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Nontechnical Presentations:

Modernization and 21st Century Skills

How to Move your Business into the 21st Century on IBM i

Faced with pressure from upper management, learn how different companies moved their company's software into the 21st century. Why 21st century technologies, require systematic training. We will discuss the steps these companies have followed to modernize their business and IT staff spending significantly less money and time than moving off the platform.

Topics Covered

- Modernization requirements
- Modernization and Staff training
- Where to find IBM i Developers for your company
- What about me... where do seasoned developers fit in?
- Basics of training developers in 21st Century skills
- Myths and truths
- A sad alternative

Spoiler alert - abandoning the IBM i platform was not the answer!

Education – How to Remain Relevant in a changing IT Environment.”

Education in today's IT and Business Environment challenges both the Company and the employee. What skills are needed to provide for today's (and tomorrow's) business needs? How does the company and the employee deal with these challenges? How to decide; what to learn, how to learn and when to learn, when planning for future needs. These challenges differ depending on where a person is in their careers path. Jim discusses these challenges and more in this presentation. Great presentation for managers and employees!

- The question of being relevant?
- How to know... your relevancy
- Uh Oh... I'm not relevant (what to do)
- Business vs IT Skills – the Balance
- The Specialist vs the generalist – Let's hire a consultant.

Failure to Modernize – The Real Cost

In 2008; Jim wrote an article for COMMON called the “*A Perfect Storm*” This article discussed the low enrollment rates for Information Technologies classes in the United States. Fast forward to 2016, Information Technology education in colleges has made a comeback. Now there is a shortage of qualified young IT professionals with enterprise skills.

The shortage of young IBM i Professionals will be a significant challenge to you and your company. Learn what your company needs to do assure access to the next generation of IBM i Professionals. Jim will discuss what will attract young IT professionals to your company and how your company can be assured that there are young people trained in the technologies needed for the future of your company. This shortage will affect careers and bottom lines companies.

- Understand the current and future IT job market.
- Understand the college environment.
- Understand what young IT professionals are looking for.
- What your company needs to do to attract the next generation of IT professionals.

Technical Presentations:

Session Processing JSON with DB2 and RPG

Session Abstract

IBM has done some great things that allow DB2 to process JSON objects. This session shows you “Tips and Tricks” to make your life easier when you start working with JSON data. After a short discussion of the HTTP functions that have been added to SYSTOOLS and how they can be used with the JSON_TABLE Function, Jim shows the attendee how to work with the SYSTOOLS.HTTPGETCLOB and JSON_TABLE Functions to consume an API returning a JSON object. If you have tried using these functions many have problems writing the correct SQL/JSON path expressions to extract the data and represent it in a relational table. Jim will help the attendee understand this process with solid examples.

Learning Objectives

1. Developers needing clear examples of SQL/JSON path expressions with DB2
2. Improve developers understanding of SQL/JSON path expressions with DB2 and JSON
3. Improve developers understanding of how to use HTTP functions in SYSTOOLS
4. Improve developers understanding of how to use JSON_TABLE functions

Audience

IBM i Developers wanting to get started with or improve their programming skills using SQ/JSON/RPG and API's

Additional Comments

Why Should you attend the session?

- Want working examples of using DB2 Tools to process JSON
- You've struggled with the available JSON documentation
- Want clear examples of SQL/JSON path expressions with DB2

Topics covered.

- Free formatting and validation JSON tools
- Using the JSON_TABLE Function
- Using the SYSTOOLS.HTTPGETCLOB Function

RDi/RPG/SQL Session Series:



An Attendee can attend one or more of these sessions. The goal of the three sessions is to show an attendee the steps needed to take a 5250 application, convert it to use procedures and SQL access, then use the completed SQL Service program to provide web services that can be consumed by other platforms and languages.

If one or more of these sessions are selected for a meeting or conference, they should be scheduled in the order shown below. I can compensate in the presentation for a specific session wasn't selected.

Session one:

What's the Fuss? - Using Procedures and Service Programs

Session two:

Darn... Cursored Again! - Using Sql and Cursors in Your Programs

Session three:

So Now What? - Using Integrated Web-Services Server and Service Programs

Session One:

What's the Fuss? - Using Procedures and Service Programs¹

This session discusses the advantages of using modern techniques in your RPG programs. After a short introduction to modularity in programming; we go step-by-step through the process of replacing called programs with sub-procedure modules and then converting these modules to procedures in a called service program.

- Internalize the concepts needed to write modular programs.
- Understand how following MVC architecture will make you programs more durable.
- Understand the steps in converting traditional programs to subprocedures and service programs.

Session Two:

Darn... Cursored Again! - Using SQL & Cursors in Your Programs¹

This session demonstrates the use of SQL in your programs. After a short discussion of the differences between Dynamic and Static SQL in your programs; we demonstrate the important concepts in creating a robust SQL program. Topics include host variables, data-structures, error trapping and using tables with SQL.

- Internalize the benefits of using SQL in your programs.
- Correct use of SQL and CURSORS in your RPG Programs.
- Understand error handling in SQL subprocedures and service programs.

Session three:

So Now What? - Using Integrated Web-Services Server and Service Programs¹

This session shows how a service program that was originally used for a 5250 application can be used to create a web-service. In this presentation, we will work through the steps required to make a number of web-services using a service program, install the web-services on the IBM Integrated Web Services Server and consume the web service using PHP.

