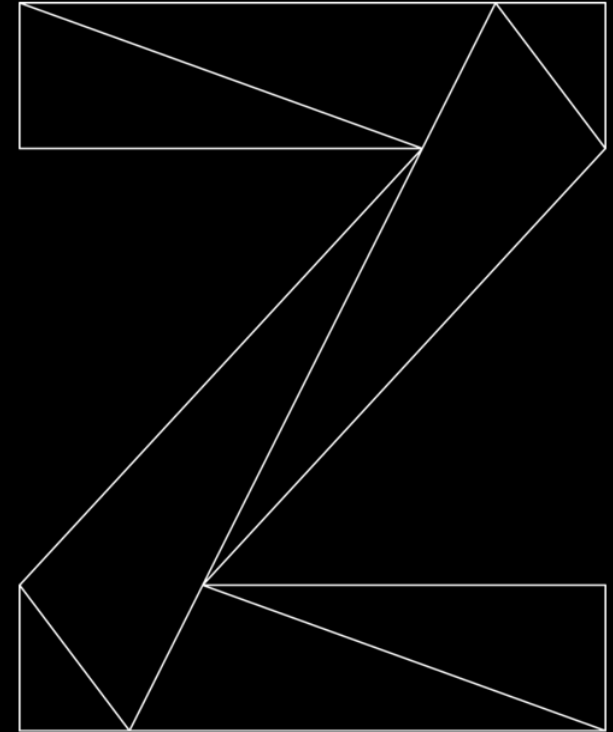


IMS Tools Update

Tracy Dean

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Agenda

- Introduction
- Support for IMS V15.1 and V15.2
- New versions and releases of IMS Tools
- Continuous Delivery
- Staying current



IBM IMS Tools – The Big Picture

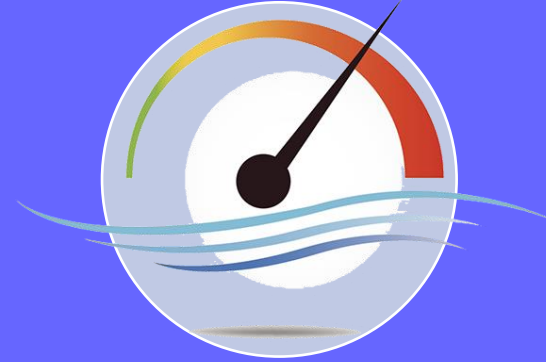


3 Database Solution Packs

- Online Reorg
- Offline Reorg
- Fast Path DBs



Recovery Solution Pack



Performance Solution Pack



Transaction Manager Solution Pack

Automation and Modernization



Full Set of Solutions for IMS TM and DB Customers



3 Database Solution Packs

- Online reorg for FF DB
- Offline reorg for FF DB
- Fast Path databases



Performance Solution Pack

- Database
- Transaction Mgmt



Recovery Solution Pack

- Full Function databases
- Fast Path databases



Transaction Manager Solution Pack

- IMS HP Sysgen Tools
- IMS Configuration Manager
- IMS Sysplex Manager
- IMS Extended Terminal Option Support
- IMS Queue Control Facility
- IMS Connect Extensions

More Database Tools

- IMS Sequential Randomizer Generator
- IMS DEDB Fast Recovery

More Performance Tools

- IMS Network Compression Facility
- OMEGAMON for IMS
- Transaction Analysis Workbench

System Management

- IMS Buffer Pool Analyzer
- IMS Program Restart Facility
- OMEGAMON for JVM

Administration

- IMS Administration Tool

Security

- Guardium S-TAP for IMS
- Guardium Data Encryption for IMS and Db2
- Multi-Factor Authentication

Virtualization and Visualization

- Data Virtualization Manager for z/OS
- Query Monitor Facility for z/OS

DevOps

- IMS Batch Terminal Simulator
- IMS Cloning Tool
- ADDI
- z/OS Debugger
- Open Development Tools
- Infosphere Optim Test Data Mgmt

Automation and Modernization



Support for IMS V15.1 and V15.2



Updates for IMS V15.1 and V15.2

- What PTFs do I need for my IBM IMS Tools to run on IMS V15.1 or V15.2?

