

What's new in IBM i Access Client Solutions (ACS)

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Who can use ACS



User Accessing the IBM i

Managing IBM i System



DB2 for i Engineer



Celebrating collaboration



IBM i Access Client Solutions (ACS)

- More powerful and feature rich

IBM i Access Client Solutions (ACS)

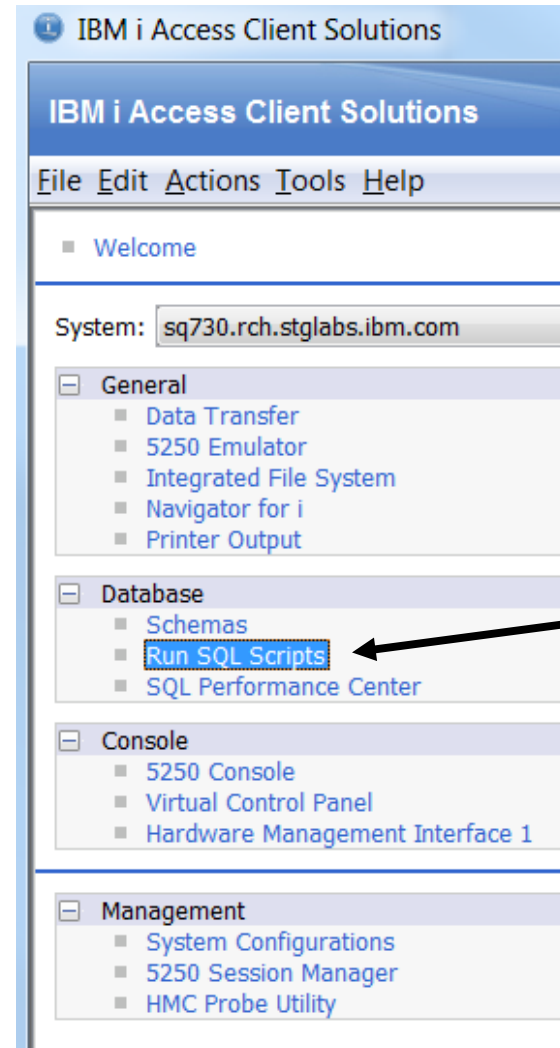
IBM i Access Windows Service Pack
Version 1.1.7.1 →

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](http://www-03.ibm.com/systems/power/software/i/access/solutions.html)

Next Planned Update... October, 2017



- **General**

- Add Database Health Center
- Add help text to dialogs

- **Run SQL Scripts**

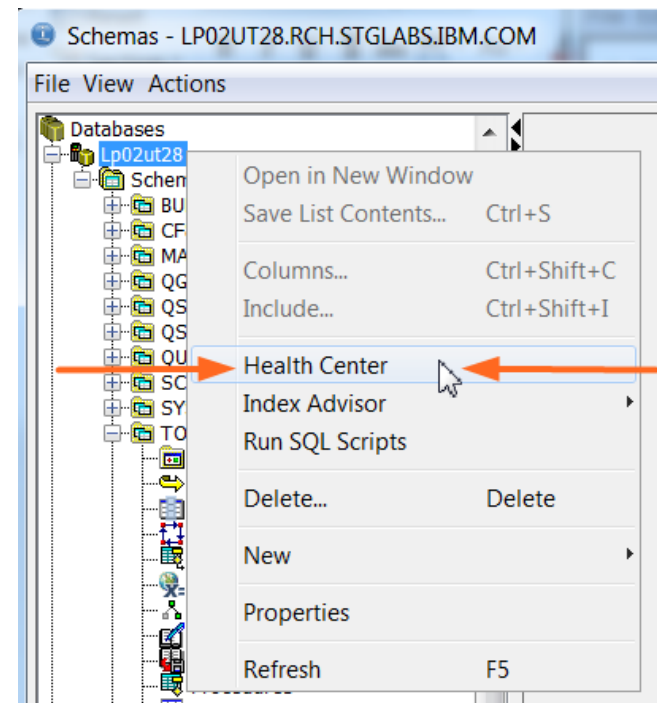
- Add Performance Monitor pulldown
- Direct launch buttons
- More Insert from Examples

