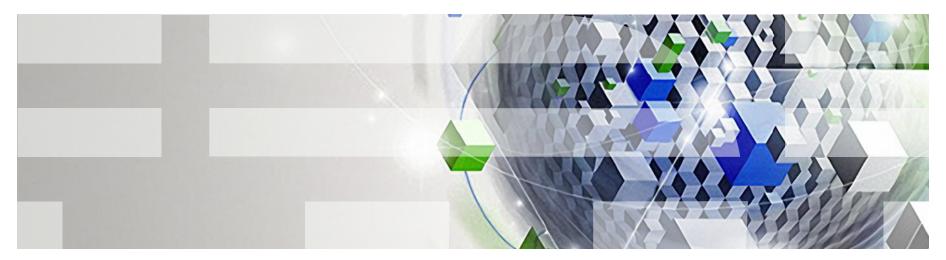


# DB2 Web Query for i Doug Mack mackd@us.ibm.com



## Turning information into insight and insight into business outcomes



### Power is performance redefined

### Power is performance redefined

- DB2 for i Center of Excellence (Lab Services)
- DB2 for i web site articles, papers, presentations
  - ibm.com/systems/i/software/db2/
- Briefings, consulting and guidance on demand\*
- IBM i for Business Intelligence Installation Services
- DB2 Web Query Getting Started Services\*
- Query/400 Modernization Services N
- DB2 for i Modernization Workshop(s)
- DB2 for i SQL Performance Workshop
- DB2 for i SQL Performance Health Check\*
- DB2 for i Very Large Database (VLDB) Assessment\*
- DB2 for i remote database administration and engineer services
  For more information, contact Mike Cain (cain@us.ibm.com)
  Or Doug Mack (mackd@us.ibm.com)



IBM Systems and Technology Group Lab Services Helping our clients WIN the race

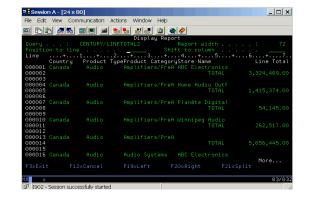




# IBM i Clients Are Still Heavily Using Antiquated Tools

### Many i clients have hundreds if not thousands of Query/400 definitions that have proliferated over time

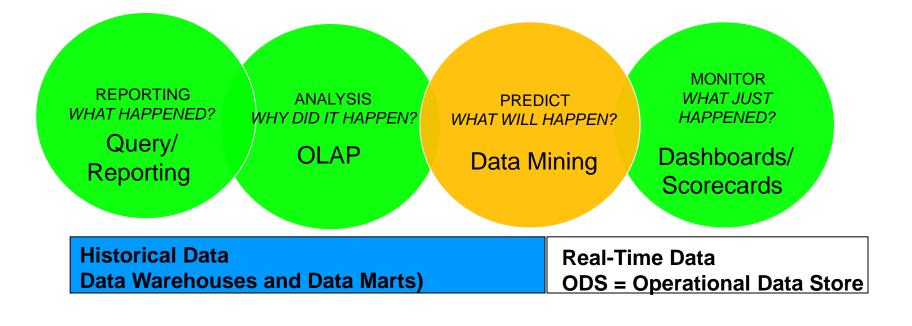
- Redundancy of reports is commonplace
- Maintenance of reports is a nightmare
- Dependency on report "authors" is problematic
- Query/400 CANNOT use the latest DB2 for i Query processing technologies
- Cannot always control query execution
- Extraneous steps taken for simple problems (getting data to a spreadsheet, or doing advanced data calculations)







But have requirements for Analytics without dependencies on I/T



### **Business Intelligence**

**Predictive Analytics** 

Source: The Data Warehousing Institute, Smart Companies in the 21<sup>st</sup> Century, July 2003



# "There MUST be a way to modernize this Query/400 quagmire!!"



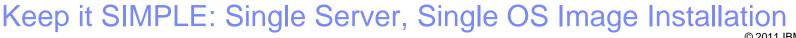


### DB2 Web Query for i – Intuitive, Insightful, Extensible Fast, easy access to business information assets for query, reporting and analysis for Business InfoAssist **Getting Started Authoring Tool** Build a Report **Reports & Graphs** Build a Chart "Intuitive" "Flexible delivery" Build a Document B Open Existing Item Change Default Options SALES KPI Dashboards **OLAP** "Insightful" "Extensible"

