

IMS Tools – The Next Generation

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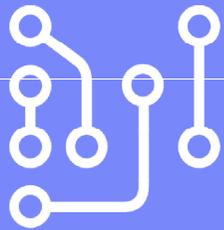
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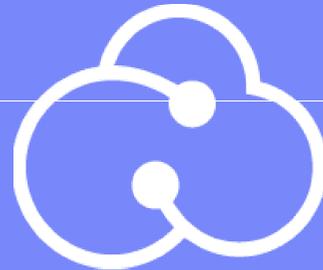
There are three important shifts fundamentally changing the way that decisions are made...

Data



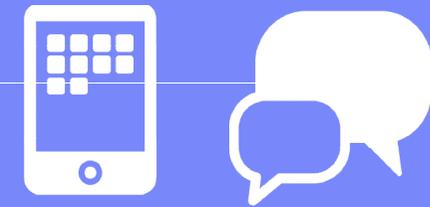
Data is becoming the world's new natural resource

Cloud



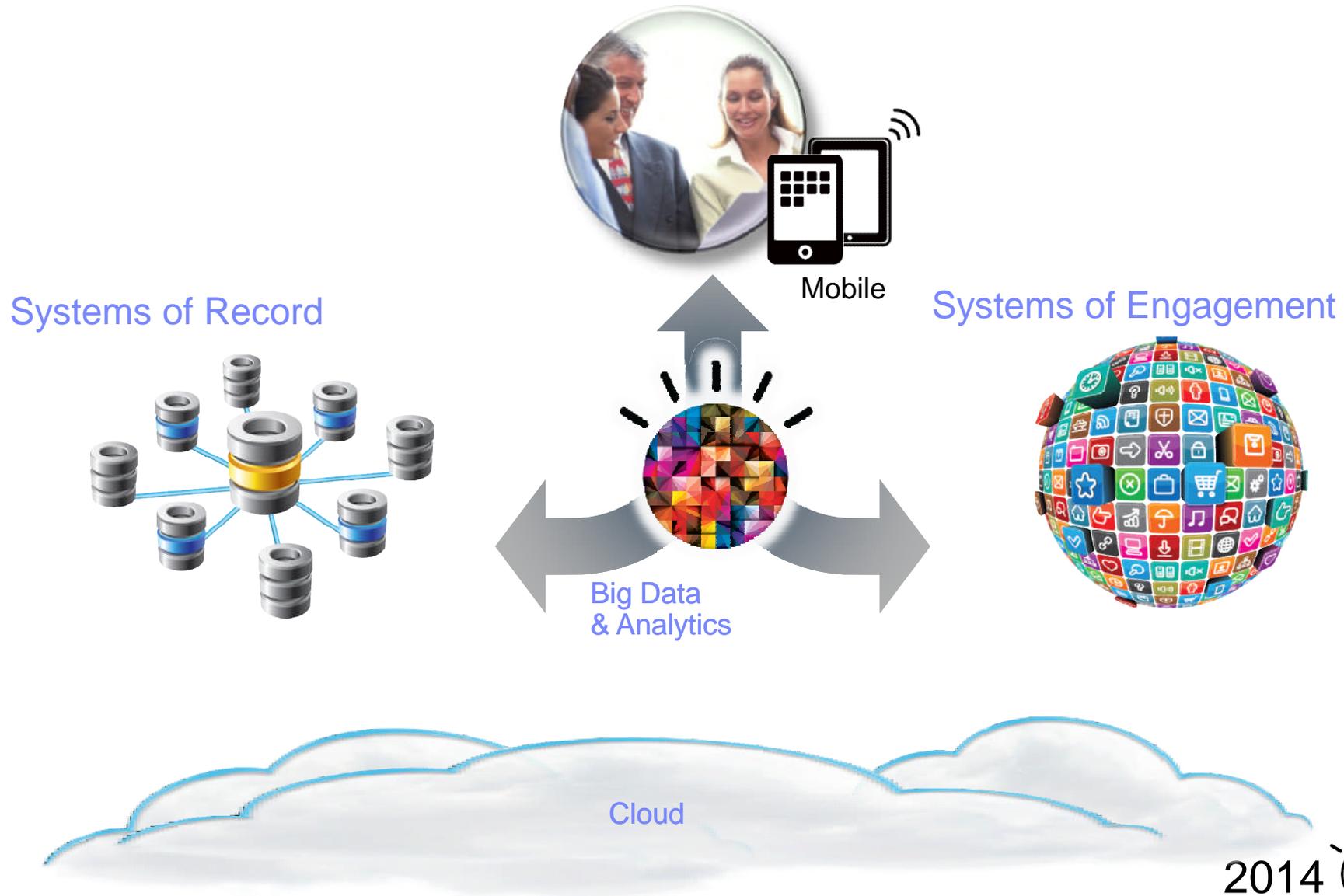
The emergence of cloud is transforming IT and business processes into digital services