- Understand the process and various options when setting up the Integrated Web-Service Web Server.
- Internalize the use of service programs that can be used for a web service.
- Understand how to consume a web-service using technologies like PHP.



Workshops:

Consuming API's with JSON and RPG – Half Day

Session Abstract

The use of API's developed by other companies can easily give a company benefits that would be difficult or impossible to develop inhouse. The number of API's available for companies to consume is endless. This workshop will show the attendee how to choose an API and the steps needed to consume API's using JSON and RPG programs. Some examples of API's from different companies used in the workshop; “finding mileage between two points”, “localized weather information”, “validating email addresses” and “mailing addresses.”

Learning Objectives

1. Understand how using API's can help in your System Modernization efforts
2. Improve your RDi, Module and Service programming Skills
3. Learn how to send and consume API's using JSON, SQL and RPG
4. Impress upper management with your new skills!

Audience

The IBM i Developer interested in improving their SQL/RPG programming skills by developing API's for use in Modernization projects or for improving current applications

Additional Comments

This ½ day lab is comprised of lecture and lab. The attendee should have a PC with RDi installed on it.

Why should you attend this workshop? You want to...

- Understand how using API's can help in your System Modernization efforts
- Improve your RDi, Module and Service programming skills
- Learn how to send and consume API's using JSON, SQL and RPG
- Impress upper management with your new skills! 😊

Topics covered:

- Using RDi to compile and bind modules into Service programs.
- Using service programs to call and process API's
- Consuming JSON using IBM DB2 “JSON_TABLE” and “SYSTOOLS.HTTPGETCLOB ”Functions
- Error checking and handling

The attendee needs.

- RDi installed on the PC.
- Minimal RDi skills

RD*i*/RPG HANDS-ON Bootcamp- All Day:

This combined lecture and lab will show the seasoned IBM *i* programmer the benefits of using new RPG programming techniques and give them hands-on experience with RD*i*'s Remote Systems Explorer (RSE), Screen Designer and interactive debugger. This "Bootcamp" will help developers to make the transition to using RD*i* from traditional tools like SEU and PDM. If a developer has been using RD*i*, the RD*i* techniques and RPG "Free" examples will move them to the next level.

Jim will demonstrate how to take a traditional subfile program and convert the disk I/O to SQL then move this database I/O to a service program. This decoupling of the UI (5250 Subfile) allows the service program to be used as a web service. The session will take the attendee through the process of developing a SQL/Service program-based CRUD application using Free Form RPG and RD*i*'s (Remote Systems Explorer and Screen Designer).

- How to get started with RD*i* or get questions answered if you have some experience with RD*i*
- Introduction to modular programming using free form RPG and RD*i*
- Use of subprocedures, modules and service programs in modern RPG applications.
- Developing 5250 Screens with RD*i*'s Screen Designer.
- Learn how to use RD*i*'s debugger to debug batch, interactive and webservice programs
- Internalize the use of Free Format RPG operations and functions.
- Understand the use of SQL in an RPG Service program.

Attendee requirements:

- Laptop with Rational Developer for *i* (RD*i*) 9.6.x must be installed on the laptop
 - Trial version can be downloaded here - <https://www.ibm.com/developerworks/downloads/r/rdi/>
 - Arraignments can be made to install RD*i* the night before – Contact Jim Buck at jbuck@impowertechnologies.com

RD*i*/RPG HANDS-ON Lab - Half Day:

This combined lecture and lab will show the attendee how a Screen/Report program can be driven by an SQL Service program that handles the database I/O. By decoupling the screen/report output from the database, the service program may be used as a web service. The session demonstrates to the attendee the process of developing a SQL/Service program-based application using Free Form RPG and RD*i*'s (Remote Systems Explorer and Print/Screen Designer). There will be access to an IBM *i* system and sample code for the adventurous attendee. Be sure to install RD*i* before the day of the lab and contact Jim with any questions!

The seasoned IBM *i* programmer will benefit by using new RPG programming techniques and have additional exposure to RD*i*'s Remote Systems Explorer (RSE) and Print/Screen Designer. Even a person new to IBM *i* development can benefit because the source code is available to them which will help them use Rational Developer for *i* (RD*i*) and write "Free Form" ILE RPG.

- Internalize the use of Free Format RPG operations and functions.
- Understand the use of SQL in an RPG Service program.
- Use of subprocedures, modules and service programs in modern RPG applications.

Attendee requirements:

- Laptop with Rational Developer for i 9.6 (RDi) installed.
- The trial version can be downloaded here -
<https://www.ibm.com/developerworks/downloads/r/rdi/>

Jim's BIO

Jim is the president and founder of imPower Technologies where he provides professional IBM i online/onsite training (imPowerTechnologies.com). He is active in the IBM i community working to help companies train their employees in the latest IBM technologies and helps companies develop the next generation of IBM i professionals.

Jim Buck's career in IT has spanned more than 35+ years, primarily in college education, manufacturing, and healthcare industries. Past president (13 years) of the Wisconsin Midrange Computer Professional Association (wmcpa.org) and has served on several teams developing IBM and COMMON certification tests. Jim has co-authored several IBM i books with Bryan Meyers that are used by many companies and in colleges worldwide, "*Programming in ILE RPG*" 5th Edition being the latest in 2015.

Other accomplishments include:

- 2007 IBM System i Innovation – Education Excellence Award
- 2014 COMMON Presidents Award
- 2013/2016/2017/2018/2019/2020/2021 IBM Champion - Power Systems.

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