

Installation and Migration

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Installation and Migration

- Packaging, Prerequisites, and Coexistence
- IMS Library Changes
- IVP Enhancements
- Syntax Checker Enhancements
- KBLA Coexistence
- Installation and Migration Tasks
- Review of Migration Considerations



Packaging, Prerequisites, and Coexistence

Packaging

- IMS V10 product number: 5635-A01

FMID	Feature Description
HMK1010	System Services
JMK1011	Database Manager
JMK1012	Transaction Manager
JMK1013	Extended Terminal Option (ETO)
JMK1014	Recovery Level Tracking (RSR)
JMK1015	Database Level Tracking (RSR)
JMK1016	IMS Java
HIR2220	IRLM 2.2

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IMS V10 packaging is the same as that for IMS V9. Transaction Manager is a prerequisite for ETO. Recovery Level Tracking RSR is a prerequisite for Database Level Tracking RSR.

IRLM 2.2 is the only IRLM shipped and supported with IMS V10.

Software Prerequisites

- Minimum software level prerequisites
 - ◆ z/OS V1R7 (5694-A01)
 - RACF, or equivalent, if security is used
 - High Level Assembler Toolkit (5696-234)
 - ◆ IRLM 2.2, if IRLM is used
- Minimum software levels for optional functions:
 - ◆ IMS V10 Image Copy 2 and Database Recovery fast replication
 - z/OS V1R8
 - ◆ DBRC Parallel RECON Access
 - z/OS DFSMStvs, a separately orderable feature of z/OS
 - ◆ Enterprise Workload Manager
 - z/OS 1.8 or z/OS 1.7 with PTF OA12935
 - ◆ See the IMS V10 Release Planning Guide for additional requirements with IMS V10 functions

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The minimum level of z/OS for IMS V10 is z/OS V1R7. In addition to z/OS the user must install RACF, or an equivalent security product, in order to use security with IMS V10. As with previous IMS releases, the High Level Assembler Toolkit is required to provide assembler macros that IMS uses. If the IRLM is used, IRLM 2.2 is required. Program Isolation (PI) is also supported with IMS V10. IRLM is required for block level data sharing.

z/OS V1.7 runs on the following IBM System z9 and zSeries servers or equivalents: z9-109, z900, z990, z800, and z890.

z/OS V1R8 is required if the fast replication function of Image Copy 2 and the Database Recovery utility are used.

DBRC Parallel RECON Access requires z/OS DFSMStvs which is a separately orderable feature of z/OS V1R7 or z/OS V1R8. Special bids will be considered for IMS customers using the Parallel RECON Access function, who do not already have DFSMStvs, to acquire DFSMStvs for use restricted to IMS.

DFSMS APAR OA11468/PTF UA18949 is a prerequisite for Fast Path customers running at z/OS 1.7 or above.

EWLM support is available in z/OS 1.8 or via APAR OA12935 for z/OS 1.7. For both releases of z/OS the EWLM, Virtualization Engine, and Java SDK FMIDs must be installed in the z/OS system.

The IMS V10 Release Planning Guide has additional information about requirements when using particular functions in IMS V10.



Supported Connections

- ISC is supported with
 - ◆ IMS V10, V9, and V8
 - ◆ CICS Transaction Server V3.2, V3.1, V2.3, and V2.2
 - ◆ User-written software
- MSC is supported with
 - ◆ IMS V10
 - ◆ IMS V9
 - ◆ IMS V8
- Shared Queues is supported with
 - ◆ IMS V10
 - ◆ IMS V9
 - ◆ IMS V8

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All currently supported releases of IMS and CICS are supported for ISC connectivity to IMS V10.

All currently supported releases of IMS are supported for MSC connectivity to IMS V10.

All currently supported releases of IMS are supported for shared queues with IMS V10 Transaction Manager.

Supported Connections

- DB2 connections are supported with
 - ◆ DB2 V9, V8, and V7

- DBCTL connections are supported with
 - ◆ CICS Transaction Server V3.2, V3.1, V2.3, and V2.2

- IRLM 2.2 connections to IRLM 2.1 are supported
 - ◆ IRLM 2.1 is supported with IMS V8 and V9
 - ◆ IRLM 2.1 is not supported with IMS V10
 - ◆ IRLM 2.2 with IMS V10 may connect to IRLM 2.1 with IMS V9 or V8

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All currently supported releases of DB2 on z/OS are supported for connections from IMS V10.

All currently supported releases of CICS are supported for DBCTL connectivity to IMS V10.

Supported Migrations and Coexistence - DBRC


- IMS V9 to IMS V10
 - ◆ Upgrade RECONs from IMS V9 to V10
 - IMS V9 SPE PK06147 allows IMS V9 to use IMS V10 RECONs

- IMS V8 to IMS V10
 - ◆ Upgrade RECONs from IMS V8 to V10
 - IMS V8 SPE PK06145 allows IMS V8 to use IMS V10 RECONs
 - Also provides compatibility for IMS V10 using HALDB Online Reorganization

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IMS V8 and V9 RECONs may be upgraded to IMS V10 by executing the DBRC utility (DSPURX00) and using the CHANGE.RECON UPGRADE command with an IMS V10 SDFSRESL library. Before doing the upgrade you should apply the Small Programming Enhancement to your IMS V8 or V9 system. This allows the V8 or V9 systems to use the RECONs after they have been upgraded to V10.

SPE PK06145 for IMS V8 also supplies compatibility support that allows IMS V10 to invoke HALDB Online Reorganizations (OLR) for partitions that are accessed by IMS V8. IMS V8 cannot invoke HALDB OLR, but when this maintenance is applied it may access partitions for which OLR is used.



Other Coexistence Maintenance

- Global Online Change Coexistence APARs
 - ◆ V8 - PK23401; V9 - PK23402
- System Management Enhancement Coexistence SPEs
 - ◆ V8 - PK30188; V9 - PK30189
- Resource Consistency Checking Coexistence SPEs
 - ◆ V8 - PK32969; V9 - PK32970
 - ◆ Resource Consistency Checking is not done in IMS V10
- Operations Management Coexistence SPEs
 - ◆ V8 - PK27279; V9 - PK27280

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This chart shows the coexistence maintenance required on earlier releases when they coexist with IMS V10.

The Global Online Change coexistence SPEs allow lower level IMS systems to share an OLCSTAT data set with IMS V10. IMS V10 makes changes to the header record. The SPEs allow IMS V8 and V9 to implement and tolerate these changes.

The System Management Enhancement coexistence SPEs allow lower level IMS systems to coexist with IMS V10. Lower level IMS systems which process transaction submitted from the OM API will receive an AD status code if they reply to the IOPCB.

IMS V10 does not support the resource consistency checking function of the Resource Manager. The Resource Consistency Checking SPEs allow lower level IMS systems to use this function among themselves while in an IMSplex with IMS V10 systems. The elimination of resource consistency checking is explained later in this section of the class.

The Operations Management coexistence SPEs allow OM address spaces and IMSs at lower level of IMS to coexist in a CSL environment with IMS V10 OM.

Coexistence - IMS Utilities

- Batch Backout, Log Archive, and Log Recovery
 - ◆ Use the utility from the IMS release that created the log

- IMS V10 Database Recovery utility
 - ◆ Accepts Image Copies produced by IMS V10, V9, and V8
 - ◆ Accepts HISAM Unloads produced by IMS V10, V9, and V8
 - ◆ Accepts Change Accum data sets produced by IMS V10, V9, and V8
 - ◆ Accepts logs produced by IMS V10, V9, and V8




- IMS V10 Change Accumulation utility
 - ◆ Accepts logs produced by IMS V10, V9, and V8
 - ◆ Accepts Change Accum data sets produced by IMS V10, V9, and V8

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The Batch Backout, Log Archive, and Log Recovery utilities access one log. The release level of the utility must match the IMS release that was used to create the log.

The IMS V10 Database Recovery utility (DFSURDB0) accepts Image Copies, HISAM Unload data sets, Change Accumulation data sets, and IMS logs as inputs. These inputs may be created by any currently supported release of IMS.

The Change Accumulation utility accepts IMS logs and Change Accumulation data sets as inputs. These inputs may be created by any currently supported release of IMS.



Resource Consistency Checking Eliminated

- Resource consistency checking is optional with IMS V8 and V9
 - ◆ Ensures that all IMS systems in the IMSplex are using the same data sets for:
 - ACBLIBx, FORMATx, MODBLKSx, and MATRIXx data sets
 - Only applies to systems using global online change with an RM structure
 - Requires: CSL including RM address space(s), RM structure, and OLC=GLOBAL specified in DFSCGxxx member
 - Disabled with NORSCCC= in DFSCGxxx member
- Resource consistency checking is not done in IMS V10
 - ◆ Even with global online change and RM structure
- Coexistence
 - ◆ If IMS V8 and/or V9 systems request resource consistency checking it will be done between the V8 and V9 systems, but not for the V10 system

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Resource consistency checking for global online change is not done by IMS V10. This function was available in IMS V8 and V9. It checks to ensure that the data set names used for the active ACBLIB, FORMAT, MODBLKS, and MATRIX data sets are the same for all of the IMS systems. It is only done when global online change is used (OLC=GLOBAL is specified in the DFSCGxxx member) and an RM structure is used. It can be disabled in V8 and V9 by specifying values for the NORSCCC= parameter in the DFSCGxxx member. Users were likely to disable resource consistency checking since the use of resource consistency checking created a single point of failure. For example, the loss of the ACBLIB data set would effect all systems since all would be using the same data set.

IMS V10 does not do resource consistency checking. The NORSCCC= parameter in the DFSCGxxx member may be specified for compatibility, but it is ignored by V10.

If your IMSplex has a mixture of IMS V10 and V9 or V8 systems, resource consistency checking will apply only to the V8 and V9 systems. When resource consistency checking is used, only the V8 and V9 systems must use the same data set(s). The Resource Consistency Checking SPEs, PK32969 for V8 and PK32970 for V9, must be applied for the IMS V8 or V9 systems to use resource consistency checking when an IMS V10 system is part of the IMSplex.


Remote Site Recovery (RSR) Migration/Coexistence

- V10 RSR tracking system can process logs created by V10, V9, or V8
- V10 RSR Isolated Log Sender can send logs created by V10, V9, or V8
- Logs created by V10 cannot be processed by V8 or V9 tracking system or Isolated Log Sender

- Migration steps
 - ◆ Upgrade the RSR tracking system RECONs to V10
 - ◆ Migrate RSR tracking system to V10
 - ◆ Upgrade the active system RECONs to V10
 - ◆ Migrate active system Transport Manager Subsystem (TMS) running Isolated Log Sender to V10
 - ◆ Migrate active IMS to V10

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The migration of systems using RSR is similar to migrations for previous releases. IMS V10 tracking systems can process logs produced by lower releases. The IMS V10 Isolated Log Sender (ILS) function of the Transport Manager System (TMS) can process logs created by lower releases. On the other hand, IMS V8 and V9 tracking systems cannot accept logs produced by IMS V10 and the IMS V8 and V9 ILSs cannot accept logs produced by IMS V10. Of course, you could migrate all of the RSR components at the same time. You would more likely prefer to migrate them in stages. The restrictions mentioned above imply that the order of migration of the components is as shown on the slide. The tracking system must be migrated before or at the same time as the ILS at the active site. The ILS at the active site must be migrated before or at the same time as the active IMS system. The RECONs must be upgraded to IMS V10 before the systems that use them are migrated to IMS V10.



