



Virtual IMS user group: Newsletter 72



Welcome to the Virtual IMS user group newsletter. The Virtual IMS user group at itech-ed.com/virtualims is an independently-operated vendor-neutral site run by and for the IMS user community.

Virtual IMS user group presentation

The latest webinar from the Virtual IMS user group was entitled, "Java and SQL in IMS for z/OS Applications". It was presented by Radek Mrvec, Principal Software Engineer at Broadcom.

Radek joined CA Technologies (which was acquired by Broadcom in 2018) in 2012 as an Associate Software Engineer and he was assigned to the CA ACF2 security product. A year later, he was re-assigned to CA Database Management Solutions for IMS for z/OS (IMS Tools). Nowadays, he still works in the CA IMS Tools team as a Principal Software Engineer, involved in new development and sustaining work across the whole CA IMS Tools portfolio.

```
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RMNAME=(DFSHDC40,2,5)
DATASET DD1=ORDRMR,SIZE=2048
SEGM NAME=XXORDER,PARENT=0,BYTES=8,PTR=(T)
FIELD NAME=(ID,SEQ,U),BYTES=4,START=1,DATATYPE=INT
FIELD NAME=ORDID,BYTES=4,START=5,DATATYPE=INT
SEGM NAME=XXCUST,PARENT=XXORDER,BYTES=28,PTR=(T)
FIELD NAME=(ID,SEQ,U),BYTES=4,START=1,DATATYPE=INT
FIELD NAME=NAME,BYTES=24,START=5,TYPE=C
SEGM NAME=XXPROD,PARENT=XXORDER,BYTES=34,PTR=(T)
FIELD NAME=(ID,SEQ,U),BYTES=4,START=1,DATATYPE=INT
FIELD NAME=NAME,BYTES=24,START=5,TYPE=C
FIELD NAME=PRICE,BYTES=6,START=29,DATATYPE=DECIMAL(10,2)
SEGM NAME=XXSTORE,PARENT=XXORDER,BYTES=24,PTR=(T)
FIELD NAME=(ID,SEQ,U),BYTES=4,START=1,DATATYPE=INT
FIELD NAME=NAME,BYTES=20,START=5,TYPE=C
SEGM NAME=XXSALES,PARENT=XXSTORE,BYTES=24,PTR=(T)
FIELD NAME=(ID,SEQ,U),BYTES=4,START=1,DATATYPE=INT
FIELD NAME=NAME,BYTES=20,START=5,TYPE=C
DBDGEN
FINISH
END
```

Figure 1: DBD

Radek started his presentation by showing the code needed to create a simple database (see Figure 1). As well as the database descriptors (DBDs), he also showed the program specification blocks (PSBs) needed when defining a database and application programs views to IMS.

The steps needed to bring a database to life are illustrated in Figure 2.

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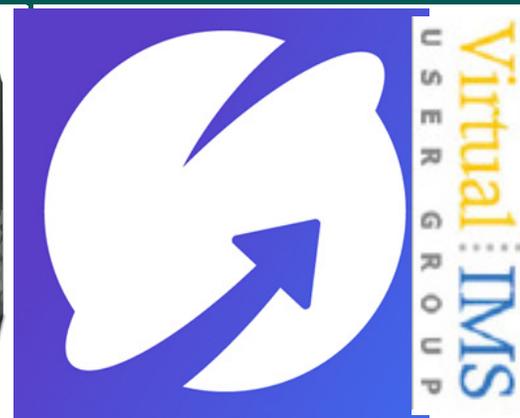
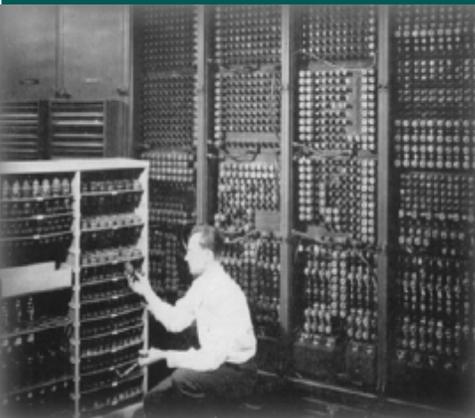




Figure 2: Bringing a database to life

Next, Radek showed how to create an app – both before SQL and after.

