

IBM i Announcements

October 6, 2020

Steve Will
Chief Architect, IBM i
stwill@us.ibm.com

2020 iSight



IBM i October 6, 2020 Announcements – COMMON Sessions

COMMON

<https://www.common.org>

October

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3
4	5	6 	7	8	9	10
		IBM i 7.4 TR3 & IBM i 7.3 TR9 Announcement with Steve Will	IBM i Open Source with Jesse <u>Gorzinski</u>	IBM Access Client Solutions with Tim & Scott		
11	12	13	14	15	16	17



IBM i Release Roadmap



** All statements regarding IBM's future direction and intent are subject to change or withdrawal without notice and represent goals and objectives only.
 ** Arrows indicate "ongoing status and do not imply any specific dates."

IBM i Strategy

Power Solutions

- Enable clients to exploit latest POWER technology
- Enable clients to transform their solutions with new value
 - Mobile, Internet of Things, Cognitive, Machine Learning and AI
- Enable Solution Developers to **modernize around services & hybrid cloud**



Open Platform for Choice

- Grow IBM i solutions options including open source languages & applications
- Provide flexible options for **Cloud technology**
 - **Inside or outside the data center**
- Entice new talent with popular open languages and tools



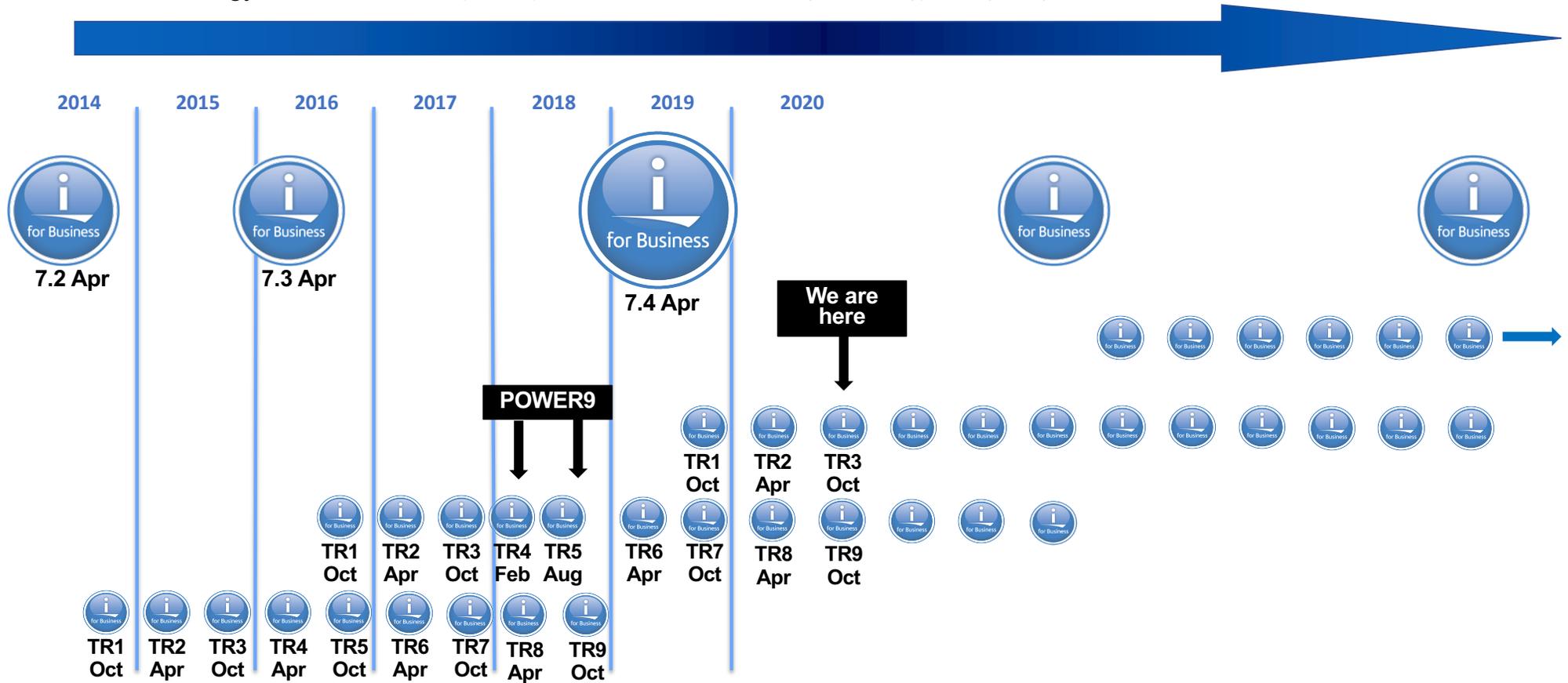
The *Integrated* Promise of IBM i

- Deliver a simple, high value platform for business applications
- Provide exceptional security and resiliency for critical business data
- Leverage IBM systems, storage and software technologies



IBM i Release Roadmap

- Major Releases: Add large pervasive functions eg Db2 changes – demonstrate commitment
- Technology Refreshes: Quickly satisfy client requests; fast moving technology changes eg cloud



** All statements regarding IBM's future direction and intent are subject to change or withdrawal without notice and represent goals and objectives only.
 ** Arrows indicate "ongoing status and do not imply any specific dates."

October 6th Announcement – Power Systems

Key Theme: IBM Power Systems continually invests in our clients' success by delivering solutions that help them deliver exceptional client and employee experiences within hybrid cloud environments.



Hybrid Cloud Innovation

- Increased scalability of virtual machines for greater flexibility within hybrid cloud environments
- Automated deployment of cloned workloads, saving time for operations
- New Ansible modules extend the use of a consistent skill set across more workloads



Enhanced Security

- Multi-factor authentication built-in for increased security of private cloud and virtualized environments
- Security management of AIX, IBM i and Linux environments from a single dashboard
- New levels of operating system security for IBM i and AIX



Business Continuity

- Manage HA and DR from a single user interface
- Improved user experience with fewer commands needed to deploy HA environments
- Automated HA and DR solutions featuring at-a-glance health monitoring

October 6th Announcement - IBM i

Key Theme: IBM Power Systems and IBM i continually invest in our clients' success by delivering solutions that help them deliver exceptional client and employee experiences within hybrid cloud environments.



Hybrid Cloud Innovation

- Many additional open source packages are available
- IBM i Playbooks for use with Ansible
- IBM i Services created to simplify management of IBM i objects and data
- IBM Db2 Web Query for i available on Power Virtual Server



Enhanced Security

- Basic authentication in IWS no longer requires an HTTP server
- IWS enables use of 3rd party security services
- PowerSC delivers multi-factor authentication ability for IBM i



Business Continuity

- PowerHA for i simplifies deployment, management and monitoring
- Db2 Mirror for i adds more object types and improves application evaluation
- BRMS delivers significant ease of use based on IBM i services

Open Source

Jesse Gorzinski
Business Architect, IBM i Emerging Solutions
jgorzins@us.ibm.com

2020 iSight



The Hybrid Strategy

IBM i

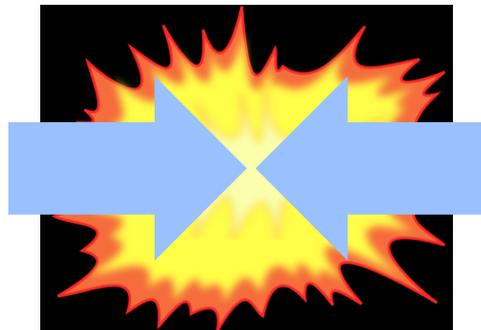
World's Best RDBMS

COBOL+RPG

Lowest cost of ownership
(TCO)

Reliability, securability,
efficiency

Protection of investment



Open Source

Enterprise Ready

Microservices / APIs

DevOps

Internet of Things

Web Technologies

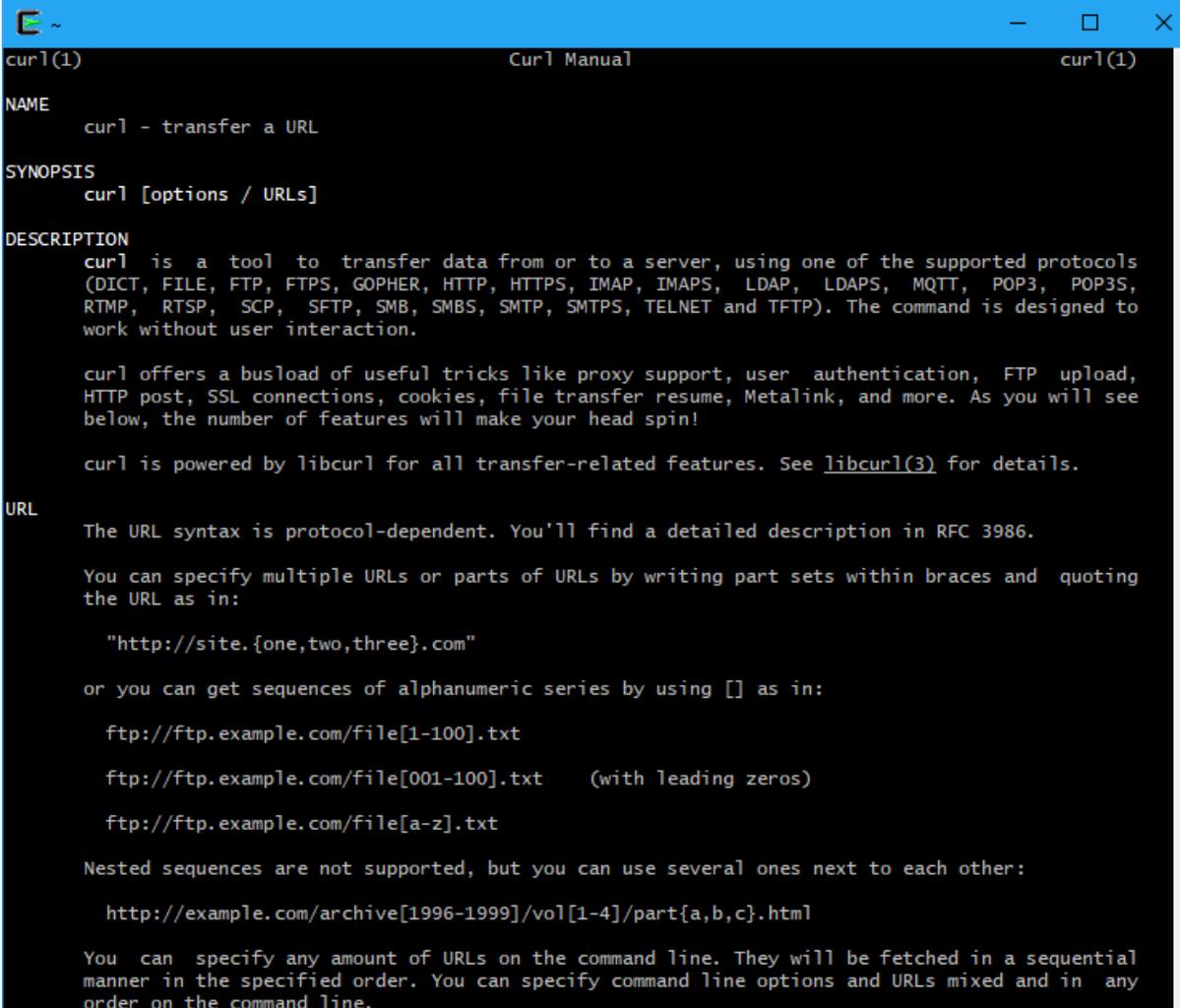
Pathway to Innovation

General direction of open source

- Focus on: Integration, integration, integration!!
- Continued investment in:
 - Language (Python, Node.js, PHP) integration libraries
 - Various Message Queueing technologies
 - Integration with cognitive and quantum technologies
 - Db2 enhancements
 - Db2 connectivity (ODBC)
- Many technologies available in RPM form
 - Many many more available from the community
- To learn about RPMs and get started, see <http://ibm.biz/ibmi-rpms>



