Want to Modernize your IMS Administration - We have tools for that

Continued Modernization of IMS Administration
Session Number IMS-1838

Janet LeBlanc
IMS Tools Strategist
IBM Corporation
leblancj@ca.ibm.com

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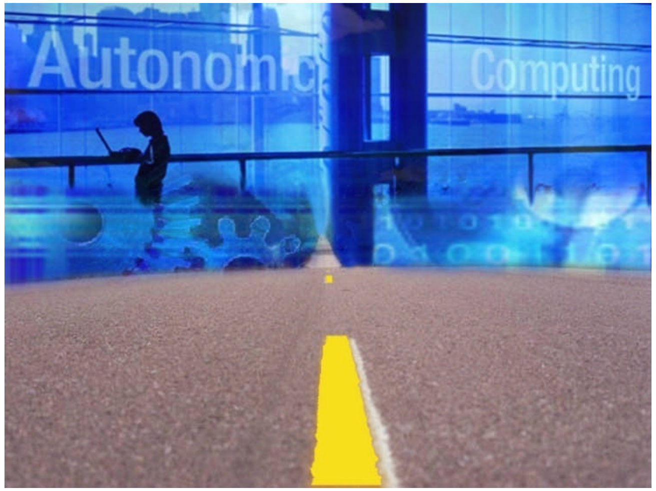
Agenda

- Why Autonomics and Modernization?
- Who needs Modernization?
- Modernization for the Programmer
- Modernization for the DBA
- RFE – Requests for Enhancements
- Summary


Autonomic
Computing

Why Autonomics and Modernization?

Now more than ever, business challenges demand it

- Unanticipated problems can result in downtime and loss of revenue
- Increased burden of system management and maintenance
- Problem determination is time and resource intensive
  - Expert skills are often spent determining when a problem took place rather than figuring out how to fix it
- DBA resources are dwindling
  - Expert skills are wasted on repetitive tasks
- Time and resources are not available for developing new applications, pursuing new technologies, and growing business

> ***"The information technology industry is obliterating barriers and setting records with astonishing regularity, but now we face a problem springing from the very core of our success....More than any other IT problem, this one, if it remains unsolved, will actually prevent us from moving to the next era of computing. The obstacle is complexity."***
>
> ***— Paul Horn, Senior Vice President, Research, IBM***

When problems do occur, the impact can be extensive

Why are these application transactions taking so long?

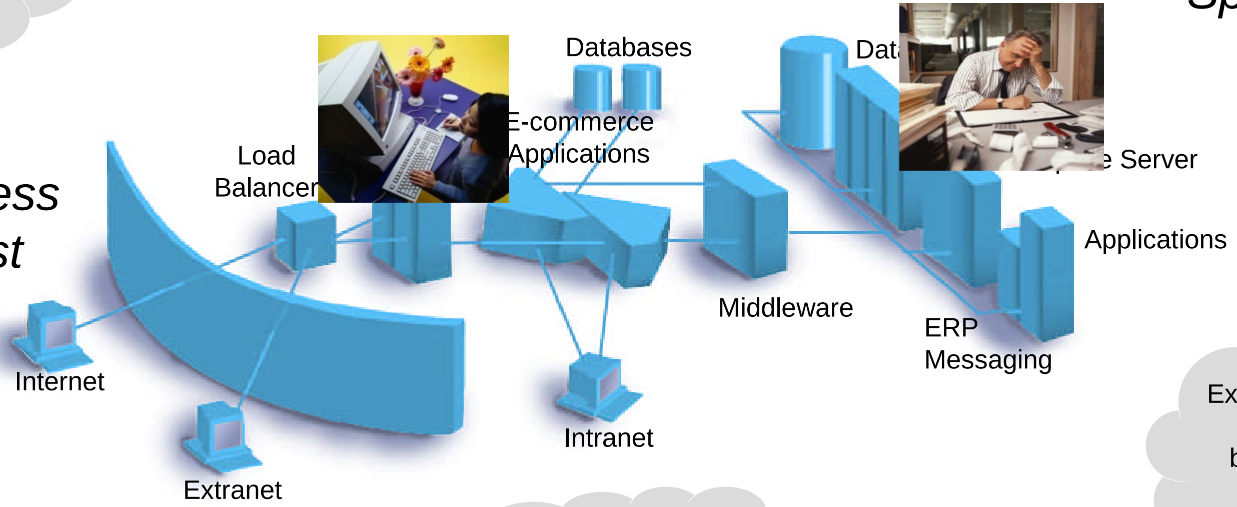
Business Analyst

Why am I having these database events? Everything seems ok.

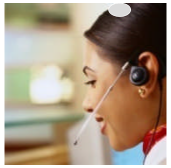
IT Operations

The database server is in trouble. I'll create an incident as soon as I can and work on it. I hope no one is affected.

DB Specialist


Databases
Dat
Load Balancer
E-commerce Applications
e Server
Applications
Middleware
ERP Messaging
Internet
Intranet
Extranet

So many calls, so many incidents. I don't know what to tell customers.

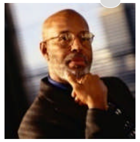


Help Desk

We are behind in order processing. Why?

Business Executive

Executives are upset with orders not being processed. I need to tell them why.



IT Manager

User Interface Modernization is Critical

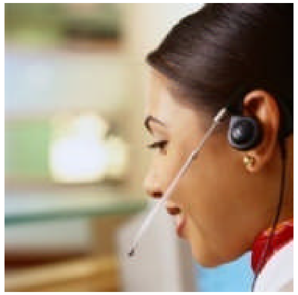
- Modern graphical user interfaces:
  - Provide a richer user experience and can convey more information
  - Reduce the need for IMS or Z specific knowledge
  - Shorten the IMS learning curve for new DBAs
  - Enable deeper integration between tools and across platforms

What we're doing

- Leap ahead to graphical user interfaces for IMS
  - Focus on web-based interfaces
  - Exploit the latest relevant technologies
  - Allow access from anywhere via the Internet

So who in IT needs modernization

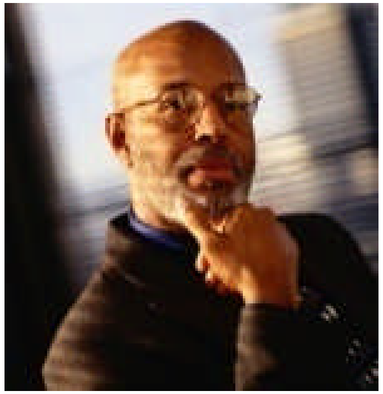
End-Users



Programmers

Analysts

DBAs



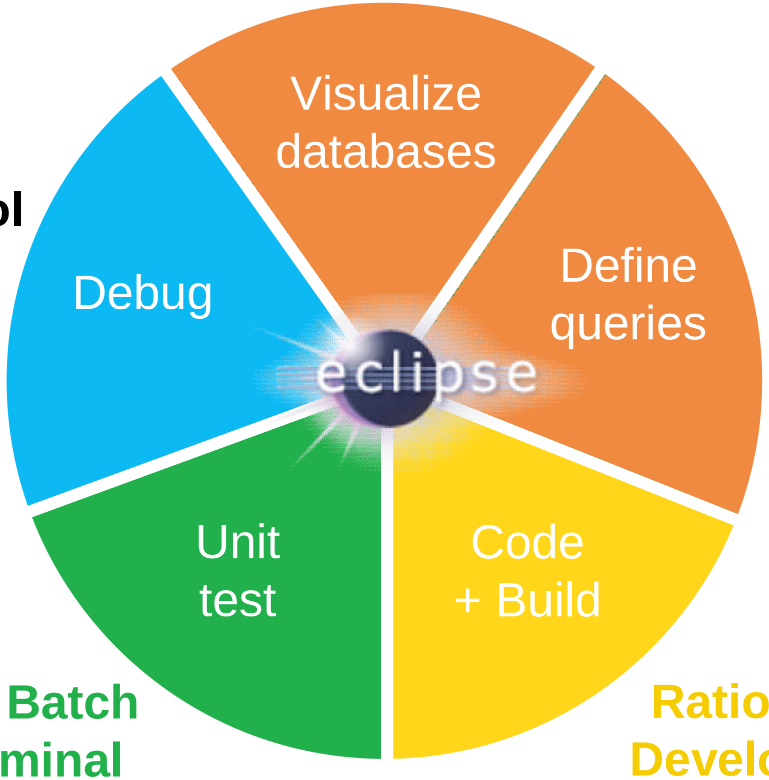
System Programmers

Why?

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

Programmers

How?


Visualize databases
Define queries
Code + Build
Unit test
Debug
eclipse

IMS Explorer for Development

IMS Explorer for Development

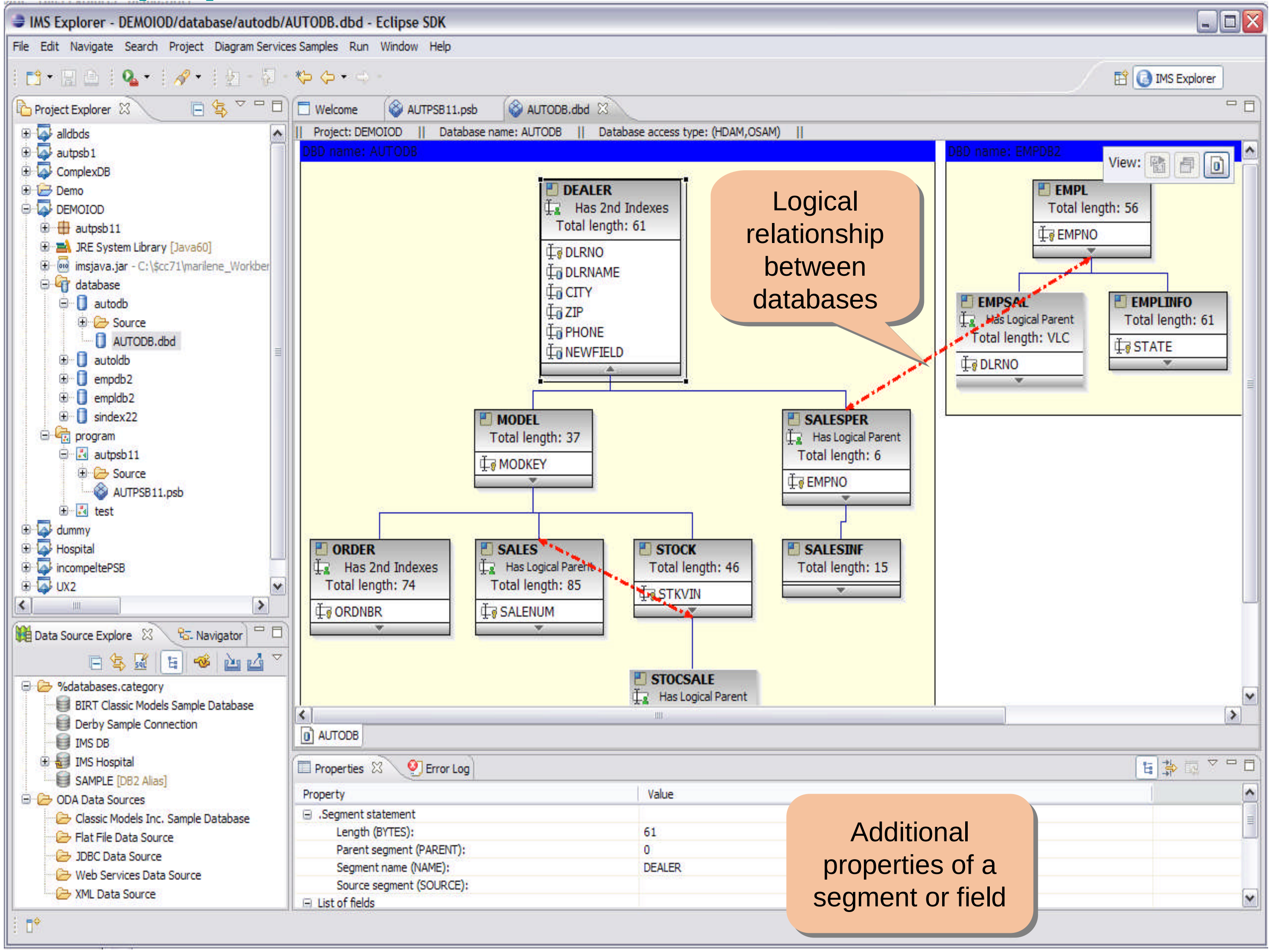
Debug Tool for z/OS

IMS Batch Terminal Simulator

Rational Developer for System z

IMS Explorer for Development

View physical IMS database structure



IMS Explorer - DEMOIOD/database/autodb/AUTODB.dbd - Eclipse SDK
File Edit Navigate Search Project Diagram Services Samples Run Window Help
IMS Explorer
Project Explorer
alldbds
autpsb1
ComplexDB
Demo
DEMOIOD
autpsb11
JRE System Library [Java60]
imsjava.jar - C:\$cc71\marlene_Workber
database
autodb
Source
AUTODB.dbd
autoldb
empdb2
empldb2
sindex22
program
autpsb11
Source
AUTPSB11.psb
test
dummy
Hospital
incompeltePSB
UX2
Data Source Explore
Navigator
%databases.category
BIRT Classic Models Sample Database
Derby Sample Connection
IMS DB
IMS Hospital
SAMPLE [DB2 Alias]
ODA Data Sources
Classic Models Inc. Sample Database
Flat File Data Source
JDBC Data Source
Web Services Data Source
XML Data Source
Welcome
AUTPSB11.psb
AUTODB.dbd
DBD name: AUTODB
DBD name: EMPDB2
View:
DEALER
Has 2nd Indexes
Total length: 61
DLRNO
DLRNAME
CITY
ZIP
PHONE
NEWFIELD
MODEL
Total length: 37
MODKEY
SALESPER
Has Logical Parent
Total length: 6
EMPNO
ORDER
Has 2nd Indexes
Total length: 74
ORDNBR
SALES
Has Logical Parent
Total length: 85
SALENUM
STOCK
Total length: 46
STKVIN
SALESINF
Total length: 15
STOCSALE
Has Logical Parent
EMPL
Total length: 56
EMPNO
EMPSAL
Has Logical Parent
Total length: VLC
DLRNO
EMPLINFO
Total length: 61
STATE
AUTODB
Properties
Error Log

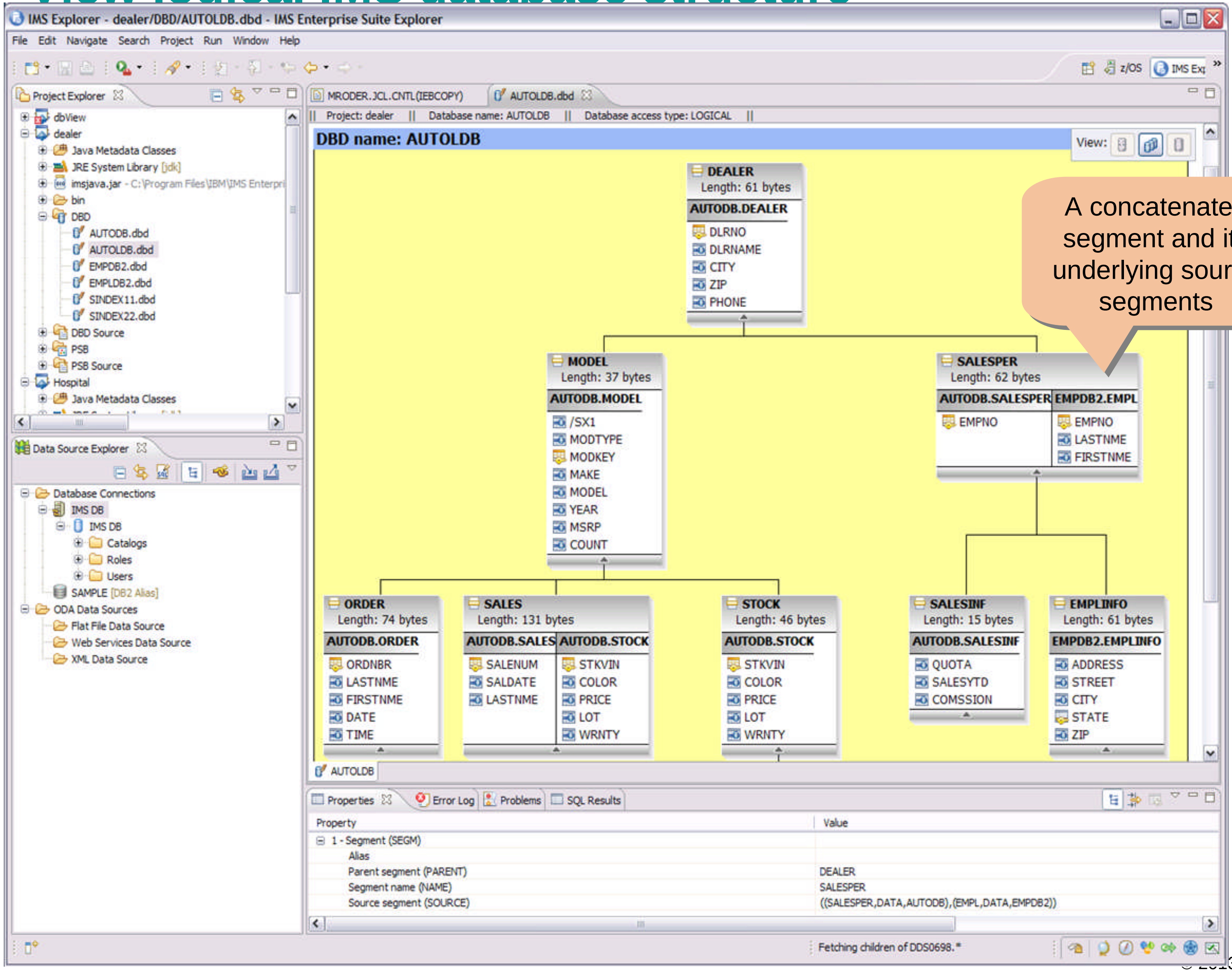
|| Project: DEMOIOD || Database name: AUTODB || Database access type: (HDAM,OSAM) ||

Property	Value
.Segment statement	
Length (BYTES):	61
Parent segment (PARENT):	0
Segment name (NAME):	DEALER
Source segment (SOURCE):	
List of fields	

Logical relationship between databases

Additional properties of a segment or field

IMS Explorer for Development
View logical IMS database structure


IMS Explorer - dealer/DBD/AUTOLDB.dbd - IMS Enterprise Suite Explorer
File Edit Navigate Search Project Run Window Help
z/OS
IMS Exp
Project Explorer
dbView
dealer
Java Metadata Classes
JRE System Library [jdk]
imsjava.jar - C:\Program Files\IBM\IMS Enterpri
bin
DBD
AUTODB.dbd
AUTOLDB.dbd
EMPDB2.dbd
EMPLDB2.dbd
SINDEX11.dbd
SINDEX22.dbd
DBD Source
PSB
PSB Source
Hospital
Java Metadata Classes
Data Source Explorer
Database Connections
IMS DB
IMS DB
Catalogs
Roles
Users
SAMPLE [DB2 Alias]
ODA Data Sources
Flat File Data Source
Web Services Data Source
XML Data Source
MRODER.JCL.CNTL(IEBCOPY)
AUTOLDB.dbd
View:
DEALER
Length: 61 bytes
AUTODB.DEALER
DLRNO
DLRNAME
CITY
ZIP
PHONE
MODEL
Length: 37 bytes
AUTODB.MODEL
/SX1
MODTYPE
MODKEY
MAKE
MODEL
YEAR
MSRP
COUNT
SALESPER
Length: 62 bytes
AUTODB.SALESPER
EMPNO
EMPDB2.EMPL
EMPNO
LASTNME
FIRSTNME
ORDER
Length: 74 bytes
AUTODB.ORDER
ORDNBR
LASTNME
FIRSTNME
DATE
TIME
SALES
Length: 131 bytes
AUTODB.SALES
SALENUM
SALDATE
LASTNME
AUTODB.STOCK
STKVIN
COLOR
PRICE
LOT
WRNTY
STOCK
Length: 46 bytes
AUTODB.STOCK
STKVIN
COLOR
PRICE
LOT
WRNTY
SALESINF
Length: 15 bytes
AUTODB.SALESINF
QUOTA
SALESYTD
COMSSION
EMPLINFO
Length: 61 bytes
EMPDB2.EMPLINFO
ADDRESS
STREET
CITY
STATE
ZIP
AUTOLDB
Properties
Error Log
Problems
SQL Results

|| Project: dealer || Database name: AUTOLDB || Database access type: LOGICAL ||

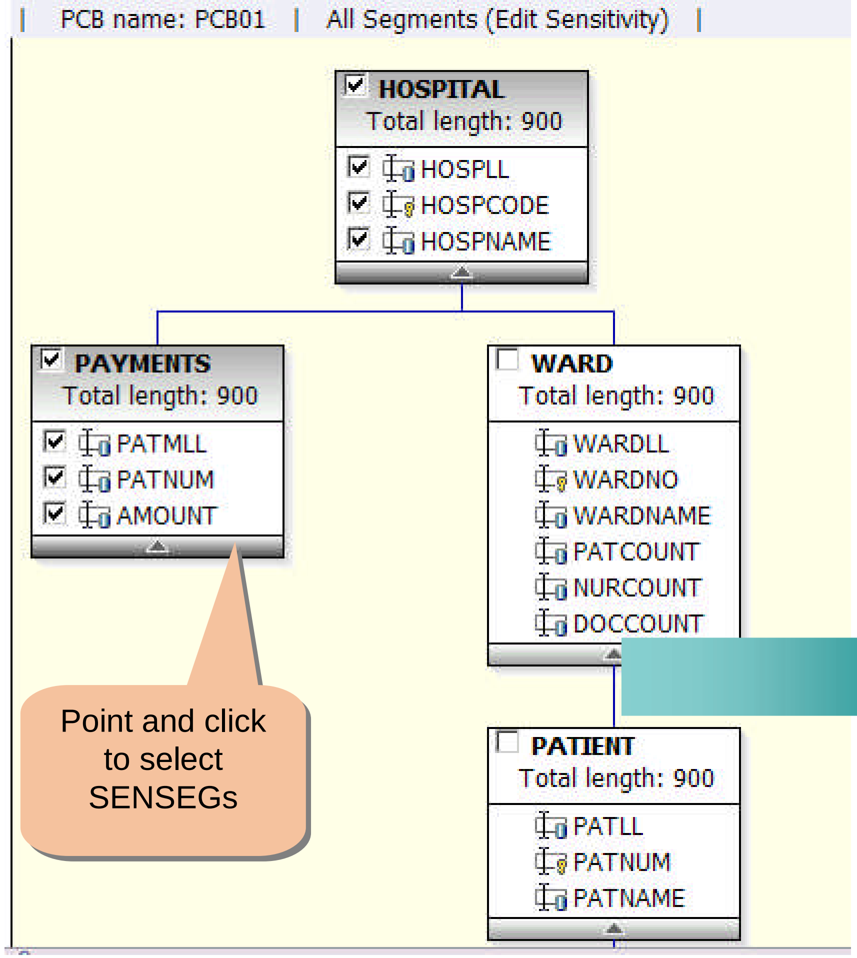
DBD name: AUTOLDB

Property	Value
1 - Segment (SEGM)	
Alias	
Parent segment (PARENT)	DEALER
Segment name (NAME)	SALESPER
Source segment (SOURCE)	((SALESPER,DATA,AUTODB),(EMPL,DATA,EMPDB2))

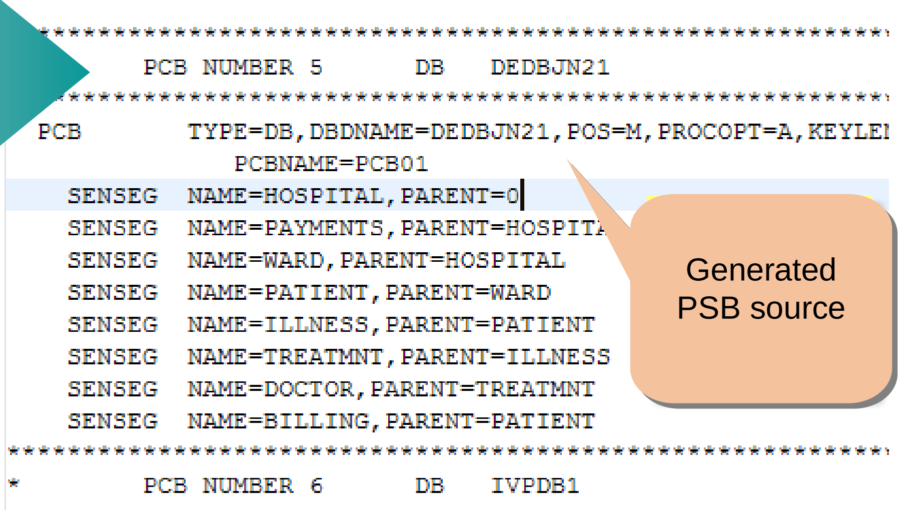
Fetching children of DDS0698.*

A concatenated segment and its underlying source segments

IMS Explorer for Development
Build PCB definition


| PCB name: PCB01 | All Segments (Edit Sensitivity) |
☑ HOSPITAL
Total length: 900
☑ HOSPLL
☑ HOSPCODE
☑ HOSPNAME
☑ PAYMENTS
Total length: 900
☑ PATMLL
☑ PATNUM
☑ AMOUNT
☐ WARD
Total length: 900
WARDLL
WARDNO
WARDNAME
PATCOUNT
NURCOUNT
DOCCOUNT
☐ PATIENT
Total length: 900
PATLL
PATNUM
PATNAME

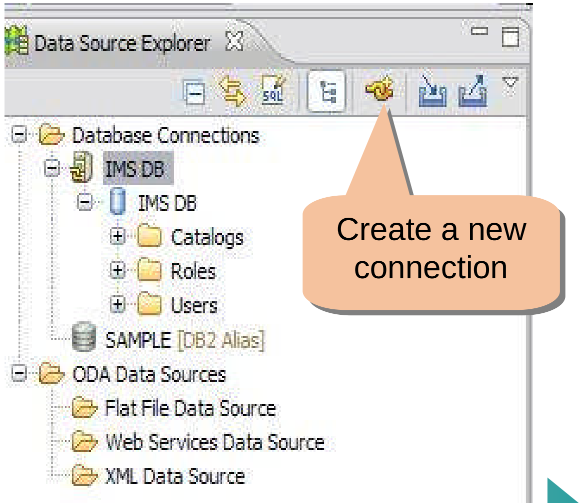
Point and click to select SENSEGs



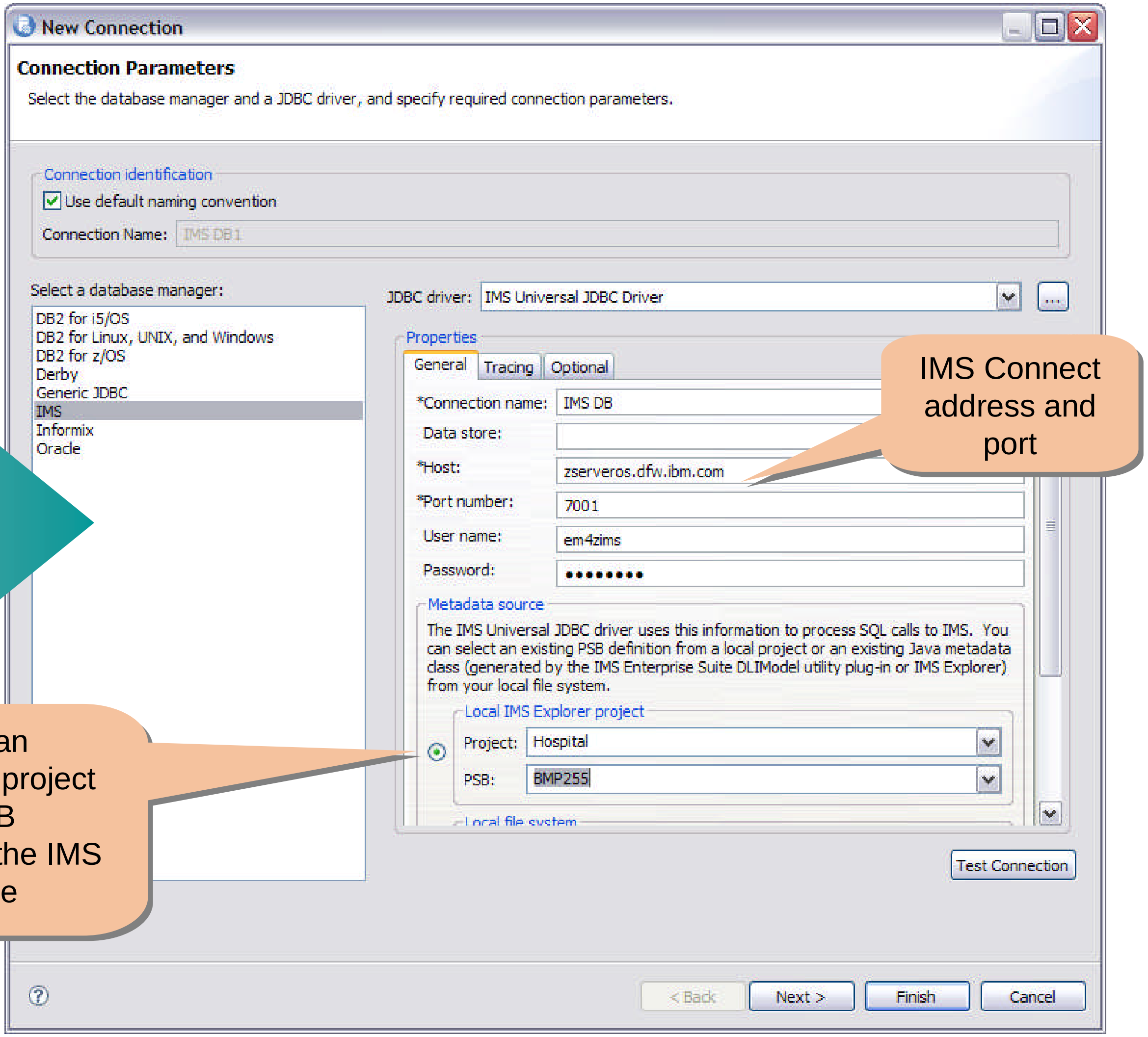
```
****************************************************************
         PCB NUMBER 5       DB    DEDBJN21
****************************************************************
 PCB        TYPE=DB,DBDNAME=DEDBJN21,POS=M,PROCOPT=A,KEYLE
               PCBNAME=PCB01
    SENSEG  NAME=HOSPITAL,PARENT=0
    SENSEG  NAME=PAYMENTS,PARENT=HOSPITA
    SENSEG  NAME=WARD,PARENT=HOSPITAL
    SENSEG  NAME=PATIENT,PARENT=WARD
    SENSEG  NAME=ILLNESS,PARENT=PATIENT
    SENSEG  NAME=TREATMNT,PARENT=ILLNESS
    SENSEG  NAME=DOCTOR,PARENT=TREATMNT
    SENSEG  NAME=BILLING,PARENT=PATIENT
****************************************************************
*         PCB NUMBER 6       DB    IVPDB1
****************************************************************
```

Generated PSB source

IMS Explorer for Development
Query IMS databases


Data Source Explorer
Database Connections
IMS DB
IMS DB
Catalogs
Roles
Users
SAMPLE [DB2 Alias]
ODA Data Sources
Flat File Data Source
Web Services Data Source
XML Data Source

Create a new connection


New Connection

Connection Parameters

Select the database manager and a JDBC driver, and specify required connection parameters.

Connection identification

☑ Use default naming convention

Connection Name: IMS DB1

Select a database manager:

- DB2 for i5/OS
- DB2 for Linux, UNIX, and Windows
- DB2 for z/OS
- Derby
- Generic JDBC
- IMS
- Informix
- Oracle

JDBC driver: IMS Universal JDBC Driver

Properties

General
Tracing
Optional

*Connection name: IMS DB

Data store:

*Host: zserveros.dfw.ibm.com

*Port number: 7001

User name: em4zims

Password: ••••••••

Metadata source

The IMS Universal JDBC driver uses this information to process SQL calls to IMS. You can select an existing PSB definition from a local project or an existing Java metadata class (generated by the IMS Enterprise Suite DLIModel utility plug-in or IMS Explorer) from your local file system.

