

ACS Run SQL Scripts & Other Db2 for i Tools Reinvented

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Long Island System
Users Group





User Accessing the IBM i

Managing IBM i System



Db2 for i Engineer



Celebrating collaboration



- More powerful and feature rich

IBM i Access Client Solutions (ACS)

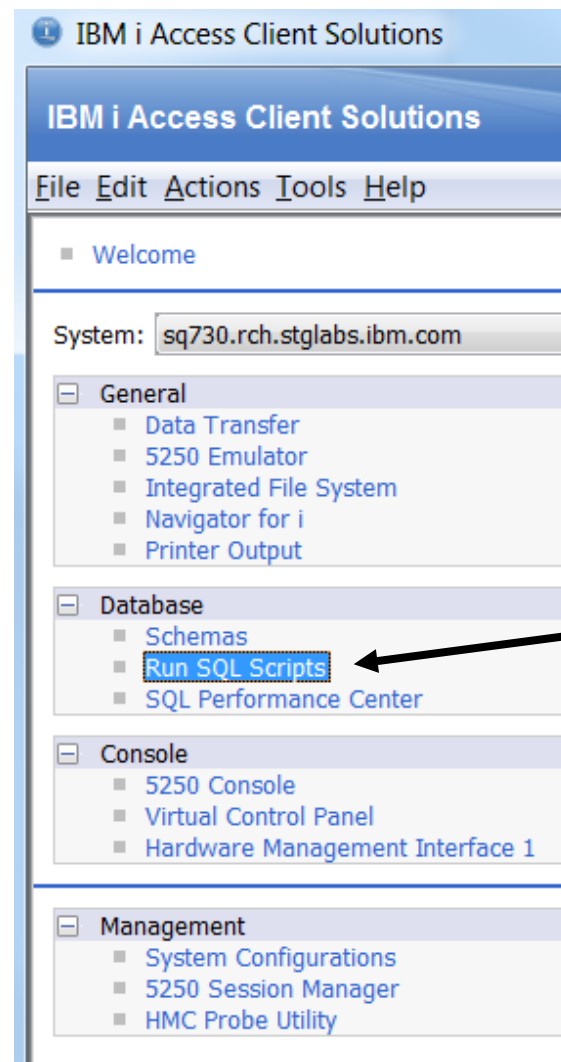
IBM i Access Windows Service Pack
Version 1.1.7.1 →

Run SQL Scripts and SQL Performance
Center, Visual Explain, Show
Statements, and much more...

Product Download Site:

<http://www-03.ibm.com/systems/power/software/i/access/solutions.html>

Next Planned Update... October, 2017



Launch

- **General**

- Add Database Health Center
- Add help text to dialogs

- **Run SQL Scripts**

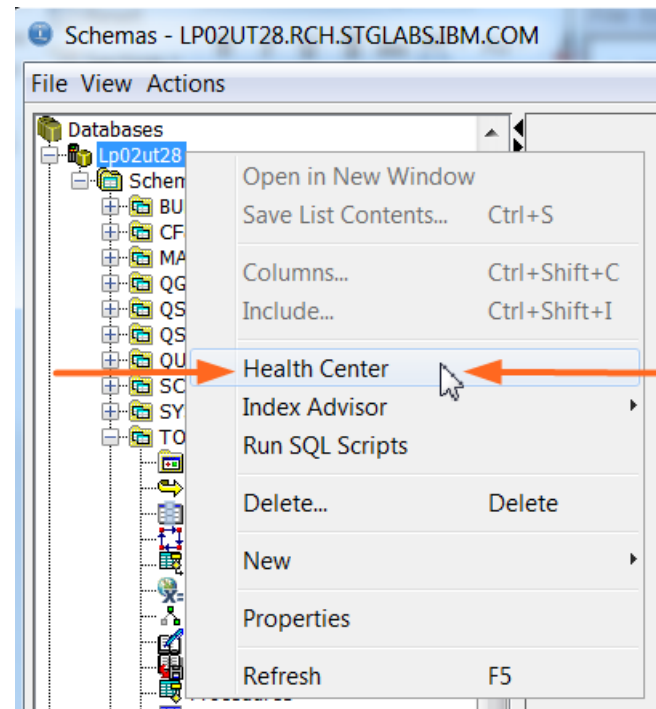
- Add Performance Monitor pulldown
- Direct launch buttons
- More Insert from Examples

- **SQL Performance Center**

- Import SQL Performance Monitor
- Import SQL Plan Cache Snapshot
- Import SQL Plan Cache Event Monitor
- New SQL Performance Monitor
- New SQL Plan Cache Snapshot
- New SQL Plan Cache Event Monitor

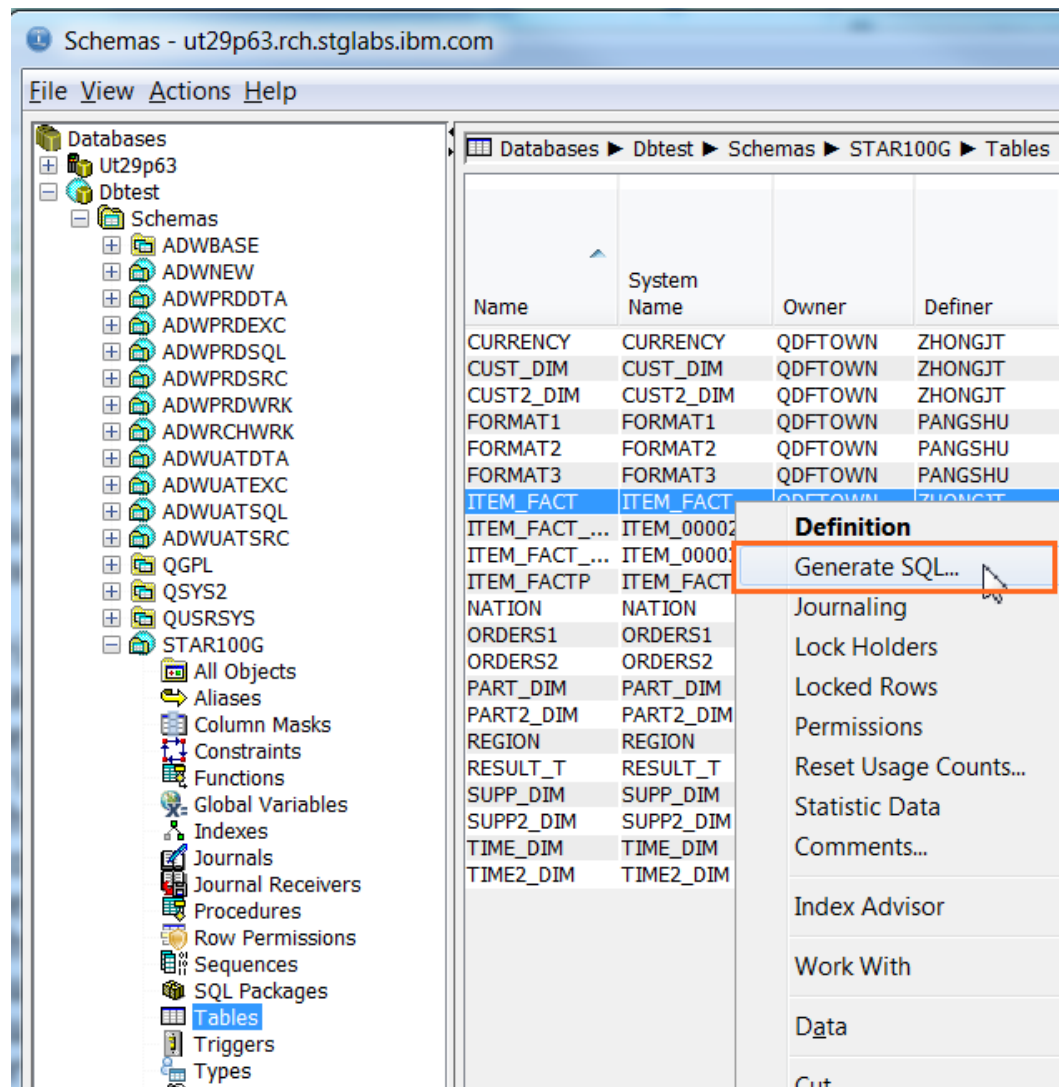
- **Schemas**

- Journal - View Entries
- Add Include... filtering support for Tables and Indexes
- All Objects - Permissions action



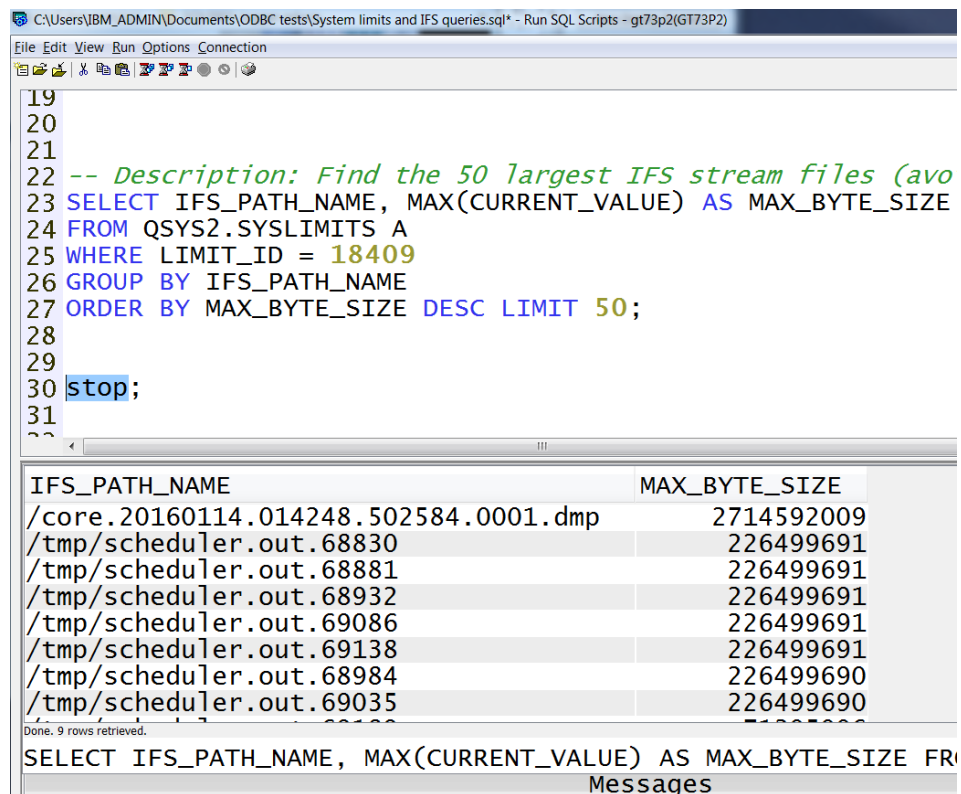
ACS-based Actions:

- Definition
- Description
- Generate SQL
- Properties
- Rename
- New Database Object
- Explain
- Data
 - View, Clear, ...
- Actions in Visual Explain
- ...