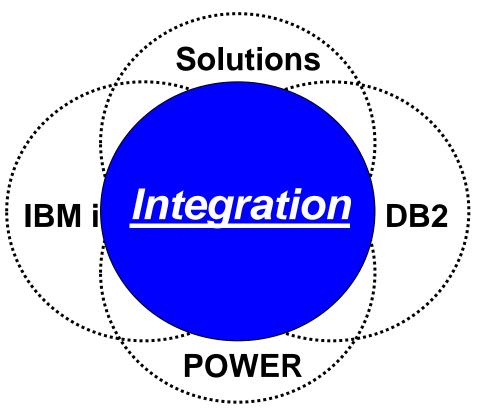
Providing Analytics and Query/400 Modernization for the IBM i Client Low Cost Solution Offering Value Upgrade from Query/400 Leveraging Best Practice Meta Data Layer Approach Leveraging DB2 for i Advanced Query Optimization Technology

# It's all in the Integration!

- Integration with IBM i Work Management
  - Installs into its own subsystem
  - Allows more flexibility in tuning and isolation
- Integration with IBM i command language
  - Administer DB2 Web Query
  - Refresh meta data
  - Invoke report execution from existing job scheduler
- Integration with software maintenance processes and procedures
  - PTF Management
  - License Management
  - Backup/HA/DR
- Integration with DB2 for i
  - Security
  - Advanced Functions
  - Workload processing





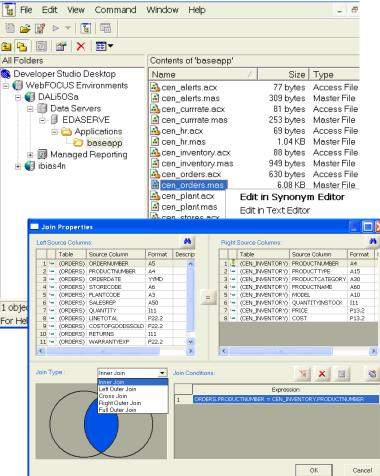




## Leveraging a Meta Data Layer to Shield Complexities of Database

### Standardize Field/Column Formats

- Ex, use commas, set currency symbol, suppress leading zeros
- Standardize/Decompose Date Fields
  - Ex: Integer defined as MMDDYYYY
- Create Filters
  - Ex: Define a set of countries as "Europe"
- Define JOINS and Dimensional Reporting
- Create Business Views
  - Organize Columns/fields for easier report development
- Define Stored Procedures, Views, UDFs to Meta Data Layer for some REALLY COOL function
  - Row/Column Level Security
  - Text Search Engine
  - Bring in weather report, local news and more

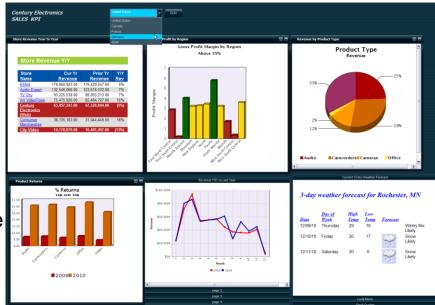


REMOVE THE DEPENCY ON THE DATABASE KNOWLEDGE WORKER!



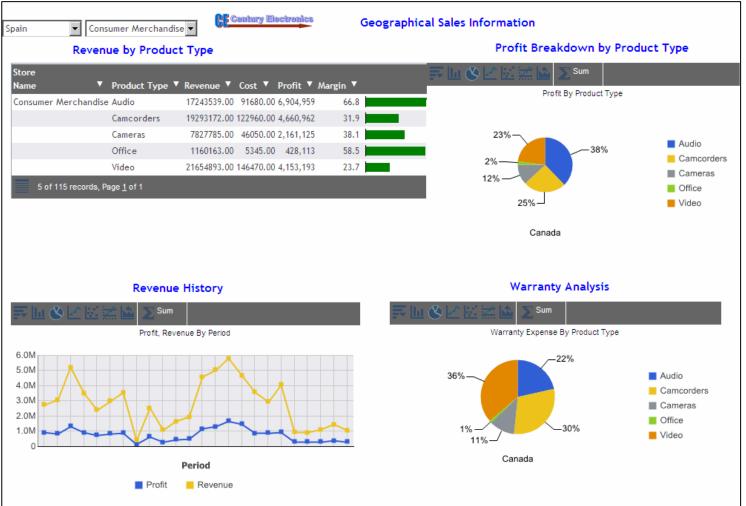
## Presenting Key Performance Indicators Through Dashboards