Then Radek turned his attention to preparing the environment. He suggested that there was a minimum of four steps required:

- IMS Catalog
- Common Service Layer (SCI)
- IMS Connect (ICON)
- Open Database Manager (ODBM).

He suggested that many people aren't using the IMS Catalog, but assured the user group that it made life easier if the IMS Catalog was used.

Radek went on to show the code necessary to create Proclib members, showing: DFSDFXxx for the IMS Catalog and Managed ACBs

and Common Service Layer; CSLSIxxx for the Common Service Layer; HWSCFGxx for IMS Connect; CSLDIxx for ODBM; and CSLDCxx for ODBM.

Moving on to SQL, Figure 3 illustrates the structure of hierarchical and relational databases.

Radek Mrvec then suggested that if we look away from the mainframe, we find Visual Studio and Eclipse as new friends.

Radek showed a number of demonstrations of how to use the tools. And using these distributed tools he could show the structure of an IMS database – see Figure 4.

He then moved on to using Java and showed what was needed. When opening a connection, what's needed are a JDBC DataSource Interface and

a JDBC DriverManager Interface. He then illustrated what's needed for the DriverManager interface and the DataSource interface.

Radek mentioned Spring Boot, Hibernate, JPA, and ORM can be used with IMS

Spring Boot makes it easy to create stand-alone, production-grade Spring-based applications that you can "just run".

Hibernate is an object-relational mapping (ORM) tool for Java. It provides a framework for mapping an object-oriented domain model to a relational database. Hibernate handles object-relational impedance mismatch problems by replacing direct, persistent database accesses with high-level object handling functions.

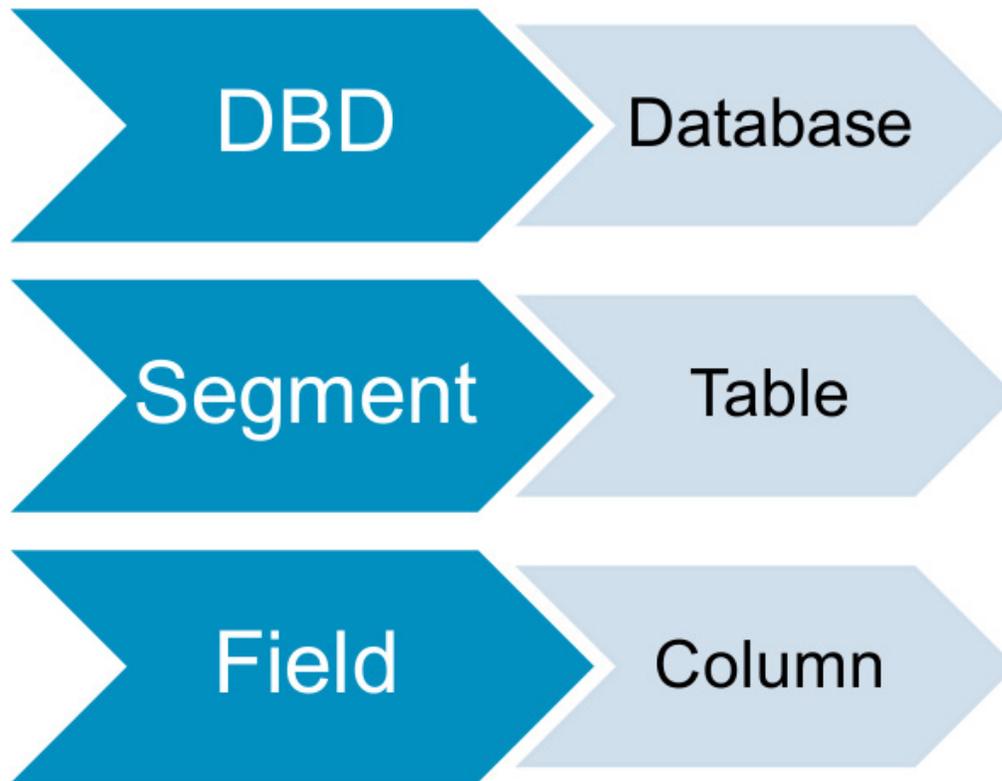


Figure 3: Relational or hierarchical?

