Cool Things You Can Do with DB2 Web Query for i

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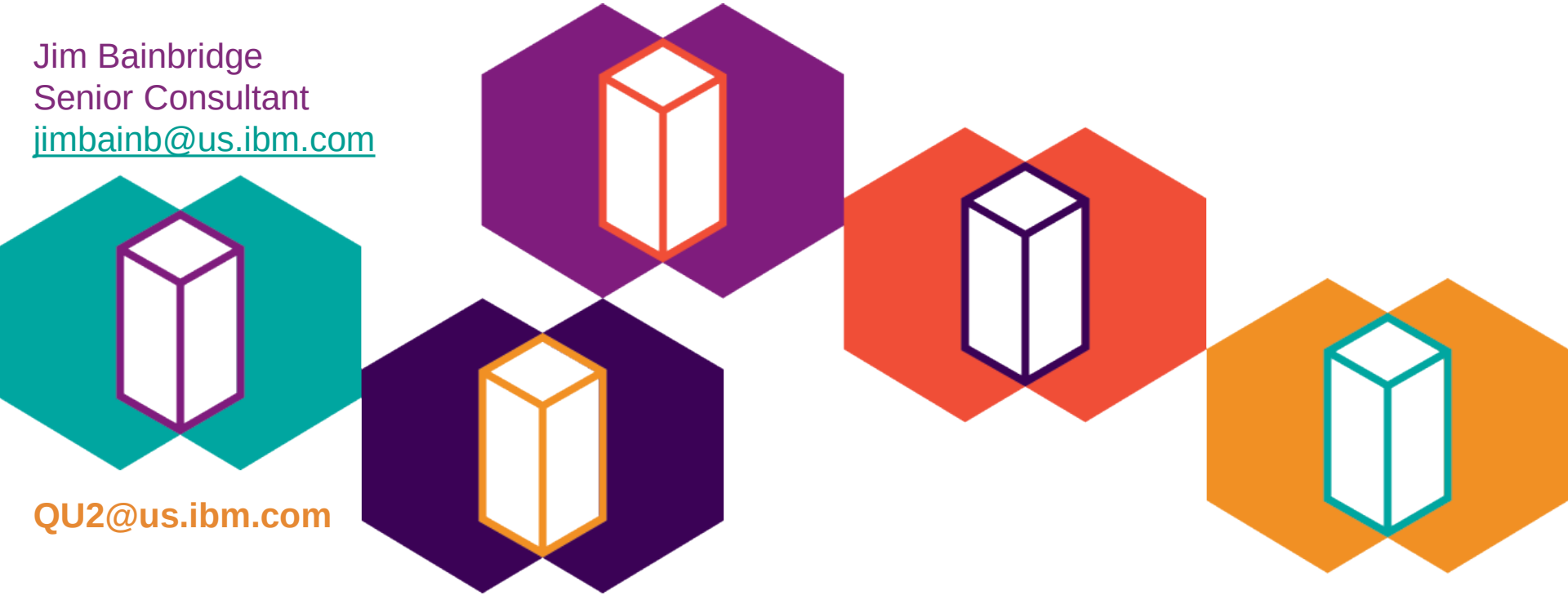

QU2@us.ibm.com

Agenda

- DB2 Web Query – Brief Overview
- Cool things you can do:
  - Replace 20 Query/400 reports with a single auto-drill down report for your business analysts
    - DB2 Web Query and Active Reports/OLAP
  - Embed a report in a spreadsheet
    - DB2 Web Query Excel Add-in
  - Place a map on a dashboard displaying key performance indicators by geography
    - Mapping
  - Check how up to date you are on Group PTFs
    - EZ-Install and System admin sample reports
  - Create a visualization of data returned from a DB2 Stored Procedure or View
    - Metadata
  - Extract data from Microsoft SQLServer, Oracle and many other databases for consolidated enterprise reporting
    - Adapters
  - Talk to Watson services
    - HTML Hyperlink

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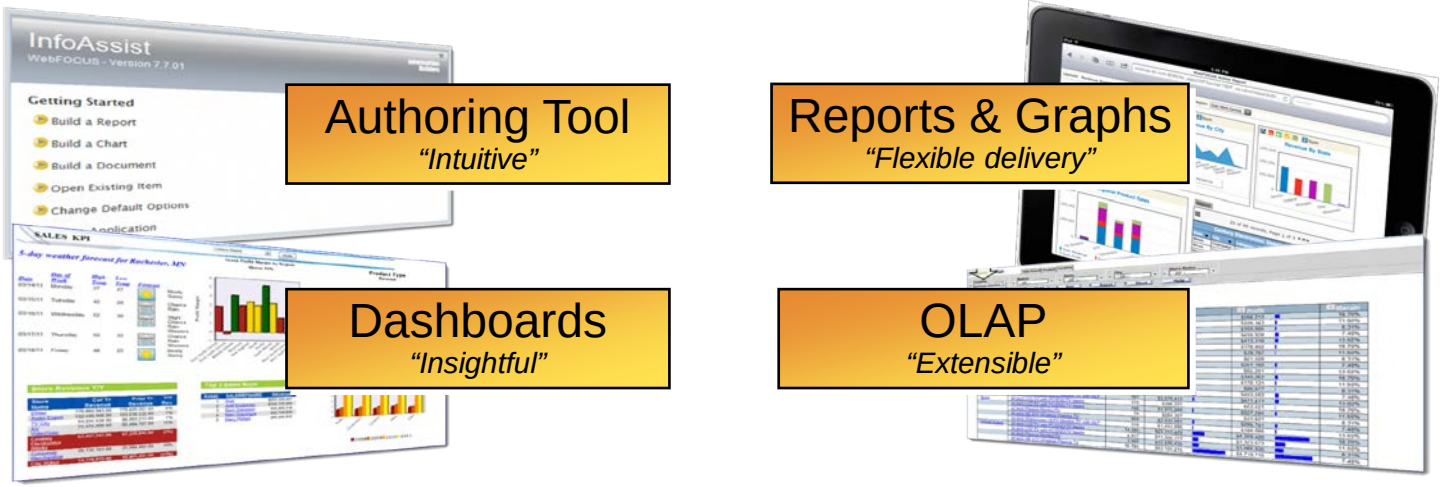
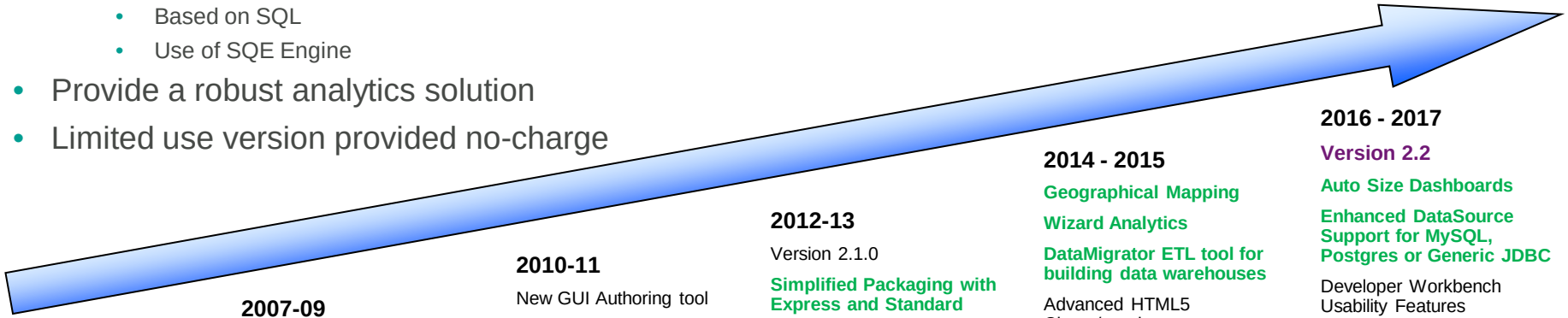
By now, you've heard of DB2 Web Query for i



- Web Based Reporting in its simplest form…a complete end-to-end solution for IBM i based Analytics
  - You own licenses of it today *
  - 100's of visualizations (3-D charts, gas gauges, thermometers, geographic maps)
  - Integration with DB2 and IBM i
    - Leverages DB2 Tables, SQL Views, Stored Procedures (SQL or RPG), SQL Functions and scripts

DB2 Web Query History

- DB2 Web Query was designed to:
  - Modernize RPG and Query/400 Reporting and align with DB Modernization Strategies
  - Leverage the IBM i and DB2 for i OS and DBMS
    - Based on SQL
    - Use of SQE Engine
  - Provide a robust analytics solution
  - Limited use version provided no-charge



Circa 2007

Import Query/400

GUI Authoring Tools

Output to Excel, PDF, HTML, “active” reports

Leverages SQE

Meta Data Layer

Developer Workbench for advanced dashboarding

2007-09

Run Time Licensing

Automated job scheduling and distribution

Excel Plug In

SQLServer as data source

Redbook

SDK for application integration

2010-11

New GUI Authoring tool

JDEdwards Adapter

Query/400 conversion tools

Improved Dasbhoarding

Change Management

Run Time Environments

2012-13

Version 2.1.0

Simplified Packaging with Express and Standard

Core based pricing

Mobile Device Support

New Security Center

New BI Portal Interface

Personal Dashboards

DB2 Family as data sources

2014 - 2015

Geographical Mapping

Wizard Analytics

DataMigrator ETL tool for building data warehouses

Advanced HTML5 Charts/graphs

DB2 Web Query Solution Edition

Updated Redbook

Updated Education (OD04 1 day class, OD05 3 day advanced workchop)

How to get started videos

2016 - 2017

Version 2.2

Auto Size Dashboards

Enhanced DataSource Support for MySQL, Postgres or Generic JDBC

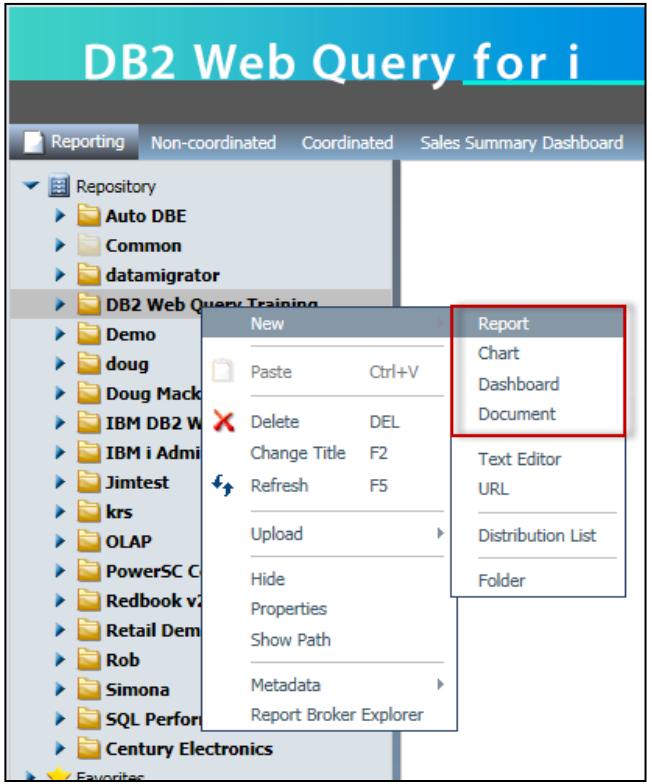
Developer Workbench Usability Features

Browser or mobile device specific development options

EZ-Install

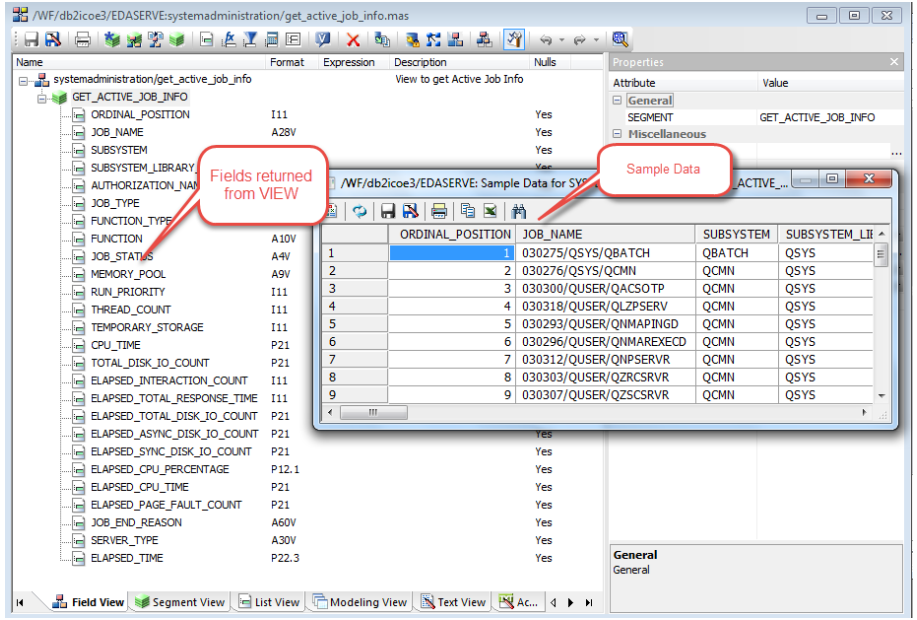
IBM DB2 Web Query for i User Interface

- The starting point for working with DB2 Web Query
  - **BI Portal** – **the End User Standard Interface**
    - Run Reports
    - Edit Reports
    - Schedule Report
    - Work with folders
    - Work with Change Management
    - Sync reports via Mobile Favorites Folder
    - Set up Security
    - Build a personal Dashboard
  - **InfoAssist** – **Report Authoring Tool** invoked with right-click and NEW at the folder level or with right-click EDIT at report level



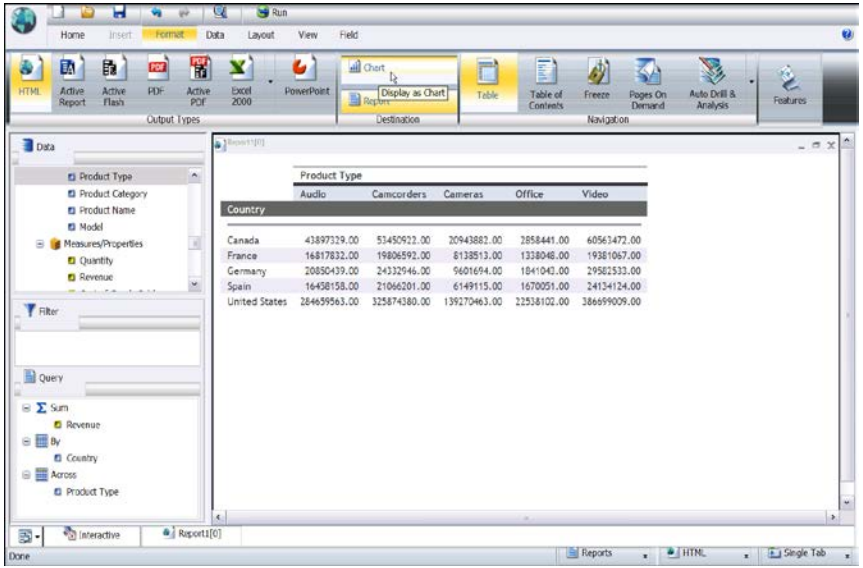
DB2 Web Query for i – Synonyms (Metadata layer)

- DB2 Web Query for i reporting requires that a synonym be created over each data source needed.
- **Synonym** is a representation of the underlying file(s), view, SP result set, etc.
  - It is a metadata layer between the report authoring tool and the physical data source(s) that simplifies and standardizes report creation
- Once created, you can:
  - Add additional calculated fields
  - Change field names/data types/headings
  - Join another file
  - Add date attributes (e.g., day of week)
  - And much more!
- **Sample Data** allows you to see the results



Build/Edit Reports and Dashboards with **InfoAssist**

- Web based Report Authoring component (built into Express or Standard)
- Invoked from BI Portal (web) or Developer Workbench (Windows)
- Intuitive office-like interface
  - Tool bars (Ribbon) change based on selected tab
- WYSIWYG layout area
- Build reports, charts, graphs, maps, dashboards
- Output types
  - Excel including pivot tables
  - “Active” technologies (good for mobile devices)
  - PDF, File, Print, Database
  - Auto drill down (OLAP) report
  - HTML, HTML5, Flash
  - Powerpoint



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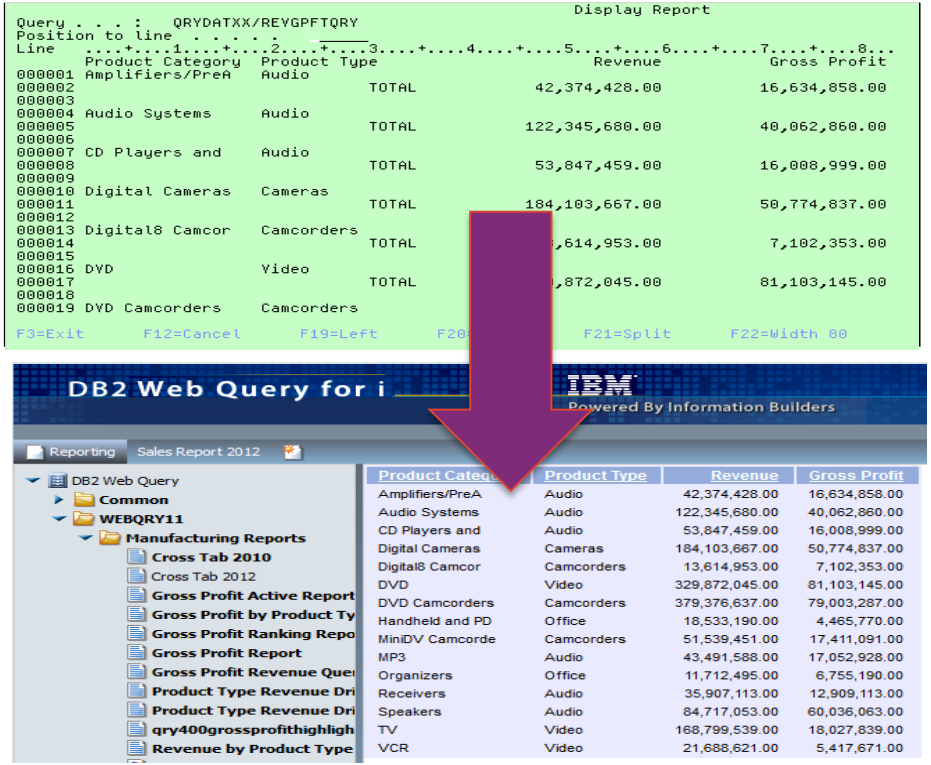
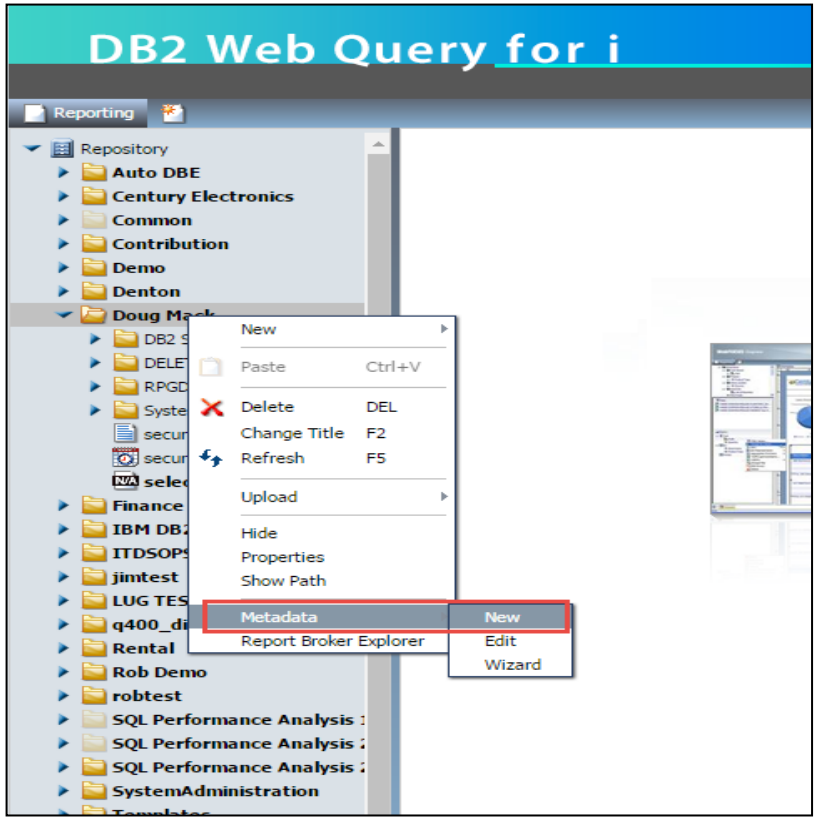
Query/400 to DB2 Web Query