Engagement

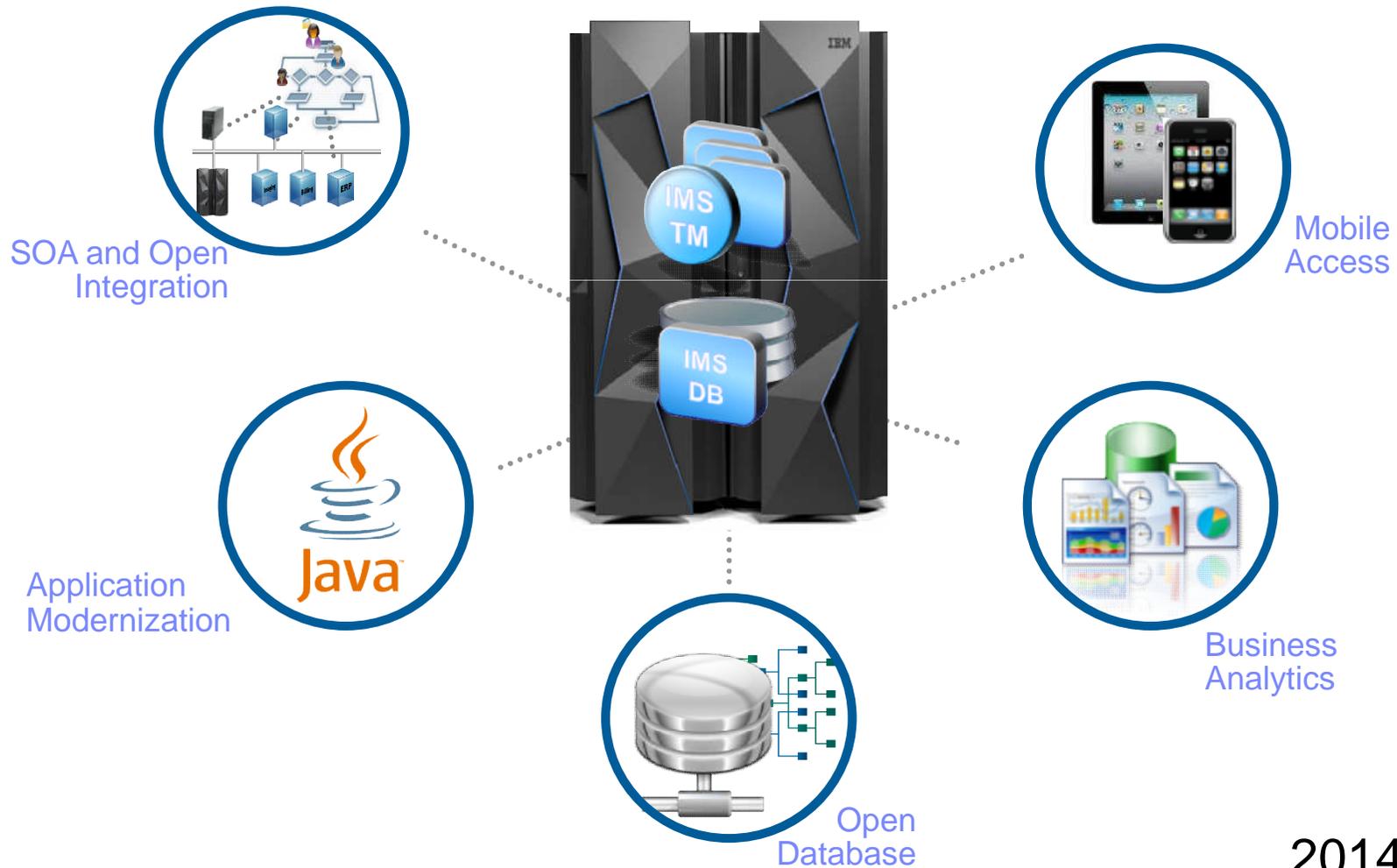


Social. Mobile. Security. Empowering people with knowledge, enriching them through networks and changing expectations.

Business and industries are being transformed by these shifts

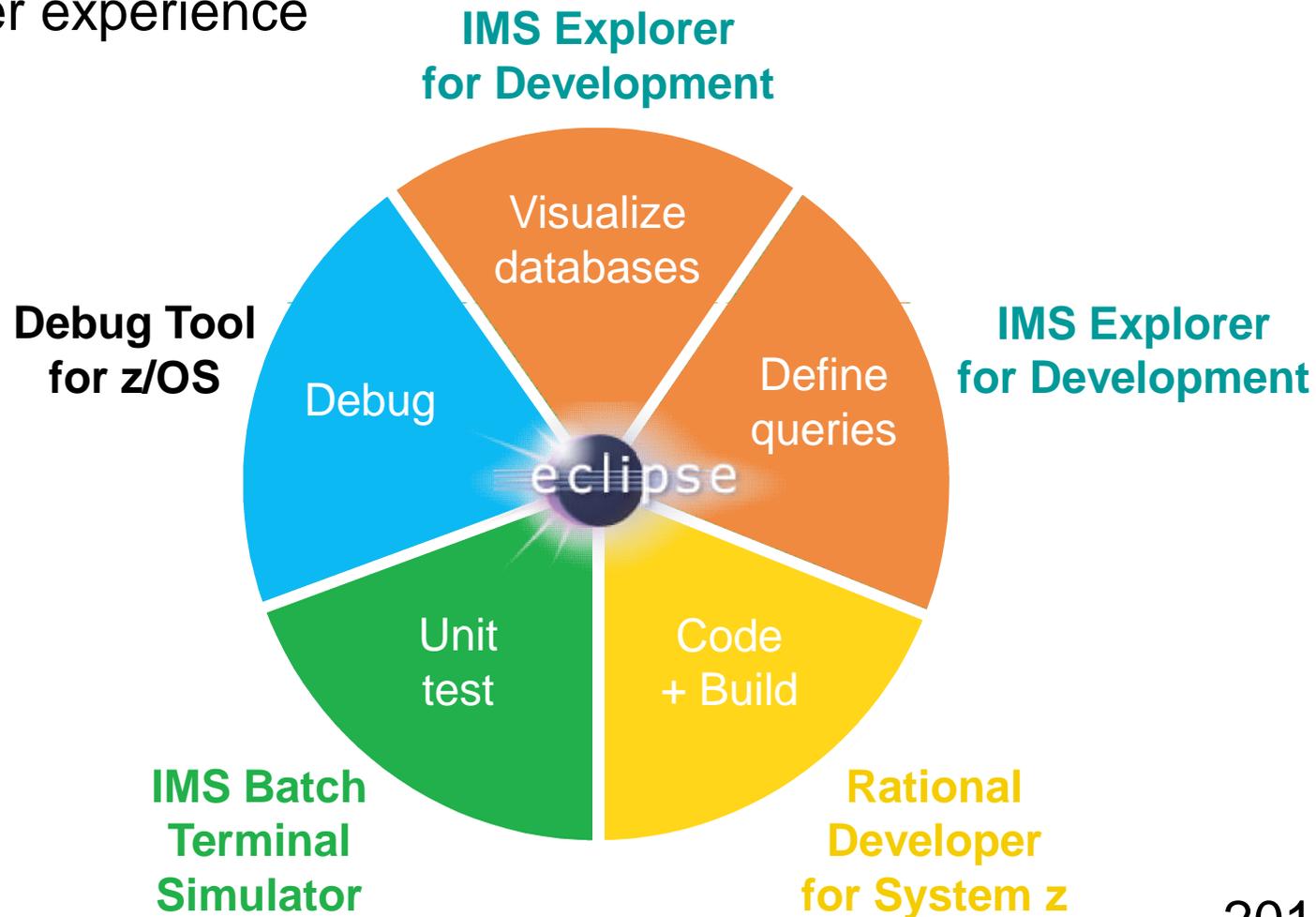
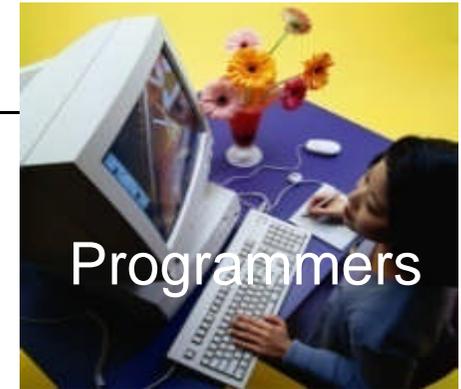


Leaders are innovating with IMS



Next Generation Developers

- Need tools that make them comfortable with z
- Needs tools that enable the modernization of the end-user experience



Integrated Environment for IMS Dev, Test, and Debugging

The screenshot displays the IBM Rational Developer for System z interface. The main window is the code editor for the file `DFSIVA64.cbl`, showing COBOL code for a program named `GOPCB`. The code includes data declarations for `DBD-NAME`, `SEG-LEVEL`, `GO-STATUS`, `PROC-OPTIONS`, `RESERVE-DLI`, `SEG-NAME-FB`, `LENGTH-FB-KEY`, `NUMB-SENS-SEGS`, and `KEY-FB-AREA`. The procedure division includes a `DISPLAY` statement and a `CALL 'CBLTDLI'` statement. The interface also features a 'Program outline' on the left, a 'Remote zOS JES MVS files TSO Emulator' on the right, and an 'Errors and warnings' panel at the bottom showing two messages: `IGYDS1168-E A right parenthesis was missing in the "PICTURE" string. A repetition factor of (1) was assumed.` and `IGYDS1082-E A period was required. A period was assumed before "02".`

Callouts in the image identify the following components:

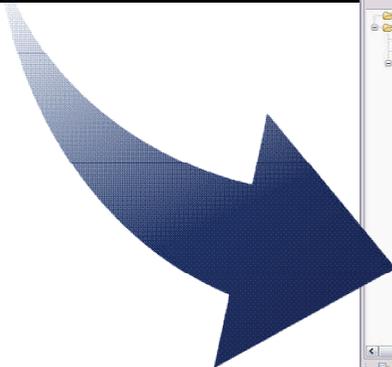
- Debug**: Located above the toolbar.
- Test**: Located above the toolbar.
- Code editor**: Points to the main code editing area.
- Program outline**: Points to the left-hand pane showing the program structure.
- Remote zOS JES MVS files TSO Emulator**: Points to the right-hand pane showing remote system connections.
- Errors and warnings**: Points to the bottom panel displaying compiler messages.

