



# The Best Defense Is a Good Offense

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# A Quick Overview

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- Planning
  - This presentation
- Compatibility Mode (CM)
  - Limited V8 function available
  - Essentially CATMAINT
- Enable New Function Mode (ENFM)
  - Catalog conversion to Unicode
- New Function Mode (NFM)
  - All new functionality

# Planning

# Getting the Right Answers

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- Your primary bookmark
  - DB2 Universal Database for z/OS home page
  - <http://www.ibm.com/software/data/db2/zos/>
- Specific links from DB2's home page
  - DB2 for z/OS Version 8 Product Reference Manuals
  - <http://www.ibm.com/software/data/db2/zos/v8books.html>
    - **Warning:** Documentation is written for V8 NFM
  - DB2 Information Center
  - <http://publib.boulder.ibm.com/infocenter/dzichelp/v2r2/index.jsp>
  - DB2 Support web page
  - <http://www.ibm.com/software/data/db2/zos/support.html>
  - DB2 Version 8 Migration Roadmap
  - <http://www.ibm.com/software/data/db2/zos/roadmap.html>

# Examples of Necessary Documents

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- DB2 V8 Program Directory - GI10-8566 (May also need: Utility Suite, Application Connectivity, Management Clients Package)
- Installation Guide - GC18-7418
- Release Guide - SC18-7425
- Data Sharing: Planning and Administration (data sharing install) - SC18-7417
- Application Programming & Reference for JAVA™ (Java install) - SC18-7414
- Messages (New) - GC18-9602
- Codes (New) - GC18-9603
- Internationalization Guide (Unicode)
- Administration Guide - SC18-7413
- Utility Guide and Reference - SC18-7427
- RACF Access Control Module Guide (if using RACF)
- z/OS Managed System Infrastructure for Setup (msys for Setup) DB2 Customization Center User's Guide (available from web)

# Make Sure...

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- Always check the web for the latest version of the product documentation
- Documentation on the web does change
- Web reference (**once again**)
  - DB2 for z/OS Version 8 Product Reference Manuals
  - <http://www.ibm.com/software/data/db2/zos/v8books.html>

# Getting the Latest Information

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- **SG24-6079** - *DB2 UDB for z/OS Version 8: Everything You Ever Wanted to Know, ... and More*
  - <http://publib-b.boulder.ibm.com/abstracts/sg246079.html?Open>
- **SG24-6465** - *DB2 UDB for z/OS Version 8 Performance Topics*
  - <http://publib-b.boulder.ibm.com/abstracts/sg246465.html?Open>
- **SG24-6763** - *The Business Value of DB2 UDB for z/OS*
  - <http://publib-b.boulder.ibm.com/abstracts/sg246763.html?Open>
- **SG24-6480** - *Multilevel Security and DB2 Row-Level Security Revealed*
  - <http://publib-b.boulder.ibm.com/abstracts/sg246480.html?Open>

# Getting the Latest Information

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- **SG24-6489** - *Best Practices for SAP Business Information Warehouse on DB2 for z/OS V8*
  - <http://publib-b.boulder.ibm.com/abstracts/sg246489.html?Open>
- **SG24-6319** - *DB2 for z/OS and WebSphere: The Perfect Couple*
  - <http://publib-b.boulder.ibm.com/abstracts/sg246319.html?Open>
- **SG24-6370** - *Disaster Recovery with DB2 UDB for z/OS*
  - <http://publib-b.boulder.ibm.com/abstracts/sg246370.html?Open>
- **SG24-7088** - *DB2 UDB for z/OS V8: Through the Looking Glass and What SAP Found There*
  - <http://publib-b.boulder.ibm.com/abstracts/sg247088.html?Open>

# Getting Off to the Right Start

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- Planning for Migration to DB2 for z/OS Version 8
  - by Roger Miller (IBM SVL)
    - <ftp://ftp.software.ibm.com/software/data/db2zos/S1322rma.pdf>
- Health Check Your DB2 System Part 1
  - by John J. Campbell (IBM SVL)
    - <ftp://ftp.software.ibm.com/software/data/db2zos/G11jc.pdf>
- Health Check Your DB2 System Part 2
  - by John J. Campbell (IBM SVL)
    - <ftp://ftp.software.ibm.com/software/data/db2zos/G12jc.pdf>