- Imports your existing QRYDFN to DB2 Web Query browser-based reports
- Can import “all” per Library
- Can still run the green screen version (but why would you?)
- If the green screen version changes, you’d need to re-import
- There ARE some limitations
  - We’ll get to those later



Step 1 is to Create a “Synonym” over the Query/400 definition(s) query



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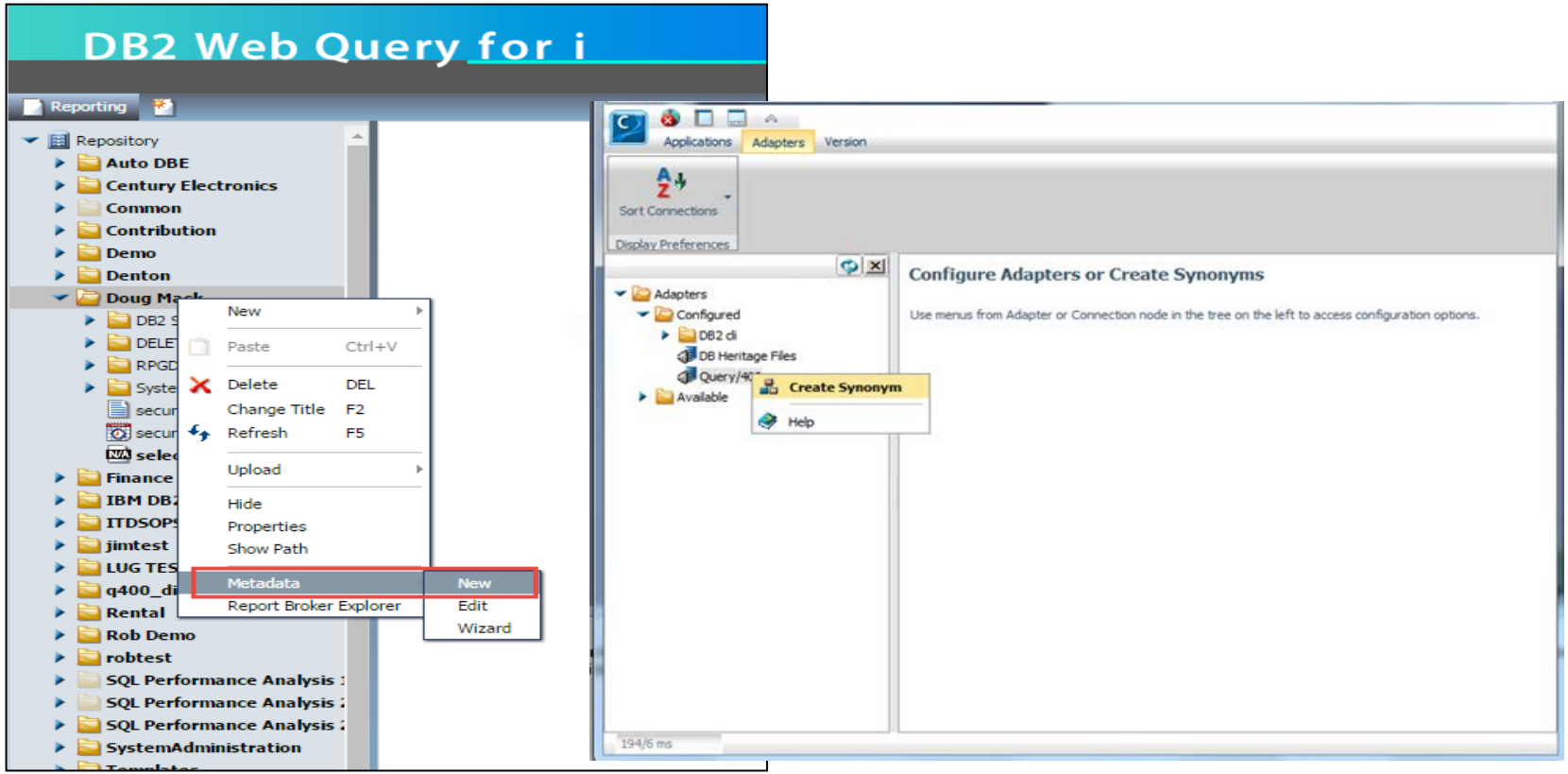
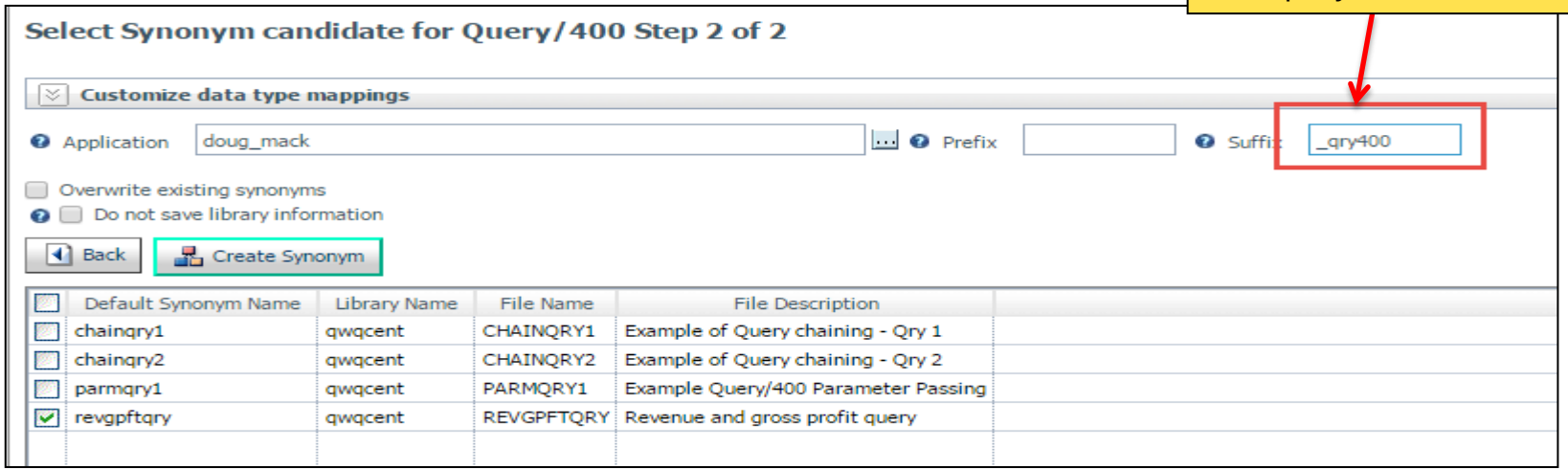


Choose which queries to import

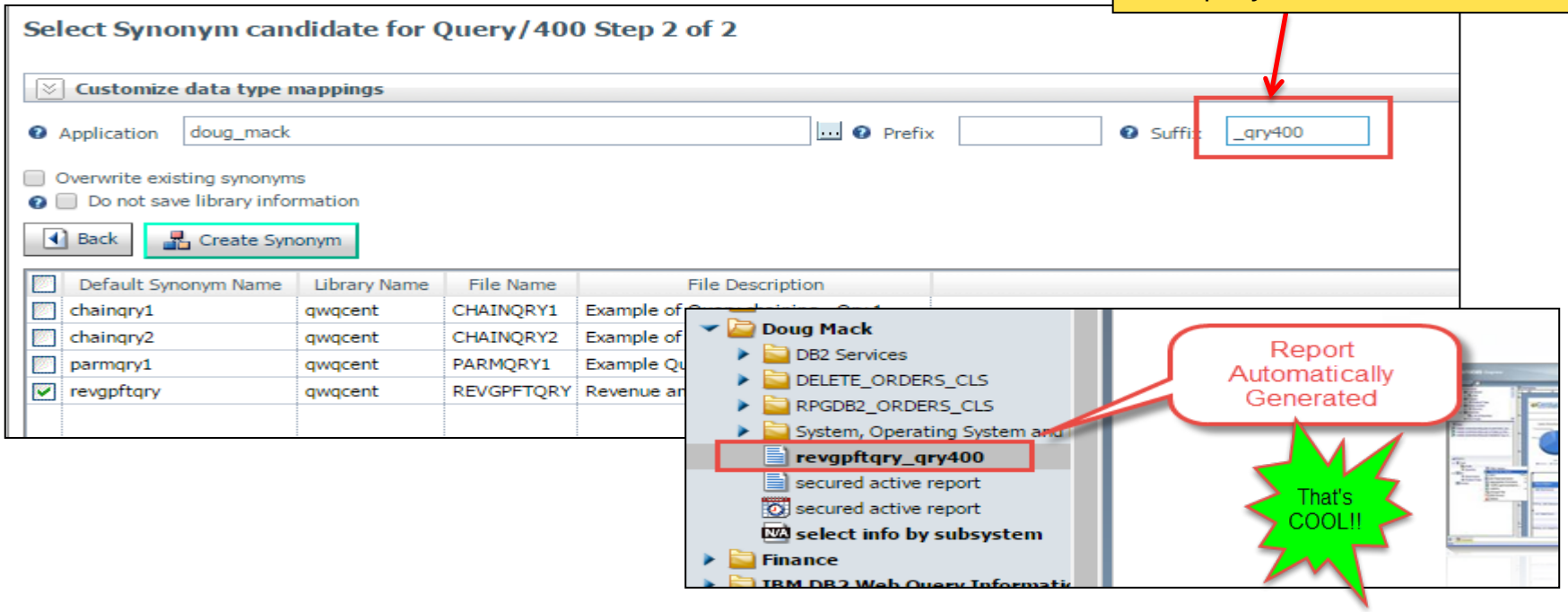
Hint: Give the synonym a prefix or suffix so you can later recognize it as a query/400 definition



Choose which queries to import

A report is automatically built

Hint: Give the synonym a prefix or suffix so you can later recognize it as a query/400 definition



Before and After

```
                                                Display Report
Query . . . :   QRYDAT11/REVGPFTQRY
Position to line  . . . . .   _____
Line    ....+....1....+....2....+....3....+....4....+....5....+....6....+....7....+....8...
        Product Category  Product Type                    Revenue          Gross Profit
000001 Amplifiers/PreA   Audio
000002                             TOTAL          42,374,428.00          16,634,858.00
000003
000004 Audio Systems     Audio
000005                             TOTAL         122,345,680.00          40,062,860.00
000006
000007 CD Players and    Audio
000008                             TOTAL          53,847,459.00          16,008,999.00
000009
000010 Digital Cameras   Cameras
000011                             TOTAL         184,103,667.00          50,774,837.00
000012
000013 Digital8 Camcor   Camcorders
000014                             TOTAL          13,614,953.00           7,102,353.00
000015
000016 DVD               Video
000017                             TOTAL         329,872,045.00          81,103,145.00
000018
000019 DVD Camcorders    Camcorders
```

