode
 - See how many objects enabled for new function mode

```

DSN7100I -V81A DSN7GCMD
*** BEGIN DISPLAY OF GROUP(.....) GROUP LEVEL(...) MODE(E)
GROUP ATTACH NAME(....)
-----
DB2                DB2 SYSTEM      IRLM
MEMBER  ID  SUBSYS CMDPREF  STATUS  LVL NAME  SUBSYS  IRLMPROC
-----
.....  0  V81A  =      ACTIVE  810 ZS13PE  PR21    PR1MPR21
-----
TABLE           ENABLED
SPACE           NEW FUNCTION
-----
SYSVIEWS        YES
SYSDBASE        YES
SYSDBAUT        YES
SYSDDF          YES
SYSGPAUT        YES
SYSGROUP        YES
SYSGRTNS        YES
SYSHIST         YES
SYSJAVA         YES
SYSOBJ          YES
SYSPKAGE        YES
SYSPLAN         NO
SYSSEQ          NO
SYSSEQ2         NO
SYSSTATS        NO
SYSSTR          NO
SYSUSER         NO
SPT01           NO
-----
*** END DISPLAY OF GROUP(.....)

```

CATENFM order

- **The CATENFM order is fixed and must be strictly completed in order**
 1. **SYSVIEWS**
 2. **SYSDBASE**
 3. **SYSDBAUT**
 4. **SYSDDF**
 5. **SYSGPAUT**
 6. **SYSGROUP**
 7. **SYSGRTNS**
 8. **SYSHIST**
 9. **SYSJAVA**
 10. **SYSOBJ**
 11. **SYSPKAGE**
 12. **SYSPLAN**
 13. **SYSSEQ**
 14. **SYSSEQ2**
 15. **SYSSTATS**
 16. **SYSSTR**
 17. **SYSUSER**
 18. **SPT01**
- **SYSJAUXA and SYSJAUXB inherit the encoding scheme from SYSJAVA**
- **Conversion process cannot happen if NO image copies are taken of the table spaces prior to conversion**

DSNTIJNF & DSNTIJNG

- **DSNTIJNF – New Function Mode**
 - Flips a bit in the DB2 catalog to place the DB2 subsystem in new-function mode
 - V8 precompiler specifies value of YES for NEWFUN parameter
 - Will change from NO to YES as part of the running of DSNTIJNG
- **DSNTIJNG**
 - rebuilds the DSNHDECP module to specify new function mode as the default for the precompiler via NEWFUN(YES)

Fallback & coexistence

- Fallback
 - No supported return to V8 CM and no fallback to V7
 - Recover by doing a PIT recovery of entire DB2 subsystem or group logs, BSDS, catalog, directory and data and indexes
 - All CF structures must be purged
- Coexistence
 - No coexistence between ENFM and other subsystems
 - All members are considered to be in a status of ENFM.
 - A V7 subsystem cannot be started if group is in ENFM
 - A new V8 member could be started , it joins the group in ENFM status

ENFM considerations

- **ESP findings**
- **Temporary dataset sizes will increase for the linked table spaces namely SYSDBASE, SYSVIEWS, SYSDBAUT, SYSGROUP and SYSPLAN**
 - **All input records must be blown up to max size as it is not possible to sort variable length records.**
 - **SYSDBASE has a lot of columns and links that change to VARCHAR(128)**
- **Watch out for SYSREC2 DD in DSNTIJNE job. It is only used in the ENFM steps which REORG SYSVIEWS, SYSGRTNS, and SYSOBJ**
 - **The SQL statement must be concatenated in its entirety before it can be converted to Unicode**
- **Increase size of the catalog table space, index space VSAM data sets in preparation for possible future use of long names in catalog.**
 - **Can be done at any time, even in NFM**
 - **Some should be done before ENFM**

ENFM considerations

- **Parse trees stored in SYSVIEWS will take up much more space than in previous releases, so it is recommended that you increase the allocation size.**
- **BP8K0 , BP16K0 must be created prior to ENFM. Will fail with resource unavailable if they do not exist**
 - **GBP8K0 and GBP16K0 should be defined for data sharing groups**
- **During ENFM, Change Data Capture (CDC) is turned off automatically for any catalog table that has it enabled . Once in NFM, CDC can be turned back on, but it is manual**
- **SYSCOLUMNS.STATSTIME will be invalidated as part of the ENFM process**
- **User indexes on the catalog will be automatically rebuilt as a result of REORG of table space. NOTE that may result in larger index if columns were increased in size and marked as VARCHAR**
- **Once in NFM, if key column is VARCHAR then index should be altered to NOT PADDED and rebuilt**

New Function Mode (NFM)

New Function Mode

- DSN TIJNF switches to New Function Mode
- Catalog is completely Unicode
- Long names can be used (128 Varchar)
- DBRMs are now in Unicode (if NEWFUN(YES))
- DSN TIJNR – converts RLST tables for long name support
- DSN JCNVB – converts BSDS to support more logs
- New functionality can be used

Fallback & Coexistence

- Fallback
 - DSNTIJEN – allows the system to return to ENFM
 - Fallback to V8 CM or V7 is not supported
 - PIT recovery using system restore to V7
- Coexistence
 - V8 NFM is group-wide

Additional considerations

- Plans/Packages dependent on Catalog may be invalid
- Queries accessing catalog may need rewriting
- New indexes use PADDED default option for migrated systems

