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DB2 Web Query Advanced: Report Broker and SDK



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Agenda and Assumptions

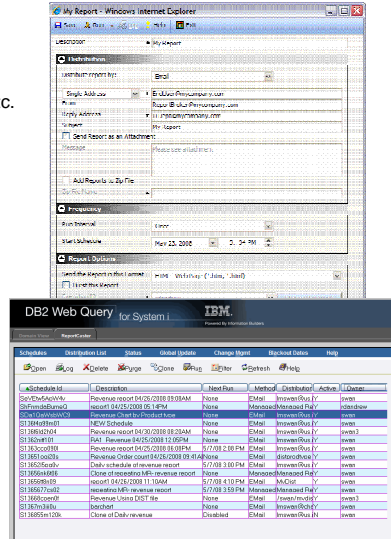
- Today we will cover:
 - Report Broker – 5733QU3
 - Automated report distribution
 - Software Development Kit – 5733QU4
 - Web services for integration
- Assumptions
 - You are already familiar with DB2 Web Query usage
 - You are already familiar with DB2 Web Query security
 - You have the base product to use these optional add-ons



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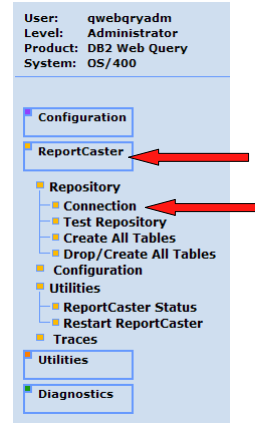
DB2 Web Query Report Broker Features

- 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
- Requires DB2 Web Query BASE Product to be installed



Install and Setup

- Requires PTFs to 5733QU2
 - Follow Info APAR on-line
- Requires Media for 5733QU3
- Must be configured after installation
- Access configuration from the WF Console
 - http://system:11331/webquery_html/wfconsole.htm
 - Login as QWEBQRYADM
 - Expand Report Caster
 - Select Connection



Who can schedule a report?

- Two levels of profiles in Report Broker:
 - Report Broker Users
 - Set via the MRSCHEDULE group profile
 - Report Broker Administrators
 - Set via the MRADMIN group profile
 - Same as Web Query Administrators
- To schedule a report, you must be a Report Broker User or Administrator



End User Interface

- To create a schedule, right click on a report and select Schedule

Description

- Description is the name of the schedule
 - Defaults to the report name, date, and time

Description	* Products 08/25/2008 08:43PM
-------------	-------------------------------

First Distribution Method: Email

- Choose a single address or a distribution list to send emails to
- In the box to the right, type the email address or distribution list name
- Update the From or Reply To address, if desired
- Update the Subject line for the email
 - Defaults to Report name, Date, Time
- Can send inline or as attachment
 - If attachment:
 - can provide a body for the message
 - Can send as Zip file
 - Can set Zip file name

The screenshot shows the 'Distribution' configuration window. At the top, there are two callout boxes: 'Distribution List' with a dropdown menu showing 'Distribution List' and 'Single Address', and 'Email' with a dropdown menu showing 'Email', 'Printer', and 'Web Query'. The main window has the following fields:

- Distribute report by: [Email]
- Single Address: [Single Address]
- From: * enduser@us.ibm.com
- Reply Address: * Broker@us.ibm.com
- Subject: Products 08/25/2008 08:49PM
- Send Report as an Attachment
- Message: Please see attachment
- Add Reports to Zip File
- Zip File Name: * reports.zip

Second Distribution Method: Printer

- Sends to a LP (Line Protocol) Printer
- Choose a single printer or distribution list of printers
- Address the printer as printqueue@printserver
 - The printserver portion can be an IP address or DNS name
 - DNS must be resolvable from the System i, not the PC
 - Use PING from the green screen to verify
 - Samples:
 - simplex@itprinter.mycompany.com
 - printer7@192.168.0.1

The screenshot shows a 'Distribution' dialog box with the following fields:

- Distribution List:** A dropdown menu with options 'Distribution List' and 'Single Address'.
- Distribute report by:** A dropdown menu set to 'Printer'.
- Single Address:** A text field containing the value 'itprinter@printserver.mycompany.com'.