Local IMS Explorer project

● Project: Hospital

PSB: BMP255

Local file system

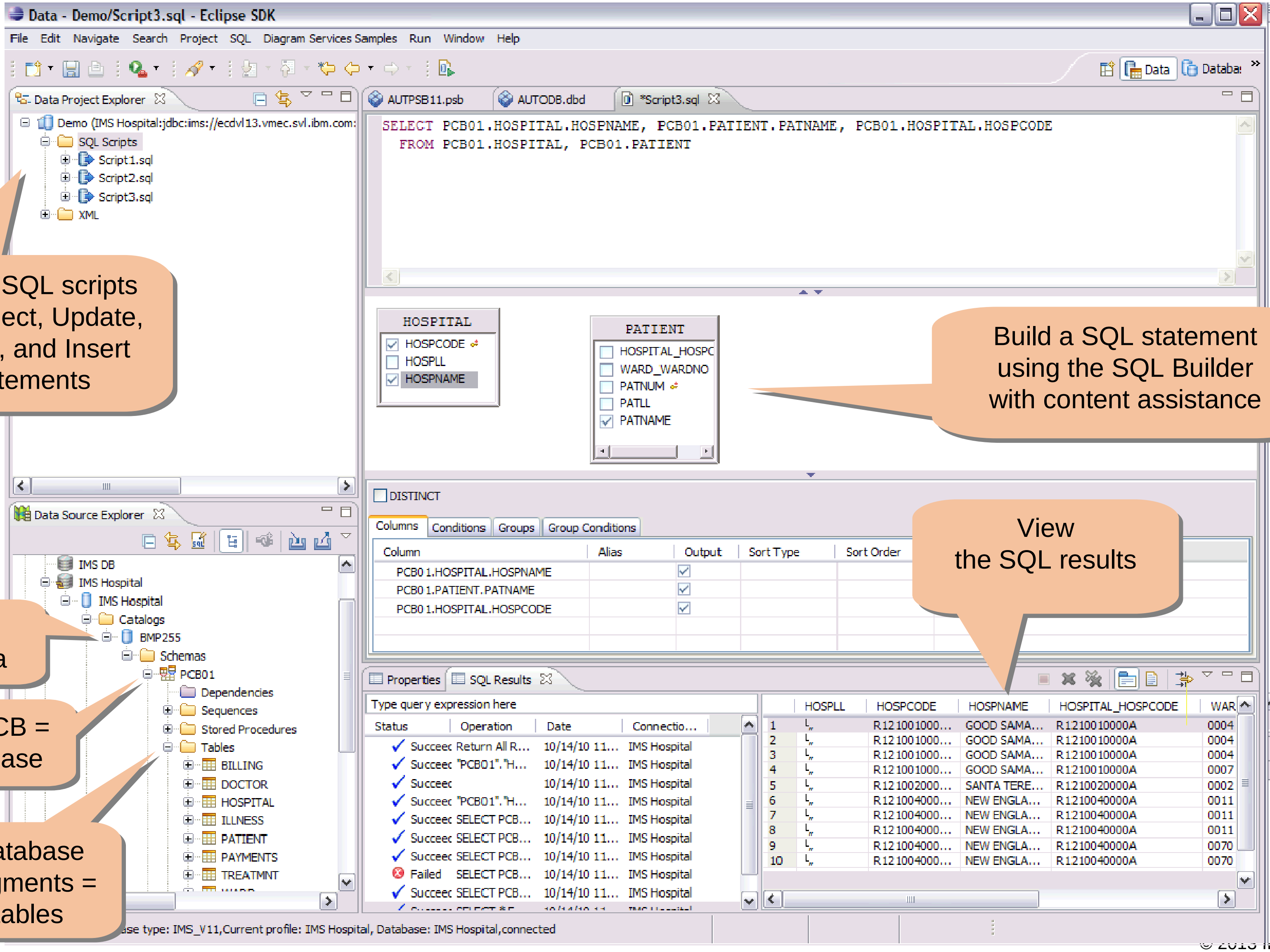
Test Connection
< Back
Next >
Finish
Cancel

IMS Connect address and port

Point to an
IMS Explorer project
and PSB
to connect to the IMS
database

IMS Explorer for Development

Query IMS databases *(Continued)*


Data - Demo/Script3.sql - Eclipse SDK
File Edit Navigate Search Project SQL Diagram Services Samples Run Window Help
Data
Databa
Data Project Explorer
Demo (IMS Hospital:jdbc:ims://ecdvl13.vmec.svl.ibm.com:
SQL Scripts
Script1.sql
Script2.sql
Script3.sql
XML
AUTPSB11.psb
AUTODB.dbd
*Script3.sql
HOSPITAL
HOSPCODE
HOSPLL
HOSPNAME
PATIENT
HOSPITAL_HOSPC
WARD_WARDNO
PATNUM
PATLL
PATNAME
Data Source Explorer
IMS DB
IMS Hospital
IMS Hospital
Catalogs
BMP255
Schemas
PCB01
Dependencies
Sequences
Stored Procedures
Tables
BILLING
DOCTOR
HOSPITAL
ILLNESS
PATIENT
PAYMENTS
TREATMNT
Properties
SQL Results
Type query expression here

```
SELECT PCB01.HOSPITAL.HOSPNAME, PCB01.PATIENT.PATNAME, PCB01.HOSPITAL.HOSPCODE
  FROM PCB01.HOSPITAL, PCB01.PATIENT
```

☐ DISTINCT

Columns | Conditions | Groups | Group Conditions

Column	Alias	Output	Sort Type	Sort Order
PCB01.HOSPITAL.HOSPNAME		☑		
PCB01.PATIENT.PATNAME		☑		
PCB01.HOSPITAL.HOSPCODE		☑		

Status	Operation	Date	Connectio...
✓ Succeec	Return All R...	10/14/10 11...	IMS Hospital
✓ Succeec	"PCB01"."H...	10/14/10 11...	IMS Hospital
✓ Succeec		10/14/10 11...	IMS Hospital
✓ Succeec	"PCB01"."H...	10/14/10 11...	IMS Hospital
✓ Succeec	SELECT PCB...	10/14/10 11...	IMS Hospital
✓ Succeec	SELECT PCB...	10/14/10 11...	IMS Hospital
✓ Succeec	SELECT PCB...	10/14/10 11...	IMS Hospital
✕ Failed	SELECT PCB...	10/14/10 11...	IMS Hospital
✓ Succeec	SELECT PCB...	10/14/10 11...	IMS Hospital

	HOSPLL	HOSPCODE	HOSPNAME	HOSPITAL_HOSPCODE	WAR
1		R121001000...	GOOD SAMA...	R1210010000A	0004
2		R121001000...	GOOD SAMA...	R1210010000A	0004
3		R121001000...	GOOD SAMA...	R1210010000A	0004
4		R121001000...	GOOD SAMA...	R1210010000A	0007
5		R121002000...	SANTA TERE...	R1210020000A	0002
6		R121004000...	NEW ENGLA...	R1210040000A	0011
7		R121004000...	NEW ENGLA...	R1210040000A	0011
8		R121004000...	NEW ENGLA...	R1210040000A	0011
9		R121004000...	NEW ENGLA...	R1210040000A	0070
10		R121004000...	NEW ENGLA...	R1210040000A	0070

ase type: IMS_V11,Current profile: IMS Hospital, Database: IMS Hospital,connected

Create SQL scripts with Select, Update, Delete, and Insert statements

Build a SQL statement using the SQL Builder with content assistance

View the SQL results

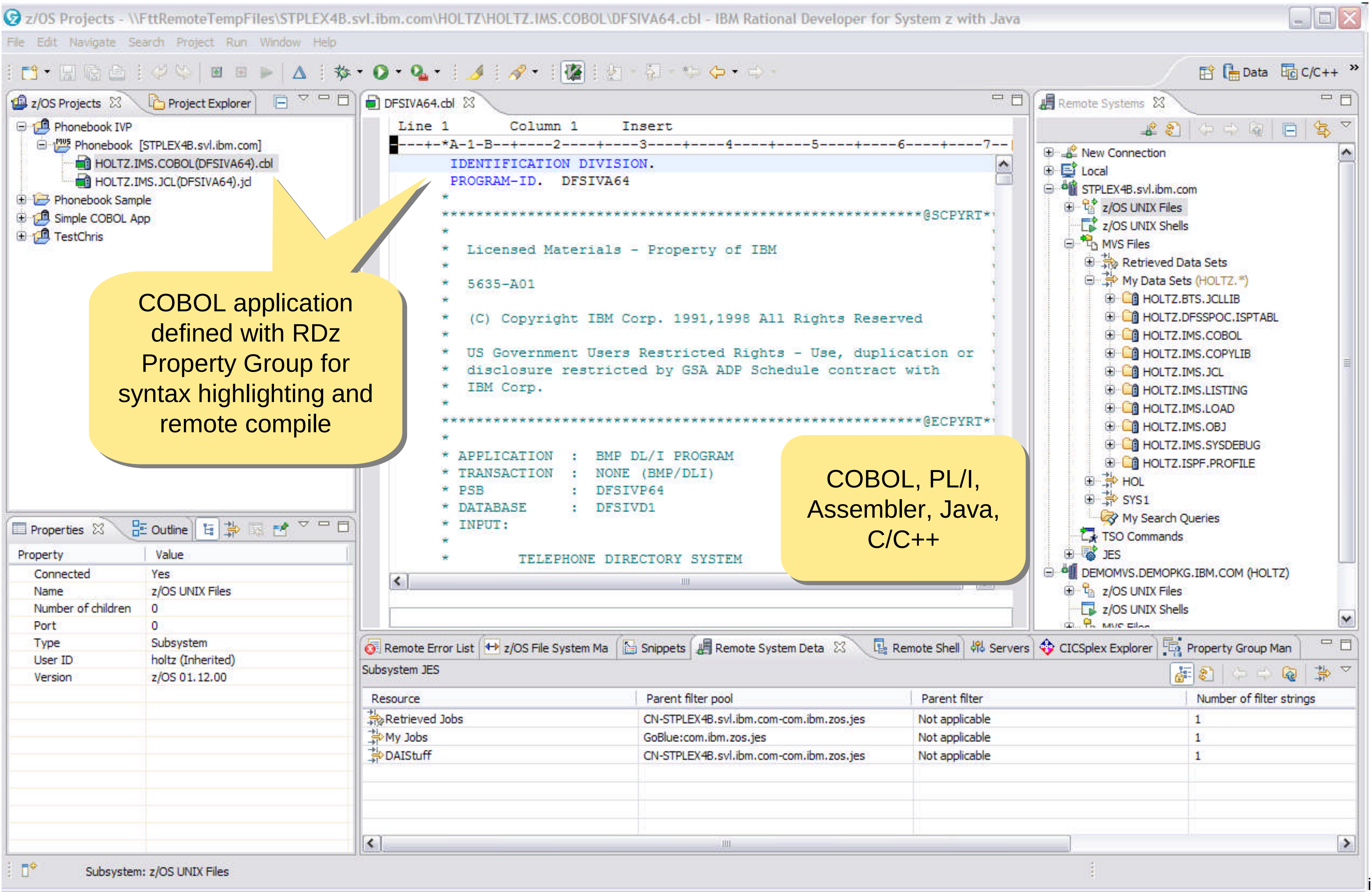
PSB = schema

DB PCB = database

Database segments = tables

Rational Developer for System z

Remotely code and build



z/OS Projects - \\FttRemoteTempFiles\STPLEX4B.svl.ibm.com\HOLTZ\HOLTZ.IMS.COBOL\DFSIVA64.cbl - IBM Rational Developer for System z with Java
File Edit Navigate Search Project Run Window Help
Data
C/C++
z/OS Projects
Project Explorer
DFSIVA64.cbl
Remote Systems
Properties
Outline

- Phonebook IVP
  - Phonebook [STPLEX4B.svl.ibm.com]
    - HOLTZ.IMS.COBOL(DFSIVA64).cbl
    - HOLTZ.IMS.JCL(DFSIVA64).jcl
- Phonebook Sample
- Simple COBOL App
- TestChris

```
Line 1         Column 1      Insert
----+-*A-1-B--+----2----+----3----+----4----+----5----+----6----+----7--
       IDENTIFICATION DIVISION.
       PROGRAM-ID.  DFSIVA64
      *
      ***********************************************************@SCPYRT*
      *
      *  Licensed Materials - Property of IBM
      *
      *  5635-A01
      *
      *  (C) Copyright IBM Corp. 1991,1998 All Rights Reserved
      *
      *  US Government Users Restricted Rights - Use, duplication or
      *  disclosure restricted by GSA ADP Schedule contract with
      *  IBM Corp.
      *
      ***********************************************************@ECPYRT*
      *
      * APPLICATION  :  BMP DL/I PROGRAM
      * TRANSACTION  :  NONE (BMP/DLI)
      * PSB          :  DFSIVP64
      * DATABASE     :  DFSIVD1
      * INPUT:
      *
      *          TELEPHONE DIRECTORY SYSTEM
```

- New Connection
- Local
- STPLEX4B.svl.ibm.com
  - z/OS UNIX Files
  - z/OS UNIX Shells
  - MVS Files
    - Retrieved Data Sets
    - My Data Sets (HOLTZ.*)
      - HOLTZ.BTS.JCLLIB
      - HOLTZ.DFSSPOC.ISPTABL
      - HOLTZ.IMS.COBOL
      - HOLTZ.IMS.COPYLIB
      - HOLTZ.IMS.JCL
      - HOLTZ.IMS.LISTING
      - HOLTZ.IMS.LOAD
      - HOLTZ.IMS.OBJ
      - HOLTZ.IMS.SYSDEBUG
      - HOLTZ.ISPF.PROFILE
    - HOL
    - SYS1
    - My Search Queries
  - TSO Commands
  - JES
- DEMOMVS.DEMOPKG.IBM.COM (HOLTZ)
  - z/OS UNIX Files
  - z/OS UNIX Shells

Property	Value
Connected	Yes
Name	z/OS UNIX Files
Number of children	0
Port	0
Type	Subsystem
User ID	holtz (Inherited)
Version	z/OS 01.12.00

Remote Error List
z/OS File System Ma
Snippets
Remote System Deta
Remote Shell
Servers
CICSplex Explorer
Property Group Man

Subsystem JES

Resource	Parent filter pool	Parent filter	Number of filter strings
Retrieved Jobs	CN-STPLEX4B.svl.ibm.com-com.ibm.zos.jes	Not applicable	1
My Jobs	GoBlue:com.ibm.zos.jes	Not applicable	1
DAIStuff	CN-STPLEX4B.svl.ibm.com-com.ibm.zos.jes	Not applicable	1

Subsystem: z/OS UNIX Files

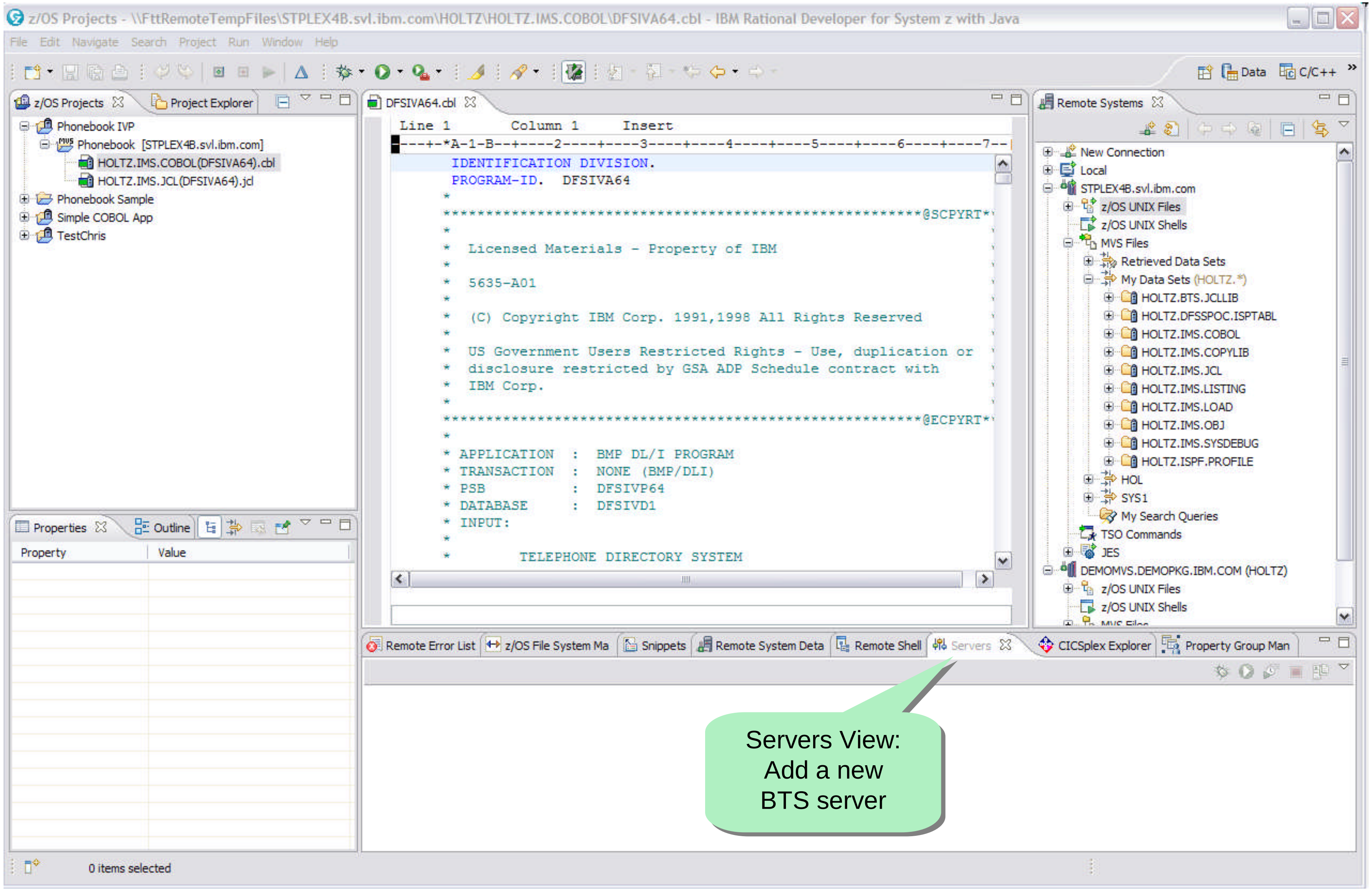
COBOL application defined with RDz Property Group for syntax highlighting and remote compile

COBOL, PL/I, Assembler, Java, C/C++

ion

IMS Batch Terminal Simulator

Add BTS server

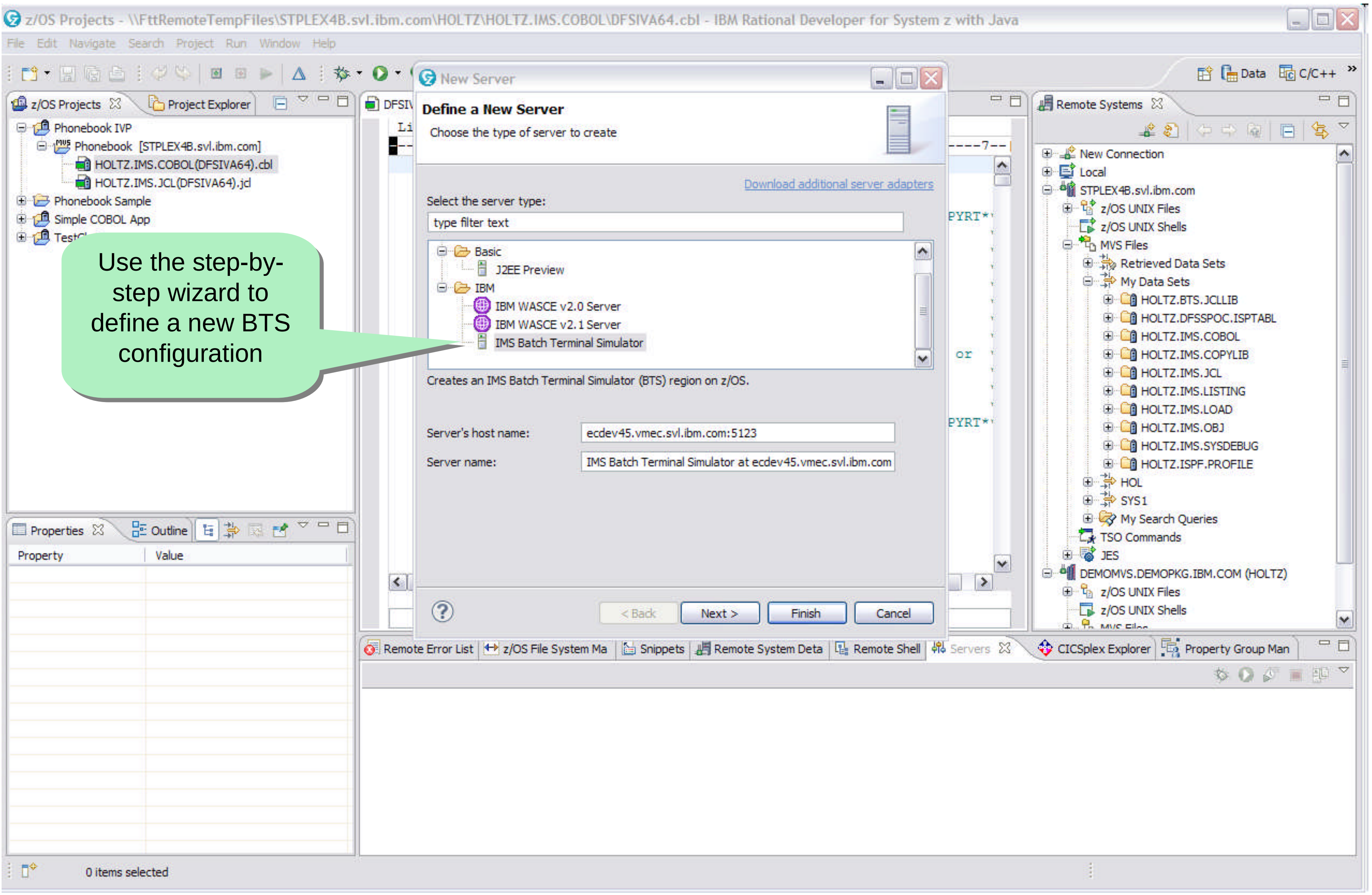

z/OS Projects - \\FttRemoteTempFiles\STPLEX4B.svl.ibm.com\HOLTZ\HOLTZ.IMS.COBOL\DFSIVA64.cbl - IBM Rational Developer for System z with Java
File Edit Navigate Search Project Run Window Help
Data
C/C++
z/OS Projects
Project Explorer
Phonebook IVP
Phonebook [STPLEX4B.svl.ibm.com]
HOLTZ.IMS.COBOL(DFSIVA64).cbl
HOLTZ.IMS.JCL(DFSIVA64).jcl
Phonebook Sample
Simple COBOL App
TestChris
DFSIVA64.cbl
Remote Systems
New Connection
Local
STPLEX4B.svl.ibm.com
z/OS UNIX Files
z/OS UNIX Shells
MVS Files
Retrieved Data Sets
My Data Sets (HOLTZ.*)
HOLTZ.BTS.JCLLIB
HOLTZ.DFSSPOC.ISPTABL
HOLTZ.IMS.COBOL
HOLTZ.IMS.COPYLIB
HOLTZ.IMS.JCL
HOLTZ.IMS.LISTING
HOLTZ.IMS.LOAD
HOLTZ.IMS.OBJ
HOLTZ.IMS.SYSDEBUG
HOLTZ.ISPF.PROFILE
HOL
SYS1
My Search Queries
TSO Commands
JES
DEMOMVS.DEMOPKG.IBM.COM (HOLTZ)
z/OS UNIX Files
z/OS UNIX Shells
MVS Files
Properties
Outline
Property
Value
Remote Error List
z/OS File System Ma
Snippets
Remote System Deta
Remote Shell
Servers
CICSplex Explorer
Property Group Man
0 items selected

```
 Line 1       Column 1      Insert
----+-*A-1-B--+----2----+----3----+----4----+----5----+----6----+----7--
       IDENTIFICATION DIVISION.
       PROGRAM-ID.  DFSIVA64
      *
      ***************************************************************@SCPYRT**
      *
      *  Licensed Materials - Property of IBM
      *
      *  5635-A01
      *
      *  (C) Copyright IBM Corp. 1991,1998 All Rights Reserved
      *
      *  US Government Users Restricted Rights - Use, duplication or
      *  disclosure restricted by GSA ADP Schedule contract with
      *  IBM Corp.
      *
      ***************************************************************@ECPYRT**
      *
      * APPLICATION  :  BMP DL/I PROGRAM
      * TRANSACTION  :  NONE  (BMP/DLI)
      * PSB          :  DFSIVP64
      * DATABASE     :  DFSIVD1
      * INPUT:
      *
      *         TELEPHONE DIRECTORY SYSTEM
```

Servers View:
Add a new
BTS server

IMS Batch Terminal Simulator

Define BTS server



Use the step-by-step wizard to define a new BTS configuration

Define a New Server

Choose the type of server to create

Select the server type:

IMS Batch Terminal Simulator

Creates an IMS Batch Terminal Simulator (BTS) region on z/OS.

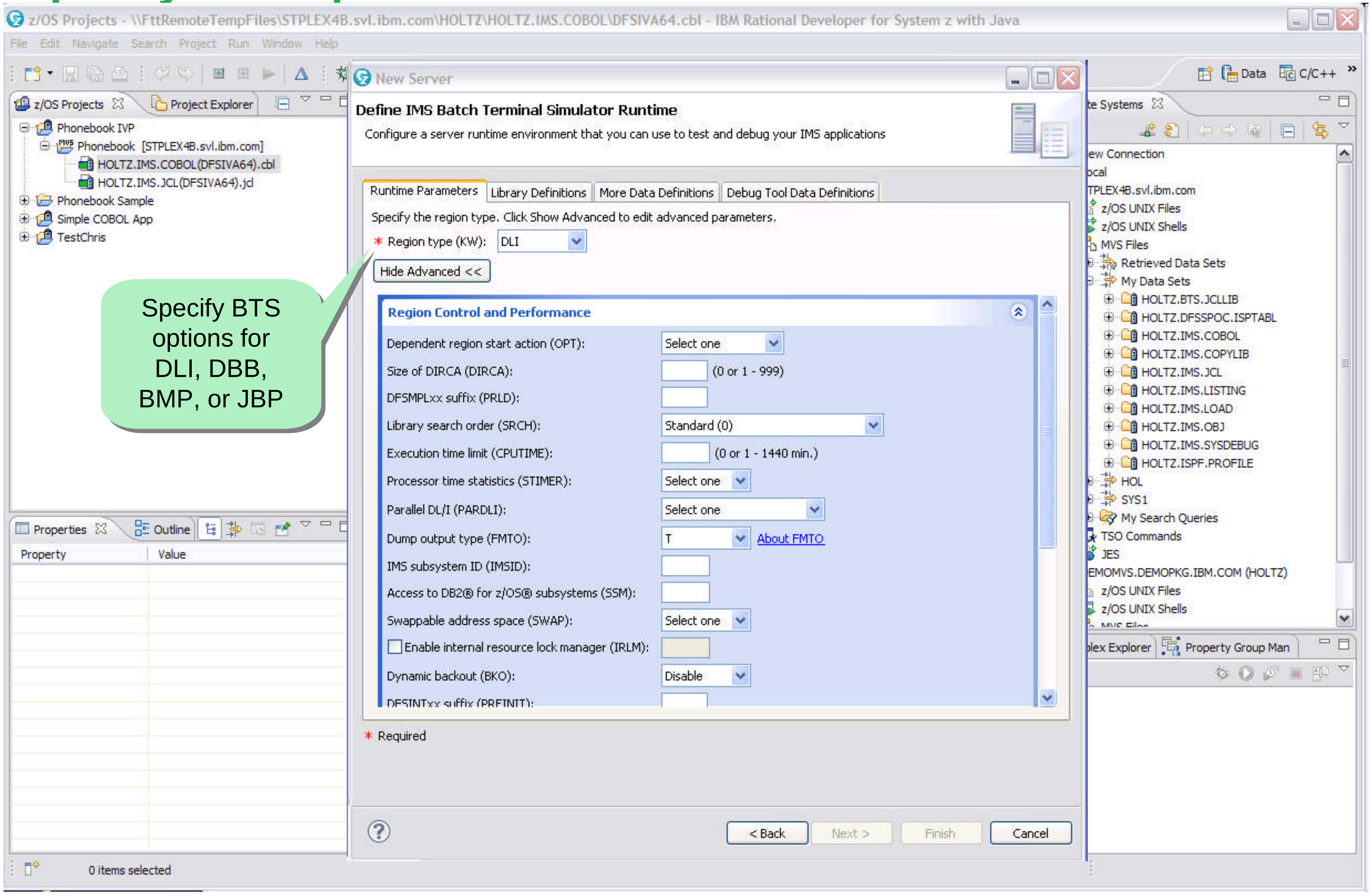
Server's host name: ecdev45.vmec.svl.ibm.com:5123

Server name: IMS Batch Terminal Simulator at ecdev45.vmec.svl.ibm.com

New Server
Download additional server adapters
type filter text
Basic
J2EE Preview
IBM
IBM WASCE v2.0 Server
IBM WASCE v2.1 Server
< Back
Next >
Finish
Cancel

IMS Batch Terminal Simulator

Specify BTS options


z/OS Projects - \\FttRemoteTempFiles\STPLEX4B.svl.ibm.com\HOLTZ\HOLTZ.IMS.COBOL\DFSIVA64.cbl - IBM Rational Developer for System z with Java
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New Server

Define IMS Batch Terminal Simulator Runtime

Configure a server runtime environment that you can use to test and debug your IMS applications

Runtime Parameters | Library Definitions | More Data Definitions | Debug Tool Data Definitions

Specify the region type. Click Show Advanced to edit advanced parameters.

* Region type (KW): DLI

Hide Advanced <<

Region Control and Performance

Dependent region start action (OPT): Select one
Size of DIRCA (DIRCA): (0 or 1 - 999)
DFSMPLxx suffix (PRLD):
Library search order (SRCH): Standard (0)
Execution time limit (CPUTIME): (0 or 1 - 1440 min.)
Processor time statistics (STIMER): Select one
Parallel DL/I (PARDLI): Select one
Dump output type (FMTO): T About FMTO
IMS subsystem ID (IMSID):
Access to DB2® for z/OS® subsystems (SSM):
Swappable address space (SWAP): Select one
☐ Enable internal resource lock manager (IRLM):
Dynamic backout (BKO): Disable
DFSINTxx suffix (PREINIT):

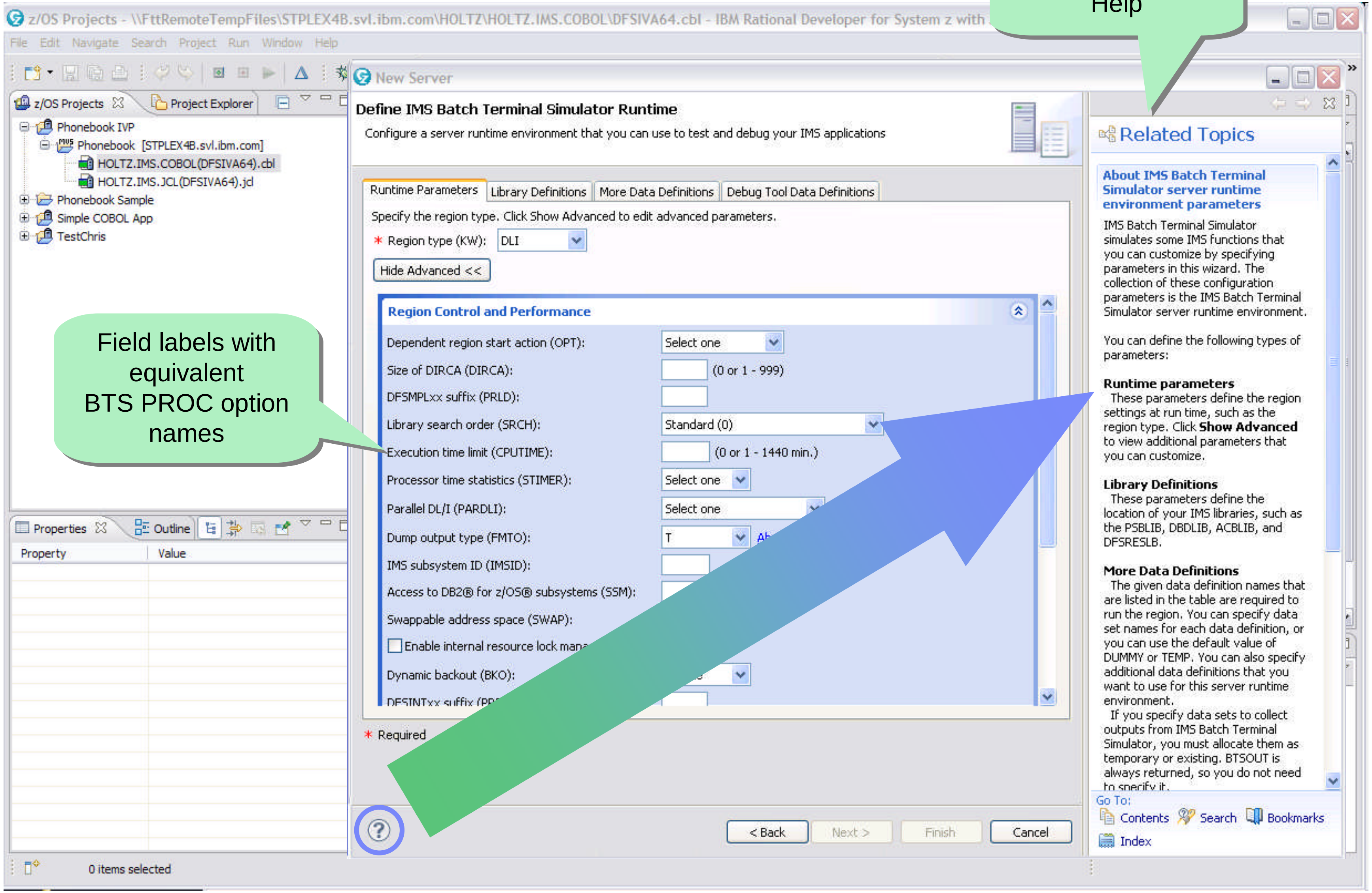
* Required

< Back | Next > | Finish | Cancel

Specify BTS options for DLI, DBB, BMP, or JBP

IMS Batch Terminal Simulator

Use embedded assistance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Define IMS Batch Terminal Simulator Runtime

Configure a server runtime environment that you can use to test and debug your IMS applications

Specify the region type. Click Show Advanced to edit advanced parameters.

* Region type (KW): DLI

Dependent region start action (OPT): Select one

Size of DIRCA (DIRCA): (0 or 1 - 999)

DFSMPLxx suffix (PRLD):

Library search order (SRCH): Standard (0)

Execution time limit (CPUTIME): (0 or 1 - 1440 min.)

Processor time statistics (STIMER): Select one

Parallel DL/I (PARDLI): Select one

Dump output type (FMTO): T

IMS subsystem ID (IMSID):

Access to DB2® for z/OS® subsystems (SSM):

Swappable address space (SWAP):

☐ Enable internal resource lock mana

Dynamic backout (BKO):

DFSINTxx suffix (PR

* Required

About IMS Batch Terminal Simulator server runtime environment parameters

IMS Batch Terminal Simulator simulates some IMS functions that you can customize by specifying parameters in this wizard. The collection of these configuration parameters is the IMS Batch Terminal Simulator server runtime environment.

You can define the following types of parameters:

Runtime parameters
These parameters define the region settings at run time, such as the region type. Click **Show Advanced** to view additional parameters that you can customize.

Library Definitions
These parameters define the location of your IMS libraries, such as the PSBLIB, DBDLIB, ACBLIB, and DFSRESLB.