Before and After

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                                                Display Report
Query . . . :   QRYDAT11/REVGPFTQRY
Position to line  . . . . .     _____
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000001 Amplifiers/PreA   Audio
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000008                             TOTAL            53,847,459.00
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000010 Digital Cameras   Cameras
000011                             TOTAL           184,103,667.00
000012
000013 Digital8 Camcor   Camcorders
000014                             TOTAL            13,614,953.00
000015
000016 DVD               Video
000017                             TOTAL           329,872,045.00
000018
000019 DVD Camcorders    Camcorders
```

revgpftqry_qry400 - Google Chrome

db2icoe3.rchland.ibm.com:12331/webquery/run.bip?BIP_REQUEST_TYPE=BIP_RUN

Product Category	Product Type	Revenue	Gross Profit
Amplifiers/PreA	Audio	42,374,428.00	16,634,858.00
Audio Systems	Audio	122,345,680.00	40,062,860.00
CD Players and	Audio	53,847,459.00	16,008,999.00
Digital Cameras	Cameras	184,103,667.00	50,774,837.00
Digital8 Camcor	Camcorders	13,614,953.00	7,102,353.00
DVD	Video	329,872,045.00	81,103,145.00
DVD Camcorders	Camcorders	379,376,637.00	79,003,287.00
Handheld and PD	Office	18,533,190.00	4,465,770.00
MiniDV Camcorde	Camcorders	51,539,451.00	17,411,091.00
MP3	Audio	43,491,588.00	17,052,928.00
Organizers	Office	11,712,495.00	6,755,190.00
Receivers	Audio	35,907,113.00	12,909,113.00
Speakers	Audio	84 [illegible],053.00	60,036,063.00
TV	Video	[illegible]39.00	18,027,839.00
VCR	Video		5,417,671.00

Browser Based

But we're not done….

Enhance this new Query/400-based report

- Format the report
  - Add a header, footer, stylesheet, traffic light
- Change the output
  - Push the result set into a spreadsheet or build an “active” report
- Add a prompt for user controlled record selection
- Add the report to a dashboard
- Schedule the report to run automatically and send it out in an email

Revenue and Gross Profit by Product

Product Category	Product Type	Revenue	Gross Profit
Amplifiers/PreA	Audio	42,374,428.00	16,634,858.00
Audio Systems	Audio	122,345,680.00	40,062,860.00
CD Players and	Audio	53,847,459.00	16,008,999.00
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MiniDV Camcorde	Camcorders	51,539,451.00	17,411,091.00
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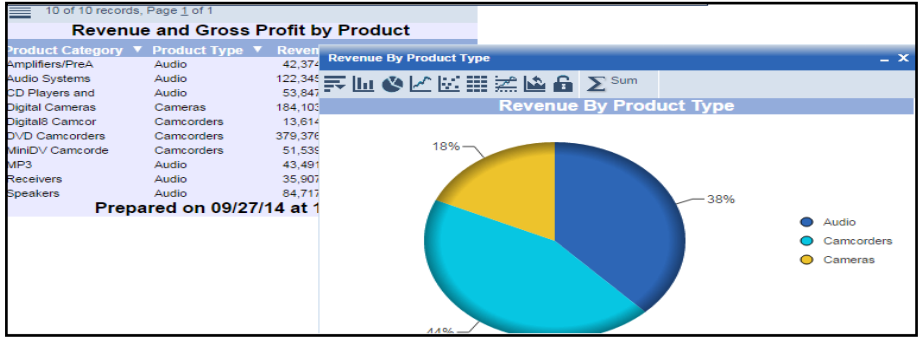
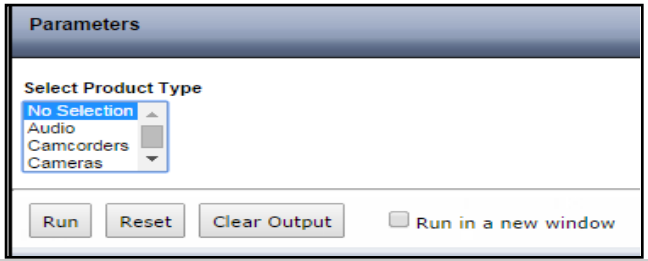
Speakers	Audio	84,717,053.00	60,036,063.00

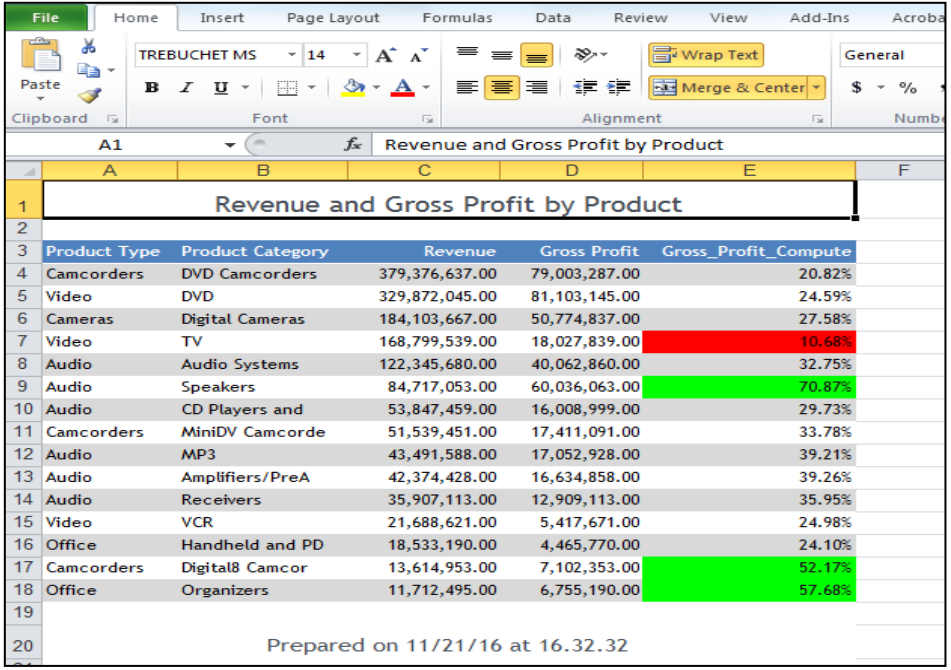
Prepared on 09/27/14 at 12.44.43





No More Green Screen

- Changed the look of the report
  - Added Report Header and Footer
  - Sorted by Revenue
  - Created new calculated field for %Gross Profit
  - Added traffic lighting to that new field
  - Changed the output to allow the end user to run this query on their own and put the results in a spreadsheet
  - Made Product Type a parameter
  - Moved Product Type column to the left of Product Category
- **Results:** We can now easily see that the last two products in our list are high margin (green) but low revenue
  - Why aren't we selling more?

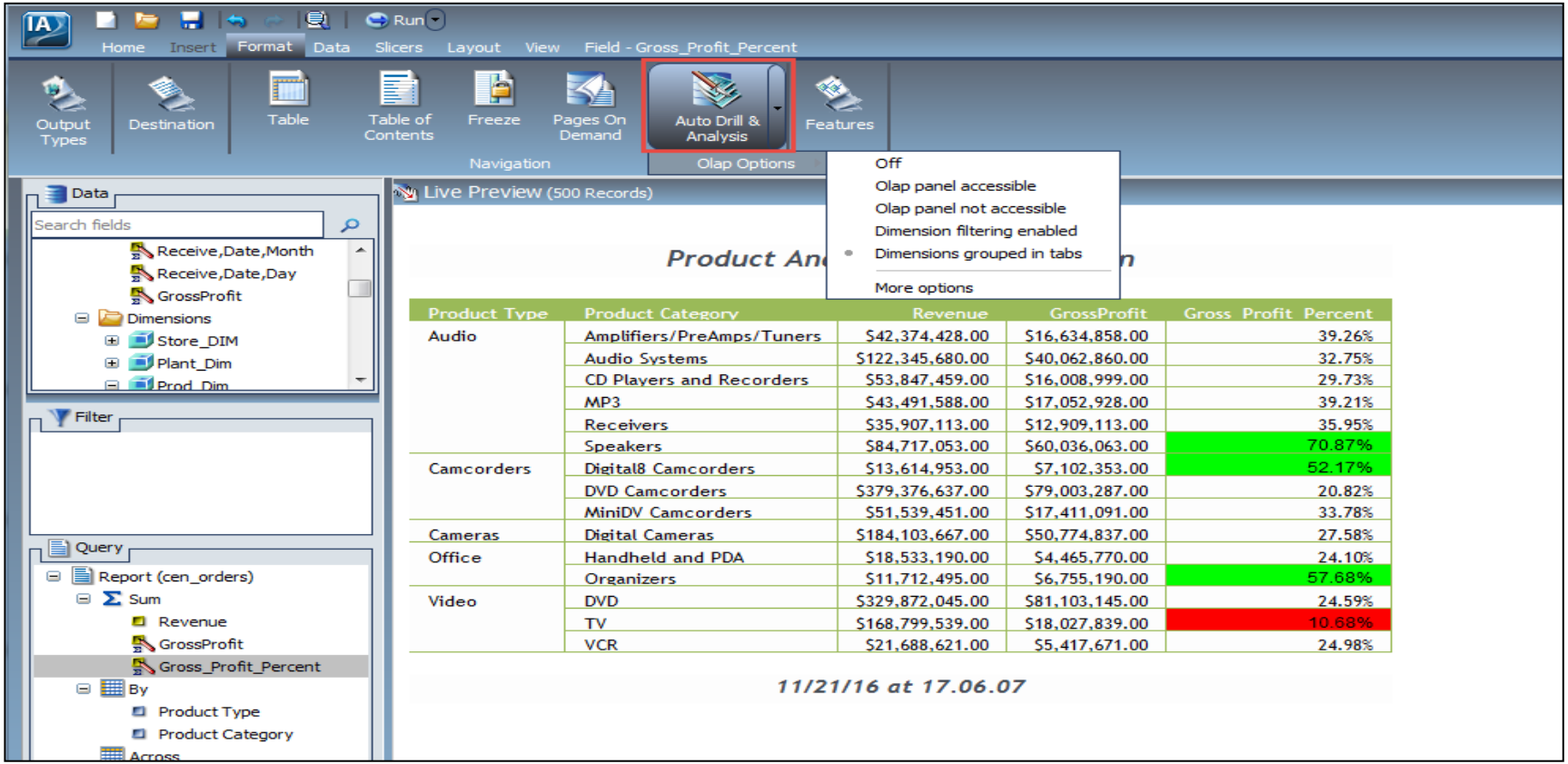


	A	B	C	D	E	F
1	Revenue and Gross Profit by Product					
2						
3	Product Type	Product Category	Revenue	Gross Profit	Gross_Profit_Compute	
4	Camcorders	DVD Camcorders	379,376,637.00	79,003,287.00	20.82%	
5	Video	DVD	329,872,045.00	81,103,145.00	24.59%	
6	Cameras	Digital Cameras	184,103,667.00	50,774,837.00	27.58%	
7	Video	TV	168,799,539.00	18,027,839.00	10.68%	
8	Audio	Audio Systems	122,345,680.00	40,062,860.00	32.75%	
9	Audio	Speakers	84,717,053.00	60,036,063.00	70.87%	
10	Audio	CD Players and	53,847,459.00	16,008,999.00	29.73%	
11	Camcorders	MiniDV Camcorde	51,539,451.00	17,411,091.00	33.78%	
12	Audio	MP3	43,491,588.00	17,052,928.00	39.21%	
13	Audio	Amplifiers/PreA	42,374,428.00	16,634,858.00	39.26%	
14	Audio	Receivers	35,907,113.00	12,909,113.00	35.95%	
15	Video	VCR	21,688,621.00	5,417,671.00	24.98%	
16	Office	Handheld and PD	18,533,190.00	4,465,770.00	24.10%	
17	Camcorders	Digital8 Camcor	13,614,953.00	7,102,353.00	52.17%	
18	Office	Organizers	11,712,495.00	6,755,190.00	57.68%	
19						
20	Prepared on 11/21/16 at 16.32.32					

Now Let's Talk about those Limitations

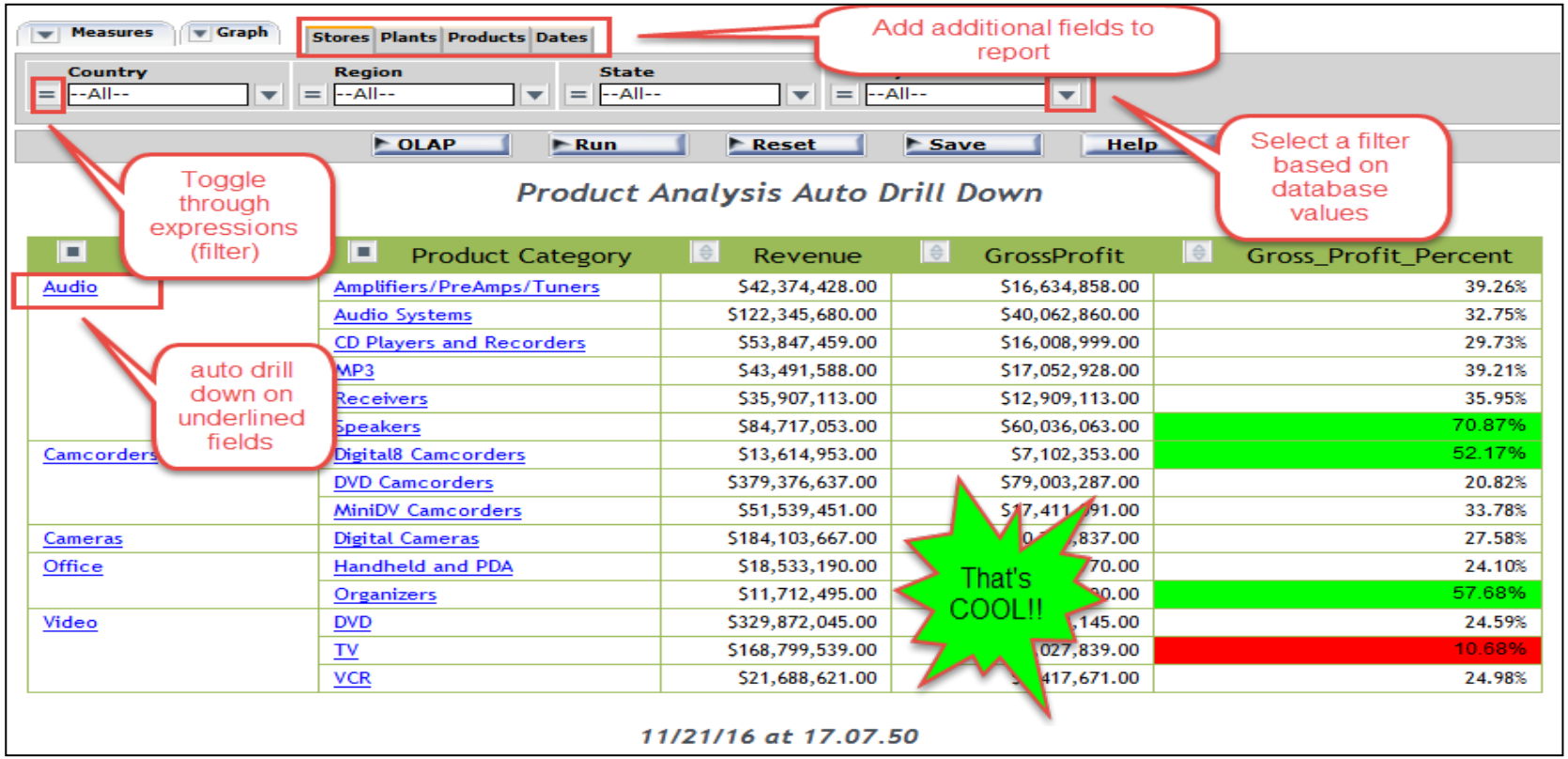
- Chained Queries – probably require some analysis and re-write because either you don't NEED to chain the queries because of more powerful function in DB2 Web Query or there is a better way
- Pre 7.2, DB2 optimizer uses the older DB2 query engine, and likely even at 7.2 or 7.3
  - Poorer performance than a native SQL Query that DB2 Web Query generates
- Fields available to add to the report are limited to only the original fields defined in the Query/400 definition
- And consider this: if you have 1000 Query/400 definitions and there is a lot of redundancy or queries that are obsolete – this is your chance to clean up and consolidate
- IBM has some tools to you help you, too –
  - Query/400 Discovery Tool (Included with EZ-Install)
- **Following is an example of the same report "built from scratch" and Auto-Drill enabled**

Building the report from scratch and making it “Auto Drill”



Product Type	Product Category	Revenue	GrossProfit	Gross Profit Percent
Audio	Amplifiers/PreAmps/Tuners	$42,374,428.00	$16,634,858.00	39.26%
	Audio Systems	$122,345,680.00	$40,062,860.00	32.75%
	CD Players and Recorders	$53,847,459.00	$16,008,999.00	29.73%
	MP3	$43,491,588.00	$17,052,928.00	39.21%
	Receivers	$35,907,113.00	$12,909,113.00	35.95%
	Speakers	$84,717,053.00	$60,036,063.00	70.87%
Camcorders	Digital8 Camcorders	$13,614,953.00	$7,102,353.00	52.17%