"man page" viewer – Making Open Source "normal"



```
curl(1)                                Curl Manual                                curl(1)
NAME
    curl - transfer a URL

SYNOPSIS
    curl [options / URLs]

DESCRIPTION
    curl is a tool to transfer data from or to a server, using one of the supported protocols
    (DICT, FILE, FTP, FTPS, GOPHER, HTTP, HTTPS, IMAP, IMAPS, LDAP, LDAPS, MQTT, POP3, POP3S,
    RTMP, RTSP, SCP, SFTP, SMB, SMBS, SMTP, SMTPS, TELNET and TFTP). The command is designed to
    work without user interaction.

    curl offers a busload of useful tricks like proxy support, user authentication, FTP upload,
    HTTP post, SSL connections, cookies, file transfer resume, Metalink, and more. As you will see
    below, the number of features will make your head spin!

    curl is powered by libcurl for all transfer-related features. See libcurl\(3\) for details.

URL
    The URL syntax is protocol-dependent. You'll find a detailed description in RFC 3986.

    You can specify multiple URLs or parts of URLs by writing part sets within braces and quoting
    the URL as in:

        "http://site.{one,two,three}.com"

    or you can get sequences of alphanumeric series by using [] as in:

        ftp://ftp.example.com/file[1-100].txt

        ftp://ftp.example.com/file[001-100].txt    (with leading zeros)

        ftp://ftp.example.com/file[a-z].txt

    Nested sequences are not supported, but you can use several ones next to each other:

        http://example.com/archive[1996-1999]/vol[1-4]/part{a,b,c}.html

    You can specify any amount of URLs on the command line. They will be fetched in a sequential
    manner in the specified order. You can specify command line options and URLs mixed and in any
    order on the command line.
```

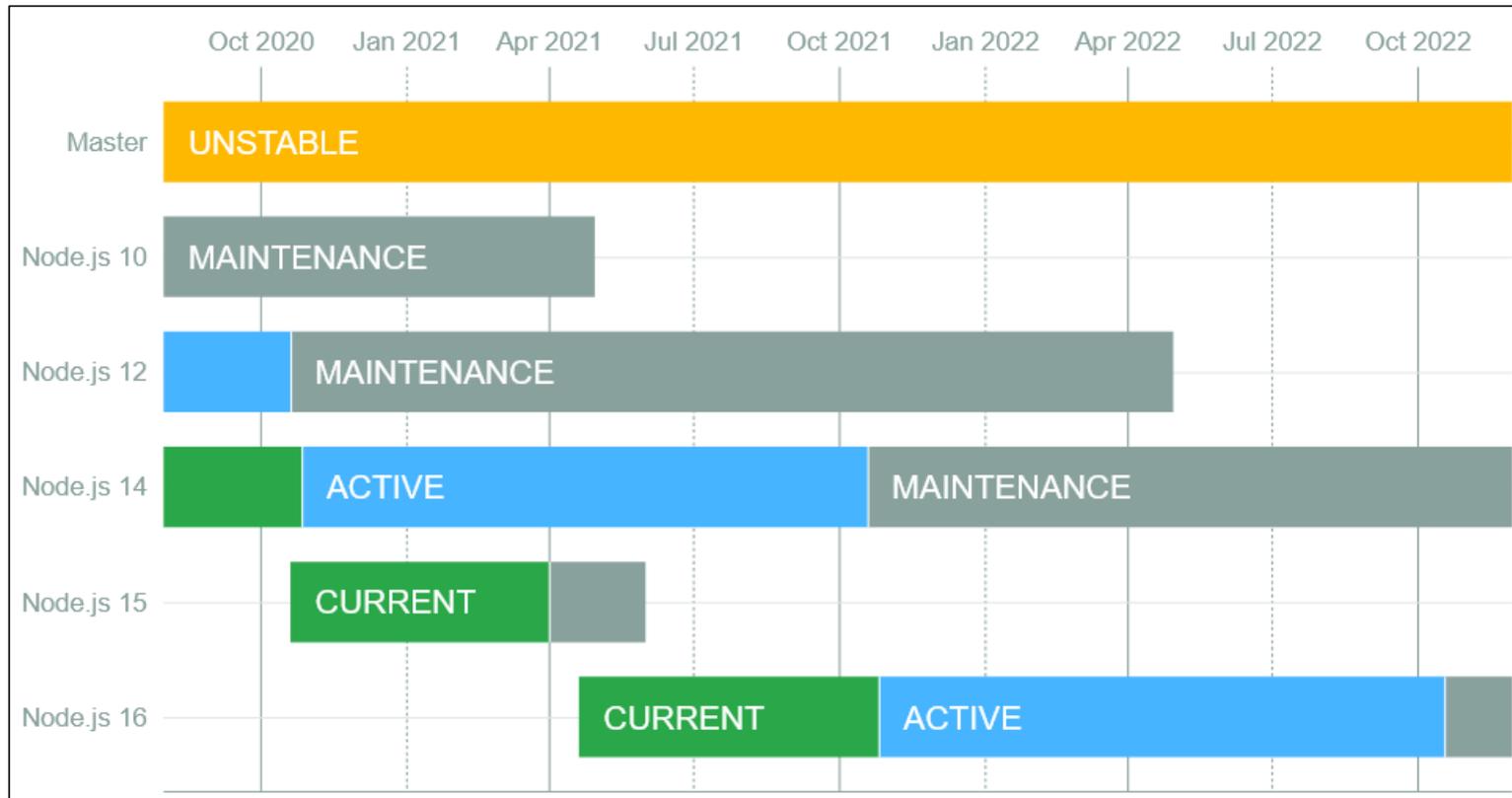
Open Source Relational Databases

- Popular open source packages to be delivered
 - PostgreSQL (<https://www.postgresql.org/>)
 - <https://github.com/IBM/ibmi-oss-examples/blob/master/postgresql/installingpostgresqlonibmi.md>
 - MariaDB (<https://mariadb.org>)
- Delivered in RPM form only
- Primary purpose is to enable new open source solutions



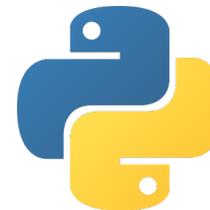
Node.js version 14 (available since April)

- For Node.js release schedule, see: <https://github.com/nodejs/Release>



Lots of other goodies

- **Utilities**
 - chsh - PASE shell control
 - logrotate – log file management
- **Security**
 - GNU Privacy Guard (GPG)
 - Curl with SSH and SFTP support
- **Compression**
 - zstd
 - pigz
 - p7zip
- **Connectivity**
 - autossh
 - Paramiko (One of several Python packages)



Ansible – New Playbooks

Wang Yun

Business Architect, IBM i Cloud Management

cdlwangy@cn.ibm.com

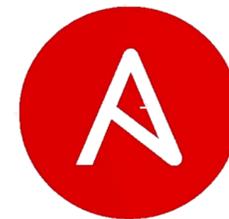
2020 iSight



Introduction of Ansible

Ansible is a radically simple IT automation platform that makes your applications and systems easier to deploy.

- Free open source application with commercial options
- Agent-less – no need for agent installation and management
- Python/YAML based
- Highly flexible and configuration management of systems
- Configuration roll-back in case of error

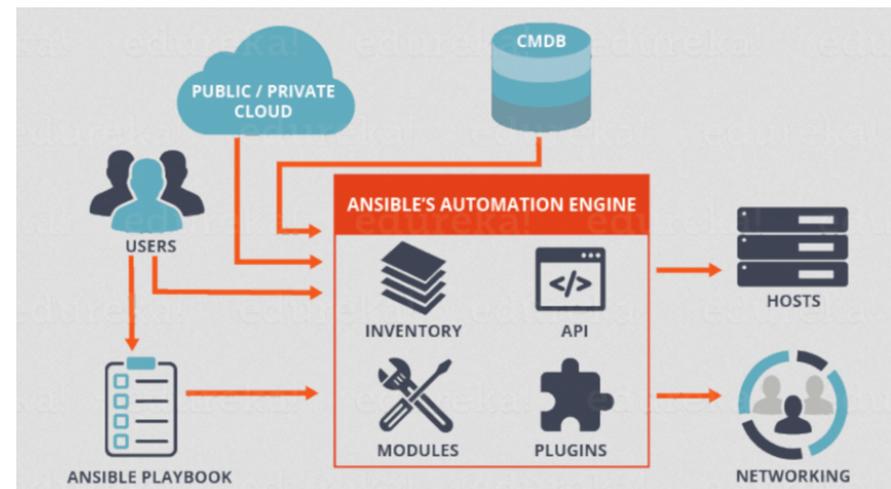


Key Ansible use cases

- Configuration management
- Application deployment
- Continuous delivery
- Provisioning
- Orchestration
- Security automation

An online quick start video provided by Ansible

- <https://www.ansible.com/resources/videos/quick-start-video>



An Example Ansible Playbook – Simple YAML

```
1  ---
2  # submit job to IBM i system
3  - hosts: ibmi
4  tasks:
5  - block:
6  - name: submit a job
7  ibmi_submit_job:
8    cmd: 'CALL PGM1'
9    parameters: 'JOB(TEST)'
10   check_interval: '30s'
11   time_out: '80s'
12   status: ['*OUTQ', '*COMPLETE']
13
14 - name: submit a job
15 ibmi_submit_job:
16   cmd: 'CALL PGM2'
17   parameters: 'JOB(TEST)'
18   check_interval: '30s'
19   time_out: '80s'
20   status: ['*OUTQ', '*COMPLETE']
21
22 - name: Get status of a list of jobs
23 ibmi_job:
24   user: "WANGYUN"
25   type: "*BATCH"
26
27 - name: Get job information
28 ibmi_job:
29   name: "030318/QSECOFR/QPADEV0001"
```

Playbook —————

Task —————

Module —————

Task —————

Module —————

Task —————

Module —————

IBM i (SQL) Services and Db2 Enhancements

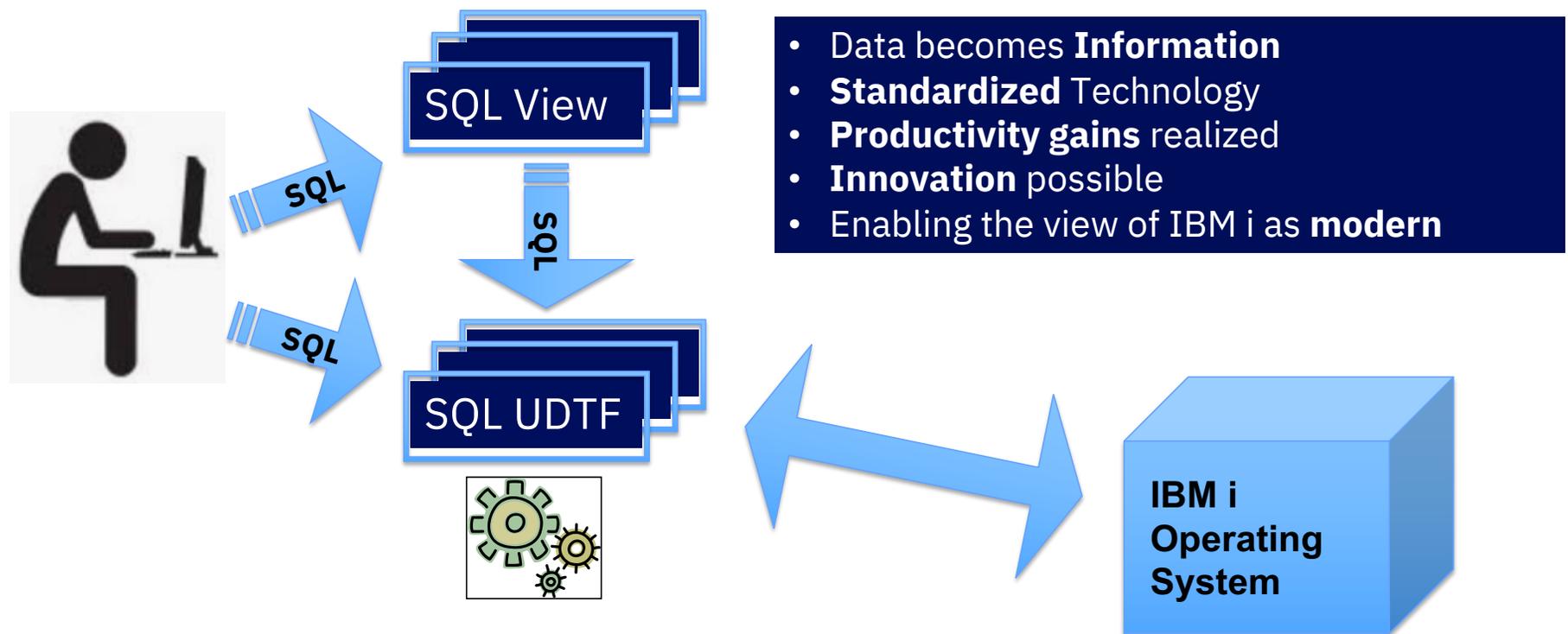
Scott Forstie
Business Architect, Db2 for i
forstie@us.ibm.com