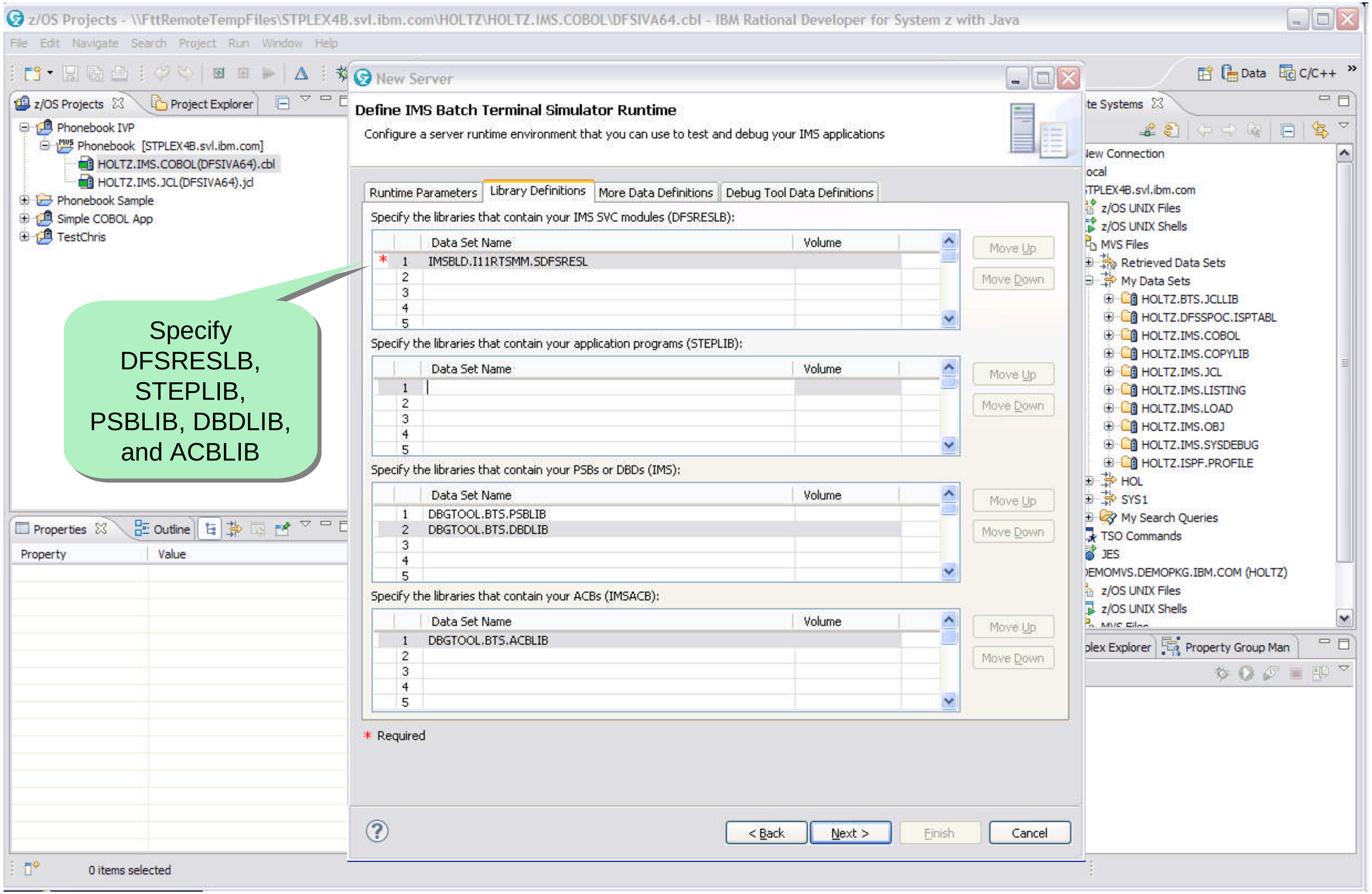
More Data Definitions
The given data definition names that are listed in the table are required to run the region. You can specify data set names for each data definition, or you can use the default value of DUMMY or TEMP. You can also specify additional data definitions that you want to use for this server runtime environment.
If you specify data sets to collect outputs from IMS Batch Terminal Simulator, you must allocate them as temporary or existing. BTSOUT is always returned, so you do not need to specify it.

Context-sensitive Help

Field labels with equivalent BTS PROC option names

IMS Batch Terminal Simulator

Specify libraries



Specify DFSRESLB, STEPLIB, PSBLIB, DBDLIB, and ACBLIB

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New Server

Define IMS Batch Terminal Simulator Runtime

Configure a server runtime environment that you can use to test and debug your IMS applications

Runtime Parameters
Library Definitions
More Data Definitions
Debug Tool Data Definitions

Specify the libraries that contain your IMS SVC modules (DFSRESLB):

	Data Set Name	Volume
* 1	IMSBLD.I11RTSMM.SDFSRESL	
2		
3		
4		
5		

Specify the libraries that contain your application programs (STEPLIB):

	Data Set Name	Volume
1		
2		
3		
4		
5		

Specify the libraries that contain your PSBs or DBDs (IMS):

	Data Set Name	Volume
1	DBGTOOL.BTS.PSBLIB	
2	DBGTOOL.BTS.DBDLIB	
3		
4		
5		

Specify the libraries that contain your ACBs (IMSACB):

	Data Set Name	Volume
1	DBGTOOL.BTS.ACBLIB	
2		
3		
4		
5		

* Required

Move Up
Move Down
< Back
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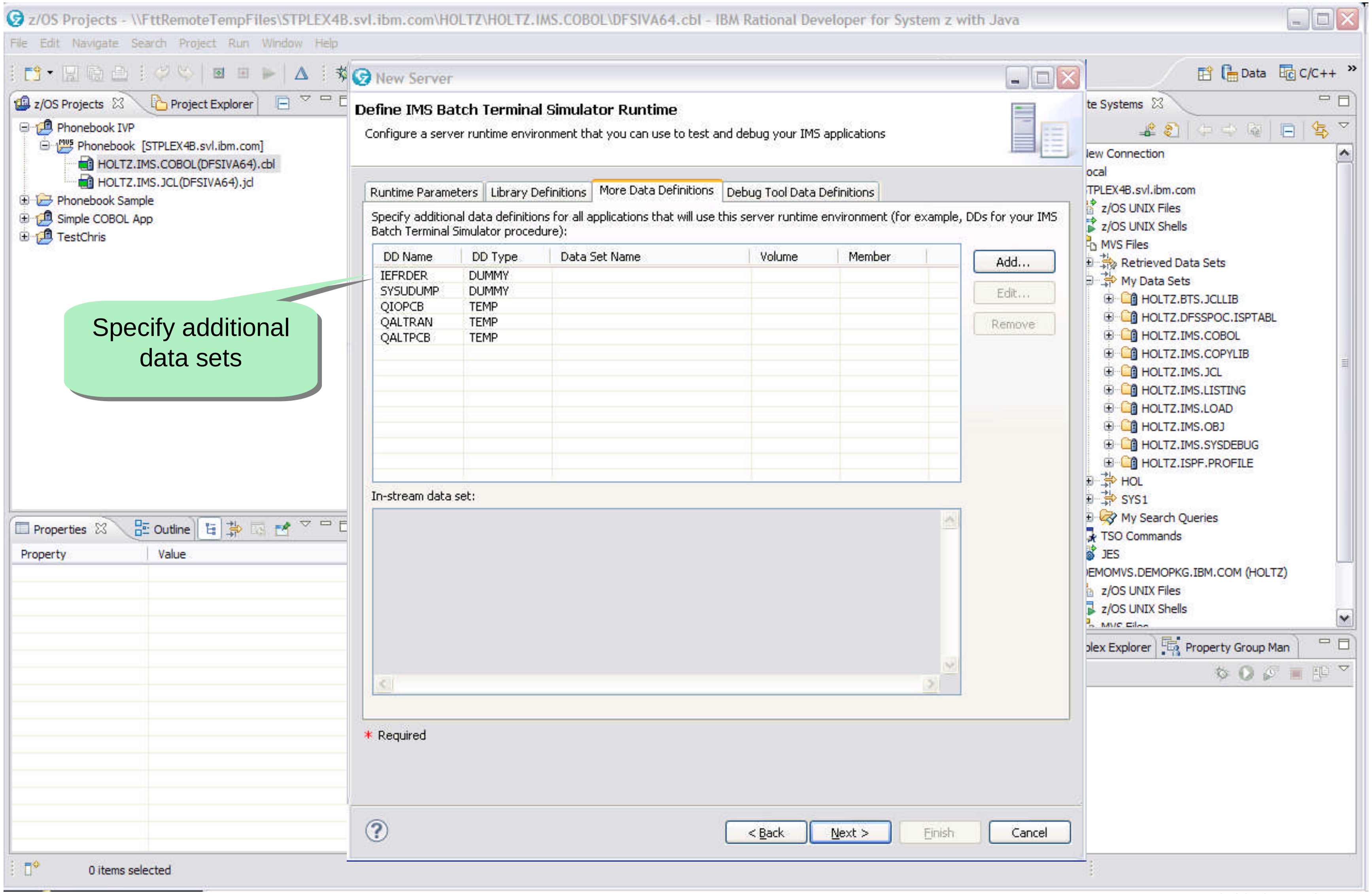
IMS Batch Terminal Simulator

Specify additional data sets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Define IMS Batch Terminal Simulator Runtime

Configure a server runtime environment that you can use to test and debug your IMS applications

Specify additional data definitions for all applications that will use this server runtime environment (for example, DDs for your IMS Batch Terminal Simulator procedure):

DD Name	DD Type	Data Set Name	Volume	Member
IEFRDER	DUMMY			
SYSUDUMP	DUMMY			
QIOPCB	TEMP			
QALTRAN	TEMP			
QALTPCB	TEMP			

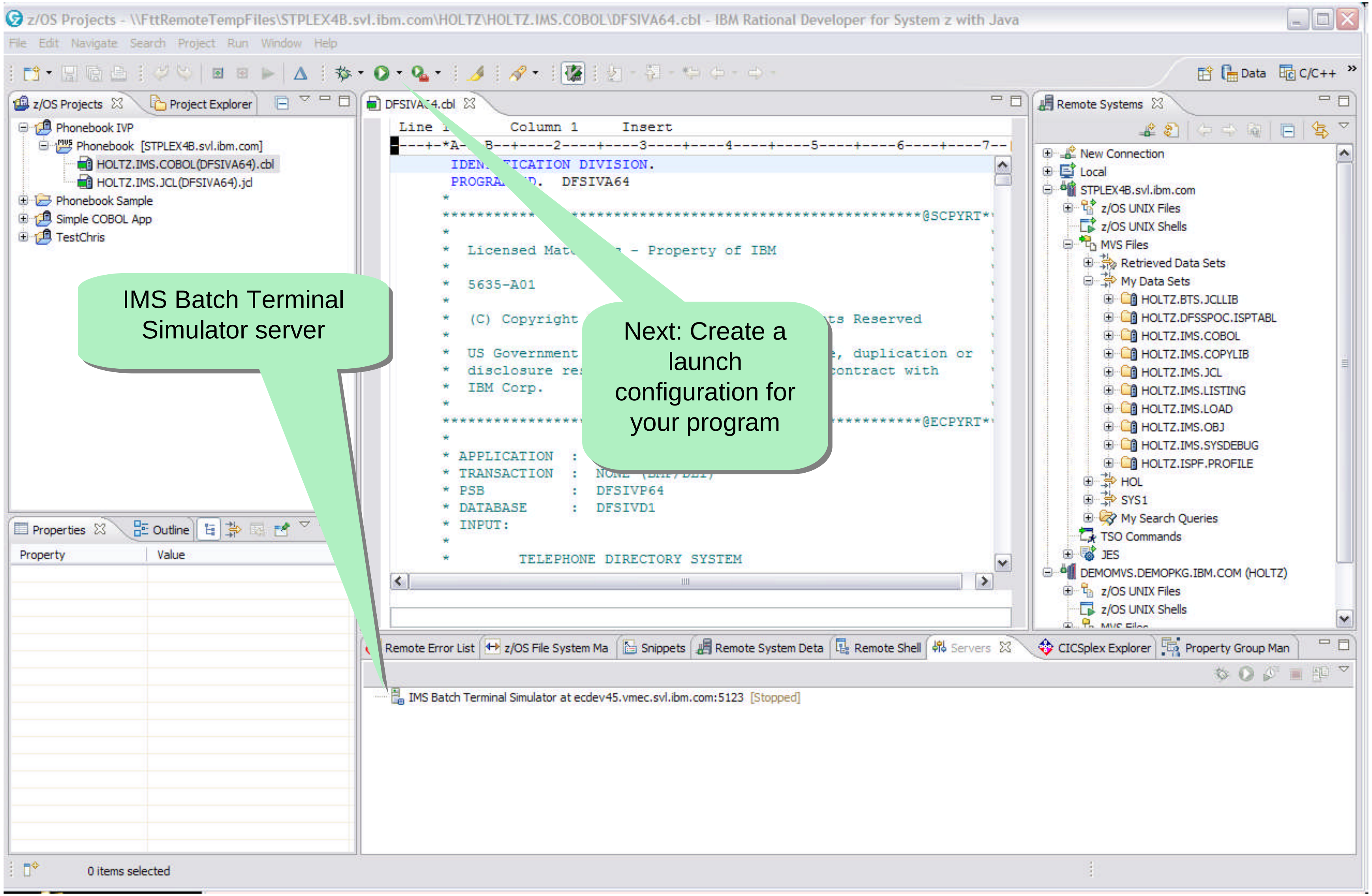
In-stream data set:

* Required

Specify additional data sets

IMS Batch Terminal Simulator

Create launch configuration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z/OS File System Ma
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Remote System Deta
Remote Shell
Servers
CICSplex Explorer
Property Group Man

```
Line 1          Column 1       Insert
----+-*A-   B--+----2----+----3----+----4----+----5----+----6----+----7--
       IDEN  FICATION DIVISION.
       PROGRA    D.  DFSIVA64
      *
      ***********    ******************************************@SCPYRT*
      *
      *  Licensed Mat      - Property of IBM
      *
      *  5635-A01
      *
      *  (C) Copyright                                  ts Reserved
      *
      *  US Government                                 , duplication or
      *  disclosure re                                 contract with
      *  IBM Corp.
      *
      ****************                          ***********@ECPYRT*
      *
      * APPLICATION  :
      * TRANSACTION  :  NONE  (BMP/DLI)
      * PSB          :  DFSIVP64
      * DATABASE     :  DFSIVD1
      * INPUT:
      *
      *        TELEPHONE DIRECTORY SYSTEM
```

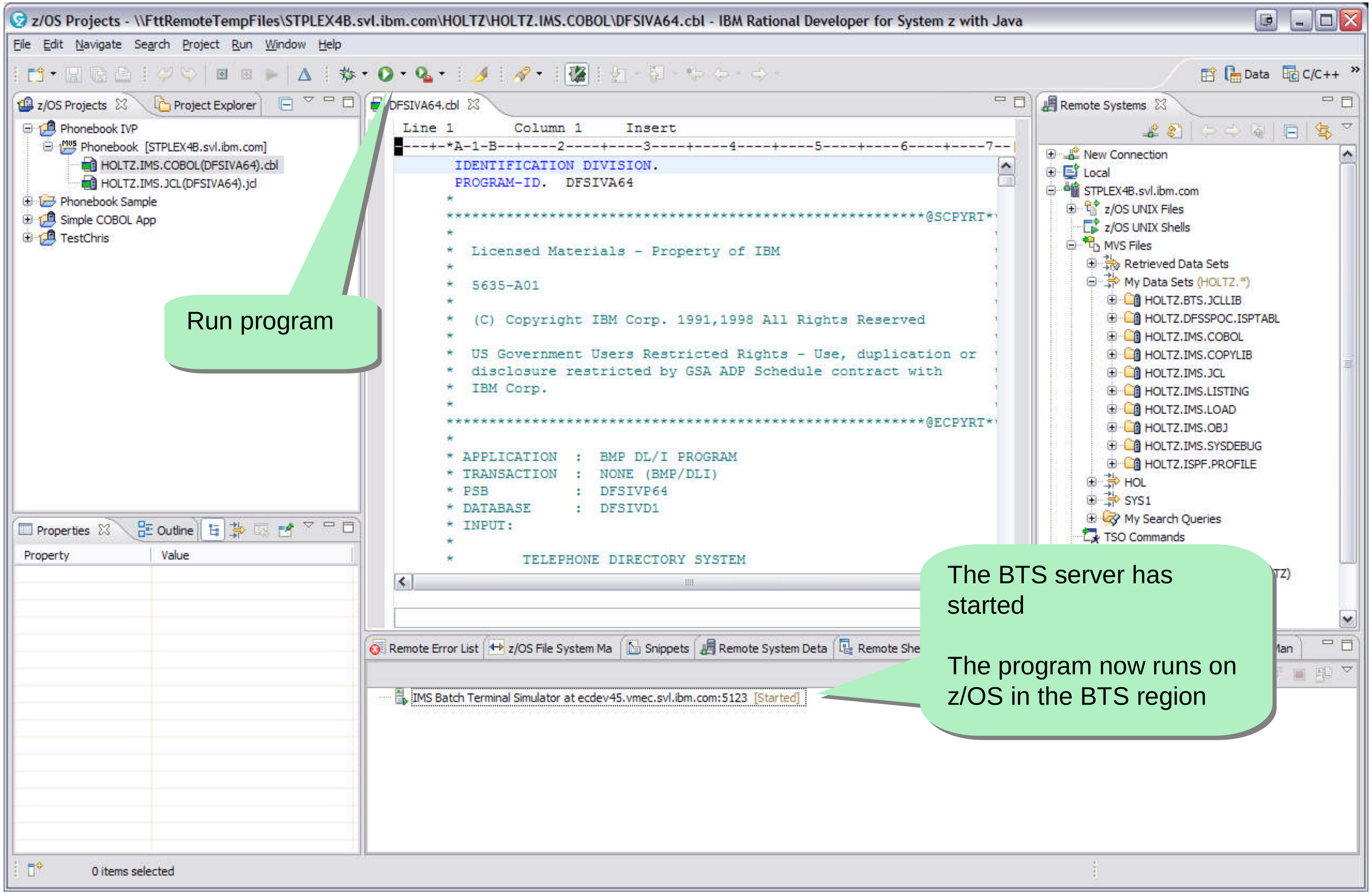
IMS Batch Terminal Simulator at ecdev45.vmec.svl.ibm.com:5123 [Stopped]

IMS Batch Terminal Simulator server

Next: Create a launch configuration for your program

IMS Batch Terminal Simulator

Run program



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HOLTZ.DFSSPOC.ISPTABL
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HOLTZ.IMS.JCL
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Line 1          Column 1        Insert
----+-*A-1-B--+----2----+----3----+----4----+----5----+----6----+----7--
       IDENTIFICATION DIVISION.
       PROGRAM-ID.  DFSIVA64
      *
      **************************************************************@SCPYRT*
      *
      *  Licensed Materials - Property of IBM
      *
      *  5635-A01
      *
      *  (C) Copyright IBM Corp. 1991,1998 All Rights Reserved
      *
      *  US Government Users Restricted Rights - Use, duplication or
      *  disclosure restricted by GSA ADP Schedule contract with
      *  IBM Corp.
      *
      **************************************************************@ECPYRT*
      *
      * APPLICATION   :  BMP DL/I PROGRAM
      * TRANSACTION   :  NONE (BMP/DLI)
      * PSB           :  DFSIVP64
      * DATABASE      :  DFSIVD1
      * INPUT:
      *
      *         TELEPHONE DIRECTORY SYSTEM
```

IMS Batch Terminal Simulator at ecdev45.vmec.svl.ibm.com:5123 [Started]

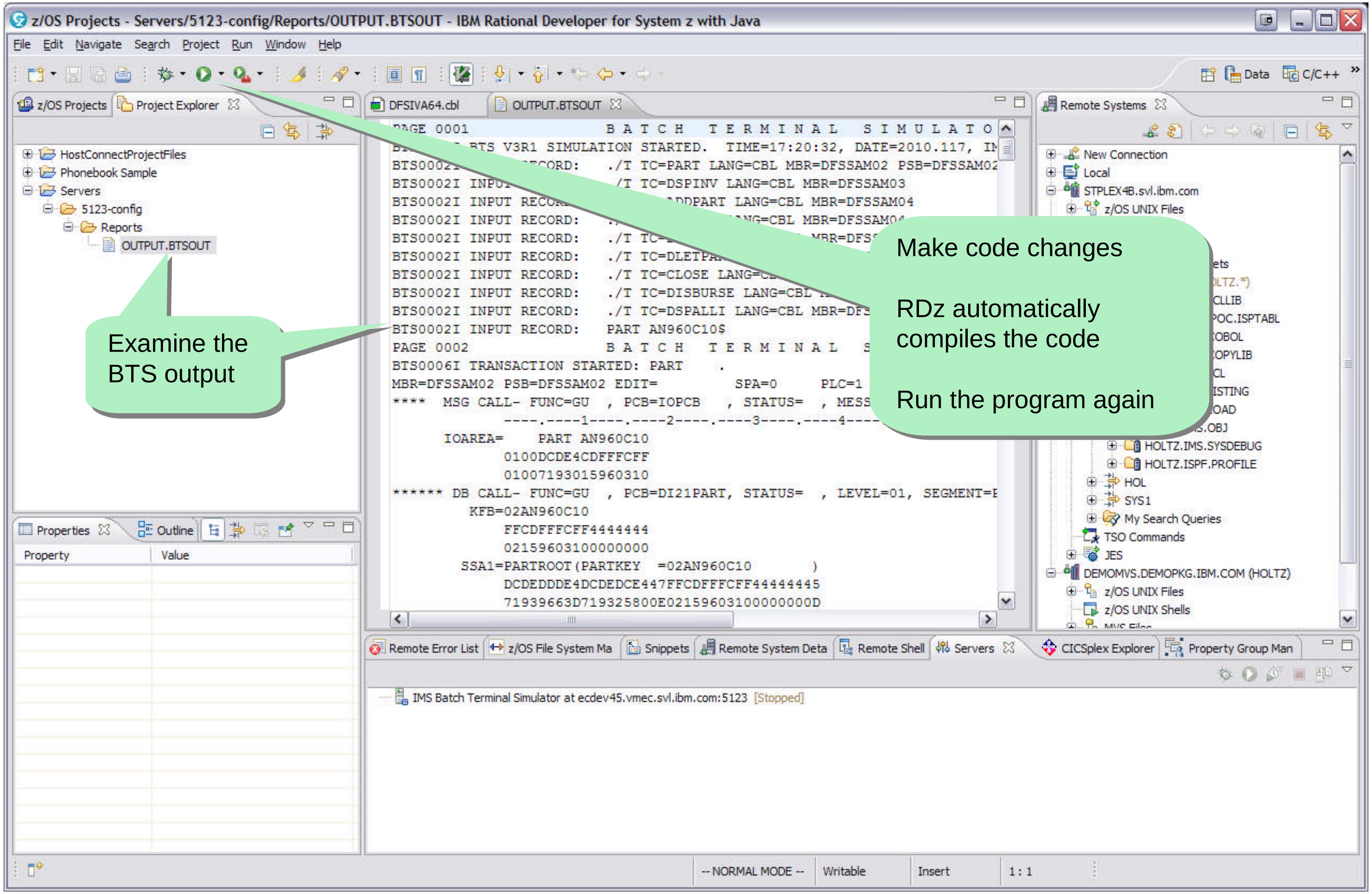
Run program

The BTS server has started

The program now runs on z/OS in the BTS region

IMS Batch Terminal Simulator

Examine BTS output



z/OS Projects - Servers/5123-config/Reports/OUTPUT.BTSOUT - IBM Rational Developer for System z with Java
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Insert
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```
PAGE 0001                B A T C H   T E R M I N A L   S I M U L A T O
        BTS V3R1 SIMULATION STARTED.  TIME=17:20:32, DATE=2010.117, IM
BTS0002I              ECORD:   ./T TC=PART LANG=CBL MBR=DFSSAM02 PSB=DFSSAM02
BTS0002I INPU                   /T TC=DSPINV LANG=CBL MBR=DFSSAM03
BTS0002I INPUT RECOR                DDPART LANG=CBL MBR=DFSSAM04
BTS0002I INPUT RECORD:                   NG=CBL MBR=DFSSAM04
BTS0002I INPUT RECORD:   ./T TC                  MBR=DFS
BTS0002I INPUT RECORD:   ./T TC=DLETPA
BTS0002I INPUT RECORD:   ./T TC=CLOSE LANG=C
BTS0002I INPUT RECORD:   ./T TC=DISBURSE LANG=CBL
BTS0002I INPUT RECORD:   ./T TC=DSPALLI LANG=CBL MBR=DF
BTS0002I INPUT RECORD:   PART AN960C10$
PAGE 0002                B A T C H   T E R M I N A L   S
BTS0006I TRANSACTION STARTED: PART    .
MBR=DFSSAM02 PSB=DFSSAM02 EDIT=        SPA=0    PLC=1
****  MSG CALL- FUNC=GU  , PCB=IOPCB   , STATUS=  , MESS
             ----.----1----.----2----.----3----.----4----
      IOAREA=    PART AN960C10
             0100DCDE4CDFFFCFF
             0100719301596031 0
****** DB CALL- FUNC=GU  , PCB=DI21PART, STATUS=  , LEVEL=01, SEGMENT=P
         KFB=02AN960C10
             FFCDFFFCFF4444444
             0215960310000000 0
        SSA1=PARTROOT(PARTKEY  =02AN960C10       )
             DCDEDDDE4DCDEDCE447FFCDFFFCFF44444445
             71939663D719325800E021596031000000000D
```

IMS Batch Terminal Simulator at ecdev45.vmec.svl.ibm.com:5123 [Stopped]

Examine the BTS output

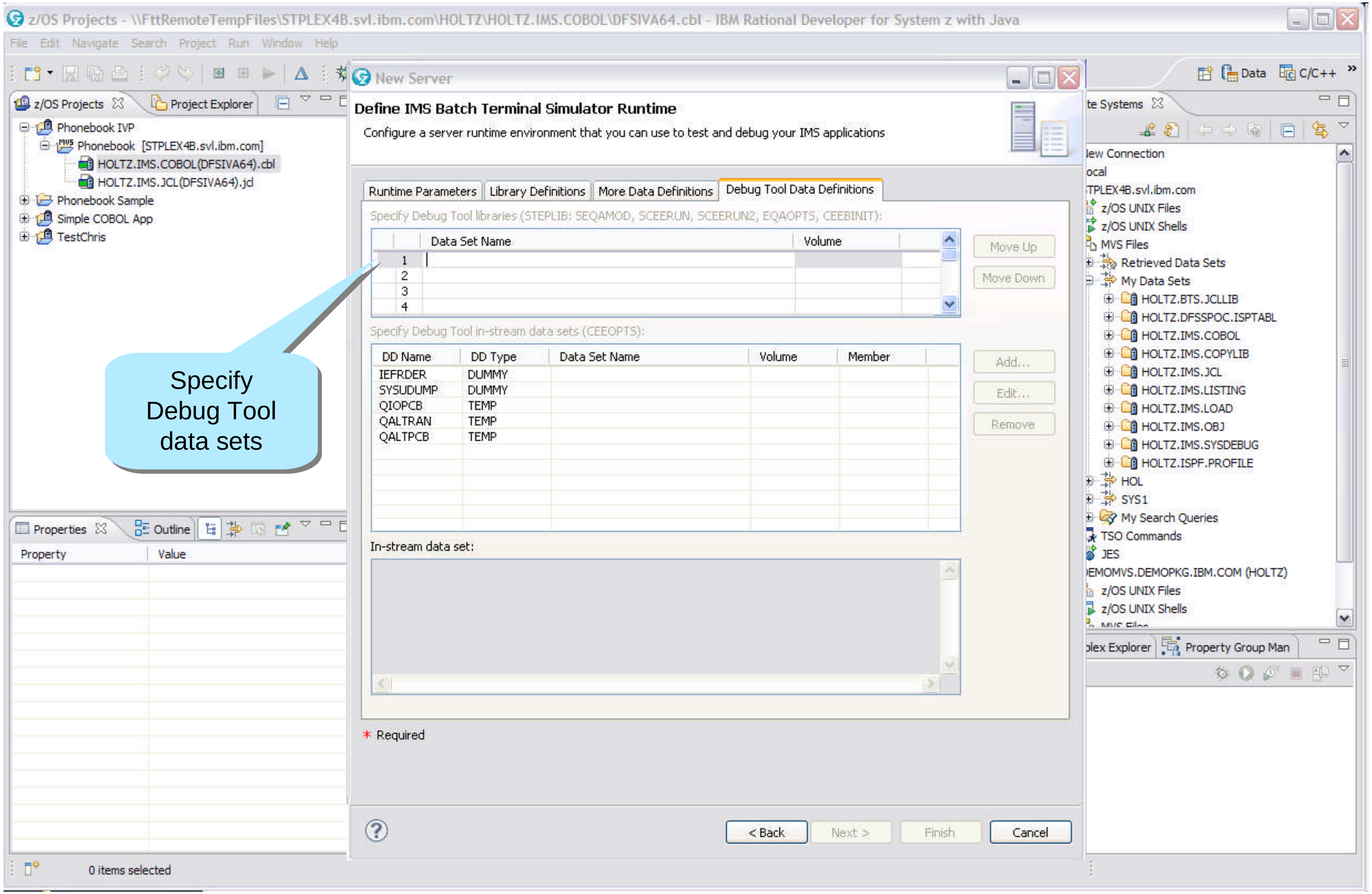
Make code changes

RDz automatically compiles the code

Run the program again

Debug Tool for z/OS

Debug runtime configuration



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Edit...
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Finish
Cancel

Define IMS Batch Terminal Simulator Runtime

Configure a server runtime environment that you can use to test and debug your IMS applications

Specify Debug Tool libraries (STEPLIB: SEQAMOD, SCEERUN, SCEERUN2, EQAOPTS, CEEBINIT):

	Data Set Name	Volume
1		
2		
3		
4		

Specify Debug Tool in-stream data sets (CEEOPTS):

DD Name	DD Type	Data Set Name	Volume	Member
IEFRDER	DUMMY			
SYSUDUMP	DUMMY			
QIOPCB	TEMP			
QALTRAN	TEMP			
QALTPCB	TEMP			

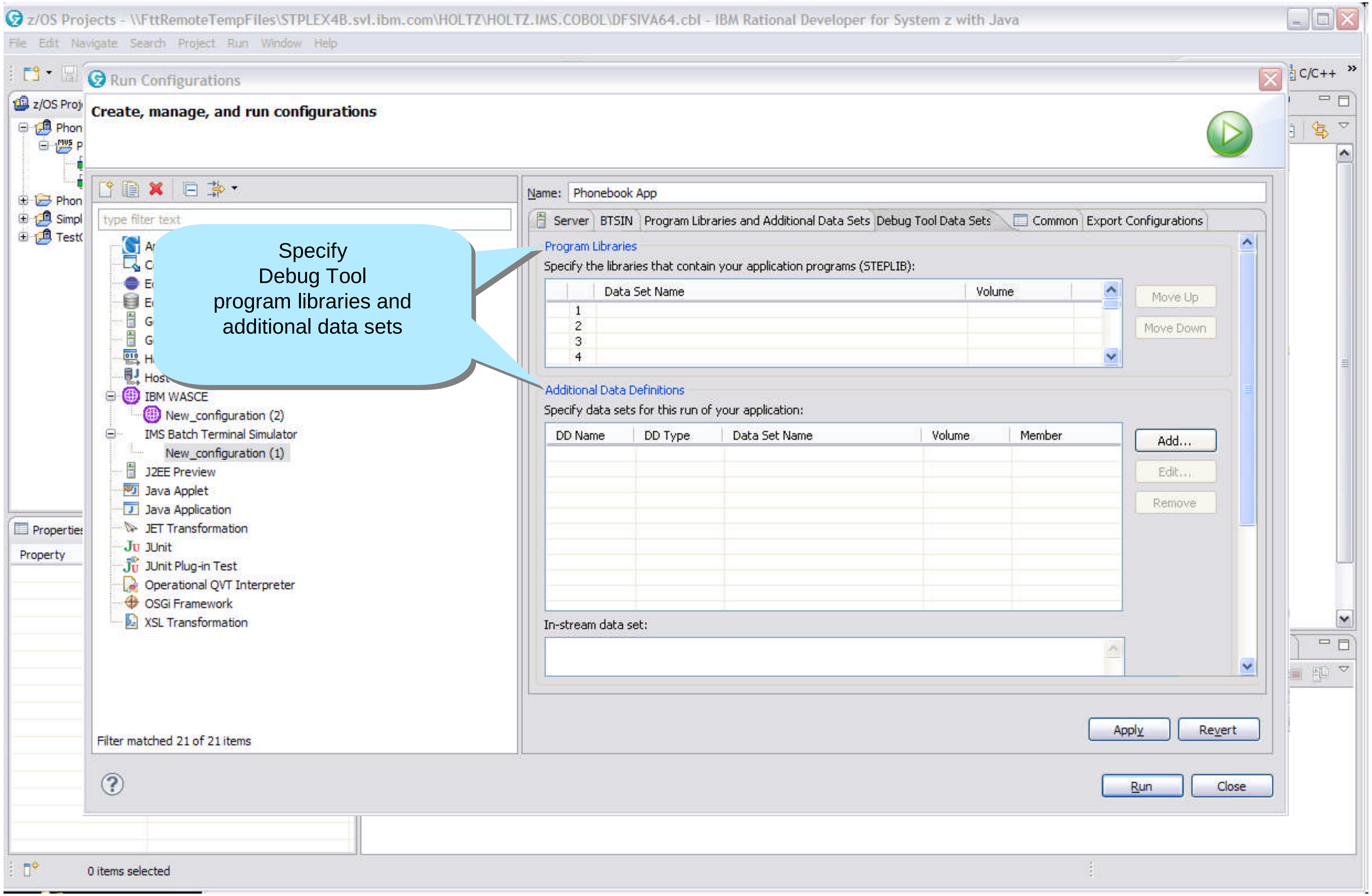
In-stream data set:

* Required

Specify
Debug Tool
data sets

Debug Tool for z/OS

Debug launch configuration



Specify Debug Tool program libraries and additional data sets

Create, manage, and run configurations

Name: Phonebook App

Program Libraries

Specify the libraries that contain your application programs (STEPLIB):

	Data Set Name	Volume
1		
2		
3		
4		

Additional Data Definitions

Specify data sets for this run of your application:

DD Name	DD Type	Data Set Name	Volume	Member

In-stream data set:

Filter matched 21 of 21 items

0 items selected

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Java Application
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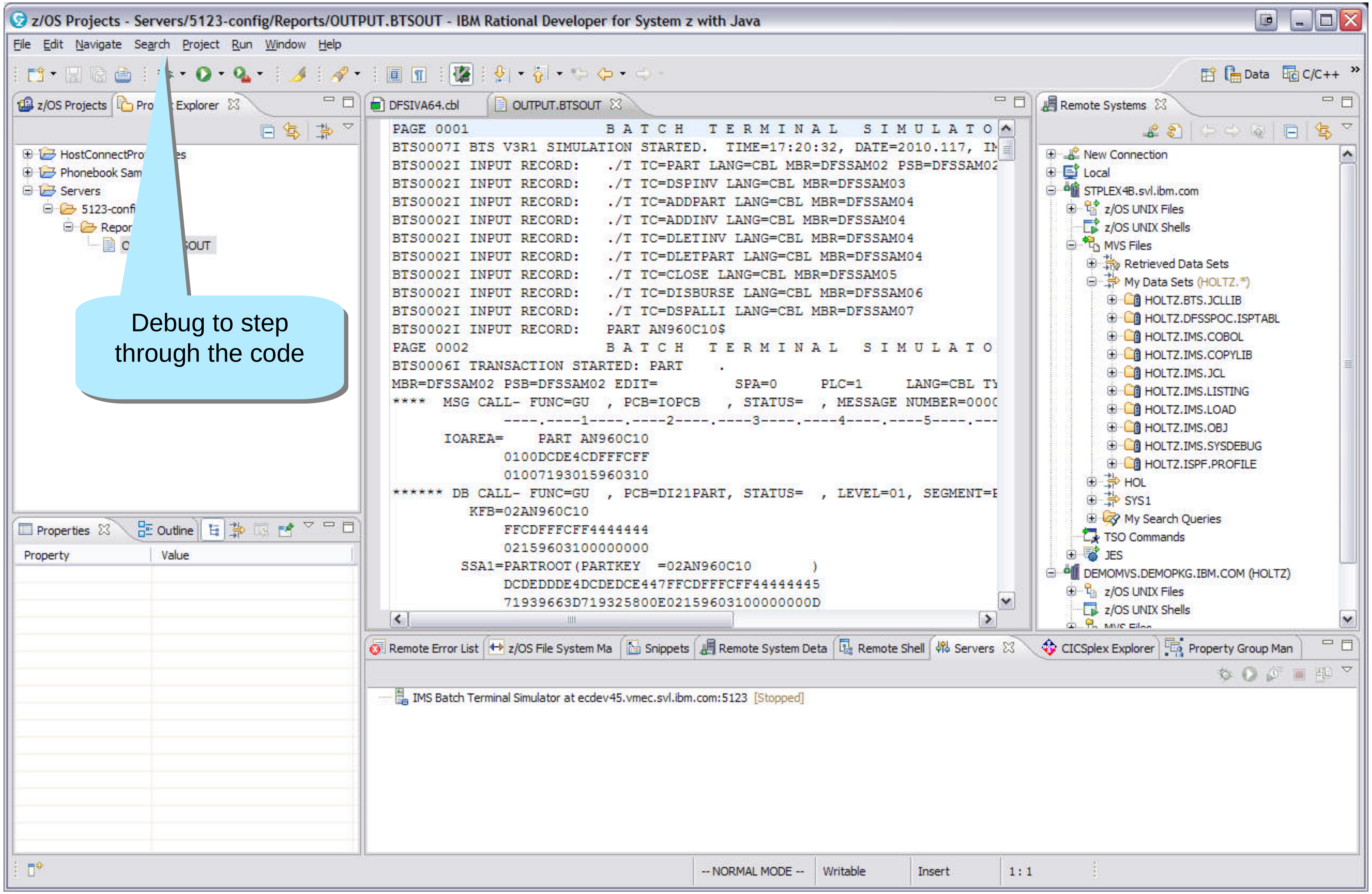
Debug Tool for z/OS

Debug and step through code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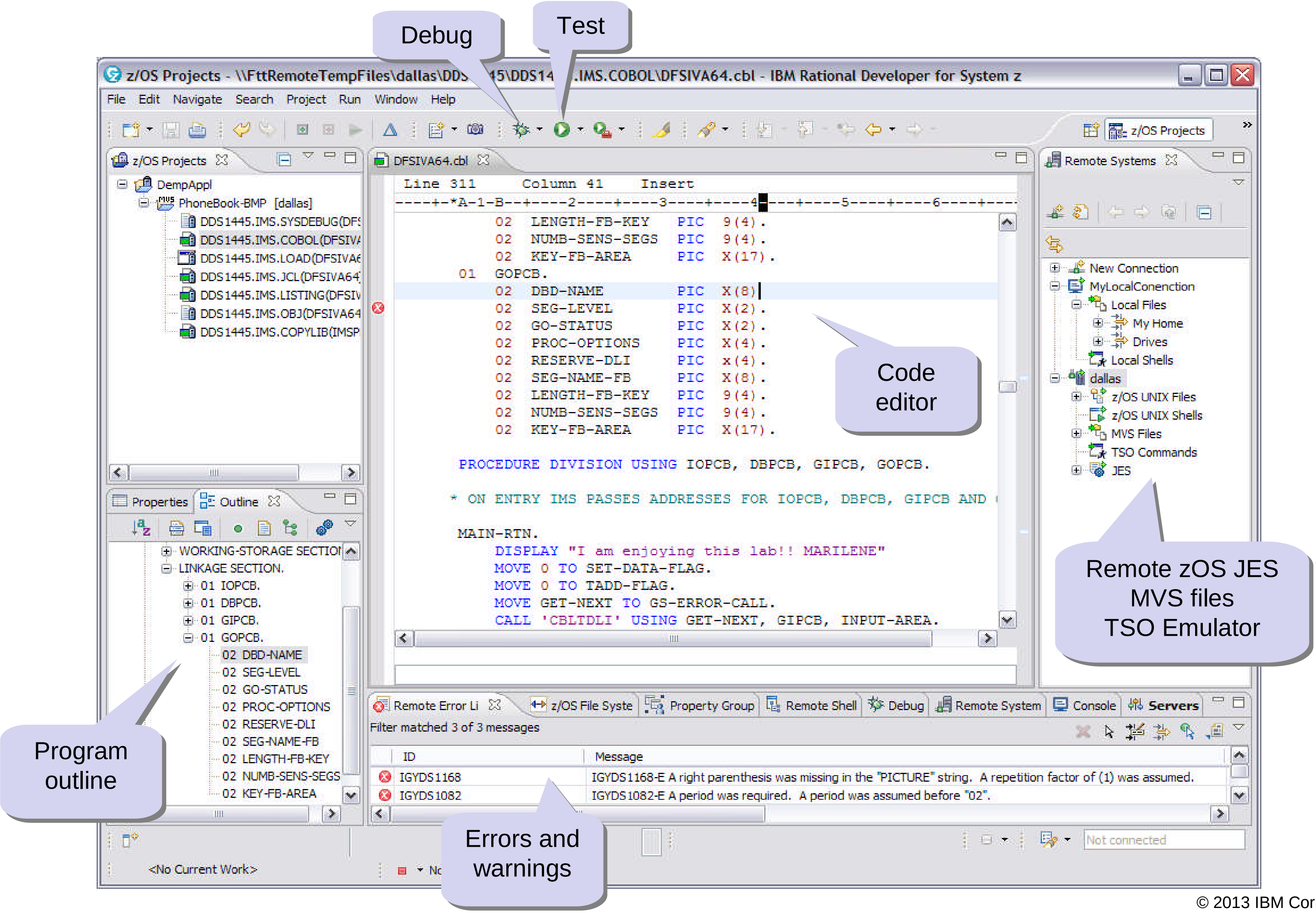
```
PAGE 0001                B A T C H   T E R M I N A L   S I M U L A T O
BTS0007I BTS V3R1 SIMULATION STARTED.  TIME=17:20:32, DATE=2010.117, IM
BTS0002I INPUT RECORD:   ./T TC=PART LANG=CBL MBR=DFSSAM02 PSB=DFSSAM02
BTS0002I INPUT RECORD:   ./T TC=DSPINV LANG=CBL MBR=DFSSAM03
BTS0002I INPUT RECORD:   ./T TC=ADDPART LANG=CBL MBR=DFSSAM04
BTS0002I INPUT RECORD:   ./T TC=ADDINV LANG=CBL MBR=DFSSAM04
BTS0002I INPUT RECORD:   ./T TC=DLETINV LANG=CBL MBR=DFSSAM04
BTS0002I INPUT RECORD:   ./T TC=DLETPART LANG=CBL MBR=DFSSAM04
BTS0002I INPUT RECORD:   ./T TC=CLOSE LANG=CBL MBR=DFSSAM05
BTS0002I INPUT RECORD:   ./T TC=DISBURSE LANG=CBL MBR=DFSSAM06
BTS0002I INPUT RECORD:   ./T TC=DSPALLI LANG=CBL MBR=DFSSAM07
BTS0002I INPUT RECORD:   PART AN960C10$
PAGE 0002                B A T C H   T E R M I N A L   S I M U L A T O
BTS0006I TRANSACTION STARTED: PART    .
MBR=DFSSAM02 PSB=DFSSAM02 EDIT=         SPA=0     PLC=1     LANG=CBL TY
****  MSG CALL- FUNC=GU  , PCB=IOPCB   , STATUS=  , MESSAGE NUMBER=000C
             ----.----1----.----2----.----3----.----4----.----5----.---
      IOAREA=    PART AN960C10
             0100DCDE4CDFFFCFF
             0100719301596031O
****** DB CALL- FUNC=GU  , PCB=DI21PART, STATUS=  , LEVEL=01, SEGMENT=F
         KFB=02AN960C10
             FFCDFFFCFF4444444
             0215960310000000O
          SSA1=PARTROOT(PARTKEY  =02AN960C10       )
             DCDEDDDE4DCDEDCE447FFCDFFFCFF44444445
             71939663D719325800E02159603100000000D
```

IMS Batch Terminal Simulator at ecdev45.vmec.svl.ibm.com:5123 [Stopped]

Debug to step through the code

Integrated Environment for IMS Dev, Test, and Debugging


Debug
Test
z/OS Projects - \\FttRemoteTempFiles\dallas\DDS 45\DDS14 .IMS.COBOL\DFSIVA64.cbl - IBM Rational Developer for System z
File Edit Navigate Search Project Run Window Help
z/OS Projects
DempAppl
PhoneBook-BMP [dallas]
DDS1445.IMS.SYSDEBUG(DF
DDS1445.IMS.COBOL(DFSIV
DDS1445.IMS.LOAD(DFSIVA6
DDS1445.IMS.JCL(DFSIVA64
DDS1445.IMS.LISTING(DFSIV
DDS1445.IMS.OBJ(DFSIVA64
DDS1445.IMS.COPYLIB(IMSP
DFSIVA64.cbl
Remote Systems
New Connection
MyLocalConenction
Local Files
My Home
Drives
Local Shells
dallas
z/OS UNIX Files
z/OS UNIX Shells
MVS Files
TSO Commands
JES
Properties
Outline
WORKING-STORAGE SECTIO
LINKAGE SECTION.
01 IOPCB.
01 DBPCB.
01 GIPCB.
01 GOPCB.
02 DBD-NAME
02 SEG-LEVEL
02 GO-STATUS
02 PROC-OPTIONS
02 RESERVE-DLI
02 SEG-NAME-FB
02 LENGTH-FB-KEY
02 NUMB-SENS-SEGS
02 KEY-FB-AREA
Remote Error Li
z/OS File Syste
Property Group
Remote Shell
Debug
Remote System
Console
Servers
Not connected
<No Current Work>
Code editor
Remote zOS JES
MVS files
TSO Emulator
Program outline
Errors and warnings

```
 Line 311      Column 41     Insert
----+-*A-1-B--+----2----+----3----+----4----+----5----+----6----+---
                02  LENGTH-FB-KEY     PIC  9(4).
                02  NUMB-SENS-SEGS    PIC  9(4).
                02  KEY-FB-AREA       PIC  X(17).
            01  GOPCB.
                02  DBD-NAME          PIC  X(8)
                02  SEG-LEVEL         PIC  X(2).
                02  GO-STATUS         PIC  X(2).
                02  PROC-OPTIONS      PIC  X(4).
                02  RESERVE-DLI       PIC  x(4).
                02  SEG-NAME-FB       PIC  X(8).
                02  LENGTH-FB-KEY     PIC  9(4).
                02  NUMB-SENS-SEGS    PIC  9(4).
                02  KEY-FB-AREA       PIC  X(17).

        PROCEDURE DIVISION USING IOPCB, DBPCB, GIPCB, GOPCB.

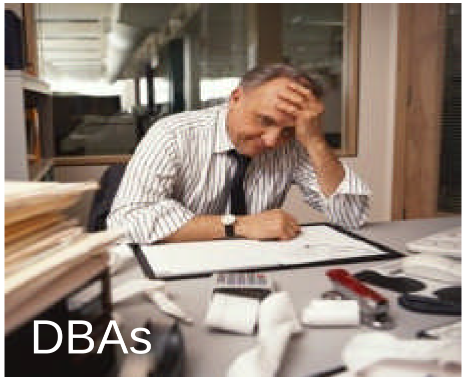
       * ON ENTRY IMS PASSES ADDRESSES FOR IOPCB, DBPCB, GIPCB AND 

        MAIN-RTN.
            DISPLAY "I am enjoying this lab!! MARILENE"
            MOVE 0 TO SET-DATA-FLAG.
            MOVE 0 TO TADD-FLAG.
            MOVE GET-NEXT TO GS-ERROR-CALL.
            CALL 'CBLTDLI' USING GET-NEXT, GIPCB, INPUT-AREA.
```

Filter matched 3 of 3 messages

ID	Message
IGYDS1168	IGYDS1168-E A right parenthesis was missing in the "PICTURE" string. A repetition factor of (1) was assumed.
IGYDS1082	IGYDS1082-E A period was required. A period was assumed before "02".

Why?



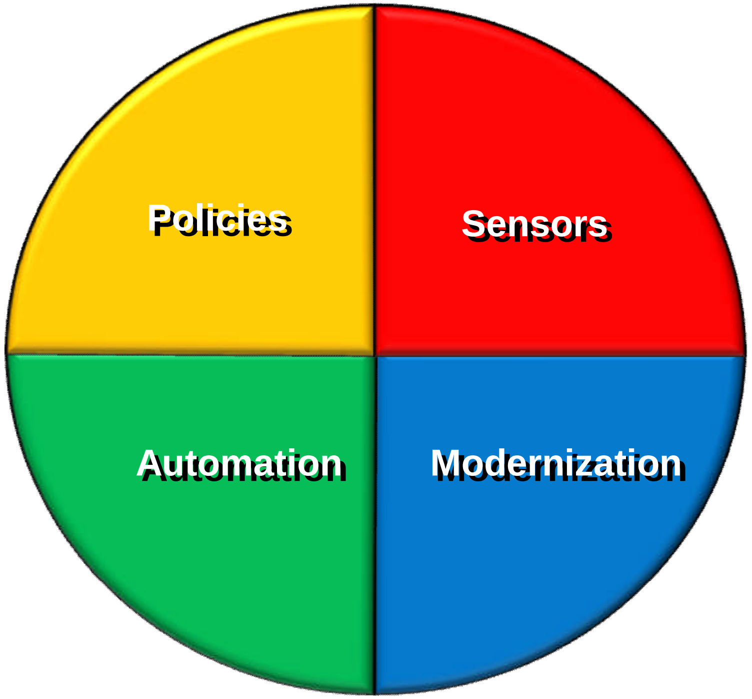
- Fewer experts
- Retirements
- Doing more with Less
- Need to train and enable the newbies

How?

Putting information to work

Our Vision – Putting information to work for you

- **Sensor data** - gather database statistics at regular intervals for your environment e.g. space utilization, fragmentation, and optimization
- **Policies** - user-defined policies and thresholds to determine when exceptions should be triggered and notifications should be sent
- **Automation** - recommending and taking corrective actions based on the exceptions that are raised when thresholds are reached
- **Modernization** - performing all of these actions from a rich, web-based user interface that is easy to install and access



Policies: Using Sensor Data to Help Make Decisions

- Policy definitions are used to evaluate specific database states
  - E.g. the state of space utilization at a specific instance in time
  - 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

Autonomics Director Overview

- Automatic collection of Sensor data
  - Integrates with IMS Tools image copy and pointer checker processes
- On Demand collection/evaluation for immediate issues
  - “I have a problem and need the information now!”
- Automatic analysis and evaluation of database status
  - Based on user-defined policies and thresholds
- Recommendation for reorganization
  - Easy to understand: simple “yes” or “no”
- E-mail or text notification when a reorganization is recommended
  - Alert DBA to consider taking action
- Flexible scheduling around peak workloads
  - Doesn’t interfere with production throughput or response

Autonomic
Computing

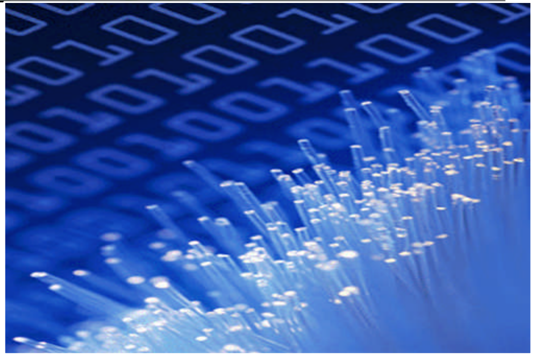
Customization Highlights

- Auto-discovery feature simplifies customization
  - Define DBD libraries and DBRC RECONs in Knowledge Base repository
  - Awareness and presentation of databases and DBRC groups
  - Menu and selection list driven from this point

- Individual databases
  - Specify monitoring parameters
  - Evaluation Interval, Sensor Data maximum age, Sensor job stream data set
  - Policy by generic database type, database name, policy name

- Group support
  - All DBRC group types supported
  - HALDB databases and partitions
  - Fast Path DEDBs and areas
  - Group expanded to include all members
  - “Add Group” line command
  - Group parameter specifications are propagated to all defined members

Sensor Data Collection Highlights



- Automatic scheduling
  - Automated or On Demand through Autonomics Director
  - Periodic Basis in days, hours, and minutes
- External scheduling
  - Through job scheduler
  - Manual submission
- Notification
  - Sensors notify Autonomics Director of new sensor data
  - Drives automatic analysis, evaluation, and recommendations

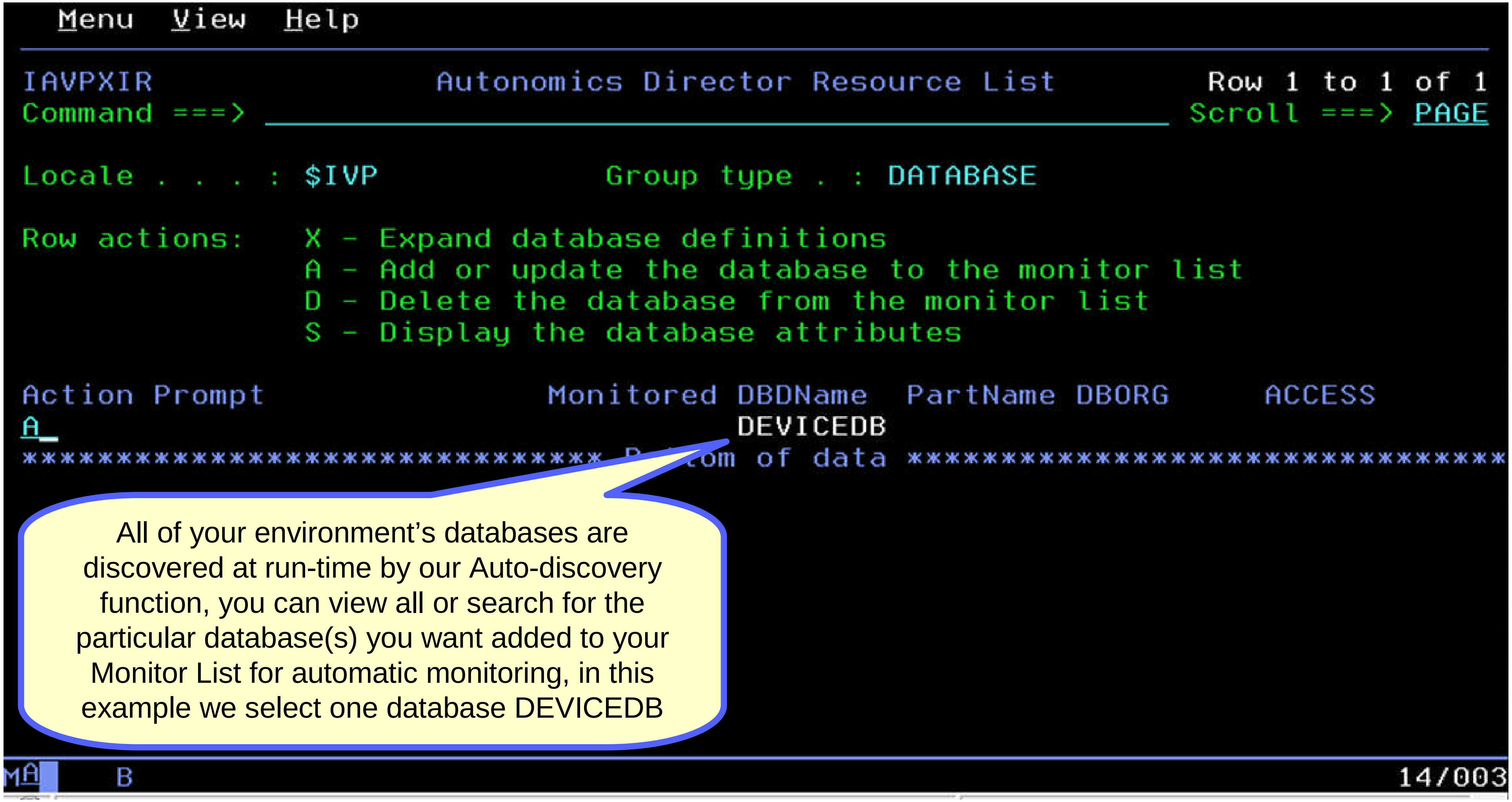
Evaluation Highlights

- Based on user-defined policies
  - IMS Tools Policy Services
  - Policy selection based upon database type, name, or policy name
  - Robust threshold criteria based on key status indicators

- Results and recommendations
  - Retained in repository
  - Historically maintained based on user specifications
  - Accessible via ISPF or web interface
  - Optional email or text alerts

Adding database(s) to your monitor list

- Your Monitor List is the custom list of databases you're interested in…



```
  Menu  View  Help
 ------------------------------------------------------------------------------
 IAVPXIR              Autonomics Director Resource List          Row 1 to 1 of 1
 Command ===> ________________________________________________ Scroll ===> PAGE

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

 Row actions:    X - Expand database definitions
                 A - Add or update the database to the monitor list
                 D - Delete the database from the monitor list
                 S - Display the database attributes

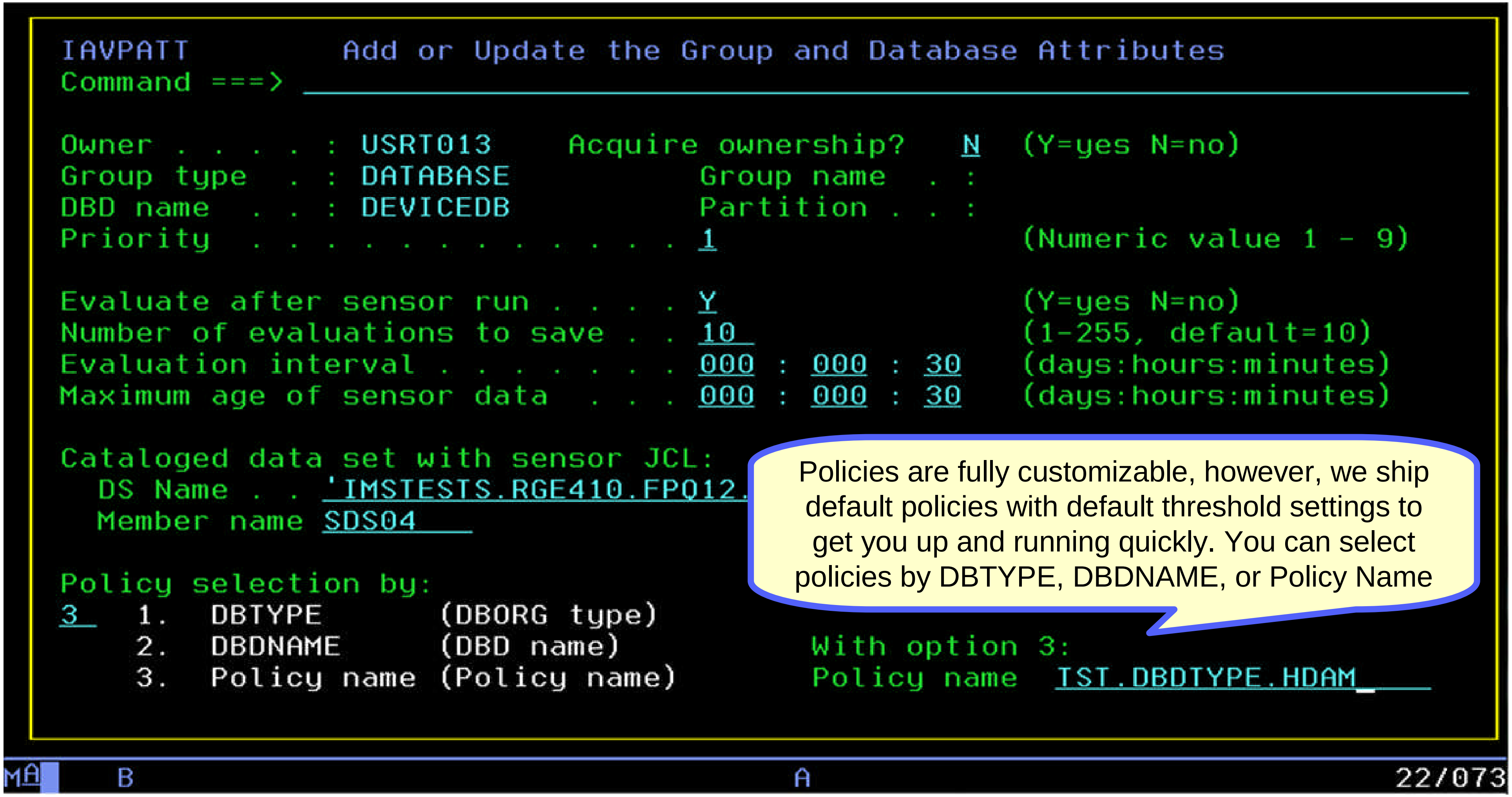
 Action Prompt                   Monitored DBDName  PartName DBORG     ACCESS
 A_                                        DEVICEDB
 ******************************* Bottom of data ********************************

MA                                                                        14/003
```

All of your environment's databases are discovered at run-time by our Auto-discovery function, you can view all or search for the particular database(s) you want added to your Monitor List for automatic monitoring, in this example we select one database DEVICEDB

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 . . . . . . . . 000 : 000 : 30    (days:hours:minutes)
 Maximum age of sensor data  . . . . 000 : 000 : 30    (days:hours:minutes)

 Cataloged data set with sensor JCL:
   DS Name . . 'IMSTESTS.RGE410.FPQ12.
   Member name SDS04___

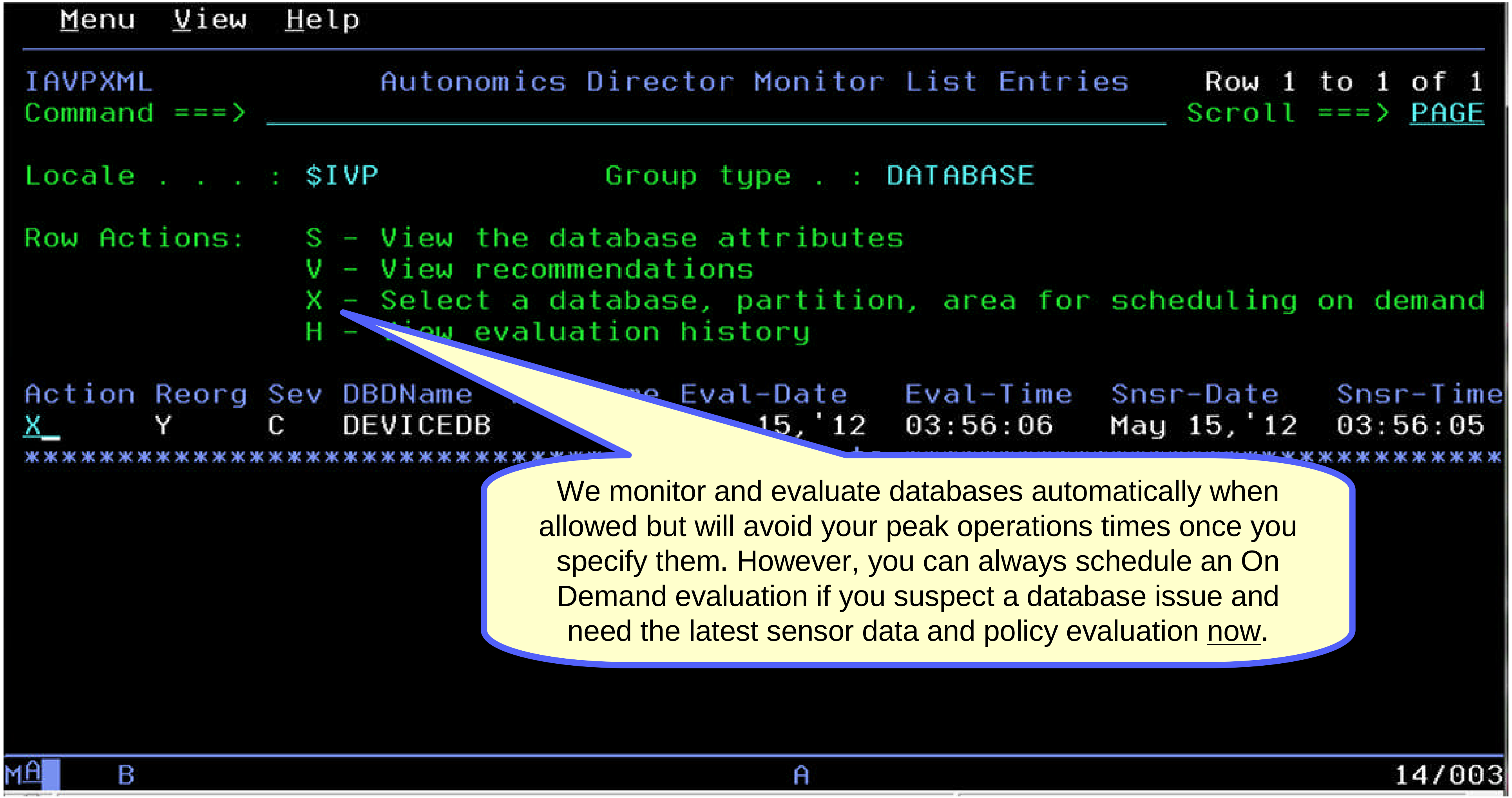
 Policy selection by:
 3_   1.  DBTYPE       (DBORG type)
      2.  DBDNAME      (DBD name)
      3.  Policy name (Policy name)      With option 3:
                                         Policy name  TST.DBDTYPE.HDAM_____

MA    B                                        A                      22/073
```

Policies are fully customizable, however, we ship default policies with default threshold settings to get you up and running quickly. You can select policies by DBTYPE, DBDNAME, or Policy Name

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 -      evaluation history

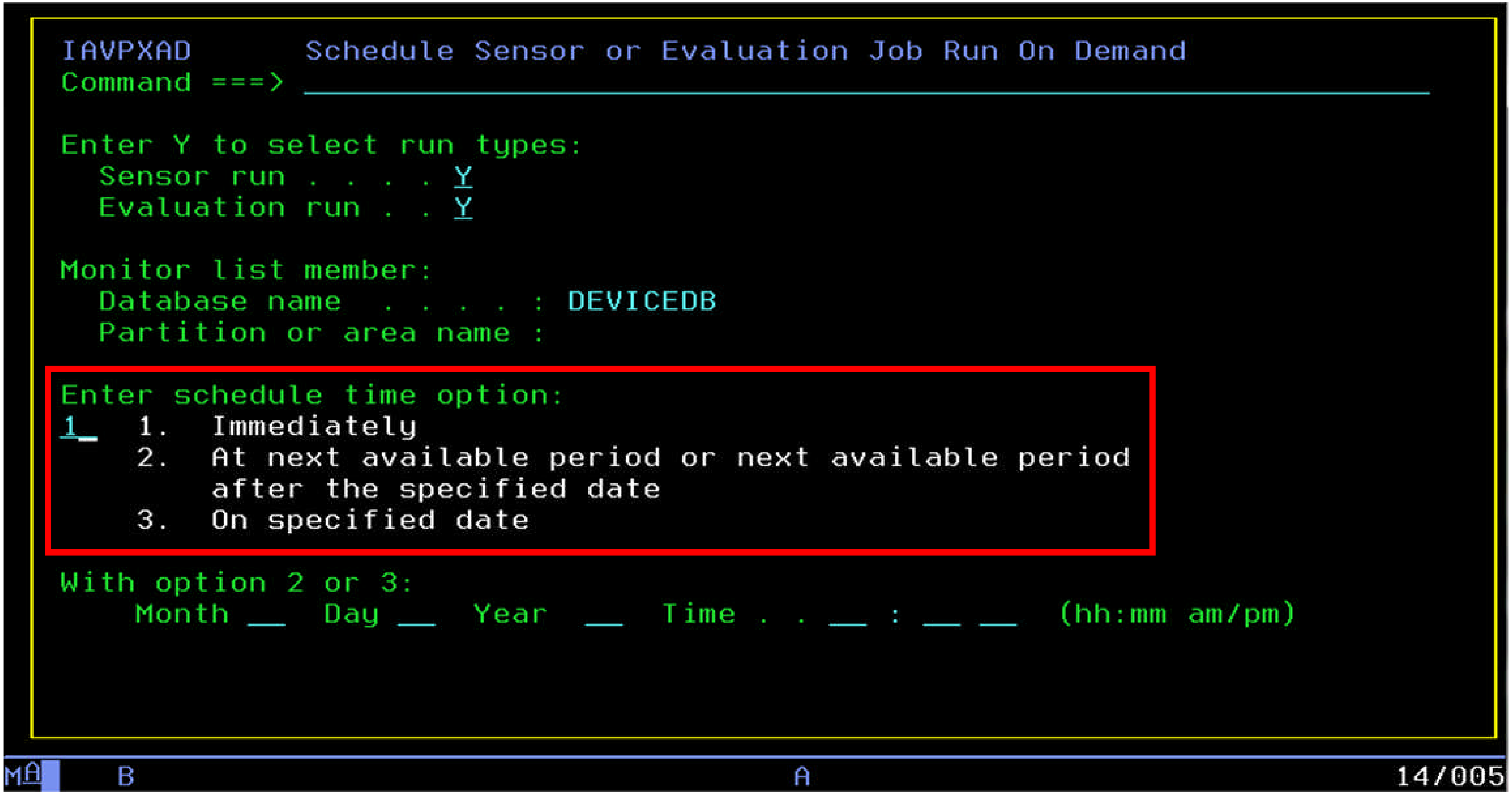
Action Reorg Sev DBDName              e Eval-Date    Eval-Time  Snsr-Date    Snsr-Time
X_       Y    C  DEVICEDB                  15,'12    03:56:06   May 15,'12   03:56:05
******************************                 ****************************************

MA    B                                    A                                   14/003
```

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.

