

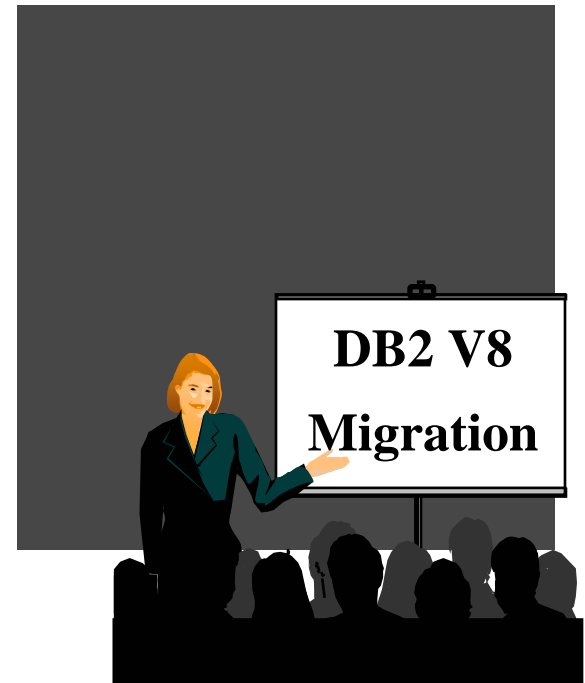


Planning for upgrade to DB2 for z/OS Version 8



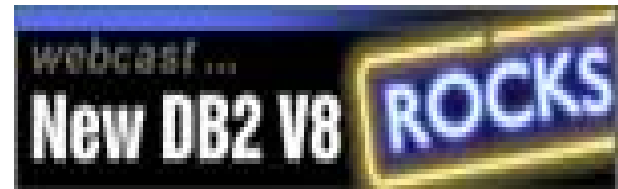
Topics

- **DB2 UDB for z/OS Version 8**
 - DB2 Version 8 At a Glance
 - QMF
 - zIIP
 - Availability Summary
- **Getting Ready to Upgrade to Version 8**
 - Pre-migration Activities
 - Moving to Compatibility mode
 - Customer examples



DB2 UDB for z/OS V8: At a glance

- **Improved IT Infrastructure In Support of Compliance Efforts**
 - Greater encryption capabilities (including DB2 data encryption tool)
 - Common Criteria security certification currently in evaluation stage
 - Multi-level & row-level security
 - Hardware cryptographic features
- **Simplify development and porting**
 - Online Schema Evolution
 - Rolling maintenance & upgrades
 - DB2 SQL family improvements
 - Dramatically increase limits throughout system



Continuous Availability



- **Online Schema Evolution: database changes with ALTER instead of DROP / CREATE e.g. ADD partition**
- **System-Level Log Point Recovery**
- **Data Partitioned Secondary Indexes**
- **Improved LPL Recovery**
- **Additional online zparms**

Scalability and Very Large Database

- Add partitions
- Separate partitioning & clustering
- Index improvements
- 4096 Partitions
- Rotate partitions
- Extend columns
- Optimization improvements
- Memory and scale increased



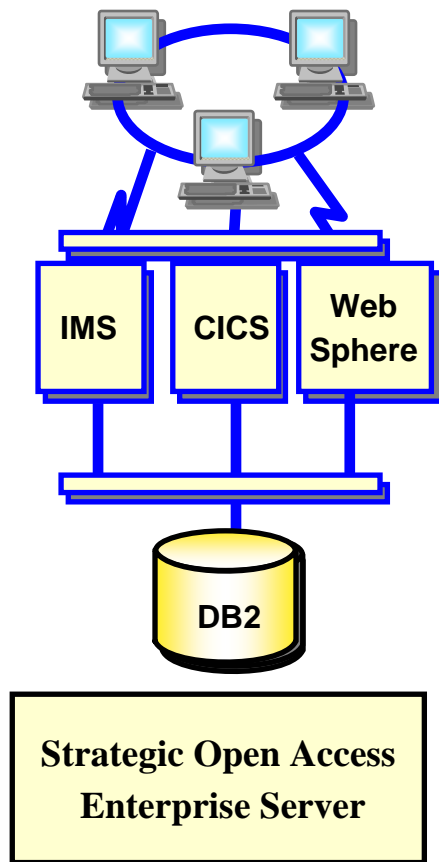
DB2 UDB for z/OS V8: At a glance

- **Decrease Complexity and Reduce Cost**
 - 64-bit virtual addressing
 - Built in data compression
 - Autonomic capabilities
 - Multi-row insert and fetch
 - Increased optimization and query performance
- **Evolve Your Environment & SOA**
 - Improved XML capabilities
 - WAS and Java integration
- **Application Packages**



The Siebel logo is the word 'SIEBEL' in a bold, blue, sans-serif font.

Java and the web



- **Application Connectivity for JAVA**
- **Improve data sharing member routing**
- **LOCATION aliases at requester & server**
- **Extended function, standards**
- **Reduced processing**
- **Stored Procedure Enhancements**
- **Java Universal Driver**

Queries and data warehouses

- Optimization Improvements
 - Improved techniques
 - Enhanced data
 - Visual Explain
- Enhanced index options
- Materialized Query Tables
- New Partitioning options
- QMF improvements
- SQL enhancements



Migrating and porting applications

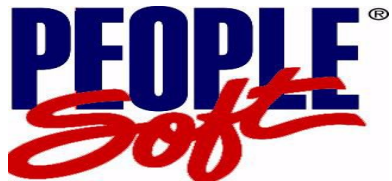


- Multi-row INSERT, FETCH & UPDATE
- GET DIAGNOSTICS
- INSERT within SELECT
- IDENTITY Column enhancements
- SEQUENCES
- CURRENT PACKAGE PATH
- SQL Procedure Language
- Dynamic Scrollable Cursor, Common Table Expression, Recursion
- Scalar Fullselect
- Materialized Query Table
- UNICODE SQL, Multiple CCSIDs
- XML Publishing
- Long names, long statements...

Enterprise Applications & : DB2 UDB for z/OS



4.6 certified



8.45 certified



7.8 certified

- 64 bit virtual storage
- Unicode
- Schema evolution
- System-level backup and recovery
- Multi-row fetch & insert
- Multiple DISTINCT Clauses
- Lock Contention on volatile Tables
- Fast Retrieval of Most Recent Value
- Longer Table Names & Column Names
- Additional statistics
- Convert Column Type
- Altering CLUSTER Option
- Adding Columns to Index
- Index-only Access Path for VARCHAR
- Adding New Partitions
- Separate Clustering from Partitioning
- ...