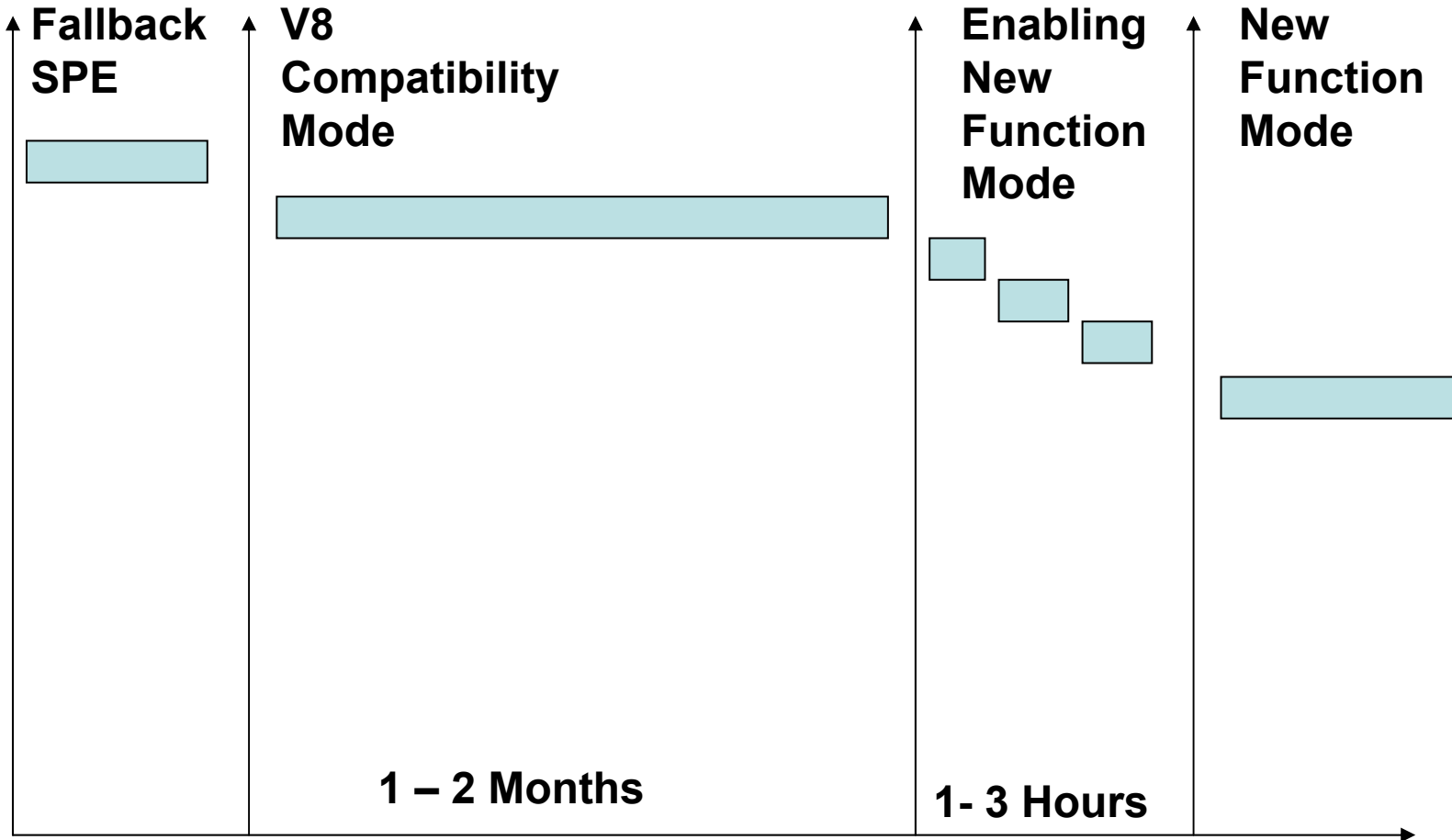
Notes

- Here are some additional considerations:
 - • Plans and packages dependent on some of these catalog objects may be invalidated
 - • You should ensure that Image Copies of all catalog and directory table spaces exist or the New Function Mode conversion process cannot happen
 - • Ensure that you have defined and sized the appropriate 8KB and 16KB virtual pools
 - • Some catalog indexes may be placed in Advisory Reorg Pending state (AREO*) during the process and will be rebuilt as the process completes.
 -
 - • CREATE INDEX now defaults to the ZPARM padding setting chosen. NOT PADDED is the default ZPARM chosen during installs, but defaults to PADDED for subsystems that are migrated.
 - • Queries that accessed the catalog prior to its conversion to Unicode may have to be re-written due to the Unicode values or collating sequence
 -

Migration Strategy

- Migrate all subsystems to V8 CM
 - **Ensure business processes run in stable CM**
 - **Remain in CM for some time - weeks / months**
- Have good backup/restore procedure before beginning ENFM
 - **This is the ONLY way of returning to CM**
- Then move to ENFM
- New functions
 - **If business requirement consider new subsystem**
- Migrating after GA
 - **The sooner => the more maintenance required**
- Data Sharing
 - **Migrate all members to V8 CM**
 - **Validate business processes**
 - **Ideally 1 member in V8 ENFM**
 - **Rollout to production**

Length of time for change process



Notes

- Most customers will need to run in compatibility mode for a month or two to ensure that the month or quarter end work load is stressed on DB2 for z/OS V8. The ENFM step is global for data sharing customers and should be about an hour for customers with DB2 catalog + directory of under 5 GB. Very large and disorganized catalogs could take 3 hours for roughly 30 GB. Then switch directly to NFM (few seconds and global for data sharing).

References

- ***Many Thanks to Ian Cook (IBM PIC)***
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