- **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

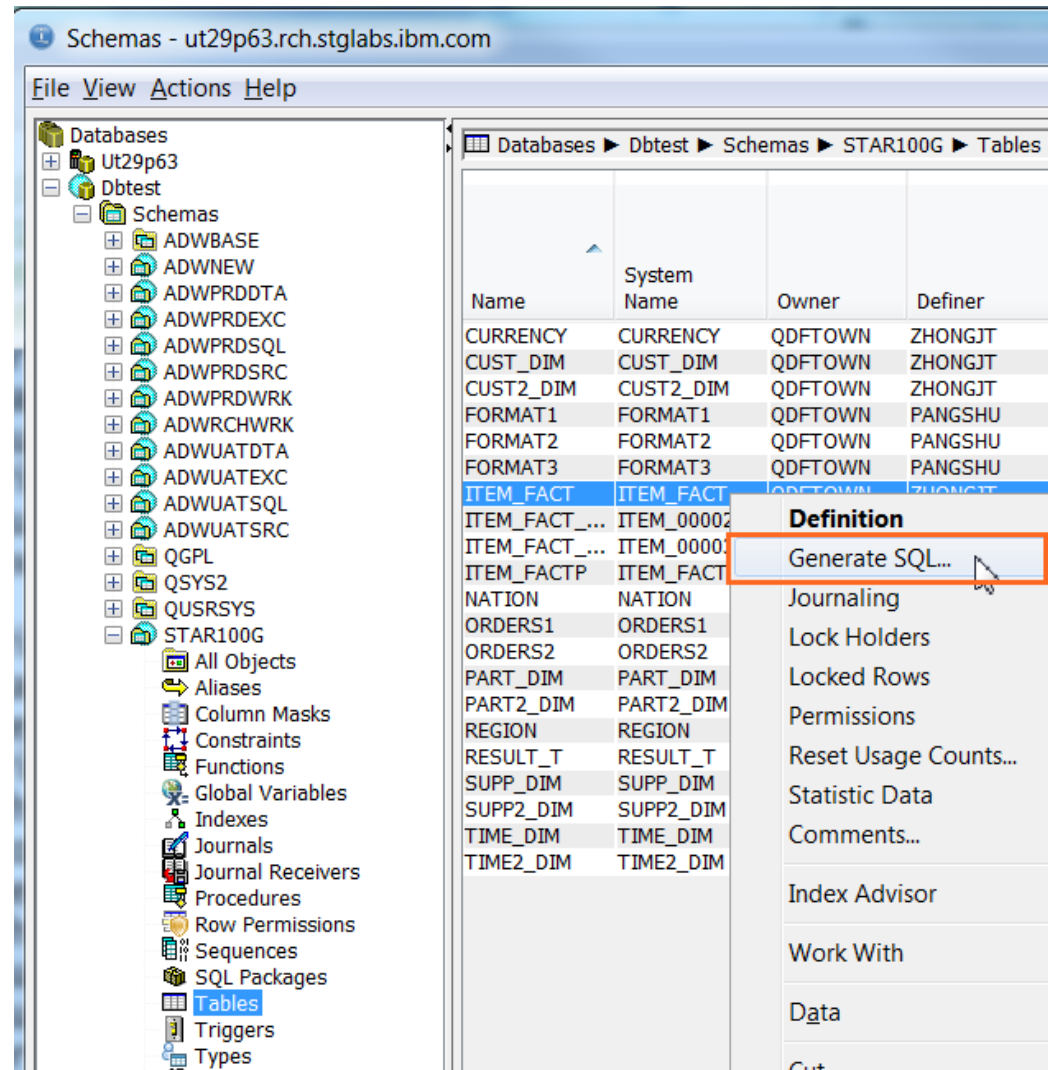
- **Schemas**

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



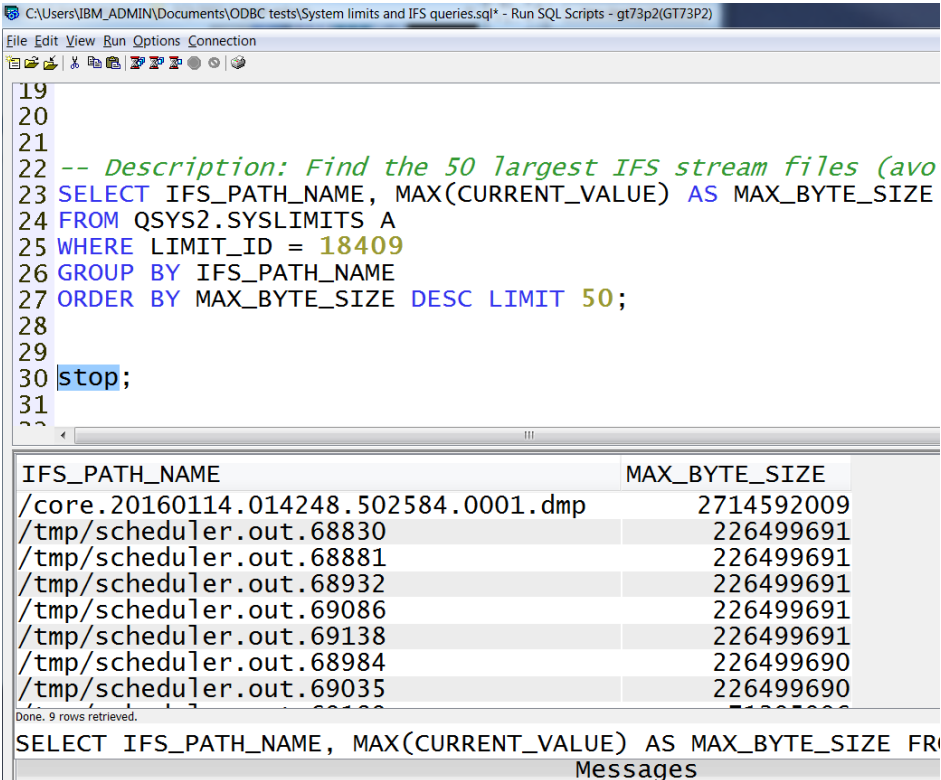
ACS-based Actions:

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

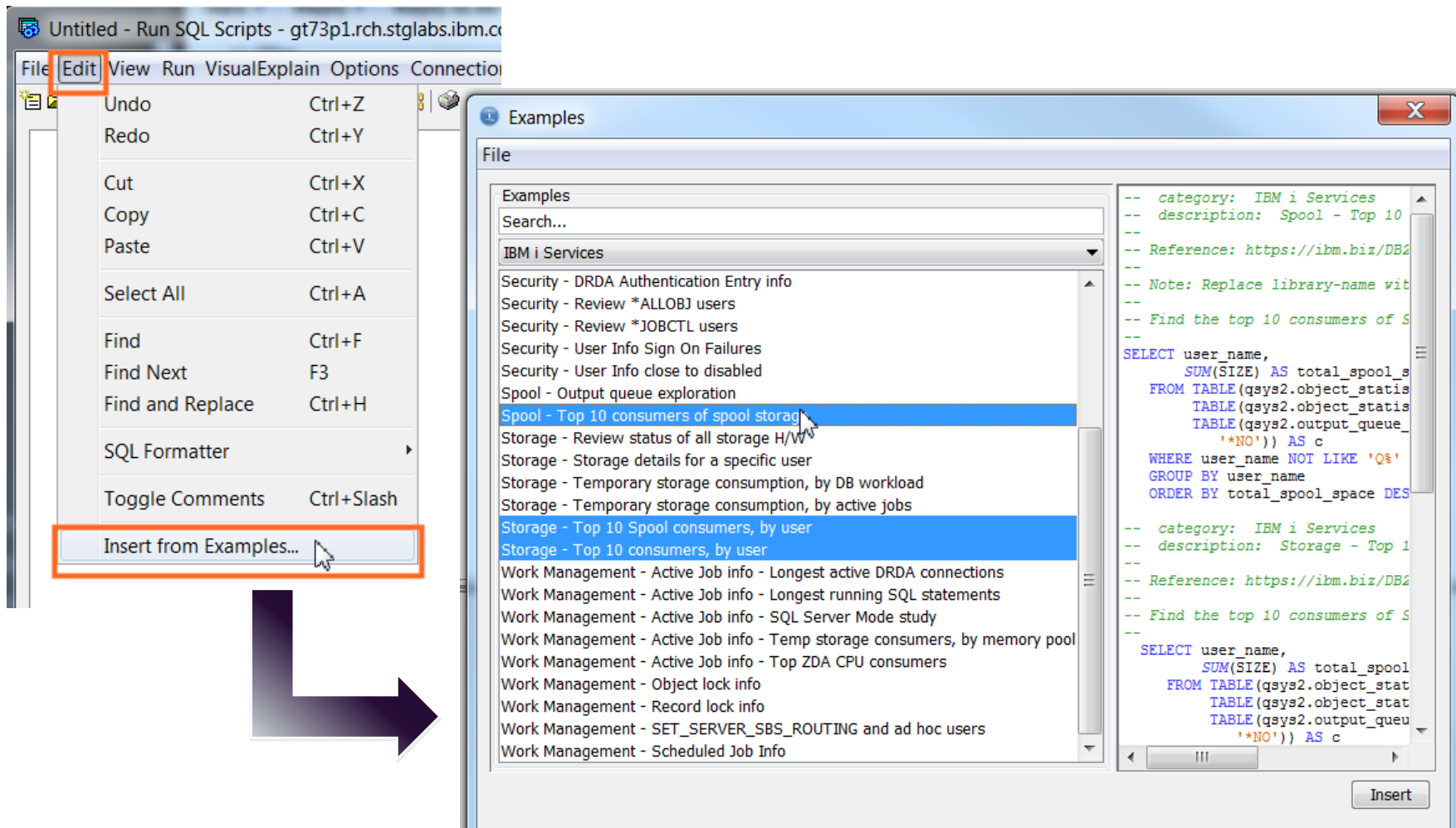
```
19
20
21
22 -- Description: Find the 50 largest IFS stream files (avo
23 SELECT IFS_PATH_NAME, MAX(CURRENT_VALUE) AS MAX_BYTE_SIZE
24 FROM QSYS2.SYSLIMITS A
25 WHERE LIMIT_ID = 18409
26 GROUP BY IFS_PATH_NAME
27 ORDER BY MAX_BYTE_SIZE DESC LIMIT 50;
28
29
30 stop;
31
32
```

Below the editor, a table displays the results of the query:

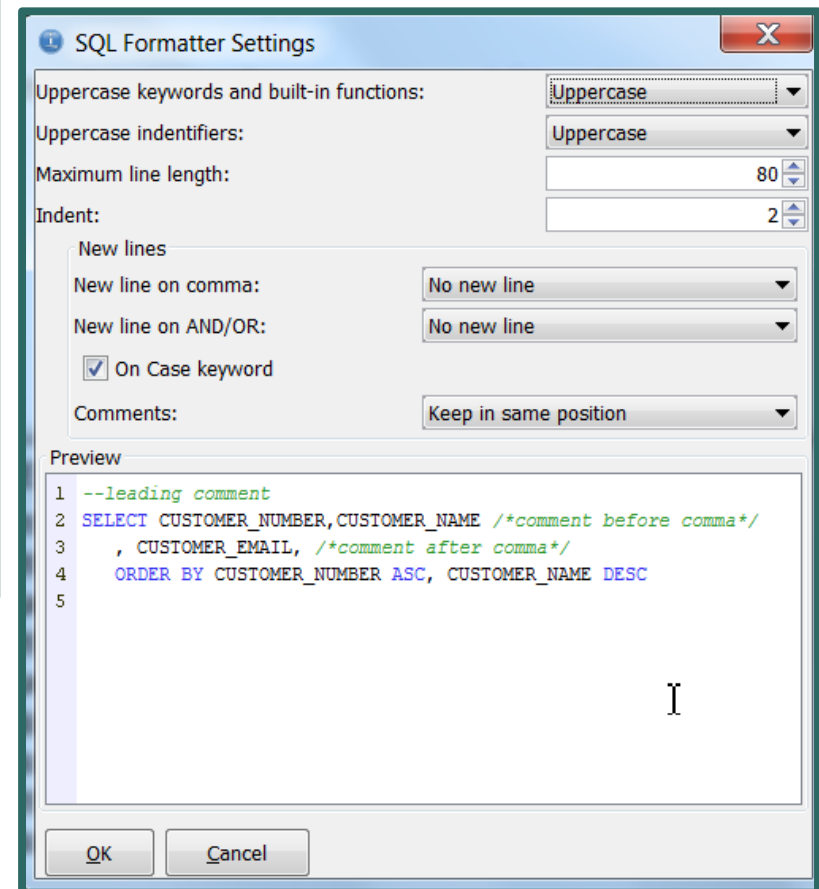
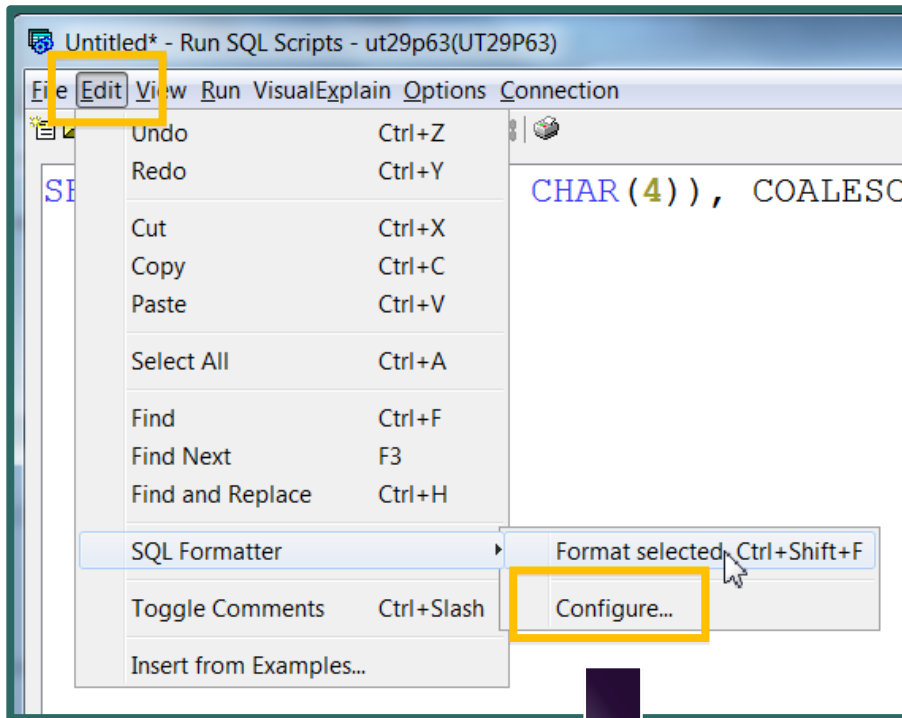
IFS_PATH_NAME	MAX_BYTE_SIZE
/core.20160114.014248.502584.0001.dmp	2714592009
/tmp/scheduler.out.68830	226499691
/tmp/scheduler.out.68881	226499691
/tmp/scheduler.out.68932	226499691
/tmp/scheduler.out.69086	226499691
/tmp/scheduler.out.69138	226499691
/tmp/scheduler.out.68984	226499690
/tmp/scheduler.out.69035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

Below the table, a status bar indicates "Done. 9 rows retrieved." and a message pane shows the SQL query and the text "Messages".