Log Records

- Some log records have changed
- New log records have been added
- DSECTS for IMS log records may be generated by assembling:
 - ◆ ILOGREC RECID=ALL

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Among the log records which have been changed for IMS V10 are the following types:

07, 08, 22, 4001, 4004, 4006, 4007, 4012, 4083, 45, 56FA, 5950, 5951, 5953, 5954, 5955, 5956, 5957, 5958, 56FA, and 7205.

This is NOT an exhaustive list of changed log records.

If you have application programs which process IMS log records, you should examine to see if they are affected by the changes to the log records. You can assemble DSECTS for IMS log records by using the ILOGREC macro.

IMS Tools Migration/Coexistence

- Some products may require updates
 - ◆ Contact your vendor for information on requirements
 - ◆ IBM has a web site with consolidated information about requirements for IBM IMS tools with IMS V10
 - Navigate:
 - www.ibm.com/software/data/db2imstools/
 - Click on "Support"
 - Click on "IMS Tools and IMS Compatibility"
 - Click on "IMS Version 10"



<http://www-1.ibm.com/support/docview.wss?rs=688&uid=swg21249278>
 or
<http://tinyurl.com/3852cs>

There are APARs for IMS V9 and V8 to support fallback from IMS V10 to these releases. The fixes for these APARs are needed if messages created under IMS V10 need to be queued to an IMS V9 or V8 system after a fallback to these releases. These fixes are not required to take messages from an IMS V8 or V9 system and queue them on an IMS V10 system.

QCF 2.1 requires the fix for APAR P28050 for IMS V10 support.



IMS Tools Migration/Coexistence

- IMS APARs for fallback from IMS V10 to IMS V8 or V9 using QCF
 - ◆ Required so that IMS V9 and V8 can recognize V10 messages
 - PK29667 (V9) and PK29666 (V8)
 - Not required for migration from V8 or V9 to V10

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There are APARs for IMS V9 and V8 to support fallback from IMS V10 using the IMS Queue Control Facility (QCF). The fixes for these APARs are needed if messages created under IMS V10 need to be requeued to an IMS V9 or V8 system after a fallback to these releases. These fixes are not required to take messages from an IMS V8 or V9 system and requeue them on an IMS V10 system.



IMS Library Reorganization

Information On Demand IMS Version 10

IMS Library

- Information Center contains information on IMS V10

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The Information Center has been updated to include information on IMS V10. The topics on the left side of the screen map to the titles of the IMS V10 manuals.

IMS Library Reorganization

- IMS V9 licensed manuals will be unlicensed in IMS V10
- Information moved between manuals
 - ◆ Chapter 5 of Release Planning Guide explains the reorganization

IMS Version 10 Titles	IMS Version 9 Titles
<ul style="list-style-type: none"> • <i>Release Planning Guide</i> • <i>Installation Verification Guide</i> • <i>System Definition Guide</i> • <i>System Definition Reference</i> 	<ul style="list-style-type: none"> • <i>Release Planning Guide</i> • <i>Installation Volume 1: Installation Verification</i> • <i>Installation Volume 2: System Definition and Tailoring</i>
<ul style="list-style-type: none"> • <i>Exit Routine Reference</i> 	<ul style="list-style-type: none"> • <i>Customization Guide</i>
<ul style="list-style-type: none"> • <i>Database Administration Guide</i> • <i>System Administration Guide</i> • <i>Communications and Connections Guide</i> 	<ul style="list-style-type: none"> • <i>Administration: Database</i> • <i>Administration: System</i> • <i>Administration: Transaction Manager</i>
<ul style="list-style-type: none"> • <i>Operations and Automation Guide</i> 	<ul style="list-style-type: none"> • <i>Operations Guide</i>

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The following table summarizes the source of the content of these IMS V10 manuals.

IMS V10 book title	Summary of source of the V10 book's information
Release Planning Guide	Same as RPG plus a chapter from OG.
Installation Verification Guide	Includes info from the IIV.
System Definition Guide	Includes info from ISDT, plus CQS, CSL, CT, and JGR.
System Definition Reference	Includes info from ISDT, plus BPE, CQS, CT, and URS.
Exit Routine Reference	Includes reordered info from the CG, plus info from BPE, CQS, CSL, and CT.
Database Administration Guide	Includes much of the ADB, plus some info from JGR, OG, and ISDT.
System Administration Guide	Includes info from AS, plus OG, DBRC, ATM, IIV, ISDT, URDBTM, and URS.
Communications and Connections Guide	Includes the functions that facilitate communicating with IMS and connecting to IMS: APPC, ESAF, ETO, Connect, ISC, MSC, OTMA, and SLU P.
Operations and Automation Guide	Includes info from OG and CG

IMS Library Reorganization

- Information moved between manuals

IMS Version 10 Titles	IMS Version 9 Titles
<ul style="list-style-type: none"> • <i>Application Programming Planning Guide</i> • <i>Application Programming Guide</i> • <i>Application Programming API Reference</i> • <i>System Programming API Reference</i> 	<ul style="list-style-type: none"> • <i>Application Programming: Design Guide</i> • <i>Application Programming: EXEC DLI Commands for CICS and IMS</i> • <i>Application Programming: Database Manager</i> • <i>Application Programming: Transaction Manager</i> • <i>IMS Java Guide and Reference</i>

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The following table summarizes the source of the content of these IMS V10 manuals.

IMS V10 book title	Summary of source of the V10 book's information
Application Programming Planning Guide	Includes info from APDG, plus intro chapters from APDB, APTM, APCICS, and JGR.
Application Programming Guide	Includes the guidance info from the APDB, APTM, and APCICS.
Application Programming API Reference	Includes the reference info from the APDB, APTM, APCICS and JGR.
System Programming API Reference	Includes info from CQS, CSL, CG, APDB, CG, DBRC, CT, OTMA, and ATM.

IMS Library Reorganization

- Information moved between manuals

IMS Version 10 Titles	IMS Version 9 Titles
<ul style="list-style-type: none"> • <i>Command Reference, Volume 1</i> • <i>Command Reference, Volume 2</i> • <i>Command Reference, Volume 3</i> • <i>Database Utilities Reference</i> • <i>System Utilities Reference</i> 	<ul style="list-style-type: none"> • <i>Command Reference Volume 1</i> • <i>Command Reference Volume 2</i> • <i>Utilities: Database and Transaction Manager</i> • <i>Utilities: System</i>

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The following table summarizes the source of the content of these IMS V10 manuals.

IMS V10 book title	Summary of source of the V10 book's information
Command Reference, Volumes 1 and 2	Includes part 1 + part 2 of CR (the type-1 and type-2 commands).
Command Reference, Volume 3	Includes CSL, DBRC, TMS, Connect, and z/OS commands.
Database Utilities Reference	Includes reordered info from URDBTM.
System Utilities Reference	Includes reordered info from URS, plus ISDT, URBDTM, and DBRC.

IMS Library Reorganization

- Information moved between manuals

IMS Version 10 Titles	IMS Version 9 Titles
<ul style="list-style-type: none"> • <i>Diagnosis Guide</i> • <i>Diagnosis Reference</i> • <i>Messages and Codes Reference, Volume 1: DFS Messages</i> • <i>Messages and Codes Reference, Volume 2: Non-DFS Messages</i> • <i>Messages and Codes Reference, Volume 3: IMS Abend Codes</i> • <i>Messages and Codes Reference, Volume 4: IMS Component Codes</i> 	<ul style="list-style-type: none"> • <i>Diagnosis Guide and Reference (licensed)</i> • <i>Failure Analysis Structure Tables (licensed)</i> • <i>Messages and Codes Volume 1: Non-DFS Messages</i> • <i>Messages and Codes Volume 2: DFS Messages</i>

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The following table summarizes the source of the content of these IMS V10 manuals.

IMS V10 book title	Summary of source of the V10 book's information
Diagnosis Guide	Includes part 1 of the DGR plus a chapter from CQS.
Diagnosis Reference	Includes parts 2 and 3 of the DGR.
Messages and Codes Reference, Volume 1	DFS Messages
Messages and Codes Reference, Volume 2	Non-DFS Messages
Messages and Codes Reference, Volume 3	IMS Abend Codes
Messages and Codes Reference, Volume 4	IMS Component Codes

IMS Library Reorganization

- New and discontinued manuals

IMS Version 10 Titles

Two new titles include:

- *IMSplex Administration Guide*
- *System Programming API Reference*

IMS Version 9 Titles

The content of the single-topic books listed here were distributed throughout the Version 10 library.

- *Base Primitive Environment Guide and Reference*
- *Common Queue Server Guide and Reference*
- *Common Service Layer Guide and Reference*
- *Database Recovery Control*
- *Open Transaction Manager Access*
- *IMS Connect*

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The following table summarizes the source of the content of these IMS V10 manuals.

IMS V10 book title	Summary of source of the V10 book's information
IMSplex Administration Guide	Includes IMSplex info from BPE, CSL, CQS, AS, OG, and ATM.
System Programming API Reference	Includes info from CQS, CSL, CG, APDB, CG, DBRC, CT, OTMA, and ATM.




IVP Enhancements

Highlights

- IVP enhancements for existing functions
 - ◆ Support of RACF implementation and SMU removal
 - ◆ IMS Java sample application
 - ◆ IMS Connect sample application
- IVP support for new functions
 - ◆ Operations Manager (OM) Subscribe/Unsubscribe sample
 - ◆ Dynamic Resource Definition User Interface (DRD UI)
- Continues to be invoked as in previous releases
 - ◆ ISPF Option 6
 - EXEC '*hlq.SDFSCLST(DFSIXC01)*' '*HLQ(imshlq)*'
Where *imshlq* is the High Level Qualifier of the IMS data sets
 - ◆ IMS Application Menu

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The IMS V10 Installation Verification Program provides new sample applications and examples to clarify existing functionality in IMS. Additionally, the IVP includes support for new functions that are introduced in IMS V10.

Information On Demand IMS Version 10 

RACF Implementation Support

- New RACF Security options on Sub-Options panel
 - ◆ Whether or not to use RACF

```

Help
-----
IVP                Sub-Option/Security Selection - DBT      IMS 10.1
Command =====>

Select the desired Sub-Options and press ENTER

/  IRLM - Use IRLM in IVP Applications
/  FP   - Use Fast Path in IVP Applications
/  ETO  - Feature Installed
/  CQS  - Add CQS to CSL Application
/  RACF - Use RACF Transaction Security
      
```

- A “/” in front of RACF requests generation of the necessary jobs and tasks to set up the security environment

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A new RACF Security section is added to the Sub-options panel which requires the user to specify whether or not RACF Security is to be used.

The default is not to use this sub-option (no slash).


If the sub-option is selected, the IVP builds the necessary jobs and tasks to define resources to RACF and to set up the use of several IMS security user exit routines. The user can modify the sample RACF resource definition task. The sample user exit routines always authorize the user to the resources. This sub-option is not available for DB batch.

New IVP steps that implement RACF security:

- IV_D218T which includes actions that replace the IV_E316J actions in previous releases. The new step establishes IMS Security and provides an example of defining the IVP security definitions to RACF.
- IV_C105J which provides a new step to replace the IV_E315J actions in previous releases. The new step assembles and binds the RACF security exits in IMS.SDFSISRC into IMS.SDFSRESL and replaces the uses of DFSISIS0 with DFSRAS00.