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 :

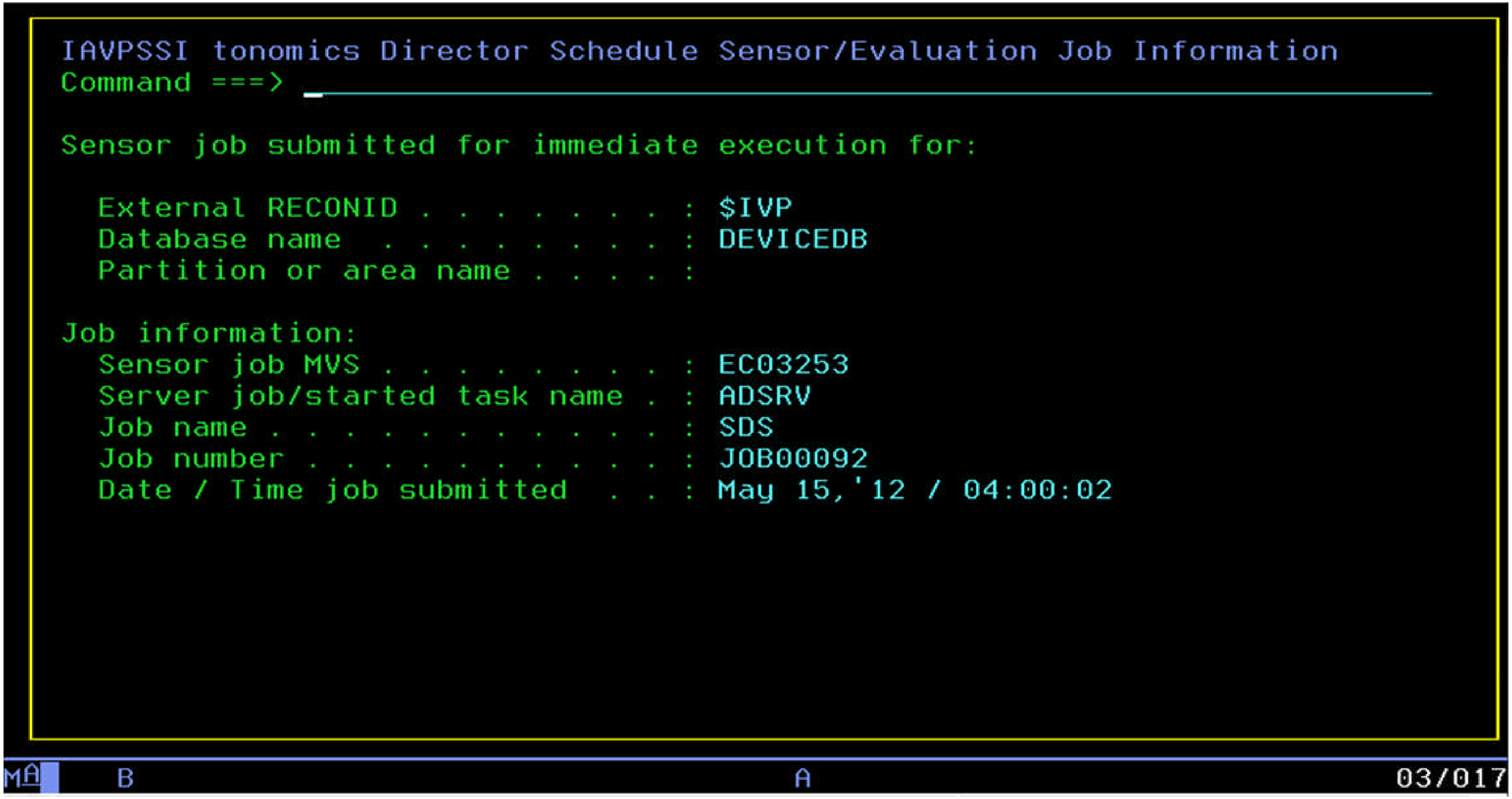
Enter schedule time option:
1_   1.   Immediately
     2.   At next available period or next available period
          after the specified date
     3.   On specified date

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

MA     B                                   A                          14/005
```

View the job that was just submitted

- Sensor data collection also integrates with IMS Tools image copy and pointer checker processes as part of your normal business operations



```
IAVPSSI tonomics Director Schedule Sensor/Evaluation Job Information
Command ===> _

Sensor job submitted for immediate execution for:

  External RECONID . . . . . . . . : $IVP
  Database name  . . . . . . . . . : DEVICEDB
  Partition or area name . . . . . :

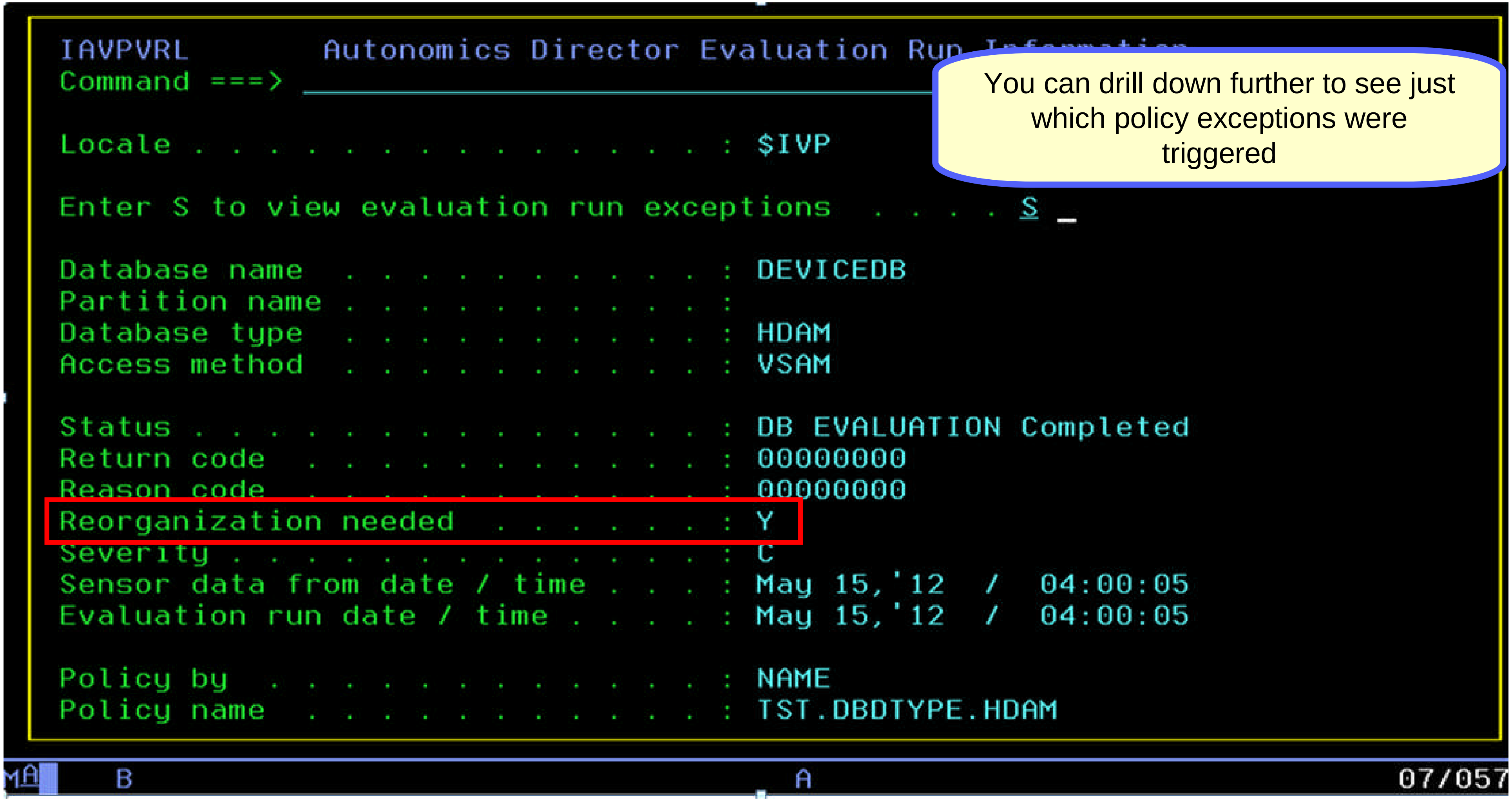
Job information:
  Sensor job MVS . . . . . . . . . : EC03253
  Server job/started task name . . : ADSRV
  Job name . . . . . . . . . . . . : SDS
  Job number . . . . . . . . . . . : JOB00092
  Date / Time job submitted  . . . : May 15,'12 / 04:00:02



MA     B                                    A                         03/017
```

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  . . . . S _

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

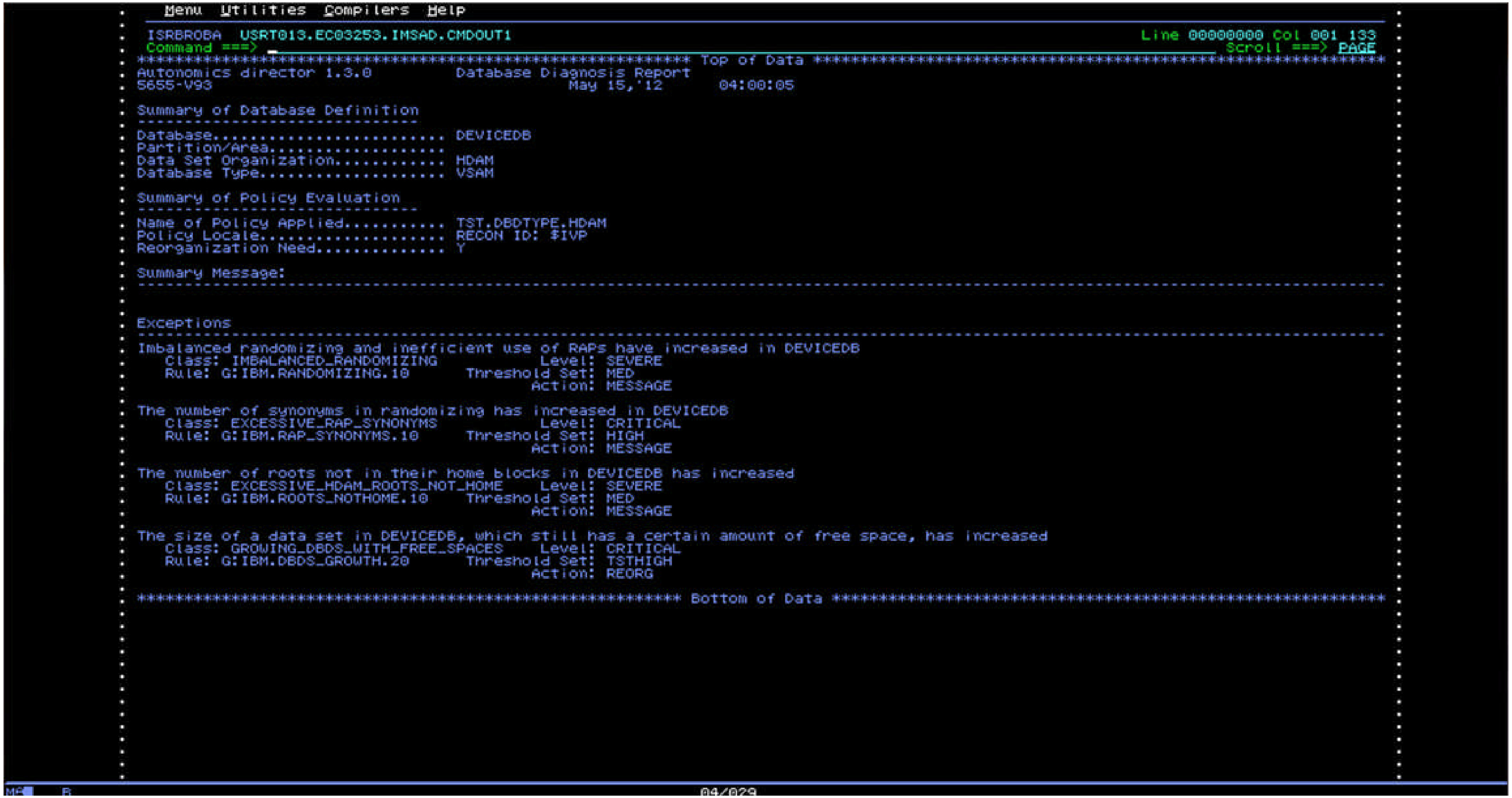
Policy by  . . . . . . . . . . . . . . . : NAME
Policy name  . . . . . . . . . . . . . . : TST.DBDTYPE.HDAM

MA     B                                        A                         07/057
```

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



```
 ISRBROBA  USRT013.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

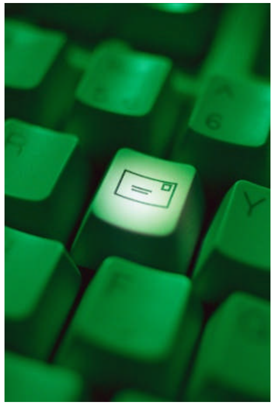
The number of synonyms in randomizing has increased in DEVICEDB
   Class: EXCESSIVE_RAP_SYNONYMS           Level: CRITICAL
   Rule: G:IBM.RAP_SYNONYMS.10     Threshold Set: HIGH
                                          Action: MESSAGE

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 ***********************************************************
```

Recommendation Alerts



EMAIL - EXCEPTION MESSAGE:

IMS Tools Autonomics Policy Notification

IMS_Tools

to:

User Name

05/15/2012 4:27 PM

Data Base Team

HFP2930I The average number of I/Os per root segment exceeded a threshold in area DEDBDBA1.

IMS Tools Autonomics Director Benefits

Productivity

- Automatic collection of Sensor data
  - Integrates with our image copy and pointer checker processes
- On Demand collection/evaluation for immediate issues
  - “I have a problem and need the information now!”
- Automatic analysis and evaluation of database status
  - Based on user-defined policies and thresholds
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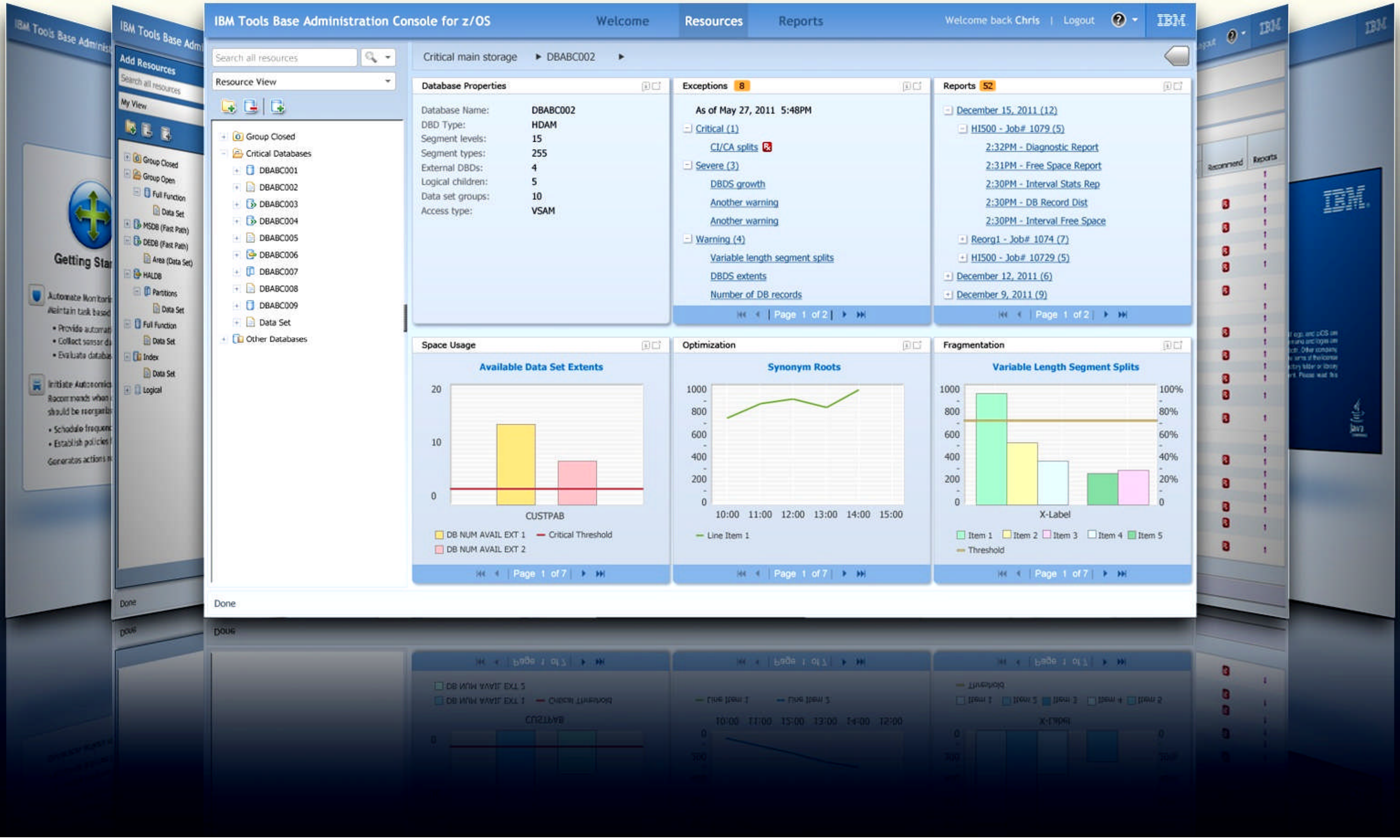
- E-mail or text notification when a reorganization is recommended
  - Alert DBA to consider taking action
- Flexible scheduling around peak workloads
  - Doesn’t interfere with production throughput or response

IBM Tools Modernization


IBM Tools Base Administration Console for z/OS
Welcome
Resources
Reports
Welcome back Chris | Logout
IBM
Search all resources
Resource View
Group Closed
Critical Databases
DBABC001
DBABC002
DBABC003
DBABC004
DBABC005
DBABC006
DBABC007
DBABC008
DBABC009
Data Set
Other Databases
Critical main storage
DBABC002
Space Usage
Available Data Set Extents
20
10
0
CUSTPAB
DB NUM AVAIL EXT 1
Critical Threshold
DB NUM AVAIL EXT 2
Page 1 of 7
Optimization
Synonym Roots
1000
800
600
400
200
0
10:00
11:00
12:00
13:00
14:00
15:00
Line Item 1
Page 1 of 7
Fragmentation
Variable Length Segment Splits
1000
800
600
400
200
0
100%
80%
60%
40%
20%
0
X-Label
Item 1
Item 2
Item 3
Item 4
Item 5
Threshold
Page 1 of 7
Done

Database Properties

Database Name: DBABC002
DBD Type: HDAM
Segment levels: 15
Segment types: 255
External DBDs: 4
Logical children: 5
Data set groups: 10
Access type: VSAM

Exceptions 8

As of May 27, 2011 5:48PM

- Critical (1)
  - CI/CA splits
- Severe (3)
  - DBDS growth
  - Another warning
  - Another warning
- Warning (4)
  - Variable length segment splits
  - DBDS extents
  - Number of DB records

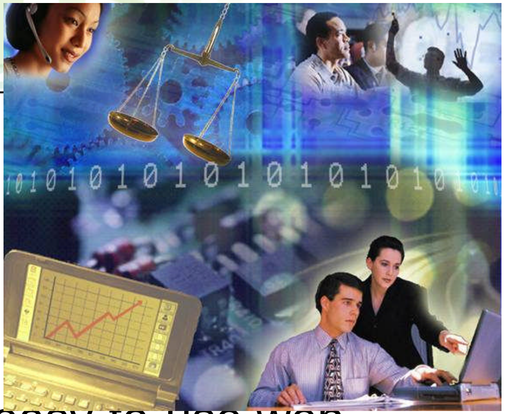
Page 1 of 2

Reports 52

- December 15, 2011 (12)
  - HI500 - Job# 1079 (5)
    - 2:32PM - Diagnostic Report
    - 2:31PM - Free Space Report
    - 2:30PM - Interval Stats Rep
    - 2:30PM - DB Record Dist
    - 2:30PM - Interval Free Space
  - Reorg1 - Job# 1074 (7)
  - HI500 - Job# 10729 (5)
- December 12, 2011 (6)
- December 9, 2011 (9)

Page 1 of 2

Modernization: Breaking New Ground



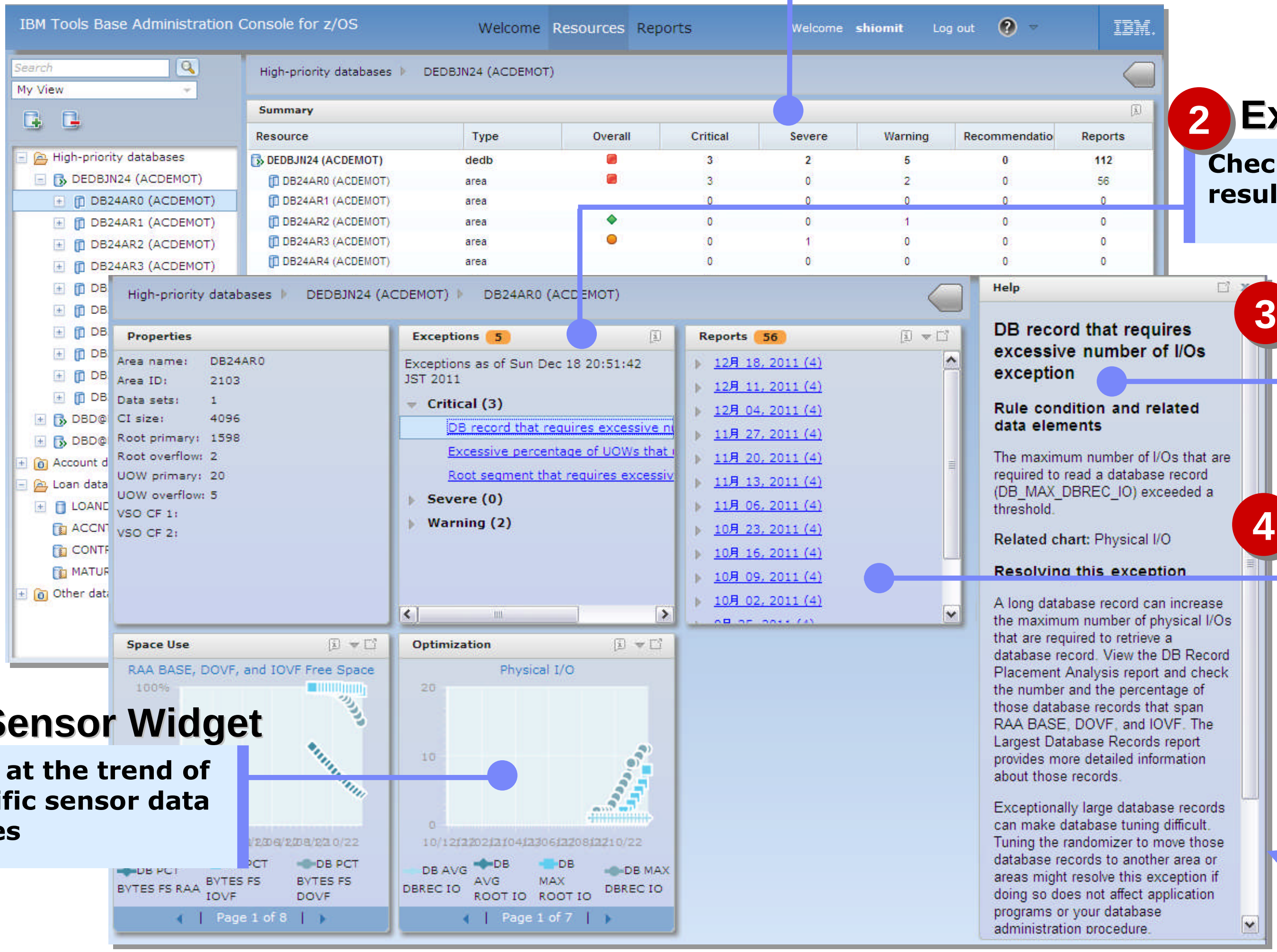
Administration Console Goals

- Provide a holistic view of your IMS databases from a single, easy-to-use web interface
  - Dynamic, interactive graphs and charts provide you with a visual representation of your sensor data
  - Integration with the Autonomics Director provides a list of policy exceptions and recommended resolutions for all of your monitored databases
  - All IMS Tools reports stored in the IMS Tools Knowledge Base can be searched, retrieved, and viewed effortlessly
- Prepare for the next generation of IMS DBAs
  - Uses the latest web technologies for a rich user experience
  - Access from anywhere via the Internet using the most popular web browsers
  - Includes a robust help system that serves as a learning aid for new IMS DBAs.

Administration Console work flow for DEDB area space monitoring

1 Summary Table for a DEDB

Check the summary of latest DEDB area space diagnosis done by Autonomics Director.


IBM Tools Base Administration Console for z/OS
Welcome
Resources
Reports
Welcome shiomit
Log out
IBM.
Search
My View
High-priority databases
DEDBJN24 (ACDEMOT)
DB24AR0 (ACDEMOT)
DB24AR1 (ACDEMOT)
DB24AR2 (ACDEMOT)
DB24AR3 (ACDEMOT)
Account d
Loan data
LOAND
ACCNT
CONTR
MATUR
Other dat
Space Use
RAA BASE, DOVF, and IOVF Free Space
100%
DB PCT BYTES FS RAA
DB PCT BYTES FS IOVF
DB PCT BYTES FS DOVF
Page 1 of 8
Optimization
Physical I/O
20
10
0
DB AVG DBREC IO
DB AVG ROOT IO
DB MAX ROOT IO
DB MAX DBREC IO
Page 1 of 7

High-priority databases ▸ DEDBJN24 (ACDEMOT)

Summary

Resource	Type	Overall	Critical	Severe	Warning	Recommendatio	Reports
DEDBJN24 (ACDEMOT)	dedb	🟥	3	2	5	0	112
DB24AR0 (ACDEMOT)	area	🟥	3	0	2	0	56
DB24AR1 (ACDEMOT)	area		0	0	0	0	0
DB24AR2 (ACDEMOT)	area	◆	0	0	1	0	0
DB24AR3 (ACDEMOT)	area	●	0	1	0	0	0
DB24AR4 (ACDEMOT)	area		0	0	0	0	0

High-priority databases ▸ DEDBJN24 (ACDEMOT) ▸ DB24AR0 (ACDEMOT)

Properties

Area name:	DB24AR0
Area ID:	2103
Data sets:	1
CI size:	4096
Root primary:	1598
Root overflow:	2
UOW primary:	20
UOW overflow:	5
VSO CF 1:	
VSO CF 2:	

Exceptions 5

Exceptions as of Sun Dec 18 20:51:42 JST 2011

- **Critical (3)**
  - DB record that requires excessive nu
  - Excessive percentage of UOWs that
  - Root segment that requires excessiv
- **Severe (0)**
- **Warning (2)**

Reports 56

- 12月 18, 2011 (4)
- 12月 11, 2011 (4)
- 12月 04, 2011 (4)
- 11月 27, 2011 (4)
- 11月 20, 2011 (4)
- 11月 13, 2011 (4)
- 11月 06, 2011 (4)
- 10月 23, 2011 (4)
- 10月 16, 2011 (4)
- 10月 09, 2011 (4)
- 10月 02, 2011 (4)

Help

DB record that requires excessive number of I/Os exception

Rule condition and related data elements

The maximum number of I/Os that are required to read a database record (DB_MAX_DBREC_IO) exceeded a threshold.

Related chart: Physical I/O

Resolving this exception

A long database record can increase the maximum number of physical I/Os that are required to retrieve a database record. View the DB Record Placement Analysis report and check the number and the percentage of those database records that span RAA BASE, DOVF, and IOVF. The Largest Database Records report provides more detailed information about those records.

Exceptionally large database records can make database tuning difficult. Tuning the randomizer to move those database records to another area or areas might resolve this exception if doing so does not affect application programs or your database administration procedure.

2 Exceptions Widget

Check the itemized diagnosis result for the resource.

3 Help Widget

Read the help for each of the detected exceptions.

4 Reports Widget

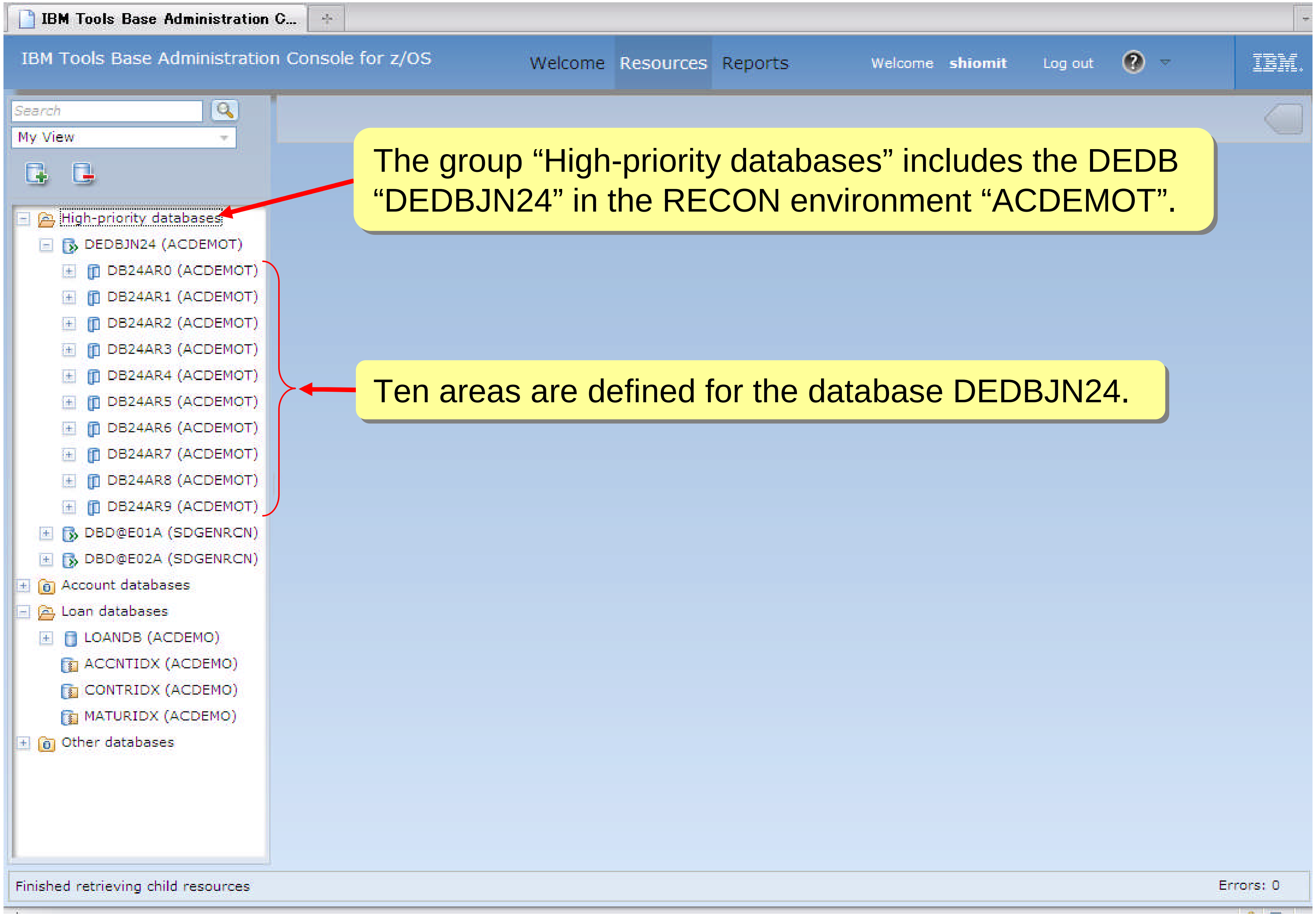
Look at FP Solution Pack utility reports to see detailed analysis of the space usage of the subject area.