Insert From Examples

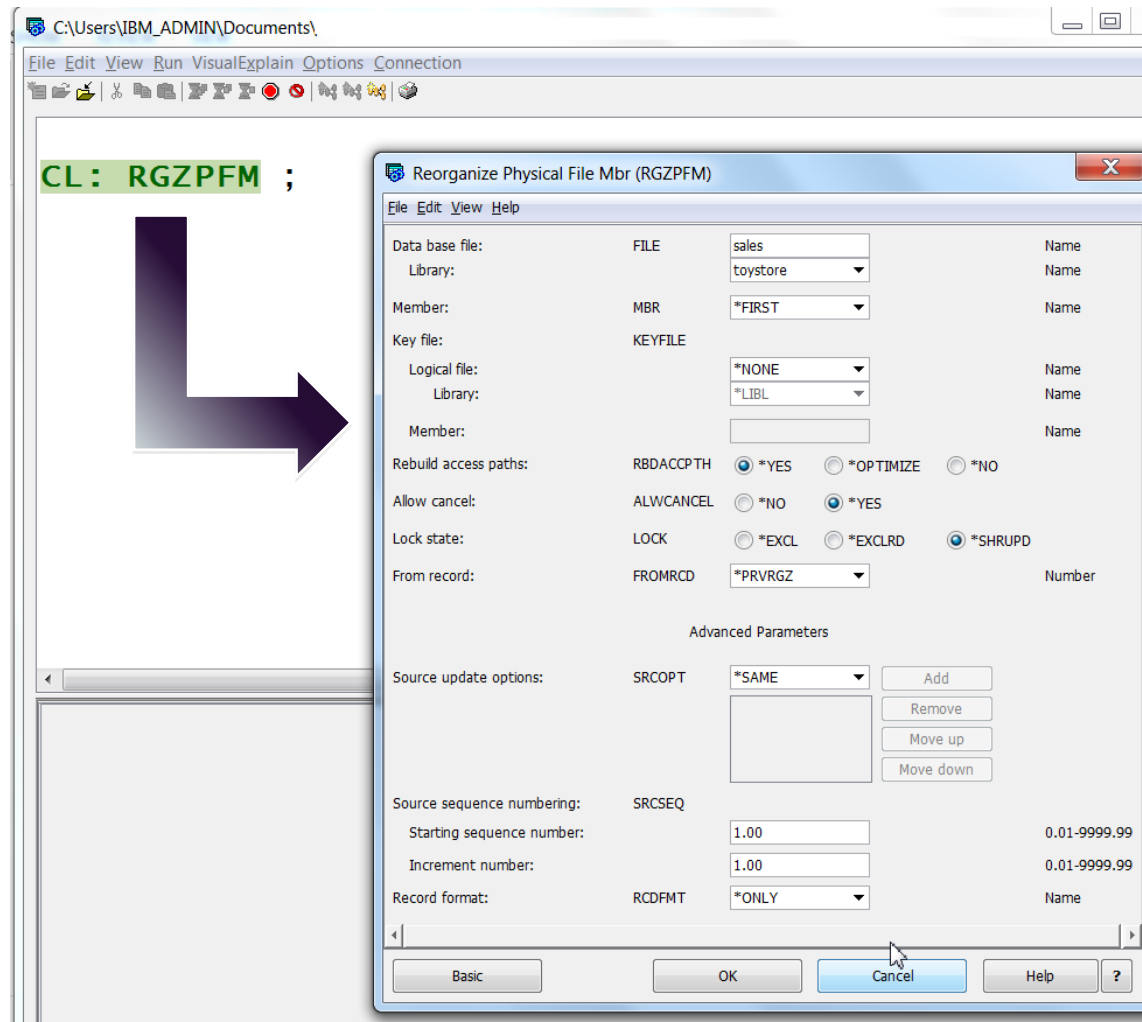


SQL Formatter

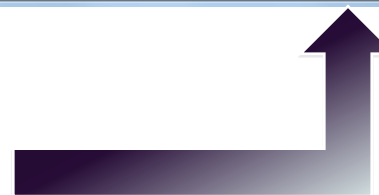
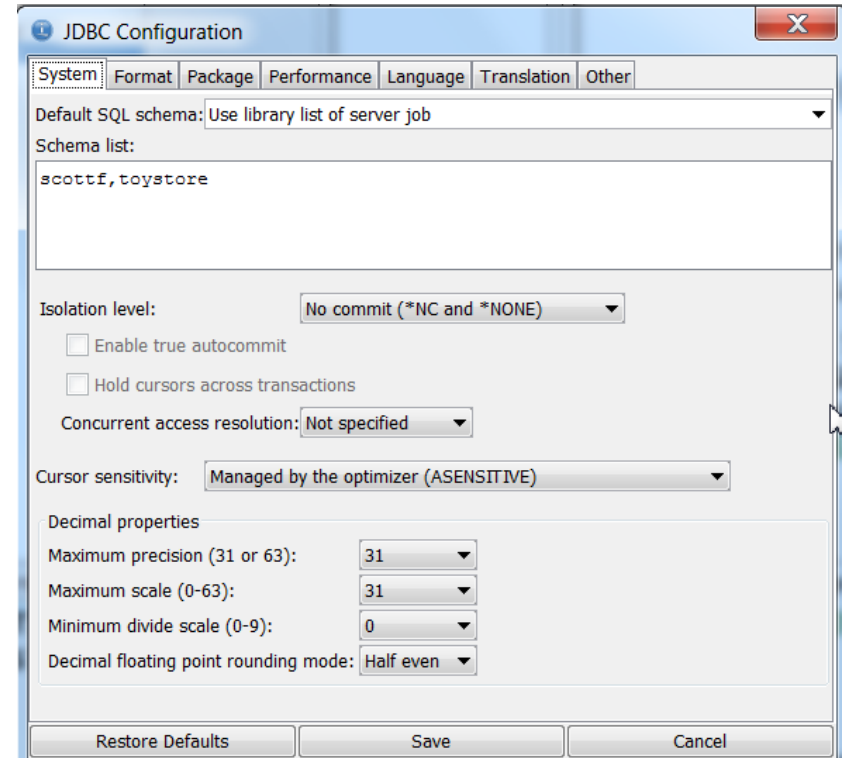
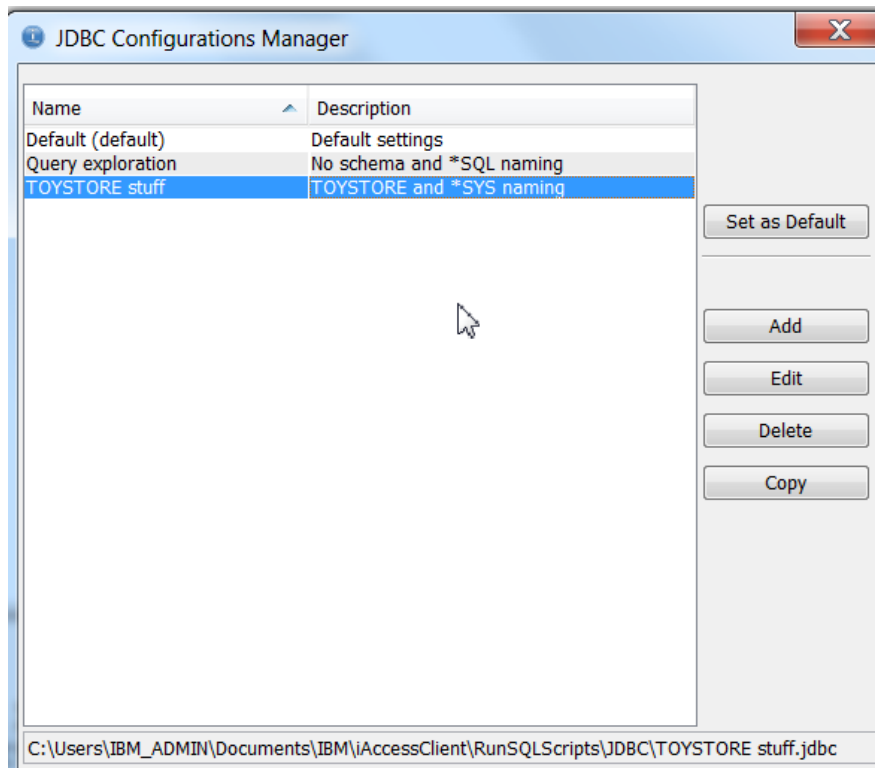
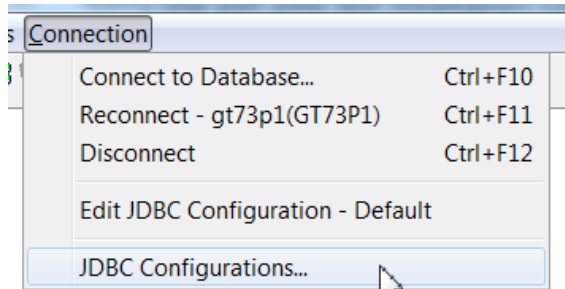