IMS V15 Compatibility: <http://www.ibm.com/support/docview.wss?uid=swg22009341>

- I'm starting to look at IMS Managed ACBs – do I need to update my IBM IMS Tools?

IMS Tools Support for Managed ACBs: <http://www.ibm.com/support/docview.wss?uid=ibm10731745>

- I have OSAM databases and am considering converting them to linear data sets
 - Data set encryption
 - Take advantage of Media Manager, including zIIP offload in my IBM IMS Tools

IMS Tools Support for Encryption: <http://www.ibm.com/support/docview.wss?uid=swg22009341>



New product versions or releases



IMS Performance Analyzer for z/OS V4.5

IMS Performance Solution Pack for z/OS V2.3



IMS Performance Analyzer V4.5

- Major improvements to form-based reporting
- Functional updates in response to customer RFEs
- Code cleanup
 - Remove code paths for old versions of IMS, for example
- New release (V2.3) of IMS Performance Solution Pack to include new release of IMS PA
 - IMS Performance Analyzer V4.5
 - IMS Problem Investigator V2.5
 - IMS Connect Extensions V3.1

Available: 16 October 2020



What is IMS PA form-based reporting?

- User-customizable reports
 - Build your own report
 - Select from hundreds of reportable fields across IMS and IMS Connect
 - Start with one of our sample forms (and make alterations) or create your own from scratch
- Two types of reports:
 - LIST: Chronological list of transactions with fields you have specified
 - SUMMARY: Summarize the transactions based on fields you specify. Summarize by:
 - Count
 - Average
 - Maximum
 - Minimum
 - Range
 - Peak percentile
 - Standard deviation
- Output
 - Print or view in SDSF
 - Export to Db2 tables
 - Extract to CSV file for use in analytics platforms, spreadsheet applications, etc.
- Much more powerful than “fixed-format” reports



Usability enhancements for forms

- Generate JCL directly from list of report forms or from the report form itself
 - No requirement to add the form to a report set
- Search for fields or keywords
 - Keyword-based listing of form fields to help you
 - Select fields to add to a report form
 - Find existing forms containing that field
 - Wildcard filtering to find keywords in form names, types, categories and descriptions
- Filters
 - Add a filter to your form-based report
 - Filter on **any** report field
 - Focus the report on a set of conditions (e.g. REGTYPE EQ MPP)
- Categories
 - Assign report forms to one of four categories (IMS, IFP, DBC, CEX)
- Report form samples
 - Dozens of new, pre-configured sample forms for many common analysis tasks
 - Easily customize to your needs



IMS Performance Analyzer 4.4 - Primary Option Menu

Option ==>

- | | | |
|----|--------------------|-------------------------------------------------------|
| 0 | IMS PA Profile | Customize your IMS PA dialog profile |
| 1 | System Definitions | Specify IMS and Connect systems and OMEGAMON files |
| 2 | Groups | Specify Groups of IMS and Connect systems (Sysplexes) |
| 3 | Report Sets | Request and submit reports and extracts |
| 4 | Expectation Sets | Define Expectation Sets (Log exception reporting) |
| 5 | Averages | Edit Averages data sets (Log exception reporting) |
| 6 | Object Lists | Define Object Lists |
| 7 | Distributions | Define Distributions |
| 8 | Graphing & Export | Graph or export Log Extract by Interval data |
| 9 | IMS Connect | Submit IMS Connect report requests |
| 10 | Report Forms | Define Report Forms |
| X | Exit | Terminate IMS PA |



IMS Performance Analyzer 4.5 - Primary Option Menu

Option ==>

- 0 IMS PA Profile Customize your IMS PA dialog profile
- 1 Systems Specify System Definitions and Groups
- 2 Report Forms Form-based reports and Db2 extracts
- 3 Report Sets Request and submit reports and extracts
- 4 Controls Manage report filtering and processing controls
- X Exit Terminate IMS PA