DB2 QMF Version 8

DB2 V8 support

- long names, multirow fetch

QMF for Windows

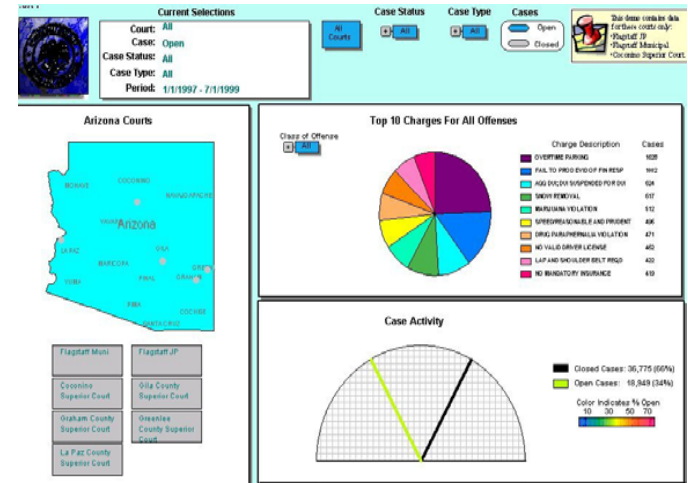
- Visionary Studio

QMF for WebSphere

- Browser access
- Java class & Web services



WebSphere software

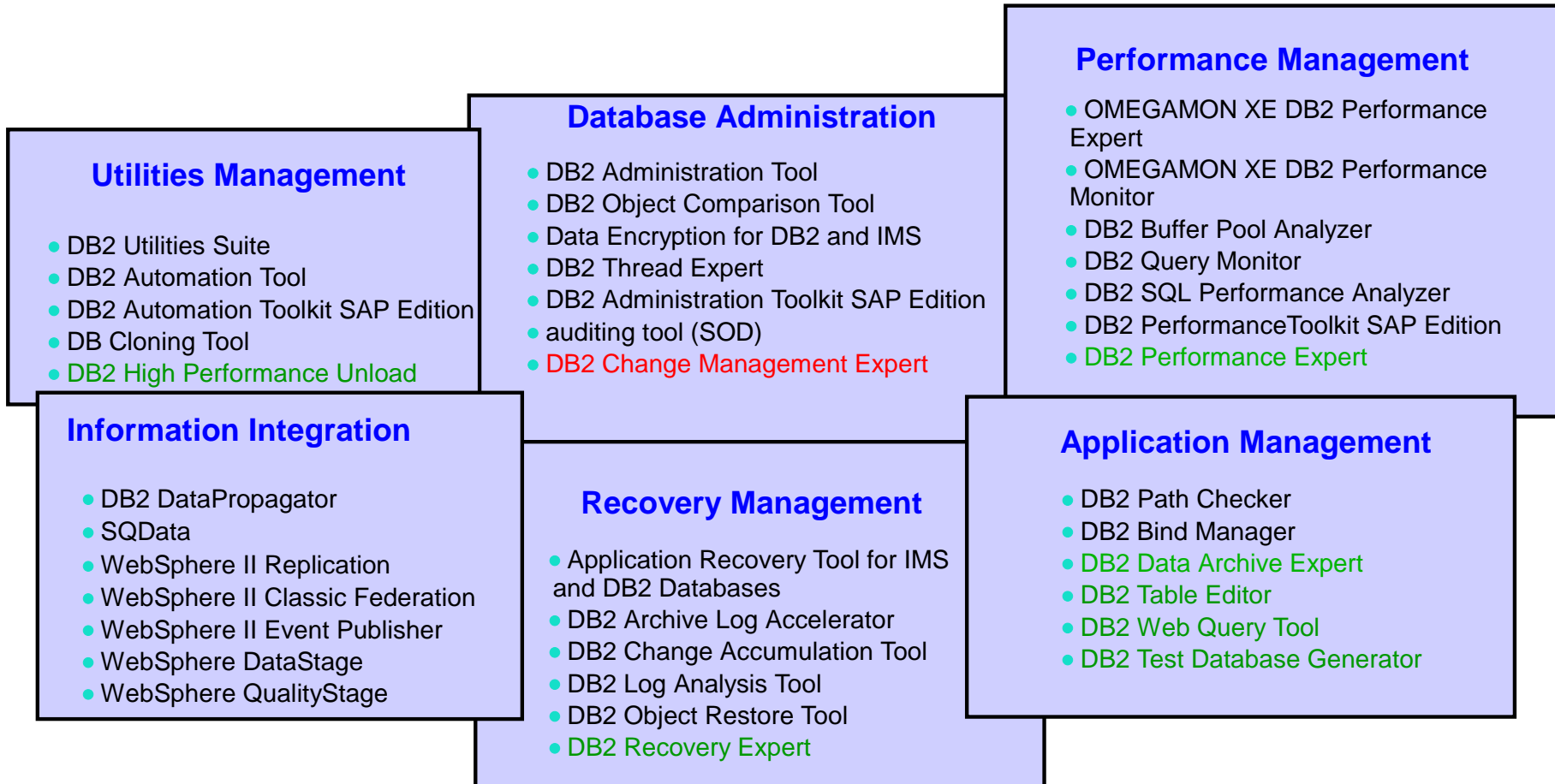


IBM System z9 Integrated Information Processor (zIIP)

- **New specialty engine for the System z9 mainframe designed to help:**
 - Customers integrate data across the enterprise
 - Improve resource optimization and lower the cost of ownership for eligible data serving workloads
- **z/OS manages & directs work between the general purpose processor and the zIIP**
 - Number of zIIPs per IBM System z9 not to exceed number of standard processors
 - No changes anticipated to DB2 applications
 - No IBM software charges on the zIIP – other specialty engines
- **DB2 for z/OS V8 first IBM exploiter of zIIP**
 - System z9 EC or z9 BC
 - z/OS 1.6 or later (with PTFs)
 - DB2 UDB for z/OS V8 (with APARs PK18454, PK19921)



Today's IBM DB2 Tools for z/OS and Multiplatform Product Portfolio



Available on zSeries(shown on chart in black)

Available on zSeries and multiplatforms (LUW)

Currently available only on multiplatforms (LUW)

DB2 for z/OS Version Availability Summary

Version	PID	Generally Available	Marketing Withdrawal	End of Service
V3	5685-DB2	Dec. 1993	February 2000	March 2001
V4	5695-DB2	Nov. 1995	Dec 1, 2000	Dec. 2001
V5	5655-DB2	June 1997	Dec. 31, 2001	Dec. 31, 2002
V6	5645-DB2	June 1999	June 30, 2002	June 30, 2005
V7	5675-DB2	Mar. 2001	1Q 2007 *	March 2008 *
V8	5625-DB2	Mar. 2004		
V9	5635-DB2	Beta 2006		

* Indicates projected date. Actual end of marketing or end of service date has not been announced yet.

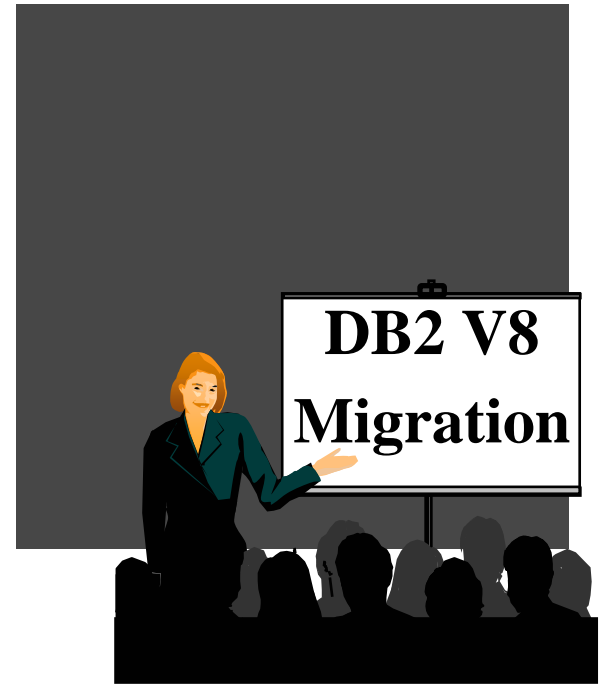
z/OS Support Summary



	z9	z990	z890	z900	z800	G5/G6 Multiprise® 3000	End of Service	Coexists with	Ship Date
1.4	x	x	x	x	x	x	3/07	1.7	9/02
1.5	x	x	x	x	x	x	3/07	1.8	3/04
1.6	x	x	x	x	x		9/07*	1.8	9/04
1.7	x	x	x	x	x		9/08*	1.9	9/05*
1.8*	x	x	x	x	x		9/09*	1.10	9/06*