- Build KPI (Key Performance Indicator) view of the business for executives
  - Layout multiple KPIs onto single view
  - Link reports to common parameter
    - Example: allow end user to select geography of interest and all charts automatically reflect selection
- Multiple ways to Build Dashboards
  - InfoAssist "Compound" documents
    - Can invoke dashboard from URL interface (requires Application Extension)
  - Active Dashboard
    - Mobile Support
  - Developer Workbench HTML Composer
    - Look and feel of fat client application on a zero footprint client
  - Spreadsheet Client
    - Use functions of spreadsheet
  - New BI Portal Dashboards (V2.1)



# Compound "Active" Report with Form Controls

•Add controls (drop down boxes, radio buttons, etc.) to allow for selection criteria input

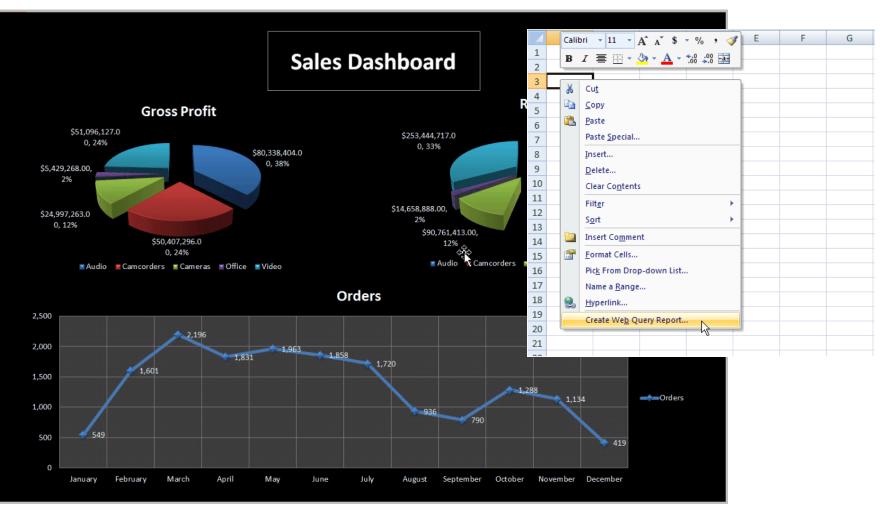


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## **Excel Dashboards**

• Uses DB2 Web Query as the input into Excel Charts



# Empower End Users with On Line Analytical Processing

With the OLAP\* feature you can replace 10's of Query/400 reports with a SINGLE DB2 Web Query report

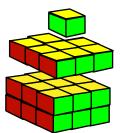
- A single report is a starting point for interactive, real time multi-dimensional data analysis
  - Drill down
  - Add or remove fields/columns by dragging and dropping
  - Pivot rows and columns
  - Navigate across any dimension
  - Create charts from navigation point
  - Save report based on navigation point