Modified IVP steps for RACF security:

- IV_C210T which browses the Stage1 source deck. Depending on the user security choice of using RACF or not, the SECURITY definition macro is also changed to specify whether or not the application resource access security authorization using RACF and exit routines are to be performed by IMS at execution time.
- If the RACF Security option was checked on the Sub-option panel, then the definition using RACF and exit routines is created as follows: SECURITY TYPE=(RAS,SIGNEXIT,TRANEXIT,RACFCOM), SECLVL=(SIGNON,TRANAUTH)
- If the security definition is to be done without using RACF then the definition is: SECURITY TYPE=(NORAS), SECLVL=(NOSIGN,NOTRAN)

Information On Demand IMS Version 10 

IMS Java Sample

- New Java Application options on Sub-Options panel

```

Help _____
IVP              Sub-Option/Security Selection - DBT      IMS 10.1
Command =====>

Select the desired Sub-Options and press ENTER

/  IRLM - Use IRLM in IVP Applications
/  FP   - Use Fast Path in IVP Applications
/  ETO  - Feature Installed
/  CQS  - Add CQS to CSL Application
/  RACF - User RACF Transaction Security
/  JAVA - Use Java Applications

```

- ◆ Adds necessary jobs and tasks for the IMS JDBC application sample
- ◆ The Java sub-option is not available for DB batch or DCCTL environments

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A new Java section is added to the Sub-options panel. If the sub-option is selected, the IVP adds the necessary jobs and tasks for the IMS JDBC application execution.

The Java Sample verifies that a Java workload can be run in an IMS Java Dependent Region environment. The changes in the IVP that support this capability are included in the "C", "E", "G", and "H" steps.

The IVP provides the steps that:

- Add new database, application, and transaction definition statements to the IVP stage 1 source input.
- Add control statement members to the IMS.PROCLIB for Java virtual machine (JVM) initialization.
- Allocate the data set for the auto dealership database.
- Start an IMS control region.
- Start a JMP dependent region.
- Run a transaction in the JMP dependent region.
- Run a batch job in the JBP region to access databases.

IMS Java Sample ...

- New IVP variables
 - ◆ IXUJPATH - specifies the path name of the absolute Java libraries
 - ◆ IXUSPATH - specifies the path name of the sample Java libraries
 - ◆ IXUJHOME - specifies the path name of the Java installation libraries
 - ◆ IXUJOUT - specifies the path name of the HFS file for the output data
 - ◆ IXUJERR - specifies the path name of the HFS file for the error data
- New members in IMS.SDFSISRC
 - ◆ DBD sources for the Dealership application
 - DFSAUTDB, DFSLAUTO, DFSEMPDB, DFSEMLDB, DFSIND11, DFSIND22
 - ◆ PSB sources for the Dealership application
 - DFSAUTAL, DFSAUTEL, DFSAUT11,

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Several new IVP variables have also been added to support the Java sample:

- IXUJPATH - specifies the path name of the absolute Java libraries. The default value is /usr/lpp/ims/imsjava10. This substitutes a value for string "ImsjavaPath" in the IMS DFSJVMMS and DFSJVMEV proclib members.
- IXUSPATH - specifies the path name of the sample Java libraries. The default value is /usr/lpp/ims/imsjava10. This substitutes a value for string "SamplesPath" in the IMS DFSJVMMS and DFSJVMEV proclib members.
- IXUJHOME - specifies the path name of the Java installation libraries. The default value is /usr/lpp/java150/J1.5/bin. This substitutes a value for string "JavaHome" in the IMS DFSJVMMS and DFSJVMEV proclib members.
- IXUJOUT - specifies the path name of the HFS file for the output data. The default value is /tmp
- IXUJERR - specifies the path name of the HFS file for the error data. The default value is /tmp

To support the IVP, new DBD and PSB sources have been added into the IMS.SDFSISRC library.

Information On Demand

IMS Version 10

IMS Connect Sample Application

- New IMS Connect sample application option

```

Help _____
IVP          Sub-Option/Security Selection - DBT      IMS 10.1
Command =====>

Select the desired Sub-Options and press ENTER

 / IRLM - Use IRLM in IVP Applications
 / FP   - Use Fast Path in IVP Applications
 / ETO  - Feature Installed
CQS    - Add CQS to CSL Application
RACF   - User RACF Transaction Security
JAVA   - Use Java Applications
 / CNCT - IMS Connect Applications
  
```

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A new IMS Connect section is added to the Sub-options panel. The default is not to use this sub-option (no slash). It is available for DB/DC and XRF environments. If this sub-option is selected, the IVP adds the necessary jobs and tasks for IMS Connect application execution

DFSIHWS1 is an assembler language IMS Connect application program that sends the PART transaction to IMS Connect and receives a response.

The IVP provides the steps that:

- Assemble and bind the sample application program and user exits.
- Add a configuration member in the PROCLIB data set to define the IMS Connect environment.
- Allocate the Recorder data set HWSRCDR for output data capture.
- Start an IMS control region with OTMA enabled.
- Start the IMS Connect address space.
- Send a transaction message to IMS via IMS Connect and receive a response.

IMS Connect Sample Application ...

- New IVP variable
 - ◆ IXUTCPIP - fully qualified DSNAME for the TCPIP Library
- New member in IMS.SDFSISRC
 - ◆ DFSIHWS1 - sample IMS Connect client written in assembler

To support the IMS Connect IVP, a new IVP variable and a new member in IMS.SDFSISRC have been added.

Operations Manager Sample

- TSO SPOC sample
 - ◆ View all messages
 - ◆ Shows the input/output audit trail of commands
- Modified IVP steps:
 - ◆ Add new parameter AUDITLOG= Audit Trail log data set name in the OM PROCLIB member CSLOI000 - step E303J
 - ◆ Add CFRM and LOGR policy definitions for the new Audit Trail log data set - step E307T

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IMS V10 provides a TSO SPOC sample to view all messages and displays information from the audit trail.

The changes are delivered as enhancements to the CSL "E" steps of the IVP jobs and tasks.

Manage Resources

- Dynamic Resource Definition is a new capability in IMS 10
 - ◆ Manage Resources is a general purpose interface that can be used to issue various resource definition and operational commands

- The IVP for Manage Resources provides
 - ◆ A set of ISPF panels that provide support for DRD commands
 - ◆ An IVP example of updating a program.
 - ◆ An IVP example of updating a transaction.

Manage Resources is a new capability in IMS 10. The IVP provides samples, using Manage Resources, that update both a program and a transaction.

Information On Demand IMS Version 10

DRD Example

```
Help _____
IMS Managed Resources
Command =====>
Select an action and press ENTER
*. . . . ._4 1. Create a new resource
              2. Delete a resource
              3. Query a resource
              4. Update a resource
              5. Import resources
              6. Export resources
```

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A new panel provides the user with options on actions that can be performed against resources. In this example a request is made to update a resource by entering option 4.

Information On Demand IMS Version 10

DRD Example ...

```

File  Action  Manage Resources  SPOC  View  Options  Help
-----
Plex1                IMS Update a Resource
Command =====>_____
_____
-----Plex. ._____ Route. ._____ Wait. ._____

Select a resource type. To base the resource on a model, specify model info
Press enter to continue.

* Resource. . . . . 4__ 1. Database
                        2. Program
                        3. Routing Code
                        4. Transaction

Resource Name. . . . . APOL12, APOL13, SHUTTLE_____
Resource Type. . . . . ____ 1. Resource
                        2. Descriptor

```

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The next panel that displays is the panel that allows a user to select which resource is to be updated. The example on this visual shows a request to update a transaction.

DRD Example ...

```

File Action Manage Resources SPOC View Options Help
-----
Plex1          IMS Update a Transaction
Command =====>_____
-----Plex. ._____ Route. ._____ Wait. ._____

Press enter to continue.
More: +

*NAME Transaction Name. . . . . : APOL12, APOL13, SHUTTLE
Filter APOL12,
CLASS Current Class. . . . . _____ 1-999

START                                     STOP
Enter "/" to select option               Enter "/" to select option
- Q Start queuing                        - Q Stop queuing
- SCHD Start scheduling                  - SCHD Stop scheduling
- SUSPEND Transfer to ready queue       - TRACE Stop trace
- TRACE Start trace

SET
AOCMD AOI command option. . . . . _____ Yes, No, Tran
CLASS Set to class. . . . . _____ 1-999
CMTMODE Commit mode . . . . . _____ Single, Multiple
CONV Conversational. . . . . _____ Yes, No
DCLWA Log Write-Ahead option. . . . . _____ Yes, No
DEFAULT Default - descriptor only . . . . _____ Yes, No
    
```

The previous request results in the panel that defines the parameter values applicable to a transaction. The user can now provide the desired changes.

Miscellaneous

- Support for IXUUPROC variable as optional rather than required
 - ◆ User JES2 PROCLIB ddname or JES3 DDNAME suffix
 - If not specified, /*JOBPARM or /*MAIN statement not generated
 - JCLLIB ORDER statement can be used to specify PROCLIB
- New option to access the IVP Variable Export Utility from IVP panel

```
Help _____
IVP           IVP Phase Selection - DBT           IMS 10.1
Command =====>




Select the desired Phase and position option and press ENTER

Variable Gathering - (Define user values for variables)
1. Start/Restart from the beginning of the phase
2. Start/Restart from the last known position within the phase
3. Variable Export Utility
```

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The IVP variable IXUUPROC (User JES2 PROCLIB DDNAME or JES3 DDNAME suffix) was a required value in prior releases of IMS. In the IMS V10 IVP, it is made optional. If the variable is not specified, the JES2 “/*JOBPARM PROCLIB=xxxxxxx” JCL statement or the JES3 “/*MAIN PROC=xx” is not generated in the JCL. This allows the user to specify the JES PROCLIBs using the JCLLIB ORDER statement in one of the JESx variables IXUJESC1 to IXUJESC5.

The Variable Export Utility can be directly accessed as an option from the IVP Phase Selection panel.



Miscellaneous ...

- More useful MFS device definition
 - ◆ Default of DEV TYPE=(3270,2),FEAT=IGNORE
 - Rather than DEV TYPE=3270-A02,FEAT=IGNORE
- ALL IVP JCL has been changed for UNIT type
 - ◆ SYSALLDA
 - From SYSDA

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The IMS IVP job IV_E204J has been changed to provide a DEV statement default of 'DEV TYPE=(3270,2),FEAT=IGNORE' rather than 'DEV TYPE=3270-A02,FEAT=IGNORE'. This is used for all terminals defined to IMS with 'DEV TYPE=3270-An' and SIZE=(x,80) where x is greater than or equal to 24 (in addition to using it for terminals specifically defined as 'DEV TYPE=(3270,2)'). The change makes the IVP easier to use for many customers because it eliminates the need to have to edit the MFS source to match their systems.

The hard coded unit type SYSDA is changed to SYSALLDA in all the IVP JCL. SYSDA is not a required unit type. SYSALLDA is a required unit type.

Benefits

- The IVP tasks
 - ◆ Provide useful sample applications
 - Easy to use step-by-step and menu-driven jobs and tasks
 - ◆ Show how the new functions work
 - ◆ Provide a working model for future reference and testing.