# Were Must You Be?

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- Easy answer
  - DB2 Version 7
    - No out of service announced (Yet)
      - However...
    - No other supported migration path available
      - If you are Version 7
        - » Version 7 to Version 8
      - If you are Version 6
        - » Version 6 to Version 7 to Version 8
      - If you are Version 5
        - » Version 5 to Version 7 to Version 8

# What about Service?

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- Service
  - Fallback toleration PTF
    - APAR PQ48486 (PTF UQ81009)
      - [http://www.ibm.com/support/docview.wss?rs=64&context=SSEPEK&q1=PQ48486&uid=swg1PQ48486&loc=en\\_US&cs=utf-8&lang=en](http://www.ibm.com/support/docview.wss?rs=64&context=SSEPEK&q1=PQ48486&uid=swg1PQ48486&loc=en_US&cs=utf-8&lang=en)
      - RSU 0403
      - APAR must be applied to V7
      - V7 subsystem must be started before any attempt to start V8
      - APAR must be applied to all members of a data sharing group before DB2 V8 is started on any one member
    - Catalog Migration Pre-Check APAR
      - APAR PQ84421 (PTF UQ85439)
        - [http://www.ibm.com/support/docview.wss?rs=64&context=SSEPEK&q1=PQ84421&uid=swg1PQ84421&loc=en\\_US&cs=utf-8&lang=en](http://www.ibm.com/support/docview.wss?rs=64&context=SSEPEK&q1=PQ84421&uid=swg1PQ84421&loc=en_US&cs=utf-8&lang=en)
        - RSU 0406
        - Provides job DSNTIJP8
          - » Contains set of catalog queries to assist identifying catalog "situations"
          - » Addressed before migrating to Version 8
          - » Actually delivered with DB2 V8 in job DSNTIJPM but would not be available until after V8 install complete

# What about Service?

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- Migration/Fallback InfoAPAR
  - APAR II13695
    - [http://www.ibm.com/support/docview.wss?rs=64&context=SSEPEK&q1=II13695&uid=isg1II13695&loc=en\\_US&cs=utf-8&lang=en](http://www.ibm.com/support/docview.wss?rs=64&context=SSEPEK&q1=II13695&uid=isg1II13695&loc=en_US&cs=utf-8&lang=en)
- Unicode Support
  - APAR II13048 (Part I)
    - [http://www.ibm.com/support/docview.wss?rs=64&context=SSEPEK&q1=II13048&uid=isg1II13048&loc=en\\_US&cs=utf-8&lang=en](http://www.ibm.com/support/docview.wss?rs=64&context=SSEPEK&q1=II13048&uid=isg1II13048&loc=en_US&cs=utf-8&lang=en)
  - APAR II13049 (Part II)
    - [http://www.ibm.com/support/docview.wss?rs=64&context=SSEPEK&q1=II13048&uid=isg1II13049&loc=en\\_US&cs=utf-8&lang=en](http://www.ibm.com/support/docview.wss?rs=64&context=SSEPEK&q1=II13048&uid=isg1II13049&loc=en_US&cs=utf-8&lang=en)

# DB2 Service

Version	PID	GA	Marketing Withdrawal	End of service
V3	5685-DB2	Dec 1993	Feb 2000	Mar 2001
V4	5695-DB2	Nov 1995	Dec 1, 2000	Dec 2001
V5	5655-DB2	Jun 1997	Dec 31, 2001	<b>Dec 31, 2002</b>
V6	5645-DB2	Jun 1999	Jun 30, 2002	<b>Jun 30, 2005</b>
<b>V7</b>	<b>5675-DB2</b>	<b>Mar 2001</b>		<b>Mar 2007 ???</b>
<b>V8</b>	<b>5625-DB2</b>	<b>Mar 2004</b>		

- Web reference for most current information:
  - <http://www.ibm.com/software/data/db2/zos/support/plc/>