IMS Explorer for Development

- The IMS Explorer for Development is a tool to help with database visualization and querying

```

$DDLTO NEWJCL F1 V 80 Trunc=80 Size=96 Line=25 Col=1 Alt=0
====>
00022 U *****
00023 WTO Start of the DDLTO stream
00024 U status card has all 1's so all tracing is ON.
00025 U status card has 00002 so we use the second PCB in the PSB
00026 S 1 1 1 1 00002
00027 WTO Now doing GN through the database
00028 L GN
00029 E DATA KAA11**K1*
00030 E 01 K1 0005KAA11
00031 L GN
00032 E DATA KBBB11**K2
00033 E 02 K2 0011KAA11KBBB11
00034 L GN
00035 E DATA KAA31KEE31K31311131213131314131513K
00036 E 03 K3K5 0021KAA11KBBB11KAA31KEE31
00037 L GN
00038 E DATA KAA31**K1*
00039 E 04 K1X 0026KAA11KBBB11KAA31KEE31KAA31
00040 L GN
00041 E DATA KAA31KEE32K31321132213231324132513K
PF 1 FIG 2 SCREEN 2 3 QUIT 4 FILE 5
PF 7 BACKWARD 8 FORWARD 9 XFILE 10 LEFT 11
  
```

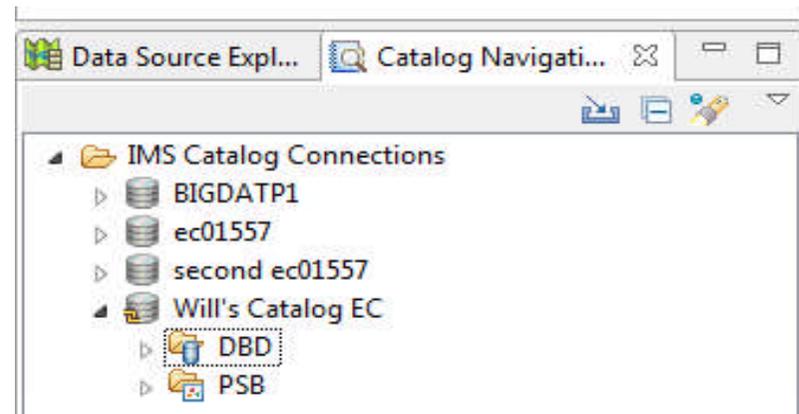


The screenshot shows the IMS Explorer application with the following components:

- Query Window:** Contains the SQL statement: `SELECT PCB01.PATIENT.PATNAME, PCB01.HOSPITAL.HOSPNAME FROM PCB01.HOSPITAL, PCB01.PATIENT`
- Data Source Explorer:** Shows a tree view of the database structure, including tables like HOSPITAL and PATIENT.
- Properties Panel:** Shows fields for HOSPITAL (HOSPNAME) and PATIENT (PATNAME).
- Results Table:** Displays the output of the query with columns for Status, Operation, Date, Connection, and Result. The results include patient names like BOB DAVIS, NEYRHITE, MARIA QUEREALES, etc.

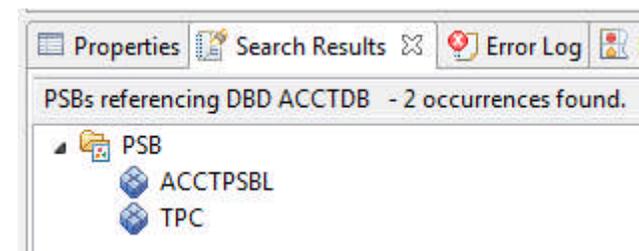
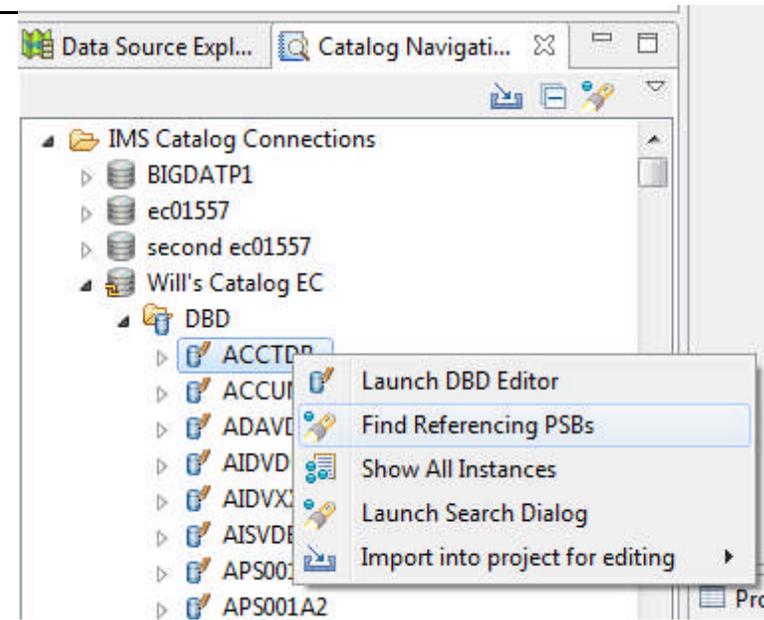
IMS catalog navigation view

- Get a list of all the PSBs/DBDs in the system.



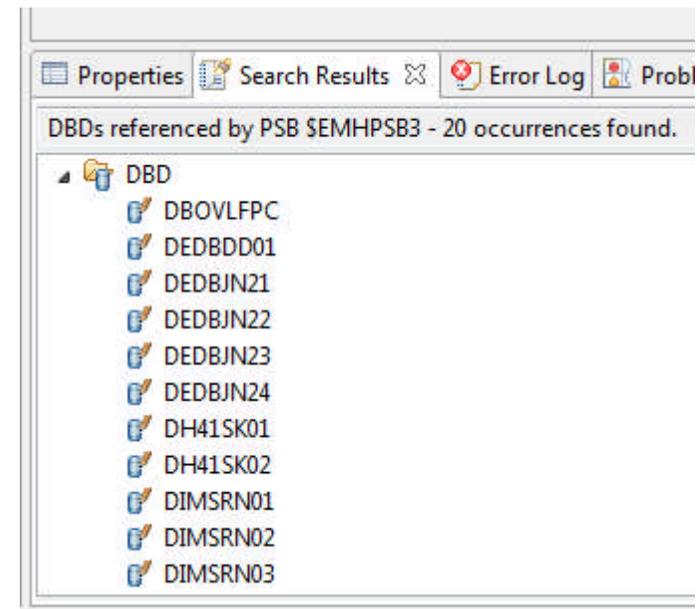
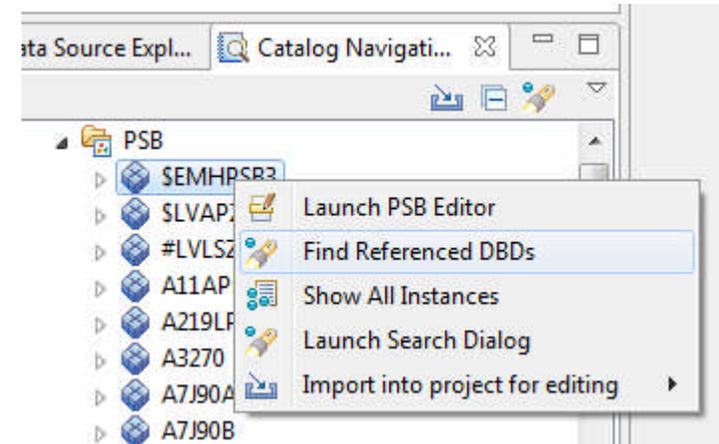
Built-in queries

- Several built-in queries have been added to assist with resource and relationship discovery
 - “What are all the PSBs that reference this DBD?”