Syntax Checker Enhancements

Highlights

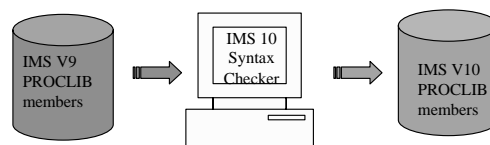
- Support for members of IMS.PROCLIB
 - ◆ Existing
 - ◆ New
- New display formats
- New keyword "Sel" Options
 - ◆ Expand, Contract, Insert
- New selections in View menu
- New member selection panel

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The Syntax Checker is an IMS capability that can define, verify and validate the parameters and their values in the members of IMS.PROCLIB. IMS V10 provides several enhancements to the Syntax Checker as listed on this visual.




Invocation

- IMS 10 Syntax Checker
 - ◆ Continues to be invoked as in previous releases
 - ISPF Option 6
 - EXEC '*hlq.SDFSEXEC(DFSSCSRT)*' '*HLQ(hlq)*'
Where *hlq* is the High Level Qualifier of the IMS data sets
 - ◆ Coexists on the same z/OS along with previous releases of IMS
 - Can be used to check parameters in IMS 10 and previous IMS releases



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The invocation of the Syntax Checker in IMS V10 is no different than in previous releases. It is a stand alone, offline product that can coexist on the same z/OS environment as previous releases of IMS. When used to check parameters of previous releases, make sure that the release number shown is correct.

Support for Members of PROCLIB

- V10 Syntax Checker
 - ◆ Supports the 3 IMS.PROCLIB members as in previous releases:
 - DFSPBxxx, DFSDCxxx, DFSSQxxx
 - ◆ Adds support for 10 additional members:
 - DFSDFxxx, DFSCGxxx, CSLOIxxx, CSLRIxxx, CSLSIxxx, CQSIPxxx, CQSSLxxx, CQSSGxxx, IMS Connect configuration member, BPE User exit list member

- To facilitate migration to IMS V10, the Syntax Checker adds support for many of the same members in IMS V8 and IMS V9

- Syntax Checker support for IMS V7 is dropped

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In IMS V10, the Syntax Checker continues to support the following members: DFSPBxxx, DFSDCxxx and the DFSSQxxx. In addition, support for 10 other members of IMS.PROCLIB has been added:

DFSDFxxx - Dynamic Resource Definition, Common Service Layer, Shared Queues, and Diagnostics and Statistics parameters. (Support for V10 only)

DFSCGxxx - Common Service Layer Parameters

CSLOIxxx - OM Initialization Parameters

CSLRIxxx - RM Initialization Parameters

CSLSIxxx - SCI Initialization Parameters

CQSIPxxx - CQS Initialization Parameters

CQSSLxxx - CQS Local Structure Definition Proclib Member

CQSSGxxx - CQS Global Structure Definition Proclib Member

IMS Connect Configuration Member. (Note: These members do not have a specific member name prefix. The user can select any name. Support for V9 and V10 only).

BPE User Exit List member (Note: These members do not have a specific member name prefix. The user can select any name).

To facilitate migration to IMS V10, the Syntax Checker's support for the currently processed members, DFSPBxxx, DFSDCxxx and the DFSSQxxx includes any new parameters in V8 and V9 that have been added since GA of those releases. Support of IMS V7 PROCLIB members is dropped. Syntax Checker only supports the three latest releases of IMS.

Support for Members of PROCLIB ...

- DFSDFxxx member
 - ◆ New in IMS V10
 - Supports Dynamic Resource Definition, Common Service Layer and Shared Queues parameters
 - Special section tag
 - <SECTION=DYNAMIC_RESOURCES>
 - <SECTION=SHARED_QUEUES>
 - <SECTION=COMMON_SERVICE_LAYER>
 - <SECTION=DIAGNOSTICS_STATISTICS>
- Member names that have no pre-defined prefix
 - ◆ Set by the System Programmer
 - IMS Connect configuration member
 - BPE user exit list member

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IMS V10 introduces a new member in IMS.PROCLIB. DFSDFxxx supports the parameters for Dynamic Resource Definition, Common Service Layer, Shared Queues, and Diagnostics and Statistics . The Syntax Checker recognizes these parameters and provides validation support.

Note that the DFSDFxxx member is new to IMS V10. Additionally, the IMS Connect configuration member and BPE user exit list member all have names that can be tailored to the user environment. As a result, the names are not specifically listed here but can be defined to the Syntax Checker during execution.

Support for Comments

- V10 Syntax Checker recognizes comments for several members
 - ◆ “*” in column 1 for multiple lines
 - ◆ “/**/” in the same line as the parameter

Example

```
*-----*  
* IMS COMMON SERVICE LAYER PROCLIB MEMBER *  
*  
*-----*  
CMDSEC=N, /* NO CMD AUTHORIZATION CHECKING */
```

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The IMS V10 Syntax Checker recognizes comments in several of the members of Proclib. Comments can be in two forms:

- When an “*” is encountered in column 1, the entire line is considered a comment. A member can have multiple consecutive comment lines.
- On the same line as a parameter, the text between a paired “/*” and “*/” is considered a comment.

Support for Members of PROCLIB ...

- Changed DFSSQxxx member
 - ◆ IMS 10 supports comments

```

File Edit View Help
-----
                    IMS 10.1 Parameters for ANY
Command ==>

Press enter (without other input) to check for errors.

Data Set Name . . . : IMSV10.PROCLIB(DFSSQXXX)
IMS Release . . . : 10.1

Sel Codes: C = Comment D = Delete I = Insert P = Process

Sel Keyword      Value      Description
- CQS            = _____ CQS Start Proclib
- CQSSN         = _____ CQS Subsystem Name
- * EMHQ comment
- EMHQ          = _____ EMHQ same line comment
- MSGQ          = _____ Shared Message Queues Structure Name
- SQGROUP       = _____ XCF IMS Shared Queues Group Name Suffix
- WAITRBLD      = _____ EMHQ Structure Rebuild Wait
  
```

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The panel for the Shared Queues member, DFSSQxxx, now supports the addition of comments. Note that this is added only for IMS V10 and does not affect IMS V8 or IMS V9.

New DISPLAY Formats

- Keywords can be displayed in one of two modes
 - ◆ Contract or Expand
 - Provides a choice when keywords have multiple levels of parameters
 - Contract mode
 - Displays keyword values on one line followed by “...”

```
IMSPLEX ( NAME = PLEX1, RSRCSTRUCTURE ( STRNAME = ...
```

- Expand mode
 - Displays keyword values on multiple lines for easier viewing

```
IMSPLEX (  
  NAME = PLEX1,  
  RSRCSTRUCTURE (  
    STRNAME = RSRC1 ) )
```

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To facilitate viewing keyword values when sub-keywords and sub-keyword lists are available, two modes are provided.

The Contract mode displays the keyword values on one line. If the values associated with the keyword extend beyond the line, they are not shown but a “...” is displayed to give the viewer an indication that there is more to the keyword that is not displayed.

The Expand mode uses multiple lines, and as many as are needed, to display all the keywords, sub-keywords and sub-keyword lists that are part of the definition.

Information On Demand IMS Version 10

New "Sel" Field Options

- Expand and Contract modes:

- + (Expand) - Expands the selected keyword in the display
 - (Contract) - Contracts the selected keyword in the display

 - ◆ Not available for all members or keywords
- Insert

I - Adds a new keyword to the display

 - ◆ Displays a pop-up window of available keywords
 - Allows user to choose the keyword

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The "Sel" field in the Parameters panel provides new options to invoke the Expand and Contract modes:

- The "Expand" "Sel" option, "+" (plus), displays the keyword on multiple lines. As described on previous visuals, when a keyword is expanded, the sub-parameters are displayed in a predefined order.
- The "Contract" "Sel" option, "-" (minus sign), displays the keywords on one line. As much of the keyword as will fit on one line is displayed followed by "...".

The options are not available for all members or keywords.

The "Sel" field also provides the option to Insert a new keyword. When selected, a pop-up window of available keywords is displayed to allow the user to choose the desired keyword.

- I (Insert) adds a new keyword to the display. Note that insertion of a comment requires the use of Sel code "C".

New "Pull Down" Options

- The "Pull Down" options that are displayed when a View is requested have been enhanced to include
 - ◆ Expand All - expands all the keywords in the display
 - ◆ Contract All - contracts all the keywords in the display
 - ◆ Not available for all members

```

File Edit View Help
-----
Command === |      *. Display All | for ANY
              |      2. Display Selected |
              |      3. Display New      |
Press enter  |      4. Expand All      | eck for errors.
              |      5. Contract all    |
Data Set Na ----- IB(CSLRIDKE)
IMS Release . . . : 10.1

Sel Codes: C = Comment D = Delete I = Insert
           P = Process + = Expand - = Contract
  
```

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New "Pull Down" options are displayed when View is selected from the top of the screen. The Expand All and Contract ALL options are new.



New Member Selection Panel

- Some new members names have no fixed prefix
 - ◆ Defined for an environment and loaded when required
 - BPE Exit List Member
 - IMS Connect Configuration Member

- Once Syntax Checker detects unknown member name
 - ◆ Member Selection list is displayed.

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Two of the new PROCLIB member names that can be processed by the Syntax Checker do not have required names or prefixes. They are defined by the user requesting the function and then specified as part of the startup procedure. These members include the BPE Exit List Member and the IMS Connect Configuration Member.

When the Syntax Checker detects an unknown member name, a new Member Selection list is displayed to assist in the identification of the member.

New Member Selection Panel ...

- Example

```
File Help

                                IMS Parameter Syntax Checker

Command ==>

Enter the following information and press enter.

Select member type . . . . . 1. BPE Exit List Member
                               2. IMS Connect Configuration Member
```

This visual shows the panel that is displayed to assist the user in identifying the member type.

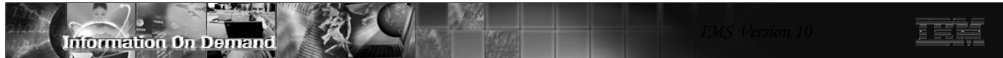


Benefits

- IMS V10 Syntax Checker
 - ◆ Assists with IMS release to release migrations when converting PROCLIB members
 - Provides the ability to define, verify and validate parameters
 - Supports new parameters
 - Supports 13 members of IMS.PROCLIB



KBLA Coexistence



Knowledge-Base Log Analysis Highlights

- KBLA Enhancements
 - ◆ Support for IMS 10 log record changes


 - ◆ Support for concurrent KBLA-supported levels of IMS (V9 and V10)
 - Ensures correct log record DSECTs are used for the corresponding IMS version of the log records
 - Generates JCL appropriate to the IMS release

 - ◆ Ease of migration to IMS 10
 - Ensures that prior release parameters are not invalidated or superseded by the installation of IMS 10
 - New panel to facilitate migration
 - No reconfiguration required for setup

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IMS V9 introduced the ISPF menu-based utility, KBLA (Knowledge-Based Log Analysis), for processing log records.

IMS V10 enhances this capability to support the log record changes introduced in this release. Additionally, enhancements to support multiple concurrent releases of IMS ensure that the correct log record DSECTs associated with an IMS release are used and that the parameters which were defined for the prior release are not invalidated or superseded by the installation of a new release.