# Operating System Service

Version	PID	GA	Marketing Withdrawal	End of service
V1.3	5694-A01	Mar 2002	Sep 12, 2002	Mar 31, 2005
V1.4	5694-A01	Sep 2002	Sep 9, 2004	Mar 31, 2007
V1.5	5694-A01	Mar 2004	Sep 9, 2004	Mar 31, 2007*
V1.6	5694-A01	Sep 2004	Oct 24, 2005	Sep 2007*
V1.7	5694-A01	Sep 2005	Sep 2006*	Sep 2008*

□ Web reference for most current information:

➤ [http://www.ibm.com/servers/eserver/zseries/zos/support/zos\\_eos\\_dates.html/](http://www.ibm.com/servers/eserver/zseries/zos/support/zos_eos_dates.html/)

# Basic Hardware Prereqs

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- DB2 for z/OS Version 8 exploits 64 bit architecture
  - zArchitecture supported processor required including IBM's:
    - z800
    - z890
    - z900 (with the proper microcode),
    - z990
    - new z9
  - Needs adequate real storage to support z/OS, DB2, and any other applications required to run in the same environment.

# Basic Hardware/Software Prereqs

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## Operating system requirements:

- Minimum - z/OS 1.3 or above
  - However, z/OS 1.3 is out of service
- z/OS 1.4 end of service extended to March 2007
- Give a serious look at z/OS 1.5 as a minimum
  - additional functionality over 1.4
  - features in DB2 V8 are enabled by running z/OS 1.5 or above.
- Other Software
  - IRLM V2.2
  - CFLEVEL=7 (service level 1.06) or CFLEVEL=8 (service level 1.03)

# Tools (Ours, Theirs, etc...)

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- Check all software
  - IBM
  - Non-IBM
  - Have to make sure it will work with V8
- Remember
  - 64 bit
  - Unicode
  - Long names
- And don't forget development software

# Get to the New Stuff

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- ✓ Get ready for DB2 for z/OS V8 by upgrading
- ✓ Migrate to DB2 for z/OS V7
- ✓ Migrate to z/OS 1.4 or later
- ✓ Get to WLM goal mode, it's required
- ✓ DB2 requires z/OS Unicode services
- ✓ Some V8 functions need z/OS V1R5, R6, or R7
- ✓ zSeries, z/Architecture 64 bit mode
- ✓ Migrate to IBM COBOL V3.4
- ✓ Migrate to PL/I V3.4
- ✓ IMS V9, V8, V7,
- ✓ CICS TS V3, V2.3
- ✓ All of the details are in Program Directory

# Outdated Compilers

COBOL Compiler	PID	Withdrawn from Service	Run-Time Supported
OS/VS COBOL	5740-CB1	Jun 1994	Language Environment (LE) Only*
COBOL/370	5688-197	Sep 1997	Language Environment (LE) Only*
VS COBOL II	5668-958	Mar 2001	Language Environment (LE) Only*
COBOL for MVS & VM Ver 1 Rel 2	5688-197	Dec 2001	Language Environment (LE) Only*
COBOL for OS/390 & VM Ver 2	5648-A25	Dec 2004 (MVS only)	Yes
Enterprise COBOL for z/OS V3R1	5655-G53	Apr 2004	Yes
Enterprise COBOL for z/OS V3R2	5655-G53	>>>> Oct 2005 <<<<	Yes
Enterprise COBOL for z/OS V3R3	5655-G53	Not yet announced	Yes
Enterprise COBOL for z/OS V3R4	5655-G53	Most current version	Yes
*Language Environment for z/OS V1R2 - V1R5			

# Some Deprecated Function

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- LANGUAGE COMPJAVA stored procedures removed
- DB2 managed stored procedures
- DB2-established data space for cached dynamic statements removed
- Migration failure if type 1 indexes found
- Type 2 keyword removed
- Selective partition locking on partitioned table spaces is deprecated

# Clean & Reorganize Catalog

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- Good time to start to clean up catalog
  - Removed unused objects
- Start running REORG against catalog
  - Good practice
  - Could make ENFM run faster

# Rebind Plans

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- Plans bound prior to V2.3 will not run
- May have to rebind plans without PKLIST
- Consider rebinding high performance packages
- Make sure you are saving EXPLAIN data
- Do you have accounting information





# Planning on Testing Migration?

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- DB2 V8 IVP contains functions only available in NFM
- DB2 V7 IVP must be available to test the successful migration to CM