Highlights:

- Faster Startup Time
- Line Numbers
- Highlighting
- Color Coding
- Improved Usability
- Status Bar
- Reconnect
- Editor features
- Save Results
- Graphical Debugger
- Built-in examples



The screenshot shows a SQL script editor window titled "C:\Users\IBM_ADMIN\Documents\ODBC tests\System limits and IFS queries.sql* - Run SQL Scripts - gt73p2(GT73P2)". The editor contains the following SQL script:

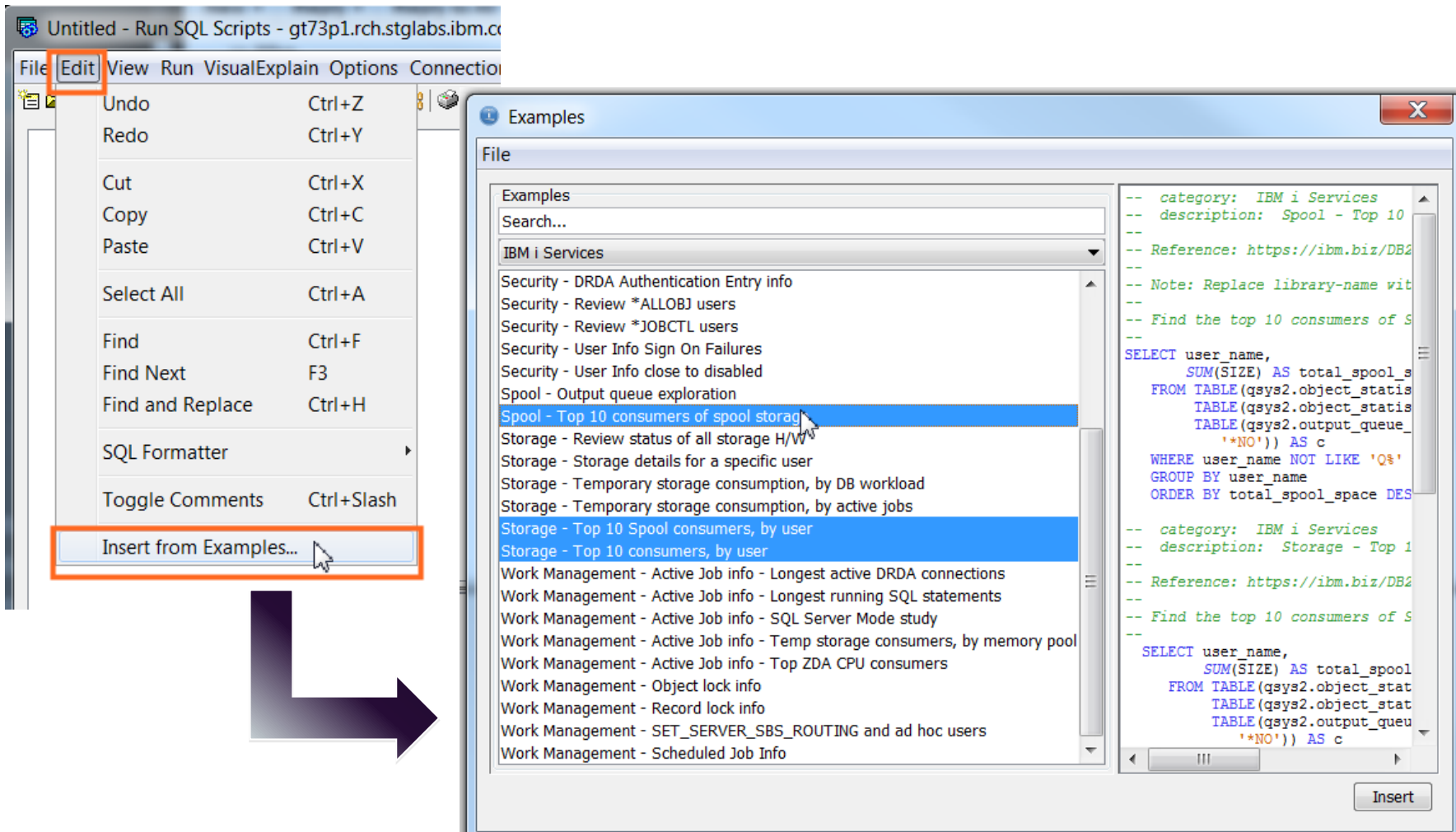
```
19
20
21
22 -- Description: Find the 50 largest IFS stream files (avo
23 SELECT IFS_PATH_NAME, MAX(CURRENT_VALUE) AS MAX_BYTE_SIZE
24 FROM QSYS2.SYSLIMITS A
25 WHERE LIMIT_ID = 18409
26 GROUP BY IFS_PATH_NAME
27 ORDER BY MAX_BYTE_SIZE DESC LIMIT 50;
28
29
30 stop;
31
32
```

The results of the query are displayed in a table below the script:

IFS_PATH_NAME	MAX_BYTE_SIZE
/core.20160114.014248.502584.0001.dmp	2714592009
/tmp/scheduler.out.68830	226499691
/tmp/scheduler.out.68881	226499691
/tmp/scheduler.out.68932	226499691
/tmp/scheduler.out.69086	226499691
/tmp/scheduler.out.69138	226499691
/tmp/scheduler.out.68984	226499690
/tmp/scheduler.out.69035	226499690

Below the table, the status bar indicates "Done. 9 rows retrieved." and the bottom of the window shows the start of the SQL script again: "SELECT IFS_PATH_NAME, MAX(CURRENT_VALUE) AS MAX_BYTE_SIZE FR" and "Messages".

Insert From Examples



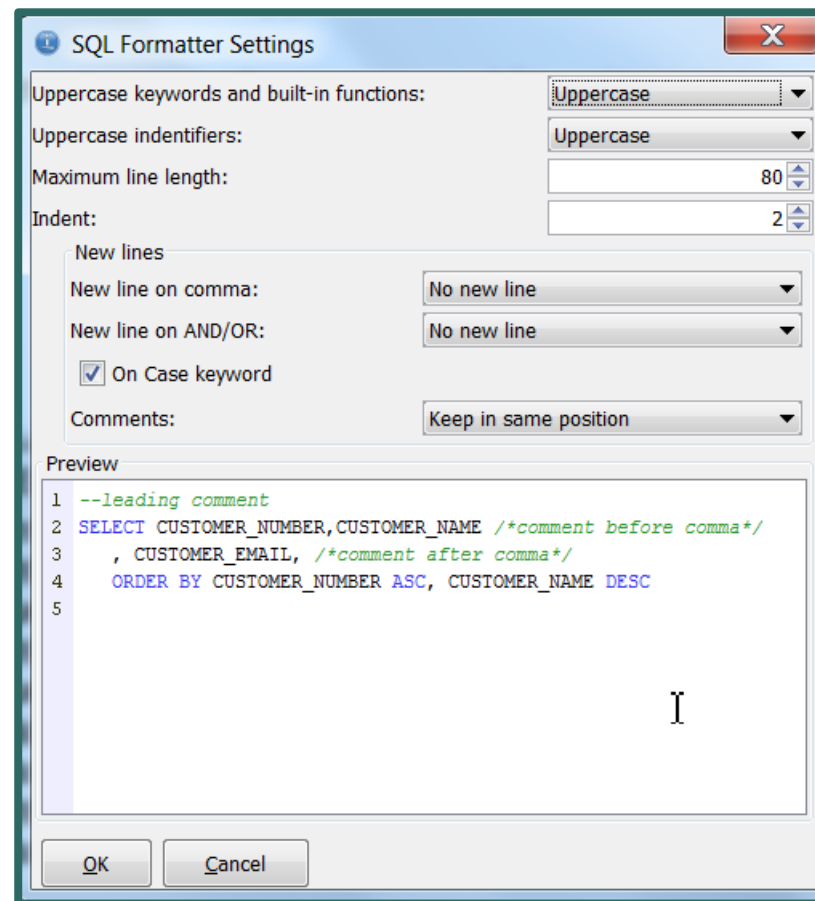
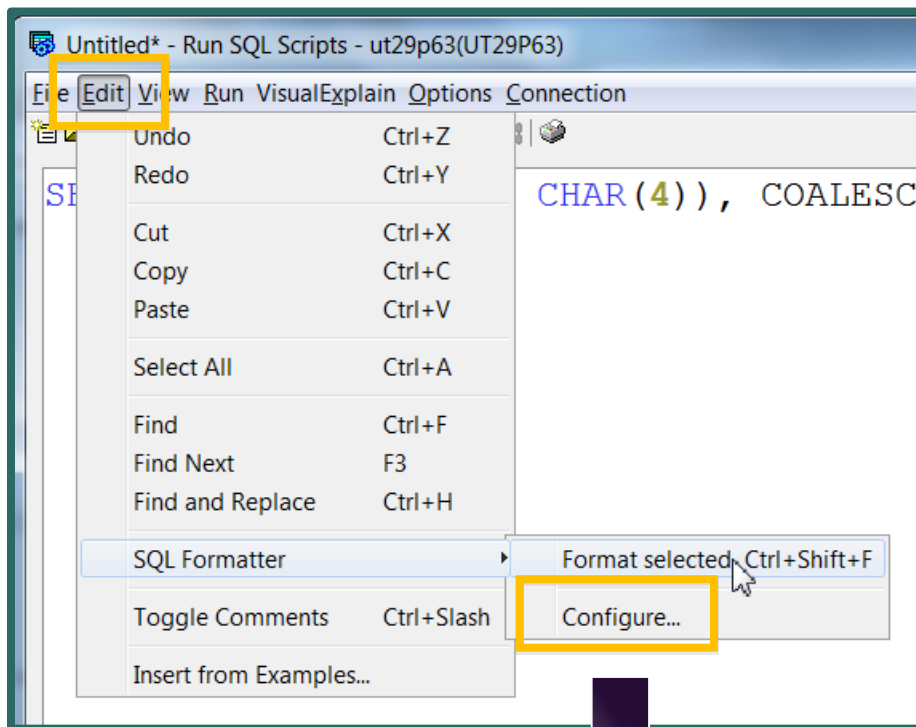
The screenshot illustrates the 'Insert from Examples...' feature in the IBM SQL Editor. The main window is titled 'Untitled - Run SQL Scripts - gt73p1.rch.stglabs.ibm.c'. The 'Edit' menu is open, and the 'Insert from Examples...' option is highlighted with a red box. A large blue arrow points from this menu item to the 'Examples' dialog box.

The 'Examples' dialog box has a 'File' menu and a list of example queries. The 'IBM i Services' category is selected. The list includes various queries such as 'Security - DRDA Authentication Entry info', 'Spool - Output queue exploration', and 'Storage - Top 10 consumers of spool storage'. The 'Storage - Top 10 consumers of spool storage' query is highlighted with a blue background.

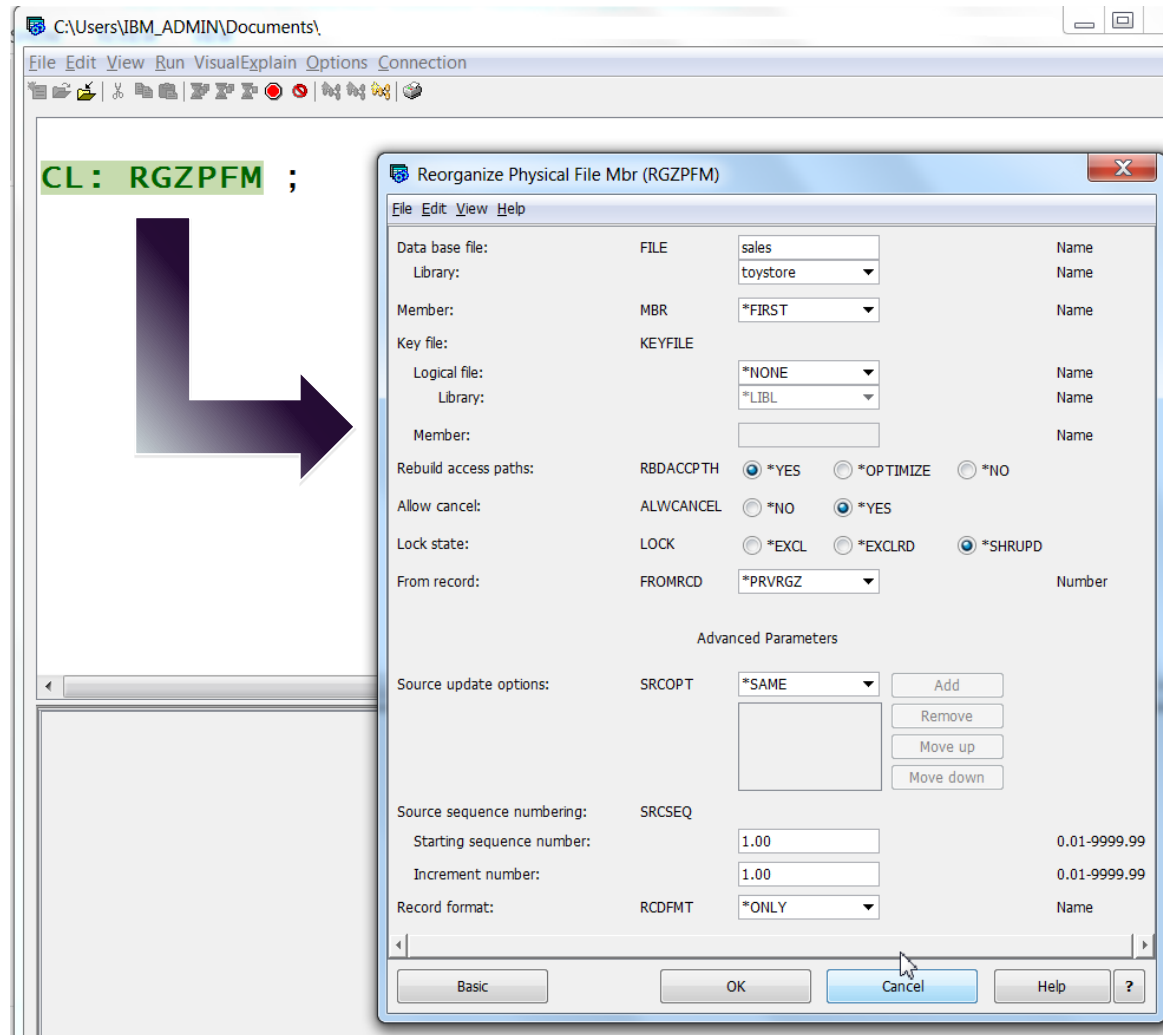
On the right side of the dialog, the SQL code for the selected query is displayed. It includes comments for category, description, and reference, followed by a SQL SELECT statement:

```
-- category: IBM i Services
-- description: Spool - Top 10
--
-- Reference: https://ibm.biz/DB2
-- Note: Replace library-name with
-- Find the top 10 consumers of S
--
SELECT user_name,
       SUM(SIZE) AS total_spool_s
FROM TABLE(qsys2.object_statis
           TABLE(qsys2.object_statis
           TABLE(qsys2.output_queue_
                '*NO')) AS c
WHERE user_name NOT LIKE 'Q%'
GROUP BY user_name
ORDER BY total_spool_space DES
```