Concurrent Levels of IMS with KBLA

- SDFSRESL contains the KBLA utility modules
- Support for selection of IMS level-related SDFSRESL data set
 - ◆ Default Parameter Maintenance Panel (0.1) allows entry of four data sets
 - Entries specifying version 9 or version 10 can be selected for processing
 - Every KBLA processing panel has a parameter where the user can specify the desired IMS level

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Users specify the appropriate SDFSRESL library for an IMS version in the “Default Parameter Maintenance” panel (Option 0.1). An audit in KBLA restricts the specifiable version number to either 9 or 10. Different SDFSRESL libraries for a version can be specified such as 9, 91, 10, 101, etc. KBLA attempts to find the best match of the IMS version specified on a processing panel to the SDFSRESL data set supplied on the Option 0.1 panel.




Concurrent Levels of IMS with KBLA ...

- Change to the JOBLIB data set concatenation specification
 - ◆ V9 KBLA automatically concatenated the data set specified in the ISPF Environment
 - Data set specified as “KBLA Loadlib”, or if blank
 - Data set specified as “IMS Version 9 Reslib”
 - Along with the SDFSRESL data set specified for the IMS version associated with the log data sets
 - ◆ IMS 10 KBLA provides optional inclusion of “KBLA Test Loadlib” value
 - Data set specified as “KBLA Test Loadlib” - only if specified
 - “KBLA Loadlib” has been changed to “KBLA Test Loadlib”
 - Along with the SDFSRESL data set specified for the IMS version associated with the log data sets

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With IMS V9, if a value was not specified for the 'KBLA Loadlib' parameter in the KBLA ISPF Option 0.1 panel ("IMS K.B.L.A - Define KBLA Environment), KBLA defaulted to the specification associated with IMS V9 resource library. KBLA always included this data set as the first DSN in the JOBLIB DD concatenation sequence.

V10 renames the variable from “KBLA Loadlib” which previously implied that a value was required, to “KBLA Test Loadlib” which is intended to imply that a value is optional and perhaps only used for testing purposes. If specified, the associated data set will be included as the first DSN in the JOBLIB concatenation sequence.



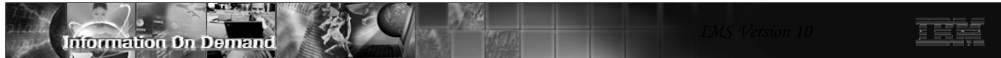
Migration to V10 with KBLA

- Migration Panel
 - ◆ Useful when migrating from IMS V9 KBLA
 - ◆ Automatically invoked only on initial entry to the IMS V10 Level KBLA ISPF environment after migration
 - ◆ Purpose
 - Ensures that the IMS V10 SDFSRESL data set is defined as a variable for the KBLA ISPF environment
 - Establishes the environment

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In order to facilitate migration from prior IMS releases, a migration panel is provided. This panel will automatically be invoked if the user has not explicitly supplied a V10 SDFSRESL, which is identified as such on the Option 0.1 panel.

Existing IMS V9 KBLA users should note that their previous user-set parameter values are retained during the migration and any new parameters that have been added to the IMS V10 KBLA environment are implemented as 'optional' parameters.



Migration to V10 with KBLA ...

- Migration Panel Function
 - ◆ Sets the SDFSRESL data set name to *hlq.SDFSRESL*
 - Provides ability to specify actual name to be used
 - ◆ Performs maintenance on the “KBLA Test Loadlib” variable:
 - Automatically nullifies the value if it matches the V9 SDFSRESL data set name
 - By default, retains the parameter value if different from the V9 SDFSRESL data set name
 - Allows the user to manually
 - Nullify the parameter, or
 - Change it to any desired value

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If not specified, the V10 SDFSRESL name is set to *hlq.SDFSRESL* where *hlq* is the high level qualifier for the environment.

Additionally, the panel automatically propagates the IMS V9 level “KBLA Loadlib” value into “KBLA Test Loadlib”. The user can nullify or set the value to a different name. If the panel determines that the ‘KBLA Loadlib’ data set is the same data set as the existing IMS V9 data set, this value will be removed. The panel will provide an opportunity to enter another data set name as the ‘KBLA Loadlib’, or this variable may be left blank. When the JCL for KBLA utilities is generated, the JOBLIB will contain only the SDFSRESL data set name for the selected IMS version if the ‘KBLA Loadlib’ variable contains blanks.

An Example - Migration ...

- Migration Panel

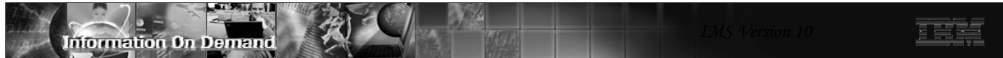
```
          IMS K.B.L.A. - Migration Panel
Command ==>

                                     TIME...15:17:05
                                     DATE...2005/01/20
Supply the indicated values and press ENTER .   JULIAN..2005.020

          IMS Version 10 SDFSRESL DSN IMSBLD.IMS10A.SDFSRESL

          KBLA Loadlib . . . . .
          (If the KBLA Loadlib DSN is the same as the SDFSRESL for IMS Version 9
           it will be set to a null value)

          To Perform Migration, press ENTER .
          To Exit panel, press END .
```



Migration and Coexistence with KBLA

- The KBLA ISPF environment generates JCL for any KBLA-supported level of IMS
 - ◆ Version 9 or Version 10
- Every KBLA processing panel has a parameter where the user can specify the desired IMS level
- Benefits
 - ◆ Simplified migration of KBLA to IMS 10, and implementation of multiple system support
 - ◆ Allows concurrent KBLA access for multiple IMS levels without any setup reconfiguration

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KBLA uses the IMS version information on the processing panel to create the JCL appropriate to the log data sets that are being processed.



Installation and Migration Tasks

Installation and Migration Tasks

- Migration Tasks
 - ◆ Eliminate BTAM and SMU use
 - They are not supported with IMS V10
 - ◆ Check PSP bucket
 - ◆ Review the Program Directory
 - ◆ Review the installation information in Chapters 1, 2, and 3 of the *Installation Verification Guide*
 - ◆ Review the z/OS interface information in Appendix G of the *Installation Verification Guide*
 - ◆ Install prerequisite software and maintenance
 - Check your IMS tools and related products

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This is an overview of the tasks for migration to IMS V10.

Remember that IMS V10 is the first release of IMS not to support BTAM or the Security Management Utility (SMU). Their use should be discontinued before migrating to IMS V10.

As for all installations of new products the Preventive Service Planning (PSP) bucket and the Program Directory for the product should be reviewed before beginning the migration.

The IMS V10 *Installation Verification Guide* has content similar to the *Installation Volume 1: Installation Verification* manual for IMS V9. You should read this Guide before beginning the migration process. Chapters 1, 2, and 3 and Appendix G should be reviewed for installation information.

Other products may need to be upgraded for use with IMS V10. They could require maintenance or new releases.



Installation and Migration Tasks

- Migration Tasks (continued)
 - ◆ Apply coexistence maintenance to other IMS systems
 - DBRC coexistence SPEs
 - System Management Enhancements coexistence SPEs
 - Global Online Change coexistence SPEs
 - Operations Management coexistence SPEs
 - ◆ Evaluate and update IMS exit routines
 - RECON I/O Exit Routine (DSPCEXT0)
 - ◆ Install IMS V10 using SMP/E installation process
 - CBPDO or ServerPac may be used
 - ◆ Run the IVP

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You should apply DBRC coexistence SPEs to your IMS V8 or V9 systems before upgrading your RECONs to IMS V10. This is required for the IMS V8 or V9 systems to be able to use the RECONs after the upgrade.

Similarly, you should apply the other coexistence SPEs to your lower level IMS systems.

The only user exit routine that must be updated for use with IMS V10 is the RECON I/O Exit Routine (DSPCEXT0). If you use this routine, you should examine it for required changes due to the change in RECON records.

CBPDO is Custom-Built Product Delivery Offering. The CBPDO product package consists of one logical tape (multiple volumes). A CBPDO package that includes IMS can also include other products in the same System Release (SREL). CBPDO also provides service for the products included with the product order. The service includes all PTFs available within one week of order fulfillment. All PTFs are identified by one or more SOURCEIDs, including PUTyymm, RSUyymm, SMCREC, and SMCCOR.

ServerPac is an entitled software delivery package. It consists of products and service for which IBM has performed the SMP/E installation steps and some of the post-SMP/E installation steps. To install the package on your system and complete the installation of the software it includes, use the CustomPac Installation Dialog, which is the same dialog used for all CustomPac offerings, including SystemPac® (dump-by-data-set format), ProductPac®, and RefreshPac. For IMS, ServerPac allocates, catalogs, and loads all the data sets; sets up the SMP/E environment; supplies a job to update PARMLIB (IEFSSNxx, PROGxx, IEASVCxx, and SCHEDxx); and directs you to start the IVP.

Running the IVP is optional, but recommended. All required installations tasks are done outside of the IVP. The IVP verifies that the installation is correct.

Installation and Migration Tasks

- Migration Tasks (continued)
 - ◆ System definition
 - ◆ Install the Type 2 and Type 4 SVCs
 - ◆ Review IMS Resource Cleanup Module considerations
 - IMS V10 uses dynamic resource cleanup module
 - Do not delete the IMS V8 module until IMS V8 use is discontinued
 - ◆ Upgrade RECONS
 - ◆ ACBGEN

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System definition is required as with previous IMS releases. Most system definition statements from previous IMS releases are compatible with IMS V10. BTAM definitions are no longer allowed.

System definition creates the Type 2 and Type 4 SVC modules which must be installed in the z/OS system. A z/OS IPL is not required. They may be installed by running DFSUSVC0 and specifying SVCTYPE=(2,4).

In IMS Versions 9 and 10 use a dynamic resource cleanup module (DFSMRC20). No user setup is required; you do not need to install the static resource cleanup module (DFSMRCL0) on the host z/OS system for IMS V9 or V10. IMS V8 uses the static resource cleanup module (DFSMRCL0). Do not delete it from your z/OS system while there is still a possibility that you will need to run IMS V8.

Upgrade the RECONS by using the CHANGE.RECON UPGRADE command using the IMS V10 release of the DBRC utility.

An ACBGEN is required for use with the online system or any batch DBB jobs.




Review of Migration Considerations

Migration Considerations

- This section repeats information previously covered in the class
 - ◆ These are changes that might affect your migration
 - Changed messages
 - Changed responses
 - Changed parameters
 - Changed control statements
 - ...

The following pages repeat information that appears elsewhere in this class. This is a collection of information about migration that was previously presented in the class. The information concerns changes in IMS V10 that might require adjustments when you migrate without taking advantage of new optional capabilities.



BTAM Support Removal

- IBM BTAM products were withdrawn from service several years ago
 - ◆ IMS continued to support BTAM through IMS V9

- IMS V10 removes BTAM support
 - ◆ Ignores all macro statements associated with the unsupported BTAM terminals during IMS system definition
 - Issues warning message


```
G411 MACRO STATEMENT ASSOCIATED WITH AN UNSUPPORTED BTAM
              TERMINAL
```

 - A severity code of 2 is issued to allow system definition to continue


 - ◆ Devices such as Spool, Reader, Printer, Punch, Tape and Disk are not affected.