Third Distribution Method: Web Query

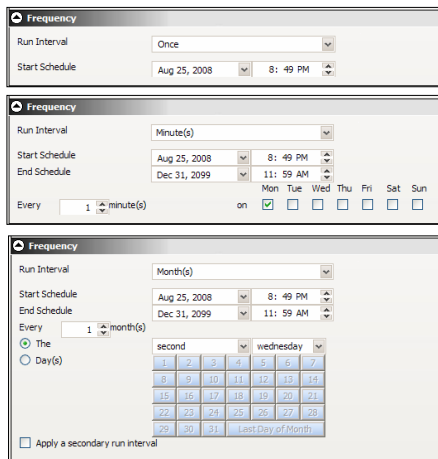
- The Web Query method of distribution stores the reports on the server
 - Use for “Run once – View many” styles of reports
 - Resource intensive reports
 - Unchanging data
 - Example: Last month’s sales report – resource intensive, non-volatile data
- Folder Name defines the folder within the domain that the report will be stored to
 - Created in the domain that contains the report
 - Report name is the schedule description
 - Requires Developer authority to domain
 - Creates a report

The screenshot shows a 'Distribution' dialog box with the following fields:

- Distribute report by:** A dropdown menu set to 'Web Query'.
- Folder Name:** A text field containing the value 'My Report Folder'.

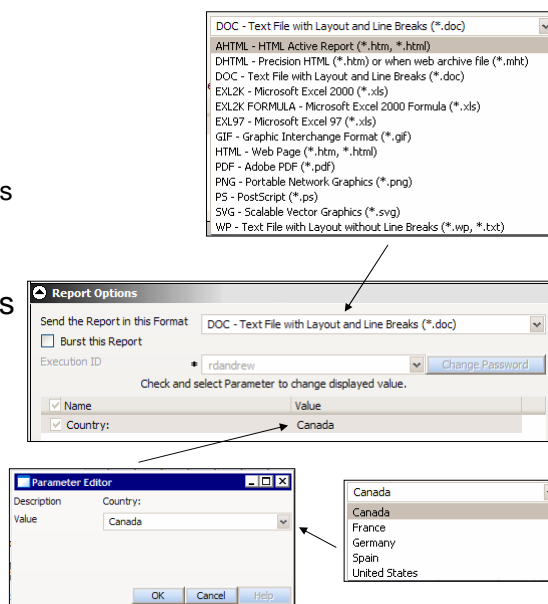
Frequency

- Determines how often the report is run
- Can be set for:
 - Once
 - Minute(s)
 - Hour(s)
 - Day(s)
 - Week(s)
 - Month(s)
 - Year(s)
- Options change depending on duration selected
- Keep in mind the interval from setup
 - Only “wakes up” every *n* minutes
 - If report is set every minute but interval is 5, it will only run every five minutes



Report Options

- Several formats can be used
 - Will override report value
 - Will show non-valid options
 - Reports cannot be PNG
 - Graphs cannot be DOC
- Burst this Report enables Intelligent Bursting
- Execution ID is the profile used to run the report
 - Keep in mind for row level security and views



Intelligent Bursting and Parameters

- Intelligent Bursting takes a single report and separates it based on the first Sort By column in the report
 - Each individual report contains:
 - Header
 - That section of data
 - Footer
- It then sends these mini-reports based on the distribution lists and burst values
 - If no report data for the burst value, no report sent
 - If no burst value for the report data, data discarded
 - Will cover burst values when we cover distribution lists
- If there are parameters in the reports, the value needs to be preset
 - Can use the auto-prompting facility here as well to select from a list of valid values

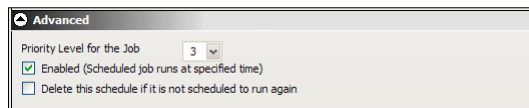


Notification

- Can send notifications on error or always
- Can send brief (ideal for text messages) or complete logs
- Enter the email address for either the full or brief notification
- Enter the email address for the reply address
- Set the subject line of the message
- Note that if On Error or Always is set as the default from the configuration, the notification address and reply are required fields
 - No way to set defaults
- The Notification section is collapsed by default

Advanced

- Can set the priority level
 - Lower number is higher priority
 - Just like IBM i priority
 - Priority 1 higher than Priority 3
- Can set to enabled or just created but not running
- Can choose to delete if no longer being run
 - Many of the repeating reports have stop dates
- The Advanced section is collapsed by default