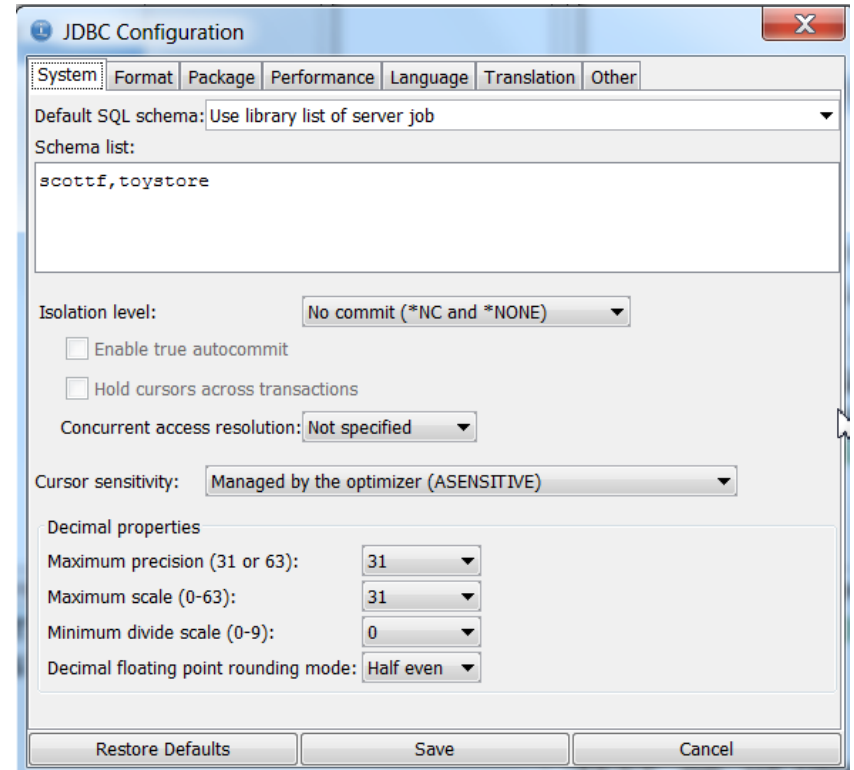
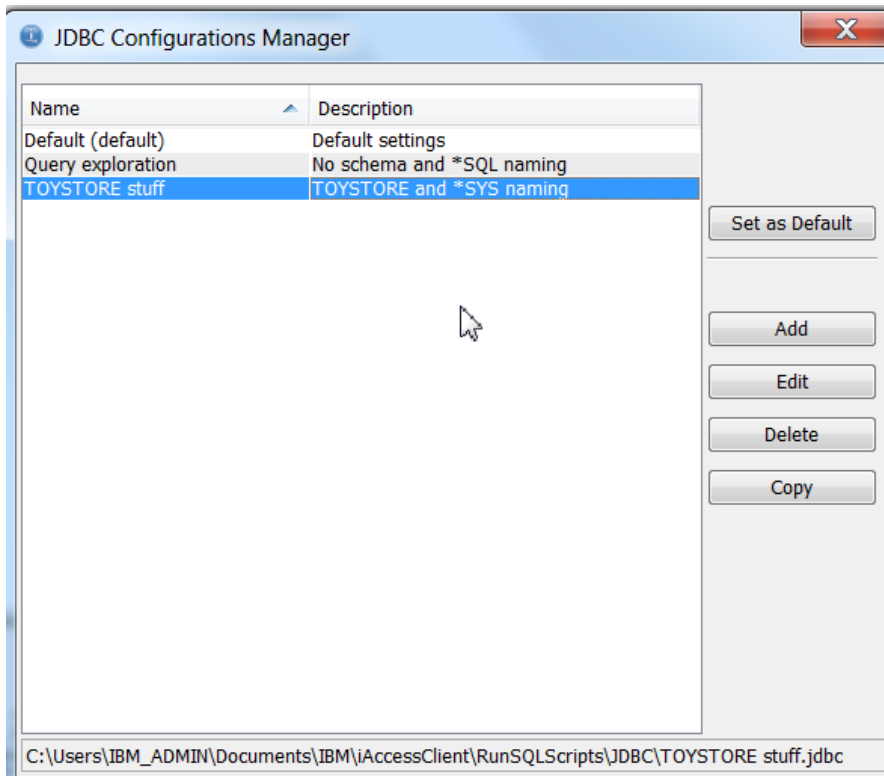
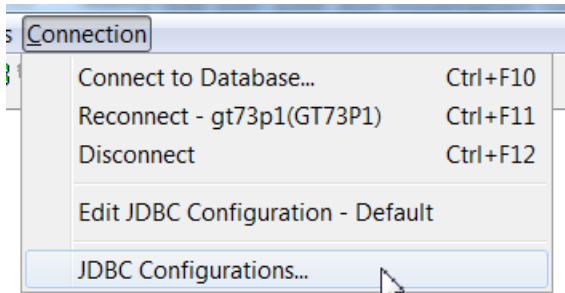
An 'Insert' button is located at the bottom right of the dialog box.



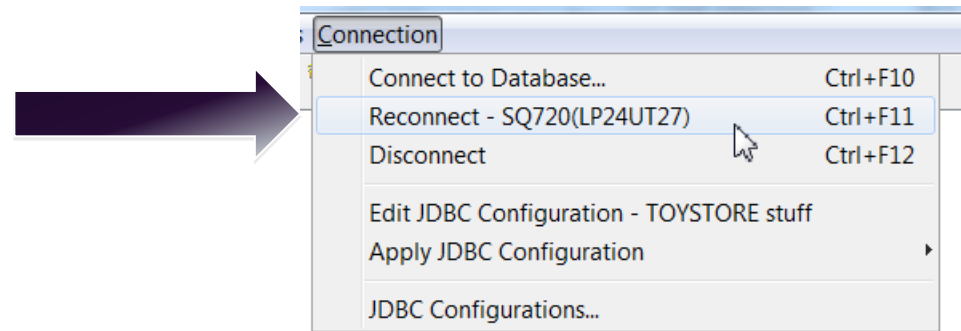
- Press PF4 to prompt and build your command string



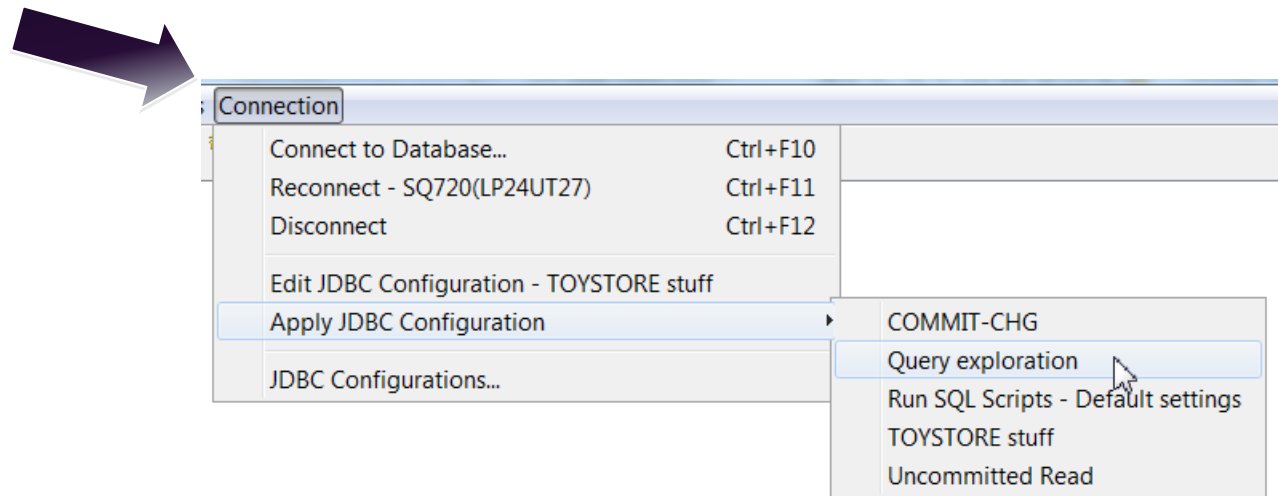
JDBC Configuration



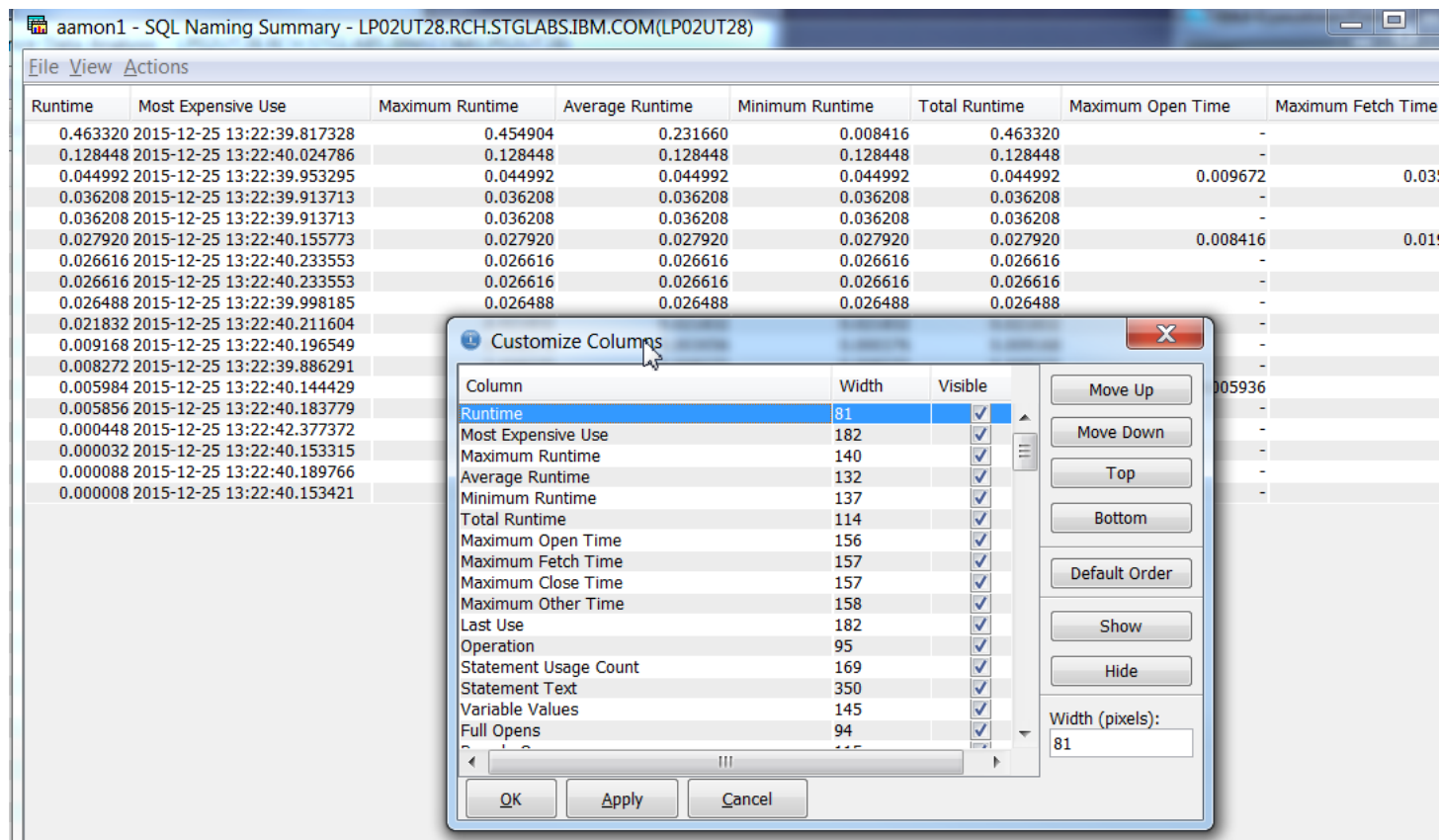
- New connection using the same JDBC configuration