# What about DSNZPARMs

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- Lots of new parameters
  - But we will leave those for another time
- What about defaults changed in V8?
  - See next slide 
- What about ZPARMs removed in V8?
  - Two slides from now   

# DSNZPARAMs Removed in Version 8...

<b>COMPAT</b>	DSNHDECP	Serviceability option
<b>EDMDSPAC</b>	DSN6SPRM	EDM Pool Data Space Size
<b>EDMDSMAX</b>	DSN6SPRM	EDM Pool Data Space Maximum
<b><u>PKGLDTOL</u><sup>1</sup></b>	DSN6SPRM	Turn off package requirement for certain SQL statements
<b>SARGSWRP<sup>2</sup></b>	DSN6SPRM	Allow index access for certain nested correlated table access
<b><u>OPTSUBQ1</u><sup>3</sup></b>	DSN6SPRM	Non-correlated subquery costs
<b><u>OPTCCOS1</u><sup>4</sup></b>	DSN6SPRM	List prefetch picked as the access path while regular index access could perform better
<b><u>OPTCCOS2</u><sup>5</sup></b>	DSN6SPRM	Inefficient access path or inefficient index is picked for correlated subquery

**1** - APAR PQ59207

**2** - APAR PQ61024 & PQ66365

**3** - APAR PQ50462 & PQ81790

**4** - APAR PQ84158

**5** - APAR PQ03849 & PQ66335

# Defaults Changed by Version 8

LOBVALA	USER LOB VALUE STORAGE	2048	10240
→ CTHREAD	MAX USERS	70	<b>200</b>
→ MAXDBAT	MAX REMOTE ACTIVE	64	<b>200</b>
→ CONDBAT	MAX REMOTE CONNECTED	64	<b>10000</b>
IDFORE	MAX TSO CONNECT	40	50
IDBACK	MAX BATCH CONNECT	20	50
ACCUMACC	DDF/RRSAF ACCUM	NO	10
→ CACHEDYN	CACHE DYNAMIC SQL	NO	<b>YES</b>
AUTHCACH	PLAN AUTH CACHE	1024	3072
→ LOGAPSTG	LOG APPLY STORAGE	0	<b>100</b>
→ CHKFREQ	CHECKPOINT FREQ	50000	<b>500000</b>
BLKSIZE	BLOCK SIZE	28672	24576
→ CMTSTAT	DDF THREADS	ACTIVE	<b>INACTIVE</b>
IDTHTOIN	IDLE THREAD TIMEOUT	0	120
EXTSEC	EXTENDED SECURITY	NO	YES
TCPKPALV	TCP/IP KEEPALIVE	ENABLE	120
→ DSMAX	MAXIMUM OPEN DATA SETS	3000	<b>10000</b>
EDMPOOL	EDMPOOL STORAGE SIZE	7312	327681

# Those DFSORT Rumors

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- The DB2 for z/OS Version 8 utilities require DFSORT
- Refer to APARs:
  - PQ68263 (PTF UQ90054)
    - <http://www.ibm.com/support/docview.wss?uid=isg1PQ68263>
  - PK04076 (PTF UK03983)
    - [http://www.ibm.com/support/docview.wss?rs=64&context=SWB30&q1=PQ68263&uid=swg1PK04076&loc=en\\_US&cs=utf-8&lang=en](http://www.ibm.com/support/docview.wss?rs=64&context=SWB30&q1=PQ68263&uid=swg1PK04076&loc=en_US&cs=utf-8&lang=en)

# Those DFSORT Rumors

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- DFSORT is already installed
  - Even if you are using some other sort product
- The V8 DB2 utilities are licensed for to use DFSORT
- DFSORT's two libraries have to be in the search list AFTER the OEM sort products libraries
- DFSORT's libraries must be authorized
  - LNKAUTH=LNKLST or
  - LNKAUTH=APFTAB and in APF list
- DFSORT module aliases called by the DB2 utilities are ICEDFSRT and ICEDFSRB