	DVD Camcorders	$379,376,637.00	$79,003,287.00	20.82%
	MiniDV Camcorders	$51,539,451.00	$17,411,091.00	33.78%
Cameras	Digital Cameras	$184,103,667.00	$50,774,837.00	27.58%
Office	Handheld and PDA	$18,533,190.00	$4,465,770.00	24.10%
	Organizers	$11,712,495.00	$6,755,190.00	57.68%
Video	DVD	$329,872,045.00	$81,103,145.00	24.59%
	TV	$168,799,539.00	$18,027,839.00	10.68%
	VCR	$21,688,621.00	$5,417,671.00	24.98%

Now the end user can iterate through the data – with a single report



End Users Can (without needing another report):

- Drilll down on just Audio products

Product Analysis Auto Drill Down

Product Category	Revenue	GrossProfit	Gross_Profit_Percent
Amplifiers/PreAmps/Tuners	$42,374,428.00	$16,634,858.00	39.26%
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11/21/16 at 17.07.50

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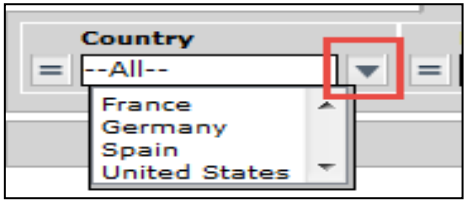
11/21/16 at 17.07.50

- Filter on United States and drag REGION column onto report



Product Analysis Auto Drill Down

Product Category	Region	Revenue	GrossProfit	Gross_Profit_Percent
Amplifiers/PreAmps/Tuners	East North Central	$3,974,952.00	$1,514,022.00	38.09%
	East South Central	$632,123.00	$250,993.00	39.71%
	Middle Atlantic	$5,705,544.00	$2,093,194.00	36.69%
	Mountain	$533,446.00	$249,406.00	46.75%
	New England	$3,236,812.00	$1,256,092.00	38.81%
	North	$883,561.00	$344,861.00	39.03%
	Pacific	$3,034,877.00	$1,149,057.00	37.86%
	South Atlantic	$5,855,215.00	$2,389,245.00	40.81%
	Web(R)	$4,093,827.00	$1,572,537.00	38.41%

End Users Can (without needing another report):

- Look for trends by adding YEARS across the top, and clean up the report by removing unneeded columns:

Product Analysis Auto Drill Down

Product Category	Region	Order Date Year 2015	2016
Amplifiers/PreAmps/Tuners	East North Central	41.09%	36.13%
	East South Central	38.09%	42.14%
	Middle Atlantic	34.87%	38.85%
	Mountain	43.50%	49.60%
	New England	42.12%	35.44%
	North	37.44%	39.41%
	Pacific	36.03%	39.23%
	South Atlantic	41.86%	40.01%
	Web(R)	39.88%	37.15%
	West North Central	49.87%	17.29%
	West South Central	41.12%	42.16%

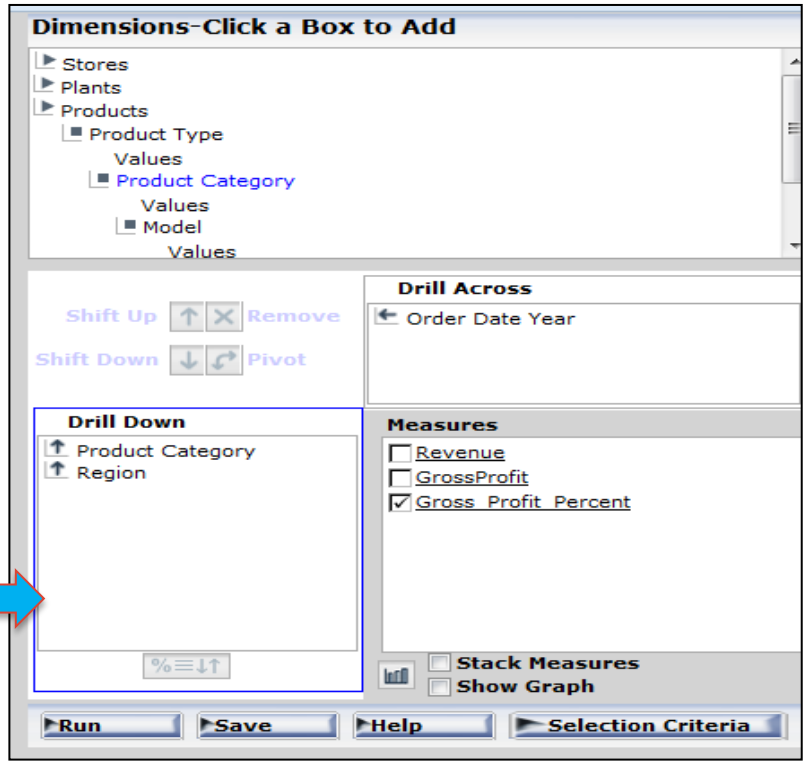
End Users Can (without needing another report):

- Look for trends by adding YEARS across the top, and clean up the report by removing unneeded columns:

Product Analysis Auto Drill Down

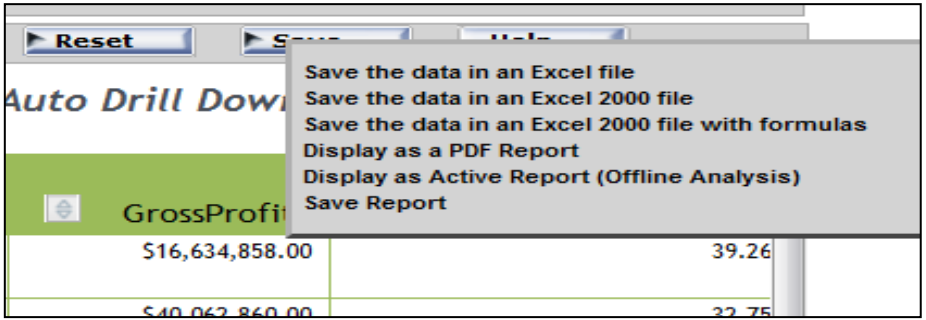
Product Category	Region	Order Date Year 2015	2016
Amplifiers/PreAmps/Tuners	East North Central	41.09%	36.13%
	East South Central	38.09%	42.14%
	Middle Atlantic	34.87%	38.85%
	Mountain	43.50%	49.60%
	New England	42.12%	35.44%
	North	37.44%	39.41%
	Pacific	36.03%	39.23%
	South Atlantic	41.86%	40.01%
	Web(R)	39.88%	37.15%
	West North Central	49.87%	17.29%
	West South Central	41.12%	42.16%

- Users can also open up the Pivot tool to make multiple changes at once:



End Users Can (without needing another report):

- When done iterating through the data, you can save to Excel, or an ACTIVE* Report for mobile devices, or just save to come back at a later time for more analysis without having to start the data iteration from the beginning



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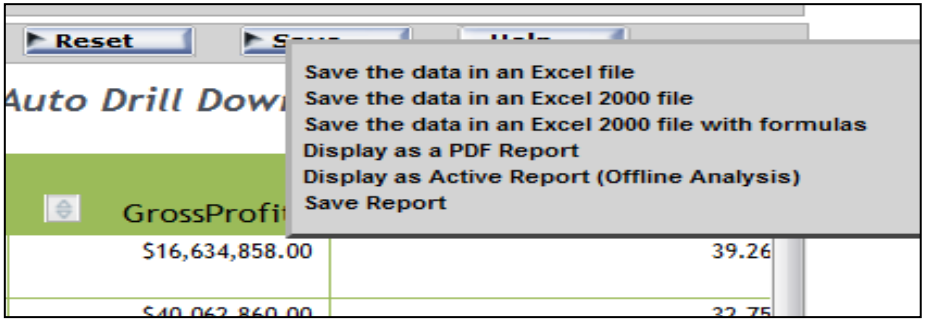

- With this ONE “auto drill” report, you just eliminated at least 20 Query/400 reports (probably more)

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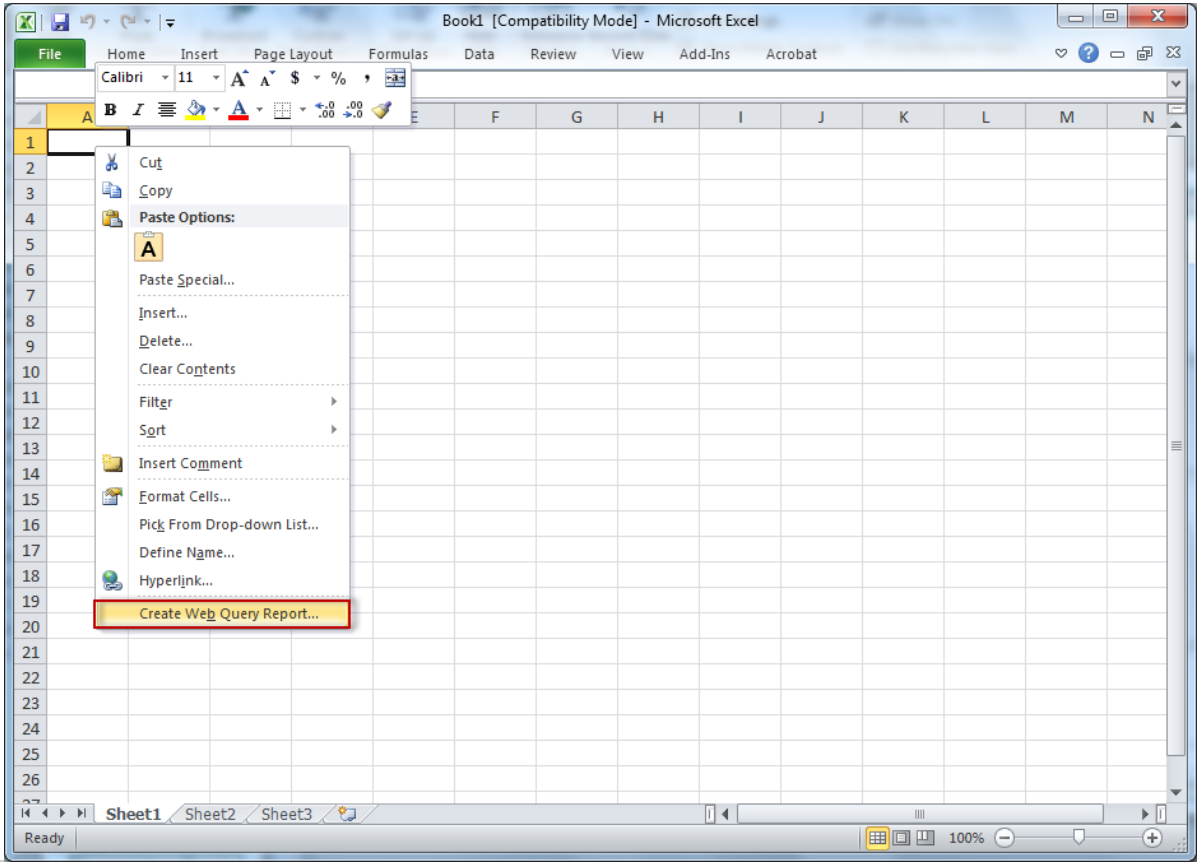
    - HTML Hyperlink

MS Excel add-in for DB2 Web Query

Click on any cell inside the spreadsheet, and:

- Launch Mini-InfoAssist OR
- Execute an existing report



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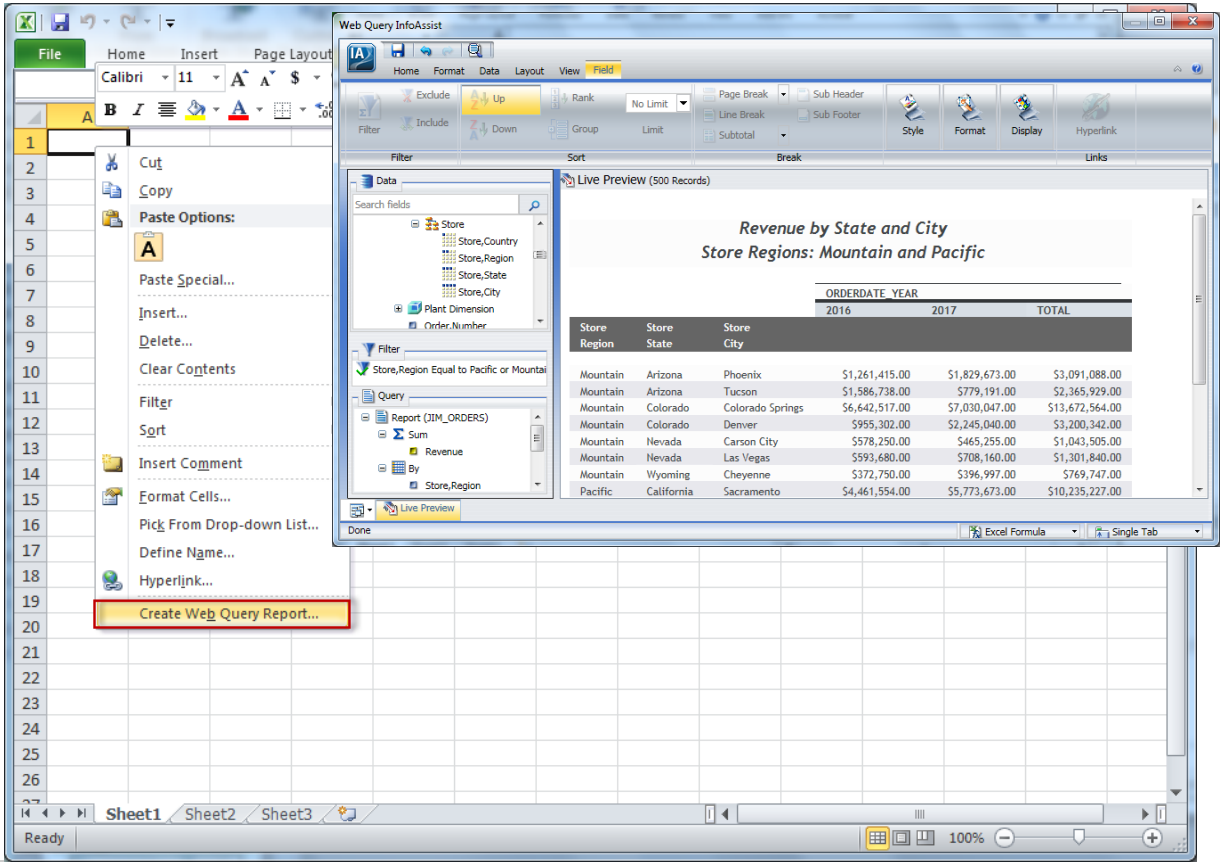

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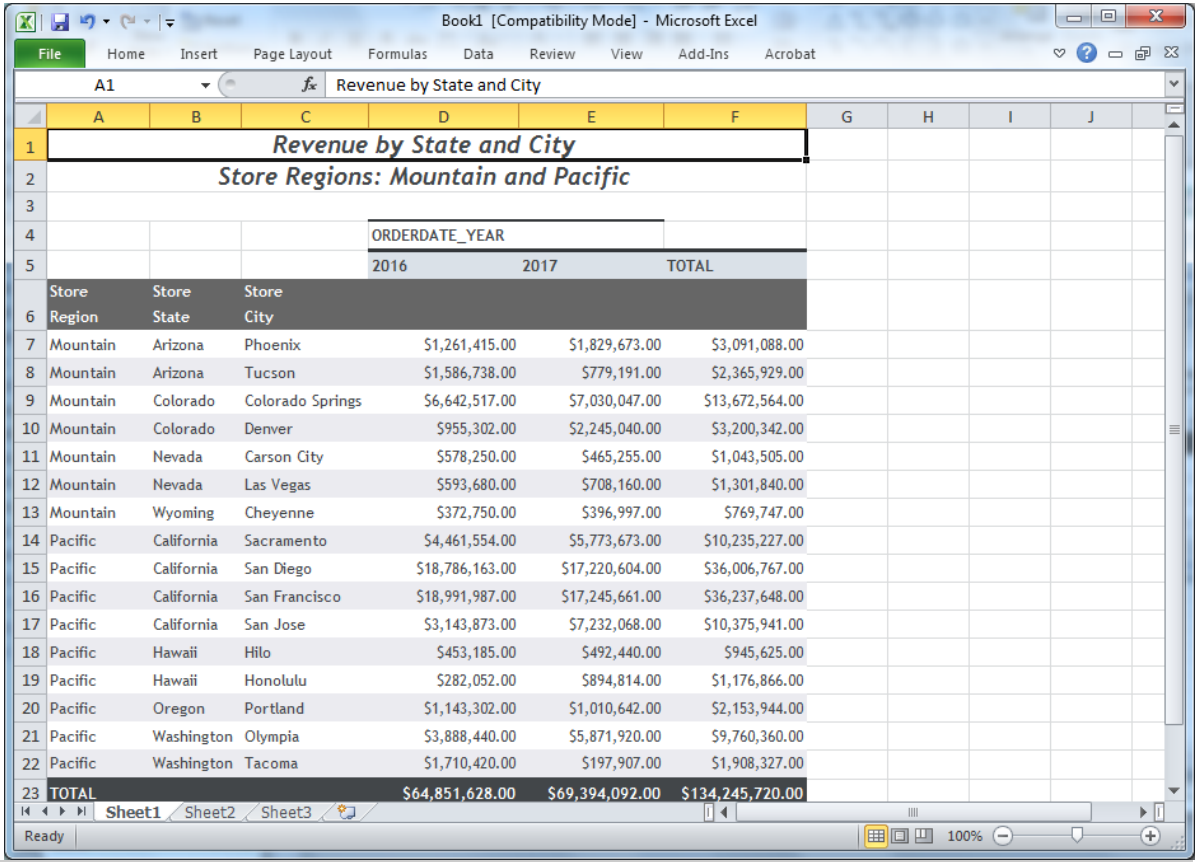

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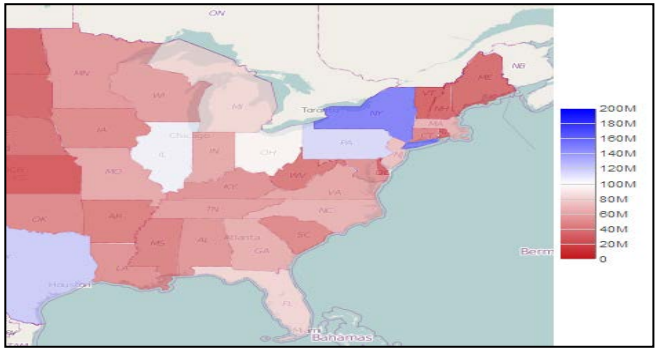
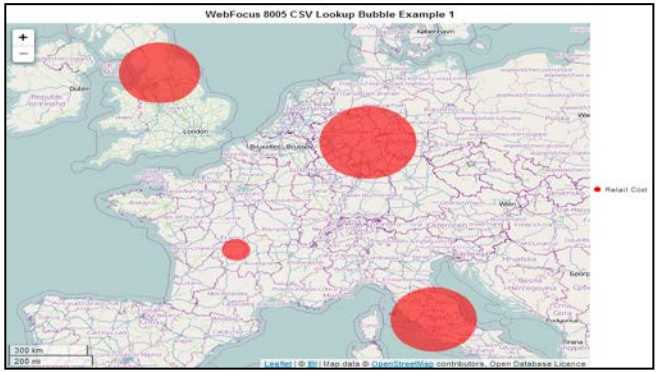
Geographical Maps

- Many Maps to choose from
  - Some need to be “enabled”
  - Can also pull maps down from the web (need to be in a specific JSON format)
- Two types: Choropleth and Bubble
- Associate data with a geographical region, postal code, latitude longitude
- Can tailor maps through stylesheets
  - Customize the heat scale (color gradient)
  - Fill color of bubble
  - Opacity

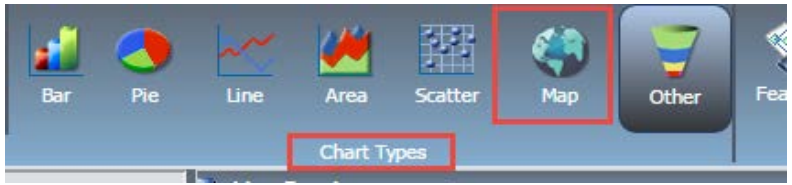




Building a Map

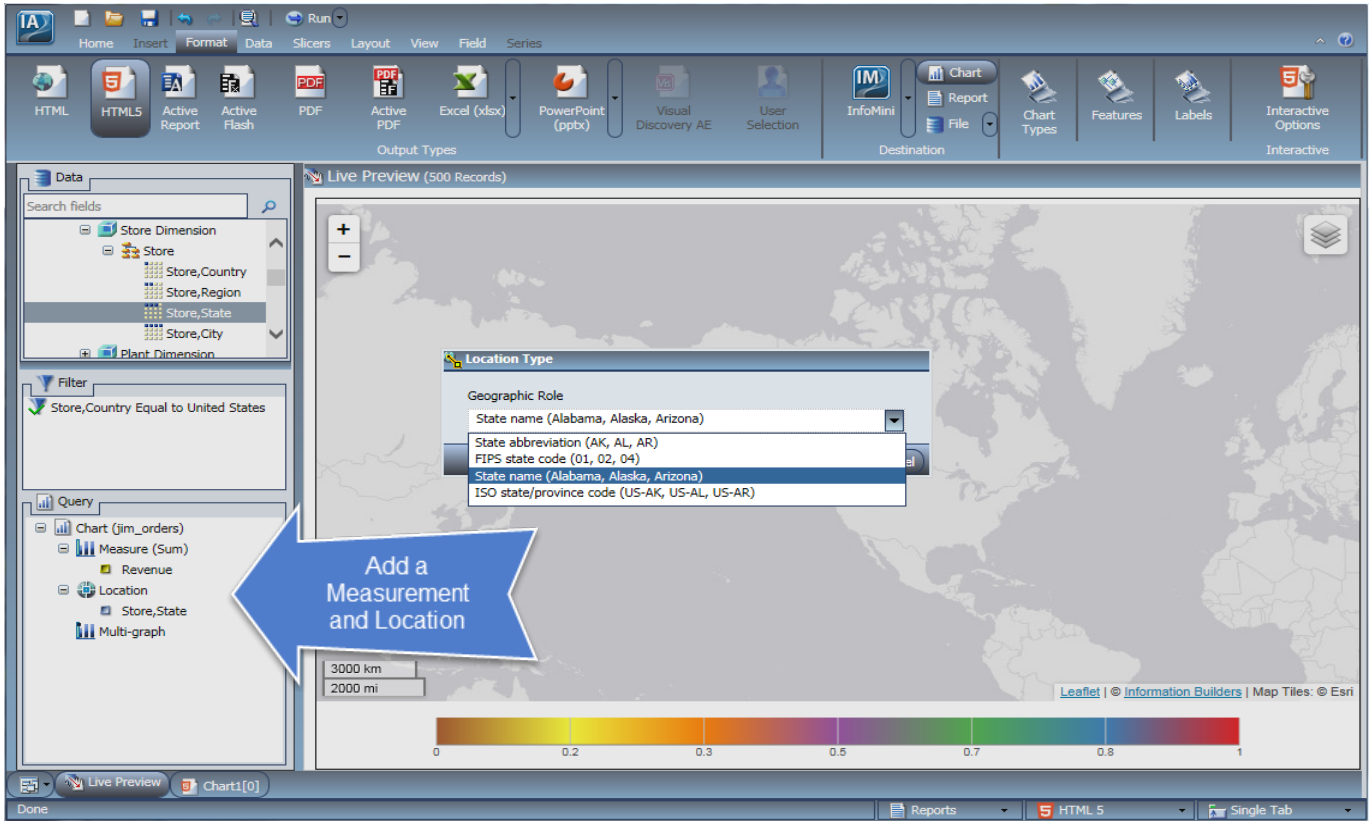
- Choose Format type of HTML5

- Select the MAP Tool

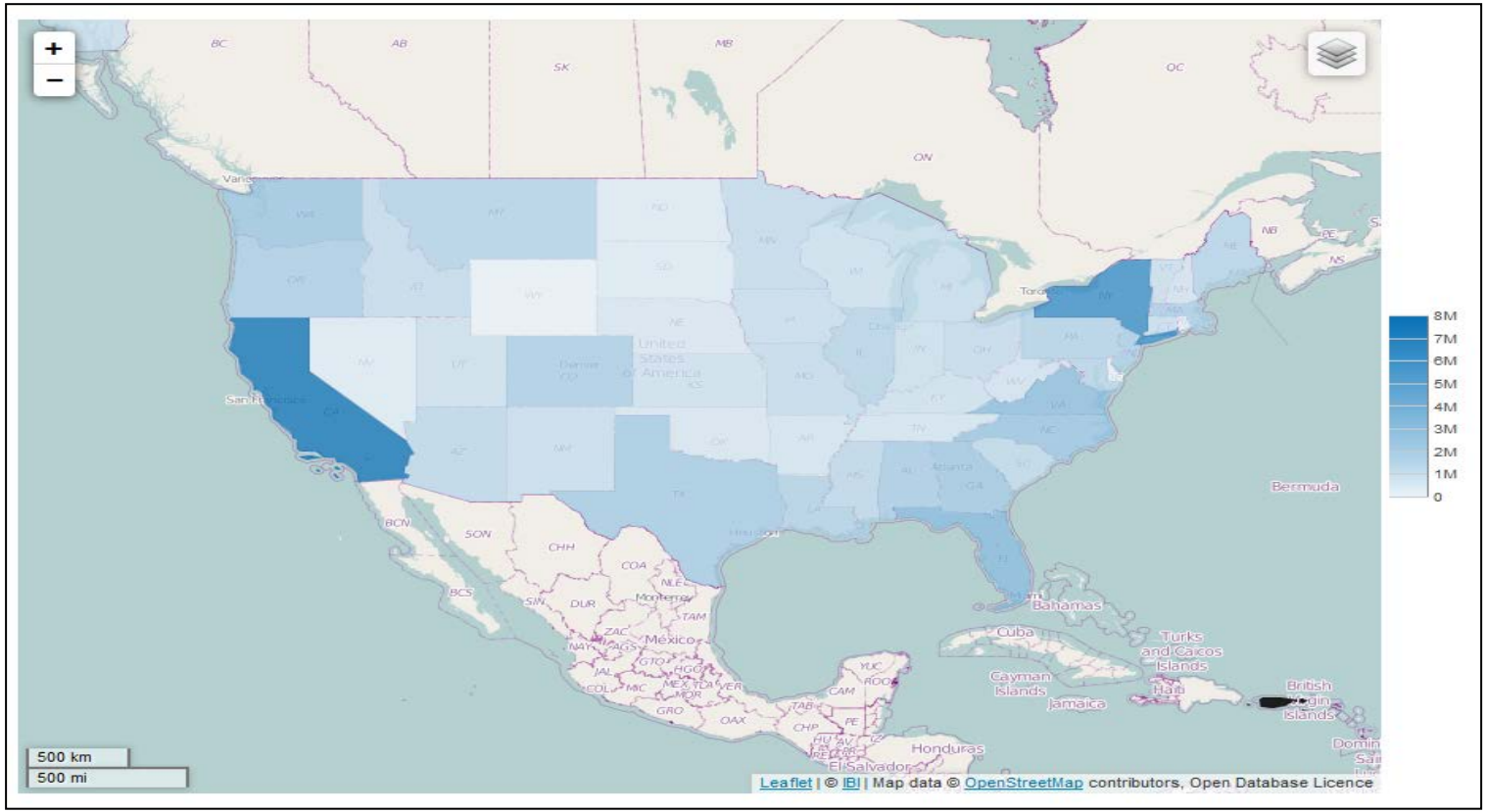


Building a Map

- Select Type of map
  - Choropleth (heat map) or Bubble
- Select Territory
  - Only “enabled” maps shown in drop down box
- Select Color Scale

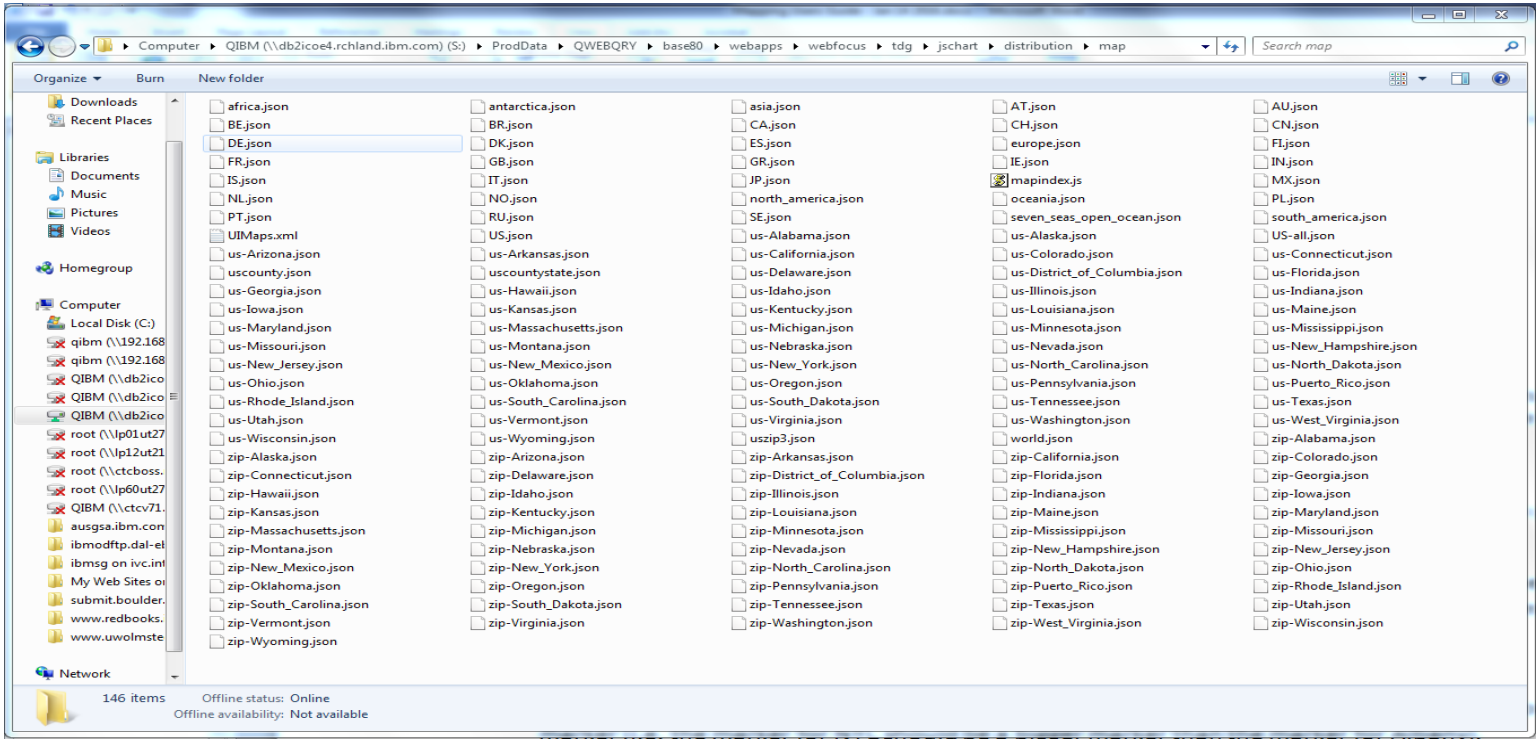


Interactive Chart Options



Many more maps are included – they just need to be enabled

- **Prepackaged JSON files found in /qibm/proddata/qwebqry/base80/webapps/webfocus/tdg/jschart/distribution/map**

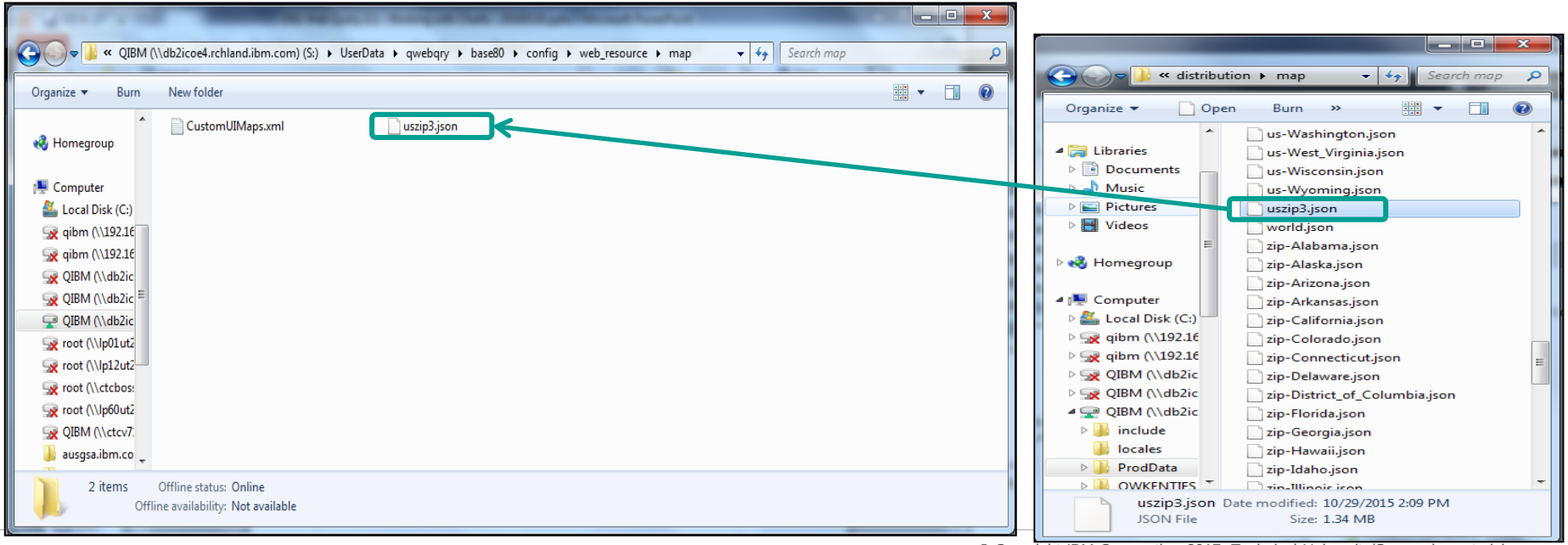


Enabling Additional Territories - Prepackaged Files

Copy the JSON file that you wish to enable

From: /qibm/proddata/qwebqry/base80/webapps/webfocus/tdg/jschart/distribution/map

To: /qibm/userdata/qwebqry/base80/config/web_resource/map



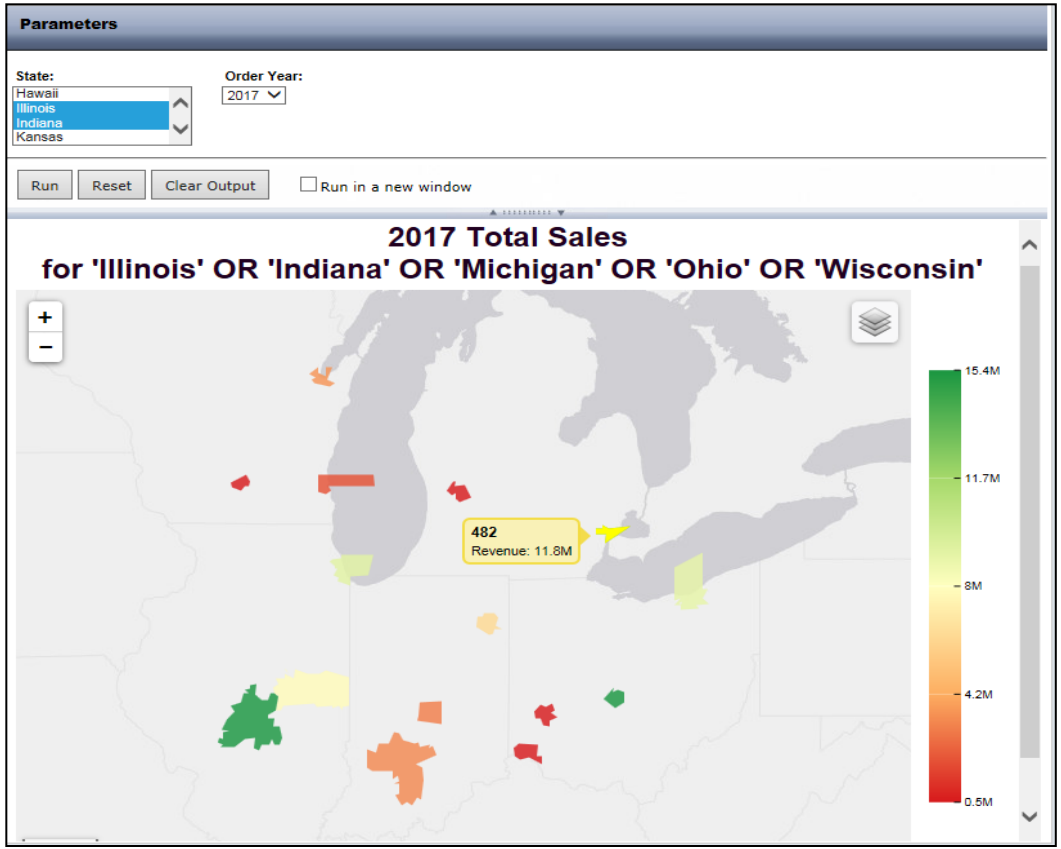
Enabling Additional Territories - Prepackaged Files

- Edit **CustomUIMaps.xml** file in **/qibm/userdata/qwebqry/base80/config/web_resource/map**
- Specify a new **<Map>…</Map>** tag pair for each new map:
  - **file**: The JSON or CSV file name.
  - **name**: The label that will display in the Territory drop-down list
  - **layer:** specify non-default layers, as needed
- Save your file changes and restart the Web Query Server

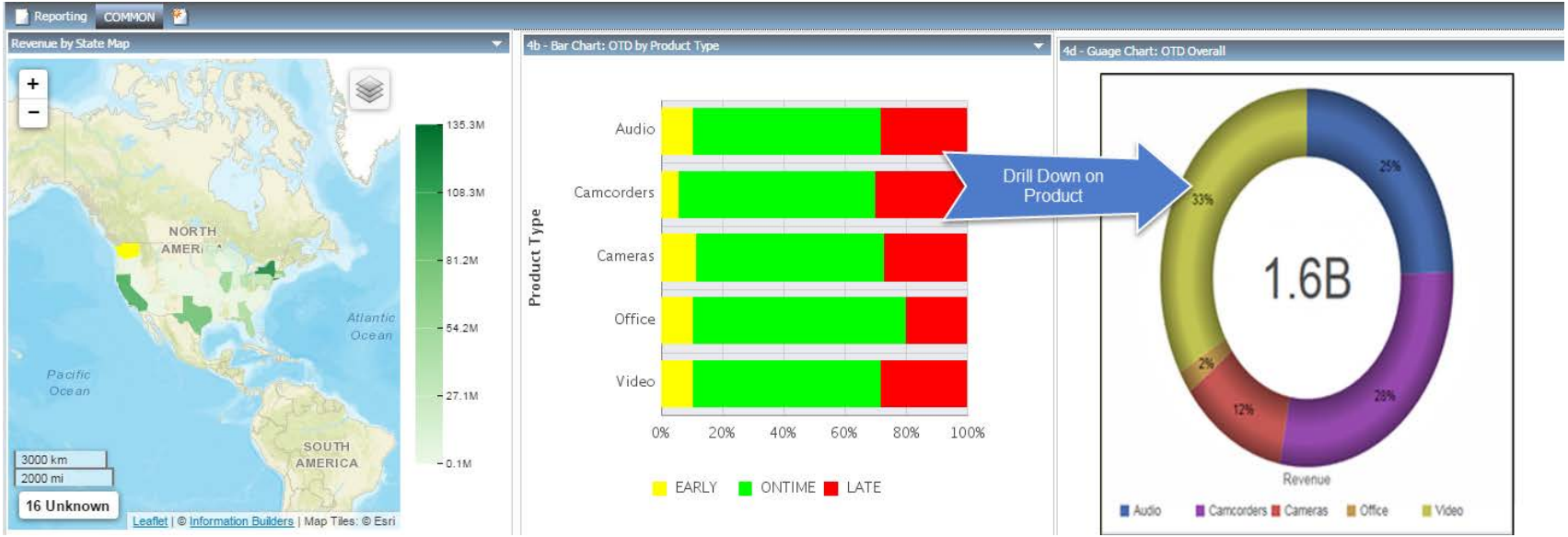
Example: The following edits would enable the “uszip3.json” territory