*Planned

Getting Ready to Upgrade to Version 8



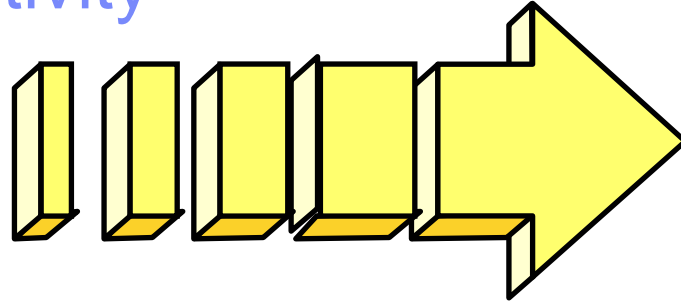
Secrets to a successful migration

- Spend time and effort in testing to keep fire away from production
- Clean up code page issues, analyzing all inputs and outputs, and systematically test to avoid data corruption
- Perform Pre-migration catalog migration testing on clone image
- Perform systematic testing of release fallback toleration
- Perform Batch regression testing
- Monitor and control CPU, virtual and real storage usage
 - Before, during, after
 - Build V7 performance baseline prior to V8 COMPAT mode
 - After migrating to V8 COMPAT
- Use RMF and DB2 PE to build performance baseline and monitor
- Consider using DB2 Path Checker in migration process

Inhibitors and Problems

- Lack of planning and preparation for introduction of significant new release
- Not properly cleaning up code page issues
- Use of obsolete language compilers
- Support for and quality of vendor code
- Concerns about availability of tools that support V8
- Not cleaning up V8 incompatible changes
- Executing crash project
- Lack of CPU, real storage, virtual storage and time to manage them
- Lack of regression testing of customer applications in their unique environment
- Not running for reasonable period in Compatibility Mode
- Shortage of change windows

Premigration Activity

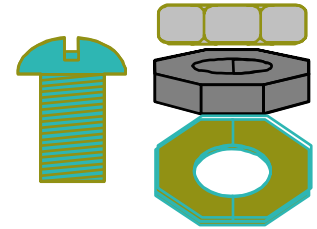


- ✓ Install prerequisite software & service
- ✓ Adjust for incompatibilities (DSNTIJPM)
- ✓ Identify unsupported objects
- ✓ Check new and changed parameters
- ✓ Save critical performance & access path info.
- ✓ Take backup copies

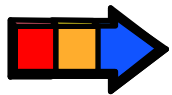
Install Prerequisite Software

- Prerequisites and Functional Needs

- ✓ All products need to be at proper maintenance level (prior DB2 release too)

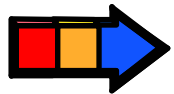


- ◆ Migration & Fallback SPE APAR PQ48486
 - ◆ Ensure that you apply all hiper APARS, PE fixes
 - ◆ Use the DB2 Program Directory, the Installation Guide, PSP (preventative service planning), web & Info APAR II13695

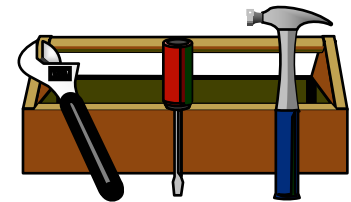


- ◆ Non-IBM software ...Talk to your Vendors

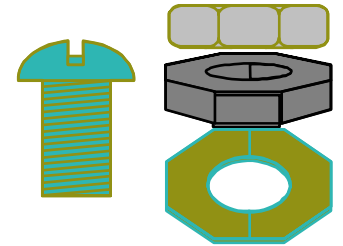
- ◆ z/OS



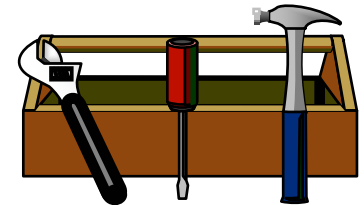
- ◆ Unicode Check CCSIDs, emulators
 - ◆ Job DSNTIJPM or DSNTIJP8



Install Prerequisite Software



- **Functional Requirements for identified features and functions e.g. DB2 Connect, clients**
 - ✓ See What's New in DB2? And Release Guide
 - ✓ Program Directory for Details
- **Service Level: IBM Consolidated Service Test**
- ➔ ● **Plan for more frequent service**
 - ✓ More current releases = more frequent
 - ✓ Refresh service level quarterly
- **Prepare to manage performance**

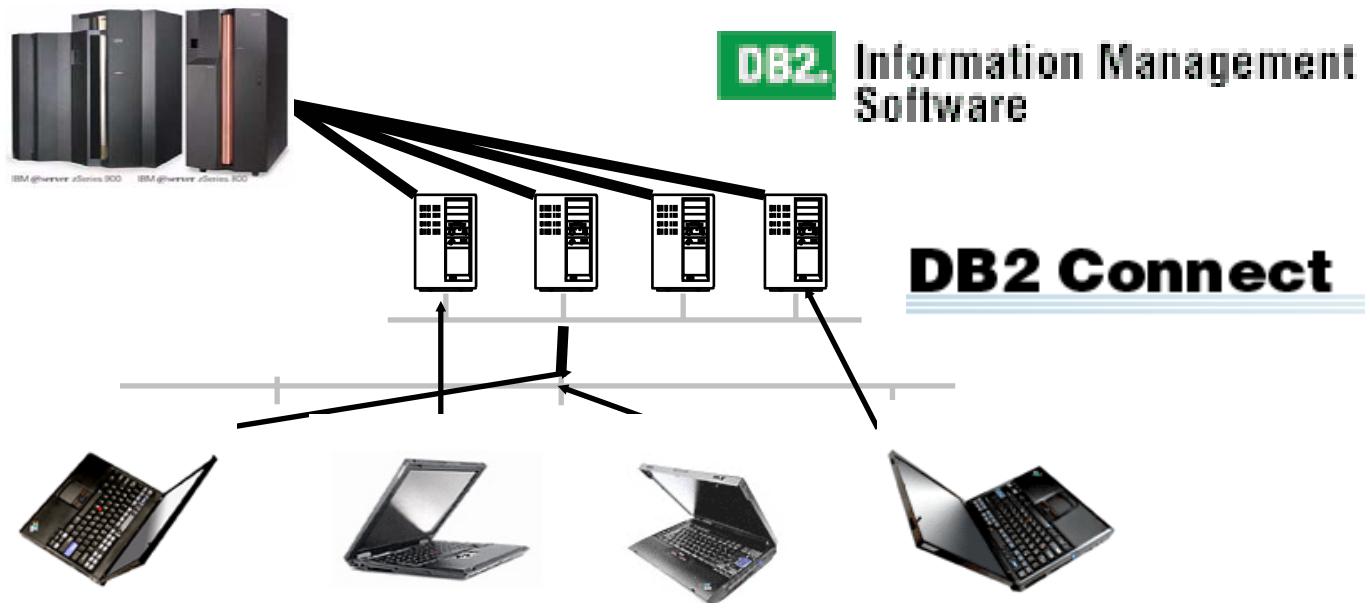


DB2 Connect Version 8.2 Fixpak 10 now

- ✓ Performance & Scalability
- ✓ Improved Application Availability
- ✓ Innovative manageability
- ✓ Programmer productivity