JPA is the Java Persistence API (renamed to Jakarta Persistence). It is a Java application programming interface specification that describes the management of relational data in applications using Java Platform, Standard Edition and Java Platform, Enterprise Edition/Jakarta EE.

ORM is object-relational mapping. This is a technique for converting data between incompatible type systems using object-oriented programming languages. This creates, in effect, a

'virtual object database' that can be used from within the programming language.

Radek showed an example of Spring Boot configuration and how to let Spring Boot know about IMS. He then demonstrated how the data could be manipulated.

A copy of Radek Mrvec's presentation is available for download from the Virtual IMS user group Web site at itech-ed.com/virtualims/presentations/IMSJavaSQLApr20.pdf.

You can see and hear the whole user group

meeting at <https://youtu.be/sqYRuDgqMV0>.

Meeting dates

The following meeting dates have been arranged for the Virtual IMS user group:

- On 9 June 2020, Haley Fung, Senior Software Engineer / Technical Lead at IBM will be discussing "4 Paths to Digital Transformation".
- The following meeting will be on 11 August 2020, when Nick Griffin, Product

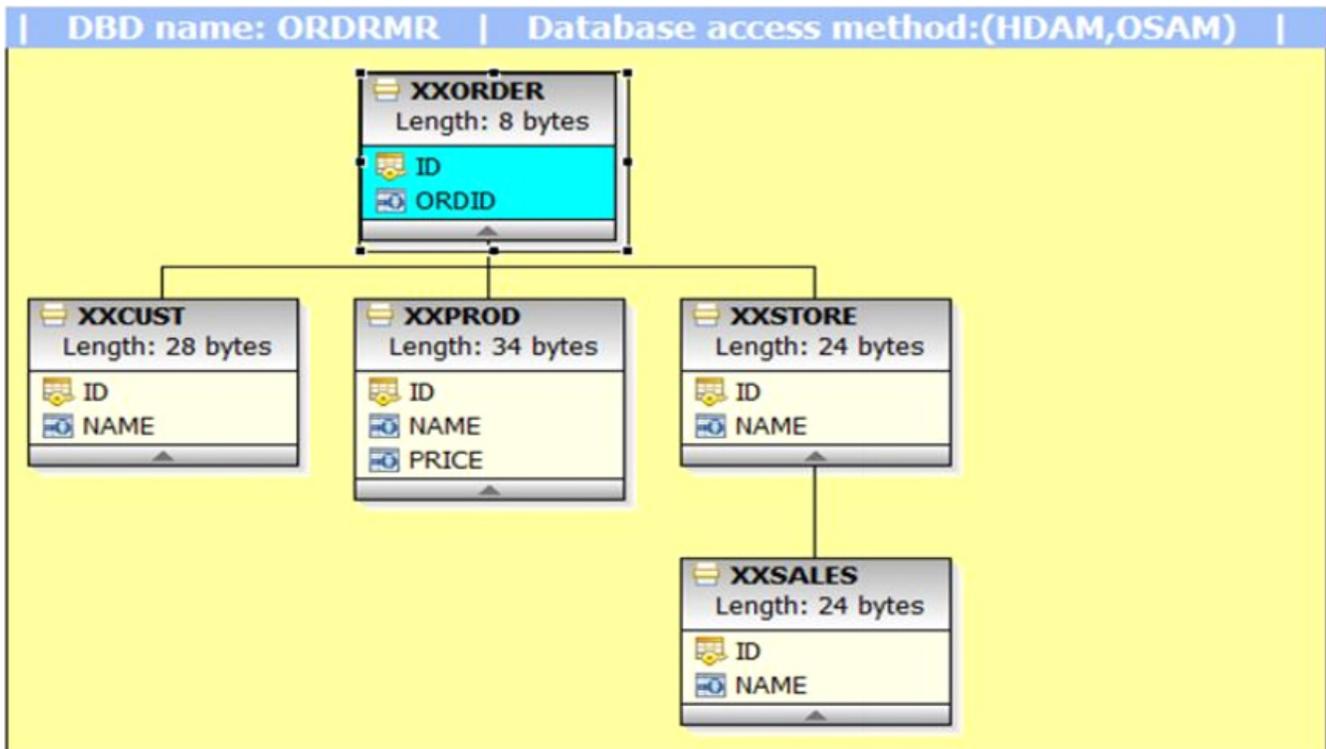


Figure 4: Database structure displayed

Manager for Mainframe IMS at BMC Software will be discussing “Reached the IMS Database 4/8gig line, Now What?”.