```
5    <Json>
6   <!--    <Map file="zip-Wyoming.json" name="zip-Wyoming" layer='regions'>    </Map>-->
7   <!--    <Map file="us-state-centroids.csv" name="us-state-centroids"
    csvfields='fred,lat,lng'></Map>-->
8   <!--    <Map file="sample_ggsales_regions.geojson"  name="GGSales Sample Regions">  </Map> -->
9   <!--    <Map file="sample_wfretail_regions.geojson" name="WFRetail Sample Regions"> </Map> -->
10  <Map file="uszip3.json" name="US Zip3 Regions" layer='regions'> </Map>
11     </Json>
12  <!--
```

Example report that uses the new Zip3 map!



Insert the Map Onto a Dashboard



Drill Down to a Detail Report

Revenue and Gross Profit by Product

Product Type	Product Category	Revenue	Gross Profit	Gross_Profit_Compute
Camcorders	DVD Camcorders	379,376,637.00	79,003,287.00	20.82%
Video	DVD	329,872,045.00	81,103,145.00	24.59%
Cameras	Digital Cameras	184,103,667.00	50,774,837.00	27.58%
Video	TV	168,799,539.00	18,027,839.00	10.68%
Audio	Audio Systems	122,345,680.00	40,062,860.00	32.75%
Audio			60,036,063.00	70.87%
Audio			16,008,999.00	29.73%
Camcorders			17,411,091.00	33.78%
Audio			17,052,928.00	39.21%
Audio	Amplifiers/ PreA	42,374,428.00	16,634,858.00	39.26%
Audio	Receivers	35,907,113.00	12,909,113.00	35.95%
Video	VCR	21,688,621.00	5,417,671.00	24.98%
Office	Handheld and PD	18,533,190.00	4,465,770.00	24.10%
Camcorders	Digital8 Camcor	13,614,953.00	7,102,353.00	52.17%
Office	Organizers	11,712,495.00	6,755,190.00	57.68%

Our Enhanced Query/400 Report !

That's COOL!!

Prepared on 11/21/16 at 16.32.32

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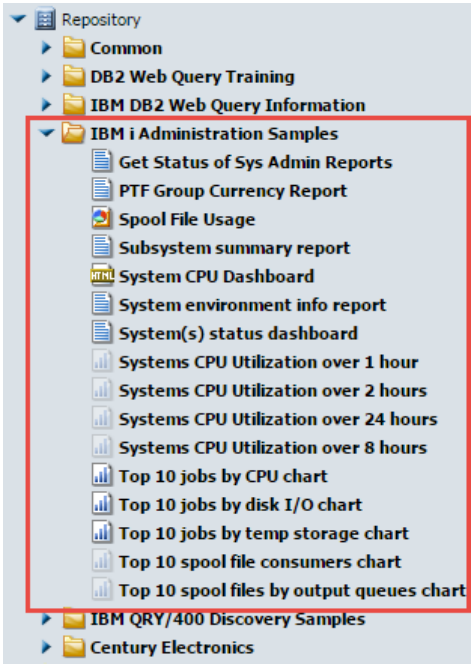
Sample System Admin Reports

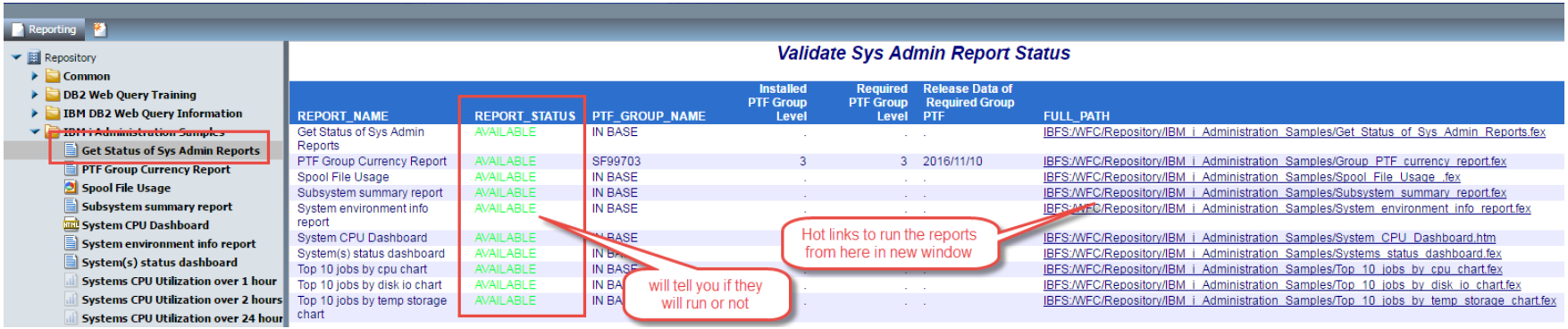
- EZ-Install Package
  - Earlier this year we introduced a simple way of installing and getting immediate value out of DB2 Web Query
    - Includes Sample reports/dashboards that a Systems Admin might be interested in
    - Includes DB2 Web Query audit reports/dashboards
    - Query/400 Discovery Tool
    - Must be at 7.1 or above
  - Request EZ-Install by sending email to QU2@us.ibm.com
    - Include your name, company name, and serial number where you plan to install
    - If you already have DB2 Web Query Version 2.2 installed, you can just request the standalone System Admin Sample Reports



- System Admin reports use IBM i “Services”
  - Version/Release and TR level matter
  - HOWEVER – we help you with this by providing a report that checks for which services you have and will show you the result

Sample System Admin Reports

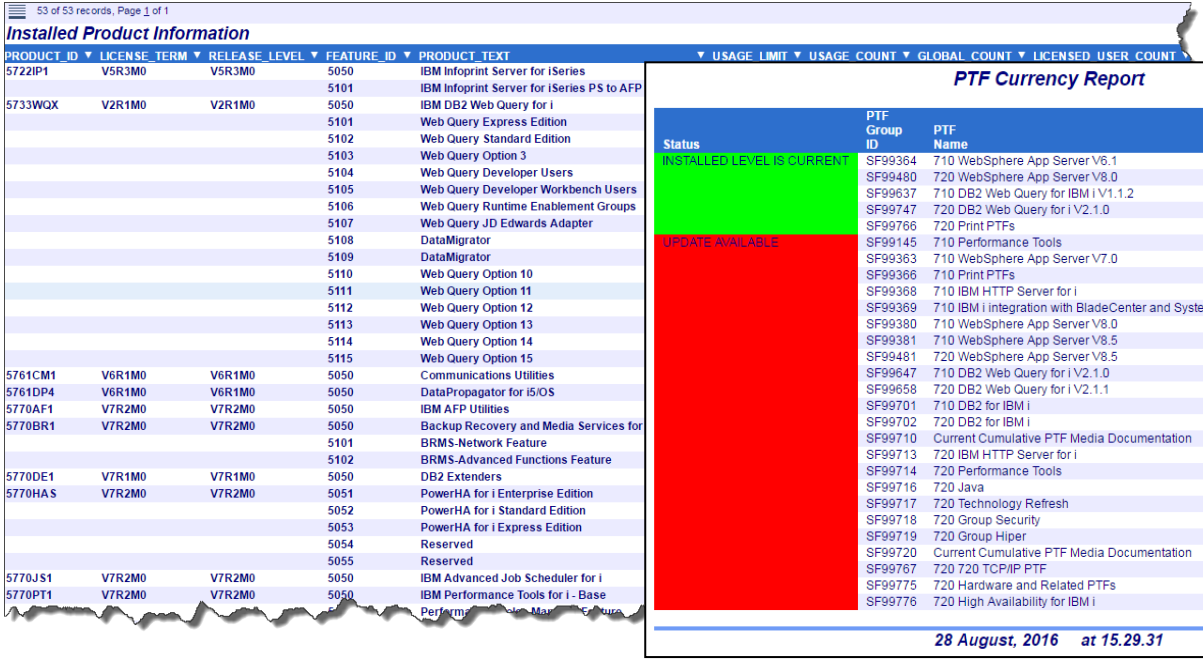
- Once installed, Run the “Get Status of Sys Admin Reports” by double clicking or right click and “RUN”



- Status of the reports – Green is good !
- Run the report if desired by clicking on the links in the Full Path column

How Up to Date are your Group PTFs ?

- Checks installed level against available level
- Available levels obtained from the web
  - Your system must have a connection to the web



53 of 53 records, Page 1 of 1

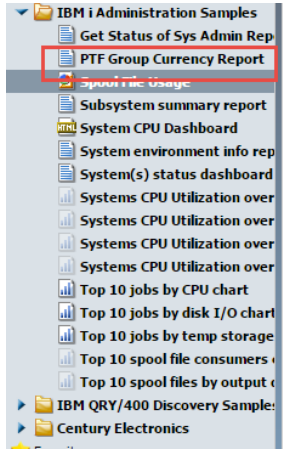
Installed Product Information

PRODUCT_ID	LICENSE_TERM	RELEASE_LEVEL	FEATURE_ID	PRODUCT_TEXT	USAGE_LIMIT	USAGE_COUNT	GLOBAL_COUNT	LICENSED_USER_COUNT
5722IP1	V5R3M0	V5R3M0	5050	IBM Infoprint Server for iSeries				
			5101	IBM Infoprint Server for iSeries PS to AFP				
5733WQX	V2R1M0	V2R1M0	5050	IBM DB2 Web Query for i				
			5101	Web Query Express Edition				
			5102	Web Query Standard Edition				
			5103	Web Query Option 3				
			5104	Web Query Developer Users				
			5105	Web Query Developer Workbench Users				
			5106	Web Query Runtime Enablement Groups				
			5107	Web Query JD Edwards Adapter				
			5108	DataMigrator				
			5109	DataMigrator				
			5110	Web Query Option 10				
			5111	Web Query Option 11				
			5112	Web Query Option 12				
			5113	Web Query Option 13				
			5114	Web Query Option 14				
			5115	Web Query Option 15				
5761CM1	V6R1M0	V6R1M0	5050	Communications Utilities				
5761DP4	V6R1M0	V6R1M0	5050	DataPropagator for i5/OS				
5770AF1	V7R2M0	V7R2M0	5050	IBM AFP Utilities				
5770BR1	V7R2M0	V7R2M0	5050	Backup Recovery and Media Services for				
			5101	BRMS-Network Feature				
			5102	BRMS-Advanced Functions Feature				
5770DE1	V7R1M0	V7R1M0	5050	DB2 Extenders				
5770HAS	V7R2M0	V7R2M0	5051	PowerHA for i Enterprise Edition				
			5052	PowerHA for i Standard Edition				
			5053	PowerHA for i Express Edition				
			5054	Reserved				
			5055	Reserved				
5770JS1	V7R2M0	V7R2M0	5050	IBM Advanced Job Scheduler for i				
5770PT1	V7R2M0	V7R2M0	5050	IBM Performance Tools for i - Base				

PTF Currency Report

Status	PTF Group ID	PTF Name	Installed Level	Level Available	Date of last IBM Update
INSTALLED LEVEL IS CURRENT	SF99364	710 WebSphere App Server V6.1	9	9	09/09/2013
	SF99480	720 WebSphere App Server V8.0	6	6	02/01/2016
	SF99637	710 DB2 Web Query for IBM i V1.1.2	9	9	12/12/2013
	SF99747	720 DB2 Web Query for i V2.1.0	14	14	03/30/2016
	SF99766	720 Print PTFs	3	3	01/07/2015
UPDATE AVAILABLE	SF99145	710 Performance Tools	9	11	05/17/2016
	SF99363	710 WebSphere App Server V7.0	16	19	04/11/2016
	SF99366	710 Print PTFs	8	12	01/07/2015
	SF99368	710 IBM HTTP Server for i	37	42	07/01/2016
	SF99369	710 IBM i integration with BladeCenter and System x	13	16	12/18/2014
	SF99380	710 WebSphere App Server V8.0	11	15	02/01/2016
	SF99381	710 WebSphere App Server V8.5	10	16	08/14/2016
	SF99481	720 WebSphere App Server V8.5	8	9	08/14/2016
	SF99647	710 DB2 Web Query for i V2.1.0	13	14	03/30/2016
	SF99658	720 DB2 Web Query for i V2.1.1	2	3	03/30/2016
	SF99701	710 DB2 for IBM i	38	40	04/28/2016
	SF99702	720 DB2 for IBM i	12	13	07/14/2016
	SF99710	Current Cumulative PTF Media Documentation	14283	16120	05/19/2016
	SF99713	720 IBM HTTP Server for i	15	16	07/01/2016
	SF99714	720 Performance Tools	2	4	05/17/2016
	SF99716	720 Java	9	10	06/21/2016
	SF99717	720 Technology Refresh	3	4	05/19/2016