The screenshot shows a window titled "Advanced" with a close button. It contains the following settings:

- Priority Level for the Job: 3 (dropdown menu)
- Enabled (Scheduled job runs at specified time)
- Delete this schedule if it is not scheduled to run again

CL Command

- The RUNBRSCHED CL command can be used to instantly invoke a stored schedule to run
- Cannot pass parameters in via the CL
 - Must be stored in the Schedule
- Can tie to native programs to monitor for conditions and send reports
- Could link to a trigger program on a physical file
 - If inventory too low, trigger report to be emailed to Purchasing Department



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Schedules Tab

- With Report Broker, there is a new Schedules tab on top
- The items in **Red** are available to all Report Broker Users
 - Schedules
 - Distribution Lists
 - Status
 - Help
- The items in **Green** are only available to Report Broker Administrators
 - Global Update
 - Change Management
 - Blackout Dates

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Schedules

- Can select a schedule from the Schedule option

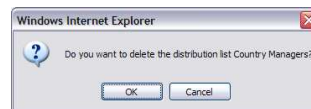
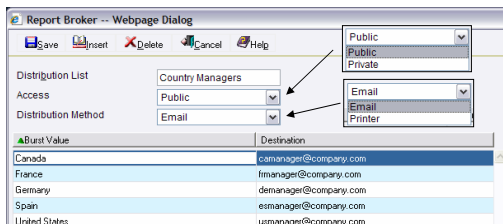
Schedule Id	Description	Next Run Time	Method	Distribution	Active	Owner	Priority
Soa4JG1Kp3L	report1 04/25/2008 04:59PM	None	Email	rdandrew@us.ibm.com	Y	rdandrew	3
SGoeMDV6SC3l	Robert's Schedule	None	Email	rdandrew@us.ibm.com	Y	rdandrew	3
SGAU4Rj1RRK	graph1 04/28/2008 05:06PM	None	Email	rdandrew@us.ibm.com	Y	rdandrew	3

- Clicking Open will open the End User screen
- Clicking Log will allow you to view the execution log
 - View all logs or just for the selected Schedule
 - Can view logs for:
 - Last Run
 - All Runs
 - Specific Date

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Distribution Lists

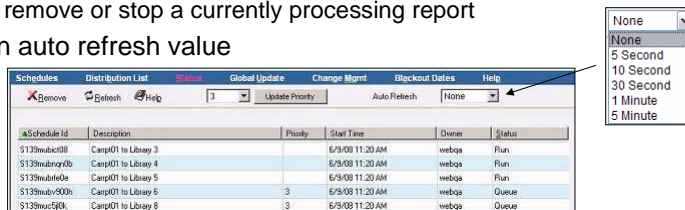
- Clicking New creates a new distribution list
 - Provide a Name
 - Set Access Authority
 - Public is open to everyone
 - Private is limited to list owner
 - Email or Printer, not both
 - Provide optional Burst values
 - Used for splitting reports
 - Destination is email or printqueue@printserver
- Clicking Open opens same dialog
- Clicking Delete removes a distribution list



Distribution List	Access	Distribution Method	Owner
Robert's List	Public	Email	rdandrew
State Managers	Public	Email	rdandrew

Status

- The status section will show reports that are currently being processed
- Only gets populated each time it wakes up
- This screen shows three reports currently running
 - Remember 3 is the default number of threads
 - Remaining are in queue status
- Can select and remove a report from the queue
- Can select a report to change it's priority
 - Only able on queued reports
 - Will not remove or stop a currently processing report
- Can set an auto refresh value



Global Update – Administrator Only

- Can globally change:

- Mail server
- Printer
- Email Address
- Mail From
- Owner

- Can only update one of the five items at a time

- A confirmation message will show the number of items changed

Field	Old Value	New Value
Mail Server		
Printer		
Email Address	old@company.com	new@company.com
Mail From		
Owner		



Change Management – Administrator Only

- Change Management can move schedules and distribution lists from another server to the current server