- New connection using a different JDBC configuration



- Improved performance
- Tighter rendering of column widths

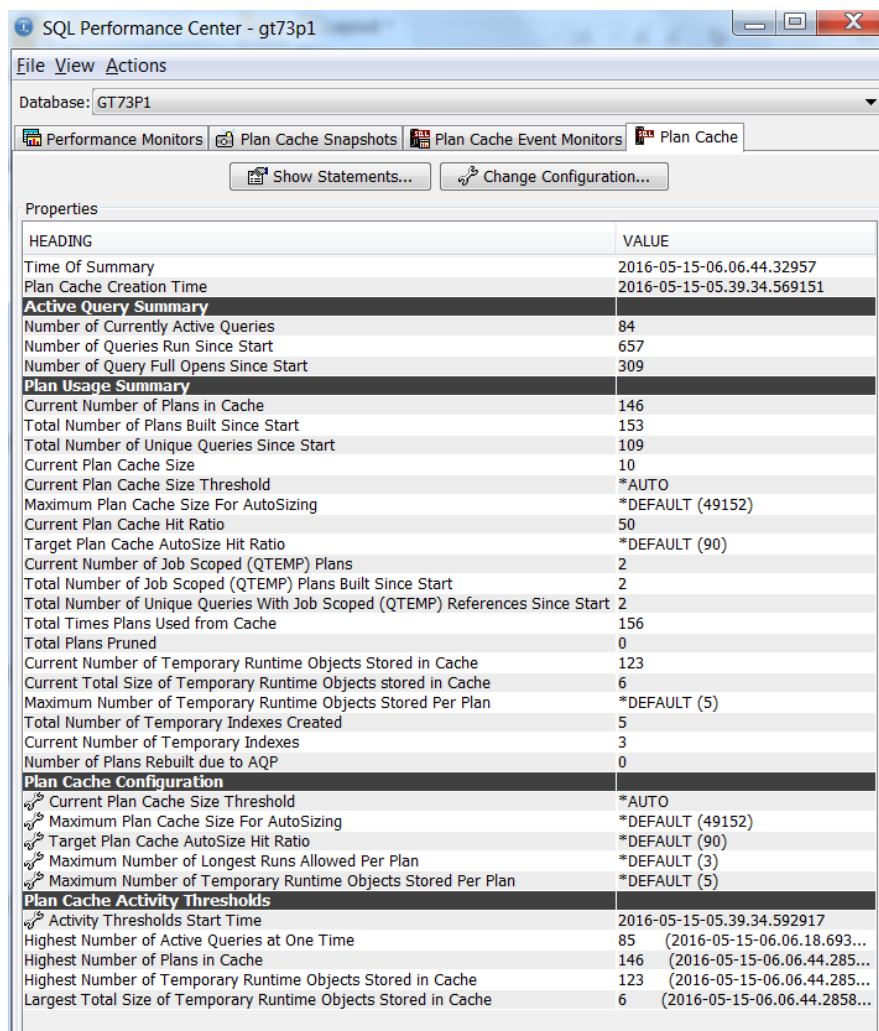


The screenshot displays the 'SQL Naming Summary' window in SQL Performance Center. The main window shows a table with columns: Runtime, Most Expensive Use, Maximum Runtime, Average Runtime, Minimum Runtime, Total Runtime, Maximum Open Time, and Maximum Fetch Time. The data rows show various performance metrics for different SQL statements.

Overlaid on the table is the 'Customize Columns' dialog box. It has a table with columns 'Column', 'Width', and 'Visible'. The 'Runtime' column is selected and highlighted in blue. The 'Width' column shows values for each metric, and the 'Visible' column has checkmarks. To the right of the table are buttons for 'Move Up', 'Move Down', 'Top', 'Bottom', 'Default Order', 'Show', and 'Hide'. At the bottom right, there is a 'Width (pixels):' field with the value '81' entered. At the bottom of the dialog are 'OK', 'Apply', and 'Cancel' buttons.

Runtime	Most Expensive Use	Maximum Runtime	Average Runtime	Minimum Runtime	Total Runtime	Maximum Open Time	Maximum Fetch Time
0.463320	2015-12-25 13:22:39.817328	0.454904	0.231660	0.008416	0.463320	-	-
0.128448	2015-12-25 13:22:40.024786	0.128448	0.128448	0.128448	0.128448	-	-
0.044992	2015-12-25 13:22:39.953295	0.044992	0.044992	0.044992	0.044992	0.009672	0.03
0.036208	2015-12-25 13:22:39.913713	0.036208	0.036208	0.036208	0.036208	-	-
0.036208	2015-12-25 13:22:39.913713	0.036208	0.036208	0.036208	0.036208	-	-
0.027920	2015-12-25 13:22:40.155773	0.027920	0.027920	0.027920	0.027920	0.008416	0.01
0.026616	2015-12-25 13:22:40.233553	0.026616	0.026616	0.026616	0.026616	-	-
0.026616	2015-12-25 13:22:40.233553	0.026616	0.026616	0.026616	0.026616	-	-
0.026488	2015-12-25 13:22:39.998185	0.026488	0.026488	0.026488	0.026488	-	-
0.021832	2015-12-25 13:22:40.211604	-	-	-	-	-	-
0.009168	2015-12-25 13:22:40.196549	-	-	-	-	-	-
0.008272	2015-12-25 13:22:39.886291	-	-	-	-	-	-
0.005984	2015-12-25 13:22:40.144429	-	-	-	-	-	-
0.005856	2015-12-25 13:22:40.183779	-	-	-	-	-	-
0.000448	2015-12-25 13:22:42.377372	-	-	-	-	-	-
0.000032	2015-12-25 13:22:40.153315	-	-	-	-	-	-
0.000088	2015-12-25 13:22:40.189766	-	-	-	-	-	-
0.000008	2015-12-25 13:22:40.153421	-	-	-	-	-	-

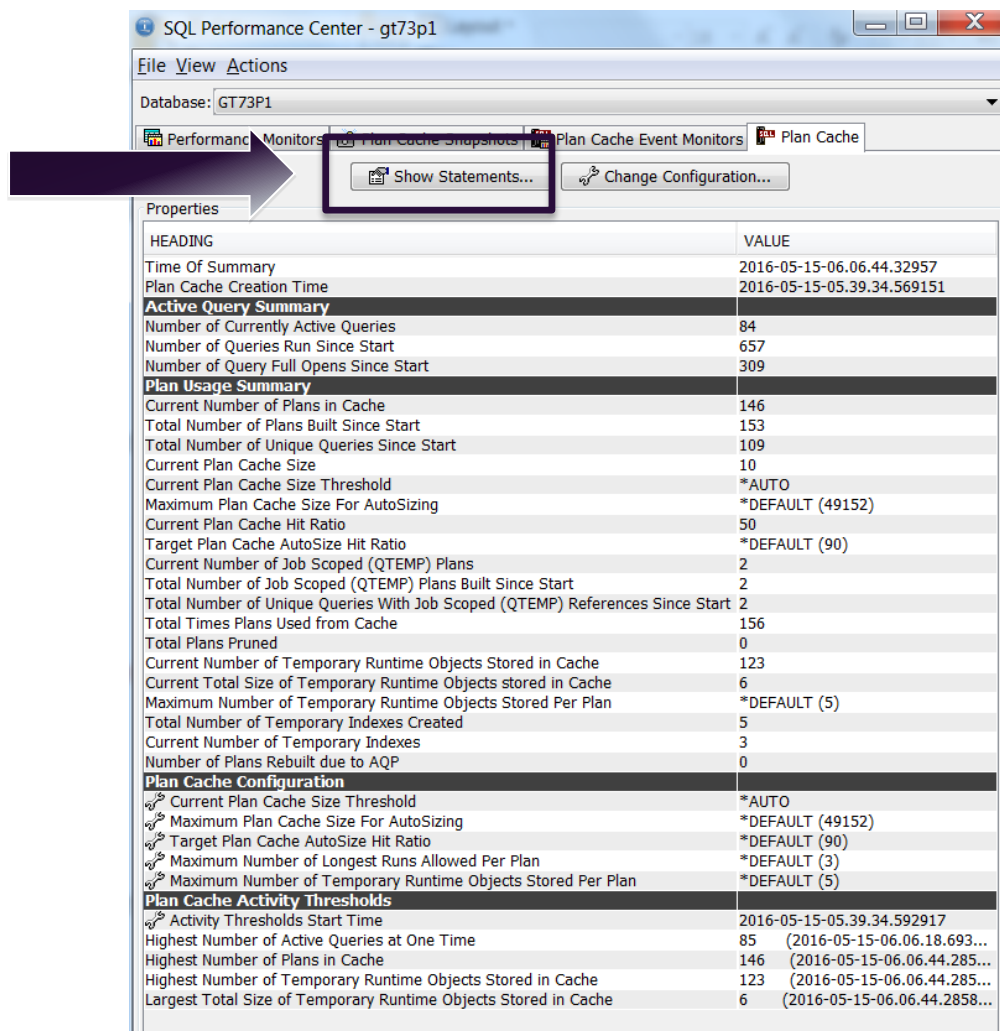
- SQL Plan Cache Properties are on the front page
- Some are configurable



The screenshot shows the 'SQL Performance Center - gt73p1' window. The 'Database' is set to 'GT73P1'. The 'Plan Cache' tab is selected, showing a table of properties. The table is divided into sections: 'Active Query Summary', 'Plan Usage Summary', 'Plan Cache Configuration', and 'Plan Cache Activity Thresholds'. The 'Plan Cache Configuration' section contains several properties with a gear icon, indicating they are configurable.

HEADING	VALUE
Time Of Summary	2016-05-15-06.06.44.32957
Plan Cache Creation Time	2016-05-15-05.39.34.569151
Active Query Summary	
Number of Currently Active Queries	84
Number of Queries Run Since Start	657
Number of Query Full Opens Since Start	309
Plan Usage Summary	
Current Number of Plans in Cache	146
Total Number of Plans Built Since Start	153
Total Number of Unique Queries Since Start	109
Current Plan Cache Size	10
Current Plan Cache Size Threshold	*AUTO
Maximum Plan Cache Size For AutoSizing	*DEFAULT (49152)
Current Plan Cache Hit Ratio	50
Target Plan Cache AutoSize Hit Ratio	*DEFAULT (90)
Current Number of Job Scoped (QTEMP) Plans	2
Total Number of Job Scoped (QTEMP) Plans Built Since Start	2
Total Number of Unique Queries With Job Scoped (QTEMP) References Since Start	2
Total Times Plans Used from Cache	156
Total Plans Pruned	0
Current Number of Temporary Runtime Objects Stored in Cache	123
Current Total Size of Temporary Runtime Objects stored in Cache	6
Maximum Number of Temporary Runtime Objects Stored Per Plan	*DEFAULT (5)
Total Number of Temporary Indexes Created	5
Current Number of Temporary Indexes	3
Number of Plans Rebuilt due to AQP	0
Plan Cache Configuration	
Current Plan Cache Size Threshold	*AUTO
Maximum Plan Cache Size For AutoSizing	*DEFAULT (49152)
Target Plan Cache AutoSize Hit Ratio	*DEFAULT (90)
Maximum Number of Longest Runs Allowed Per Plan	*DEFAULT (3)
Maximum Number of Temporary Runtime Objects Stored Per Plan	*DEFAULT (5)
Plan Cache Activity Thresholds	
Activity Thresholds Start Time	2016-05-15-05.39.34.592917
Highest Number of Active Queries at One Time	85 (2016-05-15-06.06.18.693...)
Highest Number of Plans in Cache	146 (2016-05-15-06.06.44.285...)
Highest Number of Temporary Runtime Objects Stored in Cache	123 (2016-05-15-06.06.44.285...)
Largest Total Size of Temporary Runtime Objects Stored in Cache	6 (2016-05-15-06.06.44.2858...)