2020 iSight



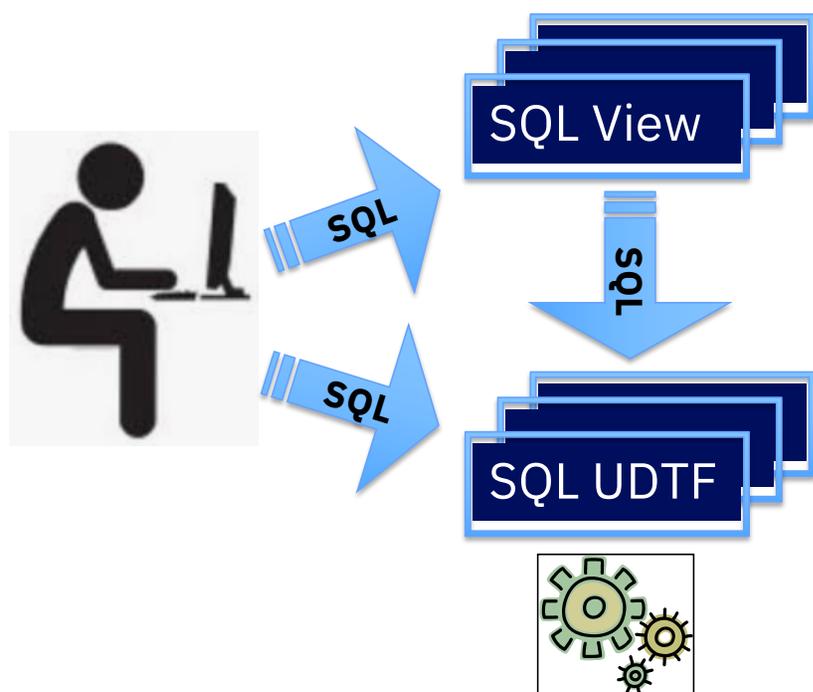
IBM i Services – What is an SQL service?

- **What:** SQL alternative to IBM i APIs and CL Commands



IBM i Services – What's new with TR3/TR9?

29 new or enhanced IBM i Services



- Access Software Resources
- Discover IBM® i NetServer shares
- Manage Exit Programs
- Leverage more System status info
- And much more...

- Query Data Queue entries
- Read the contents of IFS stream files
- Extract complete Audit Journal detail using SYSLOG format
- Explore system Watches
- Probe into active jobs in new way
- And much more...

SQL enhancements

- Enhanced SQL DDL
- New SQL Query Engine (SQE) hint
- Extensions to the SQL precompiler
- Database Catalogs

• **Database Engineering**

• **Database Performance**

• **Database Programming**

• **Database Discovery**

Cloud and other virtualization

Kris Whitney

STSM - IBM i I/O, Storage, Virtualization and
Availability Architecture - Cloud for IBM i

whitneyk@us.ibm.com

2020 iSight



IBM i Available in more Geos in the IBM Cloud



Power Systems Virtual Server
Author: IBM • Date of last update: 09/16/2020 • [Docs](#)

Create About

Select a region

Select a region

- Dallas
- Frankfurt 2
- London 04
- London 06
- Sydney 04
- Toronto 01
- Washington DC

\$0.3255 USD/Enterprise Shared Virtual Processor Core-Hour

Sydney04 and London04 are now available with IBM i

Db2 Web Query for i now in the PowerVS Offering

Boot image
Select from AIX, IBM i, or Linux boot images. If you are deploying a Linux virtual machine (VM), you must first purchase a subscription, then register it and register with your Linux vendor after deployment. Learn more about [purchasing and subscribing to Linux](#)

Operating system: **IBM i** | Image: **IBMi-74-01-001**

Storage type: **Tier 1**

IBM i Licenses:

- IBM i Cloud Storage Solution
- IBM Db2 Web Query for i**
- IBM i Power HA
- Rational Dev Studio for IBM i

Profile
Choose your machine type, processor, memory and cores.

Machine type: **s922**

Processor

Summary USD

1 IBM POWER9 s922	\$1,893.62
1 cores	
2 GB	
IBM i	
Network interface	\$0.00
Storage volume	\$16.80
80 GB	
Software Licenses	\$1,284.00
IBM Db2 Web Query for i	
Total monthly cost*	\$3,194.42 <i>estimated</i>

I agree to the [Terms and conditions](#)

Cancel | Create instance

Recent Features Added to PowerVS

System Reference Code	
SRC	Timestamp
00000000	

SRCs and Panel Functions

Operations

The following actions are advanced actions which may have a critical impact on your service. Only one operation may be run at a time, [learn more](#).

Job operations | **Boot operations**

Actions

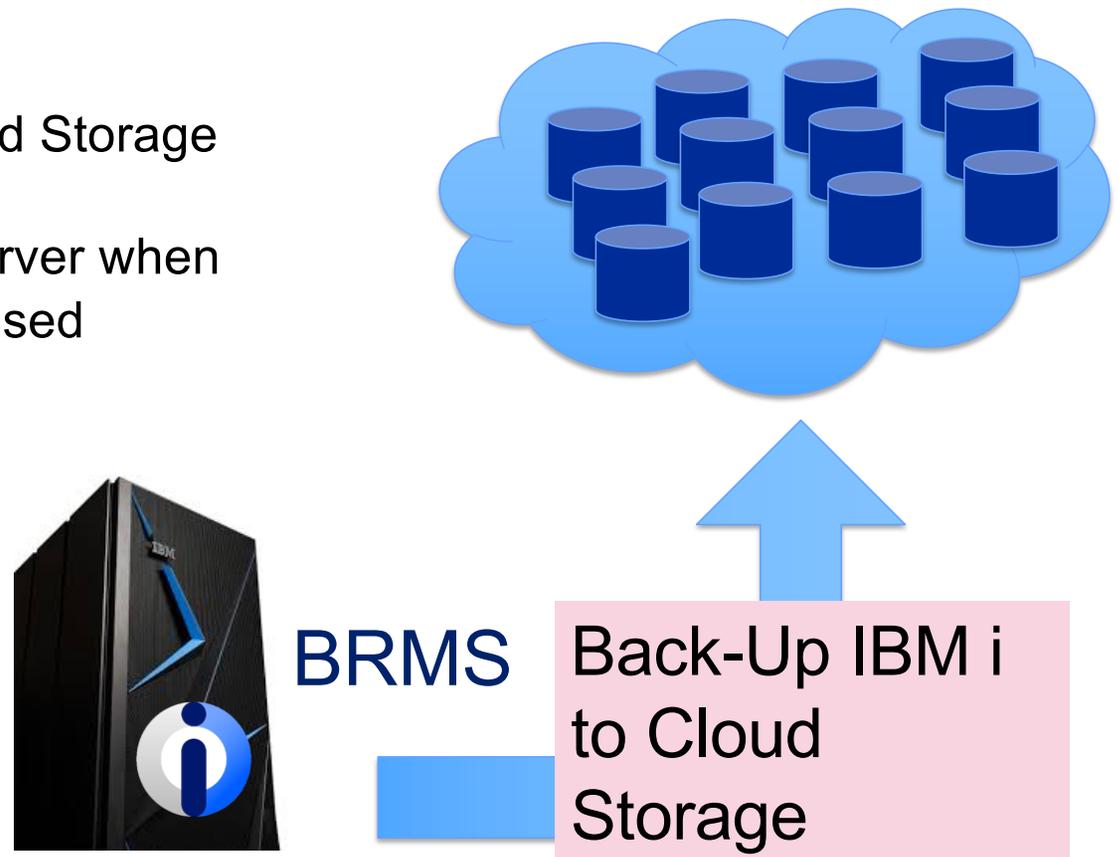
- (21) Activate dedicated service tools
- (34) Retry Dump
- (66) Enable remote service
- (67) Disk unit IOP reset / reload
- (70) IOP Control storage dump
- (22) Dump restart

Cancel | **Run action**

5770-ICC – Cloud Storage Solutions

Cloud Storage Solutions

- Now support Google Cloud Storage using an S3 connection
- Can Leverage a Proxy Server when running in a pure cloud based infrastructure



Db2 Web Query

Doug Mack

DB2 for i and BI Consultant - Lab Services Power
Systems Delivery Practice

mackd@us.ibm.com

2020 iSight



UPDATED EZ-Install Package – Version 2.2.1, PTF Group 9

- EZ-Install is **HIGHLY RECOMMENDED** for installing webquery or upgrading from previous versions
 - Request it by sending an email to QU2@us.ibm.com, including name, company name, and s/n
 - It provides **VALUE ADD** way beyond just restoring the license program products
 - Sample Reports, Tutorials, Utilities to help you get a **FAST START**
 - Query/400 Discovery Tool
 - Create Date Dimension Table (really cool)
 - Sample Reports for the Systems Administrator
 - Business oriented sample reports backed by tutorials
 - **New EZ-Report**
 - Tutorials and additional “how to” documentation provide guides to show you how the sample reports were built



HELP us help you –
make sure your IBM
Business Partner is
using EZ-Install to
install or upgrade!

NEW

EZ-Report: Auto generate Synonym and Report from SQL

- Use Cases

- Fast report over a **Table/File**
- Fast report over **IBM i Services**
- Fast report over **SQL Statement**

- What does it do?