CL command prompting

- Press PF4 to prompt and build your command string

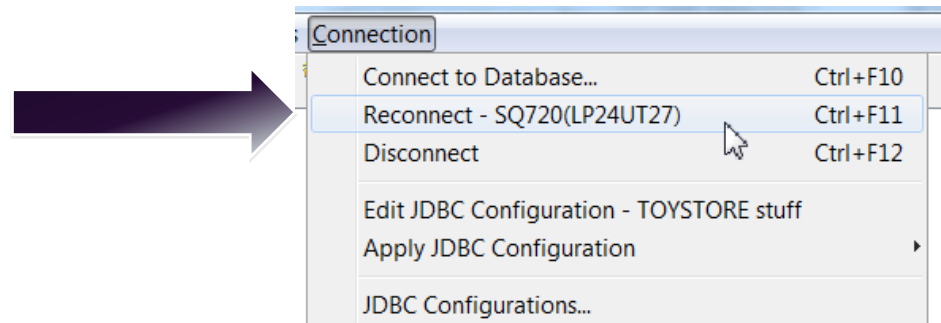


JDBC Configuration

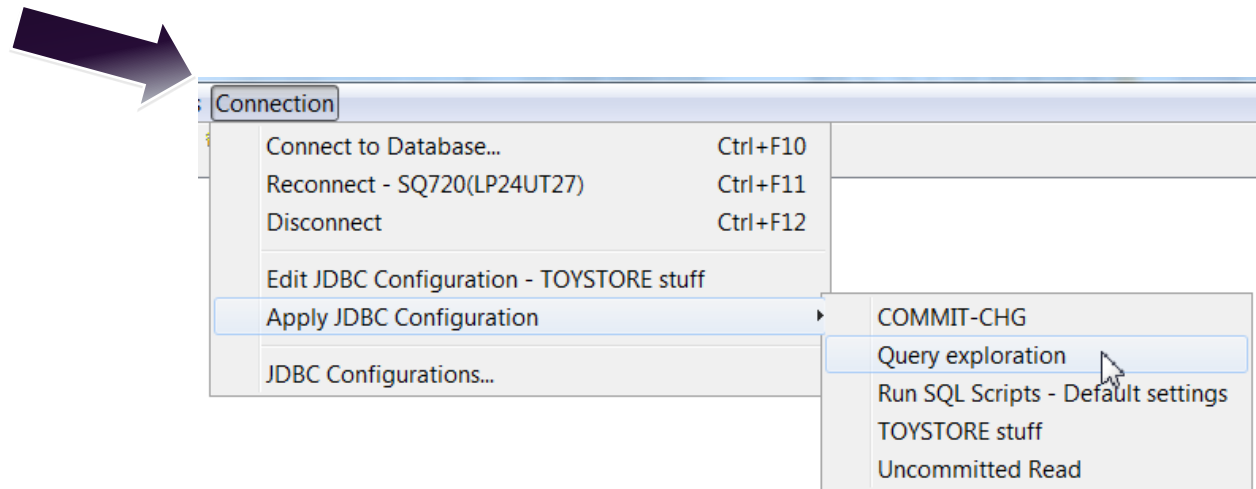


JDBC Configuration

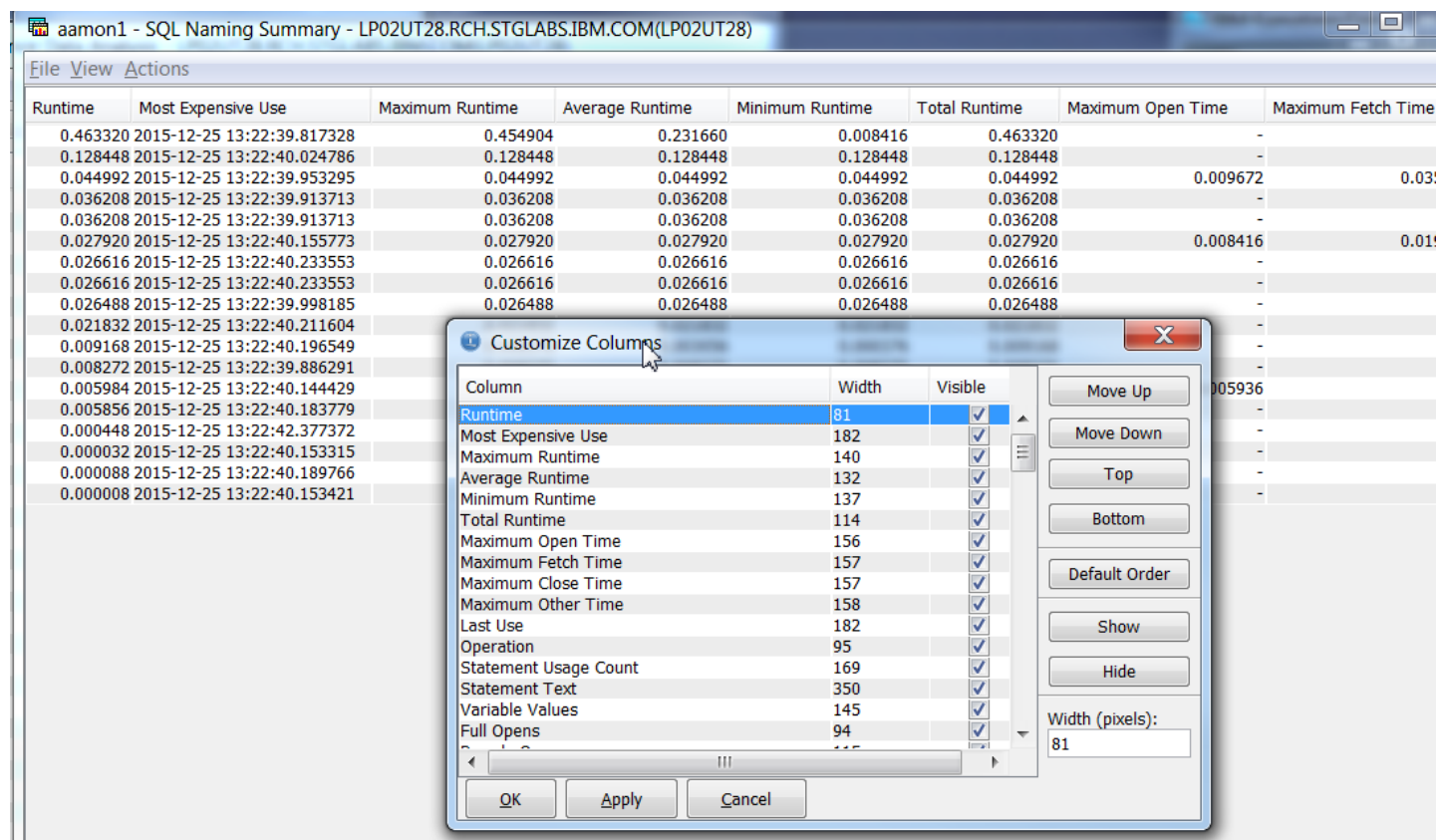
- New connection using the same JDBC configuration



- New connection using a different JDBC configuration



- Improved performance
- Tighter rendering of column widths

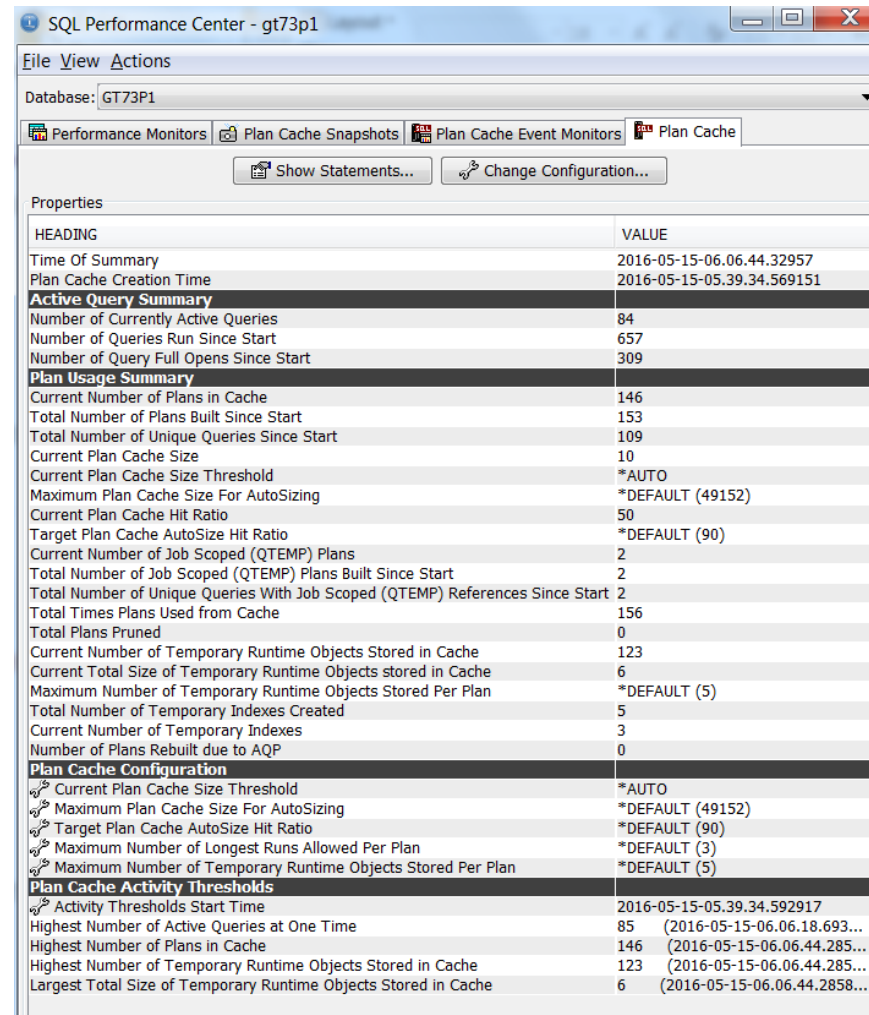


The screenshot shows a window titled "aamon1 - SQL Naming Summary - LP02UT28.RCH.STGLABS.IBM.COM(LP02UT28)". The window contains a table with the following columns: Runtime, Most Expensive Use, Maximum Runtime, Average Runtime, Minimum Runtime, Total Runtime, Maximum Open Time, and Maximum Fetch Time. The table lists various performance metrics for different SQL statements. A "Customize Columns" dialog box is overlaid on the table, showing a list of columns with their widths and visibility status. The "Runtime" column is selected, and its width is set to 81 pixels. The dialog box also includes buttons for "Move Up", "Move Down", "Top", "Bottom", "Default Order", "Show", "Hide", and "Width (pixels):".

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

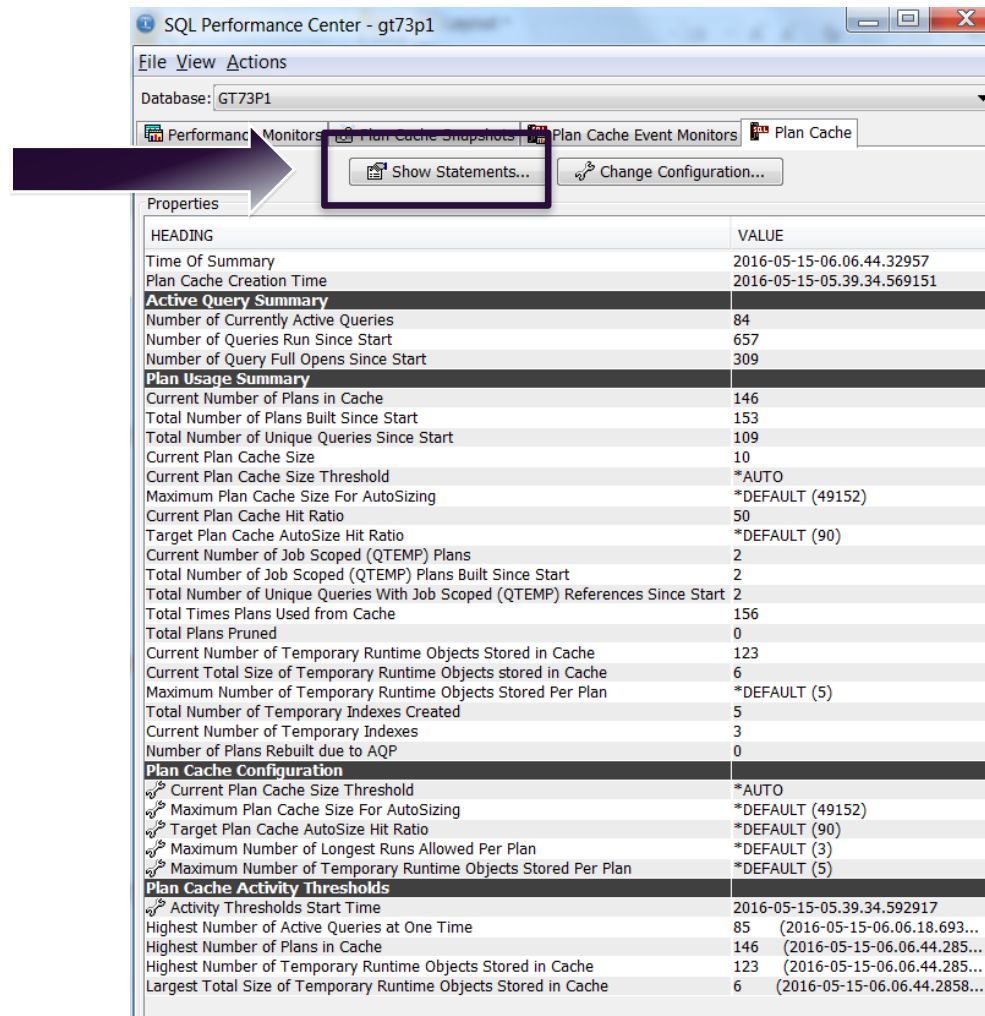
- SQL Plan Cache Properties are on the front page
- Some are configurable