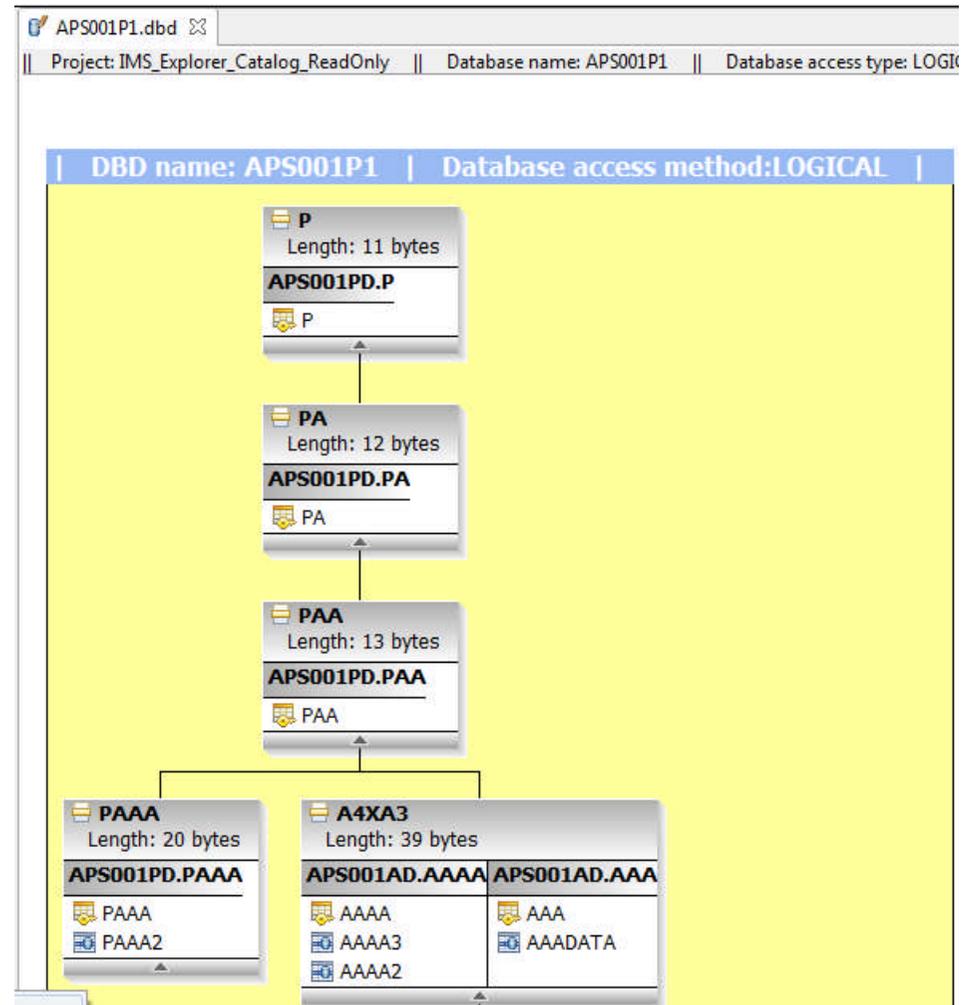
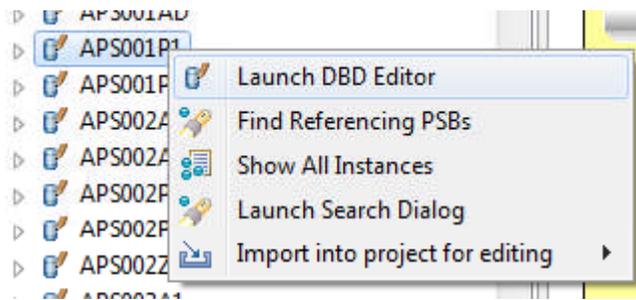


Built-in queries continued

- “What are all the DBDs referenced by this PSB?”



Graphically view resources directly from the IMS catalog



Next Generation Systems Programmers

IMS Explorer for Administration 1.4

IBM Tools Base Administration Console for z/OS

Resources

Sysplex2 > PLEX1 > IMS1 > Transactions > EMHTX2

addl

Enterprise View

- Sysplex4
- Sysplex1
- Sysplex2
 - PLEX1
 - HWS1
 - IMS1
 - HWS2
 - IMS2
 - PLEX2
 - HWS3
 - HWS1
 - IMS3
- Sysplex3
 - PLEX1
 - PLEX2

Transaction: EMHTX2		Related Program		Related Routing Code	
IMS Attribute	Value	IMS Attribute	Value	IMS Attribute	Value
Transaction Code	EMHTX2	Program Name	EMHPSB2	Routing Code	EMHTX2
Commit Mode	SNGL	Status	✓	Status	✓
Status	✓	BMP Program	N	Program	EMHPSB2
Conversational	N	Dynamic Option	N	Inquiry	N
Fast Path	E	Definition Type	MODBLKS	Time Last Accessed	
Limit Count	0	Region type	IFP	Time Created	2013.248 12:57:42.12
Class	1	Member	IMS1	Definition Type	MODBLKS
IMSplex Member Name	IMS1	Fast Path	E	Time Last Imported	
Message Queue Count	0	Local Scheduled Type	PARALLEL	Completion Code	0
PSB	EMHPSB2	Completion Code	0	Time Last Updated	
AOI Command Support	N	Generated PSB	N	Member	IMS1
Completion Code	0	Local Resident	N		
Definition Type	MODBLKS	Time Created	2013.248 12:57:41.58		

Related Databases												
Database Name	Database Type	Status	Data Set Access Type	Member	Definition Type	Run Time Resident	Time Last Imported	Area Name	Time Last Accessed	Completion Code	Time Created	Time Last Updated
MSDBLM01	MSNR	✓	EXCL	IMS1	MODBLKS	Y				0	2013.248 12:57:41.59	
MSDBLM02	MSNR	✓	EXCL	IMS1	MODBLKS	Y				0	2013.248 12:57:41.59	
MSDBLM03	MSNR	✓	EXCL	IMS1	MODBLKS	Y				0	2013.248 12:57:41.59	
MSDBLM04	MSNR	✓	EXCL	IMS1	MODBLKS	Y				0	2013.248 12:57:41.59	
MSDBLM05	MSRF	✓	EXCL	IMS1	MODBLKS	Y				0	2013.248 12:57:41.59	
MSDBLM06	MSRD	✓	EXCL	IMS1	MODBLKS	Y				0	2013.248 12:57:41.59	



Providing deeper insight into IMS...

IBM Tools Base Administration Console for z/OS

Resources

Sysplex1 > plex1 > HWS1

Resource Type: XML Converters

HWS1

MemberName	HWS1
MemberType	IMSCON
status	ACTIVE
Responding Member	OM1OM
Completion Code	0
OS Image	ES03129
Version	13.1.0
IMSPlex	CSLPLEX1
Jobname	HWS1

Related Datastore

Data Store	member	Tmember
<input checked="" type="checkbox"/>	IMS1	HWS1
<input type="checkbox"/>	IMS2	HWSA
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

Ports

PORT	TotCInts	STT
<input checked="" type="checkbox"/>	9999	5
<input type="checkbox"/>	9998	3
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

Related IMSPLEX (OM)

IMSPLX	MEMBER	STT
<input checked="" type="checkbox"/>	PLEX1	HWS1
<input type="checkbox"/>	PLEX2	HWSA
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

Related ODBM

IMS	ALIAS	ASTT
<input checked="" type="checkbox"/>	ODBM1	IMSA
<input type="checkbox"/>	ODBM2	IMSB
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

Remote IMSCON

RIC	IpAddress	STT
<input type="checkbox"/>	CONNECT2	010.100.20
<input type="checkbox"/>	CONNECT3	010.100.20
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

Disconnect Communication

Displays clients associated with the port

QUERY IMSCON TYPE(DATASTORE)

QUERY IMSCON TYPE(PORT)

QUERY IMSCON TYPE(IMSPLEX)

QUERY IMSCON TYPE(ODBM)

QUERY IMSCON TYPE(RMTIMSCON)

Providing deeper insight into IMS...