- Initiate connection from target system

- Update the source with the correct DNS or IP address and schema

- jdbc:as400://**server**/qwebqrc76

- Must use qwebqryadm as user id

- Provide qwebqryadm password for source system

- Can use Insert to copy over a new item

- Can use Update to update an existing item

Source Data	Schedule Id	Description	Method
rdandrew	Ses4UG1kj3L	report1 04/25/2008 04:59PM	Email
kenib	SBANsooiZcRB	report1 04/28/2008 01:07PM	Email
	SGAU4Rj1RRK	graph1 04/28/2008 05:06PM	Email

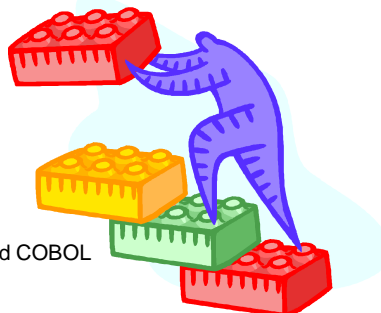
Blackout Dates – Administrator Only

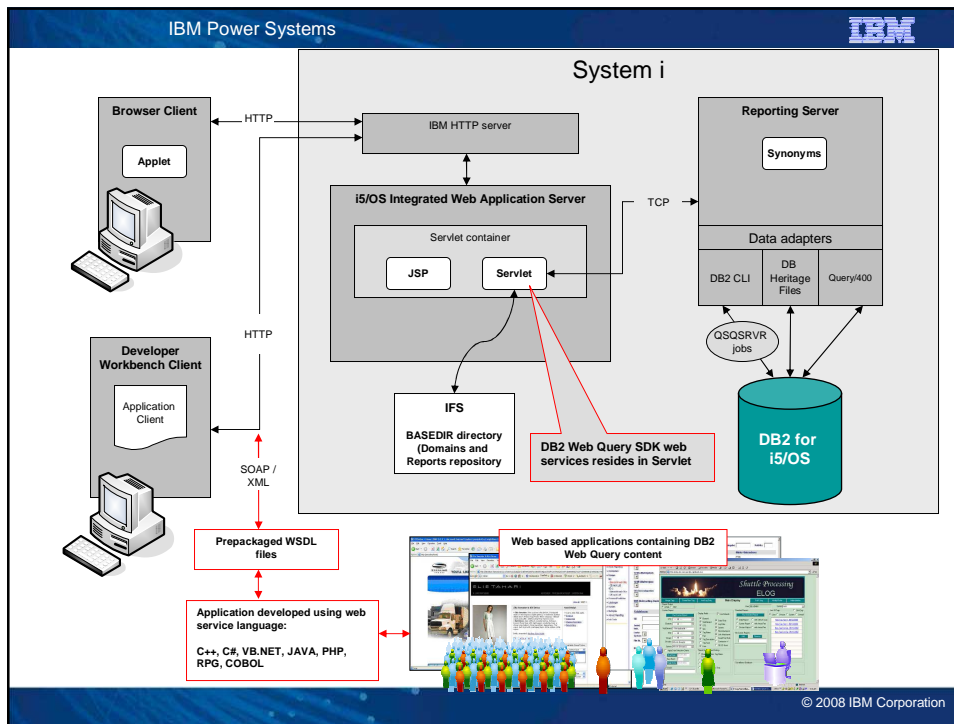
- Blackout dates prevent schedule execution on those dates
- Simply click a date on the calendar to toggle back and forth
 - Blacked out dates have a grey background
- There is an Extract and Import function
 - Allows blackout dates to be moved between multiple systems

