Migration Considerations

Ken Blackman
kblackm@us.ibm.com

Agenda

IMS Migration Considerations
★ Key dates
★ Packaging, Installation, IVP
★ Software requirements
★ Migration
★ Connectivity
★ Miscellaneous
## Key Dates

<table>
<thead>
<tr>
<th>Product</th>
<th>Date</th>
<th>Announcement Letters</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMS V8 (5655-C56)</td>
<td>October 16, 2001, October 25, 2002</td>
<td>201-296 IMS V8 announced, 202-229 IMS V8 GA</td>
</tr>
<tr>
<td>IMS V7 (5655-B01)</td>
<td>October 27, 2000</td>
<td>200-290 IMS V7 GA, No announced withdrawal from marketing, No announced withdrawal from service</td>
</tr>
<tr>
<td>IMS V5 (5695-176)</td>
<td>December 5, 2000, September 30, 2001</td>
<td>900-222 IMS V5 withdrawn from marketing, 900-220 IMS V5 withdrawn from service</td>
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## Packaging and Installation

**IMS V8 packaging and installation**

- **Conform to OS/390 standards**
  - Makes IMS have the same look and feel as other products
  - Minimizes the need for customers to have IMS-specific installation skilled staff

**New sample jobs are provided**

- DFSALA and DFSALB to install IMS in its own SMP/E environment
- Additional IVP sample jobs show how to
  - Define an IMSplex
  - Issue IMSplex commands using the Single Point of Control (SPOC)
  - Use the Syntax Checker

**Other**

- Line update maintenance for user exit routines
- Option to eliminate Fast Path IVP samples
Packaging - INSTALL/IVP

INSTALL/IVP process has changed
- IMS V8 INSTALL/IVP dialog process has been eliminated
  - Is replaced by two things, INSTALL and IVP
  - 'B' series jobs and tasks removed from IVP dialog
- IMS V8 IVP is only used to verify the installation

INSTALL process
- IMS V8 is installed using the SMP/E installation process
- INSTALL process is documented in the 'Program Directory'
- INSTALL jobs are in a new IMS V8 library - SDFSBASE

IVP process
- Verifies the installation using a sample IMS system

New Sample Libraries

IMS V7
- IMS.ADFSSRC distribution library contains
  - IMS source code and samples (e.g. user exit routines)
  - A corresponding target library is not defined
    - By default, SMP/E used SMPSTS as the target library

IMS V8
- No longer uses the SMP/E default SMPSTS target library
  - A new IMS.SDFSSRC target library is used instead of SMPSTS
- Some samples have been moved from IMS.ADFSSSRC distribution library to new IMS V8 libraries
  - IMS.ADFSSMPL distribution library
  - IMS.SDFSSMPL target library
User Exits

User exits created as ++SRC (ASSEMBLER source) type elements/parts

• Allows line update during SMP/E service processing
  • As opposed to complete module replacement

Corresponding ++MOD parts (object code) are NOT shipped

• When IBM provides service, SMP/E is not automatically told to assemble and link the maintenance
  • If the customer creates MOD to LMOD relationships
    - Run JCLIN after SMP/E APPLY processing to automatically assemble and bind user exits

New samples provided to support V8 enhancements

• OM, RM, SCI, SPOC sample
  • Define IMSplex
  • Start / Stop IMSplex
  • Single Point of Control (SPOC) demo
    - General use
    - New IMS commands sample
    - Classic (or current) IMS commands sample

• Syntax Checker sample
  • Converts IMS.PROCLIB(*DFSPBxxx) startup parms from IMS V7 to IMS V8

Changes

• Panels updated (i.e. removed panels on installing FMIDs)
• Variables removed
• IVP provides option to have (or not have) Fast Path included in samples
Summary