IMS PA Systems Menu
Option ==>

- 1 System Definitions
- 2 Groups
- X Exit

New:
Form-based
report filters

IMS PA Controls Menu

Option ==>

- 1 Filters
- 2 Expectation Sets
- 3 Averages
- 4 Object Lists
- 5 Distributions
- 6 Graphing & Export
- 7 IMS Connect
- X Exit



New: Search for forms containing the specified field text or description text. E.g. Find all forms that contain the “USERID” field

New: Column filter. For example:

- Show only the summary (SUMM) report forms
- Show only the forms in the IMS category
- Show forms with “Program-Switch” in the description

Report Forms

Command ==>

All samples defined

Scroll ==> PAGE

Report Forms Data Set . . : AXL.IMSPA.FORM

Field Search . . : USERID_____

*_____ *__ *__ *_____

| / | Name | Type | Cat | Description | Changed | ID |
|---|----------|------|-----|--------------------------------|------------------|--------|
| | ALLLIST | LIST | IMS | Transaction List | 2020/03/01 00:00 | IPI450 |
| | ALLSUMM | SUMM | IMS | Transaction Summary | 2020/03/01 00:00 | IPI450 |
| | ALLSUMMX | SUMM | IMS | Transaction Summary Extract | 2020/03/01 00:00 | IPI450 |
| | BADRESP | SUMM | IMS | Bad Transaction Response Time | 2020/03/01 00:00 | IPI450 |
| J | BMPCHKPT | LIST | IMS | BMP Checkpoint Detail | 2020/03/01 00:00 | IPI450 |
| | BMPCPDBD | LIST | IMS | BMP Job Checkpoint by Database | 2020/03/01 00:00 | IPI450 |
| | BMPDTL | SUMM | IMS | BMP Checkpoint Detail | 2020/03/01 00:00 | IPI450 |
| | BMPSTAT | SUMM | IMS | BMP Statistics | 2020/03/01 00:00 | IPI450 |
| | CEXBYDST | SUMM | CEX | Connect by Destid | 2020/03/01 00:00 | IPI450 |
| | CEXIPA | LIST | CEX | Connect Tran with IPaddr | 2020/03/01 00:00 | IPI450 |
| | . . . | | | | | |

New: Generate JCL to run this report



EDIT List Report Form - SWITLIST Row 1 to 16 of 16
Command ==> RUN Scroll ==> PAGE

Description . . Program-Switch List

New: Generate JCL to run this report

| Field | Name + | Func | Len | Description |
|-------|----------|------|-----|-----------------------------------------------|
| / | ORGLTERM | | 8 | Originating LTERM |
| | STARTIMS | TIME | 15 | IMS transaction arrival time |
| | PARTRAN | | 8 | Parent transaction code |
| | TRANCODE | | 8 | Transaction Code |
| | P2P | | 3 | Program-switch indicator |
| | PGMSWIT | | 5 | Transaction number in program switch sequence |
| | INPUTQ | | 8 | Input queue time |
| | SWITTIME | | 8 | Program switch time |
| | PROCESS | | 8 | Processing time |
| | OUTPUTQ | | 8 | Output queue time |
| | TOTALTM | | 8 | Total transaction elapsed time |
| | RESPIMS | | 8 | IMS response time |
| | CPUTIME | | 8 | CPU time |
| | REGTYPE | | 3 | Region type |
| | EOR | | | ----- End of Report ----- |
| | EOX | | | ----- End of Extract ----- |

***** Bottom of data *****

Category . . . IMS +
Page Width . . 132
Precision: Time 6
Precision: Cnt 2
Digit Grouping SEC
Tranmix 1
Report Filter +

New: Assign this form to a category (e.g. IMS, CEX, IFP, DBC)

New: Precision for fields that display "count" values

New: Specify the transaction mix in the form (1-6)

New: Apply a filter to isolate transactions matching specific conditions (e.g. CPUTIME > 0.05)



Show transactions that started within a time range

EDIT
Command ==>

Report Filter - DBCTLCPU

Row 1 of 2 More: < >
Scroll ==> PAGE

Description . . . DBCTL regions w CPU gt 0.05 Jan1

Field

/ Name + Oper Value +

| | | |
|----------|----|----------------------------|
| STARTIMS | GE | 2020/10/01,15:25:00.000000 |
| STARTIMS | LE | 2020/10/01,15:35:00.000000 |

REGTYPE EQ DBC

CPUTIME GT 0.05

***** Bottom of data *****

Show transactions where the CPU time is greater than 0.05s

Show transactions where the region type is IMS DBCTL (add more conditions to select more types e.g MPP, IFP, ODB, etc.)