5 Sensor Widget

Look at the trend of specific sensor data values

Main dashboard for a DEDB area

Databases and groups used in this demo


IBM Tools Base Administration C...
IBM Tools Base Administration Console for z/OS
Welcome
Resources
Reports
Welcome shiomit
Log out
Search
My View

- High-priority databases
  - DEDBJN24 (ACDEMOT)
    - DB24AR0 (ACDEMOT)
    - DB24AR1 (ACDEMOT)
    - DB24AR2 (ACDEMOT)
    - DB24AR3 (ACDEMOT)
    - DB24AR4 (ACDEMOT)
    - DB24AR5 (ACDEMOT)
    - DB24AR6 (ACDEMOT)
    - DB24AR7 (ACDEMOT)
    - DB24AR8 (ACDEMOT)
    - DB24AR9 (ACDEMOT)
  - DBD@E01A (SDGENRCN)
  - DBD@E02A (SDGENRCN)
- Account databases
- Loan databases
  - LOANDB (ACDEMO)
  - ACCNTIDX (ACDEMO)
  - CONTRIDX (ACDEMO)
  - MATURIDX (ACDEMO)
- Other databases

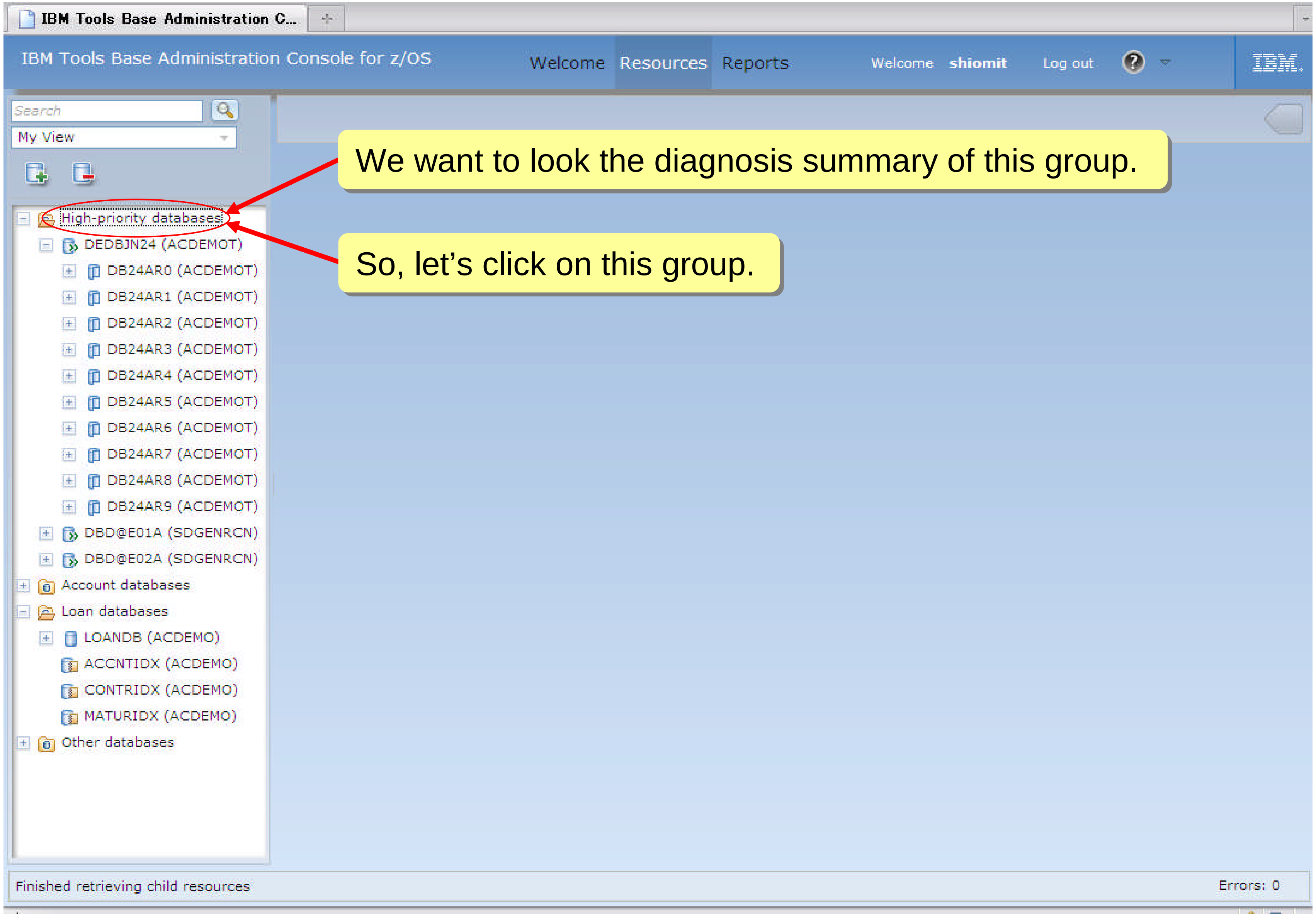
Finished retrieving child resources

Errors: 0

The group “High-priority databases” includes the DEDB “DEDBJN24” in the RECON environment “ACDEMOT”.

Ten areas are defined for the database DEDBJN24.

First, we want to look at the diagnosis summary of the database group.


IBM Tools Base Administration C...
IBM Tools Base Administration Console for z/OS
Welcome
Resources
Reports
Welcome shiomit
Log out
Search
My View
High-priority databases
DEDBJN24 (ACDEMOT)
DB24AR0 (ACDEMOT)
DB24AR1 (ACDEMOT)
DB24AR2 (ACDEMOT)
DB24AR3 (ACDEMOT)
DB24AR4 (ACDEMOT)
DB24AR5 (ACDEMOT)
DB24AR6 (ACDEMOT)
DB24AR7 (ACDEMOT)
DB24AR8 (ACDEMOT)
DB24AR9 (ACDEMOT)
DBD@E01A (SDGENRCN)
DBD@E02A (SDGENRCN)
Account databases
Loan databases
LOANDB (ACDEMO)
ACCNTIDX (ACDEMO)
CONTRIDX (ACDEMO)
MATURIDX (ACDEMO)
Other databases

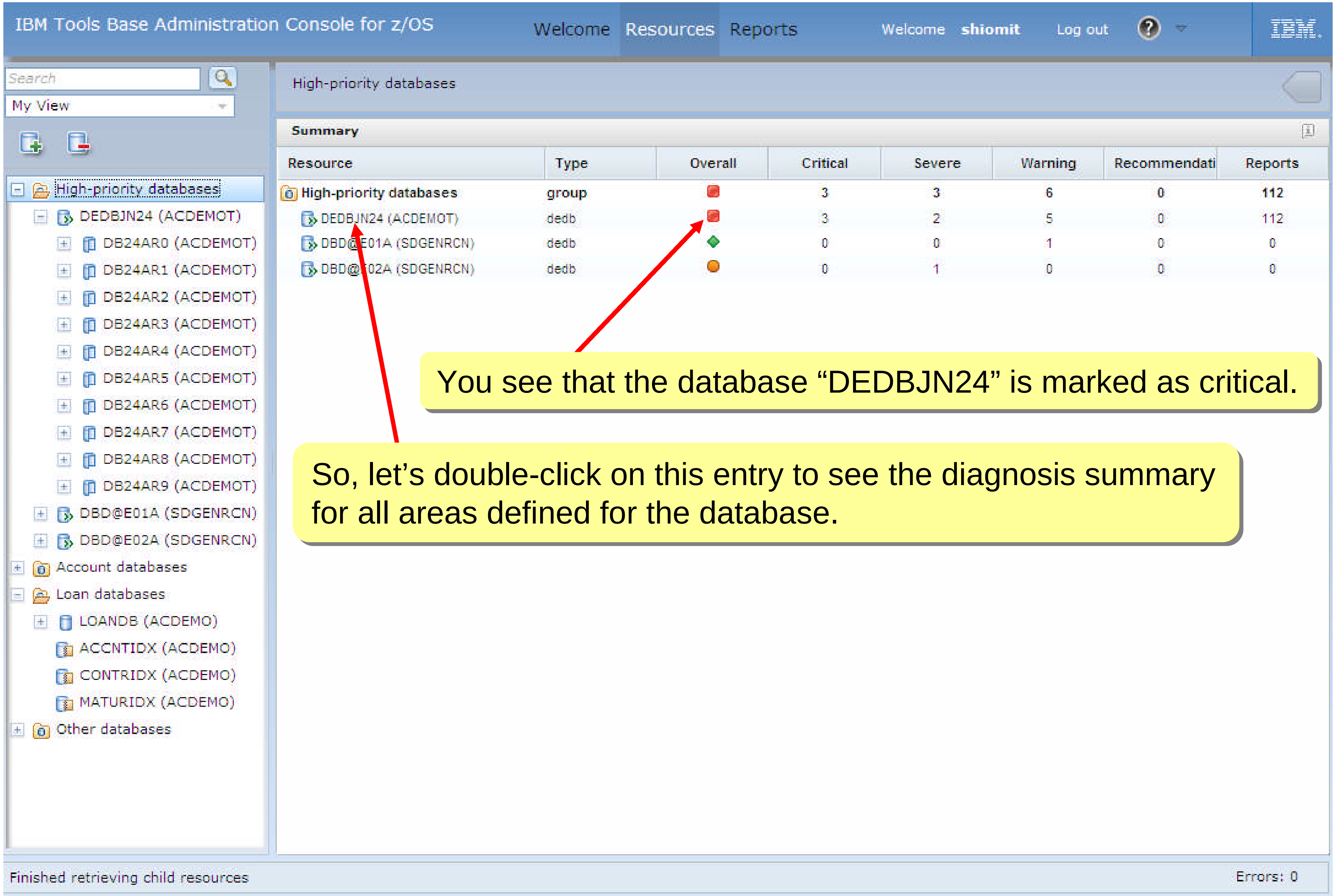
Finished retrieving child resources

Errors: 0

We want to look the diagnosis summary of this group.

So, let’s click on this group.

The Summary Table for the group is displayed.


IBM Tools Base Administration Console for z/OS
Welcome
Resources
Reports
Welcome shiomit
Log out
?
IBM.
Search
My View

- High-priority databases
  - DEDBJN24 (ACDEMOT)
    - DB24AR0 (ACDEMOT)
    - DB24AR1 (ACDEMOT)
    - DB24AR2 (ACDEMOT)
    - DB24AR3 (ACDEMOT)
    - DB24AR4 (ACDEMOT)
    - DB24AR5 (ACDEMOT)
    - DB24AR6 (ACDEMOT)
    - DB24AR7 (ACDEMOT)
    - DB24AR8 (ACDEMOT)
    - DB24AR9 (ACDEMOT)
  - DBD@E01A (SDGENRCN)
  - DBD@E02A (SDGENRCN)
- Account databases
- Loan databases
  - LOANDB (ACDEMO)
  - ACCNTIDX (ACDEMO)
  - CONTRIDX (ACDEMO)
  - MATURIDX (ACDEMO)
- Other databases

High-priority databases

Summary

Resource	Type	Overall	Critical	Severe	Warning	Recommendati	Reports
High-priority databases	**group**	🟥	**3**	**3**	**6**	**0**	**112**
DEDBJN24 (ACDEMOT)	dedb	🟥	3	2	5	0	112
DBD@E01A (SDGENRCN)	dedb	◆	0	0	1	0	0
DBD@E02A (SDGENRCN)	dedb	●	0	1	0	0	0

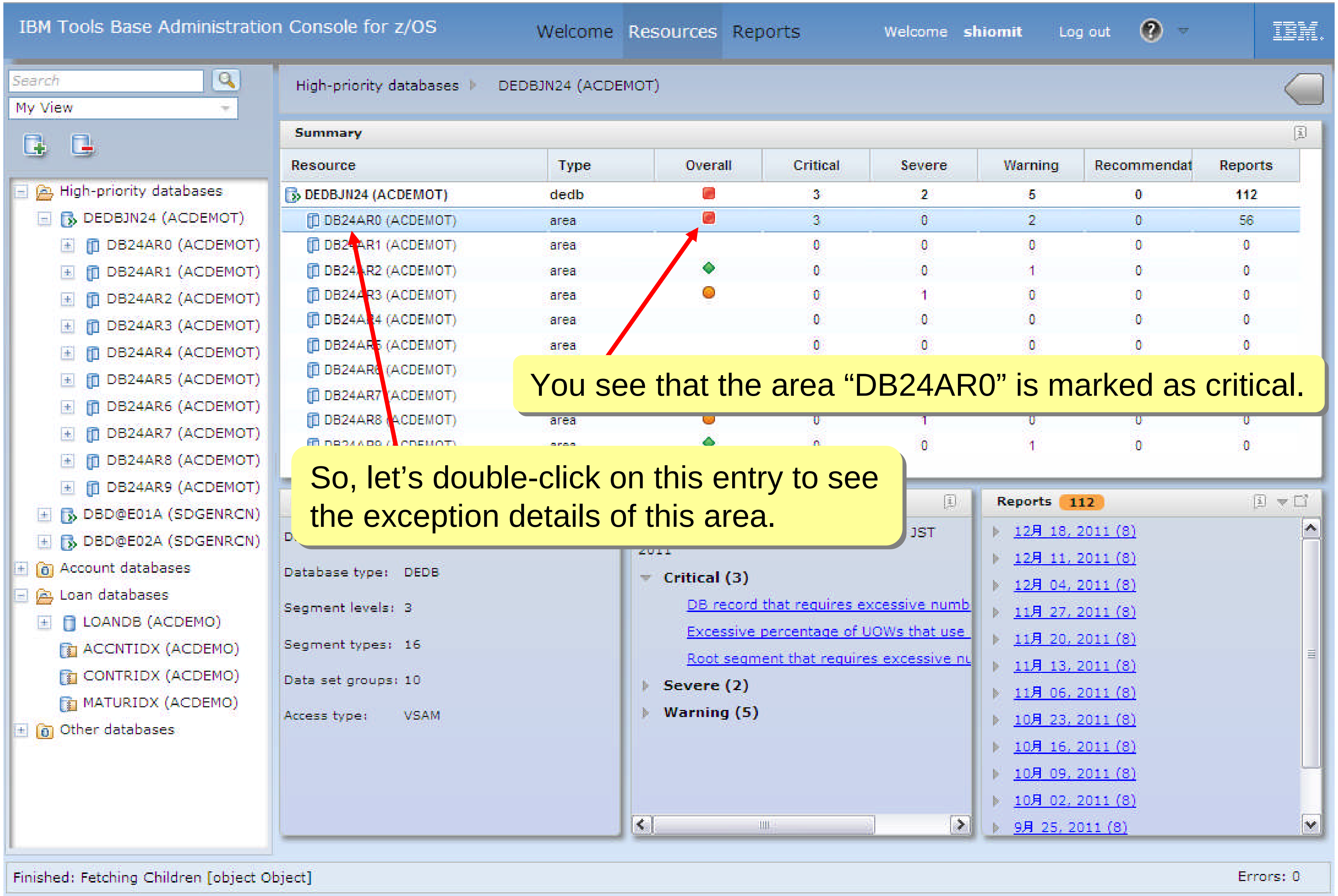
You see that the database “DEDBJN24” is marked as critical.

So, let’s double-click on this entry to see the diagnosis summary for all areas defined for the database.

Finished retrieving child resources

Errors: 0

The Summary Table for the DEDB is displayed.



IBM Tools Base Administration Console for z/OS
Welcome
Resources
Reports
Welcome shiomit
Log out
Search
My View
High-priority databases
DEDBJN24 (ACDEMOT)
DB24AR0 (ACDEMOT)
DB24AR1 (ACDEMOT)
DB24AR2 (ACDEMOT)
DB24AR3 (ACDEMOT)
DB24AR4 (ACDEMOT)
DB24AR5 (ACDEMOT)
DB24AR6 (ACDEMOT)
DB24AR7 (ACDEMOT)
DB24AR8 (ACDEMOT)
DB24AR9 (ACDEMOT)
DBD@E01A (SDGENRCN)
DBD@E02A (SDGENRCN)
Account databases
Loan databases
LOANDB (ACDEMO)
ACCNTIDX (ACDEMO)
CONTRIDX (ACDEMO)
MATURIDX (ACDEMO)
Other databases
High-priority databases ▸ DEDBJN24 (ACDEMOT)

Summary

Resource	Type	Overall	Critical	Severe	Warning	Recommendat	Reports
DEDBJN24 (ACDEMOT)	dedb	🟥	3	2	5	0	112
DB24AR0 (ACDEMOT)	area	🟥	3	0	2	0	56
DB24AR1 (ACDEMOT)	area		0	0	0	0	0
DB24AR2 (ACDEMOT)	area	◆	0	0	1	0	0
DB24AR3 (ACDEMOT)	area	●	0	1	0	0	0
DB24AR4 (ACDEMOT)	area		0	0	0	0	0
DB24AR5 (ACDEMOT)	area		0	0	0	0	0
DB24AR6 (ACDEMOT)							
DB24AR7 (ACDEMOT)							
DB24AR8 (ACDEMOT)	area	●	0	1	0	0	0
DB24AR9 (ACDEMOT)	area	◆	0	0	1	0	0

Database type: DEDB

Segment levels: 3

Segment types: 16

Data set groups: 10

Access type: VSAM

JST
2011

Critical (3)
- DB record that requires excessive numb
- Excessive percentage of UOWs that use
- Root segment that requires excessive nu

Severe (2)

Warning (5)

Reports 112
- 12月 18, 2011 (8)
- 12月 11, 2011 (8)
- 12月 04, 2011 (8)
- 11月 27, 2011 (8)
- 11月 20, 2011 (8)
- 11月 13, 2011 (8)
- 11月 06, 2011 (8)
- 10月 23, 2011 (8)
- 10月 16, 2011 (8)
- 10月 09, 2011 (8)
- 10月 02, 2011 (8)
- 9月 25, 2011 (8)

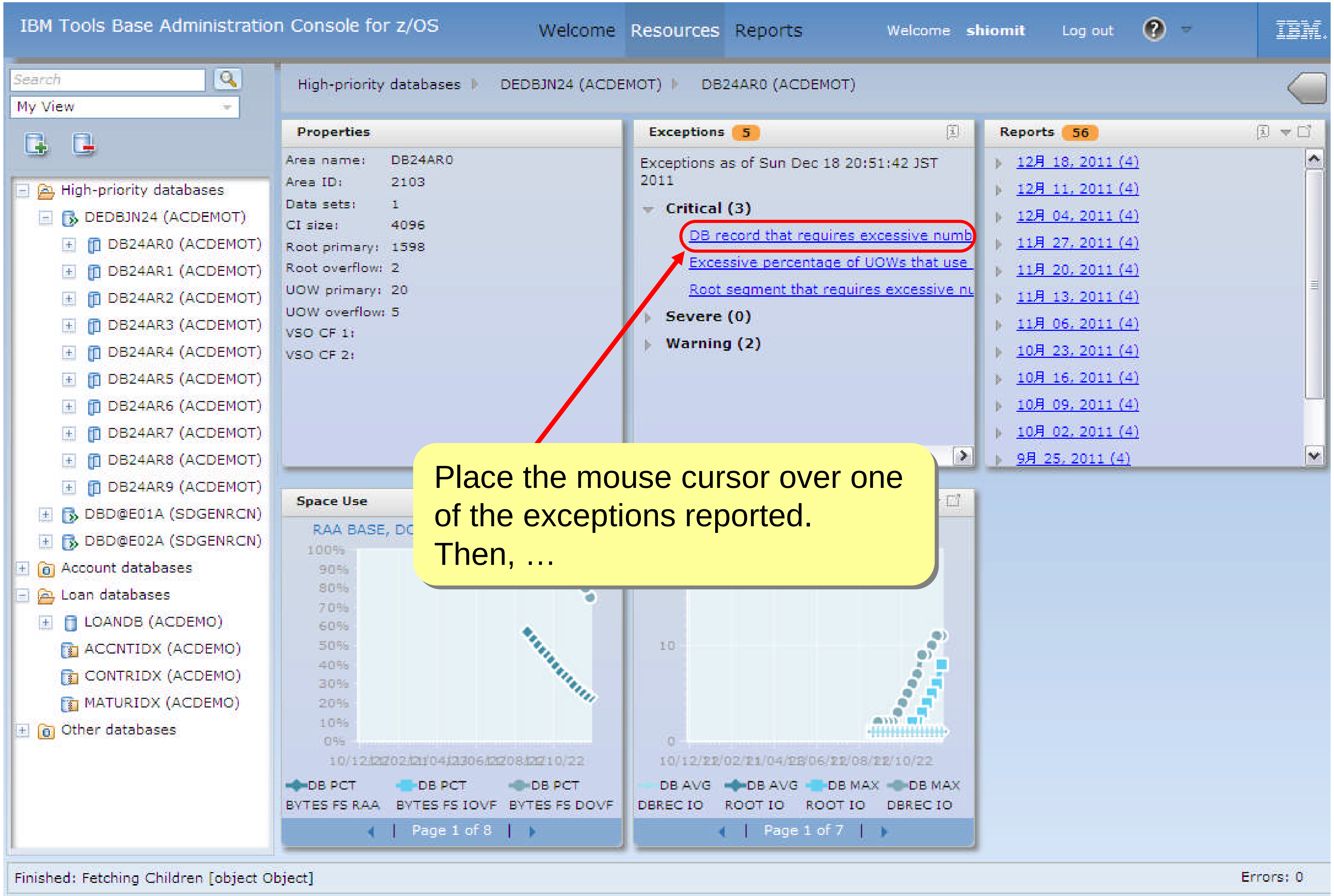
Finished: Fetching Children [object Object]

Errors: 0

You see that the area “DB24AR0” is marked as critical.

So, let’s double-click on this entry to see the exception details of this area.

The main dashboard for the area “DB24AR0” is displayed.


IBM Tools Base Administration Console for z/OS
Welcome
Resources
Reports
Welcome shiomit
Log out
Search
My View
Space Use
RAA BASE, DC
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
10/12 12/02 12/04 12/06 12/08 12/10/22
DB PCT BYTES FS RAA
DB PCT BYTES FS IOVF
DB PCT BYTES FS DOVF
Page 1 of 8
10
0
10/12/22/02/22/04/22/06/22/08/22/10/22
DB AVG DBREC IO
DB AVG ROOT IO
DB MAX ROOT IO
DB MAX DBREC IO
Page 1 of 7

- High-priority databases
  - DEDBJN24 (ACDEMOT)
    - DB24AR0 (ACDEMOT)
    - DB24AR1 (ACDEMOT)
    - DB24AR2 (ACDEMOT)
    - DB24AR3 (ACDEMOT)
    - DB24AR4 (ACDEMOT)
    - DB24AR5 (ACDEMOT)
    - DB24AR6 (ACDEMOT)
    - DB24AR7 (ACDEMOT)
    - DB24AR8 (ACDEMOT)
    - DB24AR9 (ACDEMOT)
  - DBD@E01A (SDGENRCN)
  - DBD@E02A (SDGENRCN)
- Account databases
- Loan databases
  - LOANDB (ACDEMO)
  - ACCNTIDX (ACDEMO)
  - CONTRIDX (ACDEMO)
  - MATURIDX (ACDEMO)
- Other databases

High-priority databases ▸ DEDBJN24 (ACDEMOT) ▸ DB24AR0 (ACDEMOT)

Properties

Area name: DB24AR0
Area ID: 2103
Data sets: 1
CI size: 4096
Root primary: 1598
Root overflow: 2
UOW primary: 20
UOW overflow: 5
VSO CF 1:
VSO CF 2:

Exceptions 5

Exceptions as of Sun Dec 18 20:51:42 JST 2011

Critical (3)
- DB record that requires excessive numb
- Excessive percentage of UOWs that use
- Root segment that requires excessive nu

Severe (0)

Warning (2)

Reports 56

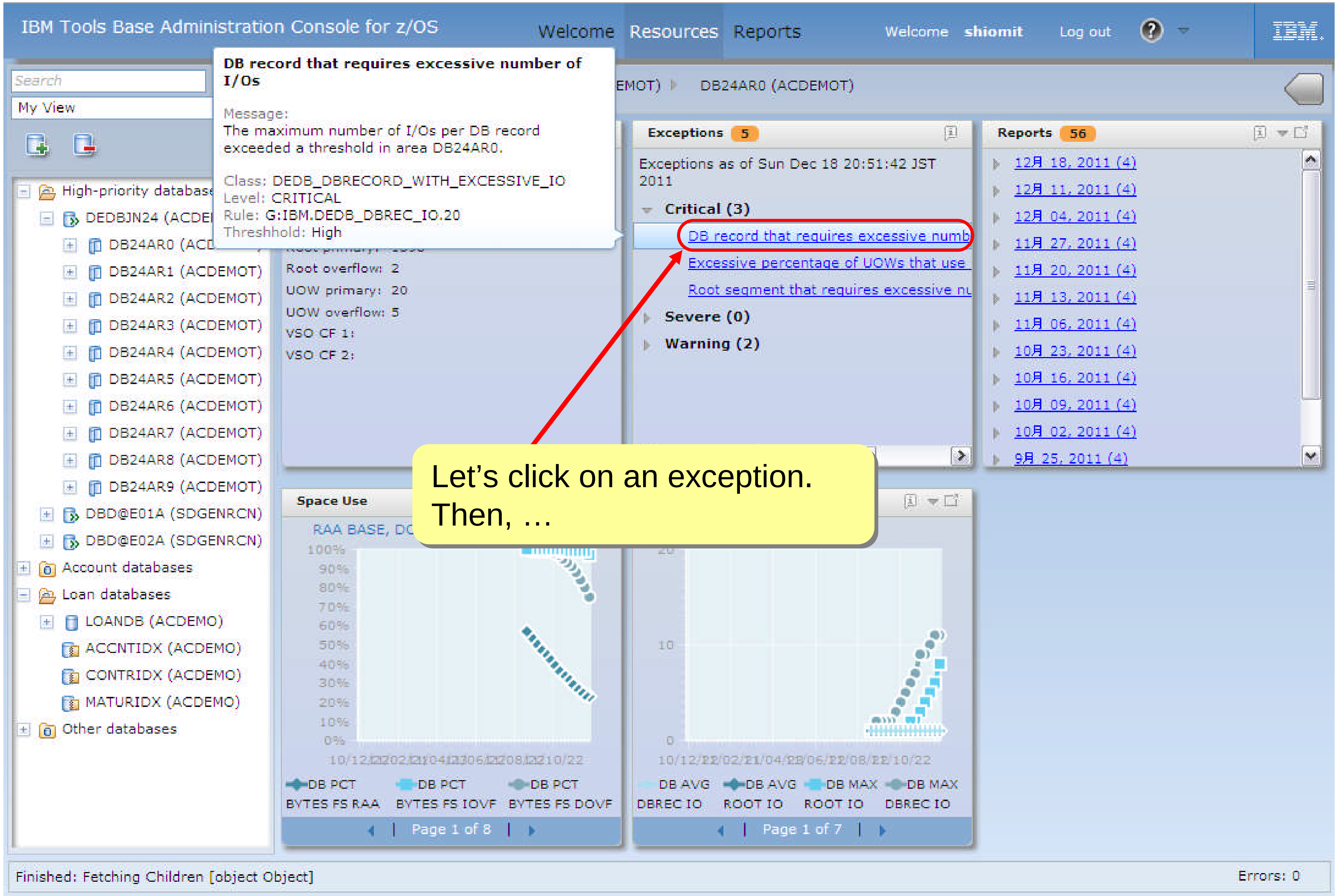
- 12月 18, 2011 (4)
- 12月 11, 2011 (4)
- 12月 04, 2011 (4)
- 11月 27, 2011 (4)
- 11月 20, 2011 (4)
- 11月 13, 2011 (4)
- 11月 06, 2011 (4)
- 10月 23, 2011 (4)
- 10月 16, 2011 (4)
- 10月 09, 2011 (4)
- 10月 02, 2011 (4)
- 9月 25, 2011 (4)

Finished: Fetching Children [object Object]

Errors: 0

Place the mouse cursor over one of the exceptions reported. Then, …

A short help for the rule that detected exception is displayed.



IBM Tools Base Administration Console for z/OS
Welcome
Resources
Reports
Welcome shiomit
Log out
Search
My View
High-priority database
DEDBJN24 (ACDE
DB24AR0 (ACD
DB24AR1 (ACDEMOT)
DB24AR2 (ACDEMOT)
DB24AR3 (ACDEMOT)
DB24AR4 (ACDEMOT)
DB24AR5 (ACDEMOT)
DB24AR6 (ACDEMOT)
DB24AR7 (ACDEMOT)
DB24AR8 (ACDEMOT)
DB24AR9 (ACDEMOT)
DBD@E01A (SDGENRCN)
DBD@E02A (SDGENRCN)
Account databases
Loan databases
LOANDB (ACDEMO)
ACCNTIDX (ACDEMO)
CONTRIDX (ACDEMO)
MATURIDX (ACDEMO)
Other databases
EMOT)
DB24AR0 (ACDEMOT)
Exceptions 5
Reports 56
12月 18, 2011 (4)
12月 11, 2011 (4)
12月 04, 2011 (4)
11月 27, 2011 (4)
11月 20, 2011 (4)
11月 13, 2011 (4)
11月 06, 2011 (4)
10月 23, 2011 (4)
10月 16, 2011 (4)
10月 09, 2011 (4)
10月 02, 2011 (4)
9月 25, 2011 (4)
Space Use
RAA BASE, DC
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
10/12/12/02/12/04/12/06/12/08/12/10/22
DB PCT BYTES FS RAA
DB PCT BYTES FS IOVF
DB PCT BYTES FS DOVF
Page 1 of 8
20
10
0
10/12/12/02/12/04/12/06/12/08/12/10/22
DB AVG DBREC IO
DB AVG ROOT IO
DB MAX ROOT IO
DB MAX DBREC IO
Page 1 of 7

DB record that requires excessive number of I/Os

Message:
The maximum number of I/Os per DB record exceeded a threshold in area DB24AR0.

Class: DEDB_DBRECORD_WITH_EXCESSIVE_IO
Level: CRITICAL
Rule: G:IBM.DEDB_DBREC_IO.20
Threshold: High

Root overflow: 2
UOW primary: 20
UOW overflow: 5
VSO CF 1:
VSO CF 2:

Exceptions as of Sun Dec 18 20:51:42 JST 2011

Critical (3)
- DB record that requires excessive numb
- Excessive percentage of UOWs that use
- Root segment that requires excessive nu

Severe (0)

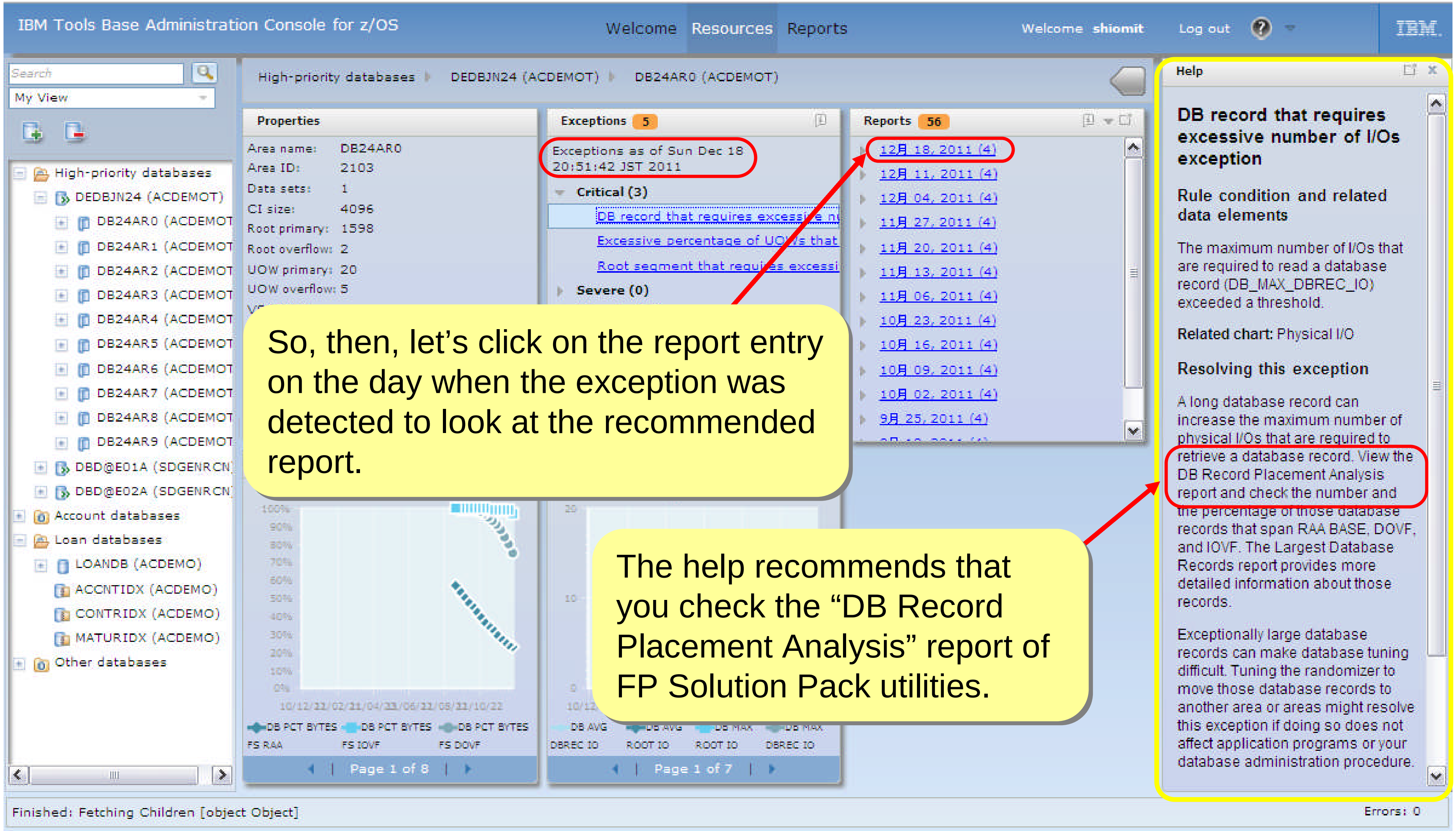
Warning (2)

Finished: Fetching Children [object Object]

Errors: 0

Let’s click on an exception.
Then, …

The help for the exception opens on the dashboard.