\* Requires Developer Workbench license to define dimensions and measurements

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Germany	DLAP Run	Reset	Save Help	
Spain United States				
Gross Profit b	y Product Category			
				Gross
Product Type	Product Category	📵 Line Total	🖲 Cost of Goods Sold	🙆 Profit
Audio	Amplifiers/PreAmps/Tuners	\$42,374,428.	<u>\$25,739,570.</u>	<u>\$42,011,058.</u>
	Audio Systems	<u>\$122,345,680.</u>	<u>\$82,282,820.</u>	<u>\$121,004,220.</u>
	CD Players and Recorders	<u>\$53,847,459.</u>	<u>\$37,838,460.</u>	<u>\$53,200,739.</u>
	MP3	<u>\$43,491,588.</u>	<u>\$26,438,660.</u>	<u>\$43,090,478.</u>
	Receivers	\$35,907,113.	<u>\$22,998,000.</u>	<u>\$35,555,263.</u>
	Speakers	\$84,717,053.	<u>\$24,680,990.</u>	<u>\$84,373,233.</u>
Camcorders	Digital8 Camcorders	\$13,614,953.	<u>\$6,512,600.</u>	\$13,535,923.
	DVD Camcorders	\$379,376,637.	<u>\$300,373,350.</u>	<u>\$375,144,437.</u>
	MiniDV Camcorders	\$51,539,451.	<u>\$34,128,360.</u>	<u>\$50,991,761.</u>
Cameras	Digital Cameras	<u>\$184,103,667.</u>	<u>\$133,328,830.</u>	<u>\$182,200,567.</u>
Office	Handheld and PDA	<u>\$18,533,190.</u>	<u>\$14,067,420.</u>	<u>\$18,374,880.</u>
	<u>Organizers</u>	<u>\$11,712,495.</u>	<u>\$4,957,305.</u>	<u>\$11,655,940.</u>
<u>Video</u>	DVD	\$329,872,045.	<u>\$248,768,900.</u>	<u>\$326,179,845.</u>
	™	<u>\$168,799,539.</u>	<u>\$150,771,700.</u>	<u>\$166,628,939.</u>
	VCR	<u>\$21,688,621.</u>	<u>\$16,270,950.</u>	<u>\$21,463,121.</u>
TOTAL		\$1,561,923,919.	\$1,129,157,915.	\$1,545,410,404.

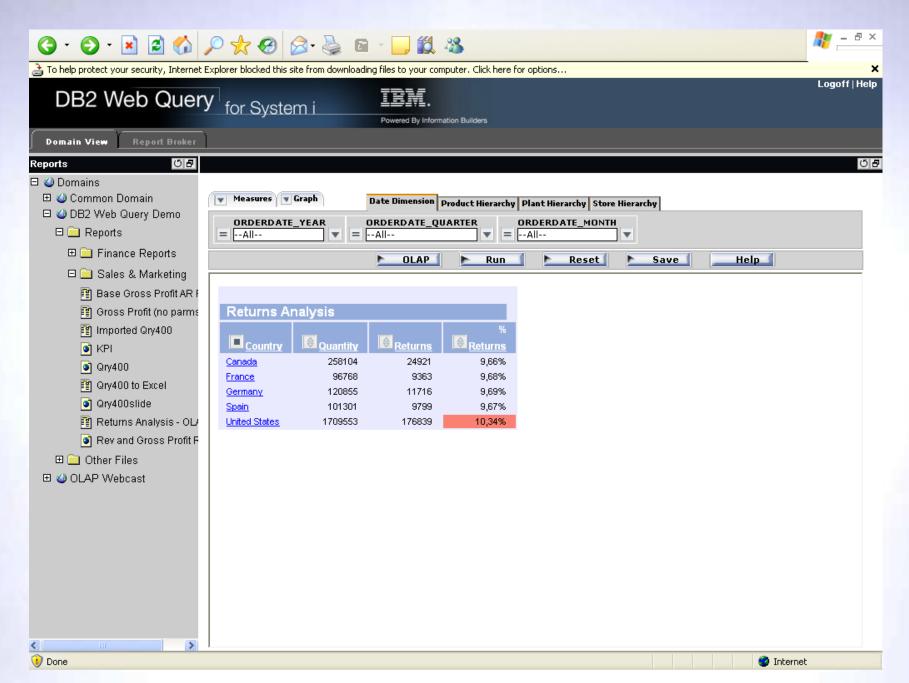
Date Dimension Product Hierarchy Plant Hierarchy Store Hierarchy

🔻 Measures 🛛 🔻 Graph





## **OLAP** Analysis



## Three Ways of Working with OLAP reports

Tabs

Measures Graph	Time Period Product Location
Product Type All	Product Category Product Name
	OLAP Run Reset Save Help

The Report

Product Type	😫 Quantity	<u>Revenue</u>
Audio	<u>862,839</u>	<u>\$382,683,321</u>
Camcorders	<u>363,639</u>	<u>\$444,531,041</u>
Cameras	<u>383,843</u>	<u>\$184,103,667</u>
<u>Office</u>	<u>260,575</u>	<u>\$30,245,685</u>
<u>Video</u>	<u>415,685</u>	<u>\$520,360,205</u>