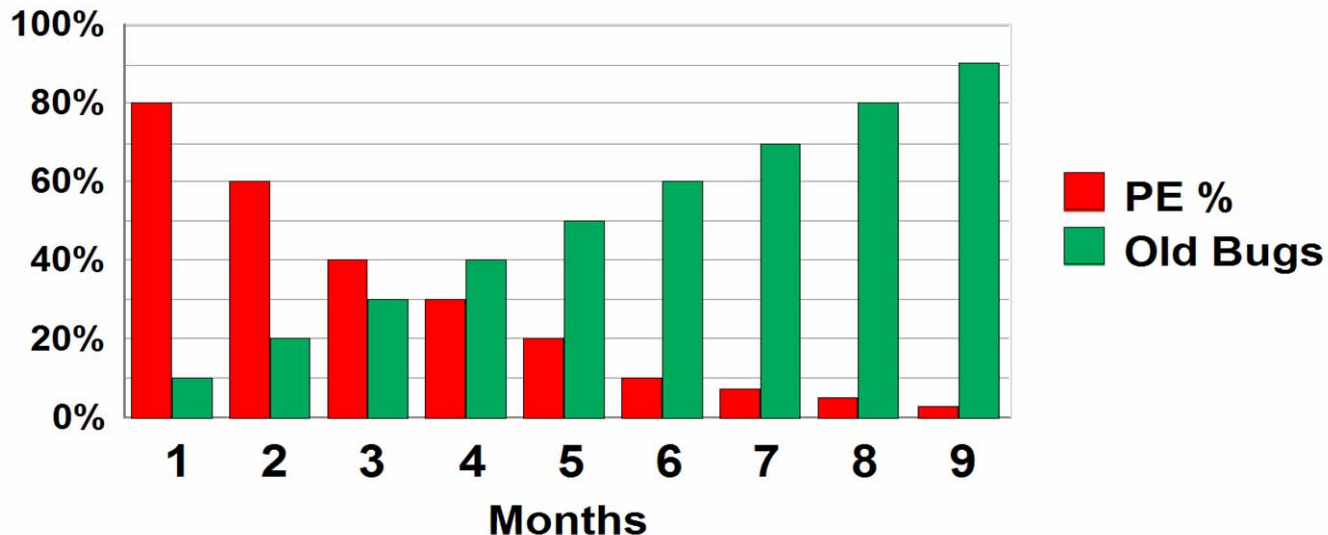


Crypto V8.2 FP 10



How current should we be?

- Stay reasonably current with DB2 releases & fixes
 - V7 & V8 migration help improvements, APARs
- Balance for severities. Use Consolidated Service Test.
 - ▶ Potential PTF in Error or PE: Enhanced HoldData
 - ▶ Problems encountered instead of avoided
 - ▶ Business constraints and work load



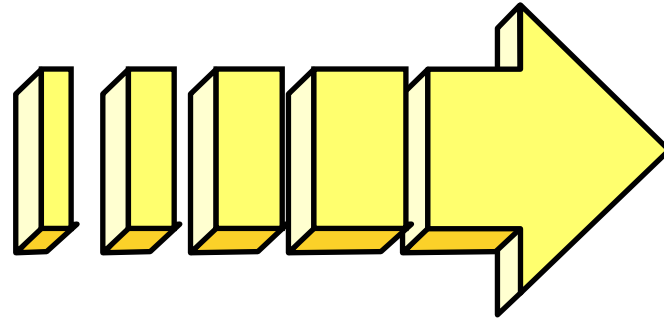
IBM DB2 Tools Support for DB2 Version 8

DB2 Tools for z/OS	Tolerate	Exploit	Date
Application Recovery Tool for IMS and DB2 Databases		X	Now
Data Encryption for IMS and DB2 Databases		X	Now
DB2 Administration Tool		X	Now
DB2 Administration Toolkit the SAP Edition		X	Now
DB2 Archive Log Accelerator		X	Now
DB2 Automation Tool		X	Now
DB2 Automation Toolkit the SAP Edition		X	Now
DB2 Bind Manager		X	Now
DB2 Buffer Pool Analyzer		X	Now
DB2 Change Accumulation Tool		X	Now
DB2 Cloning Tool		X	Now
DB2 Data Archive Expert		X	Now
DB2 DataPropagator		X	Now
DB2 High Performance Unload		X	Now
DB2 Log Analysis Tool		X	Now
DB2 Object Comparison Tool		X	Now
DB2 Object Restore		X	Now
DB2 Path Checker		X	Now
DB2 Performance Expert		X	Now
DB2 Performance Toolkit the SAP Edition		X	Now
DB2 Query Management Facility (QMF)		X	Now
DB2 Query Monitor		X	Now
DB2 Recovery Expert		X	Now
DB2 SQL Performance Analyzer		X	Now
DB2 Table Editor		X	Now
DB2 Thread Expert		X	Now
DB2 Test Database Generator		X	Now
DB2 Utilities Suite		X	Now
DB2 Web Query Tool		X	Now
Tivoli OMEGAMON XE for DB2 Performance Expert		X	Now
Tivoli OMEGAMON XE for DB2 Performance Monitor		X	Now
WebSphere DataStage		X	Now
WebSphere DataStage TX		X	Now
WebSphere QualityStage		X	Now
WebSphere Information Integrator Event Publisher for DB2		X	Now
WebSphere Information Integrator Replication		X	Now

IBM DB2 Tools that might help a successful migration

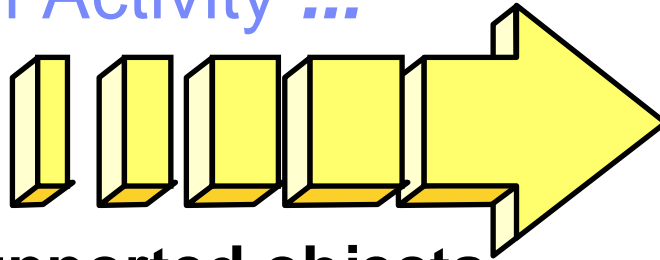
- Run **DB2 Path Checker** in TEST mode to compare a “new” bind with the contents of the backup plan_table – and use this tool to allow for access path regression analysis
- Using **DB2 SQL Performance Analyzer**, pass it the statements with different access paths to get costing and more detailed explain information.
- Run **DB2 SQL PA in DB2 V7** –save the QLIMITS report and use to compare with the costing under DB2 V8.
- Use **OMEGAMON XE DB2 Performance Expert** to monitor existing V7 subsystem performance and provide performance baseline for post-V8 analysis
- Obtain valuable application performance metrics on a “real-time”basis with **DB2 Query Monitor V2**

Premigration Activity ...



- Find problems with incompatibilities
 - ▶ It is important to look at these now because many have actions that you must address before migrating.
 - ▶ Get the complete list from the Installation Guide (Get the latest from the web).
 - ▶ Use new V7 job: DSNTIJP8 APAR PQ84421

Premigration Activity ...