Schedules	Distribution List	Status	Global Update	Change Mgmt	Blackout Dates																																																																																																		
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<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>January</p> <table border="1"> <thead> <tr><th>Sun</th><th>Mon</th><th>Tue</th><th>Wed</th><th>Thu</th><th>Fri</th><th>Sat</th></tr> </thead> <tbody> <tr><td>30</td><td>31</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr> <tr><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td></tr> <tr><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td></tr> <tr><td>20</td><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td></tr> <tr><td>27</td><td>28</td><td>29</td><td>30</td><td>31</td><td>1</td><td>2</td></tr> </tbody> </table> </div> <div style="text-align: center;"> <p>February</p> <table border="1"> <thead> <tr><th>Sun</th><th>Mon</th><th>Tue</th><th>Wed</th><th>Thu</th><th>Fri</th><th>Sat</th></tr> </thead> <tbody> <tr><td>27</td><td>28</td><td>29</td><td>30</td><td>31</td><td>1</td><td>2</td></tr> <tr><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td></tr> <tr><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td></tr> <tr><td>17</td><td>18</td><td>19</td><td>20</td><td>21</td><td>22</td><td>23</td></tr> <tr><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td><td>1</td></tr> </tbody> </table> </div> <div style="text-align: center;"> <table border="1"> <thead> <tr><th>Sun</th><th>Mon</th></tr> </thead> <tbody> <tr><td>24</td><td>25</td></tr> <tr><td>2</td><td>3</td></tr> <tr><td>9</td><td>10</td></tr> <tr><td>16</td><td>17</td></tr> <tr><td>23</td><td>24</td></tr> <tr><td>30</td><td>31</td></tr> </tbody> </table> </div> </div>						Sun	Mon	Tue	Wed	Thu	Fri	Sat	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	Sun	Mon	Tue	Wed	Thu	Fri	Sat	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	1	Sun	Mon	24	25	2	3	9	10	16	17	23	24	30	31
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Web Query SDK Features


- Enables ISV Developers to access and integrate Web Query Content into any application
- Authorizations based upon System i credentials
- Simple to Deliver powerful BI content
 - Self service parameterized reports
 - Active reports
 - OLAP
- SDK comprised of Web services
 - Open Standard
 - Callable from many languages:
 - C, C++, C#, VB.NET, Java, PHP, RPG, and COBOL





What is required to use?

- As a Developer, you will need the 5733QU4 product and license
 - Licensed to the development server
 - Required to create the WSDL's required to write programs to the web services
 - Requires the base 5733QU2 Product
 - Requires the Developer Workbench add-on 5733QU2 Option 3
 - If you are developing for the Report Broker web services, the Report Broker 5733QU3 product is required
- As a user of a purchased program written with the SDK, you will need:
 - Base 5733QU2 product
 - Runtime User Enablement 5733QU2 Opt 4
 - If using the Report Broker functionality, Requires Report Broker 5733QU3



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Web Query SDK Web Service Functions

- **WebQueryLogon** - Authenticate a user against the security defined within DB2 Web Query
- **MREGetUserDomains** - Retrieve a list of domains
- **MREOpenDomain** - Open a domain and obtain a list of all Web Query reports
- **WebQueryReflection** – Retrieve the parameters of a Web Query report
- **WebQueryFieldValues** – Retrieve the field values for a given field
- **WebQueryRunFex** - Execute the Web Query Report
- **WebQueryLink** - Check for Hyperlinks (drill downs) on Report output
- **WebQueryDrill** - Drill down on the hyperlink



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Web Query SDK Web Service Functions for Report Broker

- **logon** – Authenticate a user against the security defined within DB2 Web Query
- **getScheduleInfoListByCaller** – Retrieve a List of Schedule Information From the Report Broker Repository
- **getSchedule** – Retrieve an Existing Schedule From the Report Broker Repository
- **run** – Run an Existing Schedule now
- These services are only available if you have **both** the Report Broker and the Software Development Kit



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Web Query SDK User Authentication - Sample Code

Define Variables

```

Private Function mrLogon() As WQ.LogOnInfo
    Dim WQuery As New WQ.WebQuery
    Dim loginfo As New WQ.LogOnInfo

    While loginfo.MRcookie = Nothing And _
        LogonForm.CancelButton.DialogResult <> Windows.Forms.DialogResult.Cancel
        LogonForm.ShowDialog()
        loginfo = WQuery.WebQueryLogOn(userid,pass, LogonForm.tbUserid.Text, _
            LogonForm.tbPassword.Text)
    End While

    Return loginfo
End Function
    
```

Display form until valid logon or Cancel

Web Service call passes results into loginfo structure

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Web Query SDK Retrieving Report Field Values

The data values for the filter are populated using the function *WebQueryFieldValues*

Highest 10 Plant With Respect to Number of Employees From MR Environment

RANK	Plant	Number of Employees	% Number of Employees
1	STL	45.0	45.0
2	SEA	14.0	9.3
3	PHL	20.0	13.3
4	LA	20.0	13.3
5	PAL	20.0	13.3
6	BOG	10.0	6.7
TOTAL		151.0	100.0

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Web Query SDK Execute any report