IBM Tools Base Administration Console for z/OS

Resources

Sysplex1 > plex1 > IMS1

Resource Type : Select One

IMS1

MemberName	IMS1
MemberType	IMS
status	ACTIVE
Responding Member	OM1OM
Completion Code	0

OTMA

Member	XCF-Statu	User Status
<input checked="" type="checkbox"/> IMS1	ACTIVE	Server
<input type="checkbox"/> HWS001	ACTIVE	Accept Traffic
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	

/DIS OTMA

Related Structure (Shared Queue)

StructureName	Type	STT
MSGQ1	MSG	✓
....
....
....
....
....
....

/DIS STRUCTURE

Related ODBM

IMS	ALIAS	ASTT
<input checked="" type="checkbox"/> ODBM1	IMSA	
<input type="checkbox"/> ODBM2	IMSB	
<input type="checkbox"/>	

QUERY ODBM TYPE(DATASTORE) NAME(IMS1)
SHOW(ALL)

Region

Id	Jobname	Type
<input checked="" type="checkbox"/> ...	BATCHREG	BMP
<input type="checkbox"/> 1	IMSMPP0	TPE
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

/DIS A REG

Related Recon

RconNar	DatasetName	STT
RECON1	IMSTESTS.DSHF Copy1	
RECON2	IMSTESTS.DSHF Spare	
....	...	
....	...	
....	...	
....	...	

/RMLIST DBRC=RECON1

Command Entry

IBM Tools Base Administration Console for z/OS

Resources

Search Sysplex1 > plex1 > WebSpoc

Enterprise View

SYSPLEX1

- PLEX1
 - IMS1
 - IMS2
 - HWS1
 - HWS2

Command:

Sysplex: PLEX: ROUTE:

Query D Query TRAN Command Command Command Command Command

Select Attributes

No filter applied.

	Transaction code	Status	Commit Mode	Conversational	Fast Path	Region Class	Limit Count	
<input checked="" type="checkbox"/>	3270s		Mult	Y	N	1	65535	
<input type="checkbox"/>			Mult	Y	N	1	65535	
<input type="checkbox"/>			
<input type="checkbox"/>			
<input type="checkbox"/>			
<input type="checkbox"/>			
<input type="checkbox"/>			
<input type="checkbox"/>			
<input type="checkbox"/>			
<input type="checkbox"/>			
<input type="checkbox"/>			
<input type="checkbox"/>			
<input type="checkbox"/>			
<input type="checkbox"/>			
<input type="checkbox"/>			

Command output is rendered back into a grid with rich function

Manage IMS

IBM Tools Base Administration Console for z/OS View Manage Configure admin

Resources Enterprise Search Customize Manage Resources

Sysplex2 > PLEX1 > IMS1 > Transactions
Resource Type: Transactions

Select Attributes

No filter applied.

Transaction Code	Status	Commit Mode	Conversational	Fast Path	Region Class	Limit Count	Message Queue Count	IMSplex Member Name	Associated Program Name
<input type="checkbox"/> 3270S	Warning	MULT	N	N	1	65535	0	IMS1	A3270
<input type="checkbox"/> A1111111	Warning	SNGL	Y	N	1	65535	0	IMS1	A11APP
<input type="checkbox"/> A3270	Warning	MULT			1	65535	0	IMS1	A3270
<input type="checkbox"/> ADDINV	Critical	MULT	N	N	4	2	0	IMS1	DFSSAM04
<input type="checkbox"/> ADDPART	Normal	MULT	N	N	4	2	0	IMS1	DFSSAM04
<input type="checkbox"/> AOBMP	Critical	SNGL	N	N	23	65535	0	IMS1	TS2IAOB0
<input type="checkbox"/> AOP	Normal	SNGL	N	N	4	4	0	IMS1	TS1IAOP0
<input type="checkbox"/> AP11	Normal				1	65535	0	IMS1	APOL1
<input type="checkbox"/> AP14	Normal	MULT	N	N	1	65535	0	IMS1	APOL1
<input type="checkbox"/> AP17	Normal	MULT	N	N	1	65535	0	IMS1	APOL1
<input type="checkbox"/> APOL11	Normal	MULT	N	N	1	65535	0	IMS1	APOL1
<input type="checkbox"/> APOL12	Normal	MULT	N	N	1	65535	0	IMS1	APOL1

Enterprise View

Select Resources

Visual Status

Manage – Start and Stop Resources

SYSplex1 > PLEX1 > IMS2 > Databases

Select Attributes

Select	Database Name	Database Type	Status	Access Type	Member	Definition Type	Completion Code	Last Access Time
<input checked="" type="checkbox"/>	AUTODB	DL/I						
<input type="checkbox"/>	AUTDBH							
<input type="checkbox"/>	BANKATMS							
<input type="checkbox"/>	BANKFNCL							
<input type="checkbox"/>	BANKLDGR							
<input type="checkbox"/>	BANKTERM							
<input checked="" type="checkbox"/>	BE2PCUST	DL/I						
<input type="checkbox"/>	BE3ORDER	DL/I						
<input type="checkbox"/>	BE3ORDRX	DL/I						
<input type="checkbox"/>	BE3PARTS	DL/I						
<input type="checkbox"/>	BE3PSID1	DL/I						
<input type="checkbox"/>	BIBDBD	DL/I						
<input type="checkbox"/>	BIBIDBD	DL/I						

Stop Database

Select the options necessary for your database stop action

Stop

- Access
- Scheduling
- Updates

Lock On

Scope

- All
- Active

Options

- Forced End of Volume (FEOV)
 - FEOV
 - No FEOV
- Leave Randomizer loaded (DEDB)
- Set Prevent Further Authorization (PFA)

OK
Cancel

Manage - Statuses

- Hover Help
 - Helpful to new users
- Hover Status Codes
 - Quickly understand a status
- Context Sensitive Help
 - Help specific to statuses

Select	Transaction Code	Status	Commit Mode	Conversational
<input type="checkbox"/>	ADDINV		MULT	N
<input type="checkbox"/>	ADDPART			

Hover Status Codes

Hover Help

Context Sensitive Help

Transaction: ADDINV

IMS Attribute	Value
Transaction Code	ADDINV
Status	STOQ, STOSCHD
Class	4

Scheduling class used to determine which message regions can process the transaction

Help

Transaction status: Unavailable

The selected transaction is unavailable. This condition has multiple causes, including a stopped transaction, an uninitialized transaction, or a serious error that resulted in an application abend.

The status code for the transaction provides more details about why the transaction is unavailable. This information is retrieved from the LclStat field of the **QUERY TRAN** command.

- **NOTINIT status code**
The NOTINIT status code indicates that the transaction is not initialized.
- **STOQ status code**
The STOQ status code indicates that the transaction is stopped for queuing and can no longer be queued globally.