Jobs

DSNTIJPM

DSNTIJP8



■ Identify unsupported objects

Adjust before migrating

- Check on CCSIDs: wrong or more than one
- Deprecated function: selective partition locking, private protocol function
- Data capture on DB2 catalog tables (turn back on after migration)
- If DSNWZPR used, switch to WLM-managed DSNWZP
- V7 sample programs used in V8 CM
- Truncated limit key in indexes
- Type 1 indexes (final call)

Unicode



- DB2 V7 has Unicode support. CCSIDs must be defined now (APAR PQ89018, PQ97373).
- DB2 V8 depends on Unicode support, parses in Unicode, even in compatibility mode. DB2 will not start without Unicode services.
- Check your SQL on catalog, instrumentation
- Some restrictions lifted, but incompatible order
 - ▶ Some range predicates may be affected
- Web & IDUG Solutions Journal

Install Unicode



UNI=xx in IEASYSxx at IPL

SET UNI=xx after IPL DISPLAY UNI

See CUNSIM6 in SYS1.SAMPLIB

DB2 Internationalization Guide

Support for Unicode: Using Conversion Services

Information APARs II13048 and II13049

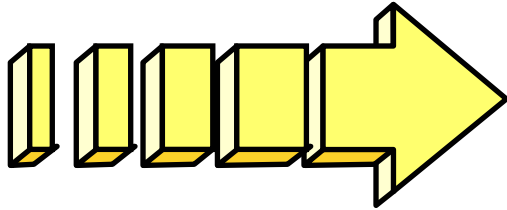
Default creates 39 MB Unicode image

- Resolved in z/OS 1.7

Primary Version 8 incompatible changes

- Parse SQL in Unicode, correct CCSIDs crucial
- Invalid host variable declaration for PREPARE
- No COMPJAVA, use JIT
- CREATE, ALTER PROCEDURE WLM ONLY
- Java Universal Client, SQLJ process
- Rebind of very old plans (pre V2.3 DBRMs)
- DB2 command authorization, RACF 1.6 DSNR change
- DSNHDECP & DSNHMCID in SDSNEXIT
- Index padding controlled by subsystem parameter
- REORG SORTDATA & SORTKEYS default
- REORG Implicit clustering index
- Packages required for all statements ...
- CICS dynamic plan exit gets Unicode program names

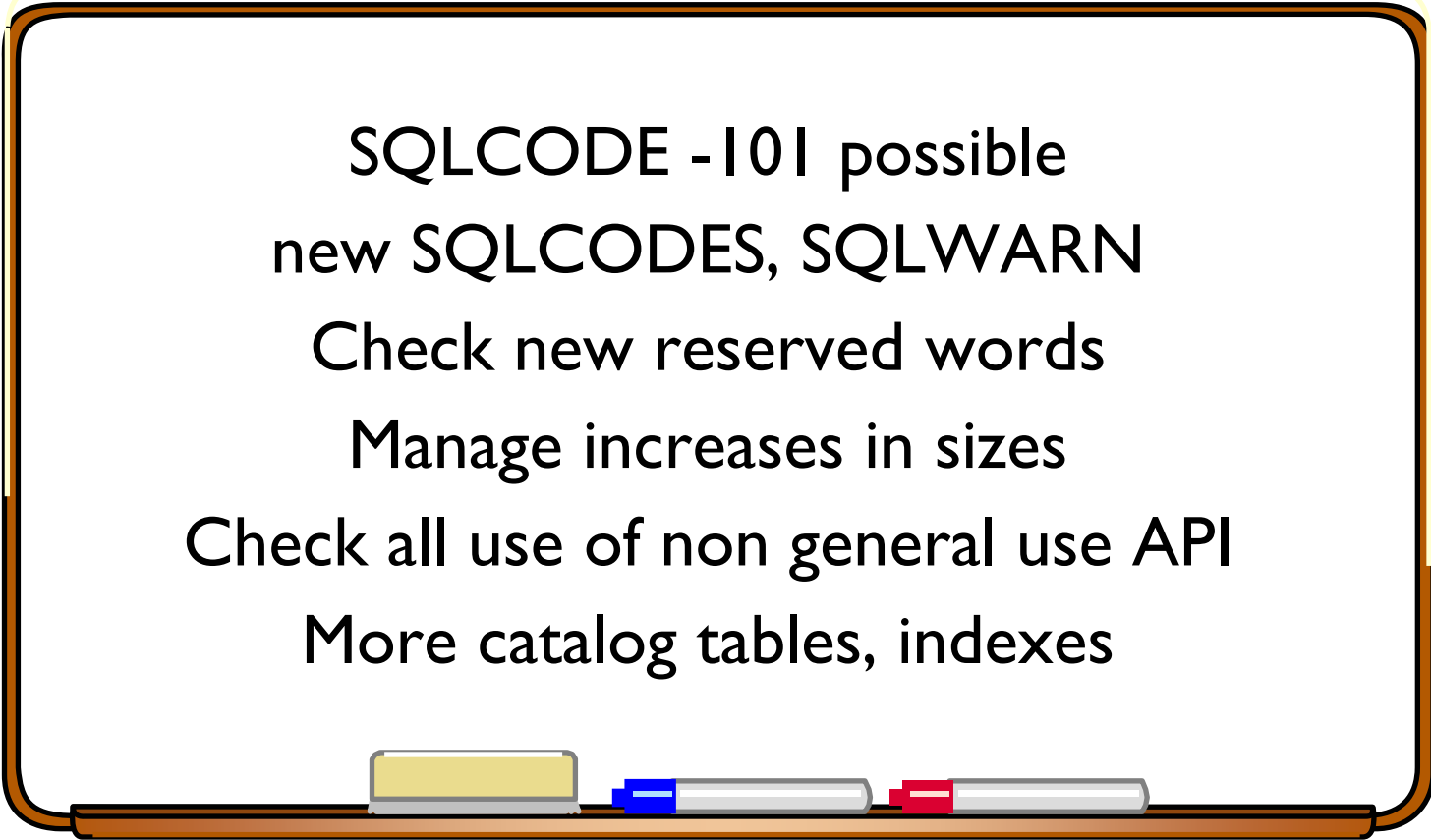
Premigration Activity ... *Manage Performance*



Prepare to Manage Performance

- **Save accounting reports**
- **Save critical access paths**
 - ▶ **Be sure you have PLAN_TABLE access paths & DSN_STATEMENT_TABLE & DSN_FUNCTION_TABLE for critical applications (or Visual Explain reports).**
 - ▶ **Run EXPLAIN on queries before migrating.**
 - ▶ **Add new columns to PLAN_TABLE**
- **Differentiate by plans & packages**