- Auto creates a synonym (meta data) over the data source
- Auto creates a “fex” object (I.e., a report) in the folder you specify
- Run report as is, or modify

- If you already have Version 2.2.1 installed get to PTF Group Level 9

- Add the post Group PTF individual PTFs documented here:
 - “Release levels and Pre-Req’s” at <http://ibm.biz/db2wqwiki>

*ALLOBJ Users

JOB_DESCRIPTION	LIBRARY_NAME	ACCOUNTING_CODE	MESSAGE_QUEUE_NAME	LIBRARY_NAME	MESSAGE_QUEUE_NAME	MESSAGE_QUEUE_DE	MESSAGE_QUEUE_SEVERITY	OUTPUT_QUEUE_NAME	LIBRARY_NAME	PRINT_DEVICE	SPECIAL_ENVIRONMENT	ATTENTION
QGGL		*SYS	BESTDEMO	QUSRSYS	*NOTIFY	0	*WRKSTN	N/A	*WRKSTN	*SYSVAL	*SYSVAL	*SYSVAL
QGGL		*SYS	BESTGEN	QUSRSYS	*NOTIFY	0	*WRKSTN	N/A	*WRKSTN	*SYSVAL	*SYSVAL	*SYSVAL
QGGL		*SYS	BESTHIGH	QUSRSYS	*NOTIFY	0	*WRKSTN	N/A	*WRKSTN	*SYSVAL	*SYSVAL	*SYSVAL
QGGL		*SYS	BESTNOPE	QUSRSYS	*NOTIFY	0	*WRKSTN	N/A	*WRKSTN	*SYSVAL	*SYSVAL	*SYSVAL
QGGL		*SYS	BEST2	QUSRSYS	*NOTIFY	0	*WRKSTN	N/A	*WRKSTN	*SYSVAL	*SYSVAL	*SYSVAL
QGGL		*SYS	DBE	QUSRSYS	*NOTIFY	0	*WRKSTN	N/A	*WRKSTN	*SYSVAL	*SYSVAL	*SYSVAL
QGGL		N/A	DBEUCH	QUSRSYS	*NOTIFY	0	*WRKSTN	N/A	*WRKSTN	*SYSVAL	*SYSVAL	*SYSVAL
QGGL		*SYS	DENTON	QUSRSYS	*NOTIFY	0	*WRKSTN	N/A	*WRKSTN	*SYSVAL	*SYSVAL	*SYSVAL
QGGL		*SYS	DENTON2	QUSRSYS	*NOTIFY	0	*WRKSTN	N/A	*WRKSTN	*SYSVAL	*SYSVAL	*SYSVAL
QGGL		*SYS	DHOB	QUSRSYS	*NOTIFY	0	*WRKSTN	N/A	*WRKSTN	*SYSVAL	*SYSVAL	*SYSVAL
QGGL		N/A	DUMMAYDRM	QUSRSYS	*NOTIFY	0	*WRKSTN	N/A	*WRKSTN	*SYSVAL	*SYSVAL	*SYSVAL
QGGL		*SYS	ERICBAR	QUSRSYS	*NOTIFY	0	*WRKSTN	N/A	*WRKSTN	*SYSVAL	*SYSVAL	*SYSVAL
QGGL		*SYS	FANT	QUSRSYS	*NOTIFY	0	*WRKSTN	N/A	*WRKSTN	*SYSVAL	*SYSVAL	*SYSVAL
QGGL		*SYS	GKJAMES	QUSRSYS	*NOTIFY	0	*WRKSTN	N/A	*WRKSTN	*SYSVAL	*SYSVAL	*SYSVAL
QGGL		*SYS	HBEDOYA	QUSRSYS	*NOTIFY	0	*WRKSTN	N/A	*WRKSTN	*SYSVAL	*SYSVAL	*SYSVAL
QGGL		*SYS	JIMBAINB	QUSRSYS	*NOTIFY	0	*WRKSTN	N/A	*WRKSTN	*SYSVAL	*SYSVAL	*SYSVAL
QGGL		*SYS	JLD	QUSRSYS	*NOTIFY	0	*WRKSTN	N/A	*WRKSTN	*SYSVAL	*SYSVAL	*SYSVAL
QGGL		N/A	KM...	QUSRSYS	*NOTIFY	0	*WRKSTN	N/A	*WRKSTN	*SYSVAL	*SYSVAL	*SYSVAL

What Can You Do with a Converted Report?

USE AS IS....OR

EDIT it if desired:

- Add a prompt/Filter
- Change the output to Excel
- Make into a CHART (or create a new chart over the same data)
- Use it in a dashboard
- Create hyper links (drill to another report)
- Change the color scheme, add a company logo
- Change report features
- Add Traffic Lights to point out areas of concern

Even **SCHEDULE** it to run every night and distribute it out automatically

*ALLOBJ Users

JOB_DESCRIPTION	LIBRARY_NAME	ACCOUNTING_CODE	MESSAGE_QUEUE_NAME	LIBRARY_NAME	MESSAGE_QUEUE_NAME	MESSAGE_QUEUE_DE	MESSAGE_QUEUE_SEVERITY	OUTPUT_QUEUE_NAME	LIBRARY_NAME	PRINT_DEVICE	SPECIAL_ENVIRONMENT	ATTENTION
QGPL		'SYS	BESTDEMO	QUSRSYS	'NOTIFY	0	'WRKSTN	N/A	'WRKSTN	'SYSVAL	'SYSVAL	
QGPL		'SYS	BESTGEN	QUSRSYS	'NOTIFY	0	'WRKSTN	N/A	'WRKSTN	'SYSVAL	'SYSVAL	
QGPL		'SYS	BESTHIGH	QUSRSYS	'NOTIFY	0	'WRKSTN	N/A	'WRKSTN	'SYSVAL	'SYSVAL	
QGPL		'SYS	BESTNOPE	QUSRSYS	'NOTIFY	0	'WRKSTN	N/A	'WRKSTN	'SYSVAL	'SYSVAL	
QGPL		'SYS	BEST2	QUSRSYS	'NOTIFY	0	'WRKSTN	N/A	'WRKSTN	'SYSVAL	'SYSVAL	
QGPL		'SYS	DBE	QUSRSYS	'NOTIFY	0	'WRKSTN	N/A	'WRKSTN	'SYSVAL	'SYSVAL	
QGPL		N/A	DBEUCH	QUSRSYS	'NOTIFY	0	'WRKSTN	N/A	'WRKSTN	'SYSVAL	'SYSVAL	
QGPL		'SYS	DENTON	QUSRSYS	'NOTIFY	0	'WRKSTN	N/A	'WRKSTN	'SYSVAL	'SYSVAL	
QGPL		'SYS	DENTON2	QUSRSYS	'NOTIFY	0	'WRKSTN	N/A	'WRKSTN	'SYSVAL	'SYSVAL	
QGPL		'SYS	DHQB	QUSRSYS	'NOTIFY	0	'WRKSTN	N/A	'WRKSTN	'SYSVAL	'SYSVAL	
QGPL		N/A	DUMMYDRM	QUSRSYS	'NOTIFY	0	'WRKSTN	N/A	'WRKSTN	'SYSVAL	'SYSVAL	
QGPL		'SYS	ERICBAR	QUSRSYS	'NOTIFY	0	'WRKSTN	N/A	'WRKSTN	'SYSVAL	'SYSVAL	
QGPL		'SYS	FANT	QUSRSYS	'NOTIFY	0	'WRKSTN	N/A	'WRKSTN	'SYSVAL	'SYSVAL	
QGPL		'SYS	GKJAMES	QUSRSYS	'NOTIFY	0	'WRKSTN	N/A	'WRKSTN	'SYSVAL	'SYSVAL	
QGPL		'SYS	HBDOYA	QUSRSYS	'NOTIFY	0	'WRKSTN	N/A	'WRKSTN	'SYSVAL	'SYSVAL	
QGPL		'SYS	JMBAINB	QUSRSYS	'NOTIFY	0	'WRKSTN	N/A	'WRKSTN	'SYSVAL	'SYSVAL	
QGPL		'SYS	JLD	QUSRSYS	'NOTIFY	0	'WRKSTN	N/A	'WRKSTN	'SYSVAL	'SYSVAL	
QGPL		N/A	KWJ	QUSRSYS	'NOTIFY	0	'WRKSTN	N/A	'WRKSTN	'SYSVAL	'SYSVAL	

LEARN HOW WITH EZ-INSTALL



Review_Allobj_Users
Doug Mack to: Doug Mack

▼ 1 attachment



Insight_Allobj.xlsx

Please see attachment(s).

Supporting Large # of Users just got WAY LESS Expensive!

New Editions announced in June **Significantly Reduces Cost per User**

Db2 Web Query **Scheduler Edition 5733-WQB**

- Express + Job Scheduling
- Upgrade from Express or buy brand new
- Can support unlimited report “consumers”
 - Users can work with data offline
 - Support Mobile or At Home Workers more cost effectively
- Use GUI Scheduler or CL Commands

Db2 Web Query **RunTime User Edition 5733-WQR**

- Express + RunTime Licensing
- Upgrade from Express or buy brand new
- Uses IBM i Group profiles
 - Everyone in that group can run report concurrently
 - 2 Run Time Group licenses per core
- Users can run interactive reports with live data

COST PER USER

Developers	End Users	Express	Scheduler	RunTime User
2	10	\$403	\$395	\$395
2	20	\$402	\$215	\$215
4	50	\$401	\$103	\$103
8	100	\$400	\$66	\$66

OVER 50% Savings for 20 user system

OVER 75% Savings for 50 user system

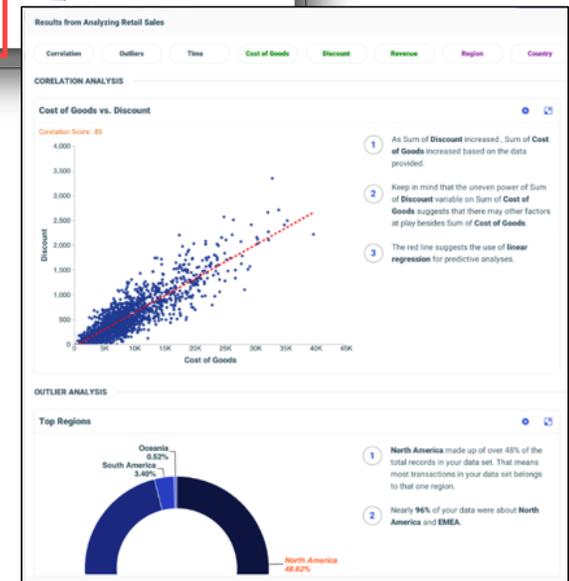
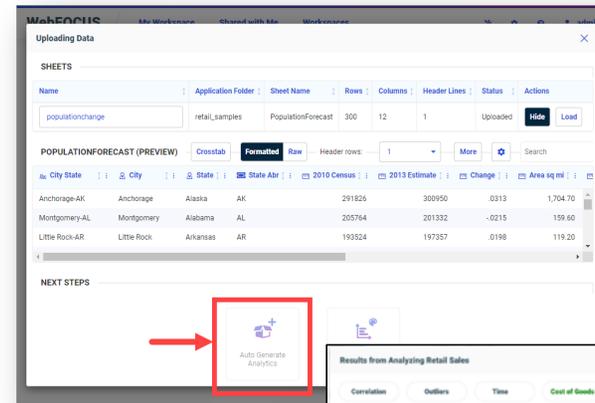
Cost Per User: Adding users to Express vs. Upgrading to new Edition
Calculated using U.S. List Prices and includes SW Maintenance
Assumes you already own Express Edition + 2 user licenses

Learn More at <http://ibm.biz/db2wq-blog-neweditions>

COMING SOON: Db2 Web Query Version 2.3

NEW

- Announce in October, GA in December
 - Add elements of AI/ML analysis with business insights
 - Auto generate data insights
 - New Data Prep Facilities
 - Simplified data transformations for one-time extracts
 - New Page Designer and Home Page
 - Highly visual and intuitive new user interface for building report
 - New EZ-Install Q1 2021
 - Use this to install for first time or for upgrades
 - Supports IBM i 7.3 and up
 - No charge upgrades if current on Db2 Web Query SW Maintenance



Important Links

Db2 Web Query for i Website

– ibm.biz/db2webqueryi

Db2 Web Query for i Wiki

– ibm.biz/db2wqwiki

Db2 Web Query Getting Started Enablement:

– <https://ibm.biz/db2ilabservices>

Db2 Web Query Version 2.2.1

– <http://ibm.biz/db2wqv221blog>

– Videos: <http://ibm.biz/db2wq-221-videos>

EZ-Install

– <http://ibm.biz/db2wqezinstall-info>



Follow Db2 Web Query guy Doug Mack on twitter at @mckdrmoly or blog <http://db2webqueryi.blogspot.com/>