IMS V8 packaging, installation, and IVP changes

► Packaging
  • Installation and IVP are separate processes

► Installation
  • ADFSBASE | SDFSBASE contain sample jobs to install IMS
    – DFSALA and DFSALB sample jobs provided to install IMS in its own SMP/E environment
  • Non SYSGEN elements built during SMP/E APPLY processing
  • SMP/E processing done using RECEIVE, APPLY, and ACCEPT

► Samples and some user exits
  • Are located in new IMS V8 libraries - ADFSSMPL | SDFSSMPL
  • Line update maintenance provided for user exits

► Installation Verification Program (IVP)
  • New name, install jobs removed, panels updated, variables removed
  • Includes IMS V8 samples
    – OM, RM, SCI, SPOC sample, Syntax Checker sample
  • Provides option to include/exclude Fast Path samples

Migration

Software requirements

Supported connections

Coexistence

Migration
**Software Requirements**

**IMS Base Product**
- OS/390 V2 R10 or later
- IBM High Level Assembler Release 2 (5696-234)
  - High Level Assembler Toolkit feature

**Transaction Trace**
- OS/390 V2 R10 with APAR OW50696

**MSC FICON CTC support**
- z/OS V1 R2

**Synchronous APPC/OTMA SMQ Enablement**
- z/OS V1 R2 with Resource Recovery Services (RRS) enabled
  - On all systems where members of the shared queues group execute
  - Requires OW 50627

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**Software Requirements ...**

**IMS Java Applications require**
- The IBM Developer Kit for OS/390, Java 2 Technology Edition (5655-D35), with the Persistent Reusable Java Virtual Machine (JVM)
  - This is required for the new IMS V8 Java Dependent Region support

**Java Application Program access to IMS DB**
- From DB2 Stored Procedures
  - Requires DB2 V7 with APAR PQ46673
- From CICS applications
  - Requires CICS TS V2
- From WebSphere applications
  - Requires WebSphere Application Server z/OS V4.0.1
  - and -
  - WebSphere Application Server z/OS Connection Management support
Software Requirements ...

All IMS V8 CF Structures require a minimum of
- CF Level 9

System-Managed Duplexing of VSO, CQS, and IRLM structures require
- z/OS V1 R2
- CF level 11
- Bidirectional CF to CF links

Sysplex Terminal Management session-level affinity support requires
- z/OS 1.2

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Software Requirements ...

IMS/DB2 Coordinated Disaster Recovery Support requires
- XRC (Extended Remote Copy) for DB2
- Remote Site Recovery
  - Recovery Level (or Database Level) Tracking for IMS

For complete, up-to-date list of software requirements, check with IBM Service
Supported Connections

**ISC is supported with**
- All supported IMS releases: IMS V8, V7, and V6
- All supported CICS releases: CICS TS V1 and V2, CICS/ESA V4
- User written software

**DB2 connections are supported to**
- All supported DB2 releases: DB2 V6 and V7

**DBCTL connections are supported with**
- All supported CICS releases: CICS TS V1 and V2, CICS/ESA V4

**MSC is supported with**
- All supported IMS releases: IMS V8, V7, and V6 with PQ27555

**OTMA compatibility in shared queues or MSC**
- Requires PQ58632 (V8), PQ58631 (V7), PQ58630 (V6)
  - Makes message prefix compatible in mixed environment

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Migration

**Initial Migration Assumption**
- This section assumes you will initially migrate to IMS V8 without implementing optional new functions

**Migration Overview:**
- Similar tasks as previous IMS release-to-release migrations

- **Application programs** continue to work *without any change* or recompile

- **Databases do not have to be changed**, upgraded, reorged, image copied, etc.
Migration ...  