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Although IBM withdrew marketing and service of BTAM products several years ago, IMS continued to support the BTAM macros through IMS V9. IMS V10 removes this support. The following list shows the device types affected:

BTAM Device Type	Comments or Other Specifications
1050	Switched Terminal
2740	Non-Station-Control
2740	Non-switched, model 1
2740	Non-switched, model 2
2740	Switched Terminal, model 1
2741	Non-switched
2741	Switched Terminal
2260	Local
2780	
3270	Remote, Non-switched
3270	Local
3270	Switched Terminal
3275	Switched Terminal
3741	Switched Terminal
SYSTEM/3	
SYSTEM/7	BSC, BSC and Contention
SYSTEM/7	Start/Stop, Start/Stop and Contention

Warning message G411 will be issued if the macro statement operand has an unsupported BTAM terminal specification during the IMS STAGE 1 system definition process. In addition, a severity code of 2 will be issued to allow system definition to continue. This warning message and severity code will be documented in the IMS V10 Messages and Codes manual.



SMU Support Removed

- IMS V10 removes SMU and SMU components
 - ◆ IMS-provided security
 - ◆ The Security Maintenance Utility
 - ◆ Application Group Name Exit Routine (DFSISIS0)
 - ◆ IMS.MATRIXx data sets
- Primary consideration
 - ◆ If migration from SMU to SAF/RACF has not already been done, migration to IMS V10 will also need to include migration from SMU to SAF/RACF

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IMS V10 no longer supports the Security Maintenance Utility (SMU) capability. As a result, SMU components have been removed including the SMU Utility, the AGN Exit Routine (DFSISIS0) and the MATRIX data sets. Note that the IMS.MATRIXx data sets have been deleted and removed from all IMS procedures and logic.

A primary consideration in this area includes migration. IMS systems that use SMU must migrate to the SAF interface at the time that the upgrade to IMS V10 occurs.

SMU to SAF/RACF Migration

- Migration to SAF (RACF or equivalent) can begin in IMS V8 or IMS V9
 - ◆ V9 includes RACF enhancements for SMU functions which previously had no alternatives
 - Enhancements include areas of AGN, AOI, TCO, MSC link receive, signon verification, and /LOCK and /UNLOCK
 - V9 is a transition release where SMU is still available
 - ◆ Migration from SMU to SAF and from IMS V8 to IMVS V10 is a valid option
 - Begin SMU to SAF migration in IMS V8
 - Migration using V9 enhancements will have to occur during the V10 migration
- Migration references
 - ◆ Chapter 6, IMS V9 Implementation Guide redbook (SG24-6398)
 - ◆ Chapter 4, IMS V9 Administration Guide: System (SC18-7807)
 - ◆ Chapter 3 and 4, IMS V9 Release Planning Guide (GC17-7831)

Both IMS V8 and V9 provide migration paths to the use of SAF/RACF security. IMS V9 provides migration capabilities that are not available with IMS V8.



SMU Support Removed – Migration Considerations

- Ensure that any dependency on SMU has been migrated to SAF/RACF
- Review automated operations and operations procedures
- Review changes to messages, start up parameters, commands and documentation

Transaction Scheduling

- SCHD= parameter on system definition TRANSACT macro is ignored
- Only one scheduling option is used in IMS V10
 - ◆ SCHD=3 option is always used
 - When the transaction defined on the TRANSACT macro cannot be scheduled for "internal reasons", any transaction in the selected class may be scheduled. If no more transactions for this class exist, IMS schedules transaction in next eligible class.
 - "Internal reasons" are database intent or no more space in PSB pool or DMB pool to bring in needed blocks
 - ◆ SCHD=1 was the default in previous releases
 - When the transaction defined on the TRANSACT macro cannot be scheduled for internal reasons, only transaction of equal or higher priority in the selected class may be scheduled. If five intent failures occur within a class, transactions in the next class are attempted

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In previous release of IMS, the SCHD= parameter on the system definition TRANSACT macro specified the scheduling option used when the transaction defined on the TRANSACT macro could not be scheduled for internal reasons (database intent or no more space in PSB pool or DMB pool to bring in needed blocks). IMS V10 always uses the SCHD=3 option. The default in previous releases was SCHD=1.

SCHD=1 specified that only transactions of equal or higher priority in the selected class would be scheduled. Five consecutive intent conflicts are allowed within a class before IMS starts scheduling the next eligible class.

SCHD=3 specified that any transaction in the selected class could be scheduled. IMS starts scheduling the next eligible class after attempting to schedule all the transactions in the current class

Two other options were available in previous releases.

SCHD=2 specified that only higher-priority transactions in the selected class could be scheduled.

SCHD=4 specified that IMS should skip to the next class and attempt to schedule the highest-priority transaction in that class.

Scheduling failures for the "internal reasons" should be rare. Intent conflicts only occur when PROCOPTs with the E (exclusive) option are used. The PSB and DMB pools should always be large enough to hold the currently required PSBs and DMBs.

FPCTRL System Definition Macro Eliminated

- The system definition FPCTRL macro is ignored
 - ◆ Previous releases:
 - Macro was required to enable Fast Path capability
 - Set defaults for Fast Path parameters
- Execution parameters for IMS and DBC procedures
 - ◆ FP=Y|N used to enable Fast Path
 - Default is FP=N
 - ◆ DBBF=, DBFX=, BSIZ=, and OTHR= used to specify Fast Path parameters
- Benefit
 - ◆ Simplifies implementation of Fast Path
- Migration
 - ◆ Fast Path users must specify FP=Y and values for DBBF=, DBFX=, BSIZ=, and OTHR= for execution

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IMS V10 has simplified the implementation of Fast Path. It does not have to be specified at system definition time. The FPCTRL system definition macro is ignored. In previous releases it was required to enable Fast Path capabilities. It also was used to specify the default values for some Fast Path parameters. Fast Path capabilities are always generated for DB/DC and DBCTL systems. They are enabled by a parameter at execution time.

You must specify FP=Y at execution time for an online system to enable Fast Path capabilities in IMS V10. The default for the parameter is FP=N. Since defaults for Fast Path parameters cannot be specified at system definition time, they should be specified at execution time. These parameters are DBBF=, DBFX=, BSIZ=, and OTHR=. The default values for these parameters are the same as the default values for the FPCTRL macro in previous releases. These are:

```
DBBF=10
DBFX=4
BSIZ=2048
OTHR=2
```

These values are highly unlikely to be appropriate for most Fast Path users.

DSP1929I System Startup Message

- Changes in DFS1929I IMS system startup message
 - ◆ New header information
 - IMS version and Control Region type
 - ◆ Parameters which do not apply to the system are eliminated
 - ◆ Sent two times
 - First: specified parameters
 - Second: used parameters
 - After reading the log for restart

When migrating to IMS V10, user-written routines or procedures that look for the DFS1929I message should recognize the header format change to include the IMS version and Control Region type. Additionally, these routines should be modified to recognize that there are two versions of the message.

IMS Application Menu

- Two options have been added to the IMS Application Menu
 - ◆ 2 Manage resources
 - ◆ 9 Abend Search and Notification
- Some options have moved in the list

```
                                IMS Application Menu
Command =====>
Select the desired Sub-Options and press ENTER

      1  Single Point of Control (SPOC)
      2  Manage resources
      3  Knowledge-Based Log Analysis (KBLA)
      4  HALDB Partition Definition Utility (PDU)
      5  Syntax Checker for IMS parameters (SC)
      6  Installation Verification Program (IVP)
      7  IVP Export Utility (IVPEX)
      8  IPCS with IMS Dump Formatter (IPCS)
      9  Abend Search and Notification (ASN)
```

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The IMS Application Menu has been modified to accommodate two new options. "Manage Resources" is option 2. This changed the option numbers for the items that follow it. "Abend Search and Notification" has been added as option 9.



PSB Sizes Increase

- PSB PCB sizes increase by 16 bytes in IMS V10
 - ◆ May require larger PSB pools
 - CSAPSB and DLIPSB pools
 - ◆ Resident PSBs will require more space
 - ◆ Estimated size increase: about 5% for CSA, about 1% for SAS

ACBGEN Default Change for BUILD DBD=

- Previous IMS versions
 - ◆ ACBGEN with BUILD DBD= did not always rebuild PSBs referencing the DBD
 - Only rebuilt PSBs if DBD physical structure changed
- IMS Version 10
 - ◆ ACBGEN with BUILD DBD= rebuilds PSBs referencing the DBD by default
 - Done for support of ACBLIB member online change
 - May elongate ACBGEN execution time
 - ◆ BLDPSB=NO overrides default
 - PSBs are not rebuilt unless DBD structure is changed
 - May be used for ACBGENs not used for ACBLIB member online change

```
BUILD DBD=( CUSTOMER , ORDER ) , BLDPSB=NO
```

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The BLDPSB=YES option is new with IMS V10 and ACBLIB member online change. It indicates that ACBGEN rebuilds all PSBs that reference the changed DBD on the BUILD DBD=dbdname statement into the staging ACBLIB. Member online change requires that all PSBs be rebuilt (flag set in PDIR) or it will fail. For performance reasons, these relationships are found during the execution of ACBGEN in batch versus having to discover these relationships online when ACBLIB member online change is invoked. However, this means there may be additional processing done at ACBGEN time and the ACBGEN utility may run longer. BLDPSB=YES is the default.

In previous IMS versions, ACBGEN worked as if BLDPSB=NO was specified. BLDPSB=NO indicates that ACBGEN does not rebuild PSBs that reference the changed DBD if the changed DBD does not change the physical structure of the DBD. The DBD is rebuilt but PSBs are not necessarily rebuilt (ex. exit/randomizer change). You can still specify BLDPSB=NO if you are not planning to use ACBLIB member online change. BLDPSB=NO is not the default, so this operates differently than in previous versions. It must be specified if you want this capability.

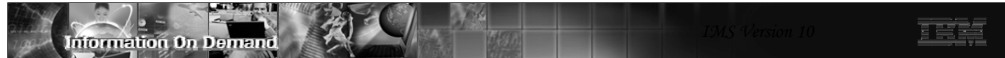
Sysplex Serial Program Management

- SSPM is invoked for all users with CSL and resource structure
 - ◆ Applies to all programs with SCHDTYP=SERIAL specified
 - ◆ No program or definition changes
- SSPM enforces serial program management across the IMSplex
 - ◆ Only one copy of programs (PSBs) with SCHDTYP=SERIAL is scheduled at any time
 - Applies to MPRs, JMPs, and message-driven BMPs
- Migration
 - ◆ If you currently have CSL and a resource structure
 - You will get SSPM
 - You may want to eliminate operational procedures, definitions, etc. that were used to enforce serialization across the sysplex

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If you have an IMSplex with the common service layer (SCI, OM, and RM address spaces) with a resource structure, serial program management will automatically be enforced across the IMSplex with IMS V10. There are no program or definitions changes required for this. Only one copy of a program with SCHDTYP=SERIAL will be scheduled in the IMSplex at any time. This applies to MPRs, JMPs, and message-driven BMPs. It does not apply to non-message driven BMPs, JBPs, CCTL (CICS), or ODBA applications such as DB2 Stored Procedures.

If you have implemented the Common Service Layer and defined a resource structure with previous releases of IMS, you will automatically get the SSPM function when you migrate your IMS systems to V10. You probably created some operational procedures and/or definitions to enforce serialization in your previous release. For example, you may have started a dependent region with the class for the transaction on only one IMS system. This is OK with V10, but it is not required for the enforcement of serialization.