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	
<input checked="" type="checkbox"/> Current Plan Cache Size Threshold	*AUTO
<input checked="" type="checkbox"/> Maximum Plan Cache Size For AutoSizing	*DEFAULT (49152)
<input checked="" type="checkbox"/> Target Plan Cache AutoSize Hit Ratio	*DEFAULT (90)
<input checked="" type="checkbox"/> Maximum Number of Longest Runs Allowed Per Plan	*DEFAULT (3)
<input checked="" type="checkbox"/> Maximum Number of Temporary Runtime Objects Stored Per Plan	*DEFAULT (5)
Plan Cache Activity Thresholds	
<input checked="" type="checkbox"/> 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...)

Show Statements

- Launch into a live interrogation of SQL activity

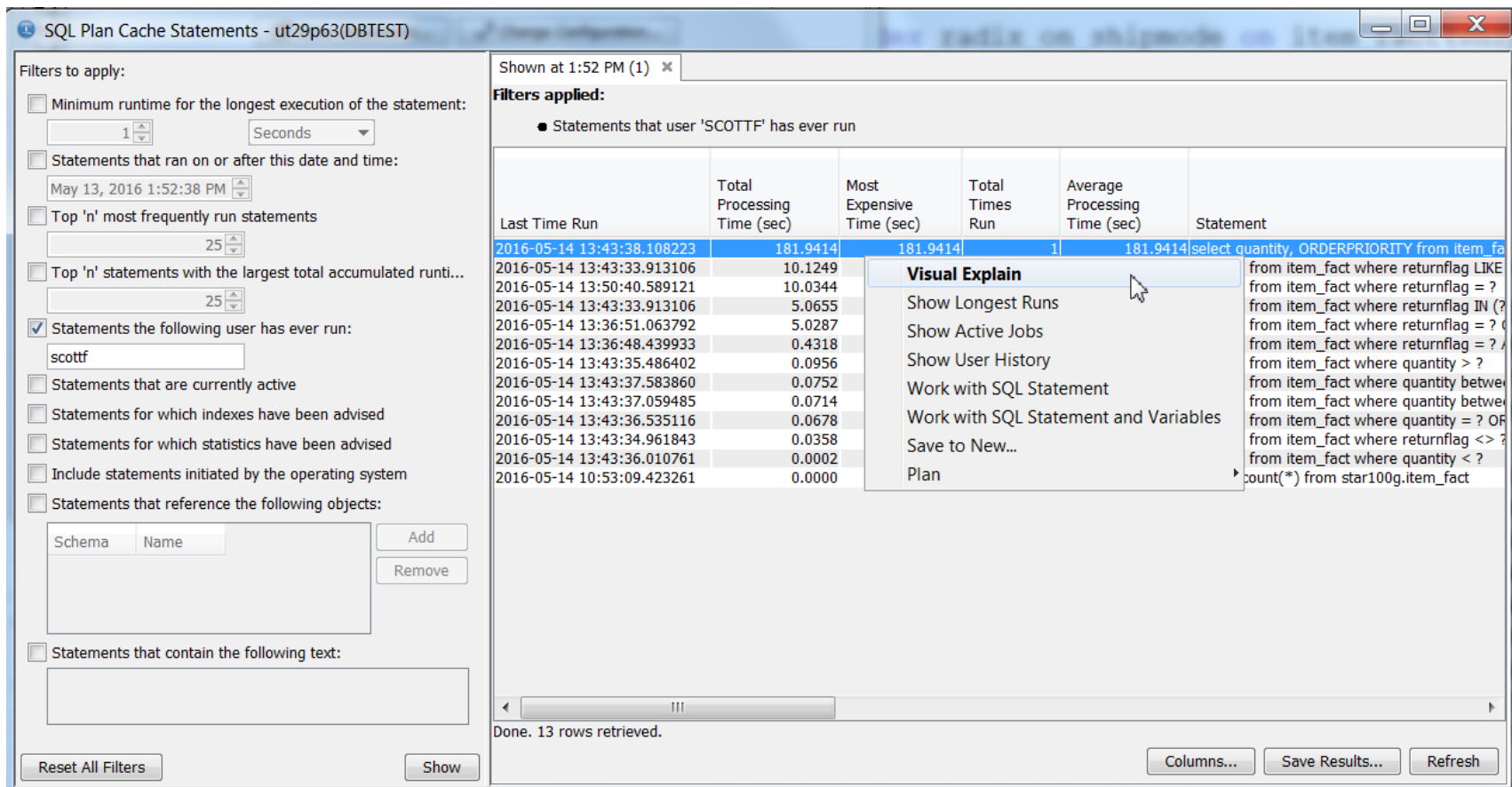


The screenshot shows the SQL Performance Center interface for database GT73P1. The 'Plan Cache' tab is active, and the 'Show Statements...' button is highlighted with a red box. A red arrow points from the text 'Launch into a live interrogation of SQL activity' to this button. Below the button, a table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

Show Statements

- Explore → Understand → Tune (repeat)