Next Generation DBA's

- IBM IMS / Tools
 - **Autonomics Director**
 - **Administration Console**

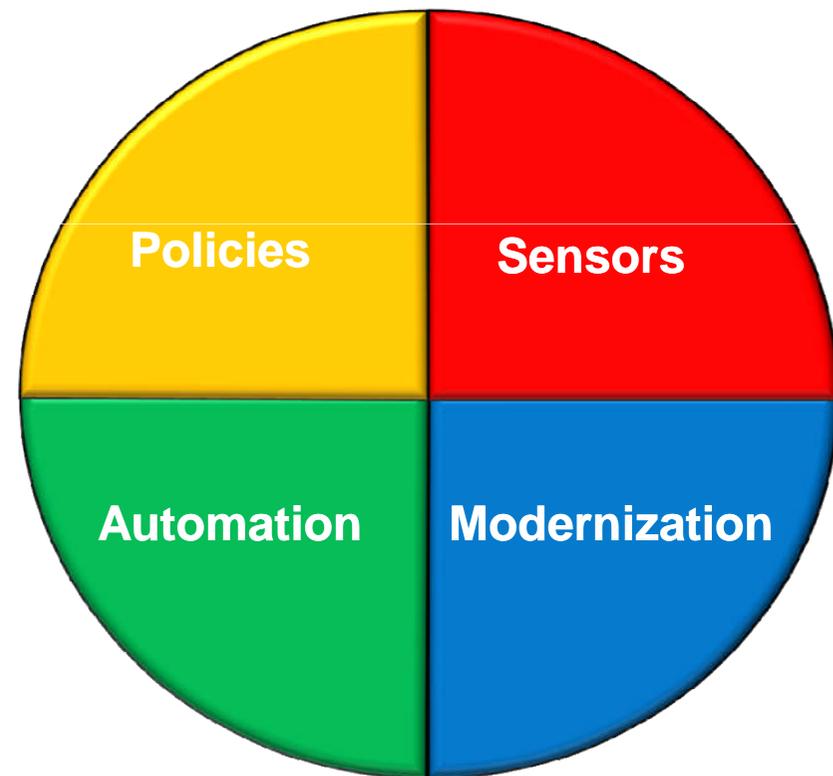


IMS Tools Autonomics Vision

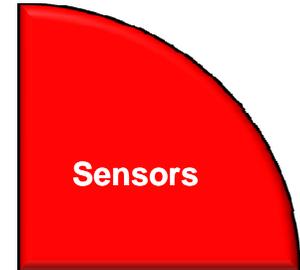


Putting information to work

- Sensors collect resource statistics
- Policies evaluate sensor data and identify potential problems
- Automation orchestrates the collection and evaluation of sensor data
- Modernization presents an interactive modern interface for managing the system



Sensors: Collecting the Basic Information You Need

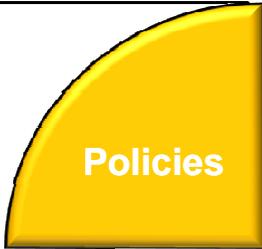


- Statistical point-in-time sensor data on your FF/FP Databases
 - Stored in IMS Tools Knowledge Base repository
 - Historically maintained per user specifications
 - Over 60 separate data elements related to space usage, optimization, and fragmentation
 - data set extents, DASD volume usage, data set free space, roots distribution, RAP usage, CI/CA splits, and IMS free space, etc

- Two methods of collection:
 - Standalone database Sensor utilities for full-function and Fast Path databases
 - Integrated with existing IMS Tools

- Integrated Tools support
 - High Performance Image Copy, High Performance Pointer Checker
 - Fast Path Analyzer, Fast Path Online Pointer Checker

Policies: Using Sensor Data to Make Decisions



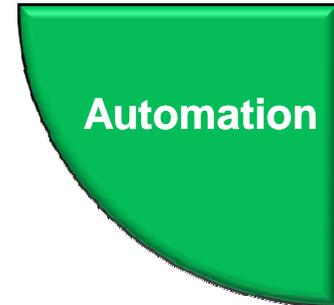
Policies

- Policy definitions are used to evaluate specific database states
 - Threshold values are compared against sensor data for a given database or group of databases
 - When thresholds are met or exceeded, exceptions occur

- Works “out of the box”
 - Ships with predefined policies and threshold values
 - Full ISPF interface provided for policy management

- Customizable to fit your shop
 - You can define your own sets of threshold values
 - Customize the messages sent when exceptions do occur
 - Specify who receives which messages and how
 - WTO, e-mail, or text

Automation: Delivering on our Vision



- IBM Tools Autonomics Director 1.3 (Passive)
 - Automates collection and analysis of Sensor Data
 - Recommends when databases should be reorganized
 - With email or text notifications
 - Provides a scheduling feature that allows you to control how frequently sensor data is collected and how frequently policies are evaluated
 - Flexible scheduling around pre-defined PEAK times

- IBM Tools Autonomic Director 1.4 (Active)
 - Actively initiate recommended actions on user-defined database groups
 - Discovery feature for identifying related database groups
 - Ability to manage and coordinate reorganization of multiple IMS database groups as if reorganizing a single database
 - Flexible scheduling only in pre-defined Maintenance windows



2014

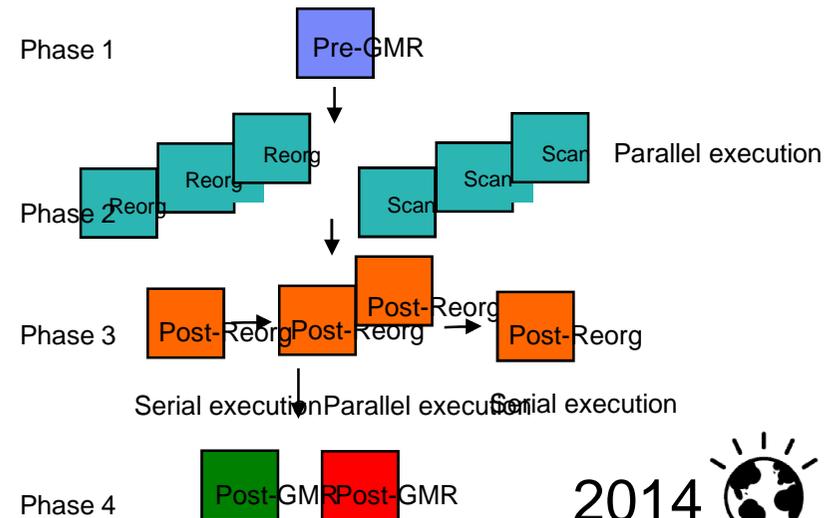
Group-managed reorganization (GMR)

- Automatically Reorganize DB Groups
 - Reorganize multiple databases in parallel
 - Parallel reorganization for databases with external logical relationships
 - Any group of databases that need parallel reorganization
 - Only reorganizes DBs in group that need it
 - Initiates and controls entire job flow
 - Architected to support distinct phases
 - Parallelism and flexibility are primary driver



- Phases:
 - Pre-GMR phase
 - Reorganization phase
 - Post-reorg phase
 - Post-GMR phase

Group-managed reorganization plan



Autonomics Director Overview



- Automatic collection and evaluation of Sensor data
 - Can integrate with existing IBM Tools image copy and pointer checker processes
 - Based on user-defined policies and thresholds
- Provides recommendations for reorganizations
- E-mail or text notification when a reorganization is recommended
- Flexible scheduling around peak workloads
 - Doesn't interfere with production throughput or response time
- Works with existing job schedulers
- Exploits the power of IMS sysplex
 - Automatic failover and workload management support
- Easily customized for groups or individual databases
 - Auto-discovery of databases and existing database groups
 - User-defined groupings: "These are the databases that I'm responsible for"
 - Group-assigned defaults propagate to individual databases