Summary – IMS Performance Analyzer V4.5

- Menu redesign
- Focus on form-based reporting
 - More flexible
 - Puts you in control
 - Create reports containing exactly what you need – no more, no less
- Improved search and filtering
- Free to upgrade for customers current on S&S



IMS Fast Path Solution Pack for z/OS V2.1



IMS Fast Path Solution Pack V2.1

- Available: March 2020
- Online Structure Change utility
 - Restructures DEDB while online, being read and updated
 - Concurrently restructures all areas of a DEDB
 - Or specific areas without impacting other areas
 - Allocates required data sets dynamically
 - Single job step
 - Improves system availability and reduces downtime significantly
 - Short outage for takeover is needed
 - Takeover can be scheduled
- Support for IMS Managed ACBs



Supported changes during OSC

- Number of database areas
- Move data between areas
- Randomizing module, with or without name change
- Segment edit/compression routines, with name change
- UOW and ROOT parameter values
- CISIZE
- Size of the ADS
- Pointer options
- Add new segments to the bottom of the hierarchy
- Change existing segment hierarchical structure within the same parent
- Increase maximum or minimum length of the segment



IMS Online Structure Change vs DEDB Alter

| Function | DEDB Alter | OSC |
|------------------------------------------------------------------------------------|------------|-----|
| Add AREAs | ✓ | ✓ |
| Replace two stage randomizer | ✓ Note 1 | ✓ |
| Alter SIZE, UOW, and ROOT parameters for an AREA | ✓ | ✓ |
| Add compression routine | ✓ Note 2 | ✓ |
| Implement change to compression routine | | ✓ |
| Process multiple AREAs for a DEDB per utility execution | | ✓ |
| Replace single stage randomizer | | ✓ |
| Move data between AREAs so that AREAs are better balanced | | ✓ |
| Add new segment (at the bottom of hierarchy) | | ✓ |
| Implement change to existing segment hierarchical structure within the same parent | | ✓ |
| Change pointer options | | ✓ |

Note 1 – DEDB ALTER requires new randomizer to be a different name than existing randomizer

Note 2 – When adding a compression routine with DEDB ALTER, the data is not immediately compressed so the compression routine must be able to detect segments that have not been compressed



Summary – IMS Fast Path Solution Pack V2.1

- Improved system availability for DEDBs
 - Online Structure Change
 - Short takeover that can be scheduled
- Support for IMS Managed ACBs
- Free to upgrade for customers current on S&S for V1



IMS Problem Investigator for z/OS V2.5

IMS Performance Solution Pack for z/OS V2.2



IMS Problem Investigator V2.5

- Enhancements in response to customer requirements
 - Enhanced SCRUB utility
 - Support additional IMS log record types, including IMS Connect Extensions journal
 - Enhanced CSV output to allow for a fixed width format
 - Allow IMS Connect Extensions CA20 summary records to be located as either an IMS record or an IMS Connect record
 - Filtering - new global field for DRRN
- Code cleanup
 - Remove code paths for old versions of IMS, for example
- New release (V2.2) of IMS Performance Solution Pack to include new release of IMS PI
 - Now replaced by V2.3

Available: October 2019



Continuous Delivery:

Recent new functions

Full list of new function PTFs:

<http://www.ibm.com/support/docview.wss?uid=swg22015506>



IMS Queue Control Facility

- Problem

- CM0 TPIPEs can be left orphaned if messages are deleted from the queue in a shared queue environment
- System checkpoint does not delete them