IMS news

IBM has announced the General Availability of IMS 15.2. The new release brings enhancements and capabilities that can help:

- Transform your IT infrastructure into your cloud infrastructure:
 - Open access to IMS database through Java Database Connectivity (JDBC) and SQL enables

your organization to fully use your data where it resides. From lowering development and operational costs to exploring new revenue streams, data management and optimization can be accomplished without moving your data off-platform.

- For existing IMS assets, two-way communication with external applications (enabled by IBM z/OS® Connect Enterprise Edition that use OpenAPI-conforming RESTful APIs) provides your organization with the capability to

continue to build on and transform its existing infrastructure for new use cases, getting more value out of earlier investments.

- For new IMS assets, expanding support for modern languages and DevOps tools empowers your developers with the speed, agility, and flexibility of the public cloud while still retaining the performance, security, and low costs of on-premises or private cloud environments.
- Integrate security-rich features into your

enterprise in preparation for unexpected security issues:

- Building on its pervasive encryption capabilities, IMS V15.2 takes advantage of the IBM z15™ enterprise platform to deliver the capability to manage the privacy of customer data, simplifying compliance certifications by enabling z/OS data set encryption of IMS data with minimal CPU overhead and no application changes.
- Overflow Sequential Access Method (OSAM) encryption enables a greater portion of your data to be automatically encrypted, providing security-rich access to your IMS data without additional work.
- Understand and troubleshoot your data and infrastructure with more confidence:
 - With Data Privacy in Diagnostics, IMS V15.2 enables you to remove private identifiable information before shipping diagnostic information to IBM.

More information can be found at <https://www-01.ibm.com/common/ssi/ShowDoc.wss?docURL=/common/ssi/>

[rep_ca/9/897/ENUS220-019/index.html&request_locale=en](https://www.ibm.com/rep_ca/9/897/ENUS220-019/index.html&request_locale=en).

Recent IMS articles

Assessing IBM® IMS™ OSAM Encryption Performance by Jasdeep Singh on z Systems Developer Community (22 April 2020). You can find the article at <https://developer.ibm.com/zsystems/2020/04/13/pushing-the-limits-of-modern-security-osam-encryption/>

Pushing the Limits of Modern Security: OSAM Encryption by Sanjay Kaliyur on z Systems Developer Community (13 April 2020). You can find the article at <https://developer.ibm.com/zsystems/2020/04/13/pushing-the-limits-of-modern-security-osam-encryption/>

How Does IMS 15.2's Performance Stack up Against IMS 15.1's? by Richard Antikoll on z Systems Developer Community (30 March 2020). You can find the article at <https://developer.ibm.com/zsystems/2020/03/30/how-does-ims-15-2-performance-stack-up-compared-to-ims-15-1/>

IMS V15.2 and Your Journey to the Cloud by Skyla Loomis on z Systems Developer Community (20 March 2020). You can find the article at <https://developer.ibm.com/zsystems/2020/03/20/ims-v15-2-and-your-journey-to-the-cloud/>

About the Virtual IMS user group

The Virtual IMS user group was established as a way for individuals using IBM's IMS hierarchical database and transaction processing systems to exchange information, learn new techniques, and advance their skills with the product

The Web site at <https://itech-ed.com/virtualims> provides a central point for coordinating periodic meetings (which contain technically-oriented topics presented in a webinar format), and provides articles, discussions, links, and other resources of interest to IBM IMS practitioners. Anyone with an interest in IMS is welcome to join the Virtual IMS user group and share in the knowledge exchange.

To share ideas, and for further information, contact trevor@itech-ed.com.

The Virtual IMS user group is free to its members.

Our new website
itech-ed.com/virtualims