Migration tasks
- Apply coexistence maintenance to other IMS systems
  - DBRC, MSC, RSR
- Install IMS V8
- Upgrade RECONs
- System definition
- ACBGEN
- Possible upgrade to IMS tools and related products
- Possible modifications to procedures or jobs

Release Coexistence and Fallback

Coexistence with previous releases
- Data Sharing
  - IMS databases may be shared between IMS V8, V7, and V6
- IMS V8 database recovery utilities accept inputs generated by previous releases
  - Image Copies
  - Change Accumulations
  - Logs
- IMS V8 RECONs may be used by IMS V7 and V6

Fallback support
- A system may fallback to a previous release after upgrade to IMS V8
  - IMS V8 RECONs are used
  - Database recoveries use IMS V8 utilities
Utilities Coexistence

Utility inputs
- Batch Backout, Log Archive, and Log Recovery
  - Use utility from IMS release which produced the log
- IMS V8 Database Recovery utility and Online Recovery Service (ORS)
  - Accept Image Copies from IMS V8, V7, and V6
  - Accept HISAM Unloads from IMS V8, V7, and V6
  - Accept logs from IMS V8, V7, and V6
  - Accept Change Accums from IMS V8, V7, and V6*
    *ORS will not accept a CA from IMS V6
- IMS V8 Change Accumulation utility
  - Accepts logs from IMS V8, V7, and V6
  - Accepts Change Accums from IMS V8, V7, and V6

Migration - Logs

Log records have been modified and added
- Products which read logs may need to be updated
- User written programs may need to be modified
  - ILOGREC macro may be assembled for guidance
    ILOGREC RECID=ALL
  - For guidance on macros for Fast Path log records see Log Records section of SYS-System Service Aids chapter in IMS V8 Diagnosis Guide and Ref.
RECON Migration

RECONs must be upgraded to V8

- RECON compatibility SPE should be applied to IMS V6 and/or V7
  - Required if IMS V6 or V7 will access RECONs after upgrade
- RECONs are upgraded with DBRC Utility (DSPURX00)
  - May upgrade from IMS V6 or V7
  - RECON Upgrade utility (DFSURU00) is not available

Coexistence

- V8 RECONs may be used by IMS V7 or V6
  - V7 compatibility SPE: PQ54585 (UQ99327)
  - V6 compatibility SPE: PQ54584 (UQ99326)

IMS V6 DBRC systems can not access or display some information in an IMS V8 RECON.

RECON Migration ...

Sharing RECONs with previous releases

- IMS V7 and V6 can read and write segmented records
  - Requires compatibility SPE
  - Maximum record size still limited by RECORDSIZE for IMS V7 and V6
- Previous releases required the same record and CI sizes in all RECONs
  - Equal sizes recommended, but not required, in IMS V8
Large RECON Record Warning Messages

- Adjust LOGALERT and SIZALERT specifications
  - Based on space left in 16MB record
  - Do not do this while still using the RECONs with IMS V7
    - IMS V7 limits record to the VSAM maximum record size specification

Migrating from IMS V5 to IMS V8

- Biggest problem is RECON migration
  - No upgrade from V5 to V8
  - No coexistence between V5 IMS and V8 RECONs

- RECONs have to be manually upgraded
  - INIT.RECON on IMS V8
  - Re-register all databases, groups, etc.
  - Image copy all databases

- Don't want to image copy all databases?
  - Be sure image copy needed flag is off
  - Update databases using IMS V8

- If recovery is needed before an image copy is taken
  - Recover databases to end of V5 logs using V5 utilities
  - Continue recovery with V8 logs; specify USEDBDS
Migration - Exit Routines

RECON I/O Exit routine (DSPCEXT0)

- Receives V8 format records after upgrade
  - IMS V7 or V6 exit routine receives V8 format
  - During concurrent upgrade, exit routine receives old format before upgrade and V8 format after upgrade
- Receives unsegmented records
  - Up to 16 megabytes
- Exit interface has not changed
  - If exit routine sensitive to RECON record formats
    - Exit will have to be modified