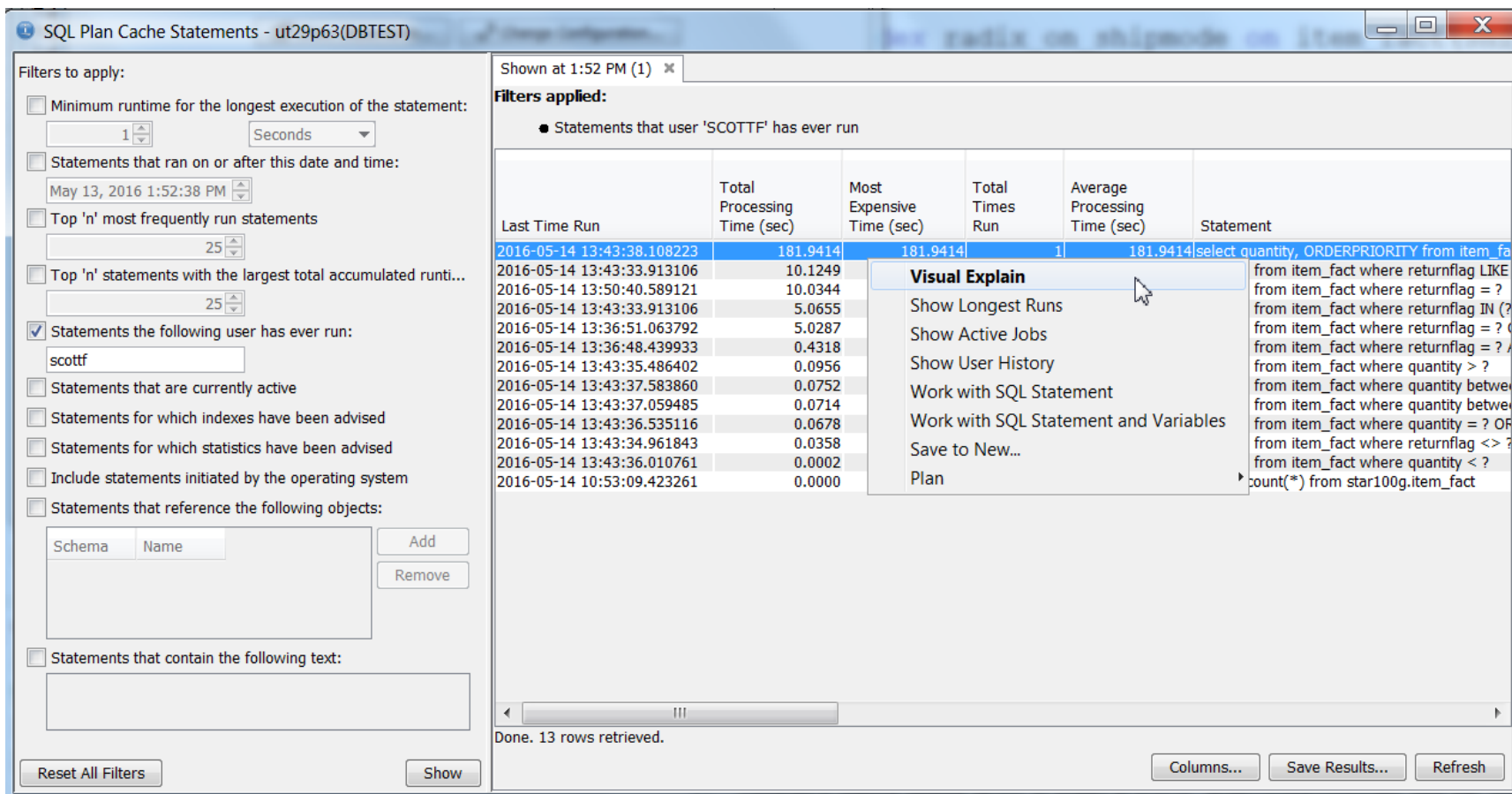
- Launch into a live interrogation of SQL activity



The screenshot shows the SQL Performance Center interface for database GT73P1. The 'Plan Cache Snapshots' tab is active, and the 'Show Statements...' button is highlighted with a red box. A red arrow points from the text 'Launch into a live interrogation of SQL activity' to this button. Below the button, a table displays various performance metrics.

HEADING	VALUE
Time Of Summary	2016-05-15-06.06.44.32957
Plan Cache Creation Time	2016-05-15-05.39.34.569151
Active Query Summary	
Number of Currently Active Queries	84
Number of Queries Run Since Start	657
Number of Query Full Opens Since Start	309
Plan Usage Summary	
Current Number of Plans in Cache	146
Total Number of Plans Built Since Start	153
Total Number of Unique Queries Since Start	109
Current Plan Cache Size	10
Current Plan Cache Size Threshold	*AUTO
Maximum Plan Cache Size For AutoSizing	*DEFAULT (49152)
Current Plan Cache Hit Ratio	50
Target Plan Cache AutoSize Hit Ratio	*DEFAULT (90)
Current Number of Job Scoped (QTEMP) Plans	2
Total Number of Job Scoped (QTEMP) Plans Built Since Start	2
Total Number of Unique Queries With Job Scoped (QTEMP) References Since Start	2
Total Times Plans Used from Cache	156
Total Plans Pruned	0
Current Number of Temporary Runtime Objects Stored in Cache	123
Current Total Size of Temporary Runtime Objects stored in Cache	6
Maximum Number of Temporary Runtime Objects Stored Per Plan	*DEFAULT (5)
Total Number of Temporary Indexes Created	5
Current Number of Temporary Indexes	3
Number of Plans Rebuilt due to AQP	0
Plan Cache Configuration	
Current Plan Cache Size Threshold	*AUTO
Maximum Plan Cache Size For AutoSizing	*DEFAULT (49152)
Target Plan Cache AutoSize Hit Ratio	*DEFAULT (90)
Maximum Number of Longest Runs Allowed Per Plan	*DEFAULT (3)
Maximum Number of Temporary Runtime Objects Stored Per Plan	*DEFAULT (5)
Plan Cache Activity Thresholds	
Activity Thresholds Start Time	2016-05-15-05.39.34.592917
Highest Number of Active Queries at One Time	85 (2016-05-15-06.06.18.693...)
Highest Number of Plans in Cache	146 (2016-05-15-06.06.44.285...)
Highest Number of Temporary Runtime Objects Stored in Cache	123 (2016-05-15-06.06.44.285...)
Largest Total Size of Temporary Runtime Objects Stored in Cache	6 (2016-05-15-06.06.44.2858...)

- Explore → Understand → Tune (repeat)



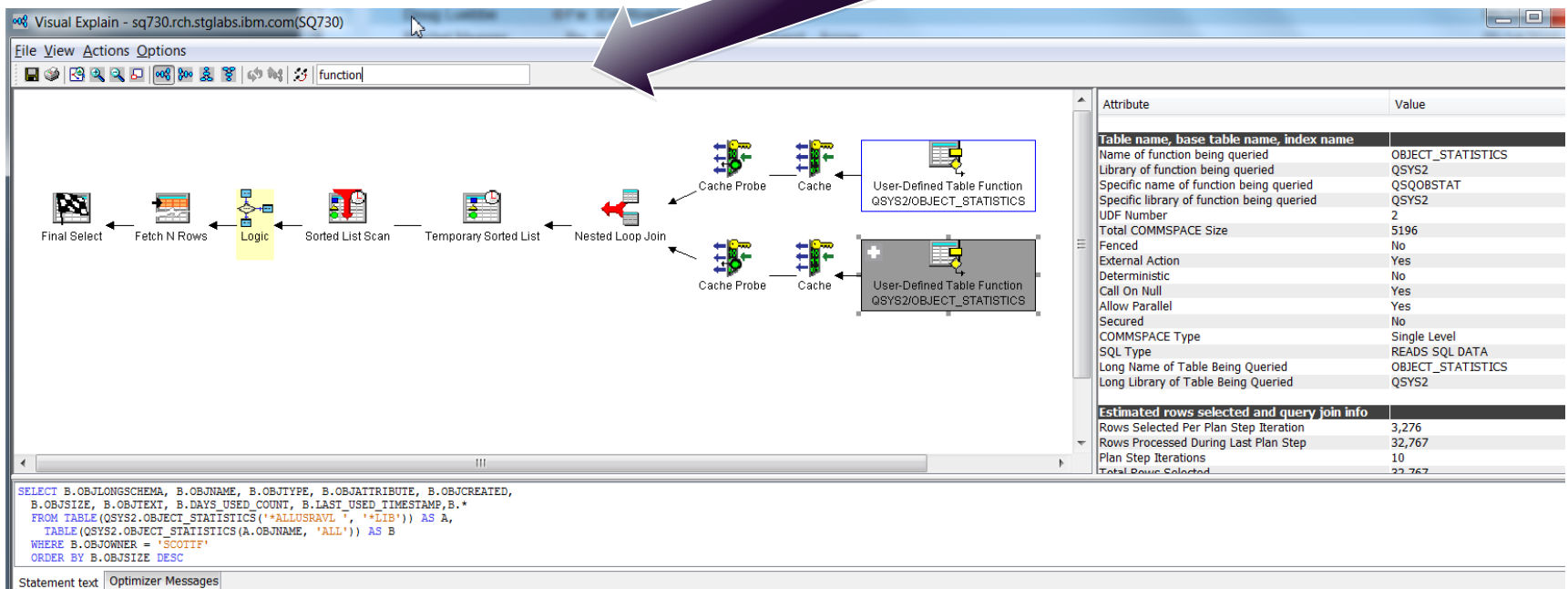
The screenshot shows the 'SQL Plan Cache Statements - ut29p63(DBTEST)' window. The left sidebar contains various filters to apply, with 'Statements the following user has ever run' checked and 'scottf' entered in the text field. The main area displays a table of statements with columns: Last Time Run, Total Processing Time (sec), Most Expensive Time (sec), Total Times Run, Average Processing Time (sec), and Statement. A context menu is open over the first row, with 'Visual Explain' selected. The table shows 13 rows, with the first row having a total processing time of 181.9414 seconds.

Last Time Run	Total Processing Time (sec)	Most Expensive Time (sec)	Total Times Run	Average Processing Time (sec)	Statement
2016-05-14 13:43:38.108223	181.9414	181.9414	1	181.9414	select quantity, ORDERPRIORITY from item_fa
2016-05-14 13:43:33.913106	10.1249				from item_fact where returnflag LIKE
2016-05-14 13:50:40.589121	10.0344				from item_fact where returnflag = ?
2016-05-14 13:43:33.913106	5.0655				from item_fact where returnflag IN (?)
2016-05-14 13:36:51.063792	5.0287				from item_fact where returnflag = ?
2016-05-14 13:36:48.439933	0.4318				from item_fact where returnflag = ?
2016-05-14 13:43:35.486402	0.0956				from item_fact where quantity > ?
2016-05-14 13:43:37.583860	0.0752				from item_fact where quantity between
2016-05-14 13:43:37.059485	0.0714				from item_fact where quantity between
2016-05-14 13:43:36.535116	0.0678				from item_fact where quantity = ? OR
2016-05-14 13:43:34.961843	0.0358				from item_fact where returnflag <> ?
2016-05-14 13:43:36.010761	0.0002				from item_fact where quantity < ?
2016-05-14 10:53:09.423261	0.0000				count(*) from star100g.item_fact

Launch from:

- Run SQL Scripts
- Analyze
- Show Statements

- **Better than before**
 - Search

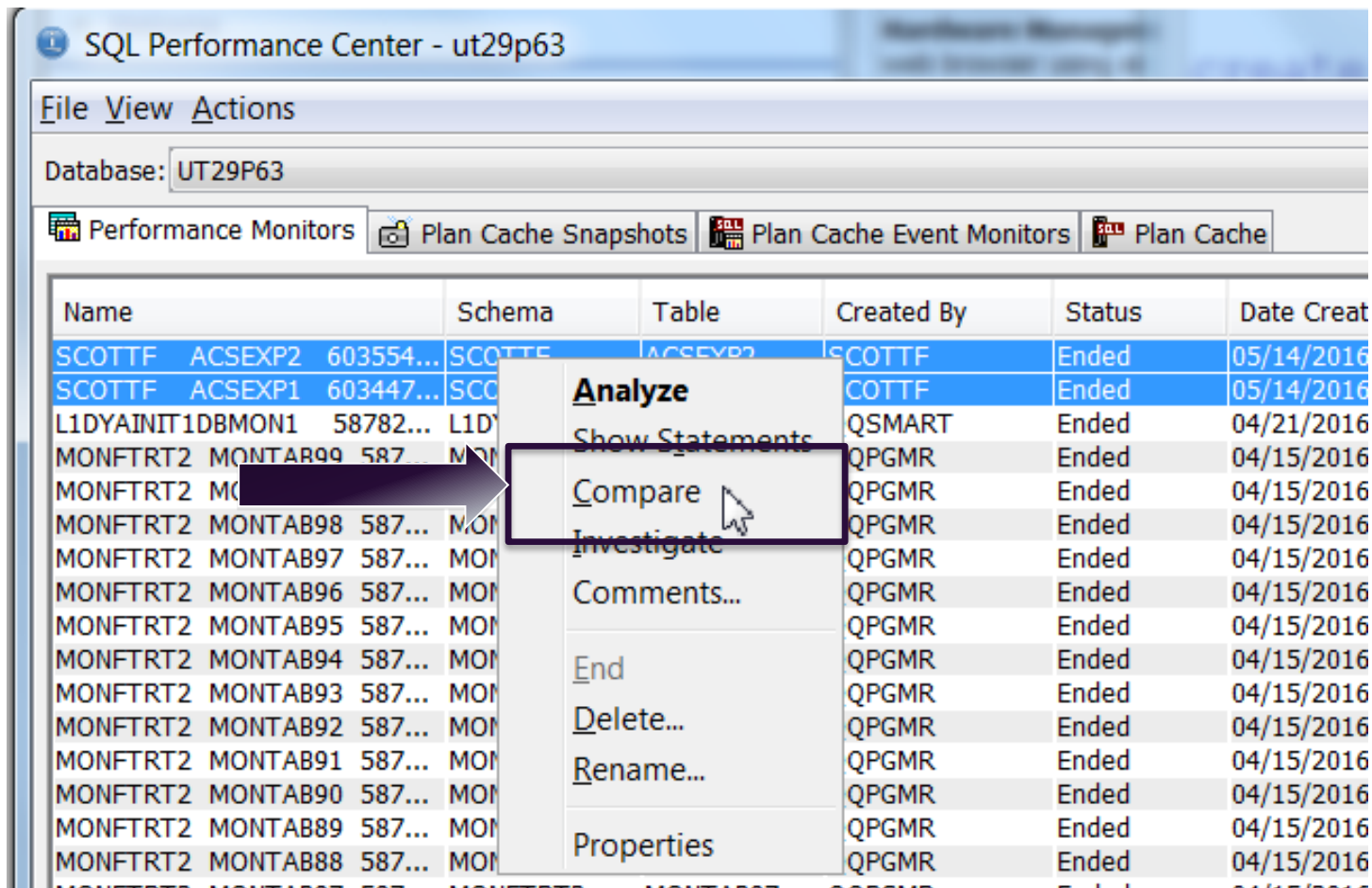


The screenshot shows the Visual Explain interface for a query. The main area displays a query plan diagram with the following steps: Final Select, Fetch N Rows, Logic, Sorted List Scan, Temporary Sorted List, Nested Loop Join, Cache Probe, Cache, and User-Defined Table Function QSYS2/OBJECT_STATISTICS. A large purple arrow points to the search bar in the top toolbar, which contains the text 'function'. The right-hand pane displays a table of attributes and values for the selected function.

Attribute	Value
Table name, base table name, index name	
Name of function being queried	OBJECT_STATISTICS
Library of function being queried	QSYS2
Specific name of function being queried	QSQOBSTAT
Specific library of function being queried	QSYS2
UDF Number	2
Total COMMSpace Size	5196
Fenced	No
External Action	Yes
Deterministic	No
Call On Null	Yes
Allow Parallel	Yes
Secured	No
COMMSpace Type	Single Level
SQL Type	READS SQL DATA
Long Name of Table Being Queried	OBJECT_STATISTICS
Long Library of Table Being Queried	QSYS2
Estimated rows selected and query join info	
Rows Selected Per Plan Step Iteration	3,276
Rows Processed During Last Plan Step	32,767
Plan Step Iterations	10
Total Rows Selected	32,767

```
SELECT B.OBJLONGSCHEMA, B.OBJNAME, B.OBJTYPE, B.OBJATTRIBUTE, B.OBJCREATED,
B.OBJSIZE, B.OBJTEXT, B.DAYS_USED_COUNT, B.LAST_USED_TIMESTAMP, B.*
FROM TABLE(QSYS2.OBJECT_STATISTICS('*ALLUSRAVL ', '*LIB')) AS A,
TABLE(QSYS2.OBJECT_STATISTICS(A.OBJNAME, 'ALL')) AS B
WHERE B.OBJOWNER = 'SCOTT'
ORDER BY B.OBJSIZE DESC
```

Contrast matching SQL, run at different times



The screenshot shows the SQL Performance Center interface for database 'UT29P63'. A table of performance monitors is displayed with columns: Name, Schema, Table, Created By, Status, and Date Creat. A context menu is open over the table, with the 'Compare' option highlighted by a mouse cursor. A black arrow points from the 'MONFTRT2 MONTAB99' row to the 'Compare' menu item.

Name	Schema	Table	Created By	Status	Date Creat
SCOTT ACSEXP2 603554...	SCOTT	ACSEXP2	SCOTT	Ended	05/14/2016
SCOTT ACSEXP1 603447...	SCOTT	ACSEXP1	SCOTT	Ended	05/14/2016
L1DYAINIT1DBMON1 58782...	L1DY	AINIT1DBMON1	QSMART	Ended	04/21/2016
MONFTRT2 MONTAB99 587...	MONF	MONTAB99	QPGMR	Ended	04/15/2016
MONFTRT2 MONTAB98 587...	MONF	MONTAB98	QPGMR	Ended	04/15/2016
MONFTRT2 MONTAB97 587...	MONF	MONTAB97	QPGMR	Ended	04/15/2016
MONFTRT2 MONTAB96 587...	MONF	MONTAB96	QPGMR	Ended	04/15/2016
MONFTRT2 MONTAB95 587...	MONF	MONTAB95	QPGMR	Ended	04/15/2016
MONFTRT2 MONTAB94 587...	MONF	MONTAB94	QPGMR	Ended	04/15/2016
MONFTRT2 MONTAB93 587...	MONF	MONTAB93	QPGMR	Ended	04/15/2016
MONFTRT2 MONTAB92 587...	MONF	MONTAB92	QPGMR	Ended	04/15/2016
MONFTRT2 MONTAB91 587...	MONF	MONTAB91	QPGMR	Ended	04/15/2016
MONFTRT2 MONTAB90 587...	MONF	MONTAB90	QPGMR	Ended	04/15/2016
MONFTRT2 MONTAB89 587...	MONF	MONTAB89	QPGMR	Ended	04/15/2016
MONFTRT2 MONTAB88 587...	MONF	MONTAB88	QPGMR	Ended	04/15/2016

Scott's Faves

Adding examples to Run SQL Scripts

1) Add the following comments to your Run SQL Script.

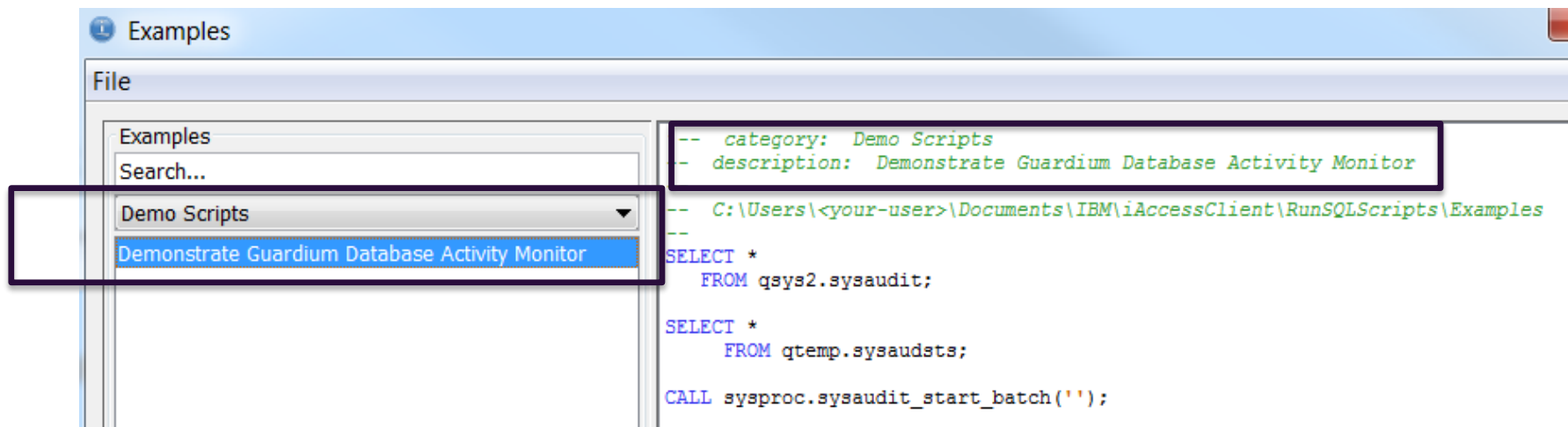
-- **category:** Demo Scripts

-- **description:** Demonstrate Guardium Database Activity Monitor

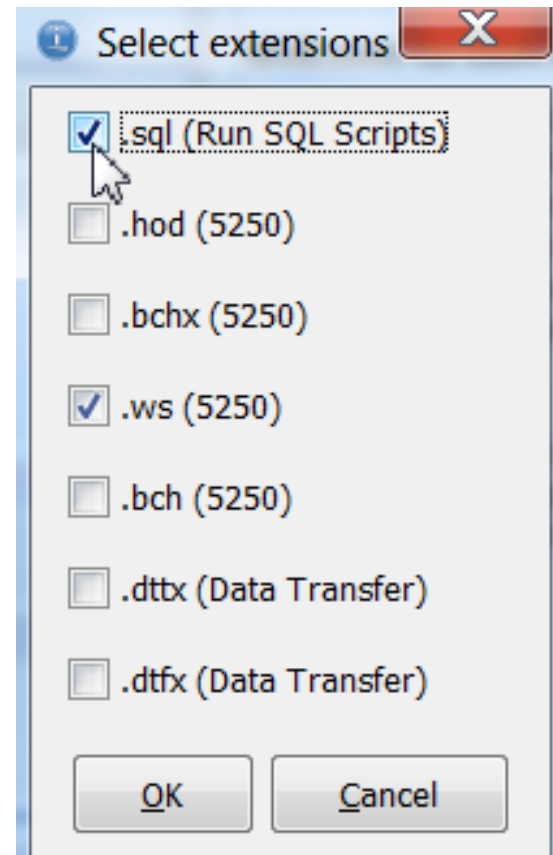
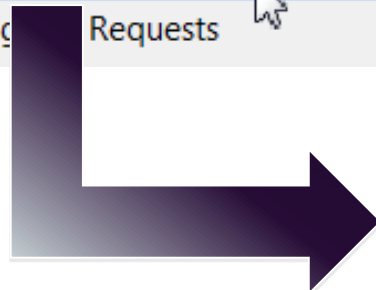
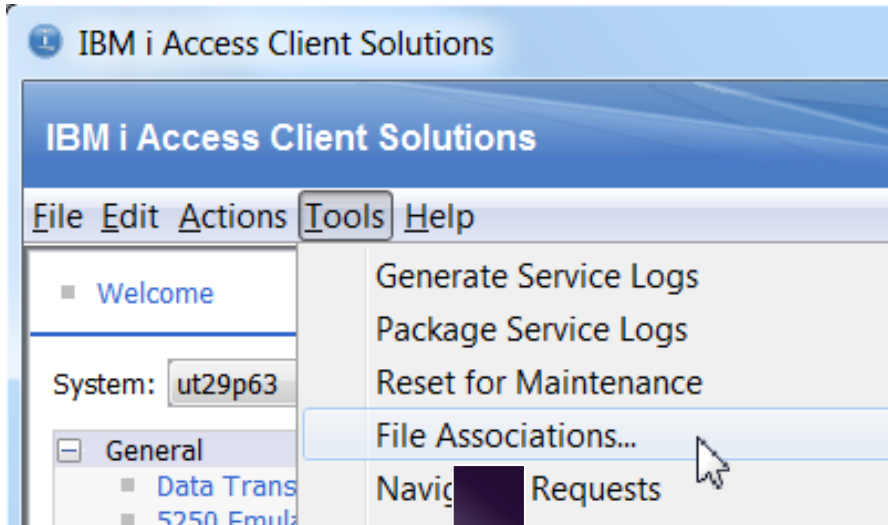
2) Save the script to the following path.

C:\Users\<<your-user>\Documents\IBM\iAccessClient\RunSQLScripts\Examples

3) Find your script with Search or via the Examples pane.