IWS Security Option

Tim Rowe

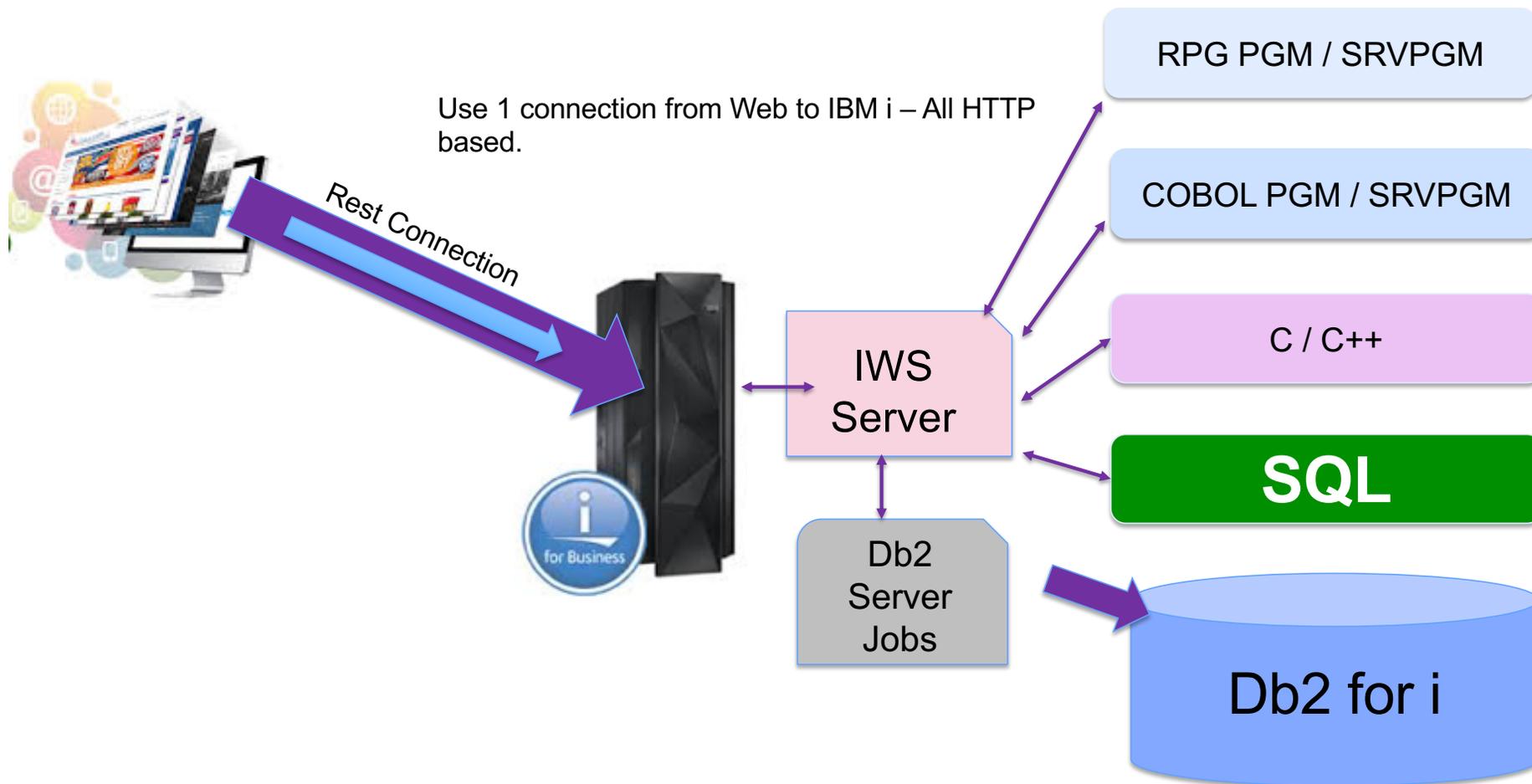
Business Architect, Application Development and
Systems Management

timmr@us.ibm.com

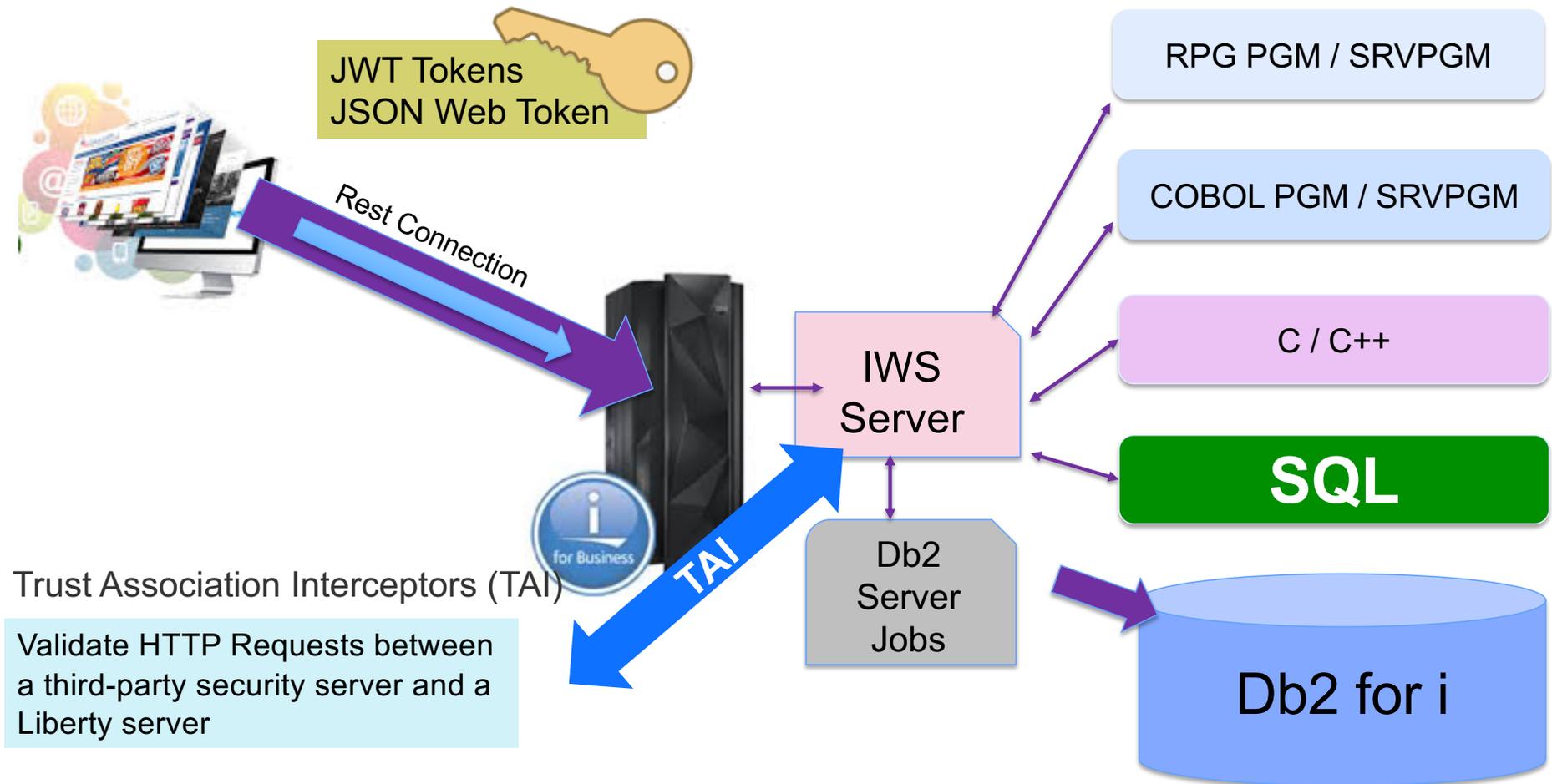
2020 iSight



Rest APIs – Before today's announcement



Rest APIs – Announced Improved Security Options



Trust Association Interceptors (TAI)

Validate HTTP Requests between a third-party security server and a Liberty server

Db2 Mirror announcements

Kris Whitney

STSM - IBM i I/O, Storage, Virtualization and
Availability Architecture - Cloud for IBM i

whitneyk@us.ibm.com

2020 iSight



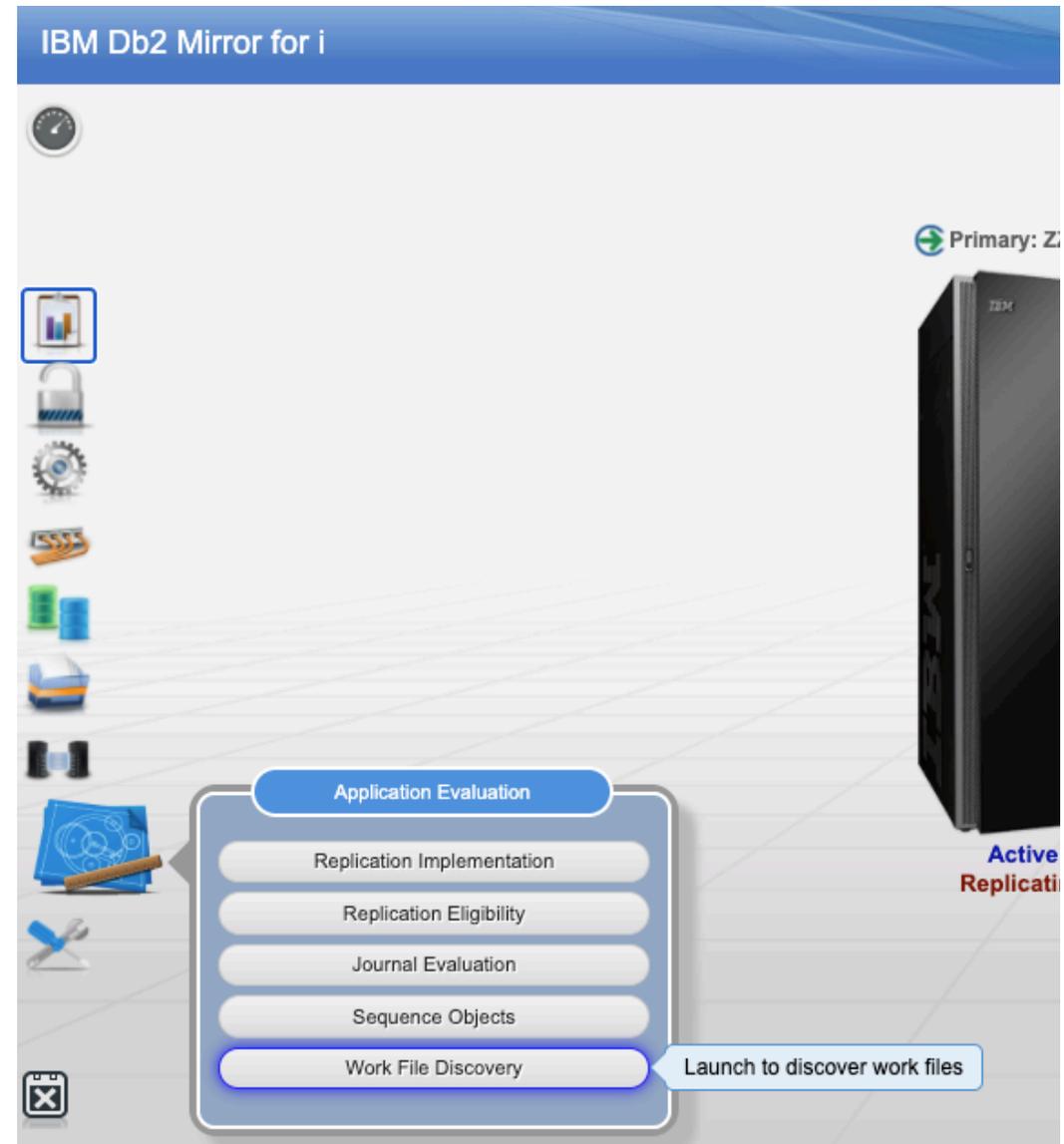
Improved Setup and Recovery for Db2 Mirror

- Db2 Mirror for i can use save and restore to configure mirroring for all storage types
 - Enables support for storage such as NVMe or SAS SSD
 - Can configure Db2 Mirror for i regardless if the storage has copy service functionality.
- The setup and recovery procedures for not using flash copy or storage mirroring have been improved and automated through the the Db2 Mirror for i product.