	SF99718	720 Group Security	29	36	08/09/2016
	SF99719	720 Group Hiper	60	71	08/23/2016
	SF99720	Current Cumulative PTF Media Documentation	15311	16127	05/20/2016
	SF99767	720 720 TCP/IP PTF	2	3	06/25/2016
	SF99775	720 Hardware and Related PTFs	14	17	04/25/2016
	SF99776	720 High Availability for IBM i	3	5	07/22/2016

28 August, 2016 at 15.29.31



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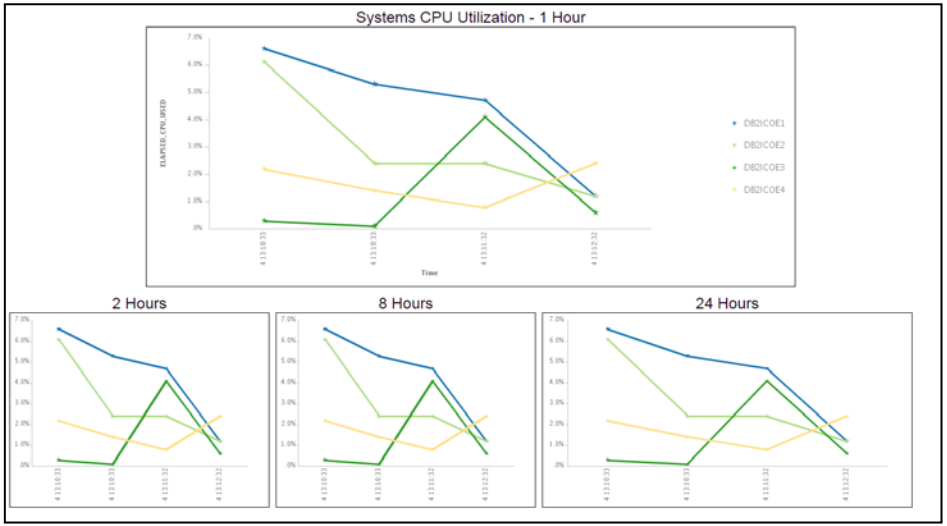
Create a visualization of data returned from a DB2 Stored Procedure or View

1. **Create a DB2 Web Query for i synonym over the stored procedure or view**
2. **Use the synonym to construct your chart(s)**
3. **Include one or more reports/charts onto a dashboard**

We'll use the Systems CPU Utilization SP and dashboard included with the System Administration sample reports as our example:



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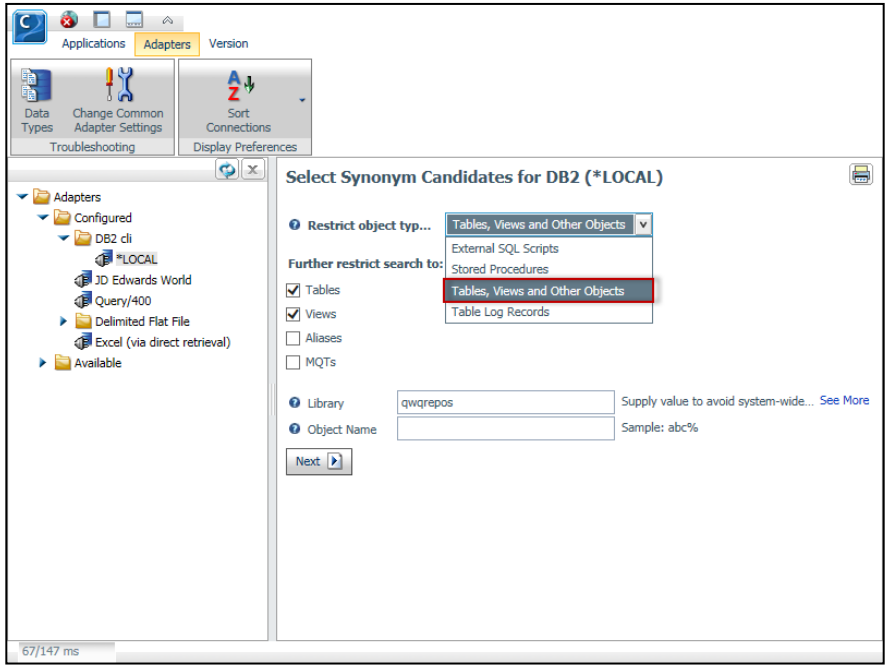
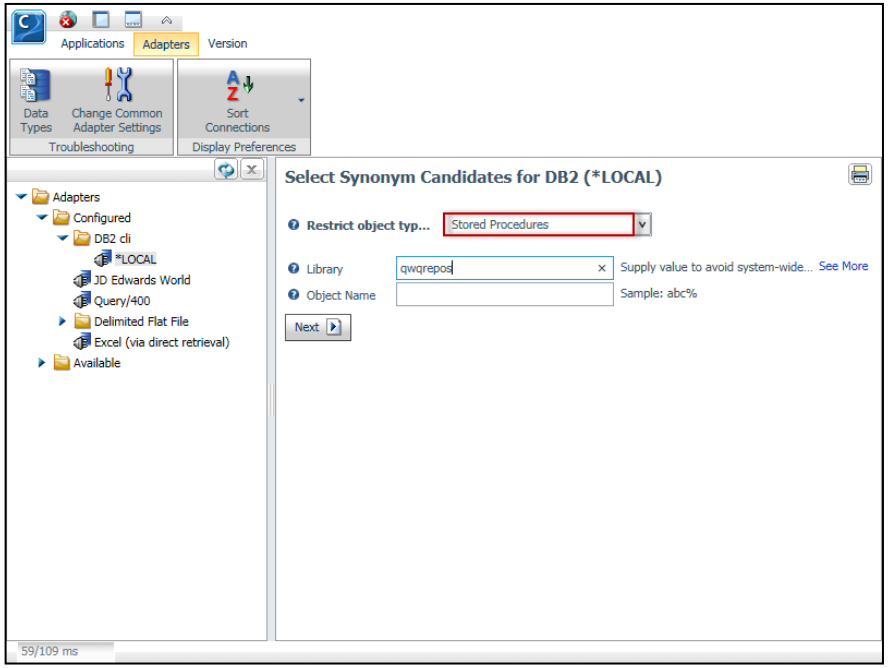


OR



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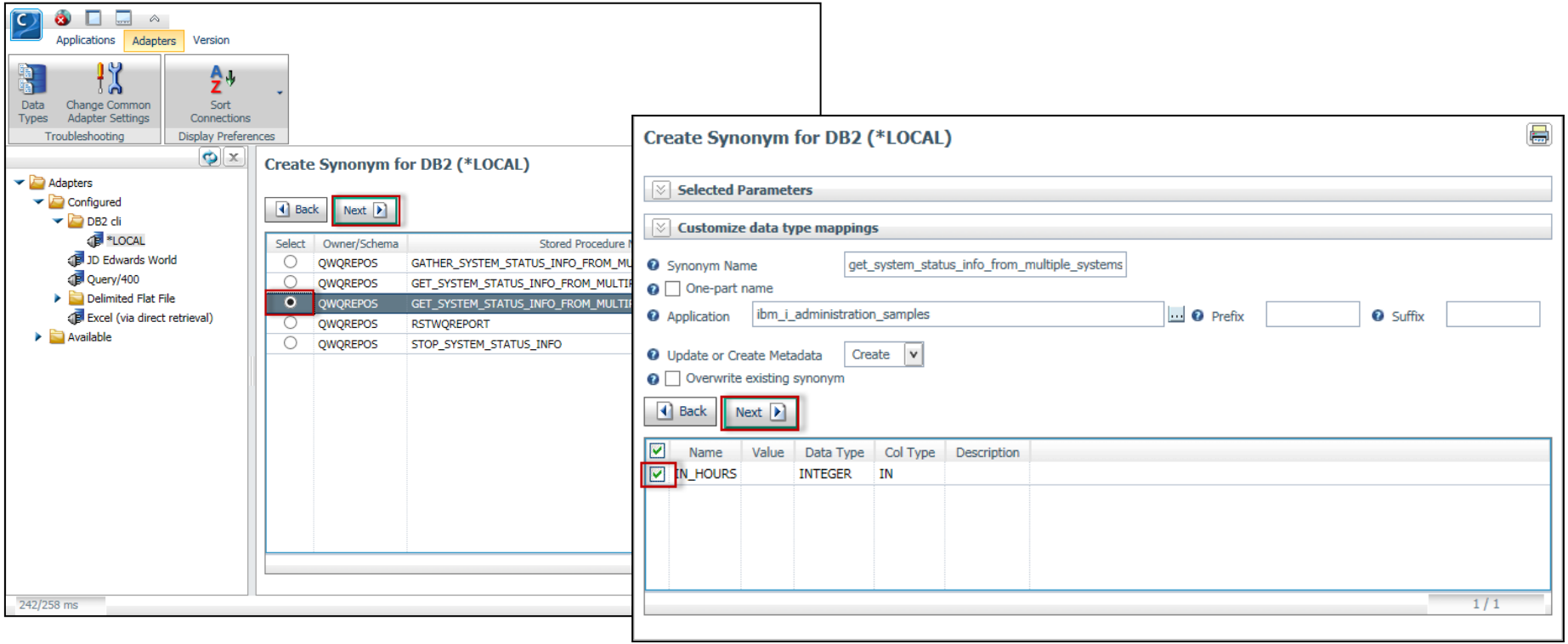
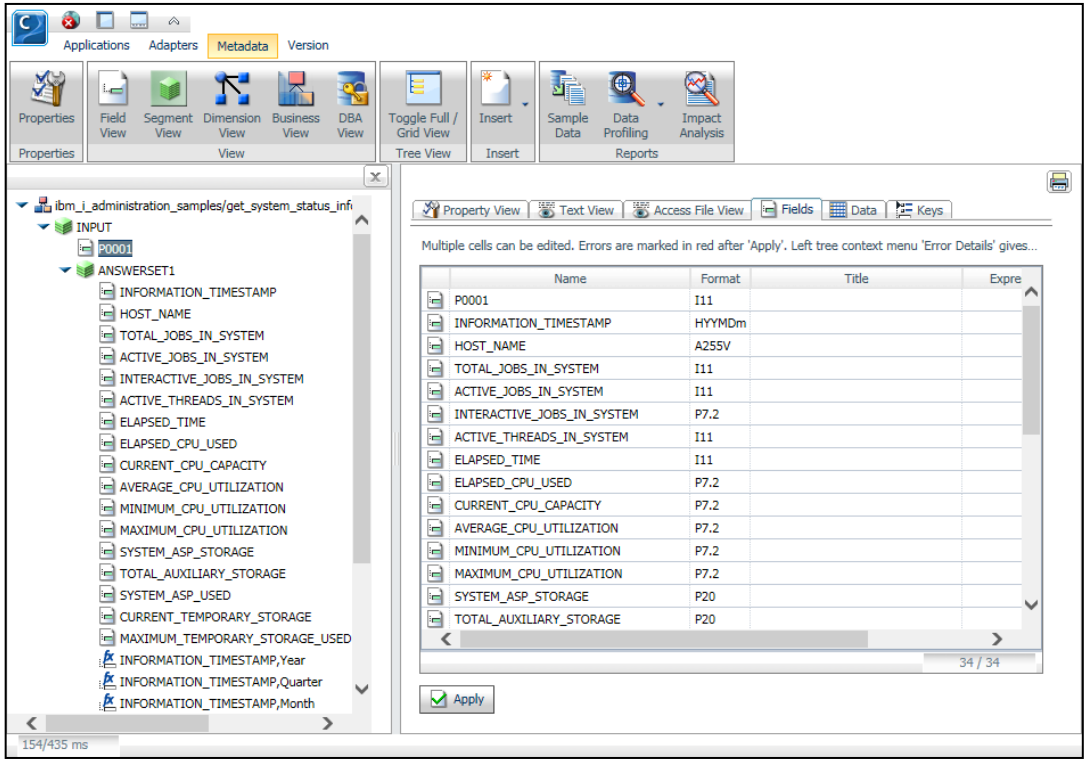


Create a visualization of data returned from a DB2 Stored Procedure or View

1. **Create a DB2 Web Query for i synonym over the stored procedure or view – Results:**



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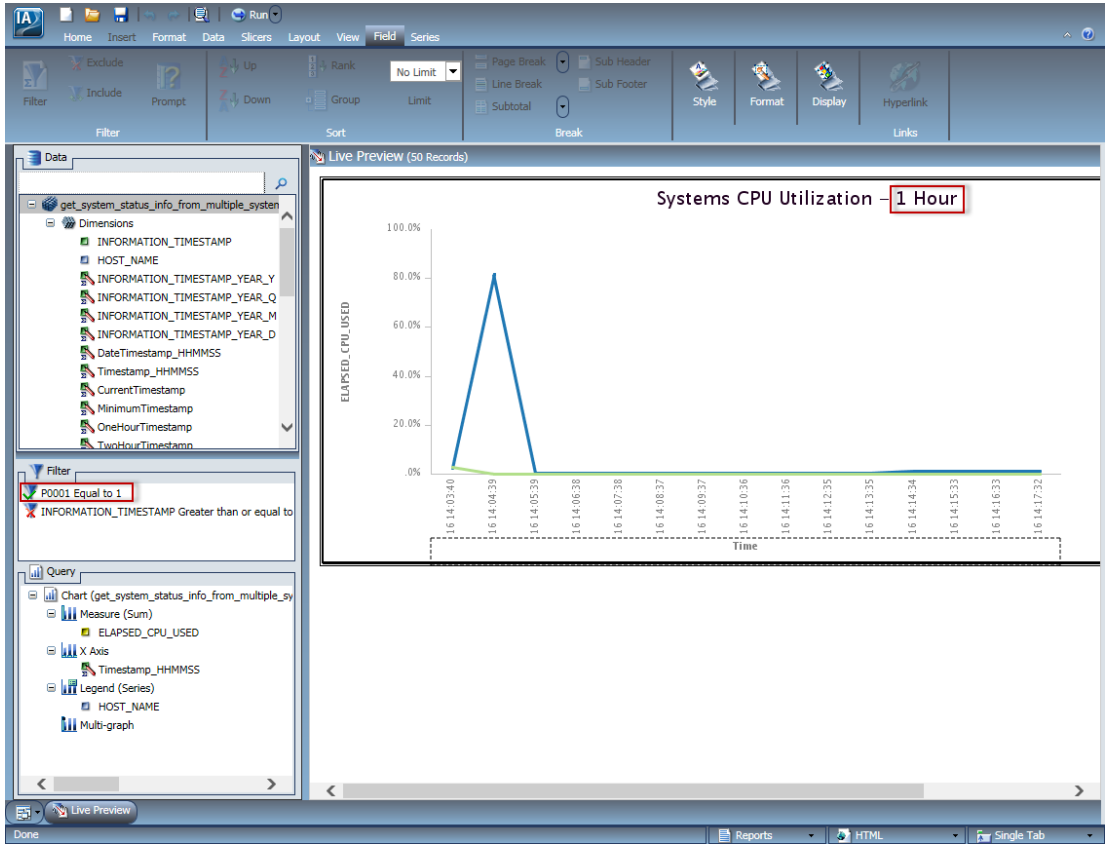
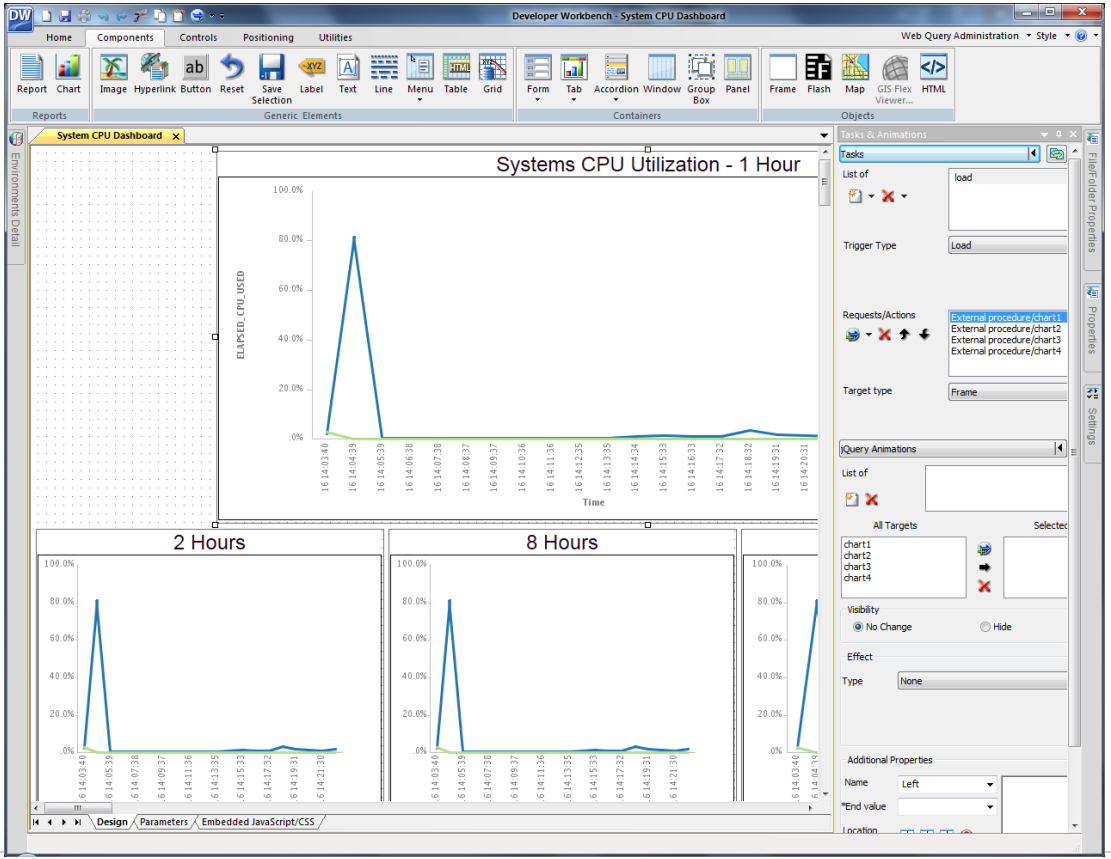
2. **Use the synonym to construct your chart(s)**



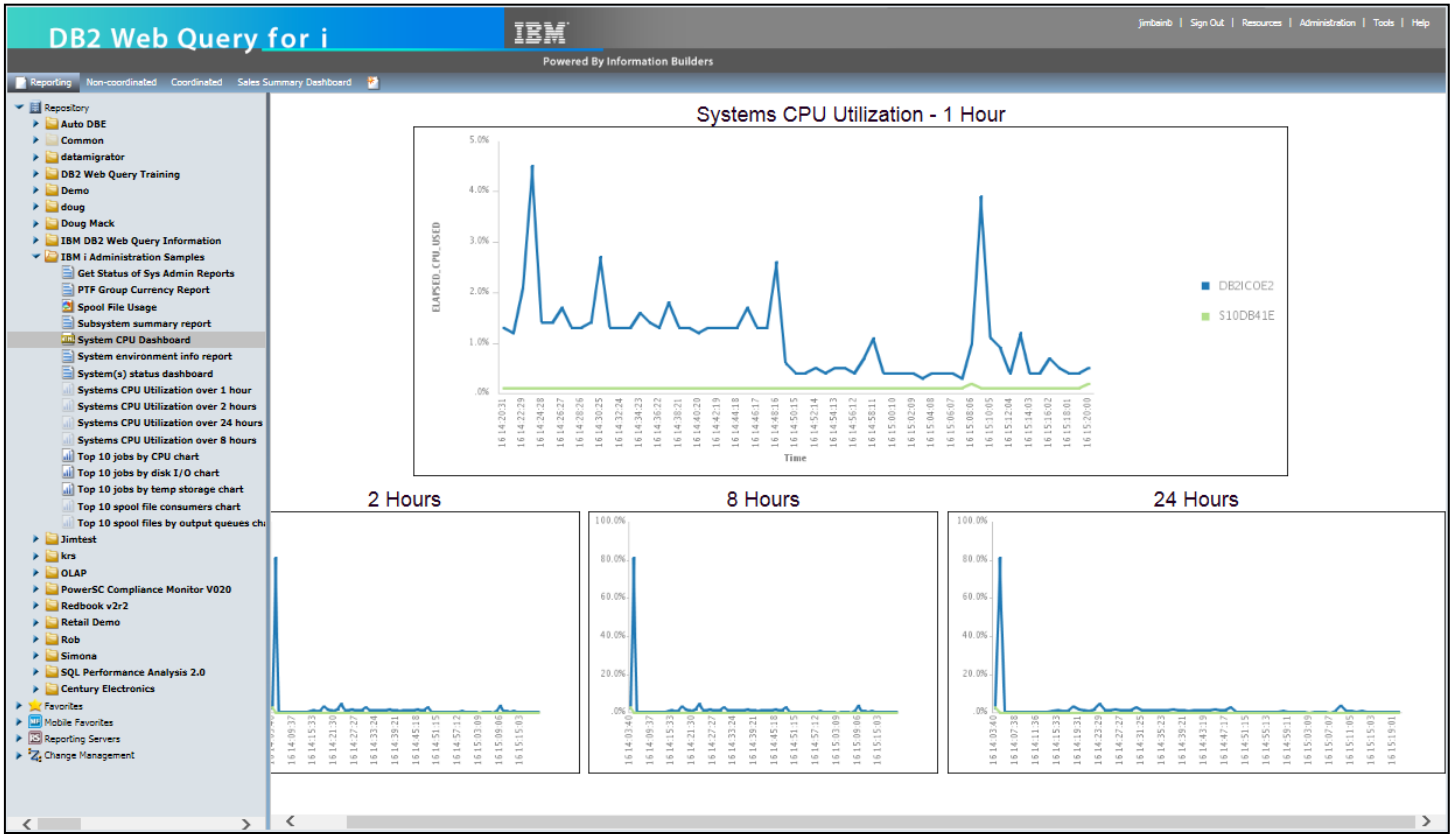
Create a visualization of data returned from a DB2 Stored Procedure or View

3. **Include one or more reports/charts onto a dashboard**



Create a visualization of data returned from a DB2 Stored Procedure or View

Results:



Agenda

- DB2 Web Query – Brief Overview
- Cool things you can do:
  - Replace 20 Query/400 reports with a single auto-drill down report for your business analysts
    - DB2 Web Query and Active Reports/OLAP
  - Embed a report in a spreadsheet
    - DB2 Web Query Excel Add-in
  - Place a map on a dashboard displaying key performance indicators by geography
    - Mapping
  - Check how up to date you are on Group PTFs
    - EZ-Install and System admin sample reports
  - Create a visualization of data returned from a DB2 Stored Procedure or View
    - Metadata
  - Extract data from Microsoft SQLServer, Oracle and many other databases for consolidated enterprise reporting
    - Adapters
  - Talk to Watson web services
    - HTML Hyperlink

Available DB2 Web Query Adapters

Express and Standard

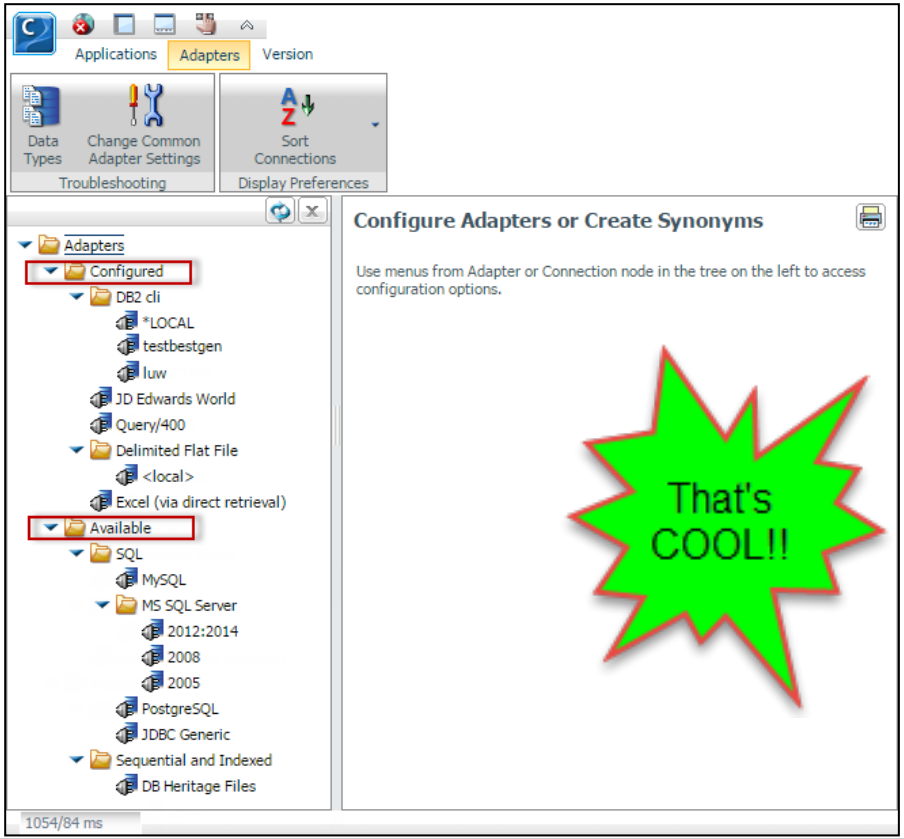
- DB2 CLI (Call Level Interface)
  - Local and remote (DRDA)
- Query/400
- DB Heritage File

Standard only

- MySQL
- MS SQL Server
- PostgresSQL
- JDBC Generic

Separate charge

- JDE



Agenda

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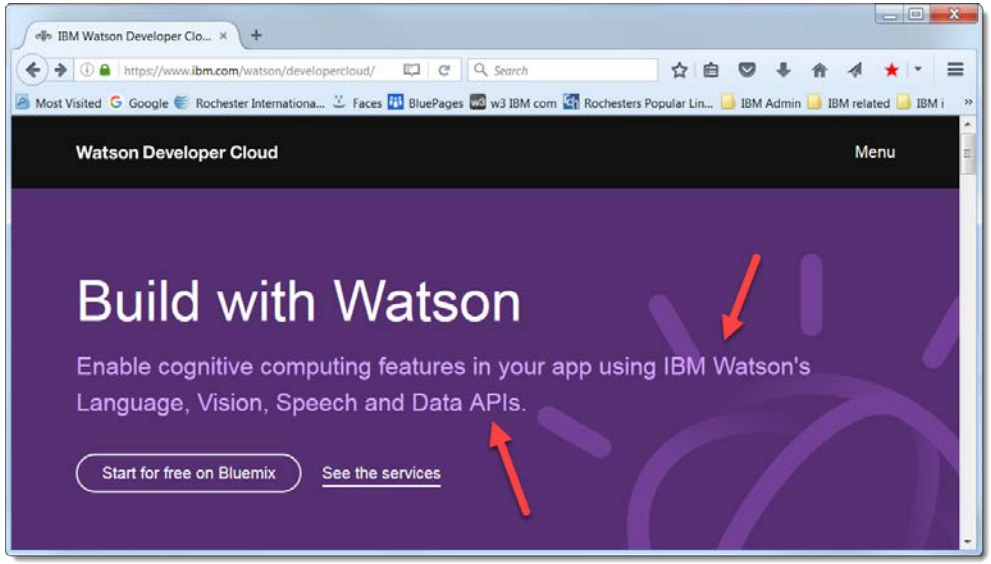
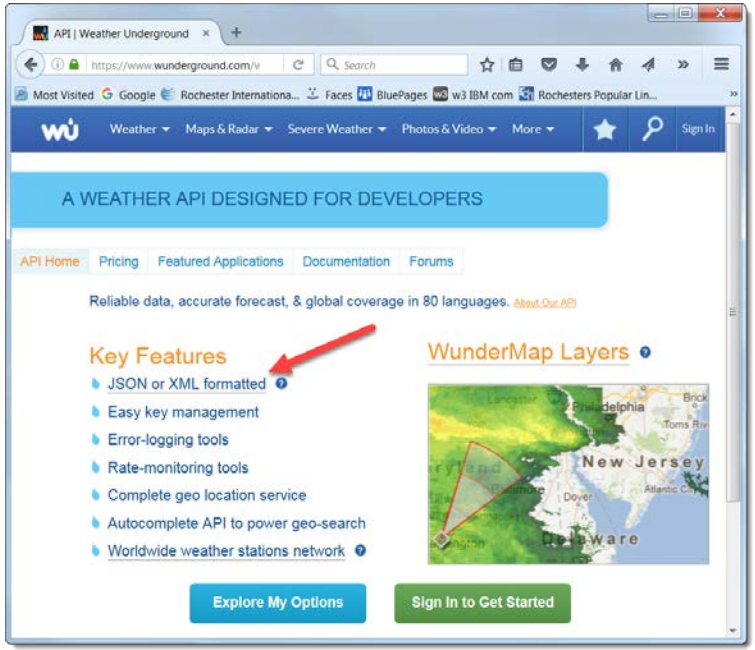
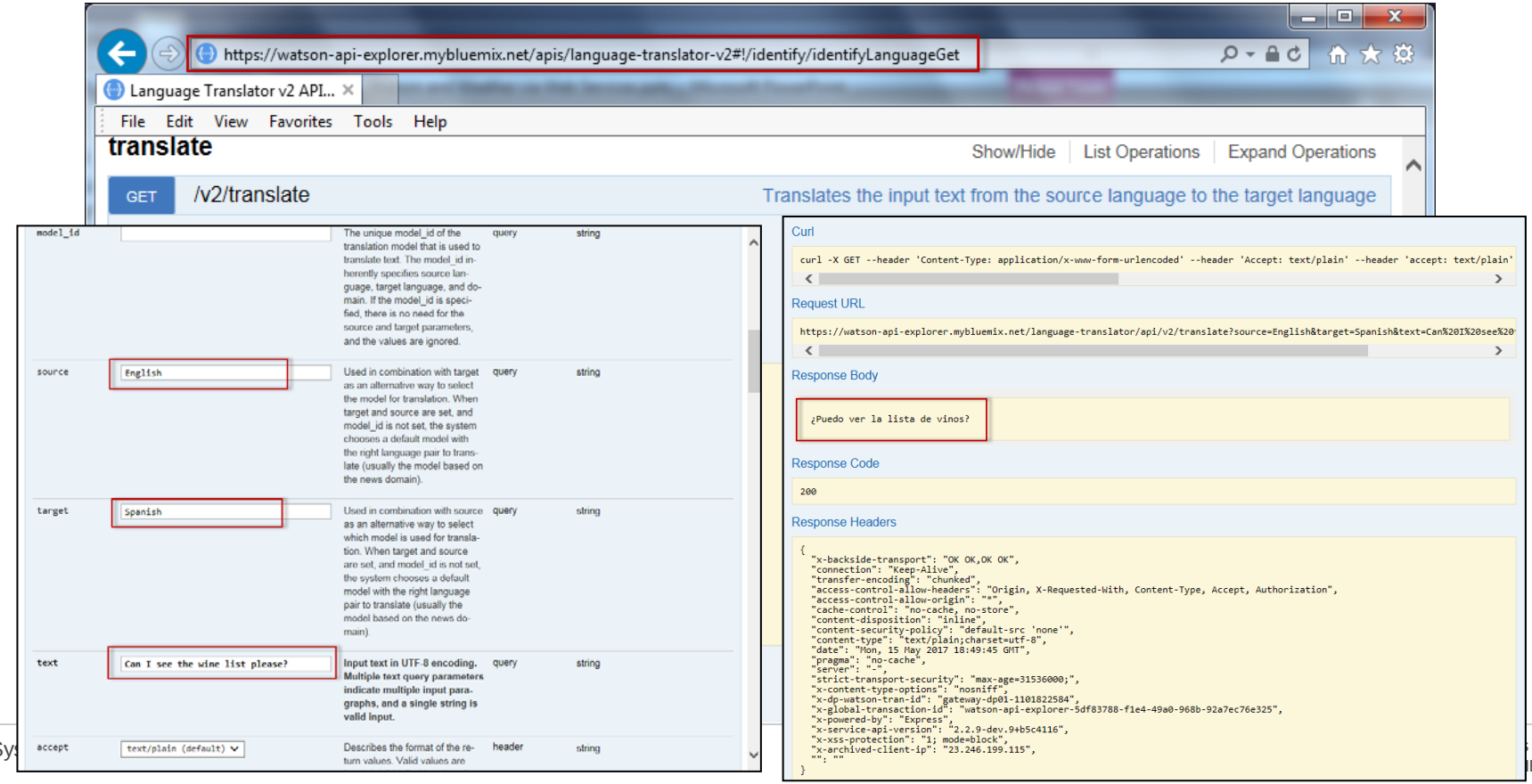
Web Services and APIs

- IBM Watson services and APIs
- The Weather Company services and APIs
- Etc.





Watson API Explorer

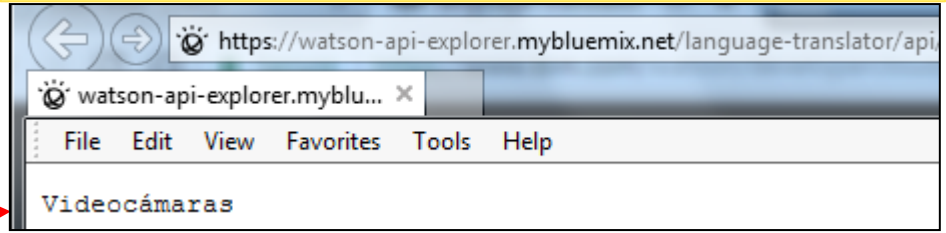


Using URL Hyperlink with Dynamic String Content

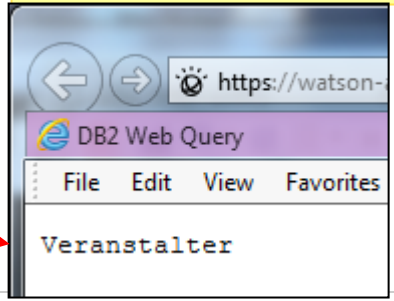
- **With DB2 Web Query, we can create a Hyperlink URL string that combines standard parameter format and report field values**
  - For example, if you want to see Product Type in Spanish, or Product Category in German – click on a link to see the Watson translation results:

Product Type (Link - Spanish)	Product Category (Link - German)		Order Year 2016	2017
Audio	Amplifiers/PreAmps/Tuners	Revenue	$19,896,918.00	$22,477,510.00
		Cost of Goods Sold	$12,100,720.00	$13,638,850.00
	Audio Systems	Revenue	$64,356,707.00	$57,988,973.00
		Cost of Goods Sold	$43,278,460.00	$39,004,360.00
	CD Players and Recorders	Revenue	$27,740,934.00	$26,106,525.00
		Cost of Goods Sold	$19,325,220.00	$18,513,240.00
	MP3	Revenue	$20,764,481.00	$22,727,107.00
		Cost of Goods Sold	$12,450,660.00	$13,988,000.00
	Receivers	Revenue	$18,090,638.00	$17,816,475.00
		Cost of Goods Sold	$11,673,250.00	$11,324,750.00
	Speakers	Revenue	$40,071,006.00	$44,646,047.00
		Cost of Goods Sold	$11,755,970.00	$12,927,020.00
Camcorders	Digitalo Camcorders	Revenue	$6,232,363.00	$7,382,590.00
		Cost of Goods Sold	$2,987,110.00	$3,525,490.00
	DVD Camcorders	Revenue	$185,323,541.00	$194,053,096.00
		Cost of Goods Sold	$146,565,450.00	$153,807,900.00
	MiniDV Camcorders	Revenue	$24,961,102.00	$26,578,349.00
		Cost of Goods Sold	$16,557,150.00	$17,571,210.00
Cameras	Digital Cameras	Revenue	$90,761,413.00	$93,342,254.00
		Cost of Goods Sold	$65,764,150.00	$67,564,680.00
Office	Handheld and PDA	Revenue	$9,010,664.00	$9,522,526.00
		Cost of Goods Sold	$6,844,330.00	$7,223,090.00
	Organizers	Revenue	$5,648,224.00	$6,064,271.00
		Cost of Goods Sold	$2,385,290.00	$2,572,015.00
Video	DVD	Revenue	$160,057,256.00	$169,814,789.00
		Cost of Goods Sold	$120,685,650.00	$128,083,250.00
	TV	Revenue	$82,297,472.00	$86,502,067.00
		Cost of Goods Sold	$73,378,600.00	$77,393,100.00
	VCR	Revenue	$11,089,989.00	$10,598,632.00
		Cost of Goods Sold	$8,284,340.00	$7,986,610.00

https://watson-api-explorer.mybluemix.net/language-translator/api/v2/translate?text=Camcorders&source=en&target=es



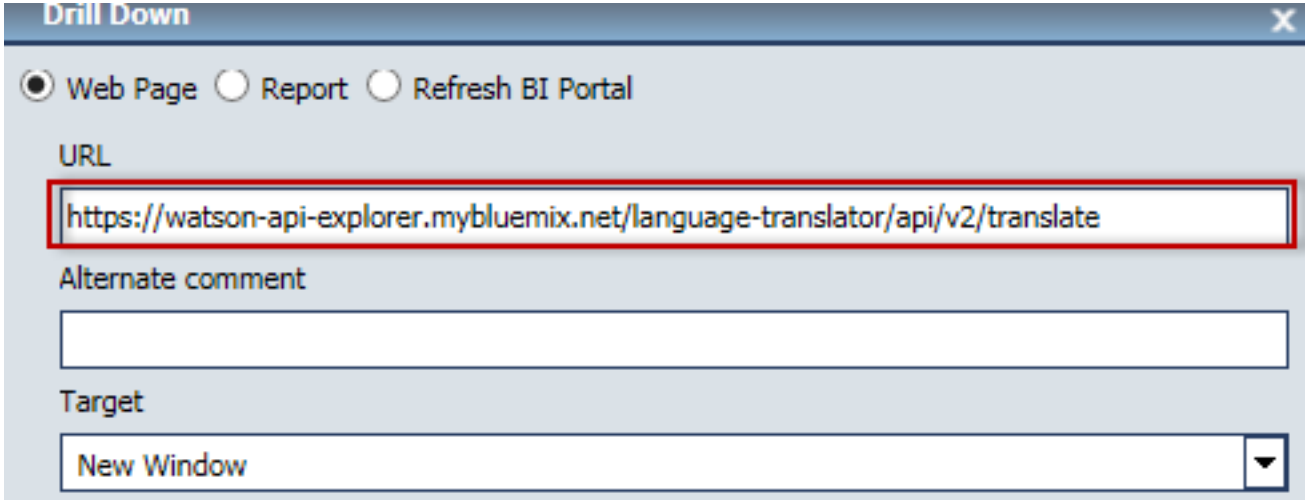
https://watson-api-explorer.mybluemix.net/language-translator/api/v2/translate?text=Organizers&source=en&target=de



Using URL Hyperlink with Dynamic String Content

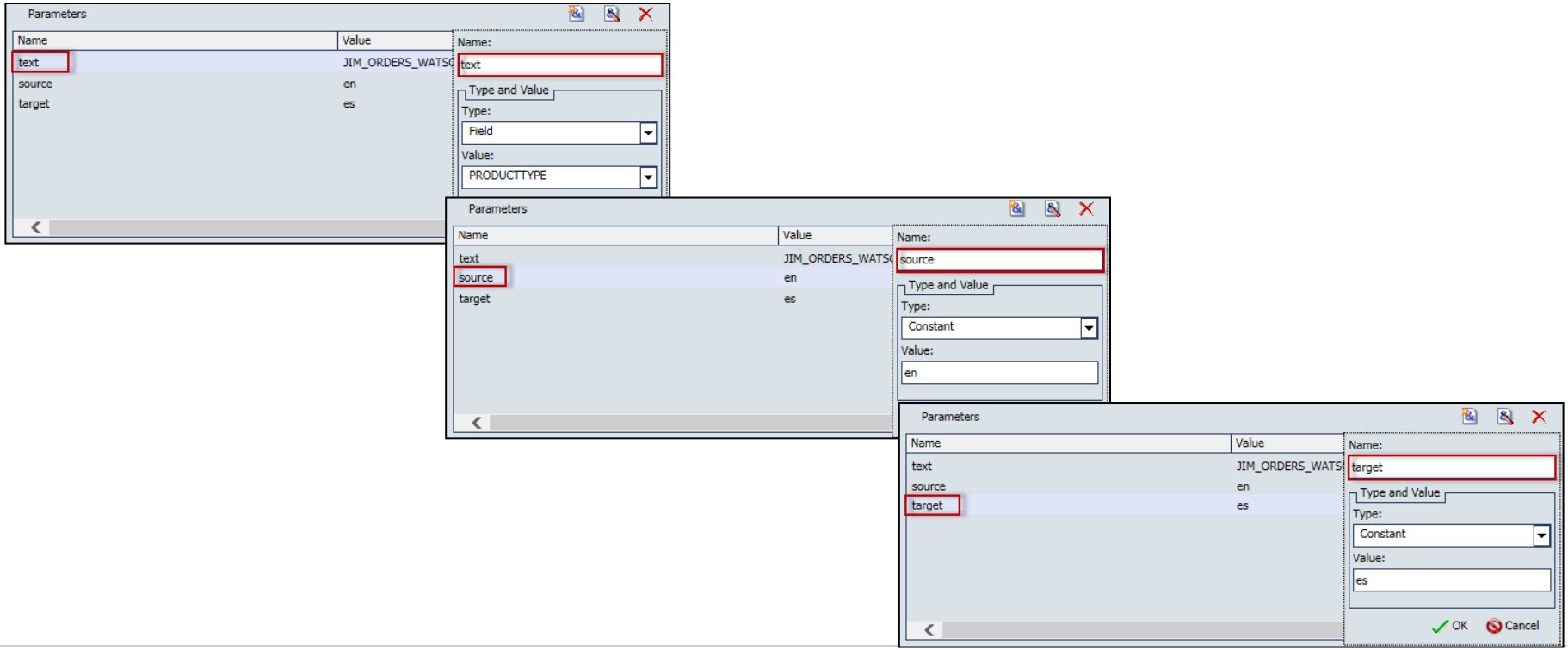
- When you create the URL string in InfoAssist, do the following:

1. Enter the URL string up to, but not including, any parameters:



Using URL Hyperlink with Dynamic String Content

2. For each URL parameter, enter its Name, Type, and Value:



Using URL Hyperlink with Dynamic String Content

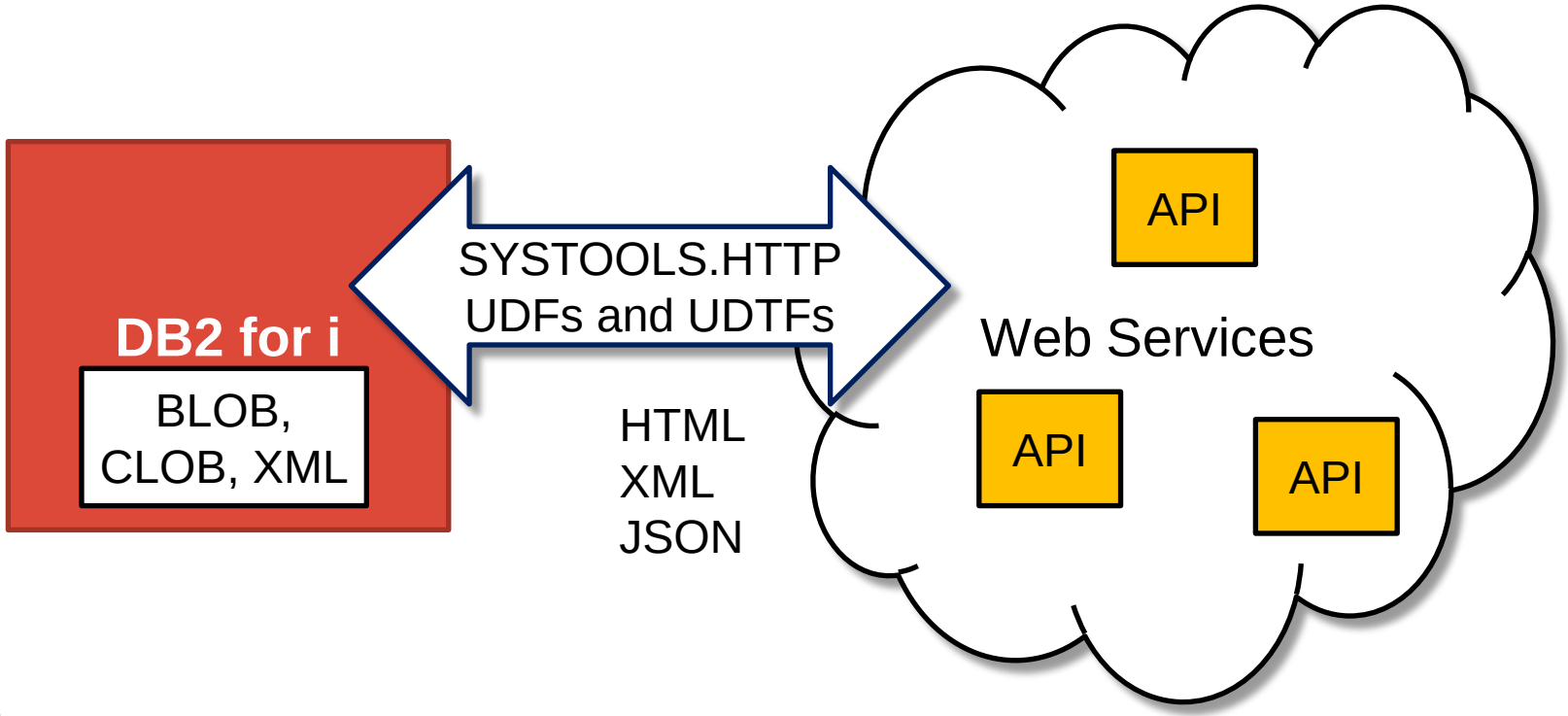
- The following line is placed in your report:

```
TYPE=DATA, COLUMN=N1, TARGET='_blank', URL=https://watson-api-explorer.mybluemix.net/
language-translator/api/v2/translate?(text=JIM_ORDERS_WATSON.T2_INVENTORY.PRODUCTTYPE
source='en' target='es'), $
```

- At report execution, DB2 Web Query will create the following hyperlink for the Camcorders row:

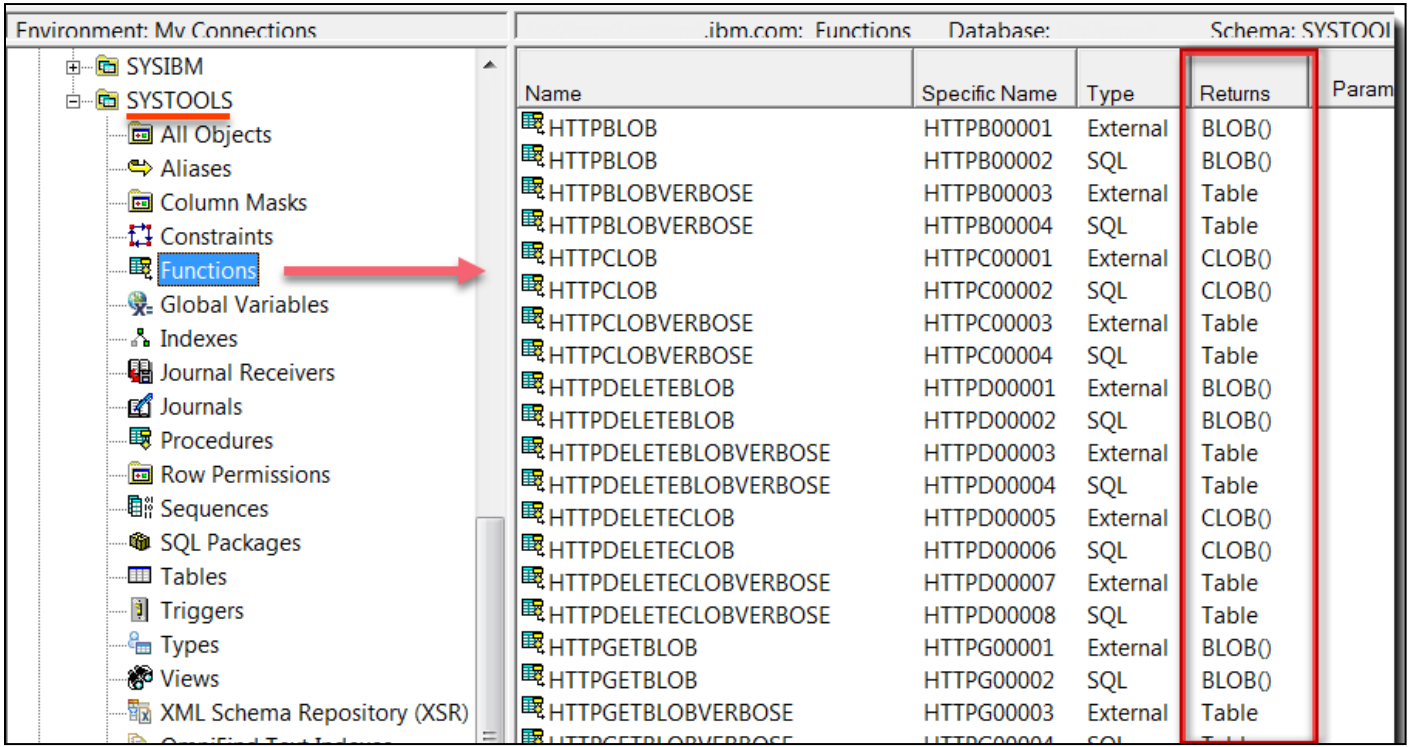
```
https://watson-api-explorer.mybluemix.net/language-translator/api/v2/
translate?text=Camcorders&source=en&target=es
```

Bonus – Calling web services APIs from DB2 for i



Whitepaper:
https://www-356.ibm.com/partnerworld/wps/servlet/ContentHandler/stg_ast_sys_wp_access_web_service_db2_i_udf

Calling web services APIs from DB2 for i

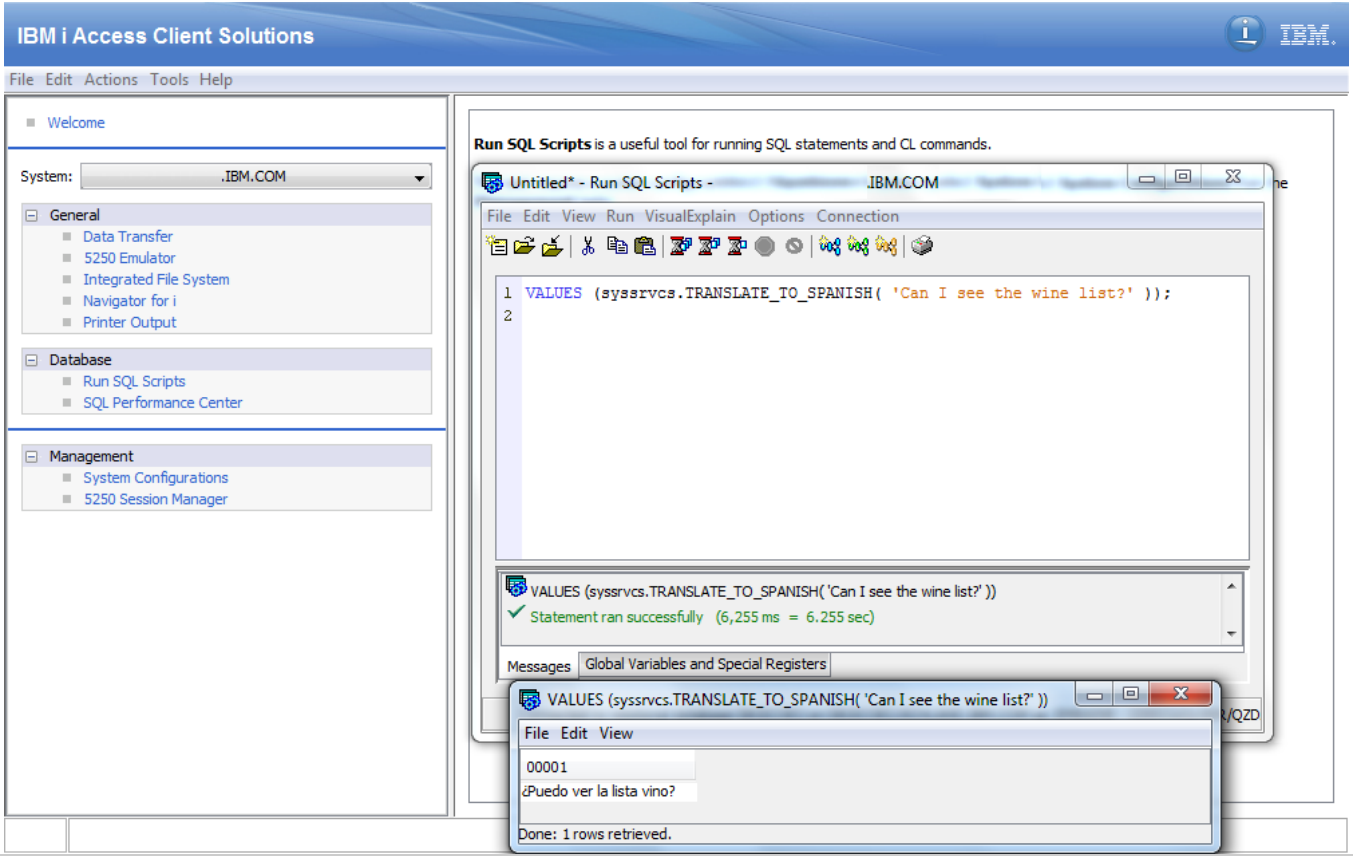


Whitepaper:
https://www-356.ibm.com/partnerworld/wps/servlet/ContentHandler/stg_ast_sys_wp_access_web_service_db2_i_udf

Calling Watson web service API from DB2 for i - Example