IBM Tools Base Administration Console for z/OS
Welcome
Resources
Reports
Welcome shiomit
Log out
IBM
Search
My View
High-priority databases
DEDBJN24 (ACDEMOT)
DB24AR0 (ACDEMOT
DB24AR1 (ACDEMOT
DB24AR2 (ACDEMOT
DB24AR3 (ACDEMOT
DB24AR4 (ACDEMOT
DB24AR5 (ACDEMOT
DB24AR6 (ACDEMOT
DB24AR7 (ACDEMOT
DB24AR8 (ACDEMOT
DB24AR9 (ACDEMOT
DBD@E01A (SDGENRCN)
DBD@E02A (SDGENRCN)
Account databases
Loan databases
LOANDB (ACDEMO)
ACCNTIDX (ACDEMO)
CONTRIDX (ACDEMO)
MATURIDX (ACDEMO)
Other databases
High-priority databases
DEDBJN24 (ACDEMOT)
DB24AR0 (ACDEMOT)
Properties
Exceptions 5
Reports 56
12月 18, 2011 (4)
12月 11, 2011 (4)
12月 04, 2011 (4)
11月 27, 2011 (4)
11月 20, 2011 (4)
11月 13, 2011 (4)
11月 06, 2011 (4)
10月 23, 2011 (4)
10月 16, 2011 (4)
10月 09, 2011 (4)
10月 02, 2011 (4)
9月 25, 2011 (4)
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
10/12/22/02/21/04/23/06/21/08/21/10/22
DB PCT BYTES FS RAA
DB PCT BYTES FS IOVF
DB PCT BYTES FS DOVF
Page 1 of 8
20
10
0
DB AVG DBREC IO
DB AVG ROOT IO
DB MAX ROOT IO
DB MAX DBREC IO
Page 1 of 7
Help

Area name: DB24AR0
Area ID: 2103
Data sets: 1
CI size: 4096
Root primary: 1598
Root overflow: 2
UOW primary: 20
UOW overflow: 5

Exceptions as of Sun Dec 18 20:51:42 JST 2011

Critical (3)
- DB record that requires excessive n
- Excessive percentage of UOWs that
- Root segment that requires excessi

Severe (0)

DB record that requires excessive number of I/Os exception

Rule condition and related data elements

The maximum number of I/Os that are required to read a database record (DB_MAX_DBREC_IO) exceeded a threshold.

Related chart: Physical I/O

Resolving this exception

A long database record can increase the maximum number of physical I/Os that are required to retrieve a database record. View the DB Record Placement Analysis report and check the number and the percentage of those database records that span RAA BASE, DOVF, and IOVF. The Largest Database Records report provides more detailed information about those records.

Exceptionally large database records can make database tuning difficult. Tuning the randomizer to move those database records to another area or areas might resolve this exception if doing so does not affect application programs or your database administration procedure.

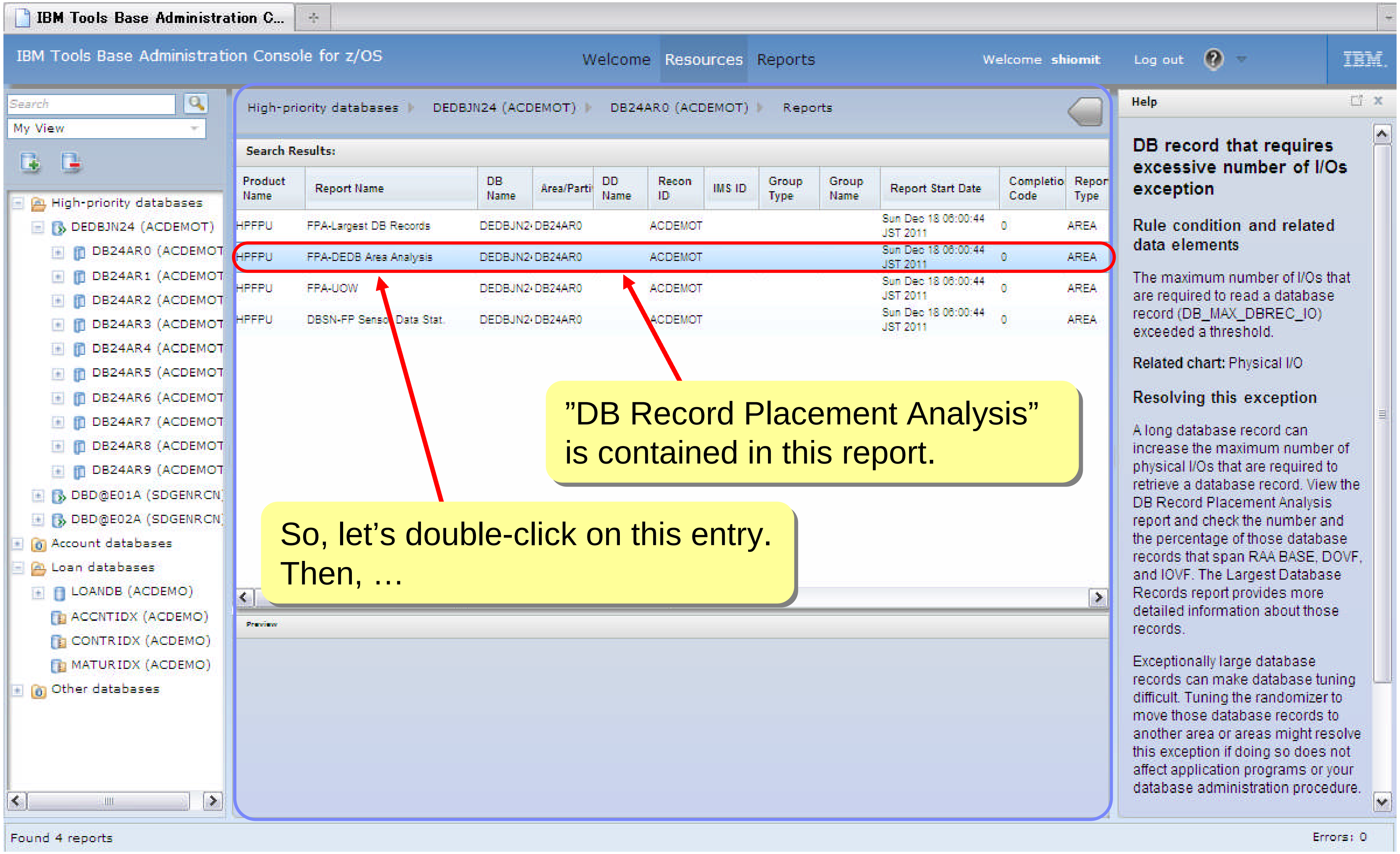
Finished: Fetching Children [object Object]

Errors: 0

So, then, let's click on the report entry on the day when the exception was detected to look at the recommended report.

The help recommends that you check the "DB Record Placement Analysis" report of FP Solution Pack utilities.

The list of the reports for the area on the selected day is displayed.


IBM Tools Base Administration C...
IBM Tools Base Administration Console for z/OS
Welcome
Resources
Reports
Welcome shiomit
Log out
Search
My View
High-priority databases
DEDBJN24 (ACDEMOT)
DB24AR0 (ACDEMOT
DB24AR1 (ACDEMOT
DB24AR2 (ACDEMOT
DB24AR3 (ACDEMOT
DB24AR4 (ACDEMOT
DB24AR5 (ACDEMOT
DB24AR6 (ACDEMOT
DB24AR7 (ACDEMOT
DB24AR8 (ACDEMOT
DB24AR9 (ACDEMOT
DBD@E01A (SDGENRCN)
DBD@E02A (SDGENRCN)
Account databases
Loan databases
LOANDB (ACDEMO)
ACCNTIDX (ACDEMO)
CONTRIDX (ACDEMO)
MATURIDX (ACDEMO)
Other databases
High-priority databases
DEDBJN24 (ACDEMOT)
DB24AR0 (ACDEMOT)
Reports
Preview
Help

Search Results:

Product Name	Report Name	DB Name	Area/Parti	DD Name	Recon ID	IMS ID	Group Type	Group Name	Report Start Date	Completio Code	Repor Type
HPFPU	FPA-Largest DB Records	DEDBJN2	DB24AR0		ACDEMOT				Sun Dec 18 06:00:44 JST 2011	0	AREA
HPFPU	FPA-DEDB Area Analysis	DEDBJN2	DB24AR0		ACDEMOT				Sun Dec 18 06:00:44 JST 2011	0	AREA
HPFPU	FPA-UOW	DEDBJN2	DB24AR0		ACDEMOT				Sun Dec 18 06:00:44 JST 2011	0	AREA
HPFPU	DBSN-FP Senso Data Stat.	DEDBJN2	DB24AR0		ACDEMOT				Sun Dec 18 06:00:44 JST 2011	0	AREA

DB record that requires excessive number of I/Os exception

Rule condition and related data elements

The maximum number of I/Os that are required to read a database record (DB_MAX_DBREC_IO) exceeded a threshold.

Related chart: Physical I/O

Resolving this exception

A long database record can increase the maximum number of physical I/Os that are required to retrieve a database record. View the DB Record Placement Analysis report and check the number and the percentage of those database records that span RAA BASE, DOVF, and IOVF. The Largest Database Records report provides more detailed information about those records.

Exceptionally large database records can make database tuning difficult. Tuning the randomizer to move those database records to another area or areas might resolve this exception if doing so does not affect application programs or your database administration procedure.

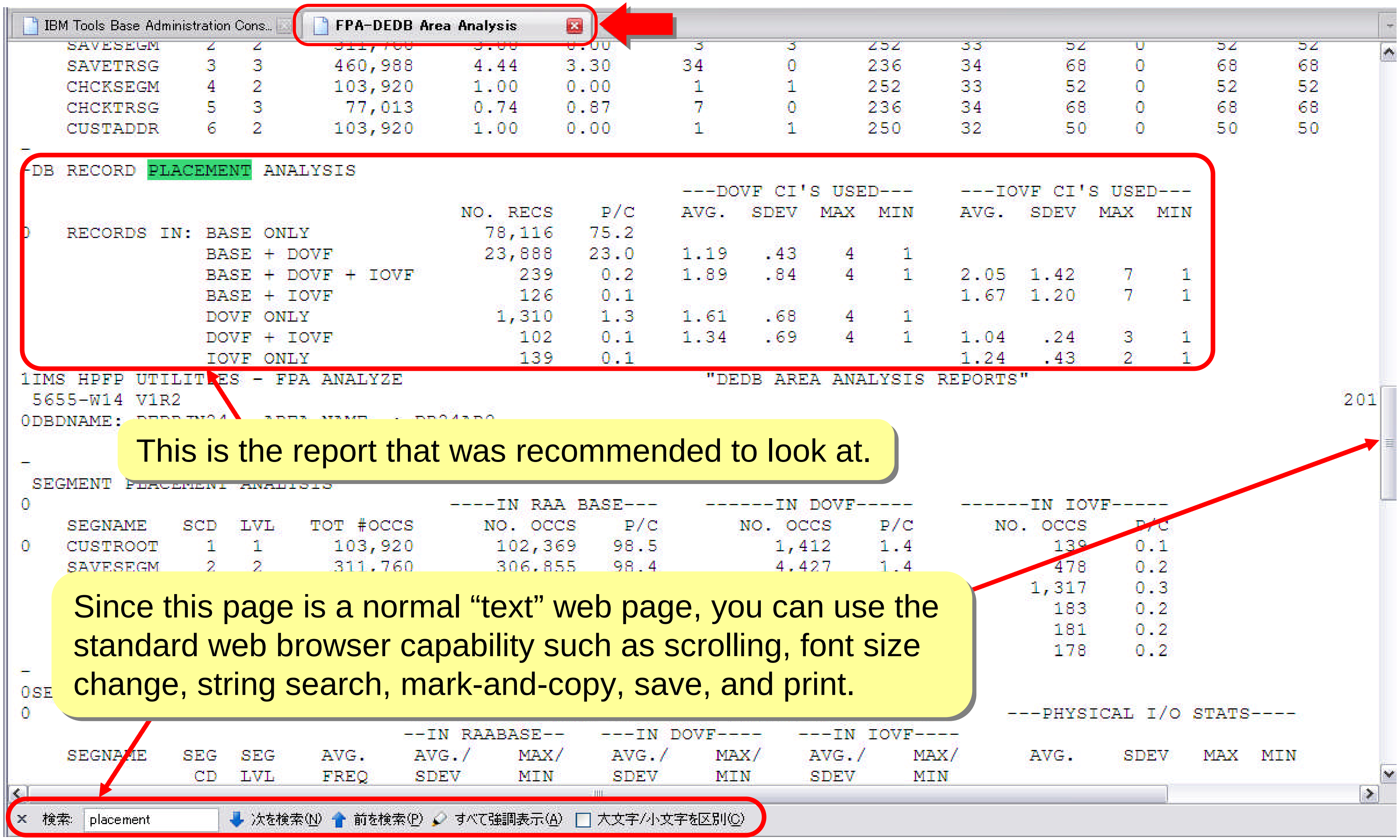
Found 4 reports

Errors: 0

”DB Record Placement Analysis” is contained in this report.

So, let’s double-click on this entry. Then, …

The content of the report is displayed in a new tab.



```
     SAVETRSG     3    3       460,988     4.44     3.30          34          0         236        34         68        0        68         68
     CHCKSEGM     4    2       103,920     1.00     0.00           1          1         252        33         52        0        52         52
     CHCKTRSG     5    3        77,013     0.74     0.87           7          0         236        34         68        0        68         68
     CUSTADDR     6    2       103,920     1.00     0.00           1          1         250        32         50        0        50         50
-
-DB RECORD PLACEMENT ANALYSIS
                                                      ---DOVF CI'S USED---      ---IOVF CI'S USED---
                                      NO. RECS    P/C    AVG.   SDEV   MAX   MIN    AVG.   SDEV   MAX   MIN
0    RECORDS IN: BASE ONLY              78,116   75.2
                 BASE + DOVF            23,888   23.0    1.19    .43     4     1
                 BASE + DOVF + IOVF        239    0.2    1.89    .84     4     1    2.05   1.42     7     1
                 BASE + IOVF               126    0.1                               1.67   1.20     7     1
                 DOVF ONLY               1,310    1.3    1.61    .68     4     1
                 DOVF + IOVF               102    0.1    1.34    .69     4     1    1.04    .24     3     1
                 IOVF ONLY                 139    0.1                               1.24    .43     2     1
1IMS HPFP UTILITIES - FPA ANALYZE                           "DEDB AREA ANALYSIS REPORTS"
 5655-W14 V1R2                                                                                              201
0DBDNAME:

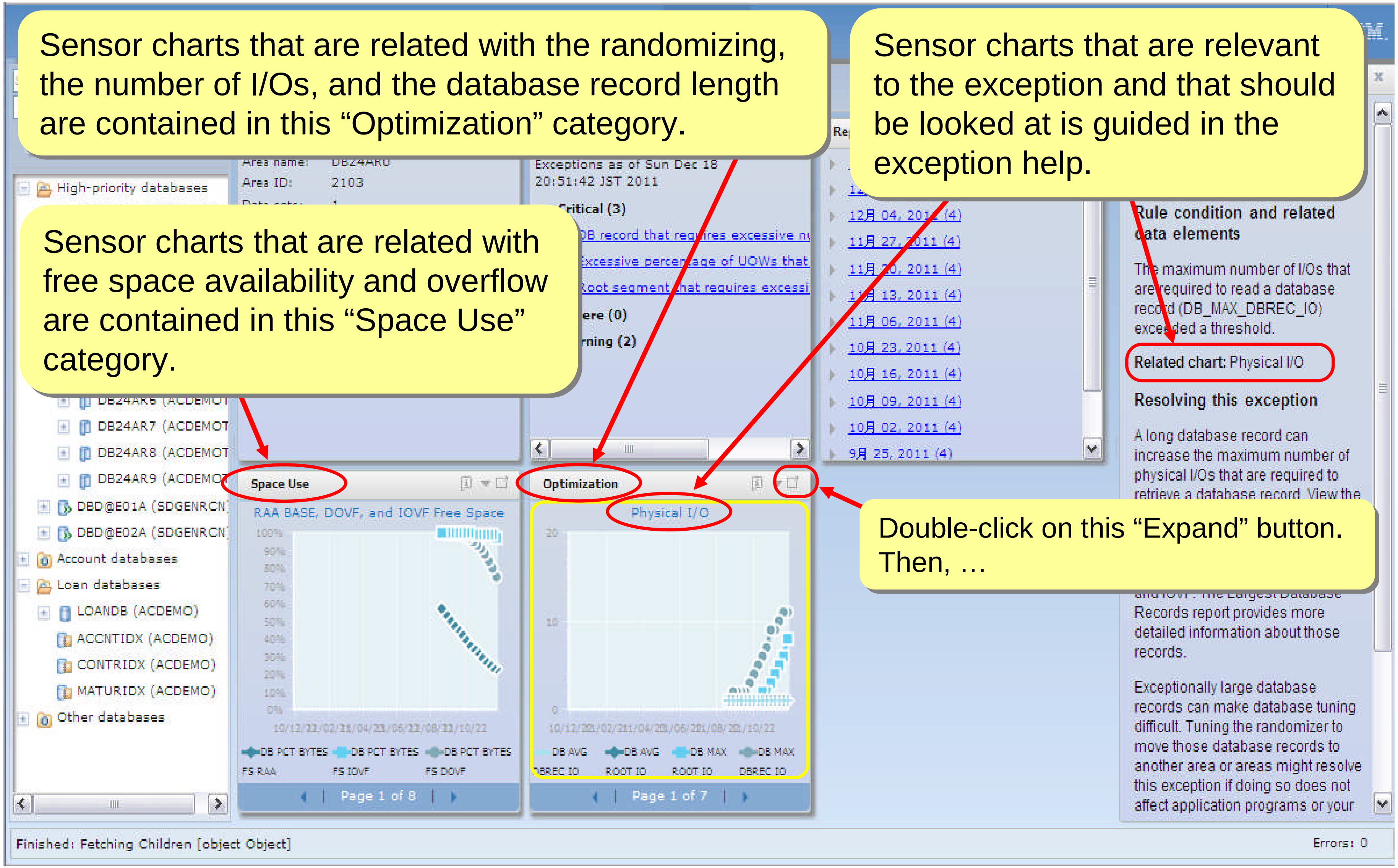
-
 SEGMENT
0                                          ----IN RAA BASE---     ------IN DOVF-----     ------IN IOVF-----
     SEGNAME    SCD   LVL    TOT #OCCS      NO. OCCS     P/C        NO. OCCS     P/C        NO. OCCS     P/C
0    CUSTROOT     1     1      103,920       102,369    98.5           1,412     1.4             139     0.1
     SAVESEGM     2     2      311,760       306,855    98.4           4,427     1.4             478     0.2
                                                                                               1,317     0.3
                                                                                                 183     0.2
                                                                                                 181     0.2
                                                                                                 178     0.2
-
0SE
0                                                                                     ---PHYSICAL I/O STATS----
                                     --IN RAABASE--    ---IN DOVF----    ---IN IOVF----
     SEGNAME    SEG   SEG      AVG.    AVG./     MAX/    AVG./     MAX/    AVG./     MAX/       AVG.     SDEV    MAX   MIN
                 CD   LVL      FREQ    SDEV      MIN     SDEV      MIN     SDEV      MIN
```

× 検索: placement ⬇ 次を検索(N) ⬆ 前を検索(P) すべて強調表示(A) ☐ 大文字/小文字を区別(C)

This is the report that was recommended to look at.

Since this page is a normal “text” web page, you can use the standard web browser capability such as scrolling, font size change, string search, mark-and-copy, save, and print.

Next, check the sensor charts.



Sensor charts that are related with the randomizing, the number of I/Os, and the database record length are contained in this “Optimization” category.

Sensor charts that are relevant to the exception and that should be looked at is guided in the exception help.

Sensor charts that are related with free space availability and overflow are contained in this “Space Use” category.

Double-click on this “Expand” button. Then, …

Area name: DB24AR0
Area ID: 2103

Exceptions as of Sun Dec 18 20:51:42 JST 2011

Rule condition and related data elements

The maximum number of I/Os that are required to read a database record (DB_MAX_DBREC_IO) exceeded a threshold.

Related chart: Physical I/O

Resolving this exception

A long database record can increase the maximum number of physical I/Os that are required to retrieve a database record. View the ... and IOVF. The Largest Database Records report provides more detailed information about those records.

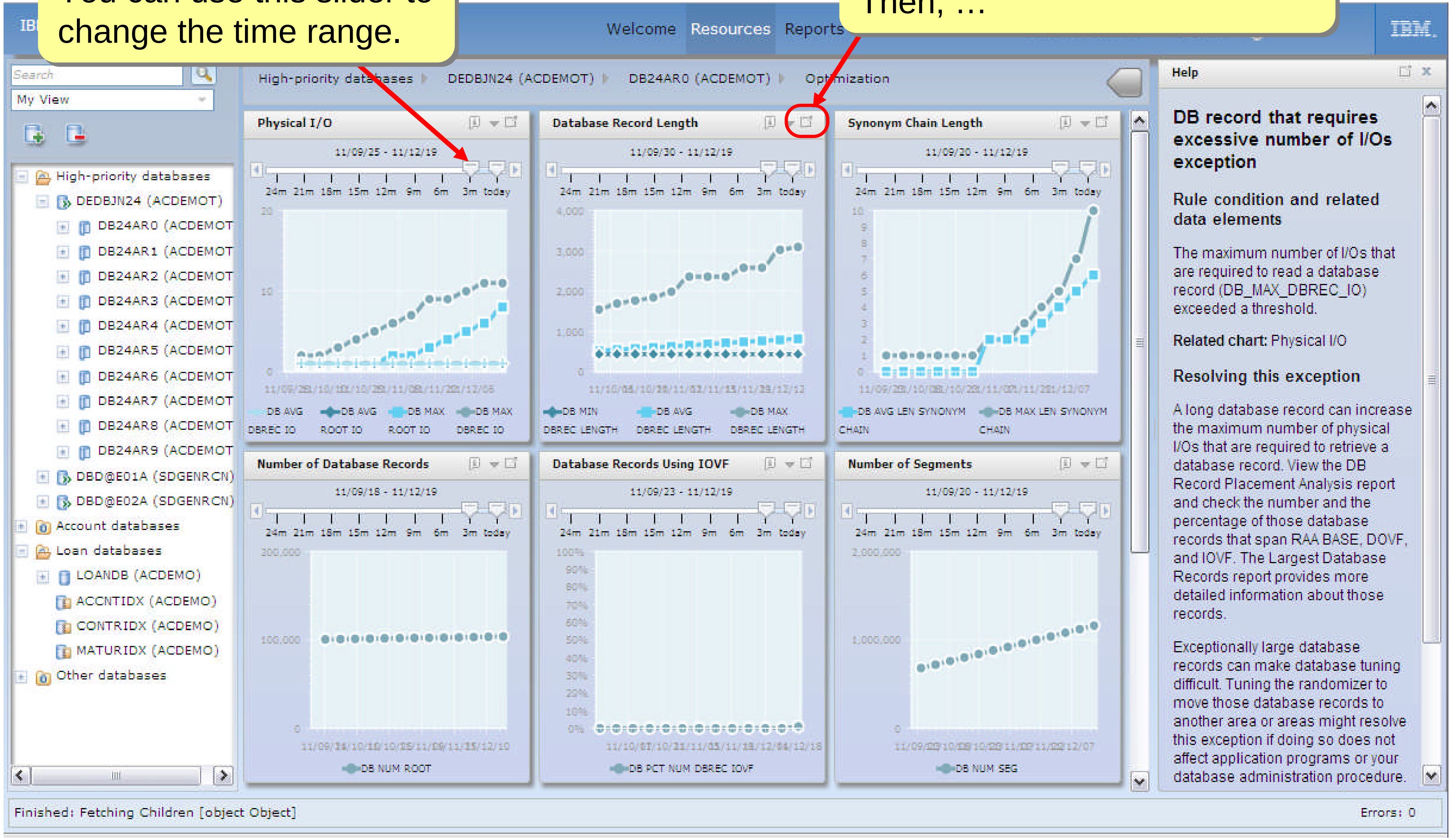
Exceptionally large database records can make database tuning difficult. Tuning the randomizer to move those database records to another area or areas might resolve this exception if doing so does not affect application programs or your

Finished: Fetching Children [object Object]

Errors: 0

High-priority databases
DB24AR6 (ACDEMO
DB24AR7 (ACDEMOT
DB24AR8 (ACDEMOT
DB24AR9 (ACDEMOT
DBD@E01A (SDGENRCN
DBD@E02A (SDGENRCN
Account databases
Loan databases
LOANDB (ACDEMO)
ACCNTIDX (ACDEMO)
CONTRIDX (ACDEMO)
MATURIDX (ACDEMO)
Other databases
Critical (3)
DB record that requires excessive nu
Excessive percentage of UOWs that
Root segment that requires excessi
ere (0)
rning (2)
12月 04, 2011 (4)
11月 27, 2011 (4)
11月 20, 2011 (4)
11月 13, 2011 (4)
11月 06, 2011 (4)
10月 23, 2011 (4)
10月 16, 2011 (4)
10月 09, 2011 (4)
10月 02, 2011 (4)
9月 25, 2011 (4)
Space Use
RAA BASE, DOVF, and IOVF Free Space
100% 90% 80% 70% 60% 50% 40% 30% 20% 10% 0%
10/12/22/02/21/04/21/06/21/08/21/10/22
DB PCT BYTES FS RAA
DB PCT BYTES FS IOVF
DB PCT BYTES FS DOVF
Page 1 of 8
Optimization
Physical I/O
20 10 0
DB AVG DBREC IO
DB AVG ROOT IO
DB MAX ROOT IO
DB MAX DBREC IO
Page 1 of 7

Charts in the same category are displayed as a “tiling dashboard”



You can use this slider to change the time range.

Click on this “Expand” button. Then, …

Welcome
Resources
Reports
IBM
Search
My View
High-priority databases
DEDBJN24 (ACDEMOT)
DB24AR0 (ACDEMOT
DB24AR1 (ACDEMOT
DB24AR2 (ACDEMOT
DB24AR3 (ACDEMOT
DB24AR4 (ACDEMOT
DB24AR5 (ACDEMOT
DB24AR6 (ACDEMOT
DB24AR7 (ACDEMOT
DB24AR8 (ACDEMOT
DB24AR9 (ACDEMOT
DBD@E01A (SDGENRCN)
DBD@E02A (SDGENRCN)
Account databases
Loan databases
LOANDB (ACDEMO)
ACCNTIDX (ACDEMO)
CONTRIDX (ACDEMO)
MATURIDX (ACDEMO)
Other databases
High-priority databases
DEDBJN24 (ACDEMOT)
DB24AR0 (ACDEMOT)
Optimization
Physical I/O
11/09/25 - 11/12/19
24m 21m 18m 15m 12m 9m 6m 3m today
20
10
0
DB AVG DBREC IO
DB AVG ROOT IO
DB MAX ROOT IO
DB MAX DBREC IO
Database Record Length
11/09/30 - 11/12/19
24m 21m 18m 15m 12m 9m 6m 3m today
4,000
3,000
2,000
1,000
0
DB MIN DBREC LENGTH
DB AVG DBREC LENGTH
DB MAX DBREC LENGTH
Synonym Chain Length
11/09/20 - 11/12/19
24m 21m 18m 15m 12m 9m 6m 3m today
10
9
8
7
6
5
4
3
2
1
0
DB AVG LEN SYNONYM CHAIN
DB MAX LEN SYNONYM CHAIN
Number of Database Records
11/09/18 - 11/12/19
24m 21m 18m 15m 12m 9m 6m 3m today
200,000
100,000
0
DB NUM ROOT
Database Records Using IOVF
11/09/23 - 11/12/19
24m 21m 18m 15m 12m 9m 6m 3m today
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
DB PCT NUM DBREC IOVF
Number of Segments
11/09/20 - 11/12/19
24m 21m 18m 15m 12m 9m 6m 3m today
2,000,000
1,000,000
0
DB NUM SEG
Help

DB record that requires excessive number of I/Os exception

Rule condition and related data elements

The maximum number of I/Os that are required to read a database record (DB_MAX_DBREC_IO) exceeded a threshold.

Related chart: Physical I/O

Resolving this exception

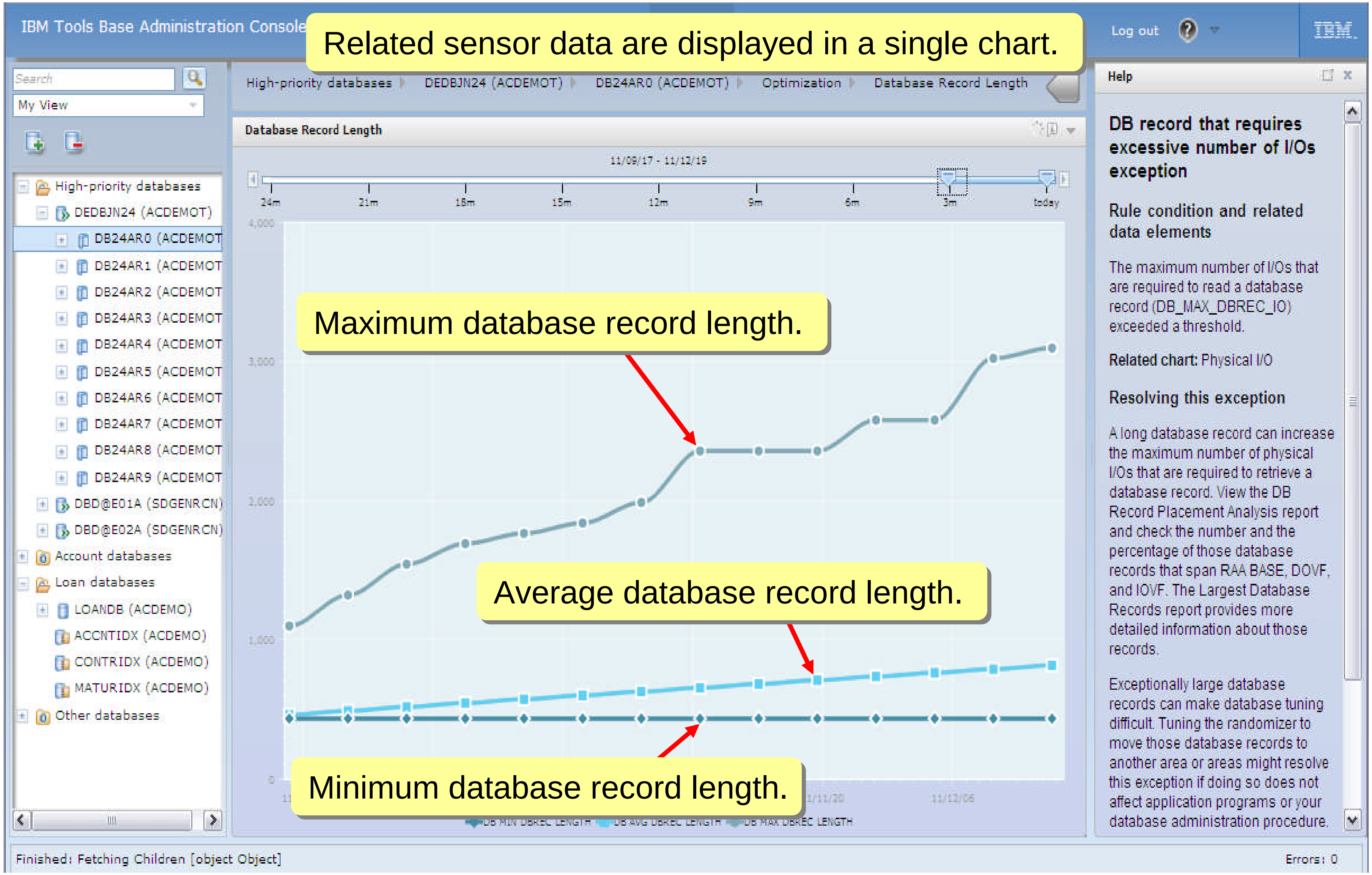
A long database record can increase the maximum number of physical I/Os that are required to retrieve a database record. View the DB Record Placement Analysis report and check the number and the percentage of those database records that span RAA BASE, DOVF, and IOVF. The Largest Database Records report provides more detailed information about those records.

Exceptionally large database records can make database tuning difficult. Tuning the randomizer to move those database records to another area or areas might resolve this exception if doing so does not affect application programs or your database administration procedure.

Finished: Fetching Children [object Object]

Errors: 0

The sensor chart is maximized.


IBM Tools Base Administration Console
Log out
Search
My View
High-priority databases
DEDBJN24 (ACDEMOT)
DB24AR0 (ACDEMOT
DB24AR1 (ACDEMOT
DB24AR2 (ACDEMOT
DB24AR3 (ACDEMOT
DB24AR4 (ACDEMOT
DB24AR5 (ACDEMOT
DB24AR6 (ACDEMOT
DB24AR7 (ACDEMOT
DB24AR8 (ACDEMOT
DB24AR9 (ACDEMOT
DBD@E01A (SDGENRCN)
DBD@E02A (SDGENRCN)
Account databases
Loan databases
LOANDB (ACDEMO)
ACCNTIDX (ACDEMO)
CONTRIDX (ACDEMO)
MATURIDX (ACDEMO)
Other databases
High-priority databases
DEDBJN24 (ACDEMOT)
DB24AR0 (ACDEMOT)
Optimization
Database Record Length
Database Record Length
11/09/17 - 11/12/19
24m
21m
18m
15m
12m
9m
6m
3m
today
4,000
3,000
2,000
1,000
0
11/11/20
11/12/06
DB MIN DBREC LENGTH
DB AVG DBREC LENGTH
DB MAX DBREC LENGTH
Help

Related sensor data are displayed in a single chart.

Maximum database record length.

Average database record length.

Minimum database record length.

DB record that requires excessive number of I/Os exception

Rule condition and related data elements

The maximum number of I/Os that are required to read a database record (DB_MAX_DBREC_IO) exceeded a threshold.

Related chart: Physical I/O

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Exceptionally large database records can make database tuning difficult. Tuning the randomizer to move those database records to another area or areas might resolve this exception if doing so does not affect application programs or your database administration procedure.

Finished: Fetching Children [object Object]

Errors: 0

Summary

- We hear your concerns and understand your challenges
- IMS Tools Solution Packs provide everything you need to manage and maintain your IMS Full Function and Fast Path databases
  - The latest versions of the Database Solution Pack and Fast Path Solution Pack were made available in December
  - These Packs deliver on a vision of Autonomics and Modernization, taking the burden of IMS maintenance off of the user once and for all
- These solutions provide immediate benefits and position you for offerings still to come
  - We continue to add new capabilities via the maintenance stream
  - New releases of autonomics and modernization will offer additional capability

RFE Now Live for DB2 and IMS Tools

developerWorks > RFE Community > Information Management >

Information Management RFE Community

- We recently announced the launch of the DB2 and IMS Tools Request for Enhancements (RFE) Community that enables customers to directly submit, manage and track their requirements through this online community.

- The DB2 and IMS Tools RFE provides customers with greater accessibility to the requirements that are of interest to them. DB2 for z/OS, Rational, Tivoli and WebSphere have already adopted RFE with positive customer feedback. All you need to get started is an IBM developerWorks IBM ID. Please use the DB2 and IMS Tools RFE to submit customer requirements going forward.