DB2 considerations for any migration

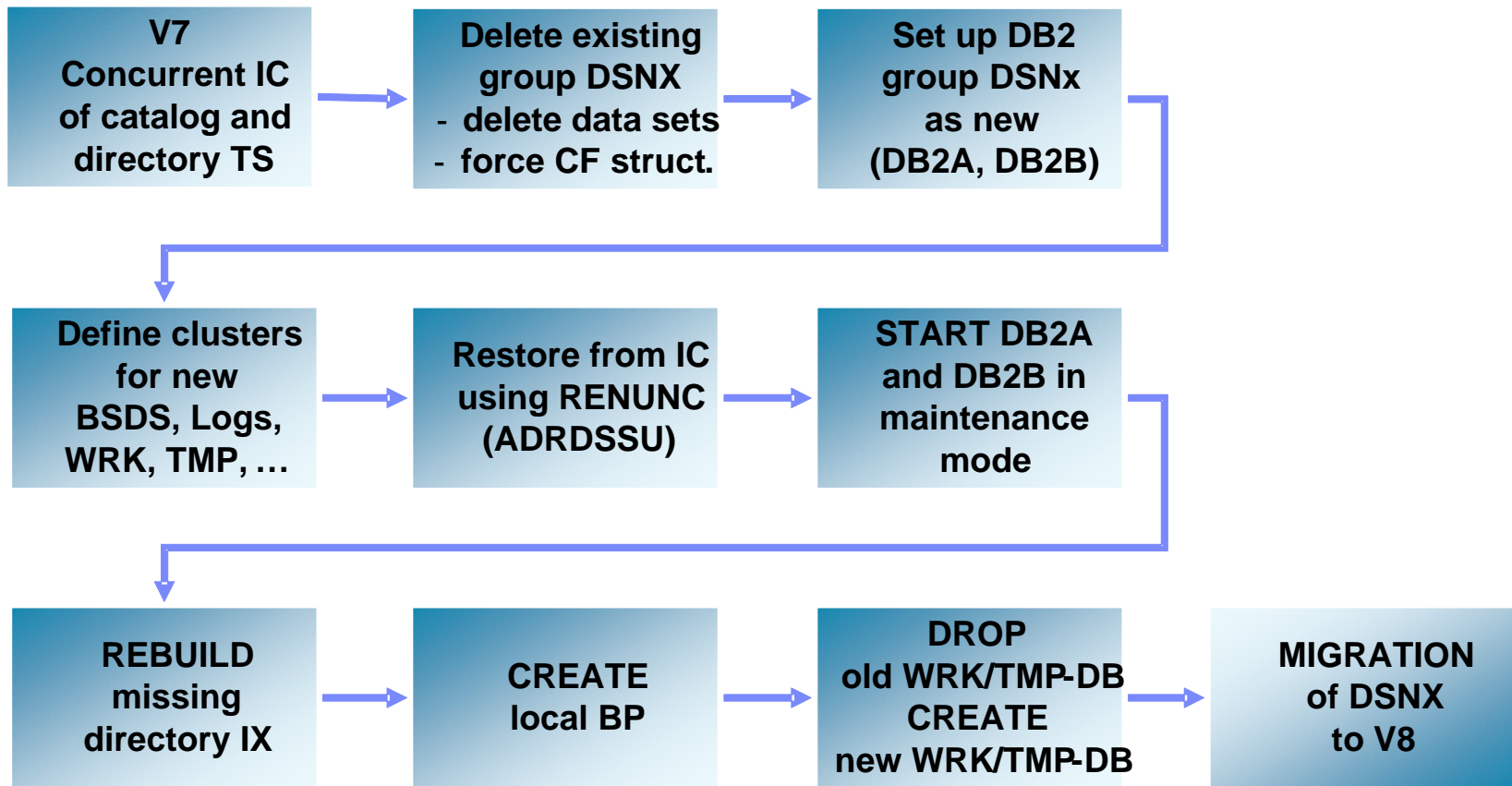


SQLCODE -101 possible
new SQLCODES, SQLWARN
Check new reserved words
Manage increases in sizes
Check all use of non general use API
More catalog tables, indexes

Pre-migration catalog migration testing

- **Clone a production catalog and practice migration on the cloned copy without risk and before migrating the catalog of any productive system**
 - Options: Concurrent Copy, Flashcopy, DFSMS Dump, DSNTIJIC
 - Practice migration:
 - V7-> V8 plus CATMAINT
 - V8 CMP mode -> V8 ENFM mode -> V8 NFM mode
 - Rebind plans and packages
 - Explain all views
- **Possible extend this test to an extended regression test system**
- **Engage other parties into the migration and pre migration process and testing**
 - DBA's, Application developers....

Pre-migration catalog migration testing ...



DFSORT and DB2 Utilities

- **V8 removes the pre-req for an external sort product**
- **V8 will only use the DFSORT package: SORT, MERGE functions only**
 - Aim to improve reliability and performance
 - DFSORT code is part of a standard z/OS install
 - DB2 UDB for z/OS Utilities Suite has a license API to use DFSORT when invoked by the utilities
 - Must have access to DFSORT R14 plus APAR PQ68263 applied

Getting ready for V8



- Migrate to DB2 for z/OS V7
- Migrate to z/OS 1.4 or later
 - WLM goal mode required
 - DB2 requires z/OS Unicode services
 - Some functions need z/OS V1R5, R6, R7
- zSeries, z/Architecture 64 bit mode
- Migrate to IBM COBOL V3.4 PL/I V3.4
- IMS V9, V8, V7, CICS TS V3, V2.3
- Details in Program Directory

Old COBOL?

- ✓ Understand the options DB2 V8 CICS V3
 - ➔ Compiler and Run-Time Migration Guide
 - ➔ No compiles OS/VS COBOL or VS COBOL II CICS V3 also
 - ➔ Run Old COBOL modules
- ✓ Set strategy & plan for Enterprise COBOL V3.4
 - ➔ Use V7 precompiler?, V8 NEWFUN(NO)?
- ✓ Plan staging and Migrate

- Language Environment
- What's New
- Release History
- About Language Environment
- Migration
- Assistance Center
- FAQ
- Library
- Announcements
- Conferences
- Links
- Contact Language Environment

COBOL on the z/OS, OS/390®, MVS, and VM Platforms

Product Name	PID#	Withdrawn from Marketing	Withdrawn from Service
OS/VS COBOL V1.2.4	5740-CB1 5740-LM1	June 1992 June 1992	June 1994 June 1994
VS COBOL II V1.3.x	5668-958 5688-022 5688-023	March 1993 March 1993 March 1993	June 1996 June 1996 June 1996
VS COBOL II V1.4.0	5668-958 5688-022 5688-023	June 1997 June 1997 June 1997	March 2001 March 2001 March 2001
COBOL/370™ 1.1	5688-197	October 1995	September 1997
COBOL for MVS & VM V1R2	5688-197	September 2000	December 2001
COBOL for OS/390 & VM V2R1	5648-A25	September 2000	December 2004 (OS/390)
COBOL for OS/390 & VM V2R2	5648-A25	December 2002	December 2004 (OS/390)
Enterprise COBOL for z/OS & OS/390 V3R1	5655-G53	September 2002	April 2004
Enterprise COBOL for z/OS & OS/390 V3R2	5655-G53	-	October 2005
Enterprise COBOL for z/OS V3R3	5655-G53	-	-

IBM Problem Determination Suite

- **Set of tools: Fault Analyzer, File Manager, Debug, Application Monitor, Workload Simulator**
 - Affordably priced
 - Flexible terms and conditions
 - Offer wide array of key features and functions
 - Can enhance the Application Development Lifecycle
 - Opportunity for increased user productivity
 - Utility to upgrade OS/VS COBOL to supported COBOL
 - Use latest IBM processor technology

Old PL/I?

- ✓ Understand the options
 - ➔ Compiler and Run-Time Migration Guide
 - ➔ Run Old PL/I modules
- ✓ Set strategy & plan for Enterprise PL/I V3.4
 - ➔ Use V7 precompiler?, V8 NEWFUN(NO)?
- ✓ Plan staging and Migrate

Home	Products	Services & solutions	Support & downloads	My account
Products > Servers > Mainframe Servers > z/OS >				
Language Environment	PL/I on the z/OS, OS/390, MVS, and VM Platforms			
What's New				
Release History			Withdrawn from Marketing	Withdrawn from Service
About Language Environment	Product Name	PID#		
Migration	OS PL/I V1.5	5743-PL1 5734-LM4	December 1994 December 1994	December 1995 December 1995
Assistance Center	PL/I Transient Library	5734-LM5	March 1998	April 2004
FAQ	OS PL/I V2.3	5668-909 5668-910 5668-911	September 2000 September 2000 September 2000	December 2003 December 2003 December 2003
Announcements	PL/I for MVS & VM V1R1	5688-235	-	-
Conferences	VisualAge PL/I for OS/390 V2R2	5655-B22	March 2002	August 2003
Links	Enterprise PL/I for z/OS Version 3	5655-H31	-	-
Contact Language Environment				

To REBIND or not to REBIND

- **WHEN - WHEN is the question**
 - ▶ When to take the chance of access path regression
 - ▶ For the potential benefits of improved performance
- **When migrating? Test Before**
 - ▶ Parallel individual binds
 - ▶ More disruptive, longer
- **Incrementally or later**
 - ▶ More potential for problem calls
 - ▶ Resolution could be more difficult



How much room will you get in DBM1?