The screenshot shows the 'Web Query SDK Demo' application. On the left, the 'Content' panel has 'Show' set to 'Top' and '10', 'Dimension' set to 'Plant', and 'Measure' set to 'Number of Employees'. The 'Filter' panel shows 'Plant' with options for Boston, Dallas, and Los Angeles. The 'Output' panel has radio buttons for HTML, PDF, Excel, Graph, and XHTML. A 'Run' button is highlighted with a yellow callout box. On the right, the 'Reports' panel shows 'Domain' as 'Default Domain', 'Folder' as 'group1', and 'Report' as 'test'. Below this is a 'Parameters' table:

Prompt	Name	Value
COUNTRY	COUNTRY	
*		

Below the interface is a table titled 'Highest 10 Plant With Respect to Number of Employees From MR Environment':

RANK	Plant	Number of Employees	% Number of Employees
1	BTL	24.0	4.8
2	SEA	14.0	9.3
3	DAL	39.0	19.8
4	LA	59.0	29.4
5	BAL	25.0	16.6
6	BOS	18.0	11.9
TOTAL		151.0	100.0

The 'Run' button executes the report using the function *WebQueryRunFex*

Web Query Retrieving WQ Folder and Report Information

The screenshot shows the 'Web Query SDK Demo' application. The 'Reports' panel has 'Domain' set to 'Default Domain', 'Folder' set to 'group1', and 'Report' set to 'test'. A yellow callout box points to these fields. Below the interface is the same table as in the previous slide:

RANK	Plant	Number of Employees	% Number of Employees
1	BTL	24.0	4.8
2	SEA	14.0	9.3
3	DAL	39.0	19.8
4	LA	59.0	29.4
5	BAL	25.0	16.6
6	BOS	18.0	11.9
TOTAL		151.0	100.0

The domain list is retrieved using the function *MREGetUserDomains*.
The Folder and Report lists are retrieved using the function *MREOpenDomain*.

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Web Query SDK Retrieving Report Parameter information

The screenshot shows the Web Query SDK Demo interface. On the left, there are controls for 'Content' (Show, Dimension, Measure), 'Files' (Filter, Output), and 'Reports' (Domain, Folder, Report, Parameters). A 'Managed Reporting' table is visible, showing parameters for 'COUNTRY'. Below the interface is a table titled 'Highest 10 Plant With Respect to Number of Employees From MR Environment'.

RANK	Plant	Number of Employees	% Number of Employees
1	FTL	550	46.0
2	SEA	140	9.3
3	DBL	300	19.9
4	LA	50.0	30.4
5	HAL	268	168
6	BOS	18.0	11.0
TOTAL		151.0	100.0

The parameters for the report are retrieved using the function *WebQueryReflection*. This will return the parameter prompt, name, and default value.

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Building a DB2 Web Query Community NEW

- New DB2 Web Query Site
 - Registration Recommended
- KnowledgeBase
- Forums
- Links to Additional Information
- Expert BLOGs
- WIKI
- Links to other pertinent Information

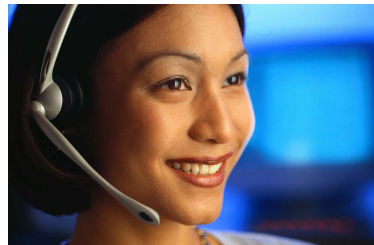
The screenshot shows the IBM DB2 Web Query for i website. It features a navigation bar, a main content area with several sections (IBM Web Query Website, IBM DB2 Web Query for i, IBM DB2 Web Query for i - Community, IBM DB2 Web Query for i - Knowledge Base, IBM DB2 Web Query for i - Forums, IBM DB2 Web Query for i - Blogs, IBM DB2 Web Query for i - Wikis), and a sidebar with a search box and a 'Group Types' section.

<http://www-128.ibm.com/developerworks/spaces/DB2WebQuery>

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Support

- Support is a separate contract
 - Not covered under SWMA for IBM i
 - Not covered under SWMA for 5733QU2
- Separate support contract for:
 - IBM i OS
 - 5733QU2
 - 5733QU3
 - 5733QU4
- Provided by IBM Rochester
 - Inter-company development team
- Standard PTF process for fixes
- **IBM Rochester is your single point of contact**



Questions & Answers



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