MSC Migration Considerations

- DFMSCE0
 - ◆ Ensure migration from the older routing exit routines DFSCMTR0, DFSNPRT0, DFSCMLR0, DFSCMPR0

- Bandwidth
 - ◆ Migrate using the default of non-Bandwidth mode in IMS V10
 - Compatible with previous releases
 - ◆ After migration, bandwidth Mode can be enabled using the UPD command
 - Requires both partners of the link to be IMS V10 systems
 - Adjust buffer sizes
 - Minimum of 4096
 - To be effective, the buffers should be large enough to accommodate multiple messages

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When migrating to IMS V10, ensure that the older routing exit routines, if any, have been converted to DFMSCE0. This migration can be accomplished in any of the supported previous releases (V7, V8, V9) prior to the actual IMS V10 migration. If the exit routines still exist while the V10 migration is in progress then the V10 migration tasks need to include the upgrade of the previous releases to DFMSCE0.

A like-for-like migration from a previous release to IMS V10 allows MSC to be initialized in non-bandwidth mode. This mode is compatible with MSC operations in previous releases.

The ability to turn on bandwidth mode is provided via the UPD command and requires both partners of the link to be at an IMS V10 level. In this mode, the minimum size of the buffers should be 4096. To be more effective, the buffer sizes should be defined to accommodate multiple messages.

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MSC Migration Considerations ...

- Buffer size
 - ◆ MSPLINK buffer size ranges have changed
 - Minimum is 1024, maximum is 65,536
 - Increase over IMS V8/V9 definitions
 - VTAM sizes for IMS V10 can be any size and no longer follow an algorithm
 - Validate that partner IMS systems have matching buffer specifications
 - If the IMS V8/V9 systems have link buffer sizes less than 1024, they must be modified to a minimum of 1024

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Note that the buffer size minimum and maximum ranges have changed in IMS V10. If the link is a VTAM link, the buffer size can now be any size defined in the range and no longer requires a size that fits into the previous formula of $X \text{ times } 2 \text{ to the power of } Y$, where X had to be a value from 8 to 15, and Y has to be a value from 3 to 13. . The MSPLINK macro description in the System Definition Guide still documents a table but only for compatibility purposes.

If the partner of the MSC link is a V8 or V9 IMS system then those definitions must be at a minimum of 1024.

OTMA Migration Considerations

- Message flood control
 - ◆ Default limit of 5000 is set at initialization
 - To deactivate the function, define the INPUT parameter in the DFSYDTx descriptor or issue the /STA TMEMBER INPUT command
- Time-out
 - ◆ Default is set to 5 seconds
 - To deactivate the function, define the T/O parameter in the DFSYDTx descriptor or issue the /STA TMEMBER TIMEOUT command
- /DIS OTMA and /DIS TMEMBER command enhancements
 - ◆ Single line output has been expanded to two-line output in order to include DRU exit name info and time-out info.
 - ◆ The first column info of /DISPLAY TMEMBER TPIPE is now the input message count instead of output enqueue count.


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The considerations listed on this visual address issues that should be considered when migrating from a previous release of IMS. The assumption is that migration to IMS V10 is based on existing functionality without adding any new capabilities during the migration process.

The message flood control enhancement in IMS V10 is automatically enabled with a default limit of 5000 messages. To provide compatibility with previous releases and deactivate the support, either specify an INPUT value of 0 in a descriptor or issue the /STA TMEMBER INPUT command.

Likewise, the timeout support for synchronous CM1 message is automatically enabled with a default value of 5 minutes. To provide compatibility with previous releases and deactivate the support, specify T/O value of 0 in a descriptor or issuing the /STA TMEMBER TIMEOUT command.

Note that the /DISPLAY command output associated with OTMA and TMEMBER requests has been expanded to two output lines and includes new information. As a migration consideration, this is a key issue for automated operations.



Log Transaction Analysis, Log Merge, and Statistical Analysis utilities

- Migration
 - ◆ Old Log Transaction Analysis utility JCL continues to work
 - Specification of `NOLOG` or `NOREPORT` on `EXEC` statement ignored
 - These actions are now controlled by the presence or absence of `DD` statements
 - ◆ Log Merge utility continues to work but is not required
 - Multiple logs may be specified as input to the other utilities
 - ◆ Old Statistical Analysis utility JCL must be modified
 - Move `SYSIN` from step 6 to the first step
 - Delete the `LOGOUT` `DD` statement from first step
 - Delete the last five steps
 - ◆ Logs from previous releases are not valid input to these V10 utilities


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The JCL used in previous releases for the Log Transaction Utility can be used with IMS V10. There is one slight incompatibility. Previously you could specify an `OUT=` parameter on the `EXEC` statement. `OUT=NOLOG` specified that an output report should not be written to the `LOGOUT` `DD` data set. `OUT=NOREPORT` specified that an output report should not be written to the `PRINTER` `DD` data set. In IMS V10 if you do not want either of these data sets do not include the `DD` statement for it. IMS V10 ignores the `OUT=` parameter on the `EXEC` statement.

The Log Merge utility was used in previous releases to merge logs from different systems. The output of Log Merge was used as input to the Log Transaction Analysis or Statistical Analysis utilities. The Log Merge utility can be used with IMS V10, but it is not required. Both analysis utilities can merge multiple logs as part of their processing.

The JCL used for the Statistical Analysis utilities in previous releases must be changed for IMS V10. The actions needed to change the JCL are listed on the slide. The control statements were specified in the `SYSIN` data set of the sixth step. The `SYSIN` data set is now part of the first (and only) step. The `LOGOUT` `DD` in the old first step was used to pass data to the following steps. Since only one step is used in IMS V10, the `LOGOUT` `DD` is no longer used. The last five steps are no longer used, so their JCL should be eliminated.

Logs produced by IMS V8 and IMS V9 are not valid input to the IMS V10 Log Transaction Analysis utility and the IMS V10 Statistical Analysis utility.



Change Accum and Prefix Resolution Sort

- Default sort size changed from 200K to MAX
 - ◆ CORE= parameter in JCL for Change Accumulation and Database Prefix Resolution
 - CORE= specifies the storage used by sort
 - MAX allows the installation default value for sort to be used
 - CORE limits the number of sort work data sets used by OEM sort programs
 - UCBs for these data sets are below 16M line for some OEM sort programs
- Migration
 - ◆ If an installation wants to limit the sort space to less than the system default, it should code the CORE= parameter for the desired value.


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The default for the CORE= parameter on the Database Change Accumulation and Database Prefix Resolution utilities is changed in IMS V10 from 200K to MAX. When MAX is used, the IMS utility does not limit the amount of space used by sort. It is limited by the default value specified for the sort product. The sort space is particularly important for some non-IBM sort programs which create UCBs for sort work data sets below the 16M line. The sort space may limit the number of these data sets that may be used. By increasing the default space, the number of sort work data sets may be increased. This may shorten the elapsed execution time for these utilities.

A new message has been added to the Database Change Accumulation and Database Prefix Resolution utilities. It is issued when the CORE= parameter is not specified. The message is:

```
DFS3007I SORT CORE SIZE WILL DEFAULT TO CORE=MAX
```

If an installation wants to limit the sort space to less than the system default, it should code the CORE= parameter for the desired value.



DBRC Timestamp Precision

- Migration Considerations
 - ◆ Full precision used after MINVERS('10.1') specified
 - Fallback to MINVERS < 10.1 requires deletion of RECON log records
 - ◆ Utility control statement changes are unlikely to affect users
 - GENJCL.CA and GENJCL.RECOV create correct statements
 - Used by almost all users
 - ◆ RECON listings and message outputs include full precision timestamps when MINVERS('10.1')
 - ◆ Abbreviated timestamps supported for most uses
 - ◆ No changes for DBRC API
 - Timestamps continue to be 12 byte internal timestamp format
 - ◆ Timestamp precision of GENJCL.USER output could change
 - Default changes when MINVERS('10.1') is set unless overridden in skeletal JCL

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Full precision timestamps are not implemented unless the RECONs have MINVERS('10.1') specified. Even when MINVERS is set to a lower value, the IMS V10 Change Accumulation and Database Recovery utility control statements require new formats which accommodate full precision timestamps. Nevertheless, this is unlikely to be a concern to users since GENJCL.CA and GENJCL.RECOV in IMS V10 always produce control statements with the V10 formats.

When MINVERS('10.1') is set log records are created with the full precision timestamps. If you fallback to MINVERS('9.1') or MINVERS('8.1'), the log records created with full precision timestamps must be deleted before the CHANGE.RECON MINVERS(...) command is issued. The records that must be deleted include PRILOG, PRISLD, PRIOLD, etc. and the ALLOC records associated with these log records.

If you wish, you may specify abbreviated timestamps for most uses. DBRC will interpret the time correctly. Full precision timestamps are required in CHANGE and DELETE commands when a full precision timestamp is part of the RECON record key.

The timestamp precision value may be coded on the TIMEFMT parameter of the %SET statement in skeletal JCL. It is a value from 1 to 6. The default in previous releases was 1. In IMS V10 the default depends on the MINVERS value. MINVERS('10.1') sets the default to 6. MINVERS values less than '10.1' sets the default to 1. This could affect the output of GENJCL.USER. If you have specifically coded the TIMEFMT parameter, timestamp precision in the output will not change. If you have not coded TIMEFMT, the output may change when the MINVERS value is set to '10.1'.

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Database Change Accumulation Utility

- DB0 and DB1 control statements
 - ◆ Purge time is expanded
 - ◆ Number of DD names allowed reduced from 4 to 3
 - Position on control statement moved

Version 8 or 9 example:

```

-----1-----2-----3-----4-----5-----6-----7---
//SYSIN      DD *
DB0DI32DB012006.175 12:00:00.1 -08:00DI320101 DI320102 DI320103 DI320104
DB0AB77DB012006.175 12:00:00.1 -08:00AB770101 AB770102
/*
  
```

Version 10 example:

```

-----1-----2-----3-----4-----5-----6-----7---
//SYSIN      DD *
DB0DI32DB012006.175 12:00:00.123456 -08:00DI320101 DI320102 DI320103
DB0DI32DB012006.175 12:00:00.123456 -08:00DI320104
DB0AB77DB012006.175 12:00:00.1 -08:00      AB770101 AB770102
/*
  
```

- ◆ GENJCL.CA has been updated to create V10 control statements

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The Database Change Accumulation utility DB0 and DB1 control statements have been modified to support timestamps with greater precision. The new expanded timestamp format may be used in V10 but it is not required. DB0 control statements are used to specify the database data sets that are accumulated to the new change accumulation data set. DB1 control statements are used to specify the database data sets that are written to the new output log data set. Since the timestamps now may occupy more columns in the control statements, the position of the database data set DDNAMES have moved and only three may be specified on one control statement. In previous versions the timestamp was specified in columns 12-37 and DDNAMES were in columns 38-45, 47-54, 56-63, and 65-72. In V10 the timestamp uses columns 12-42 and DDNAMES are in columns 43-50, 52-59, and 61-68. If a database has more than three data sets that are in the same Change Accum group, multiple control statements are required in V10. The V10 example shows two control statements to replace the first control statement in the V9 example. Two control statements are required because four DDNAMES are specified. The V10 example shows the greater precision timestamp. The last control statement in the V10 example does not specify the greater precision timestamp.