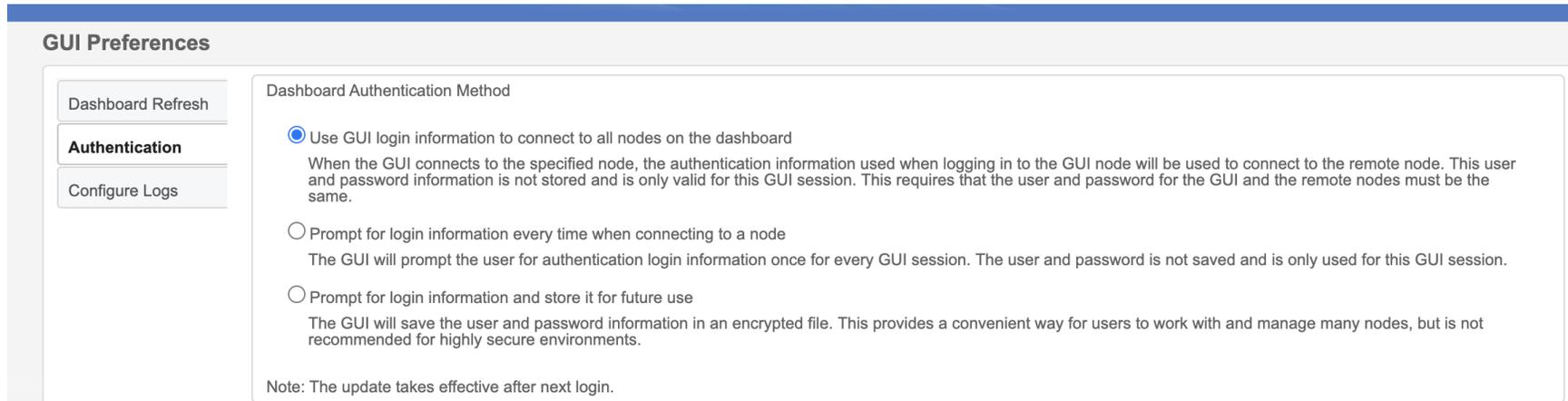
Work File Discovery

- New Feature added to Application Evaluation
- Look at work files in a contextual, statistical, and plan cache point of view
- Look for files that don't need to be mirrored
- This is especially helpful on systems that by default replicate all eligible objects.



Db2 Mirror GUI Security Enhancements

- Multiple authentication methods – When configuring a Db2 Mirror pair, an option is available allowing the use of one of the three following authentication methods:
 - The currently signed on user.
 - A user and password saved to an encrypted file on IBM i.
 - Prompt the first time the Mirror pair is accessed.
- Secure connection - The Db2 Mirror GUI uses IBM Toolbox for Java to connect from the GUI node to the specified Db2 Mirror node. Users can now configure the GUI to leverage an SSL based connection.



GUI Preferences

Dashboard Refresh

Authentication

Configure Logs

Dashboard Authentication Method

- Use GUI login information to connect to all nodes on the dashboard
When the GUI connects to the specified node, the authentication information used when logging in to the GUI node will be used to connect to the remote node. This user and password information is not stored and is only valid for this GUI session. This requires that the user and password for the GUI and the remote nodes must be the same.
- Prompt for login information every time when connecting to a node
The GUI will prompt the user for authentication login information once for every GUI session. The user and password is not saved and is only used for this GUI session.
- Prompt for login information and store it for future use
The GUI will save the user and password information in an encrypted file. This provides a convenient way for users to work with and manage many nodes, but is not recommended for highly secure environments.

Note: The update takes effective after next login.

Db2 Mirror Statement of Direction

IBM Db2 Mirror for i planning insights:

IBM plans to enhance IBM Db2 Mirror for i (5770-DBM) to extend the physical distance allowed between two nodes, allowing the two nodes to be located up to 10 kilometers apart.

IBM's statements regarding its plans, directions, and intent are subject to change or withdrawal without notice at IBM's sole discretion. Information regarding potential future products is intended to outline our general product direction and it should not be relied on in making a purchasing decision. The information mentioned regarding potential future products is not a commitment, promise, or legal obligation to deliver any material, code or functionality. Information about potential future products may not be incorporated into any contract. The development, release, and timing of any future features or functionality described for our products remains at our sole discretion.

Base Operating Systems Enhancements

Nancy Uthke-Schmucki
Business Architect - IBM i I/O Strategy and
Architecture
schmucki@us.ibm.com

2020 iSight



IBM i Base Infrastructure – ObjectConnect over TCP/IP

IBM i 7.4 PTF

- How does one send an object from one IBM i LPAR to another today?
 - Use FTP – but then extra disk space is needed to make a copy of a save file
 - Use ObjectConnect with Virtual OptiConnect -- but that is only for 2 LPARs on the same Power server
 - Use ObjectConnect with SNA Enterprise Extender and IPsec -- but this is complex configuration
- What is ObjectConnect?
 - Existing set of CL commands for copying objects between systems easily and efficiently
 - Included with the IBM i OS (Option 22), separately installable using the Install Licensed Program display
 - Closely related to save/restore commands (support most of the same parameters)
- Benefits of ObjectConnect
 - System copies the object directly to the target system without using save files or distribution queues
 - Better performance than other methods for copying objects between systems
 - Does not require additional disk space to store an intermediate copy of the object that is being copied
- **New for IBM i 7.4:**
 - ObjectConnect commands are being extended to support **TCP/IP natively** (TLS required)
 - Simply use an IP option on the ObjectConnect commands to copy objects over secure TCP/IP connection
 - In many cases may have better performance than previous methods of sending objects
 - Delivery is via ObjectConnect PTF SI73777

IBM i Base Infrastructure - GENUUID

IBM i 7.3 PTF

- Generate Universal Unique Identifier (GENUUID) can now generate a version 4 UUID
 - Randomly generated UUID that is consistent with the Internet Engineering Task Force (IETF) specification as described in [RFC 4122](#)
 - MI Instruction already delivered with IBM i 7.4 initial GA
 - Now also available with an IBM i 7.3 PTF MF67674
 - See the [GENUUID MI Instruction](#) topic in IBM Knowledge Center for more information

IBM i Base Infrastructure – IPL time improvement

IBM i 7.4 - TR 3 PTF Group
IBM i 7.3 - TR 9 PTF Group

IBM i initial program load (IPL) time has been reduced

- Optimized main storage (memory) hardware configuration checking
- The first IPL after installing the TR will take the usual amount of time
- Subsequent IPLs may be faster, depending on the amount of main storage
- The larger the amount of main storage, the greater the potential for noticeable improvement in IPL time

IBM i Base Infrastructure – Faster duplication of tape media

IBM i 7.4 - TR 3 PTF Group
IBM i 7.3 - TR 9 PTF Group

Increased speed for duplicating tape media

- IBM i now supports faster duplication of tape media
- Commands whose processing times have been improved are DUPTAP and DUPMEDBRM
 - Duplicate tape function will now space directly to the files to be duplicated
 - No more searching every file on the media to find the correct files to duplicate
 - This can also reduce media wear by limiting the number of full media passes needed to position to the files to be duplicated

Access Client Solutions (ACS)

Scott Forstie
Business Architect, Db2 for i
forstie@us.ibm.com

Tim Rowe
Business Architect, Application Development and
Systems Management
timmr@us.ibm.com

2020 iSight



What's coming in ACS 1.1.8.6?

- **Content Assist**

- **Everyone** is an SQL User
- **Content Assist** helps everyone using SQL

- **Run SQL Scripts**

- **Improved** controls
- **Protections** built into ACS by default

What's coming in ACS 1.1.8.6?

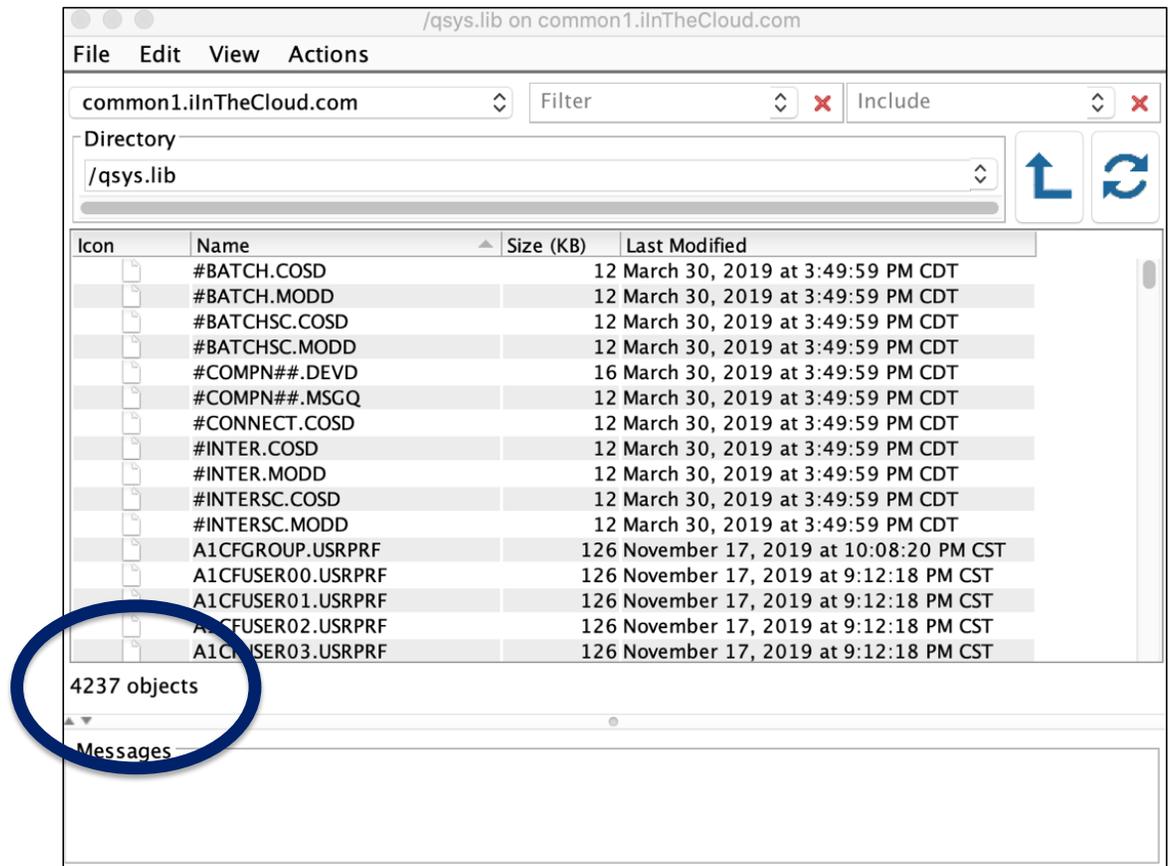
- Target delivery – December 2020
- **Content Assist**
 - Extended coverage for SQL statements
 - Extended coverage for SQL syntax
 - Special case coverage like QTEMP
- **Run SQL Scripts**
 - Converged and Enhanced Preferences dialog
 - Performance and Usability improvements
 - Automatic closing of incompletely consumed queries



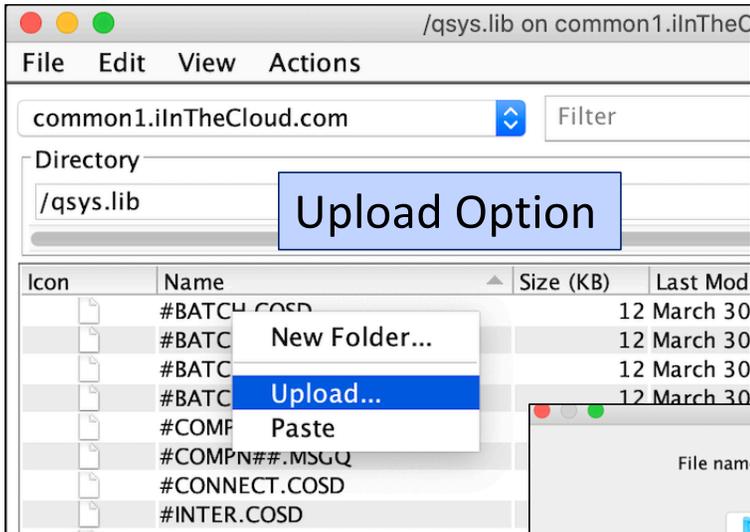
Press:
CTRL and Space Bar

ACS 1.1.8.5 – Freaky Fast IFS...