Setting your monitoring criteria

- You can set how often the database should be evaluated, how many evaluations to save, and which policies to use in the evaluation

```

IAVPATT      Add or Update the Group and Database Attributes
Command ==>

Owner . . . . . : USRT013      Acquire ownership?  N  (Y=yes N=no)
Group type . . . : DATABASE      Group name . . . :
DBD name . . . . : DEVICEDB      Partition . . . . :
Priority . . . . . : 1              (Numeric value 1 - 9)

Evaluate after sensor run . . . . Y  (Y=yes N=no)
Number of evaluations to save . . . 10 (1-255, default=10)
Evaluation interval . . . . . 001 : 000 : 00 (days:hours:minutes)
Maximum age of sensor data . . . . 000 : 000 : 30 (days:hours:minutes)

Cataloged data set with sensor JCL:
  DS Name . . . 'IMSTESTS.RGE410.FP012.JCLLIB3'
  Member name  SDS04

Policy selection by:
  3  1.  DBTYPE      (DBORG type)
     2.  DBDNAME     (DBD name)
     3.  Policy name (Policy name)
     With option 3:
     Policy name  TST.DBDBTYPE.HDAM
  
```

Scheduling an evaluation On Demand

- Databases will be monitored and evaluated automatically once you specify your peak times (not shown) but you can always schedule an On Demand evaluation

```

Menu  View  Help
-----
IAVPXML          Autonomics Director Monitor List Entries      Row 1 to 1 of 1
Command ==> _____ Scroll ==> PAGE

Locale . . . : $IVP          Group type . : DATABASE

Row Actions:   S - View the database attributes
               V - View recommendations
               X - Select a database, partition, area for scheduling on demand
               H - View evaluation history

Action Reorg Sev DBDName Eval-Date Eval-Time Snsr-Date Snsr-Time
X_      Y    C   DEVICEDB 15, '12 03:56:06 May 15, '12 03:56:05
*****


```

We monitor and evaluate databases automatically when allowed but will avoid your peak operations times once you specify them. However, you can always schedule an On Demand evaluation if you suspect a database issue and need the latest sensor data and policy evaluation now.

MA B
A
14/003

Immediately...

- Maximum flexibility is provided to get you the most current information available when you need it, so decisions are never made using stale data

```
IAVPXAD      Schedule Sensor or Evaluation Job Run On Demand
Command ==> _____

Enter Y to select run types:
  Sensor run . . . . Y
  Evaluation run . . Y

Monitor list member:
  Database name . . . . : DEVICEDB
  Partition or area name :

Enter schedule time option:
1 1. Immediately
    2. At next available period or next available period
      after the specified date
    3. On specified date

With option 2 or 3:
  Month __ Day __ Year __ Time . . __ : __ __ (hh:mm am/pm)
```

View the resulting recommendations

- We keep it simple, if a database reorganization is needed based on the policies you set you'll see 'Y' if not, you'll see 'N' ... no guess work here

```

IAVPVRL      Autonomics Director Evaluation Run Information
Command ==> _____

Locale . . . . . : $IVP

Enter S to view evaluation run exceptions . . . . .

Database name . . . . . : DEVICEDB
Partition name . . . . . :
Database type . . . . . : HDAM
Access method . . . . . : VSAM

Status . . . . . : DB EVALUATION Completed
Return code . . . . . : 00000000
Reason code . . . . . : 00000000
Reorganization needed . . . . . : Y
Severity . . . . . : C
Sensor data from date / time . . . . . : May 15, '12 / 04:00:05
Evaluation run date / time . . . . . : May 15, '12 / 04:00:05

Policy by . . . . . : NAME
Policy name . . . . . : TST.DBDTYPE.HDAM
  
```

You can drill down further to see just which policy exceptions were triggered

View the detailed exceptions via ISPF Browse

- Complete transparency so you can see exactly why a reorganization is being recommended, we'll even send you an e-mail or text message to notify you

```

Menu Utilities Compilers Help
ISRBROBA USRT@13.EC03253.IMSAD.CMDOUT1 Line 00000000 Col 001 133
Command ==> Scroll ==> PAGE
***** Top of Data *****
Autonomics director 1.3.0 Database Diagnosis Report
5655-V93 May 15,'12 04:00:05

Summary of Database Definition
-----
Database..... DEVICEDB
Partition/Area.....
Data Set Organization..... HDAM
Database Type..... VSAM

Summary of Policy Evaluation
-----
Name of Policy Applied..... TST.DBDTYPE.HDAM
Policy Locale..... RECON ID: $IVP
Reorganization Need..... Y

Summary Message:
-----

Exceptions
-----
Imbalanced randomizing and inefficient use of RAPs have increased in DEVICEDB
Class: IMBALANCED_RANDOMIZING Level: SEVERE
Rule: G:IBM.RANDOMIZING.10 Threshold Set: MED
Action: MESSAGE

The number of synonyms in randomizing has increased in DEVICEDB
Class: EXCESSIVE_RAP_SYNONYMS Level: CRITICAL
Rule: G:IBM.RAP_SYNONYMS.10 Threshold Set: HIGH
Action: MESSAGE

The number of roots not in their home blocks in DEVICEDB has increased
Class: EXCESSIVE_HDAM_ROOTS_NOT_HOME Level: SEVERE
Rule: G:IBM.ROOTS_NOTHOME.10 Threshold Set: MED
Action: MESSAGE

The size of a data set in DEVICEDB, which still has a certain amount of free space, has increased
Class: GROWING_DBDS_WITH_FREE_SPACES Level: CRITICAL
Rule: G:IBM.DBDS_GROWTH.20 Threshold Set: TSTHIGH
Action: REORG

***** Bottom of Data *****

```

IMS Administration Console

Changing the face of the platform

The screenshot displays the IBM Tools Base Administration Console for z/OS interface. The main content area is titled "Resources" and shows details for a "Troublesome Database" named "HDAMV/SAM (ACDEMOFF)".

Properties:

- Environment alias: STLABE2
- Locale alias: ACDEMOFF
- Database name: HDAMV/SAM
- Database type: HDAM
- Segment levels: 2
- Segment types: 3
- External databases: 0
- Logical children: 0
- Access type: VSAM

Exceptions (7):

- Reorganization recommended: Exceptions as of Fri Oct 19 15:55:25 PDT 2012
- Critical (4):**
 - Excessive number of simonms on RAPs
 - Excessive number of roots not in home blocks
 - Excessive number of variable-length split seams
 - One or more data sets are full and approaching the
- Severe (0)
- Warning (3)

Reports (152):

- 2012-10-29 (2)
- 2012-10-28 (2)
- 2012-10-27 (2)
- 2012-10-26 (2)
- 2012-10-25 (2)
- 2012-10-24 (2)
- 2012-10-23 (2)
- 2012-10-22 (2)
- 2012-10-20 (2)
- 2012-10-19 (19)
- 2012-10-18 (2)
- 2012-10-15 (2)

Space Use: Number of Segments. Bar chart comparing HDAMV/S01 and HDAMV/S02. HDAMV/S01 has approximately 12,000,000 segments, and HDAMV/S02 has approximately 10,000,000 segments.

Optimization: Number of Database Records. Line chart showing an increasing trend from approximately 500,000 records on 8/11 to nearly 2,000,000 records on 11/18/25/12.

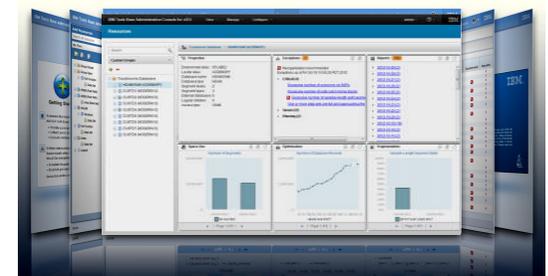
Fragmentation: Variable-Length Segment Splits. Bar chart comparing HDAMV/S01 and HDAMV/S02. HDAMV/S01 shows approximately 40% fragmentation, while HDAMV/S02 shows 0%.