GENJCL.CA has been updated to create the new format of the control statements. These changes to the control statements will have no effects on users who create Change Accumulation JCL and control statements with GENJCL.CA. This is the vast majority of IMS installations.

Information On Demand IMS Version 10

Database Recovery Utility

- S control statement
 - ◆ Timestamp recovery time is expanded
 - ◆ Specification of "no image copy input" has been moved to column 63
 - ◆ Specification of time zone offset changed - space added before offset

Version 8 or 9 example:

```

-----1-----2-----3-----4-----5-----6-----7---
//SYSIN      DD *
S  DI32DB01  DI320101          2006.175 12:00:00.1-08:00 C
/*
  
```

Version 10 examples:

```

-----1-----2-----3-----4-----5-----6-----7---
//SYSIN      DD *
S  DI32DB01  DI320101          2006.175 12:00:00.123456 -08:00 C
/*
  
```

```

//SYSIN      DD *
S  DI32DB01  DI320101          2006.175 12:00:00.1 -08:00   C
/*
  
```

- ◆ GENJCL.RECOV has been updated to create V10 control statements

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The S control statement is used to specify the database and DDNAME for the database data set that is to be recovered. If the recovery is a timestamp recovery, the timestamp is also specified. The new expanded timestamp format may be used in V10 but it is not required. In previous releases column 57 was used for an indicator. The indicator could specify that a user image copy had been restored or that an RSR receive was done. Since the timestamp may use column 57, the indicator is now coded in column 63 when needed. The first example for V10 shows the use of the expanded timestamp. The second shows the use of the shorter timestamp. Both examples have the 'C' which indicates that there is no image copy input.

There is another small change in the coding of the timestamp. In previous releases there was not a space between the time and the sign for the time zone offset. In the V8 or V9 example on this page the sign is in column 50. In V10 there is a blank between the time and the sign for the offset. In the two examples on this page the blank is in column 55 for the first V10 example and column 50 for the second example.

GENJCL.RECOV has been updated to create the new format of the control statement for timestamp recovery. The change in the control statement will have no effects on users who create Database Recovery JCL and control statements with GENJCL.RECOV. This is the vast majority of IMS installations.

Information On Demand IMS Version 10

RECON Listings

- Version 10 adds information to RECON status listing

```

RECON
RECOVERY CONTROL DATA SET, IMS V10R1
DMB#=231                INIT TOKEN=06082F0536577F
NOFORCER LOG DSN CHECK=CHECK44  STARTNEW=NO
TAPE UNIT=3480          DASD UNIT=SYSDA  TRACEOFF  SSID=**NULL**
LIST DLOG=NO            CA/IC/LOG DATA SETS CATALOGED=NO
MINIMUM VERSION = 8.1    CROSS DBRC SERVICE LEVEL ID= 00001
REORG NUMBER VERIFICATION=NO
LOG RETENTION PERIOD=00.001 00:00:00.0
COMMAND AUTH=NONE HLQ=**NULL**
ACCESS=SERIAL           LIST=STATIC
SIZALERT DSNUM=15       VOLNUM=16      PERCENT= 95
LOGALERT DSNUM=3        VOLNUM=16

TIME STAMP INFORMATION:

TIMEZIN = %SYS

OUTPUT FORMAT:  DEFAULT = LOCAL  NONE  PUNC YY
                 CURRENT = LOCAL  NONE  PUNC YY

IMSPLEX = ** NONE **   GROUP ID = ** NONE **

-DDNAME-      -STATUS-      -DATA SET NAME-
RECON1        COPY1         IMSTESTS.DSHR.RECON1
RECON2        COPY2         IMSTESTS.DSHR.RECON2
RECON3        SPARE         IMSTESTS.DSHR.RECON3

```

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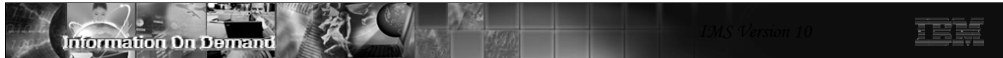
The RECON status or header listing has some added and changed information.

Of course, the IMS version is listed as "V10R1". This means that the RECONS have been upgraded to IMS V10.

There is a new line which lists the type of RECON access, either SERIAL or PARALLEL. On the same line the default for the DBRC LIST command, either STATIC or CONCURR, is shown.

On the line where the IMSPLEX value is shown, the DBRC Group ID value is also shown. In this example, these parameters have no values so "*** NONE ***" is listed.

The sample listing shown here includes the "CROSS DBRC SERVICE LEVEL ID". This also appears on IMS V9 RECON listings when the maintenance for APARs PQ98655 and PK01097 is applied and on IMS V8 RECON listings when the maintenance for APARs PQ98654 and PK01096 is applied. The service level ID is used to invoke functions which require a consistent level of maintenance on all IMS systems using the RECONS.



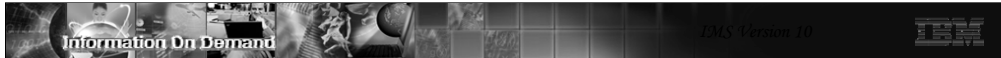
DBRC API Security Authorization

- DBRC command authorization security is extended to include DBRC API requests
 - ◆ Requests are treated like commands for security checking
- Migration
 - ◆ Security was not checked in V9
 - Security checking in V10 might cause application which ran successfully in V9 to fail in V10

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DBRC command security was introduced in IMS V8. It may be used to invoke authorization checking for DBRC commands. RACF, or any SAF security product, may be used. Alternatively, an exit routine may be invoked or both the security product and the exit routine may be invoked. Commands are authorized by defining a resource representing the command. In RACF this is done with an RDEFINE statement.

This authorization is extended to the DBRC API in IMS V10. API requests invoke command authorization checking. Command authorization checking uses resources which are defined to secure specific commands or API requests.



VERSION parameter in DSPAPI macros


- IMS V10 macros default to VERSION=2.0
 - ◆ New functions and options require VERSION=2.0
- Reassembly is not required
 - ◆ Applications assembled with V9 macros default to VERSION=1.0
- Applications can be reassembled with IMS V10 macros
 - ◆ Will run unchanged if VERSION=1.0 is specified
 - ◆ May require changes if VERSION= is allowed to default
- Recommendation
 - ◆ Always specify VERSION= parameter
 - Allows reassembly in future releases without changes

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Each DBRC API macro includes the VERSION= parameter. New functions, such as AUTH, and new options, such as READONLY=YES, require VERSION=2.0. In IMS V9 the only valid value for VERSION was 1.0. It was also the default. In IMS V10 VERSION= defaults to 2.0.

Applications written in IMS V9 will continue to run in V10 without change. Reassembly is not required. In fact, reassembly could cause the program to change due to the change in the default for VERSION=. In some cases, the default of VERSION=2.0 may cause different results from the previous default of VERSION=1.0. This is not always the case. Some of the changes are only the use of previously reserved bytes in the control blocks that are produced. In any case, if you wrote a program for IMS V9 and reassemble it using an IMS V10 macro library, it is safest to specify VERSION=1.0 on the DFSAPI macros before the reassembly.

Since the VERSION= parameter defaults to the latest level of the macros and later levels may produce different results, it is safest to specify the VERSION= parameter value explicitly. This will ensure that future assemblies of DBRC API programs will produce the same results.




IMSplex Name and DBRC Group ID

- IMSplex name is specified with 5 characters (xxxxx)
 - ◆ IMS V8 and V9 store 'CSLxxxxx' in the RECON header extension record
 - ◆ IMS V10 stores 'xxxxxyyy' in the RECON header extension record
 - 'yyy' is the DBRC Group ID
 - DBRC Group ID defaults to '001'
 - Upgrade uses the default
- Example
 - ◆ IMS V8 or V9: IMSplex name is MYPLX
 - Contents in RECON Header Extension record: 'CSLMYPLX'
 - RECON Listing: `IMSPLEX=MYPLX`
 - ◆ IMS V10 after upgrade of RECONS with IMSplex name of MYPLX
 - Contents in RECON Header Extension record: 'MYPLX001'
 - RECON Listing: `IMSPLEX=MYPLX GROUP ID=001`

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The IMSplex name is optional. It is required for Automatic RECON Loss Notification and Parallel RECON Access. The IMSplex name is specified with up to 5 characters. If it was set under IMS V8 or V9, it will be maintained when the RECONS are upgraded to IMS V10. If it was not set under IMS V8 and V9 it may be set in IMS V10 by a CHANGE.RECON command. It is stored in the RECONS. IMS V8 and V9 store the IMSplex name as 'CSLxxxxx' where 'xxxxx'. When the RECONS are upgraded to V10, the value stored is 'xxxxxyyy' where 'yyy' is the DBRC Group ID. The upgrade sets the DBRC Group ID to '001'. It may be changed with a CHANGE.RECON IMSPLEX(plexname,groupid) command.

IMS V8, V9, and V10 list only the 5 characters of the IMSplex name in listings of the RECON header. These listing include a line with IMSPLEX=xxxxx when an IMSplex name has been stored in the RECONS. If there is no value stored, the line includes IMSPLEX=**NONE**. IMS V10 listings also include the DBRC Group ID on this line. If there is no IMSplex name the Group ID is listed as GROUP=**NONE**. If there is an IMSplex name, the Group ID is listed as GROUP=yyy where yyy is the Group ID.



IMSplex and DBRC Sharing Group ID Specification

- IMSplex users considerations
 - ◆ DBRC SCI Registration Exit routine can set the DBRC Sharing Group ID
 - Recommended
 - If DBRCGRP is specified in EXEC, it is passed to the exit routine
- Migration and coexistence considerations
 - ◆ DBRC Sharing Group ID in RECONs is tolerated by IMS V8 and V9 systems
 - V8 or V9 exit routine is not passed the Group ID
 - V8 or V9 exit routine does not specify the Group ID
 - V8 or V9 system processes all ARLN notifications from its IMSplex group
 - ARLN notifications from V8 and V9 systems will be sent to all members of the IMSplex, without regard to V10 DBRC Group IDs
 - Do not use multiple DBRC Sharing Group IDs in an IMSplex while V8 and V9 systems are used

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The DBRC SCI Registration exit routine (DSPSCIX0) may be used to specify the IMSplex name, as in previous releases, and the new DBRC Group ID. The use of the exit routine is recommended for users of IMSplex. It removes the requirement to specify IMSPLEX= for the execution of all IMS jobs which use DBRC. This includes batch jobs and utilities. With IMS V10 the exit also may specify the DBRC Sharing Group ID. This removes the requirement to specify DBRCGRP= for IMS executions.

IMS V8 and V9 systems can tolerate the specification of the DBRC Group ID in the RECONs. DBRCGRP= is not a valid parameter on the EXEC statement for V8 and V9. When the exit routine is invoked in a V8 or V9 environment, the DBRC Group ID is not passed to it. The exit routine cannot specify the DBRC Group ID. Even though a V8 or V9 instance cannot specify the DBRC Group ID, it can join an IMSplex where V10 instances are using DBRC Group IDs. The V8 or V9 instance will be passed all ARLN notifications from the IMSplex group. If a V8 or V9 system reconfigures its RECONs, its ARLN notification will be processed by all members of the IMSplex. This will include all V10 systems. If there are multiple DBRC Groups, all members of all groups will process the notification. For these reasons, you should not use multiple DBRC Group IDs in an IMSplex while you are still using IMS V8 or V9 systems.