- Solution

- Delete CM0 TPIPEs for deleted messages in shared queue environment

PH27022 ○ Pre-reqs IMS V15 APAR PH24788



Database Management and Recovery Tools

- IMS Tools Base V1.6

- PH25441 ■ Batch utility to register a group of IMS DBs to Autonomics Directory monitor list

- IMS Administration Tool V1.1

- PH32920 ■ Improved performance of DBD/PSB member list display

- PH29930 ■ Ability to register databases to DBRC

- PH31048 ■ Decode DBD or PSB source from IMS Catalog database

- IMS Database Recovery Facility (IMS Recovery Solution Pack)

- PH30310 ■ Reduce elapsed time and MSU consumption for DRF-XF Health Checker

Preview: IMS Online Reorganization Facility support for External Logical Relationships



IMS Administration Tool V1.1 – Decode DBD/PSB

- Generate DBD and PSB statement source code from IMS Catalog database
 - Initial Panel>Database and Application Administration>Object Explorer

```
Object Explorer                                     IMS ADM V1R1

Selection Criteria:
Resource Type . . : DBD                      IMSID . . . . . : IEB8
*DBD Filter . . . : a*
*Working Data Sets: (? for DS list)
*Decoded Source Data Set:  IMSDEV.ATY110.M300K.DBDSRC
*Updated Source Data Set:  IMSDEV.ATY110.M300K.DBDSRC

*From Library: (See Library Information section for data sets)
Type a number to view property, status and DBD statements.
Property and status are available for active libraries.
9  1.  DBD Library in Data Set Group      "SW@BASE"
   2.  ACB Library in Data Set Group      "SW@BASE"
   3.  DBD Library                        . .  Discovered
   4.  ACB Active Library                  . .  N/A
   5.  ACB Inactive Library                . .  N/A
   6.  ACB Staging Library                 . .  N/A
   7.  IMS Directory Active Data Sets      Discovered
   8.  IMS Directory Staging Data Set      Discovered
   9.  IMS Catalog Database                 . .  Discovered
  10.  Specify Other DBDLIB Data Sets
  11.  Specify Other ACBLIB Data Sets

Library Information: (Type a number to view data sets)
-  1.  Data Set Group                      SW@BASE
   2.  Discovered Data Sets
```

- Select 9 IMS Catalog Database



DBD List or PSB List

```

                                Database DBD List                                Row 1 to 3 of 3
Primary Commands:  C - Create
Line Commands:    A - Alter      M - Model      S - Source
DBD Filter:      . . . A*          (eg: DBDNAME1, DB*, or *)      IMSID: IEB8
-----
S DBD Name
- ACCTA
- AUTODB
- AUTOLDB
***** Bottom of data *****

```

- Line Command S to generate DBD or PSB statements



DBD/PSB Instance List

- Lists all instances of selected DBD/PSB found in IMS catalog
 - Can include more than one instance, distinguished by their generation time stamps
 - Select the instance to decode

```
Database DBD List                                     Row 1 to 3 of 3
DBD Instance List                                     Row 1 to 2 of 2

Select one instance to view a source.

Line Command: S - Select
IMSID . . . : IEB8

S DBD Name      DB Version      Date       Time       Matching Library
S AUTODB       0000000000      2020/10/22 02:38:33.53  ACTIVE
S AUTODB       0000000000      2020/10/20 02:23:20.34
***** Bottom of data *****

Command ==> F1=Help F3=End F7=Up F8=Down F12=Cancel Scroll ==> CSR
```

- DB Version: version number specified on DBVER keyword of DBD/PSB statement
- Matching Library: Library that contains the DBD/PSB whose generation time stamp matches the instance
 - IMS management of ACBs : Active – IMS directory active, Staging – IMS directory staging
 - Non-IMS management of ACBs : Active – Active ACBLIB, Inactive – Inactive ACBLIB, Staging – Staging ACBLIB