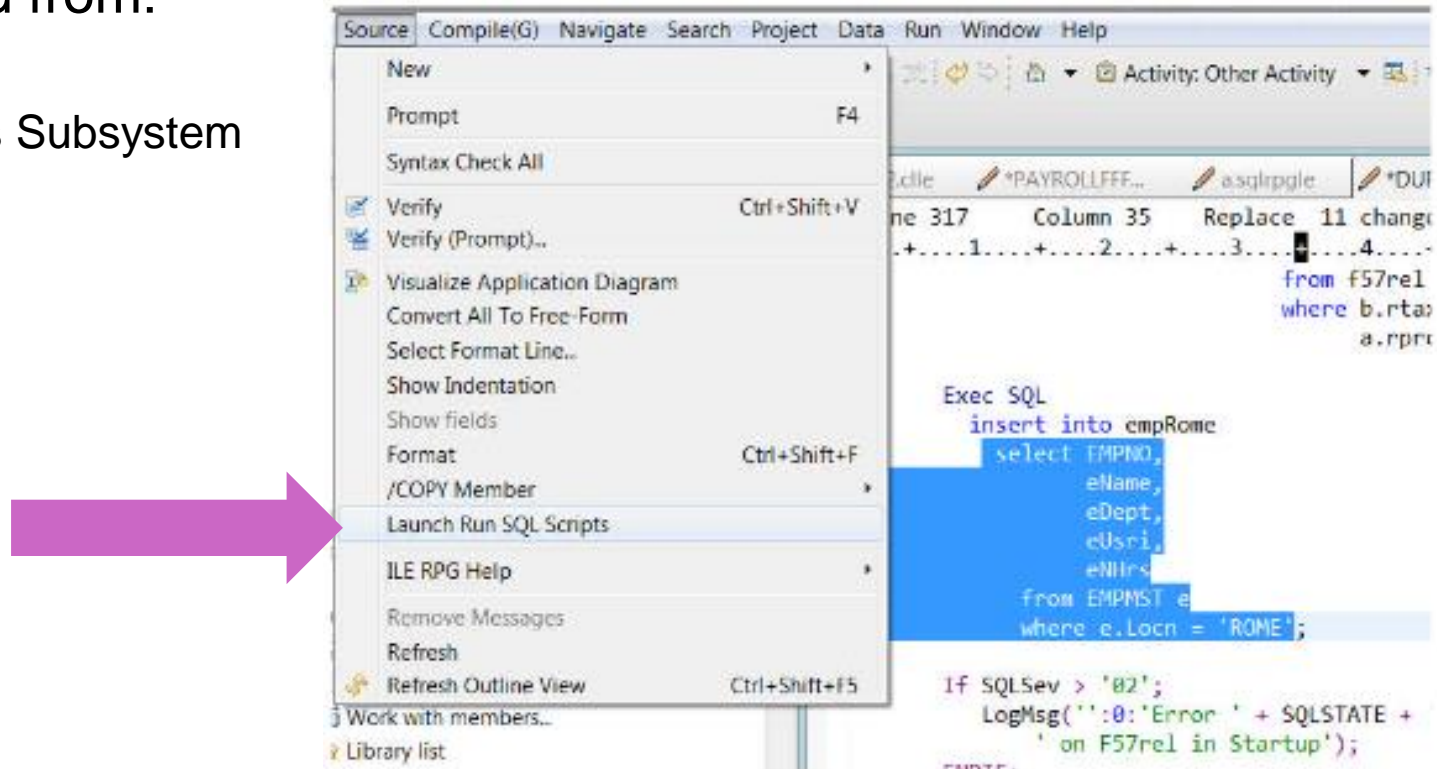


(Re) Directing .sql launch to ACS



Rational Developer for IBM i (RDi)

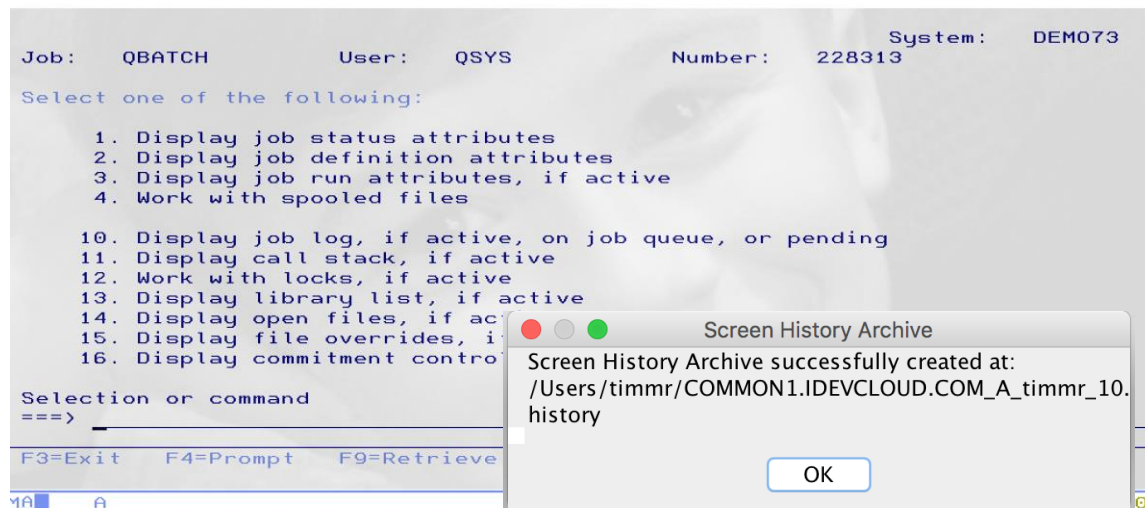
- Rdi Minimum level 9.5.1
- Preferred level 9.5.1.2
- SQL statement is populated into an ACS Run SQL Scripts dialog
- Launched from:
 - Editor
 - Objects Subsystem



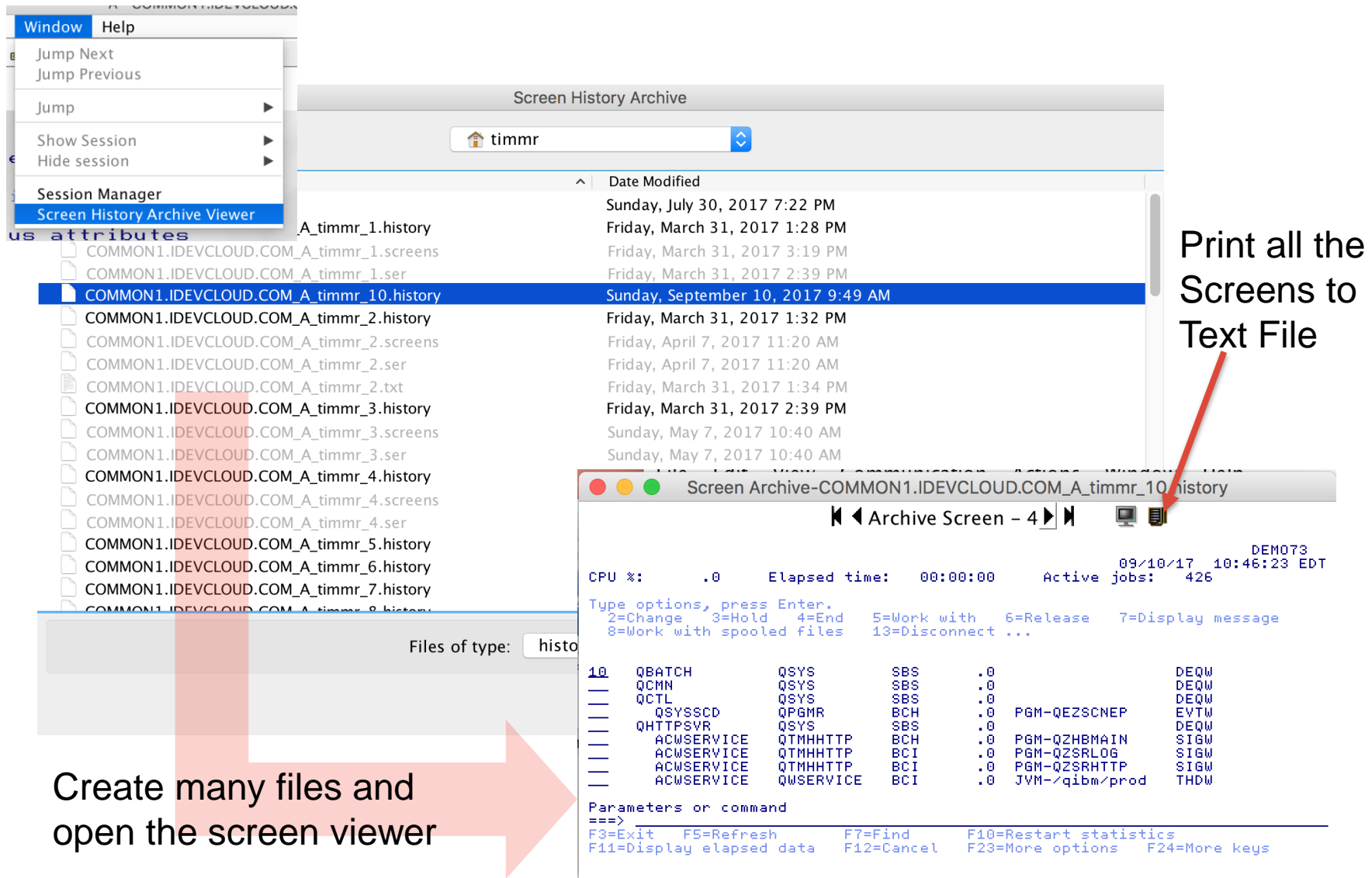
Tim's Faves

Screen History

- Expanded from 15 screens to unlimited
- Easy to use controls
- Save the screens you want
- Click Stop to create a Archive file
- View list of Files



Screen History - Archive



The screenshot shows the 'Screen History Archive' application. On the left, a file tree lists various history files under the path 'COMMON1.IDEV.CLOUD.COM_A_timmr'. The file 'COMMON1.IDEV.CLOUD.COM_A_timmr_10.history' is selected. The main pane shows a list of files with their 'Date Modified' dates. A red arrow points from the selected file to a preview window titled 'Screen Archive-COMMON1.IDEV.CLOUD.COM_A_timmr_10.history'. The preview window shows a terminal screen with system information and a job listing. A red arrow also points from the text 'Print all the Screens to Text File' to the print icon in the preview window's toolbar.

Window Help

- Jump Next
- Jump Previous
- Jump
- Show Session
- Hide session
- Session Manager
- Screen History Archive Viewer

Screen History Archive

timmr

Date Modified

- Sunday, July 30, 2017 7:22 PM
- Friday, March 31, 2017 1:28 PM
- Friday, March 31, 2017 3:19 PM
- Friday, March 31, 2017 2:39 PM
- Sunday, September 10, 2017 9:49 AM
- Friday, March 31, 2017 1:32 PM
- Friday, April 7, 2017 11:20 AM
- Friday, April 7, 2017 11:20 AM
- Friday, March 31, 2017 1:34 PM
- Friday, March 31, 2017 2:39 PM
- Sunday, May 7, 2017 10:40 AM
- Sunday, May 7, 2017 10:40 AM

COMMON1.IDEV.CLOUD.COM_A_timmr_1.history

COMMON1.IDEV.CLOUD.COM_A_timmr_10.history

COMMON1.IDEV.CLOUD.COM_A_timmr_2.history

COMMON1.IDEV.CLOUD.COM_A_timmr_2.screens

COMMON1.IDEV.CLOUD.COM_A_timmr_2.ser

COMMON1.IDEV.CLOUD.COM_A_timmr_2.txt

COMMON1.IDEV.CLOUD.COM_A_timmr_3.history

COMMON1.IDEV.CLOUD.COM_A_timmr_3.screens

COMMON1.IDEV.CLOUD.COM_A_timmr_3.ser

COMMON1.IDEV.CLOUD.COM_A_timmr_4.history

COMMON1.IDEV.CLOUD.COM_A_timmr_4.screens

COMMON1.IDEV.CLOUD.COM_A_timmr_4.ser

COMMON1.IDEV.CLOUD.COM_A_timmr_5.history

COMMON1.IDEV.CLOUD.COM_A_timmr_6.history

COMMON1.IDEV.CLOUD.COM_A_timmr_7.history

COMMON1.IDEV.CLOUD.COM_A_timmr_8.history

Files of type: histo

Screen Archive-COMMON1.IDEV.CLOUD.COM_A_timmr_10.history

Archive Screen - 4

DEMO73
09/10/17 10:46:23 EDT
CPU %: .0 Elapsed time: 00:00:00 Active jobs: 426

Type options, press Enter.
2=Change 3=Hold 4=End 5=Work with 6=Release 7=Display message
8=Work with spooled files 13=Disconnect ...