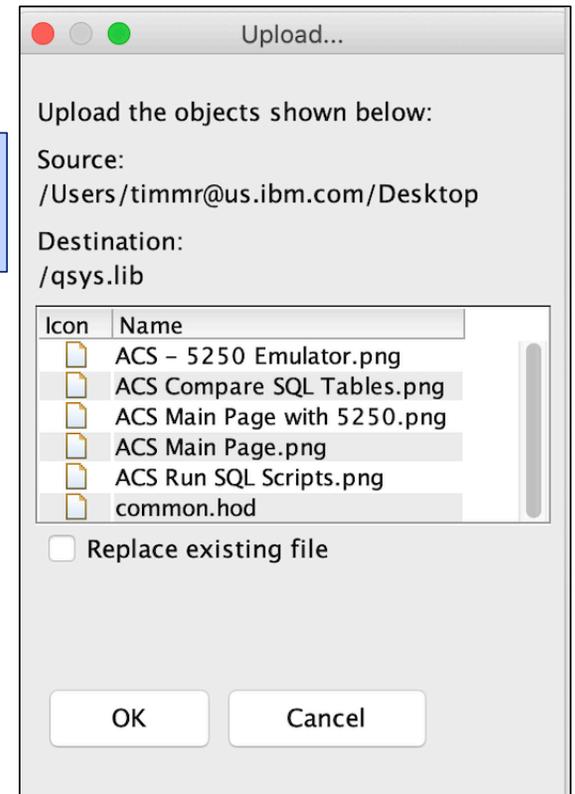
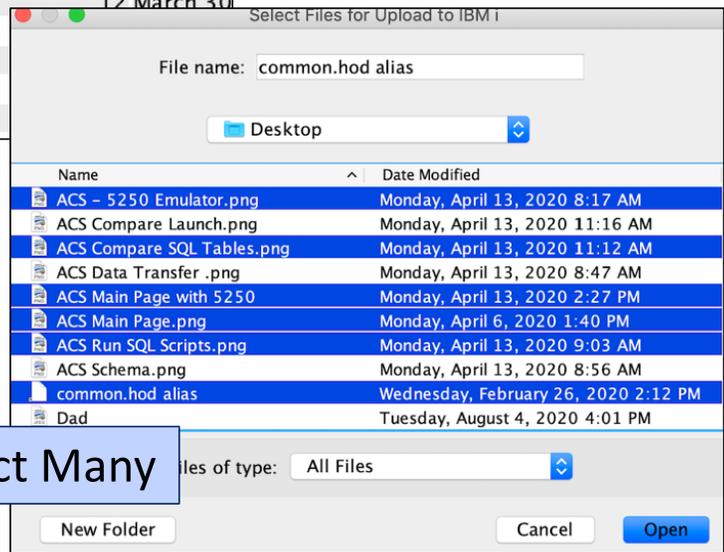
Thousands of
objects returned in
mere seconds...



ACS 1.1.8.6 – Multi-File Upload!!!



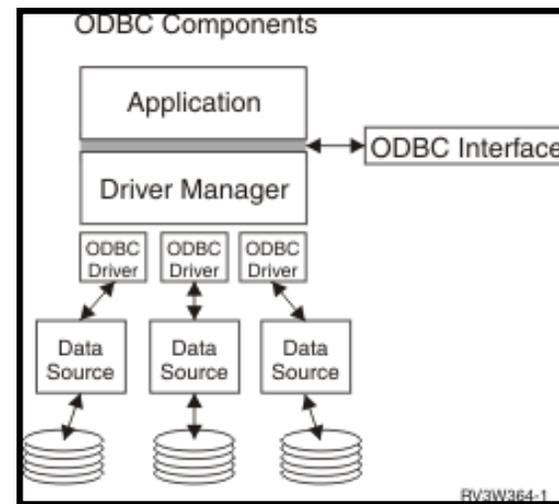
See the Source and Destination



IBM i Access – Application Packages

IBM i Access ODBC driver now supported on:

- Windows
- Linux
- Mac ←←←← NEW!!!!
- IBM i ←←←← NEW!!!!



Application Development

Tim Rowe

Business Architect, Application Development and
Systems Management

timmr@us.ibm.com

2020 iSight



RPG Enhancements

- %LIST built-in function
- FOR-EACH opcode
- Allow blanks for %DEC, %INT etc.
- Allow thousands separators for %DEC, %INT etc.
- Optionally require prototypes for exported procs
- Debug the return value from a procedure



FOR-EACH opcode

7.3 and 7.4
PTFs – 2020

FOR-EACH iterates through an array, sub-array or %LIST.

```
FOR-EACH item in myArray;
```

```
ENDFOR;
```

```
FOR-EACH file in %SUBARR(filenamees : 1 : numFilenamees);
```

```
ENDFOR;
```

```
FOR-EACH state in %LIST(OVERDUE : PENDING : CANCELLED);
```

```
ENDFOR;
```



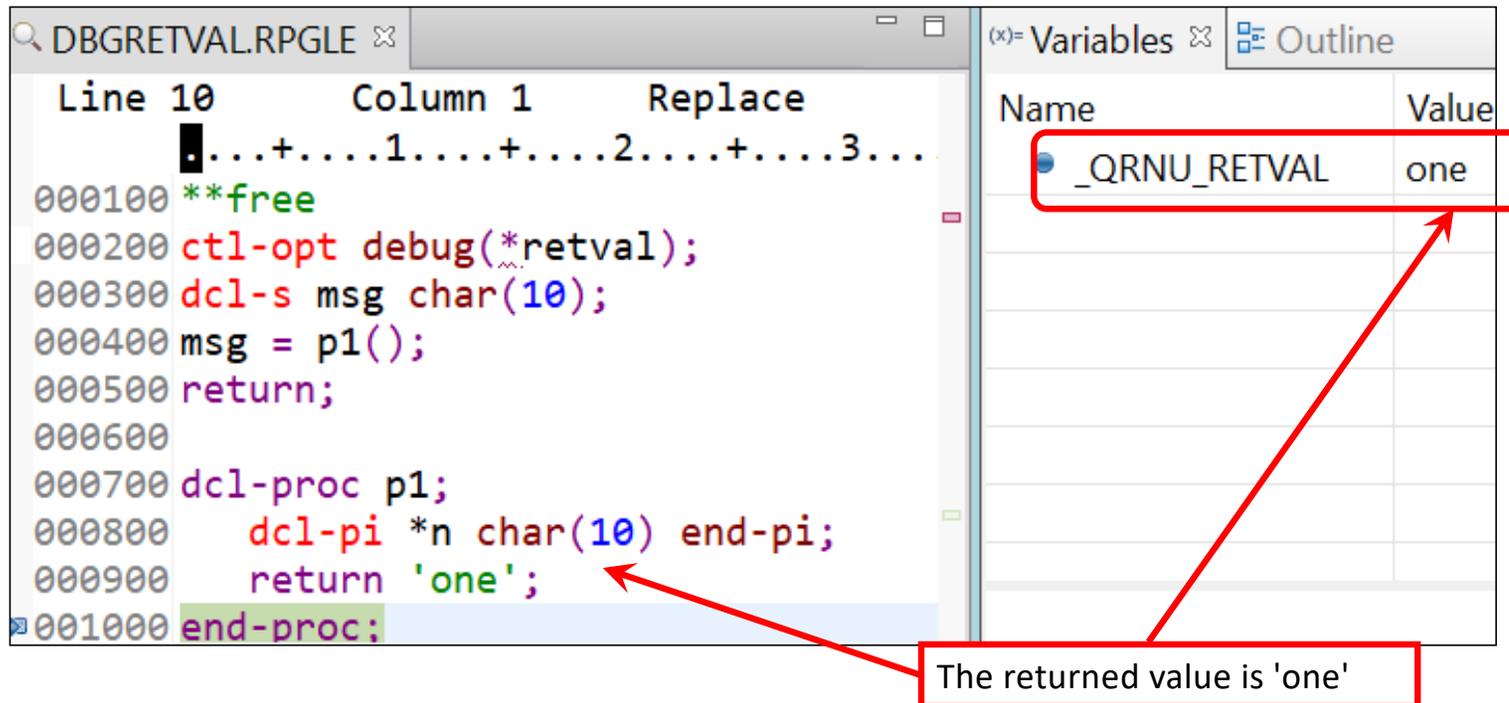
Debug the return value from a procedure

With H spec keyword `DEBUG(*RETVAL)`, you can see or change the return value of a procedure while at the breakpoint at the end of the procedure

Work with variable `_QRNU_RETVAL`



Debug session - at the END-PROC statement



The screenshot shows a debugger window with two panes. The left pane displays code from a file named 'DBGRETVAL.RPGLE'. The right pane shows a 'Variables' window with a table of current variables.