DBD/PSB Statement Source code

- Statement source code generated, stored in a data set
 - Can edit and use at IMS resource change

```
File Edit Edit_Settings Menu Utilities Compilers Test Help
IEW      IMSDEV.ATY110.M300K.DBDSRC(AUTODB) - 01.00      Columns 00001 0
***      ***** Top of Data *****
00001      TITLE      'ASSEMBLE OF DBDNAME=AUTODB      '
00002      *          IMS CATALOG DB
00003      *          GENERATION DATE 10/22/2020 TIME 02.38.33
00004      *          DECODE DATE 12/18/2020 TIME 00.04.35
00005      *          IMS VERSION 14.1
00006      DBD          NAME=AUTODB,                      C
00007                      ACCESS=(HDAM,OSAM),              C
00008                      RMNAME=(DFSHDC40,1,5,200),        C
00009                      PASSWD=NO,                        C
00010                      VERSION=                          DATE 10/22/20 TIME 02.38
00011      *****
00012      *          DATASET GROUP NUMBER 1                  *
00013      *****
00014      DSG001 DATASET DD1=DFSDDL,                          C
00015                      SIZE=(1690),                      C
00016                      SCAN=3
00017      *****
00018      *          SEGMENT NUMBER 1                          *
00019      *****
00020      SEGM          NAME=DEALER,                          C
00021                      PARENT=0,                          C
00022                      BYTES=61,                          C
00023                      RULES=(LLL, LAST),                  C
00024                      PTR=(TWIN,,,,),                    C
00025      EXTERNAL NAME=DEALER_EXTNAME
```



IMS Program Restart Facility

- Dynamically implementing checkpoint (CHKP) calls
 - Issue CHKPs during a BMP without application changes
 - IMS Online Reorg Facility (ORF) region controller
 - IMS Program Restart Facility
- Triggers and options for dynamically implementing/pacing CHKPs
 - Use GU and GHU database calls as trigger for checkpoint insertion
 - Use GN and GHN calls, when reaching a root segment, as trigger for checkpoint insertion
 - 1 to 5 DL/I status codes returned from a DL/I call
 - Minimum time interval between checkpoint call insertions for the above triggers
 - Checkpoint call is inserted if any of the specified conditions is satisfied

New with APAR PH14290

New checkpoint report in IMS Performance Analyzer V4.5

- Easily find BMPs performing checkpoints outside your desired range



Improving support for HALDBs

- Increased usage of HALDBs

- Databases growing
- IMS Catalog

- Tools enhancements

PH21973 ▪ IMS Cloning Tool – allow redefining the target HALDB to match the source

- Support > 999,999,999 segments
 - No changes to actually support high number of segments
 - Changes to display/print the number of segments

PQ70680 ➤ IMS High Performance Unload

➤ IMS High Performance Image Copy **PH10418**

PI10953 ➤ IMS Index Builder

➤ IMS Online Reorganization Facility **PH22745**

PH07469 ➤ IMS High Performance Pointer Checker

➤ IMS HALDB Toolkit **PH22310**

PI34435, PH07448 ➤ IMS High Performance Load



IMS Performance Analyzer V4.5

- New functions since October 2020 GA

PH33880

- Option to extract in CSV format selected sub-reports from Checkpoint Statistics report

PH33880

- Add a field to the end of the Transaction CSV extract
 - Derived from a field populated by a customer Usermod to IMS x'4004' Checkpoint SMB record

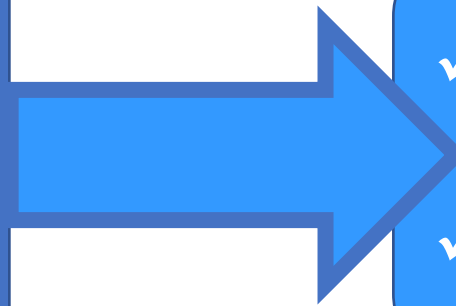
PH32765

- Option to extract in CSV format selected sub-reports from IRUR Statistics report



Conditional reorganization of IMS databases

- Tools gather the data
- You set the schedule
- You define the policies/criteria
- Tools decide if reorg will run
- Online or offline



- ✓ Reduce system resource utilization
- ✓ Improve system availability

- Continued improvements via APAR **PI91880**
 - Evaluate indexes when determining if a reorganization is needed
 - Create unload file even if full reorganization is not needed
 - Create image copy even if full reorganization is not needed