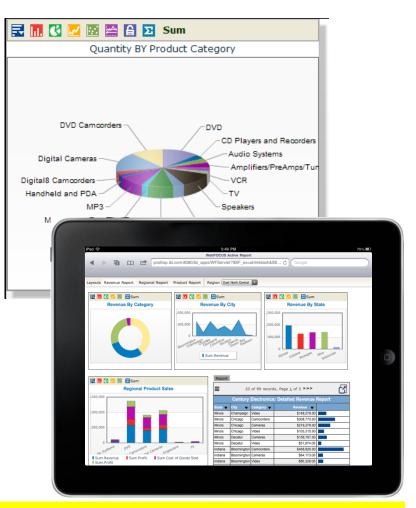
OLAP Control Panel

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Measures	
Date Hierarchy	
Product	
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Shift Up 🕇 🗙 Remove	
Shift Down ↓ 🖍 Pivot	
Drill Down	Measures
▲ Sales Rep	Quantity
	Revenue
	Cost of Goods Sold
	Returns
	Profit
	Margin
	Warranty Expenses
	Shipping Cost
	Stack Measures
%≡↓↑	Stack Measures
Run Save Help	Selection Criteria



## Provide Analysis to Mobile Workers with Active Reports

- Simply specify as an output option
- Generates PC File with SNAPSHOT of data and manipulation scripts
- "Actively" work with snapshot of data
  - Create calculated fields
  - Filter data
  - Visualize fields/columns
  - Export to other formats
    - Word, Powerpoint
  - Create charts
- Requires Supported Browser or iPad app



Download iPad app: http://itunes.apple.com/us/app/mobile-faves/id406033421?mt=8

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	DB2 Web Query.htm - 04-1 Saved 04-10-12 08:28 - 597	Audio		1 Speakers 2 Audio Systems 3 MP3	\$84,717,053.00 \$122,345,880.00 \$43,491,588.00	\$24,680,990.00 \$82,282,820.00 \$26,438,660.00					
	WebFOCUS Active Report Saved 04-10-12 08:27 - 933 Kb	Subtotal for A	udio	4 Amplifiers/PreAmps/Tuners 5 CD Players and Recorders 6 Receivers	\$42,374,428.00 \$53,847,459.00 \$35,907,113.00 \$382,683,321.00	\$25,739,570.00 \$37,838,460.00 \$22,998,000.00 \$219,978,500.00	\$16,008,999 \$12,909,113				
	app_v15ktmas.htm - 01-06 Saved 01-06-12 10:21 - 924 Kb	Camcorders Subtotal for Ca		1 DVD Camcorders 2 MiniDV Camcorders 3 Digital8 Camcorders	\$379,376,637.00 \$51,539,451.00 \$13,614,953.00	\$300,373,350.00 \$34,128,360.00 \$6,512,600.00	\$17,411,091 \$7,102,353				
	Gross Profit Ranking Rep Saved 01-06-12 08:54 - 299 Kb	Cameras Subtotal for Ca Office		1 Digital Cameras	\$444,531,041.00 \$184,103,667.00 \$184,103,667.00 \$11,712,495.00	\$341,014,310.00 \$133,328,830.00 \$133,328,830.00 \$4,957,305.00	\$50,774,837				
		Subtotal for Of Video	ffice	2 Handheld and PDA 1 DVD 2 TV	\$18,533,190.00 \$30,245,685.00 \$329,872,045.00 \$168,799,539.00	\$14,067,420.00 <b>\$19,024,725.00</b> \$248,768,900.00 \$150,771,700.00	\$81,103,145				
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			Planete Digitale	54,145	41,110		
			Winnipeg Audio	262,517	168,650	93,867	
		Audio Systems	ABC Electronics	12,008,859	8,036,590	-	
		,	Home Audio Outfitters	1,258,104	827,440	430,664	
			Planete Digitale	880,672	587,190		
			Winnipeg Audio	985,209	650,090	335,119	
		CD Players and Recorders	ABC Electronics	4,270,449	3,009,340	1,261,109	
			Home Audio Outfitters	737,463	525,240	212,223	
			Planete Digitale	195,172	143,300	51,872	
			Winnipeg Audio	397,070	291,600	105,470	
		MP3	ABC Electronics	3,438,481	2,064,160	1,374,321	
			Home Audio Outfitters	703,068	373,900	329,168	
			Planete Digitale	180,750	116,390	64,360	
			Winnipeg Audio	459,589	267,960	191,629	
		Receivers	ABC Electronics	2,867,486	1,871,100	996,386	
			Home Audio Outfitters	536,107	335,350	200,757	
			Planete Digitale	111,437	63,400	48,037	
			Winnipeg Audio	346,895	210,800	136,095	
		Speakers	ABC Electronics	6,927,027	2,043,200	4,883,827	
			Home Audio Outfitters	1,630,259	465,280	1,164,979	