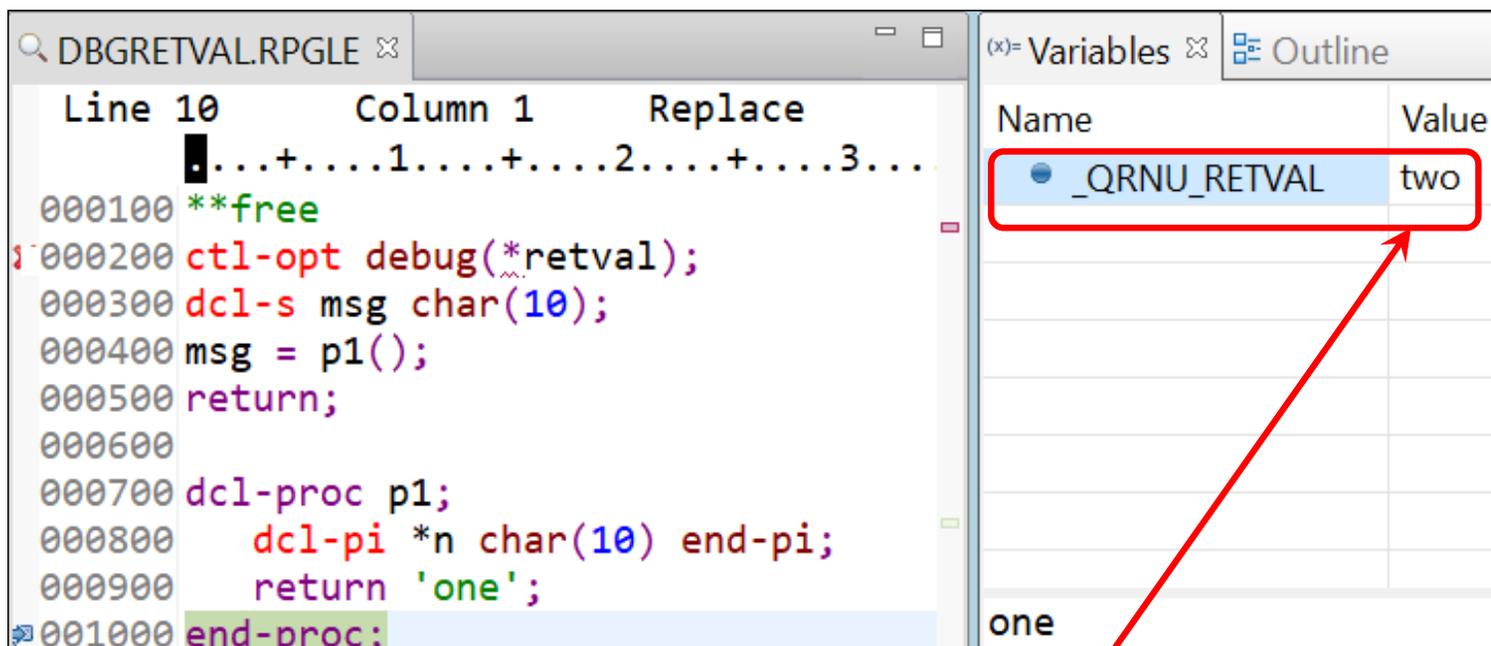
Name	Value
_QRNU_RETVAL	one

The code in the left pane is as follows:

```
Line 10      Column 1      Replace
...+...1...+...2...+...3...
000100  **free
000200  ctl-opt debug(*retval);
000300  dcl-s msg char(10);
000400  msg = p1();
000500  return;
000600
000700  dcl-proc p1;
000800      dcl-pi *n char(10) end-pi;
000900      return 'one';
001000  end-proc;
```

Red annotations highlight the variable **_QRNU_RETVAL** with the value **one** in the Variables window and the **return 'one';** statement in the code pane. A red box at the bottom contains the text "The returned value is 'one'", with arrows pointing to the variable and the return statement.

Debug session - at the END-PROC statement

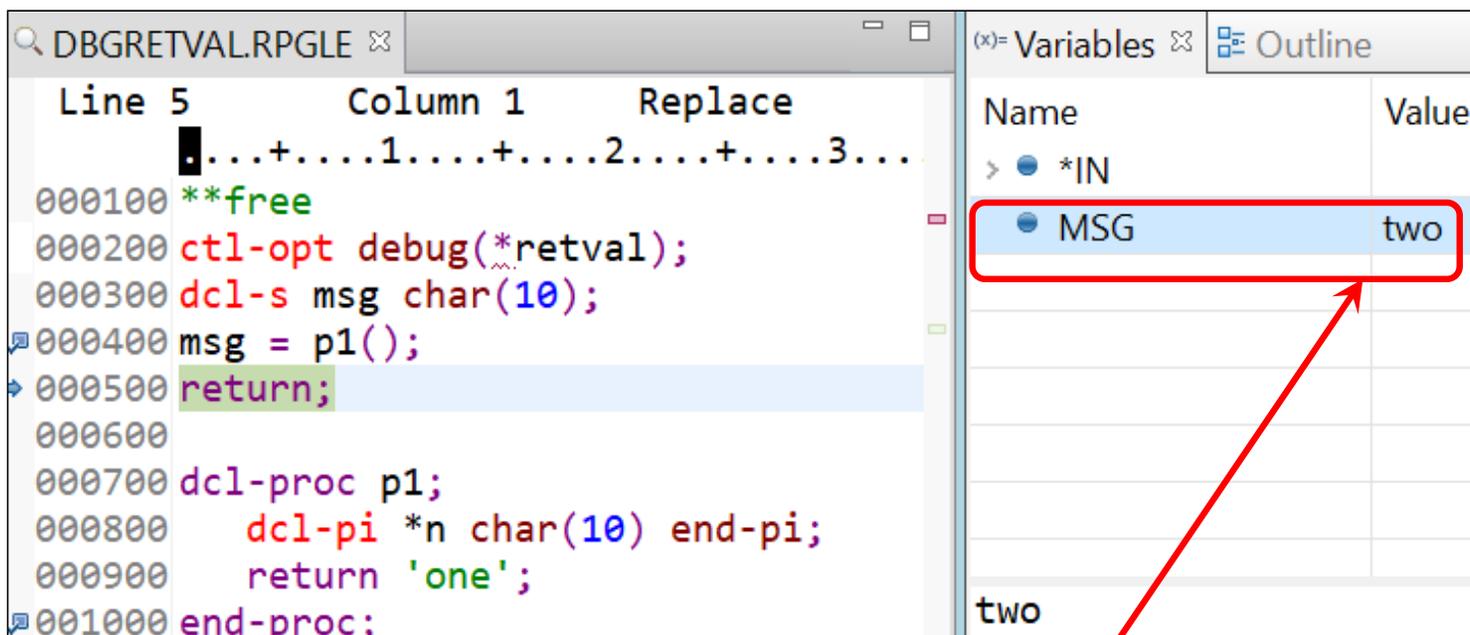


The screenshot shows a debugger window with the following components:

- Code Editor:** Displays the source code for `DBGRETVAL.RPGLE`. The code includes a `ctl-opt debug(*retval);` statement, a `dcl-s msg char(10);` declaration, a `msg = p1();` assignment, a `return;` statement, and a `dcl-proc p1;` procedure definition. The procedure `p1` is defined with `dcl-pi *n char(10) end-pi;` and `return 'one';`. The `end-proc;` statement is currently selected and highlighted.
- Variables Panel:** A table titled "(x)= Variables" with columns "Name" and "Value". The variable `_QRNU_RETVAL` is listed with the value `two`. This entry is highlighted with a red box. A red arrow points from this box to the text box below.
- Output Window:** Located at the bottom of the debugger, it displays the text `one`.

The returned value is now 'two'

Debug session - after the call

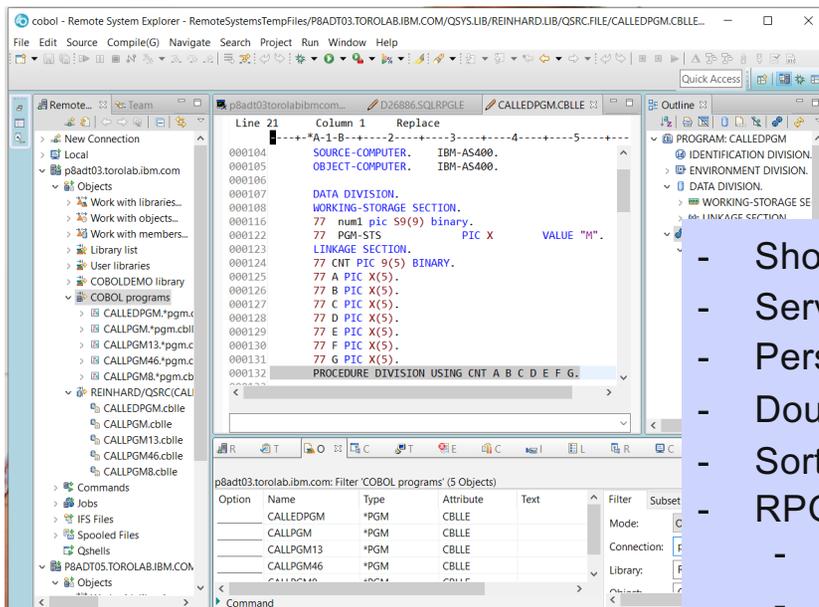


The screenshot shows a debugger window for a program named 'DBGRETVALRPGLE'. The main window displays code with line numbers and column indicators. The code includes a procedure 'p1' that returns the string 'one'. The current execution point is at line 000500, which is 'return;'. The 'Variables' pane on the right shows a table of variables. The variable 'MSG' is highlighted with a red box and has the value 'two'. A red arrow points from a text box below to the 'MSG' variable entry.

Name	Value
*IN	
MSG	two

The caller received 'two'

Rational Developer for i 9.6.0.8



Many updates and improvements

- Show variables larger than 4,095 characters in the RDi debugger
- Service Entry Points now allow conditional entries for breakpoint
- Persist display hover text for procedure parameters
- Double-click of source elements - include * symbol when appropriate
- Sort by name control in outline should not affect sorting of key fields
- RPG language update:
 - Editor support for the new DATA-GEN opcode
 - Editor support for OPTIONS(*EXACT) for prototyped parameters
 - Editor support for the new OVERLOAD keyword
- Enable editor navigation for marked occurrences of variables
- SQL formatter improvements
- /copy and /include files can be opened from source stored on IFS
- IBM i Access – Client Solutions (ACS) now can be launched from RDi without requiring a separate Java Runtime Environment installation

<https://www.ibm.com/support/pages/node/603339#9607>

I didn't have time for ...

- PowerHA
- BRMS
- I/O hardware – new USB 3.0 options; NVMe; etc.
- 5733-ARE – Administration Runtime Expert updates
- Details on more RPG enhancements
- All the IBM i Services
- The many powerful ACS updates
- Db2 Mirror – Work on Multiple Rules at the same time
- ... and more ...

Attend other COMMON-sponsored announcement webcasts

Visit the landing pages:

- **IBM i 7.4 - TR3 landing page**
<https://supportcontent.ibm.com/support/pages/ibm-i-74-tr3-enhancements>
- **IBM i 7.3 - TR9 landing page**
<https://supportcontent.ibm.com/support/pages/ibm-i-73-tr9-enhancements>

IBM

For More Information:

Some Links You Need	Twitter	#Hashtags
<p>IBM i Home Page: www.ibm.com/systems/i</p> <p>IBM Strategy Whitepaper: https://www.ibm.com/it-infrastructure/us-en/resources/power/i-strategy-roadmap/</p> <p>IBM Client Success: http://ibmi30.mybluemix.net/</p> <p>IBM Systems Magazine IBM i Edition: http://ibmsystemsmag.com/ibmi/</p> <p>Support Life Cycle: https://www-01.ibm.com/software/support/ibmi/lifecycle/</p> <p>License Topics: https://www-01.ibm.com/support/docview.wss?uid=nas8N1022087</p> <p>HelpSystems 2020 Marketplace Survey https://www.helpsystems.com/resources/guides/ibm-i-marketplace-survey-results</p>	 @IBMSystems @COMMONug @IBMChampions @IBMSystemsISVs @IBMiMag @ITJungleNews @SAPonIBMi @SiDforIBMi	<p>#PowerSystems #IBMi #IBMAIX #POWER9 #LinuxonPower #OpenPOWER #HANAonPower #ITInfrastructure #OpenSource #HybridCloud #BigData</p>

For More Information:

Blogs	
<p><u>IBM Blogs:</u></p> <ul style="list-style-type: none">• IBM i Sight blog• IBM Systems Magazine You and i (Steve Will)• IBM Systems Magazine: Open your i (Jesse Gorzinski)• IBM DB2 Web Query for i (Doug Mack) <p><u>IBM Champion's Blogs:</u></p> <ul style="list-style-type: none">• IBM Systems Magazine: iDevelop (Jon Paris and Susan Gantner)• IBM Systems Magazine: iTalk with Tuohy• IBM i in 9 slides	<p>https://ibmsystemsmag.com/tags/2020-isight-blog http://ibmsystemsmag.com/blogs/you-and-i/ http://ibmsystemsmag.com/blogs/open-your-i/ http://db2webqueryi.blogspot.co.uk/</p> <p>http://ibmsystemsmag.com/blogs/idevelop/ http://ibmsystemsmag.com/ibmi/trends/italk-with-tuohy/ http://championsfori.com/i9/</p>