MSC Exit Routines Removed

IMS V8 removes support for DFSCMPRO0, DFSCMTR0, DFSCMLR0, DFSCMLR1, and DFSNPRT0

- TM and MSC Message Routing and Control User exit routine (DFSMSCE0) replaces them
  - Introduced in IMS V7
  - Consolidates functions of other message exit routines
  - New routing capabilities
- IMS V7 users should migrate to new exit routine while on IMS V7
- IMS V6 users must migrate to new routine when migrating to IMS V8
DB Authorization and Open During Restart

Database authorization and open changes for IMS restart

- Previous releases only authorized and opened databases requiring backout
  - Authorizations were released and data sets closed at the end of restart

- IMS V8 authorizes and opens all databases which were open at termination
  - Could eliminate the need to run jobs which open and authorize databases
    - Some installations use such jobs to eliminate overhead from first transactions to access databases
  - Could affect batch and utility jobs started after online restart
    - Batch or utility job could fail authorization

Fast Path Data Sharing Restrictions

Shared VSO Structures

- May be allocated by an IMS system that ...
  - Supports system-managed duplexing (e.g. IMS V8 and IMS V7 with APAR PQ50661)
    - IMS V7 without the APAR and IMS V6 systems do not supported system-managed duplexing
  - Does not support system-managed duplexing
    - In this case IMS V8, V7, and V6 systems can connect to the VSO structure but the system-managed duplexing function is not available

- When different primary and secondary VSO structures sizes are used for NON-PRELOADed VSO structures
  - Only IMS V8 and IMS V7 with APAR PQ50661 can access a NON-PRELOADed VSO structure
FP Data Sharing Restrictions ...

Non-recoverable DEDB

- Can only be accessed by IMS V8 systems

- In *mixed-version data sharing environments*, DEDBs must be defined to DBRC as *recoverable*

DEDB with more than 240 areas

- Can only be shared if all the sharing IMSs are at IMS V8
  - DEDBs with *less than 240 areas* may be shared by IMS V8, IMS V7, and/or IMS V6 systems

Java Application Migration

IMS V8 does not support Java applications in MPPs and BMPs

- High Performance Java compiler cannot be used in IMS V8
  - Still supported for IMS V7

IMS V8 Java Applications must run in JMP and JBP dependent regions

- Requires use of Persistent Reusable Java Virtual Machine (JVM)

- Migration to JVM and new Java regions may be done under IMS V7
  - No application code changes required
IMS V8 Functions for IMS V7

Some IMS V8 functions will be made available for IMS V7

- JMP and JBP dependent regions
- Batch Remote Recovery Service support
- System-managed processes for CF structures
- MSC FICON CTC support
- JDBC Access to IMS DB Data
- SLDS read support

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Miscellaneous

IMS V8 is the last release to support

- Security Maintenance Utility (SMU)
- SMU users should migrate to RACF or an equivalent product

Basic Telecommunications Access Method (BTAM)

- BTAM users should migrate to VTAM or TCP/IP
- User code or tools that are dependent on BTAM should migrate to VTAM or TCP/IP
Summary

IMS Migration Considerations
- Key dates
- Packaging, Installation, IVP
- Software requirements
- Migration
- Connectivity
- Miscellaneous

Additional information is available
- "IMS Version 8 Release Planning Guide" (GC27-1305)
- "IMS Version 8 Implementation Guide: A Technical Overview of the New Features" (SG24-6594)

IMS V8 Installation Class

U3729: IMS V8 Installation Workshop
- Next scheduled date: April 1, 2003
- Duration: 3 days
- Objective:

Learn how to successfully install and successfully maintain an Information Management System (IMS) Version 8 system, with insights on common problems, how to avoid them and how to correct them should they occur. In the *hands-on lab*, actually run the IMS Installation Verification Program (IVP) process in the environment of your choice:

- Database Control (DBCTL)
- Database Coordinator Controller (DCCTL)
- Database/Data Communications (DB/DC)
- DB/DC with Extended Recovery Facility (XRF)