# Adapters (Requires Standard Edition)

### SQL Server Adapter

- Extend the reach of DB2 Web Query
- Support pulling data from multiple SQL
  Server databases with a single adapter
- Join data from DB2 and SQL Server and avoid data replication

## Oracle JDE Adapter

- Supports querying application databases running in IBM i 6.1 and up
- Provides meaningful data element names, automates date conversion, converts numeric data
- Preserves data integrity and security during report execution by automatically interfacing to the application's meta data and security layers





## Automate Report Execution and Distribution

## Automated Delivery Of Information

- On Scheduled Basis
  - Through Admin GUI
  - Daily, Weekly, Specific Days, exclude rules, etc.
- On Event Basis
  - Some customization required
- Intelligent bursting

Ex: Regional Sales Report

- Additional output formats for batch reporting
  - (HTML, PDF, Excel, Active HTML)

### Delivery Destinations

- E-mail
- Printer
- Save the reports for later viewing

## Notify Function

- Send notification when report is complete or fails
- Report Logging

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# What's New?

© 2011 IBM Corporation

### Power is performance redefined



### DB2 Web Query for i April 2012 Announce – Version 2.1 Modernize Query/400 Reporting with Smarter Analytics for IBM i

- New Product IDs (5733-WQe/WQs)
- New Core based pricing
  - More flexible pricing options for multi-core configurations
  - Sub-capacity pricing with workload capping
- Simpler Packaging Options
  - Express Edition
    - Entry Level Package
    - Web Based Report Authoring and meta data management
    - Analytical functions

### OLAP, Excel plug In, Mobile Support

- Standard Edition adds:
  - Virtually unlimited run time user support
  - Report distribution functions
  - Application Integration APIs
  - Microsoft SQLServer Adapter



IBM

# v2.1 – Simplified product structure

From current product(s) (v1.1.2):

- BASE 5733-QU2
  - Number of Users
- OPTIONS
  - Option 1 Active Reports
  - Option 2 OLAP
  - Option 3 Developer Workbench
  - Option 4 Run Time User Enablement
  - Option 5 Spreadsheet Client
  - Option 6 Microsoft SQL Server Adapter
  - Option 7 JD Edwards Application Adapter
  - 5733QU3 Report Broker
  - 5733QU4 SDK
  - Lab Services 5250 Reporting Extension

### To new product

(v2.1):

- Express Edition (5733-WQe)
  - Entry Level Reporting Solution
  - Analytical Reports for Limited Number of Users
  - Optionally add additional users

### Standard Edition (5733-WQs)

- Robust BI Solution
- Report Distribution
- Application Integration
- Extended database access support (SQL Server)
- Virtually unlimited Run Time Support
- Optionally add additional users, run time groups, or JDEdwards Adapter

Acronyms: QU1 = Query/400 QU2, QU3, QU4 = DB2 Web Query V1.1.x WQe, WQs, and WQx = DB2 Web Query V2.1



# IBM DB2 Web Query for i – InfoAssist

## InfoAssist splash screen

- Can create a single report
  - Replace Report Assistant
- Can create a single graph
  - Replace Graph Assistant
- Can create a document
  - Replace Power Painter
- Can start with a single report or single graph and escalate them into a document and add additional elements
  - Additional reports
  - Additional graphs
  - Text
  - Images

InfoAssist WebFOCUS - Version 7.7.01	Information Builders
Getting Started	Help
🖲 Build a Report	▶ InfoAssist Help
Build a Chart	) Online Forum
Build a Document	
Open Existing Item	
Change Default Options	
Close Application	

Note: Report Assist, Graph Assist, and Power Painter no longer exist in V2



## InfoMini – Simplified Parameter Driven Reporting Option

- Create report "slicers"
  - Filters selected by users at run time
- Dynamic, user selected output format
  - Selected by users at run time