Staying Current



Recent and upcoming End of Support dates

| Product | Version/Release | EOS Effective Date | Replacement |
|--------------------------------|-----------------|--------------------|---------------------------------------|
| IMS Connect Extensions | V2.4 | 30 September 2020 | V3.1 |
| IMS Performance Solution Pack | V1.3 | 30 September 2020 | V2.1, V2.2, or V2.3 |
| IMS HP System Generation Tools | V2.3 | 30 September 2020 | V2.4 |
| IMS Database Solution Pack | V2.1 | 30 September 2020 | V2.2 |
| IMS Problem Investigator | V2.4 | 31 December 2021 | V2.5 |
| IMS Performance Solution Pack | V2.1 | 31 December 2021 | V2.2 |
| IMS Fast Path Solution Pack | V1.3 | 30 September 2021 | V2.1 |
| IMS Database Control Suite | V3.2 | 31 March 2022 | IMS Admin Tool is suggested follow-on |
| IMS Performance Analyzer | V4.4 | 31 October 2022 | V4.5 |
| IMS Performance Solution Pack | V2.2 | 31 October 2022 | V2.3 |

Most recent IBM Z Software EOS announcement: 2 February 2021

Next IBM Z Software EOS announcement: 3 August 2021

Find the status of any product version/release: <https://www.ibm.com/support/lifecycle/>



Functions being stabilized

- **IMS Fast Path Basic Tools**
 - Contained in IMS Fast Path Solution Pack
 - Migrate to
 - IMS Fast Path Advanced Tool
 - IMS Online Tools
 - Announced: 10 March 2020
 - Part of announcement for IMS Fast Path Solution Pack V2.1



IBM IMS Tools

- Reduce system resource utilization
- Improve recovery
- Improve availability and productivity
- Improve system performance

Continued development investment

- New versions and releases
- Continuous Delivery



Additional IMS and IMS Tools Links

- **IMS Tools website**
www.ibm.com/it-infrastructure/z/ims/tools
- **IMS Fundamentals videos:**
https://mediacenter.ibm.com/playlist/dedicated/139456202/0_o46903ao/0_beoagp8k
- **IMS Tools Product Documentation**
www.ibm.com/support/docview.wss?uid=swg27020942
- **IMS newsletter**
Sign up: ibm.biz/IMS_eNews
- **IBM Z Software Newsletter, Operations and Management**
<http://ibm.biz/zITSMNewsletterSubscribe>
- **IMS Tools new functions**
www.ibm.com/support/docview.wss?uid=swg22015506
- **IMS Tools support for IMS V15**
www.ibm.com/support/docview.wss?uid=swg22009341
- **IMS Tools support for Managed ACBs**
www.ibm.com/support/docview.wss?uid=ibm10731745
- **IMS Tools support for Data Set Encryption**
www.ibm.com/support/docview.wss?uid=ibm107333513
- **Article in Enterprise Executive: The Modern IMS Ecosystem**
ourdigitalmags.com/publication/?i=644521
- **IMS listserv**
<http://imslistserv.bmc.com>
- **IMS Tools Videos on IBM MediaCenter**
<https://mediacenter.ibm.com/esearch/search?fields=all&sortBy=updatedAtDesc&keyword=%22IMS%20tools%22>
- **IMS new functions**
www.ibm.com/support/knowledgecenter/en/SSEPH2_15.1.0/com.ibm.ims15.doc.rpg/ims_cd_functions.htm



Watch for monthly webexes on various topics



धन्यवाद

Hindi

多謝

Traditional

감사합니다

Korean

Спасибо

Russian

Ndzi khense ngopfu

Tsonga

Gracias

Spanish

Thank You

English

Obrigado

Brazilian Portuguese

شكراً

Arabic

Grazie

Italian

Ke a leboha

Tswana

Danke

German

多谢

Simplified Chinese

Merci

French

நன்றி

Tamil

ありがとうございました

Japanese

ขอบพระคุณ

Thai