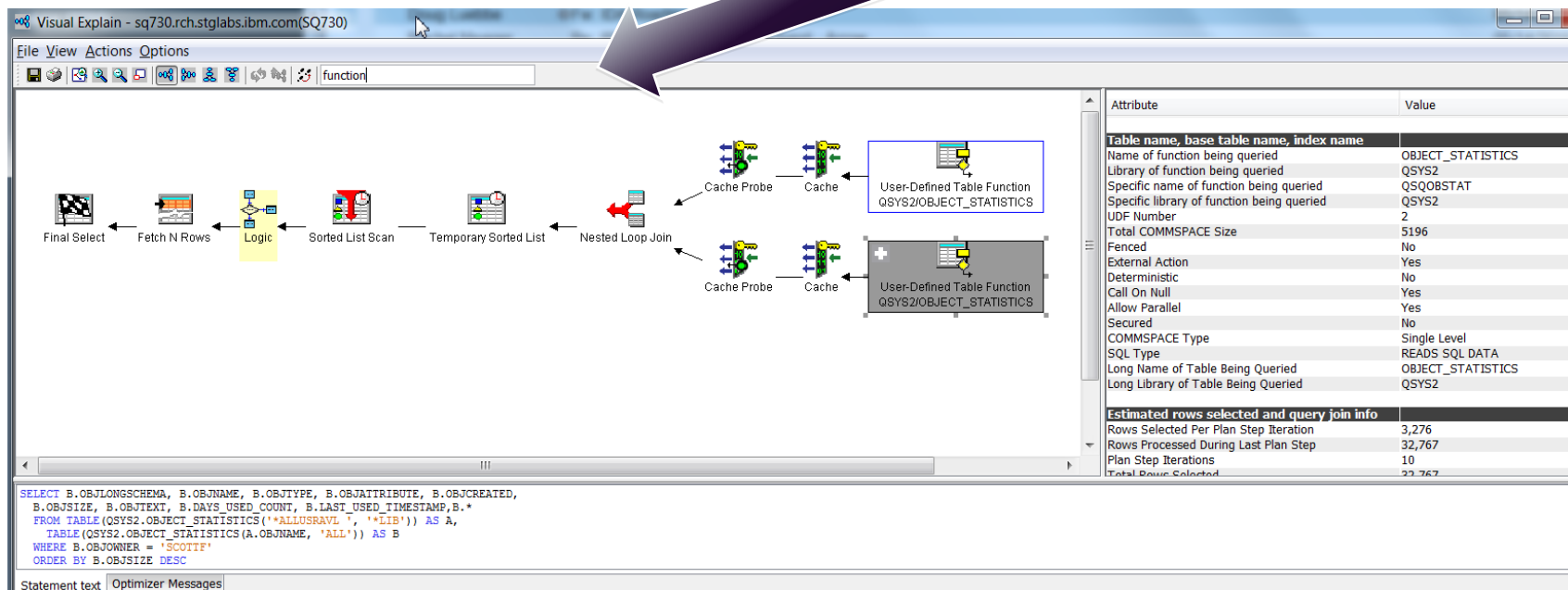


The screenshot shows the 'SQL Plan Cache Statements - ut29p63(DBTEST)' window. On the left, there are filter options such as 'Minimum runtime for the longest execution of the statement' (set to 1 second) and 'Statements the following user has ever run' (set to 'scottf'). The main area displays a table of statements with columns: Last Time Run, Total Processing Time (sec), Most Expensive Time (sec), Total Times Run, Average Processing Time (sec), and Statement. The top row is highlighted in blue, and a context menu is open over it, showing options like 'Visual Explain', 'Show Longest Runs', and 'Show Active Jobs'. The statement in the highlighted row is: `select quantity, ORDERPRIORITY from item_fa from item_fact where returnflag LIKE from item_fact where returnflag = ? from item_fact where returnflag IN (? from item_fact where returnflag = ? / from item_fact where returnflag > ? from item_fact where quantity > ? from item_fact where quantity betwe from item_fact where quantity betwe from item_fact where quantity = ? OR from item_fact where returnflag <> ? from item_fact where quantity < ? count(*) from star100g.item_fact`. At the bottom, it says 'Done. 13 rows retrieved.' and there are buttons for 'Columns...', 'Save Results...', and 'Refresh'.

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 from item_fact where returnflag LIKE from item_fact where returnflag = ? from item_fact where returnflag IN (? from item_fact where returnflag = ? / from item_fact where returnflag > ? from item_fact where quantity > ? from item_fact where quantity betwe from item_fact where quantity betwe from item_fact where quantity = ? OR from item_fact where returnflag <> ? from item_fact where quantity < ? count(*) from star100g.item_fact
2016-05-14 13:43:33.913106	10.1249				
2016-05-14 13:50:40.589121	10.0344				
2016-05-14 13:43:33.913106	5.0655				
2016-05-14 13:36:51.063792	5.0287				
2016-05-14 13:36:48.439933	0.4318				
2016-05-14 13:43:35.486402	0.0956				
2016-05-14 13:43:37.583860	0.0752				
2016-05-14 13:43:37.059485	0.0714				
2016-05-14 13:43:36.535116	0.0678				
2016-05-14 13:43:34.961843	0.0358				
2016-05-14 13:43:36.010761	0.0002				
2016-05-14 10:53:09.423261	0.0000				

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 execution plan 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 right corner of the interface.

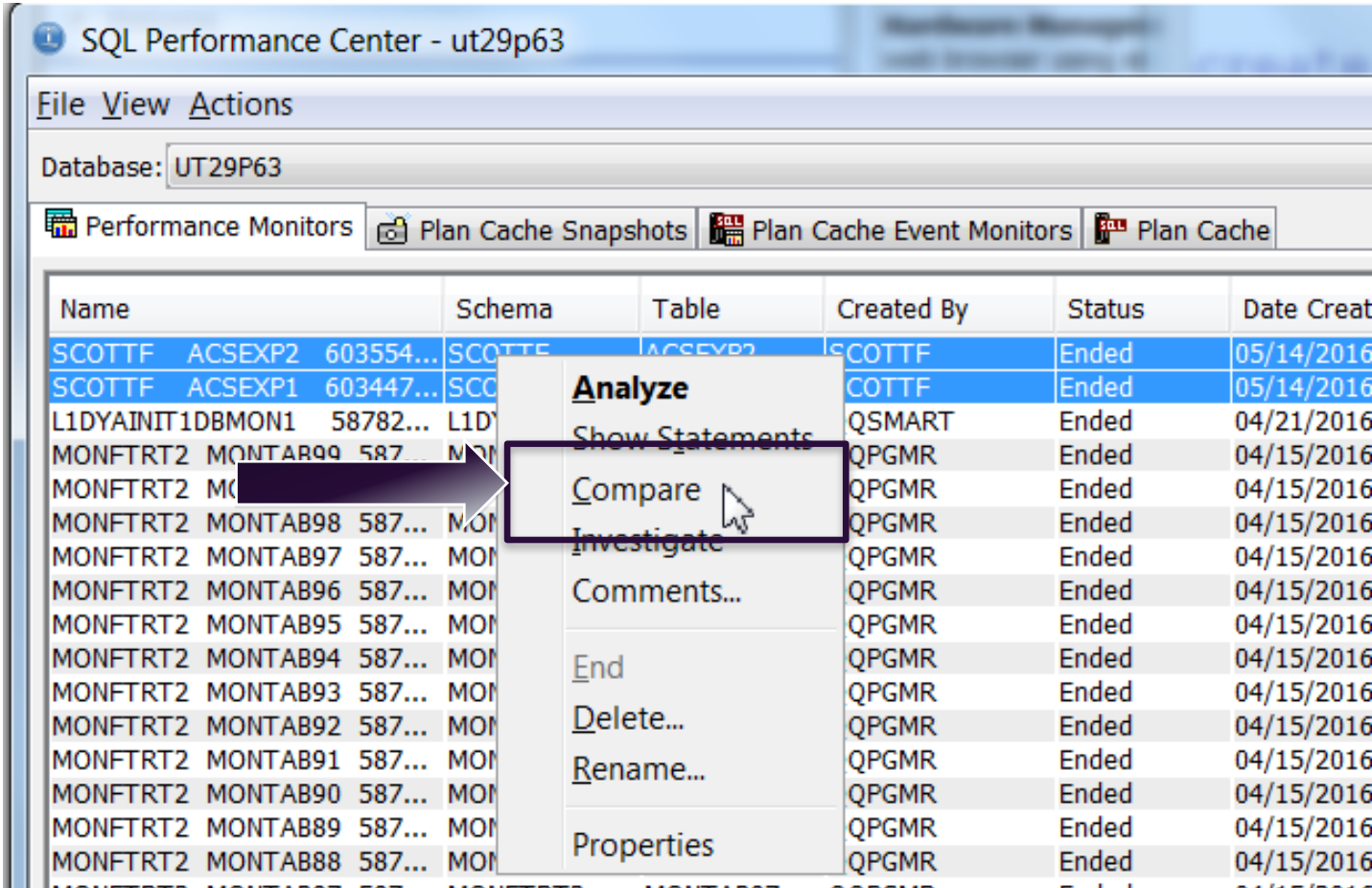
Below the execution plan, the SQL statement is displayed:

```
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('*ALLUSRNL', '*ALL')) AS A,
TABLE(QSYS2.OBJECT_STATISTICS(A.OBJNAME, 'ALL')) AS B
WHERE B.OBJOWNER = 'SCOTT'
ORDER BY B.OBJSIZE DESC
```

On the right side, a table lists attributes and their values:

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

Contrast matching SQL, run at different times



The screenshot shows the SQL Performance Center interface for database UT29P63. A table lists performance monitors with columns: Name, Schema, Table, Created By, Status, and Date Created. A context menu is open over the row with Name 'MONFTRT2 MONTAB99' and Created By 'QPGMR'. The 'Compare' option in the menu is highlighted with a red box and a mouse cursor. A red arrow points from the 'Compare' option back to the table row.