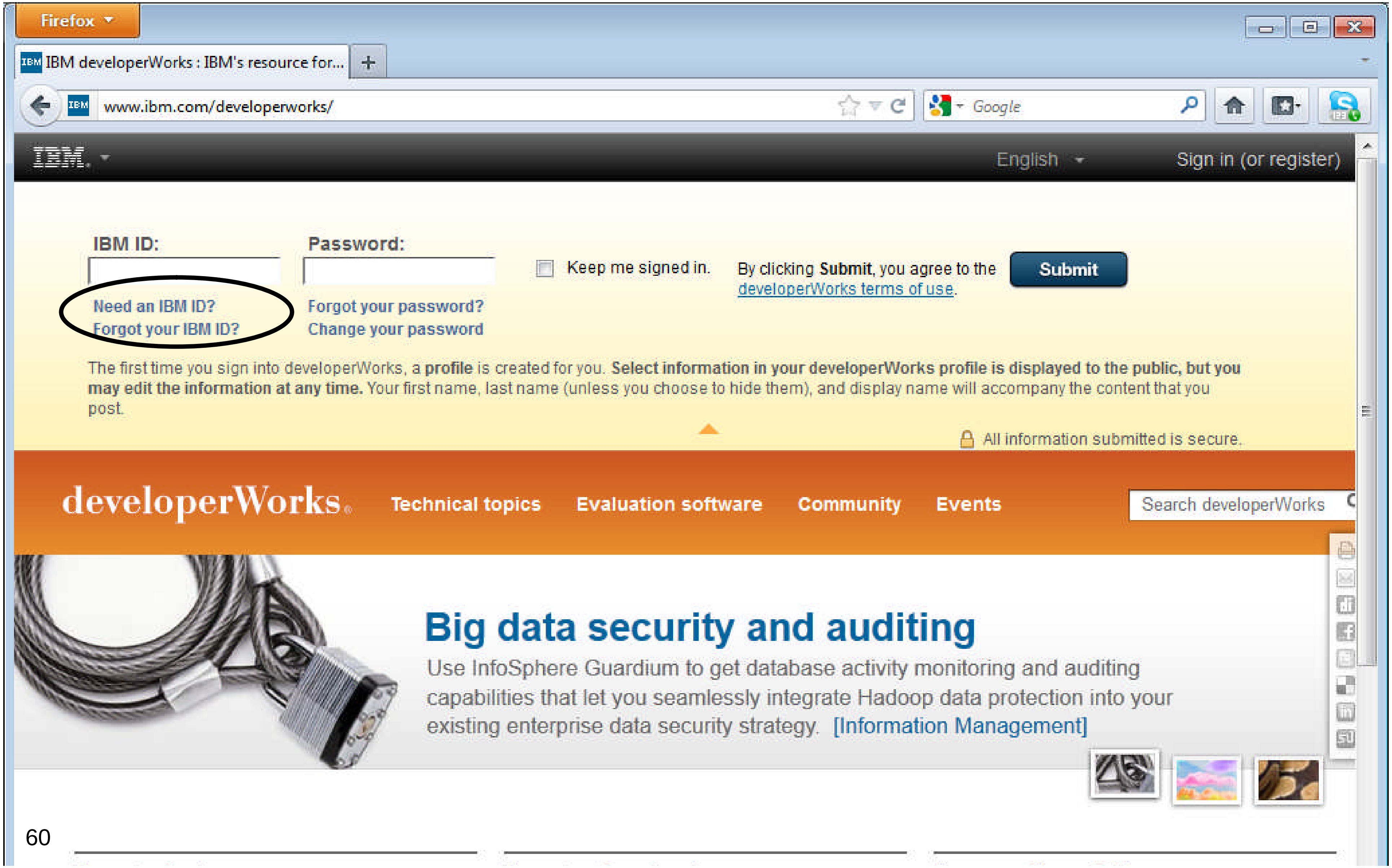
DB2 Tools RFE Submission

- Brand = Information Management
- Product Family = “DB2 for z/OS”
- Product = Your DB2 Tool

IMS Tools RFE Submission

- Brand = Information Management
- Product Family = “IMS”
- Product = Your IMS Tool

STEP 1 – Developerworks ID
http://www.ibm.com/developerworks/



Firefox
IBM developerWorks : IBM's resource for...
www.ibm.com/developerworks/
Google
English
Sign in (or register)

IBM ID:

Password:

☐ Keep me signed in.

By clicking **Submit**, you agree to the developerWorks terms of use.

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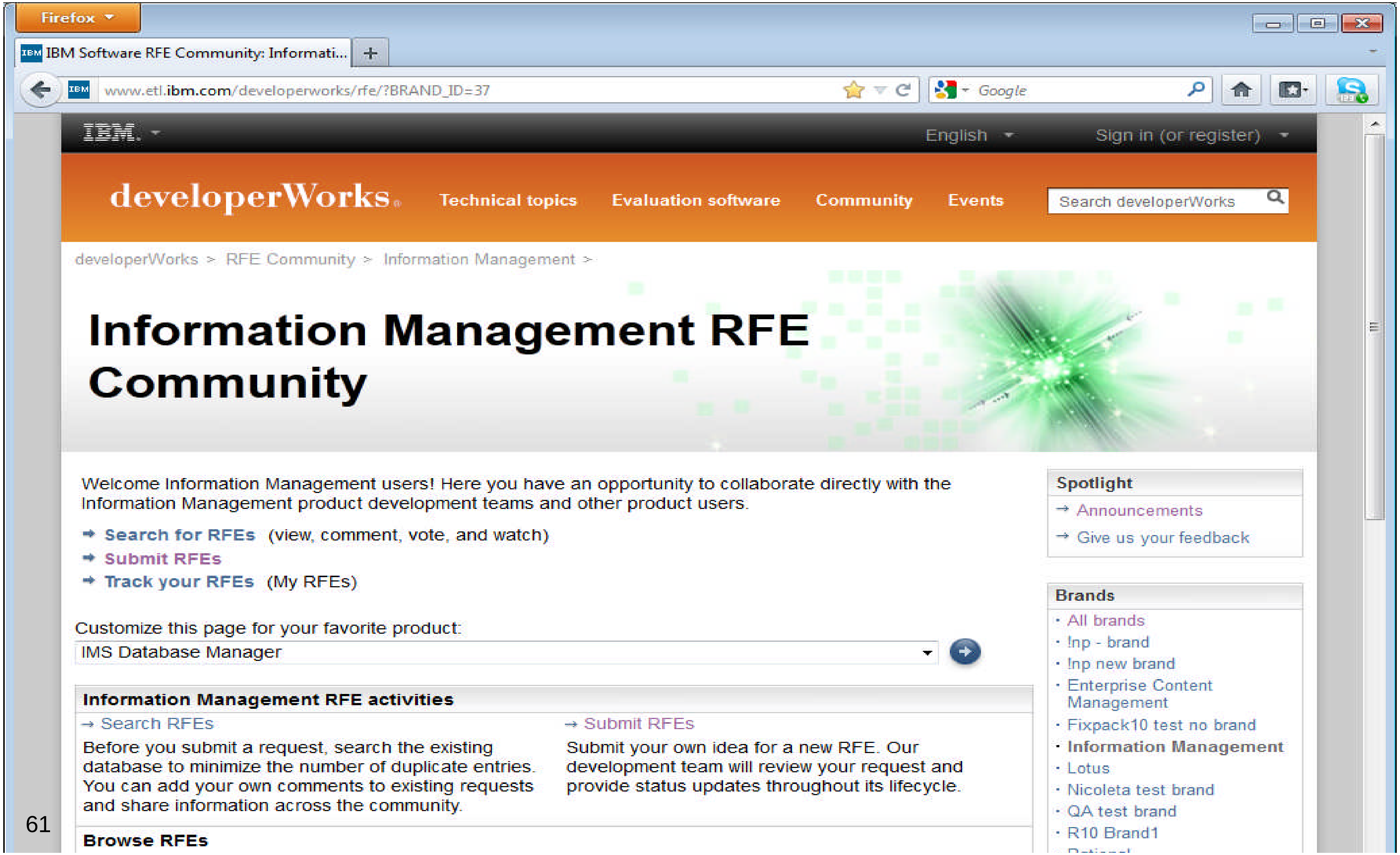
Big data security and auditing

Use InfoSphere Guardium to get database activity monitoring and auditing capabilities that let you seamlessly integrate Hadoop data protection into your existing enterprise data security strategy. [Information Management]

Step 2: Information Management RFE http://www.etl.ibm.com/developerworks/rfe/?BRAND_ID=37


Firefox
IBM Software RFE Community: Informati...
www.etl.ibm.com/developerworks/rfe/?BRAND_ID=37
Google
IBM.
English
Sign in (or register)
developerWorks.
Technical topics
Evaluation software
Community
Events
Search developerWorks
developerWorks > RFE Community > Information Management >

Information Management RFE Community

Welcome Information Management users! Here you have an opportunity to collaborate directly with the Information Management product development teams and other product users.

- **Search for RFEs** (view, comment, vote, and watch)
- **Submit RFEs**
- **Track your RFEs** (My RFEs)

Customize this page for your favorite product:
IMS Database Manager

Information Management RFE activities

→ Search RFEs
Before you submit a request, search the existing database to minimize the number of duplicate entries. You can add your own comments to existing requests and share information across the community.

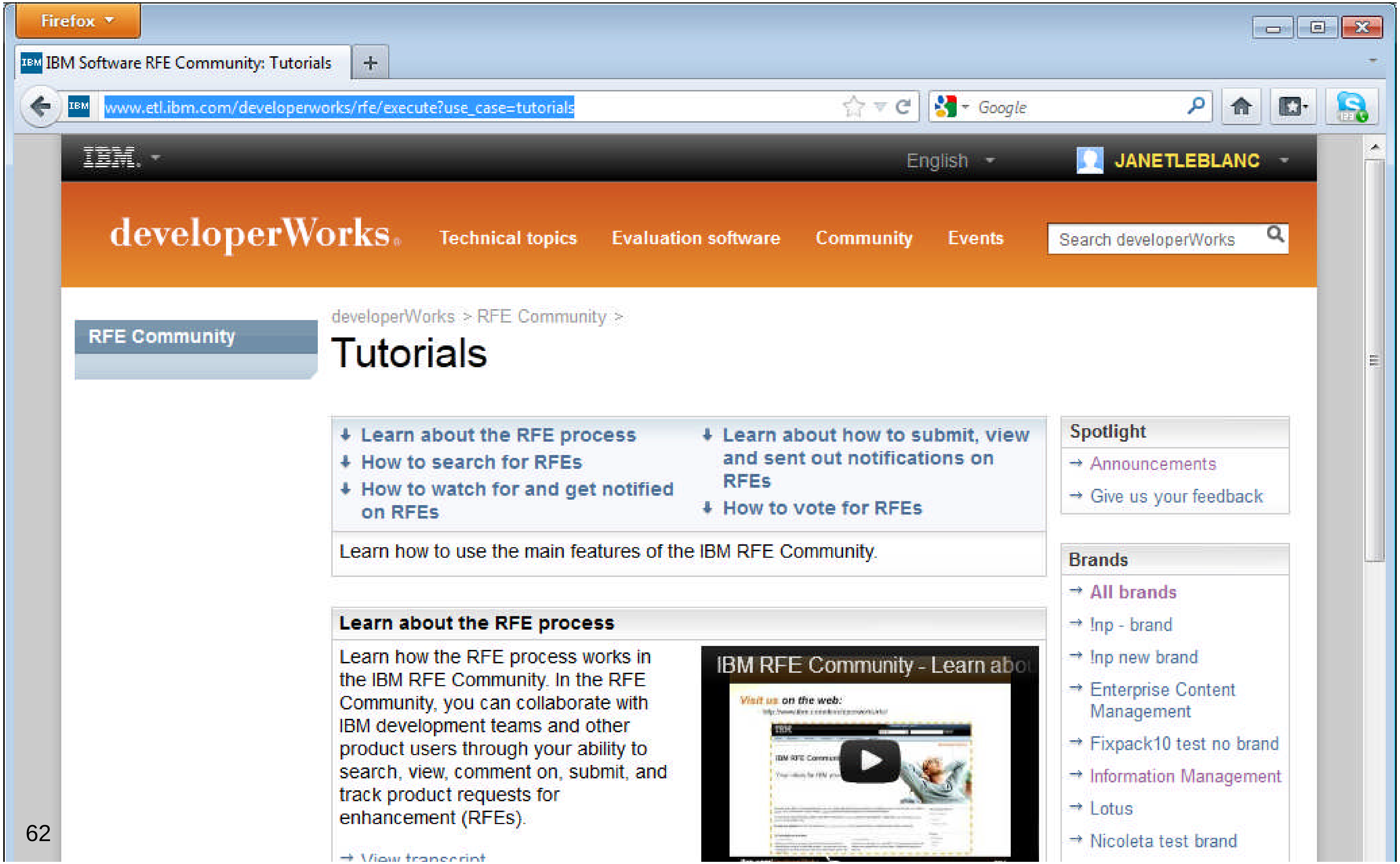
→ Submit RFEs
Submit your own idea for a new RFE. Our development team will review your request and provide status updates throughout its lifecycle.

Browse RFEs

Spotlight
- → Announcements
- → Give us your feedback

Brands
- All brands
- !np - brand
- !np new brand
- Enterprise Content Management
- Fixpack10 test no brand
- **Information Management**
- Lotus
- Nicoleta test brand
- QA test brand
- R10 Brand1

Step 3 – Education about RFE
http://www.etl.ibm.com/developerworks/rfe/execute?use_case=tutorials


Firefox
IBM Software RFE Community: Tutorials
www.etl.ibm.com/developerworks/rfe/execute?use_case=tutorials
Google
IBM.
English
JANETLEBLANC
developerWorks.
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Tutorials

- Learn about the RFE process
- How to search for RFEs
- How to watch for and get notified on RFEs
- Learn about how to submit, view and sent out notifications on RFEs
- How to vote for RFEs

Learn how to use the main features of the IBM RFE Community.

Learn about the RFE process

Learn how the RFE process works in the IBM RFE Community. In the RFE Community, you can collaborate with IBM development teams and other product users through your ability to search, view, comment on, submit, and track product requests for enhancement (RFEs).

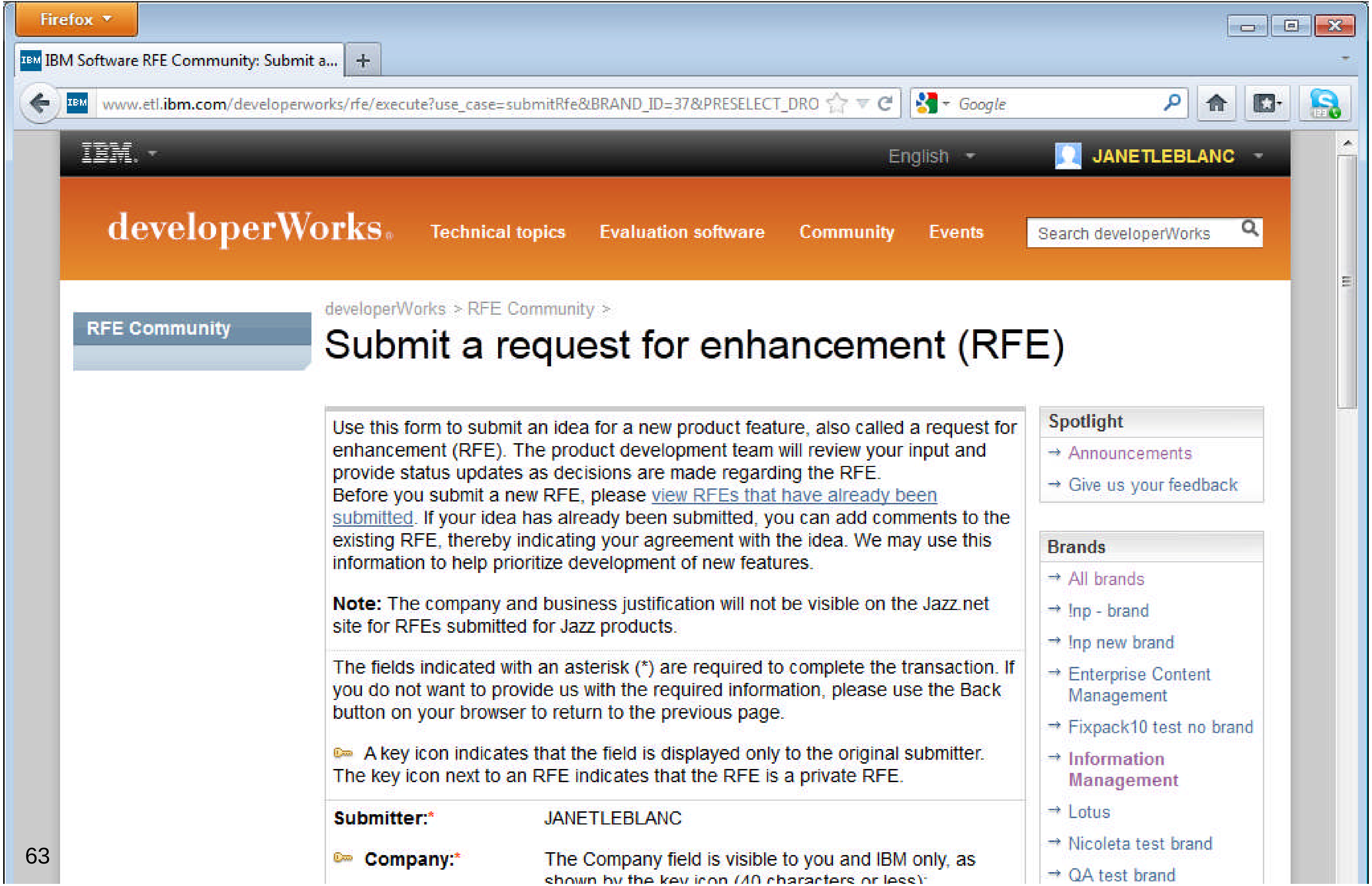
→ View transcript

IBM RFE Community - Learn abo
Visit us on the web:

Spotlight
- → Announcements
- → Give us your feedback

Brands
- → All brands
- → Inp - brand
- → Inp new brand
- → Enterprise Content Management
- → Fixpack10 test no brand
- → Information Management
- → Lotus
- → Nicoleta test brand

Step 4 – Submit your first RFE


Firefox
IBM Software RFE Community: Submit a...
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IBM.
English
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Community
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Search developerWorks
RFE Community

developerWorks > RFE Community >

Submit a request for enhancement (RFE)

Use this form to submit an idea for a new product feature, also called a request for enhancement (RFE). The product development team will review your input and provide status updates as decisions are made regarding the RFE.
Before you submit a new RFE, please view RFEs that have already been submitted. If your idea has already been submitted, you can add comments to the existing RFE, thereby indicating your agreement with the idea. We may use this information to help prioritize development of new features.

Note: The company and business justification will not be visible on the Jazz.net site for RFEs submitted for Jazz products.

The fields indicated with an asterisk (*) are required to complete the transaction. If you do not want to provide us with the required information, please use the Back button on your browser to return to the previous page.

A key icon indicates that the field is displayed only to the original submitter. The key icon next to an RFE indicates that the RFE is a private RFE.

Submitter:* JANETLEBLANC

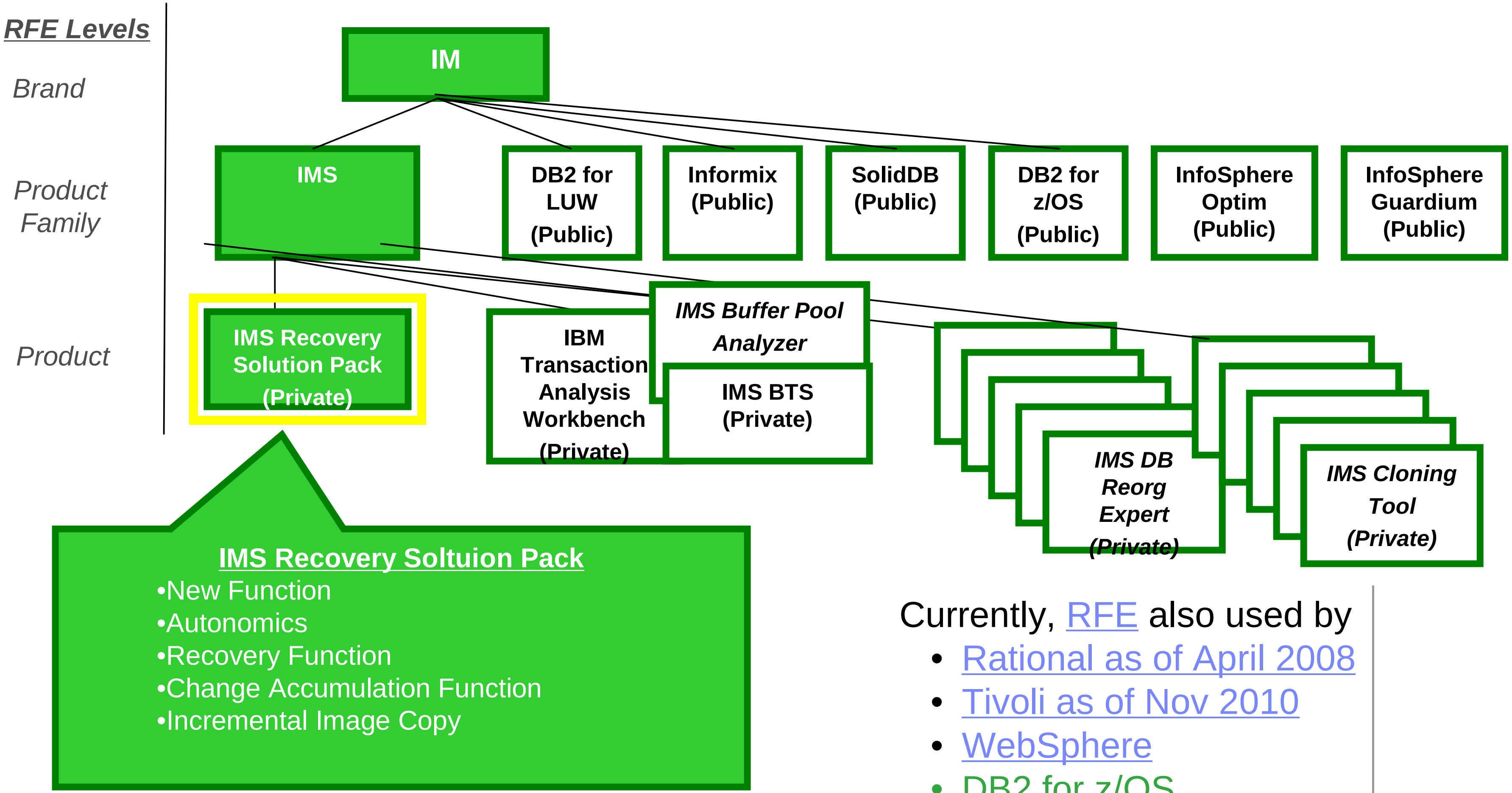
Company:* The Company field is visible to you and IBM only, as shown by the key icon (40 characters or less):

Spotlight
→ Announcements
→ Give us your feedback
Brands
→ All brands
→ lnp - brand
→ lnp new brand
→ Enterprise Content Management
→ Fixpack10 test no brand
→ Information Management
→ Lotus
→ Nicoleta test brand
→ QA test brand

IMS Tools' RFE Structure

Making it logical and straight-forward for Customers to open requirements

Structure adheres to ibm.com structure


RFE Levels
Brand
Product Family
Product
IM
IMS
DB2 for LUW (Public)
Informix (Public)
SolidDB (Public)
DB2 for z/OS (Public)
InfoSphere Optim (Public)
InfoSphere Guardium (Public)
IMS Recovery Solution Pack (Private)
IBM Transaction Analysis Workbench (Private)
IMS Buffer Pool Analyzer
IMS BTS (Private)
IMS DB Reorg Expert (Private)
IMS Cloning Tool (Private)

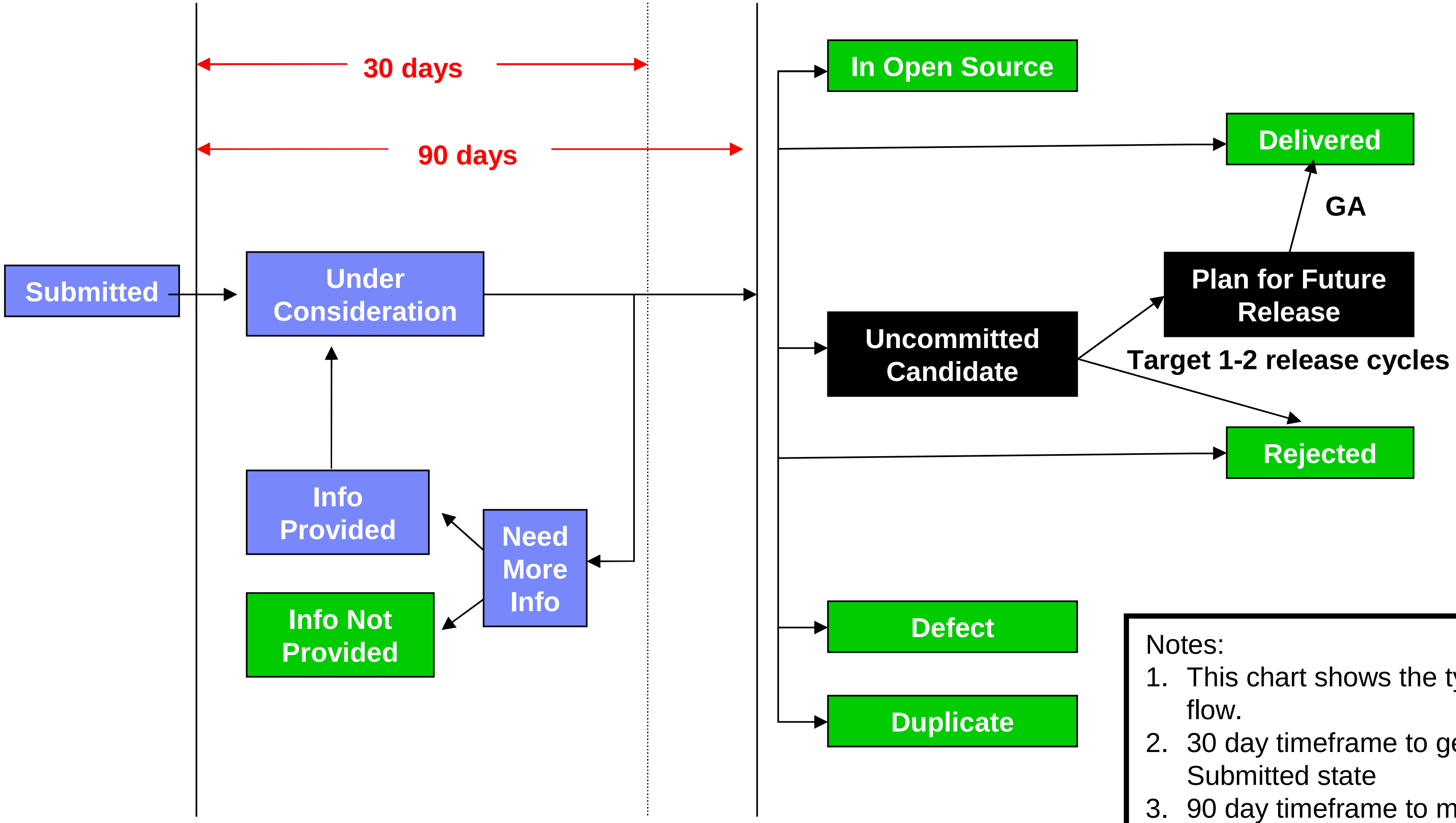
IMS Recovery Soltuion Pack

- New Function
- Autonomics
- Recovery Function
- Change Accumulation Function
- Incremental Image Copy

Currently, RFE also used by

- Rational as of April 2008
- Tivoli as of Nov 2010
- WebSphere
- DB2 for z/OS

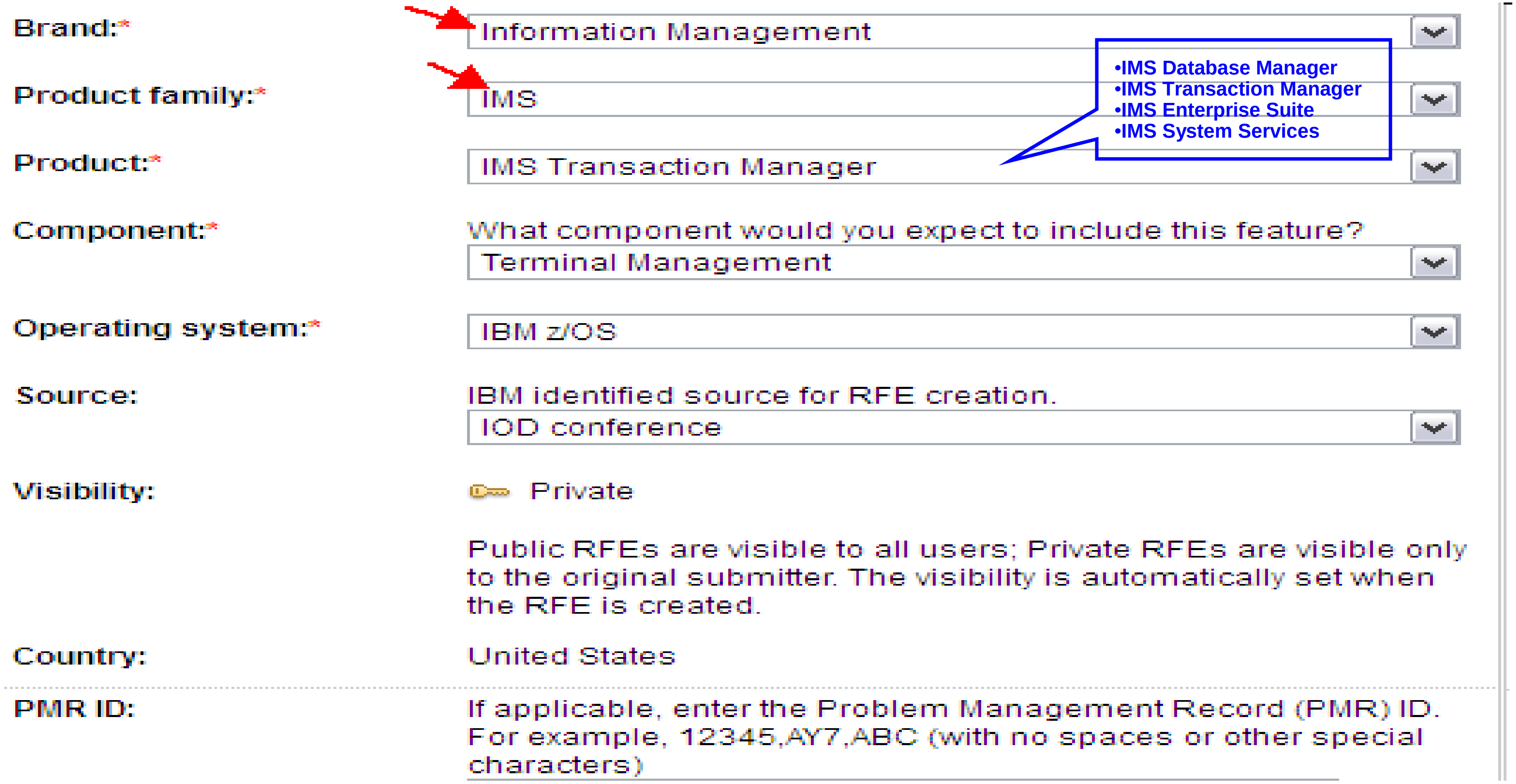
FYI…RFE Workflow and SLAs


30 days
90 days
Submitted
Under Consideration
Info Provided
Need More Info
Info Not Provided
In Open Source
Delivered
GA
Plan for Future Release
Uncommitted Candidate
Target 1-2 release cycles
Rejected
Defect
Duplicate

Notes:
1. This chart shows the typical flow.
2. 30 day timeframe to get out of Submitted state
3. 90 day timeframe to move to right side of diagram

Green – final state
Blue – interim state
Red – expected response time

IMS RFEs:
Submit a request for enhancement (RFE) sample - cont



Brand:* Information Management

Product family:* IMS

Product:* IMS Transaction Manager

- •IMS Database Manager
- •IMS Transaction Manager
- •IMS Enterprise Suite
- •IMS System Services

Component:* What component would you expect to include this feature?
Terminal Management

Operating system:* IBM z/OS

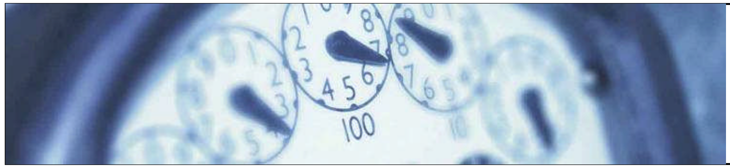
Source: IBM identified source for RFE creation.
IOD conference

Visibility: Private

Public RFEs are visible to all users; Private RFEs are visible only to the original submitter. The visibility is automatically set when the RFE is created.

Country: United States

PMR ID: If applicable, enter the Problem Management Record (PMR) ID. For example, 12345,AY7,ABC (with no spaces or other special characters)

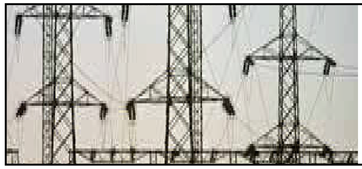


Typical Utilization for Servers

Windows: 5-10%   Unix: 10-20%   **System z: 85-100%**

System z can help **reduce** your floor space up to **75%-85%** in the data center

Thank You



System z can lower your total cost of ownership, requiring **as little as 30%** of the power of a distributed server farm running equivalent workloads

The cost of storage is typically **three times more** in distributed environments

Communities

- On-line communities, User Groups, Technical Forums, Blogs, Social networks, and more
  - On-line community
    - **Information Management bit.ly**/InfoMgmtCommunity
  - Blogs and Social Networks
    - ReThinkIMS - Facebook - Linkedin - Twitter
    - IMS User Groups
    - IMS Today Blog
  - IMS and IMS Tools web sites
    - IMS
    - IMS Tools
  - DB2 and IMS Tools Technical Resource Center
    - https://database-tools.rs.com

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- Register for upcoming events