```
CREATE OR REPLACE FUNCTION  TRANSLATE_TO_SPANISH  (STR VARCHAR(1000) )
       RETURNS VARCHAR(1000)
       LANGUAGE SQL
BEGIN
RETURN CAST ( SYSTOOLS.HTTPGETCLOB ( 'https://watson-api-explorer.mybluemix.net/
language-translator/api/v2/translate?model_id=en-es&text=' CONCAT SYSTOOLS .
URLENCODE ( STR , '' ) , '' ) AS VARCHAR ( 1000 ) ) ;
END  ;
```

Calling Watson web service API from DB2 for i - Example



Calling Watson web service API from DB2 for i

What's left?

- Create an SQL stored procedure that selects, groups and sums selected DB2 for i table/view data, and then calls the TRANSLATE_TO_SPANISH function to translate Product Category descriptions into Spanish.
- Create a DB2 Web Query synonym over this stored procedure
- Finally, use this new synonym to construct a report

To Learn More

- DB2 Web Query for i Website
  - Ibm.biz/db2webqueryi
- **DB2 Web Query for i Wiki**
  - **Ibm.co/db2wqwiki**
- DB2 Web Query Getting Started Enablement:
  - https://ibm.biz/db2wqconsulting
- Demonstrations:
  - Wizard Analytics: https://ibm.biz/DB2WQWizards
  - End User Demos: https://ibm.biz/db2wqreportingdemos
  - Getting Started Videos: https://ibm.biz/db2wqgettingstarteddemos
- Follow DB2 Web Query guy Doug Mack on twitter at @mckdrmoly or check out his blog at http://db2webqueryi.blogspot.com/ for all the latest

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- **Are you getting the most out DB2 for i?**

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- ✓ DB2 Web Query Getting Started Workshop
- ✓ Database design, features and functions
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- ✓ Data warehousing and Business Intelligence
- ✓ DB2 for i education and training

Contact: Mike Cain mcain@us.ibm.com
IBM Systems and Technology Group
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