🥙 Clear Slicers	Run Time All •	Sales Rep	• =	Product Type	- 3	Product Ca	- E
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	CD Players and Recorders	\$53,847,459.00	\$37,838,46				
	MP3	\$43,491,588.00	\$26,438,66				
	Receivers	\$35,907,113.00	\$22,998,00				
	Speakers	\$84,717,053.00	\$24,680,99		-	🗸 ок	S Cance
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	DVD Camcorders	\$379,376,637.00	\$300,373,350.0	00			
	MiniDV Camcorders	\$51,539,451.00	\$34,128,360.0	00			
Cameras	Digital Cameras	\$184,103,667.00	\$133,328,830.0	00			
Office	Handheld and PDA	\$18,533,190.00	\$14,067,420.0	00			
	Organizers	\$11,712,495.00	\$4,957,305.0	00			
Video	DVD	\$329,872,045.00	\$248,768,900.0	00			
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Audio	Amplifiers/PreAmps/Tuners	\$937,598.00 \$586,030.	00
	Audio Systems	\$4,173,330.00 \$2,765,730.	00
	CD Players and Recorders	\$1,794,070.00 \$1,263,740.	00
	MP3	\$1,045,173.00 \$664,290.	00
	Receivers	\$977,437.00 \$622,550.	00
	Speakers	\$2,356,345.00 \$704,730.	00
Camcorders	Digital8 Camcorders	\$640,517.00 \$296,990.	00
	DVD Camcorders	\$10,530,322.00 \$8,296,900.	00
	MiniDV Camcorders	\$728,409.00 \$523,100.	00
Cameras	Digital Cameras	\$4,158,853.00 \$3,023,890.	00
Office	Handheld and PDA	\$671,207.00 \$528,830.	00
	Organizers	\$271,488.00 \$116,430.	00
Video	DVD	\$10,609,090.00 \$8,086,800.	00
	TV	\$4,070,572.00 \$3,636,400.	00
	VCR	\$455,508.00 \$361,100.	00

### New User Interface – BI Portal

- Resource Tree
  - Web Query Repository
    - Contains Procedures, Schedules, Distribution Lists, logs, HTML files, bitmaps.
    - Not metadata
    - Top Level Folders (like V1 Domains)
  - Favorites
  - Mobile Favorites
    - Allows mobile device quick access to these procedures
  - Recent Items
    - · Lists what was recently run by the user
  - Reporting Servers
    - Metadata
    - Only for Web Query Administrators
    - Manage synonyms across app folders
  - Create custom tabs/pages (build dashboards)



DB2 WEB QUERY

Human Resources Reports

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📃 DB2 Web Query

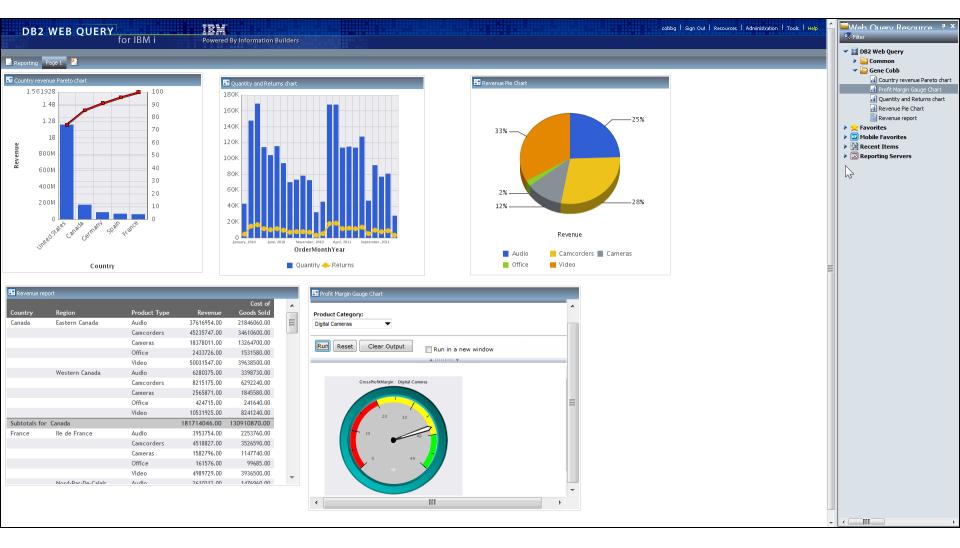
Common

Reporting

for IBM



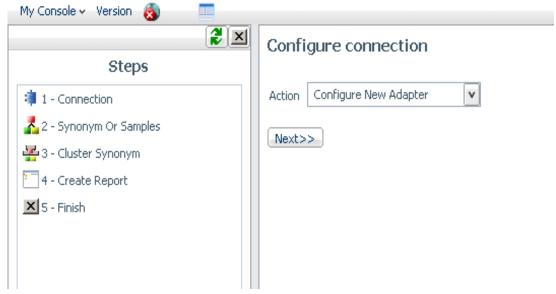
### Customizing the BI Portal (BIP)