IMS Administration Console Goals

Modernization

- Provide a single holistic, easy-to-use interface to manage IMS systems and databases
 - Consolidate information from various tools to paint a more complete picture of IMS systems and databases
 - Leverage the latest web technologies for a richer user experience
 - Access from anywhere via the Internet using standard web browsers
 - Prepare the next generation of IMS DBAs and System Programmers through an integrated, context sensitive help system

- Begin with integration of our Autonomics Solutions
 - ...Extend integration to support all our IMS Tools



2014

Drill down on Exceptions from an Enterprise-wide View

The screenshot shows the IBM Tools Base Administration Console interface. The main content area displays a table titled 'Resources with Exceptions > Critical (3)'. The table has columns for Resources, Type, Overall Health, Critical, Severe, Warning, Recommendations, and Time Since Synchronized. Three resources are listed, all with a red square indicating a critical health status. A callout box with an arrow points to the 'Overall Health' column, containing the text: 'Resource status, errors, and recommendations can be aggregated with an ability to drill down'.

Resources	Type	Overall Health	Critical	Severe	Warning	Recommendations	Time Since Synchronized
HDAMVSAM (ACDEMOFF)	HDAM	■	3	1	2	1	10 minutes
HDAMVSAM (IMSPLEX)	HDAM	■	3	1	2	1	7 minutes
DBJ1AR0 (IMSPLEX)	DEDB	■	2	0	0	0	7 minutes

Resource status, errors, and recommendations can be aggregated with an ability to drill down

Holistic View of IMS Databases

...from Auto Discovery

...from Autonomics Director

...from Various HP Tools

...from Sensors

IBM Tools Base Administration Console for z/OS

Search

Custom Groups

Troublesome Databases

- HDAMVSAM (ACDEMOFF)
- CUSTD1 (MODERN12)
- CUSTD2 (MODERN12)
- CUSTD3 (MODERN12)
- CUSTD4 (MODERN12)
- CUSTD5 (MODERN12)
- CUSTD6 (MODERN12)
- CUSTD7 (MODERN12)
- CUSTD8 (MODERN12)

Properties

Environment alias: STLABE2
 Locale alias: ACDEMOFF
 Database name: HDAMVSAM
 Database type: HDAM
 Segment levels: 2
 Segment types: 3
 External databases: 0

Exceptions 7

Reorganization recommended
 Exceptions as of Fri Oct 19 15:55:25 PDT 2012

Critical (4)

- Excessive number of synonyms on RAPs
- Excessive number of roots not in home blocks

Reports 152

- 2012-10-29 (2)
- 2012-10-28 (2)
- 2012-10-27 (2)
- 2012-10-26 (2)
- 2012-10-25 (2)

Space Use

Number of Segments

20,000,000
10,000,000
0

HDAMVSD1 HDAMVSD2

DB NUM SEG

Optimization

Number of Database Records

2,000,000
1,000,000
0

8/11/13/26/13/10/13/26/120/11/13/26/12

DB NUM ROOT

Fragmentation

Variable-Length Segment Splits

100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%

HDAMVSD1 HDAMVSD2

DB PCT NUM VLSEG SPLIT

Finished retrieving child resources

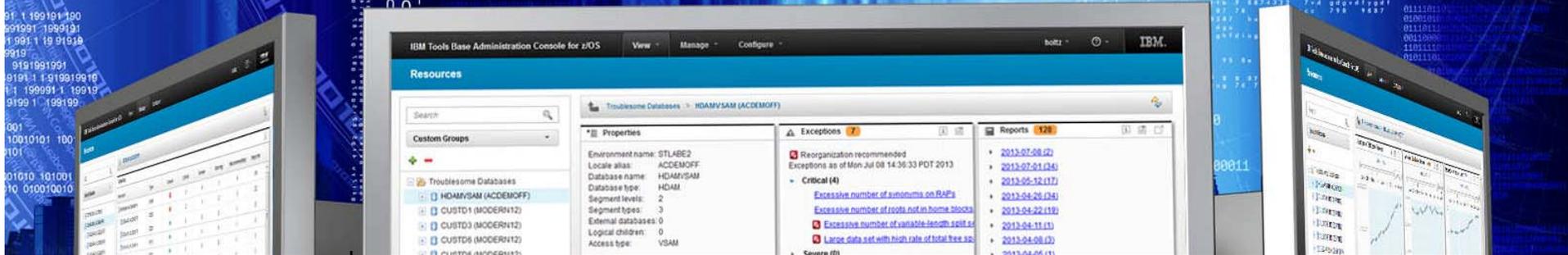
Integrated Help Throughout

The screenshot displays the IBM Tools Base Administration Console for z/OS interface. The main content area shows details for the 'HDMVVSAM (ACDEMOFF)' database, including properties, exceptions, reports, space usage, optimization, and fragmentation. A 'Help' window is open on the right side, titled 'Highest Used and Highest Allocated RBA chart (Index)'. This help window provides detailed information about the chart, explaining that it shows unformatted space between the highest-used relative byte address (RBA) and the highest-allocated RBA. It also includes a note that this space does not represent unformatted space for a VSAM KSDS and provides data elements for the chart: 'DBX_RBA_HIGH_USED' and 'The highest value of relative byte'.

An integrated help window is open on the right side of the console, titled "Highest Used and Highest Allocated RBA chart (Index)". This window provides detailed information about the chart, explaining that it shows unformatted space between the highest-used relative byte address (RBA) and the highest-allocated RBA. It also includes a note that this space does not represent unformatted space for a VSAM KSDS and provides data elements for the chart: "DBX_RBA_HIGH_USED" and "The highest value of relative byte".

A callout box in the bottom center of the screenshot contains the text: "Integrated help educates new and experienced DBAs on database concepts and how to interpret charts".

IMS Tools modernization and autonomies



IMS Database Solution Pack for z/OS

- Autonomics
- IMS Online Reorg Facility
- IMS DB Reorganization Expert - Unload, Load, Index Build, Prefix Resolution/Update
- IMS HP Image Copy
- IMS HP Pointer Checker
- IMS Library Integrity Utilities

IMS Fast Path Solution Pack for z/OS

- Autonomics
- IMS HP Fast Path Utilities
- IMS DB Repair Facility
- IMS HP Image Copy
- IMS Library Integrity Utilities

IMS Recovery Solution Pack for z/OS

- IMS HP Image Copy
- IMS Database Recovery Facility
- IMS HP Change Accumulation
- IMS Index Builder
- IMS DRF Extended Functions

IMS Performance Solution Pack for z/OS

- IMS Connect Extensions
- IMS Performance Analyzer
- IMS Problem Investigator

IMS Tools Base for z/OS

Data Base Administration

Utility Management

Backup and Recovery

Performance Management

- IMS Sequential Randomizer Generator
- IMS Cloning Tool
- IMS Database Control Suite
- IMS HP Image Copy
- IMS DEDB Fast Recovery
- IMS Recovery Expert V2
- IMS Buffer Pool Analyzer
- IBM Transaction Analysis Workbench
- IMS Network Compression Facility

- System
- IMS Command Control Facility
 - IMS ETO Support
 - IMS HP Sysgen Tools
 - IMS Queue Control Facility
 - IMS Workload Router
 - TM
 - IMS Configuration Manager
 - IMS Sysplex Manager
 - Batch Terminal Simulator
 - Program Restart Facility
 - Guardium ITAP for IMS
 - IBM Infosphere Guardium Data Encryption for DB2 and IMS Databases

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