It depends.

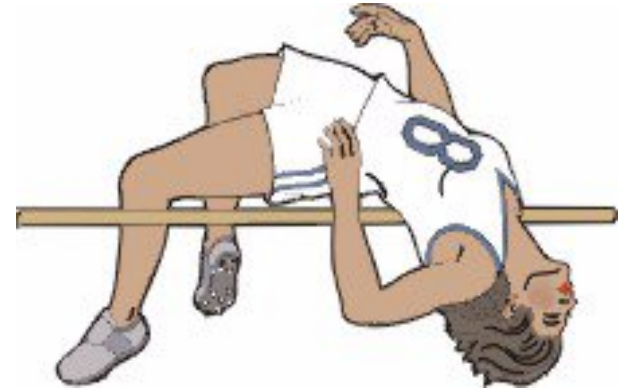
Any virtual pools?

Buffer pool control blocks

Castout pool

EDM DBDs pool, Sort Pool

RID Pool, compression dictionaries



Some growth in thread storage

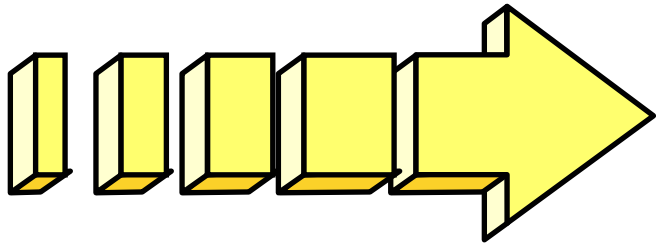
You need to calculate, monitor and manage

Adjust storage sizes It depends!

- ▶ **Need to understand & measure virtual and real storage**
- ▶ **Don't adjust MEMLIMIT 4 TB**
- ▶ **Opportunity if you have adequate real storage, danger if you don't**
 - **Potential for adding storage?**
 - **Variation in virtual constraint help**
- ▶ **Adjust storage pools**
 - **EDMPOOL --> DSC + DBD + EDM**
 - **Fit within real storage**
 - **Use long term page fix for high IO**



Premigration Activity *(continued)*

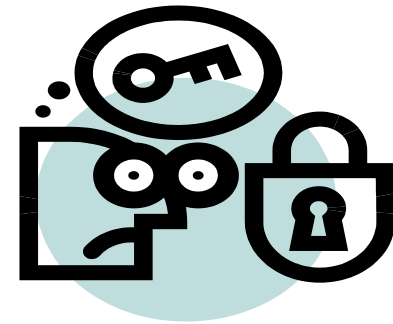


Deprecated
Functions

- **Going, going, but not gone in V8 or V9**
- **Convert from private protocol to DRDA**
 - ▶ **Bind parameter - DBPROTOCOL**
 - ▶ **BIND packages at remote locations**
 - ▶ **Governor changes: plan to package**
 - ▶ **Install panel for default DBPROTOCOL**
- **Selective partition locking LOCKPART**
- **DB2-managed stored procedures**

Console Security and SYSOPR

- **Commands coming through console come through with id of SYSOPR**
- **Old behavior (V7 and prior)**
 - For logged on user (TSO/SDSF), id passed through for console commands is still SYSOPR
 - zparm SYSOPRn=SYSOPR allows any user to enter commands from console
- **New behavior (V8)**
 - For logged on user, id passed through for console commands is now the user and not SYSOPR
- **RACF groups and secondary authids now supported**



Dumps and Standalone Dumps

- **Increase MAXSPACE: typical 2.5-4GB**
- **Allow enough REAL/paging space**
- **Allow enough DASD**
 - Striped volumes for dumps bigger than a single volume
 - For example, in SMS ACS routine let the volumes do the work until 2.5GB, then switch to striped volumes
 - `FILTLIST DB2DUMP INCLUDE (DB2DUMP.**)`
 - `WHEN (&DSN=&DB2DUMP)`
 - `IF &SIZE < 2500MB THEN SET &DATACLAS = "`
 - `ELSE SET &DATACLAS = 'STRIPE'`
- **Use DUMP groups**
 - Allows 48GB
 - All volumes can be written concurrently (much faster)
 - Allows 16 volumes of the same device type

Zparm Default Changes

- Describe for static V8 is set to yes - some DB2 supplied stored procedures (Management Clients Package)
- Log apply storage in V8 is 100 - people tend to use 10, which is too low. This is needed for fast log apply during recovery Also, Backup/Restore System needs it for 4x better performance

Panel	Field	Parameter	Version 7 default value	Version 8 default value
DSNTIP7	USER LOB VALUE STORAGE	LOBVALA	2048	10240
DSNTIPE	MAX USERS	CTHREAD	70	200
	MAX REMOTE ACTIVE	MAXDBAT	64	200
	MAX REMOTE CONNECTED	CONDBAT	64	10000
	MAX TSO CONNECT	IDFORE	40	50
	MAX BATCH CONNECT	IDBACK	20	50
DSNTIPN	DDF/RRSAF ACCUM	ACCUMACC	NO	10
DSNTIP8	CACHE DYNAMIC SQL	CACHEDYN	NO	YES
DSNTIPP	PLAN AUTH CACHE	AUTHCACH	1024	3072
DSNTIPL	LOG APPLY STORAGE	LOGAPSTG	0	100
	CHECKPOINT FREQ	CHKFREQ	50000	500000
DSNTIPA	BLOCK SIZE	BLKSIZE	28672	24576
DSNTIPR	DDF THREADS	CMTSTAT	ACTIVE	INACTIVE
	IDLE THREAD TIMEOUT	IDTHTOIN	0	120
	EXTENDED SECURITY	EXTSEC	NO	YES
DSNTIP5	TCP/IP KEEPALIVE	TCPKPALV	ENABLE	120
DSNTIPC	MAXIMUM OPEN DATA SETS	DSMAX	3000	10000
	EDMPOOL STORAGE SIZE	EDMPOOL	7312	32768 ¹

Note:

¹ The installation CLIST calculates the default value for the EDMPOOL parameter.

Should I use a PDS or PDSE?

- **DSNALLOC job allocates A/SDSNLOAD as PDSE**
 - Development anticipated DSNXGRDS LMOD to exceed 16m limit during QPP
 - DSNXGRDS LMOD now not expected to exceed 16m limit in V8
- **Can allocate ADSNLOAD as PDSE (advantages: it's not shared, less compressing needed)**
- **Can allocate SDSNLOAD as PDS or PDSE**
- **If SDSNLOAD allocated as PDSE:**
 - IMS Attach requires IMS toleration APAR PQ79118
 - Be aware of operational differences between PDS and PDS/E's (see DB2 V8 program directory section 5.2.2.2)
- **Most customers install DB2 systems with PDS**

Leftovers

- 1. Bimodal Migration Accommodation is not supported by DB2**
- 2. ICSF Modules to avoid Nasty Grams - SCSFMOD0 in Link List**
- 3. Use ISPF APAR OA07685 to browse Unicode DBRMs**
- 4. Tools Certification is important, don't wait to verify**

<http://www->

[1.ibm.com/support/docview.wss?rs=434&context=SSZJXP&uid=swg21162152&loc=en_US&cs=utf-8&lang=en+en](http://www-1.ibm.com/support/docview.wss?rs=434&context=SSZJXP&uid=swg21162152&loc=en_US&cs=utf-8&lang=en+en)

- 5. After the V8 migration, every problem becomes your problem**
 - Collect SMF data and reports
 - EXPLAINS of key packages
 - Understand system resource utilization before the migration
 - Standard, sample job stream that measures the system
- 6. Regular status calls are very valuable**