### Web based Metadata Wizard

- Web based Metadata Management
  - Metadata Wizard to guide new users to get at their data and produce a meaningful report
    - Data Adapter management
    - Create Synonyms
    - Cluster Synonyms
    - Launch InfoAssist
- Does NOT replace all functions of Developer Workbench





## **Role Based Security Model**

### UOA (Universal Object Access) Security

- More granular control of objects
- Rules define what a user can or cannot do and are made up of:
  - Groups (Roles) container of users or subgroups with similar capabilities.
    - Each top level folder will automatically create 6 groups/roles.

Folder-Run Folder-Analyst Folder-Developer Folder-DBA Folder-Sched Folder-Admin

- Users unique ID
- Folders contain Managed Reporting (MR) content.
  - No limit to folder depth

### Power is performance redefined



## **Query Modernization Service**



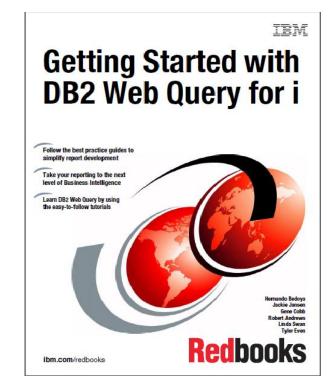
- Problem Statement:
  - 1000's of Query/400 definitions
  - Many are redundant but its not understood which ones
  - Many are obsolete but we don't know which ones
  - Most are used to build extracts into another tool (spreadsheet, BI)
  - Query/400 is old and antiquated, cannot take advantage of the latest in DB2 technology
- Where do you start ?
  - Understand the Query/400 definitions (DISCOVER)
    - What are the tables/files most often accessed? What are the fields being selected? What are the join criteria being established
  - Understand the Query/400 usage (ANALYZE)
    - What queries are active? Which ones are obsolete? What is the end goal of the queries
  - Convert Where Possible
    - Use the information gathered to build a roadmap to modernization
    - Convert appropriate queries identified in process to DB2 Web Query
  - IBM Lab Services has developed tools and Methodologies to help you modernize
- Possible outcomes
  - Roadmap establishing a process and "best practices" for modernizing the queries
  - Education and getting started with DB2 Web Query services
  - Prototyping

### Power is performance redefined



### New Redbook On the Way

- DB2 Web Query Original Redbook Delivered in 2008
- Most Popular DB2 for i Redbook
- Project Oriented not regularly updated generally
  - Updated in 2010
  - Supplemented with InfoAssist Tutorials in 2011
- New Redbook for V2.1 Coming in FALL !!!
  - Will be accessible from GETTING STARTED tab on www.ibm.com/systems/i/db2/webquery



## DB2 Web Query Home Page www.ibm.com/systems/i/db2/webquery

### Self Running Demos

- 40 minute overview
- 75 minute deeper dive
- Links to webinar series

### Helpful Getting Started Tab

- Latest Installation Instructions
- Links to our "community"
- Education and RedBook Offerings
- Recent Articles (tips and techniques)
- Additional Product Information
- Access to Developer Workbench trial
- Papers
  - FAQs
  - Smarter Analytics with IBM i for Business Intelligence
  - How Run Time Enablement Works





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## Important Links

IBM developerWorks site for DB2 Web Query

www.ibm.com/developerworks/spaces/DB2WebQuery

- Registration Recommended
- KnowledgeBase
- Forum
- WIKI Repository of technical info
- DB2 Web Query home page

www.ibm.com/systems/i/db2/webquery

- Self running demos
- Links to recent announcements
- Customer success stories

### Getting Started with DB2 Web Query Redbook

http://www.redbooks.ibm.com/abstracts/sg247214.html

- Tutorial Driven
- Download Sample Database

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