10	QBATCH	QSYS	SBS	.0		DEQW
---	QCMN	QSYS	SBS	.0		DEQW
---	QCTL	QSYS	SBS	.0		DEQW
---	QSYSSCD	QPGMR	BCH	.0	PGM-QEZSCNEP	EVTN
---	QHTTSPVR	QSYS	SBS	.0		DEQW
---	ACWSERVICE	QTMHHTTP	BCH	.0	PGM-QZHBMAIN	SIGW
---	ACWSERVICE	QTMHHTTP	BCI	.0	PGM-QZSRLOG	SIGW
---	ACWSERVICE	QTMHHTTP	BCI	.0	PGM-QZSRHTTP	SIGW
---	ACWSERVICE	QWSERVICE	BCI	.0	JVM-/qibm/prod	THDW

Parameters or command
===>

F3=Exit F5=Refresh F7=Find F10=Restart statistics
F11=Display elapsed data F12=Cancel F23=More options F24=More keys

Print all the Screens to Text File

Create many files and open the screen viewer

DEMO

For the administrator

Systems Management of ACS

- **All the Navigators utilize server jobs**
- **These server jobs can be:**
 1. **Managed** – Position certain users or groups to run in alternate subsystems, where system resources are configured accordingly
 2. **Locked down** – Denying access to certain users, groups, etc
 3. **Controlled** – Establish query governor controls to protect over-consumption of resources

Server Description	Server Name
Central server	QZSCSRVS
Database server	QZDASOINIT
Data queue server	QZHQSSRV
DDM	QRWTSRVR
DRDA	QRWTSRVR
File server	QPWFSEVS
Network print server	QNPSERVS
Remote command server	QZRCSRVS



SET_SERVER_SBS_ROUTING

Manage ACS users

- Avoid having all users run in QUSRWRK, with the same priority
- Configurable by user or group...by server name or all servers
- Choice of whether the connection fails if the target subsystem is not available

```
-- Description: Reposition all Navigator users into a
--              controlled subsystem and do not allow
--              connections to fall-over into the default
--              subsystem (QUSRWRK or QSERVER) if the
--              INAVGRP subsystem cannot be used
```

```
CALL QSYS2.SET_SERVER_SBS_ROUTING(
    AUTHORIZATION_NAME => 'INAVGRP',
    SERVER_NAME        => '*ALL',
    SUBSYSTEM_NAME     => 'INAVSBS',
    ALLOW_ROLLOVER    => 'NO');
```

http://www.ibm.com/support/knowledgecenter/ssw_ibm_i_72/rzajq/rzajqprocsetrouting.htm?lang=en

Application Administration of ACS









Configure ACS database feature availability via:

- WRKFCNUSG or CHGFCNUSG function usage commands
- Navigator for i – Application Administration
- System i Navigator – Application Administration

Application Administration - Ut32p8

Select the functions or applications available to users.

System i Navigator | Client Applications | Host Applications

Function	Default Access
 Users and Groups	<input checked="" type="checkbox"/>
 Databases	<input checked="" type="checkbox"/>
 Schemas	<input checked="" type="checkbox"/>
 Database Navigator Maps	<input checked="" type="checkbox"/>
 SQL Performance Monitors	<input checked="" type="checkbox"/>
 SQL Plan Cache Snapshots	<input checked="" type="checkbox"/>
 ODBC Data Sources (Pre-V5R1M0 clients only)	<input checked="" type="checkbox"/>
 Transactions	<input checked="" type="checkbox"/>

Application Administration of ACS

```
-- description: Review ACS function usage configuration
--
SELECT function_id, default_usage, f.*
  FROM qsys2.function_info f
   WHERE function_id LIKE 'QIBM_DB_%' OR
         function_id LIKE 'QIBM_XE1_OPNAV_DB_%';
```

<i>FUNCTION_ID</i>	<i>DEFAULT_USAGE</i>	<i>FUNCTION_ID</i>	<i>FUNCTION_CATEGORY</i>
<i>QIBM_DB_SQLADM</i>	<i>DENIED</i>	<i>QIBM_DB_SQLADM</i>	<i>3 - HOST</i>
<i>QIBM_DB_SYSMON</i>	<i>DENIED</i>	<i>QIBM_DB_SYSMON</i>	<i>3 - HOST</i>
<i>QIBM_DB_SECADM</i>	<i>DENIED</i>	<i>QIBM_DB_SECADM</i>	<i>3 - HOST</i>
<i>QIBM_DB_DDMDRDA</i>	<i>ALLOWED</i>	<i>QIBM_DB_DDMDRDA</i>	<i>3 - HOST</i>
<i>QIBM_DB_ZDA</i>	<i>ALLOWED</i>	<i>QIBM_DB_ZDA</i>	<i>3 - HOST</i>
<i>QIBM_XE1_OPNAV_DBNAV</i>	<i>ALLOWED</i>	<i>QIBM_XE1_OPNAV_DBNAV</i>	<i>1 - CLIENT</i>
<i>QIBM_XE1_OPNAV_DBSQLPM</i>	<i>ALLOWED</i>	<i>QIBM_XE1_OPNAV_DBSQLPM</i>	<i>1 - CLIENT</i>
<i>QIBM_XE1_OPNAV_DBSQLPCS</i>	<i>ALLOWED</i>	<i>QIBM_XE1_OPNAV_DBSQLPCS</i>	<i>1 - CLIENT</i>
<i>QIBM_XE1_OPNAV_DBXACT</i>	<i>ALLOWED</i>	<i>QIBM_XE1_OPNAV_DBXACT</i>	<i>1 - CLIENT</i>

Application Administration of ACS

```
-- description: Review ACS function usage
--             user and group configuration
SELECT *
  FROM qsys2.function_usage f
 WHERE function_id LIKE 'QIBM_DB_%' OR
        function_id LIKE 'QIBM_XE1_OPNAV_DB_%';
```

<i>FUNCTION_ID</i>	<i>USER_NAME</i>	<i>USAGE</i>	<i>USER_TYPE</i>
<i>QIBM_DB_SQLADM</i>	<i>DBATEAM</i>	<i>ALLOWED</i>	<i>GROUP</i>
<i>QIBM_DB_SQLADM</i>	<i>SCOTT</i>	<i>ALLOWED</i>	<i>USER</i>
<i>QIBM_XE1_OPNAV_DBSQLPM</i>	<i>DBATEAM</i>	<i>ALLOWED</i>	<i>GROUP</i>
<i>QIBM_XE1_OPNAV_DBSQLPM</i>	<i>HRTEAM</i>	<i>DENIED</i>	<i>USER</i>
<i>QIBM_XE1_OPNAV_DBSQLPCS</i>	<i>DBATEAM</i>	<i>ALLOWED</i>	<i>GROUP</i>
<i>QIBM_XE1_OPNAV_DBSQLPCS</i>	<i>HRTEAM</i>	<i>DENIED</i>	<i>USER</i>

Host Server Exit Programs

Locked down – Denying access to certain users, groups, etc

- Establish exit programs to deploy business rules

Use server exit programs

Write and register exit programs when using IBM® i host servers.

Exit programs allow system administrators to control which activities a client user is allowed for each of the specific servers. All of the servers support user-written exit programs. This topic describes how the exit programs can be used, and how to configure them. It also provides sample programs that can help control access to server functions.

Note: By using the code examples, you agree to the terms of the [Code license and disclaimer information](#).

[Register exit programs](#)

Identify IBM i exit programs to call.

[Write exit programs](#)

This topic identifies considerations when specifying IBM i exit programs.

[Exit program parameters](#)

Identify IBM i exit points.

[Examples: Exit programs](#)

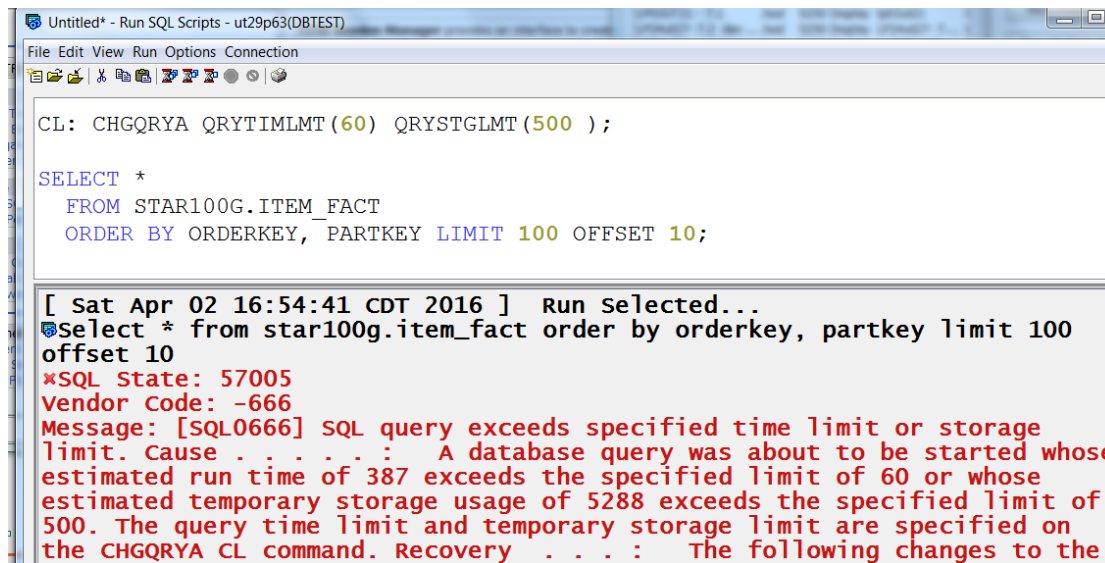
These sample IBM i exit programs do not show all possible programming considerations or techniques, but you can review the examples before you begin your own design and coding.

http://www.ibm.com/support/knowledgecenter/ssw_ibm_i_72/rzajr/rzajrmst31.htm?lang=en

Query Governor

Controlled – Establish query governor controls to protect over-consumption of resources

- Use the Change Query Attributes (CHGQRYA) command to guard against over-consumption of resources related to SQL query execution
- The governor has two controls:
 1. The estimated runtime for a query.
 2. The estimated temporary storage consumption for a query.



```
CL: CHGQRYA QRYTIMLMT(60) QRYSTGLMT(500);

SELECT *
FROM STAR100G.ITEM_FACT
ORDER BY ORDERKEY, PARTKEY LIMIT 100 OFFSET 10;

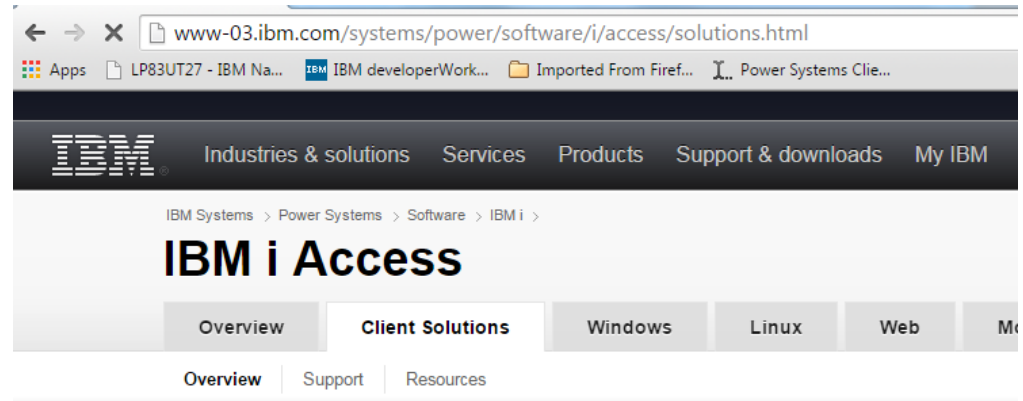
[ Sat Apr 02 16:54:41 CDT 2016 ] Run selected...
Select * from star100g.item_fact order by orderkey, partkey limit 100
offset 10
*SQL State: 57005
Vendor Code: -666
Message: [SQL0666] SQL query exceeds specified time limit or storage
limit. Cause . . . . . : A database query was about to be started whose
estimated run time of 387 exceeds the specified limit of 60 or whose
estimated temporary storage usage of 5288 exceeds the specified limit of
500. The query time limit and temporary storage limit are specified on
the CHGQRYA CL command. Recovery . . . . . : The following changes to the
```

http://www.ibm.com/support/knowledgecenter/ssw_ibm_i_72/rzajq/govrle.htm?lang=en

How do you get it ???

NO ESS!

<http://www-03.ibm.com/systems/power/software/i/access/solutions.html>



The screenshot shows a web browser window with the URL www-03.ibm.com/systems/power/software/i/access/solutions.html. The page features the IBM logo and navigation menus for 'Industries & solutions', 'Services', 'Products', 'Support & downloads', and 'My IBM'. The main content area is titled 'IBM i Access' and includes a breadcrumb trail: 'IBM Systems > Power Systems > Software > IBM i >'. Below the title are tabs for 'Overview', 'Client Solutions', 'Windows', 'Linux', 'Web', and 'More'. Under the 'Client Solutions' tab, there are sub-sections for 'Overview', 'Support', and 'Resources'.

IBM i Access Client Solutions is the newest member of the IBM i Access family. It provides a Java based, platform-independent interface that runs on most operating systems that support Java, including Linux, Mac, and Windows™.

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