Migration Plans



Migration Plan Initial Thoughts

- **Most customers do not have an operational proving test environment and application regression workloads**
 - Regression and stress test to flush out implementation issues
- **Do not want to run for an extended period with different code and function levels across 'test' and 'production' environments**
- **Have clear separation between 'toleration' and 'exploitation' of features in the new release**
 - Exploitation project would follow on from toleration project when the new release has been running stable in production for a reasonable period (typically complete one processing month cycle) and there is little chance of fallback to previous release of DB2
 - Exploitation project will focus on a prioritized list of new features offering business value. During the toleration period customer will run with release N-1 of the DB2 Precompiler to prevent new SQL features being used.
- **Distinguish carefully**
 - Data sharing 'coexistence'
 - 'Compatibility mode'

Migration Plan Recommendations

- 1. Migrate V7 test data sharing group to V8 CM and hold. If want to roll in the new release member by member, migrate the first 2 members, wait, then roll through the remaining members quickly.**
- 2. After (1) has been proven for extended period, migrate production data sharing group to V8 CM and hold. If want to roll in the new release, migrate the first 2 members, wait, then roll through the remaining members quickly.**
- 3. Run through complete monthly processing cycle in production to flush out implementation/regression issues - can fallback/come forward again if necessary**
- 4. After (3) is successful, start to migrate V8 test data sharing group towards V8 NFM mode**
- 5. After (4) is successful, start to migrate V8 production data sharing group towards V8 NFM mode**

Migration Plan Recommendations ...

- **Entry to CM, ENFM, NFM modes are instantaneous group wide events**
- **SYSCOPY stays as EBCDIC, not converted to Unicode**
- **New table space called SYSEBCDC contains a single row/byte to support SYSDUMMY**
- **Run DSNTIJP8 ASAP under V7 to check for rogue conditions in V7 Catalog prior to V8**
 - Mode (CM, ENFM, NFM) is stored away in Catalog and Directory
- **DSNTIJNE job (ENFM) can be restarted from the beginning without change**
 - Objects reorg'd in a specific order
- **Up to 10% increase in disk space requirement for Cat/Dir**
 - Some objects shrunk by 50% because they had never been reorganized

Migration Plan Recommendations ...

- **Cannot start DB2 V8 with default DSNHDECP**
 - DSNHDECP -> SDSNEXIT
 - DSNHMCID -> SDSNEXIT
- **What do you get with V8 CM**
 - 64-bit virtual
 - Long term page fix
 - New access paths
 - New utility function in V8 CM
 - No new SQL function
- **Data space buffer pools and Hiper-pools converted to primary virtual pools above 2GB bar on first start of member on V8**
- **Possibility of different query result sets when using range predicates**
 - Can use cast function in NFM mode to get back to EBCDIC
- **Issue -ALTER BP with non-zero value prior to V8, and define corresponding GBP structures in CFRM policy**
 - BP8K0 and BP16K0 (and BP32K)

Migration Plan Recommendations ...

- **Understand DASD space requirement and measure of elapsed time**
 - Run REORG SHRLEVEL(CHANGE|REFERENCE) in CM mode
- **Online Schema**
 - Trailing blanks are not removed on ALTER CHAR->VARCHAR
- **SYSREC2 data set added to some Online REORGs jobs as work space because some characters in SYSTRIGGERS and SYSDBASE span multiple rows**
- **Job DSNTIJTC has to be run even for new installs to fix national characters in CCSID 1047 to Germany (CCSID 273), Norway, etc.**
- **Feedback in SQLCA following SQL CONNECT without parameters indicates 'DSN' for DB2 and >5 for NFM mode**
- **User defined indexes on Catalog would swell up in size during ENFM mode**
 - DROP before ENFM mode
 - Re-CREATE after ENFM as NOT PADDED

Customer Experiences

- **Customer experiences say pay attention to:**
 - **Read the web, books, Info APARs, PSP**
 - **Have a plan that includes performance**
 - **Run premigration job DSNTIJPM**
 - Run it early, Use V7 DSNTIJP8 job
 - Resolve CCSID use
 - **Understand Unicode parsing, catalog, instrumentation**
 - **Current maintenance for DB2, z/OS & CF**
 - **Get the latest books: library, red books, ...**



Bundesministerium für Inneres – BM.I

Challenge:

The Austrian Federal Ministry of the Interior, or BM.I, is responsible for the internal administration of Austria, including police and security organizations. Their challenge was to:

- Improve efficiency of applications deployed on over 1000 disparate servers
- Support tasks in a cost effective manner
- Provide 24x7 access for 30,000+ employees and the general public
- Increase application speed

Solution:

BM.I consolidated its distributed hardware onto eServer zSeries platform and upgraded to DB2 for z/OS V8, reducing cost and increasing application speed by 30%

- DB2 for z/OS V8
- DB2 Administration Tool for z/OS
- zSeries Servers
- 1 TB of Data

Business Benefits:

- Develop applications on distributed, deploy easily on zSeries with required qualities of service
- Simpler, cost effective application portability
 - Better maintainability & reliability
 - Increased application performance up to 30%
- Reduced hardware and software costs
- Increase application availability
- Streamline number of applications in use

Technology Benefits:

- **Application portability**
- **Up to 30% improvement in application performance**
- **Reduced hardware, software, and maintenance cost**

Montreal Informatica-- Fetranpor

Challenge:

Montreal Informatica (MI) is Brazil's largest IT service provider. MI was selected by Fetranpor, the Public Transportation Federation of Rio de Janeiro, to transform its ticket distribution system. Their challenges were to:

- Streamline operations to make travel more convenient
- Reduce wait time to buy tickets
- Reduce costs associated with a paper-based ticketing system

Solution:

MI developed a smartcard solution for Fetranpor, allowing passengers to purchase reusable tickets online. Validation devices supported by an e-ticketing application handle 1.5 million card swipes per day. An IBM eServer zSeries server is the backbone of the solution which includes:

- DB2 UDB for z/OS V8 with DB2 Utilities Suite
- WebSphere Application Server V5
- DB2 Administration Tool, DB2 Performance Monitor, and DB2 SQL Performance Analyzer

Business Benefits:

- Ticket purchase time cut in half
- Overhead costs decreased due to elimination of manual processes
- Insight provided on buying patterns and travel trends, allowing Fetranpor to better tailor services and customize promotions

Technology Benefits:

- zAAP processor on the z/890 server provides a low cost execution environment for Java based applications and the power to process huge workloads
- DB2 UDB easily manages 100 GB of backend data and indexes 24x7
- Users have an easy to use web-based interface
- The DB2 Tools manage the database, ensure optimal performance, and handle routine tasks automatically

QPP - Citigroup Comments

- **“The DBA and application development teams have been very impressed with the rich set of new features in DB2 V8. Developers are interested in the long name support which will ease the pain of porting applications from other platforms as well as some of the SQL enhancements. DBA's are looking forward to the increased flexibility of the online schema enhancements and the partitioning improvements. As a system programmer/DB2 systems administrator, I am looking at resolving some of our virtual storage constraint issues with the advent of 64-bit virtual addressing.”**

Bob Perih, First Vice President, Citigroup

QPP - Some Additional Comments

- **"Migration process seems to be smooth. The support and information we get during the ESP is very good"**
- **"V8 seems to be more stable than other versions at this same point in time, we have no reliability concerns. The ESP/QPP experience continues to be a great benefit to us"**
- **Overall, several customers note that the migration process runs very smoothly, especially for such a large release. And that V8 is very rich in new, needed functions.**