# Those DFSORT Rumors


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- If DFSORT NOT installed as primary sort package
  - DFSORT R14 plus APAR PQ68263 must be accessible via
    - DFSORT SORTLPA library added to LPALST and SICELINK library added to LNKLST
    - DFSORT libraries SICELINK and SORTLPA added to LNKLST
    - DFSORT libraries SICELINK and SORTLPA added to STEPLIB DD
    - DFSORT modules in private library equivalent to one of the above

# Planning's Done. What's Next?

# Compatibility Mode

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- CATMAINT
  - Catalog changes: table spaces, tables, columns, indexes, etc...
- Limited functionality
  - Next slide 
- Limit time spent
  - Through a major event
  - Maybe a few months
- Minimal time in data sharing coexistence

# CM Limited Functionality

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- Database Services Address Space runs in 64 bit mode. There will be no dual path code available. This is why there is a z/OS 1.3 requirement.
- IRLM runs in 64 bit mode
- Buffer pools are moved above the bar and dataspaces and hiperpools are eliminated
- EDM Pool is moved above the bar
- Dynamic statement cache is moved above the bar
- Sort pools are moved above the bar
- Castout buffers are moved above bar

# CM Limited Functionality

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- RID Pool is moved about the bar
- Compression dictionaries are moved about the bar
- DBDs are moved about the bar
- Most optimization changes are in affect and can be taken advantage of if plans and packages are rebound. New access paths in plans and packages may take more space so the size of the SPT01 and SCT01 might need to be increased.
- New catalog and directory objects and new columns to existing catalog are added.
- DB2 parses all SQL in UNICODE
- String constants may be longer when represented in UNICODE which can result in some string constants exceeding the maximum length for a string constant

# CM Limited Functionality

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- Buffer pools may (probably will) require more central storage when hiperpools are converted to virtual pool allocations
- PGFIX(YES) option on the ALTER BUFFERPOOL command is available
- IRLM PC=YES enforced
- z/OS Conversion Services used for CCSID conversion to UNICODE
- Stored procedures can no longer be defined or run with COMPJAVA
- Online REORG of entire DB2 catalog is available (and used during ENFM migration)
- Larger buffer pools are immediately available (provided that you have enough real storage)
- The changes to the behavior of the IMMEDWRI are available in Compatibility Mode (CM) when migrating to V8.

# Enable New Function Mode

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- Convert catalog to Unicode
  - REORG utility
  - 18 Catalog & Directory table spaces
  - Support for long names added
  - Conversion performed by DSNTIUNE
- DBRMs are still in EBCDIC
- ENFM is group wide in data sharing
- Move through ENFM quickly
  
- No fallback to CM once ENFM is started

# New Function Mode

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- Signifies completion of V8 migration
  - All new function is available
  - Appropriate catalog tables are in Unicode
  - Catalog columns expanded for long names
- Final step performed by DSNTIJNF
- Set NEWFUN=YES for precompiler
- DBRMs are now in Unicode
- Can stage in NFM

# Shameless Self-promotion

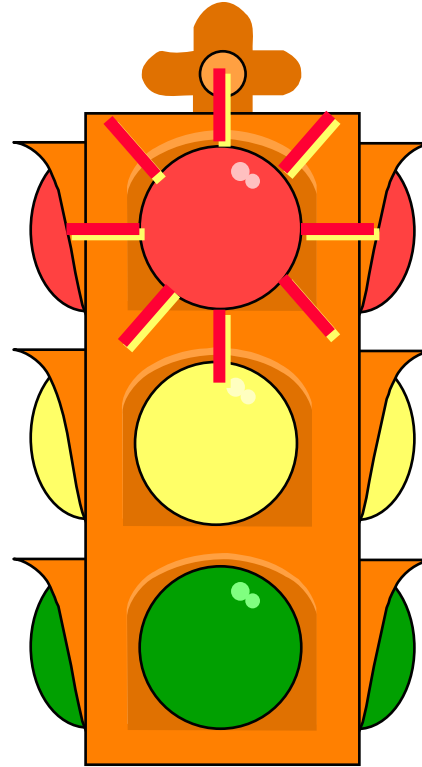
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- DB2 blog

<http://blogs.ittoolbox.com/database/db2zos/>

**Thank You  
for Attending!  
Willie**

*The  
End*



# *The Best Defense Is a Good Offense*

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