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

Scott's Faves

Adding examples to Run SQL Scripts

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

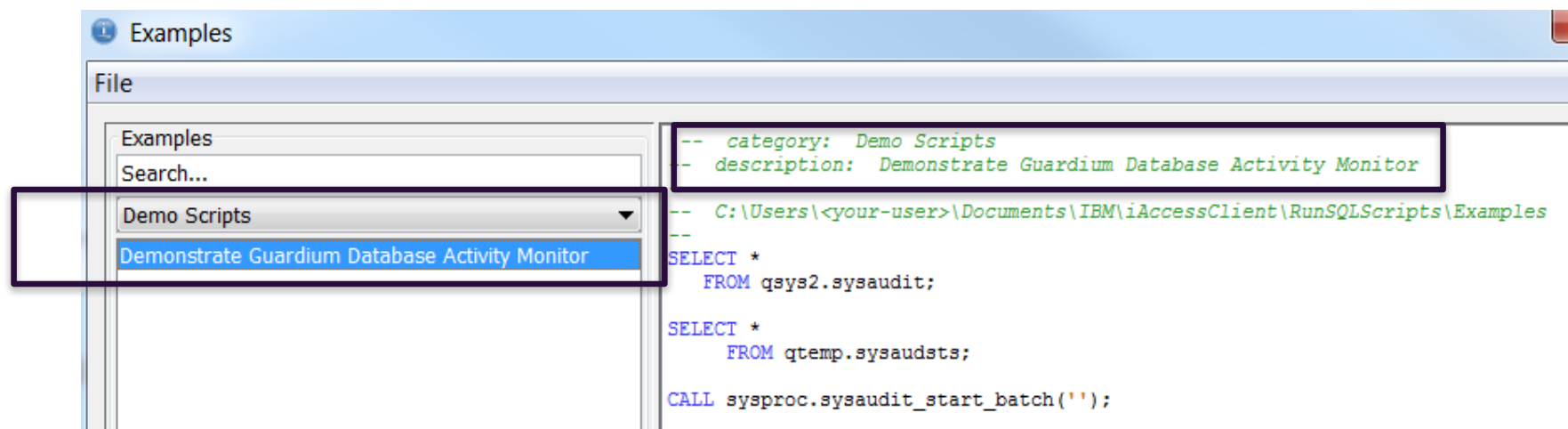
-- **category:** Demo Scripts

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

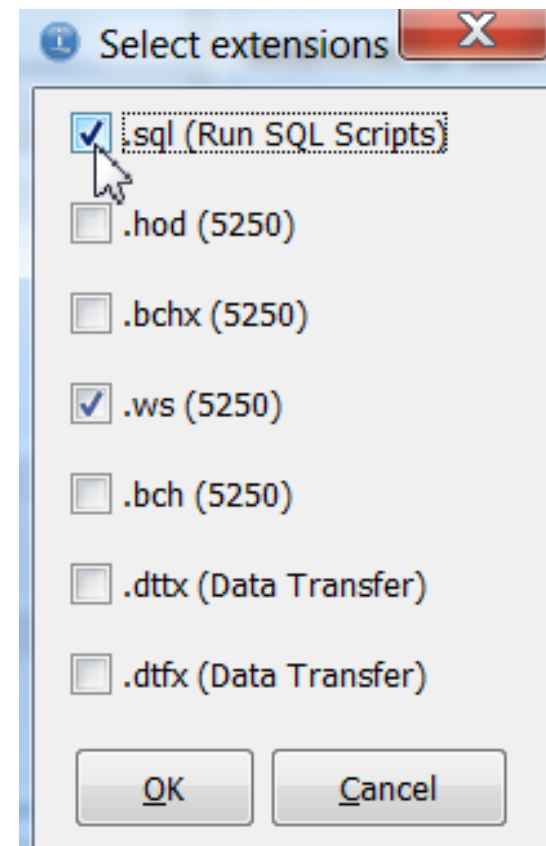
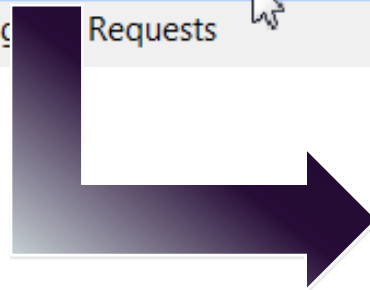
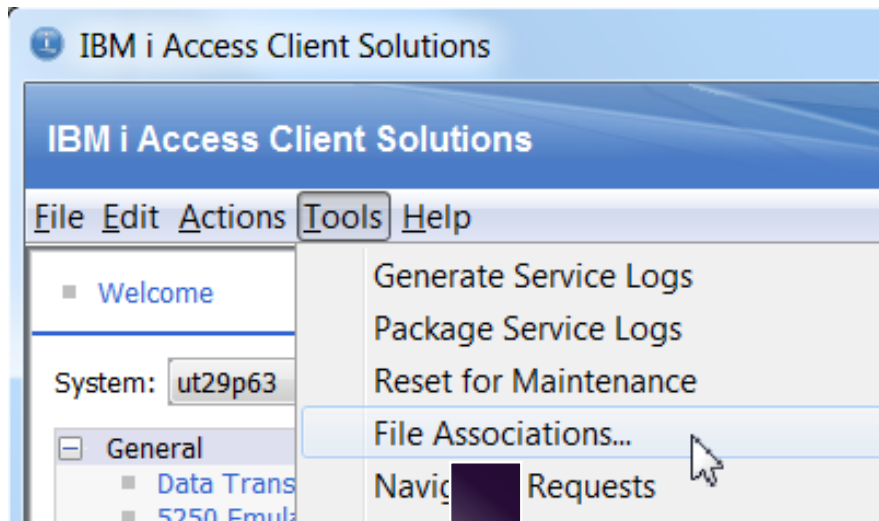
2) Save the script to the following path.

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

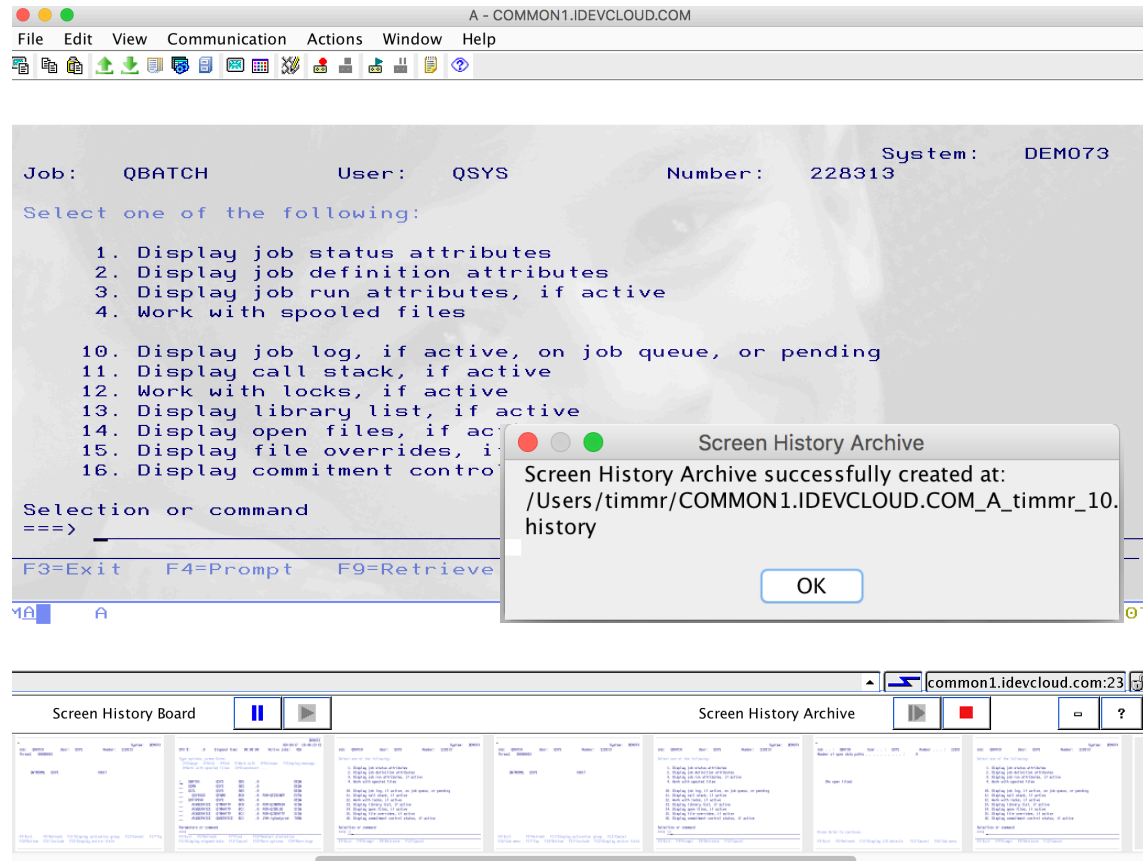


Tim's Faves

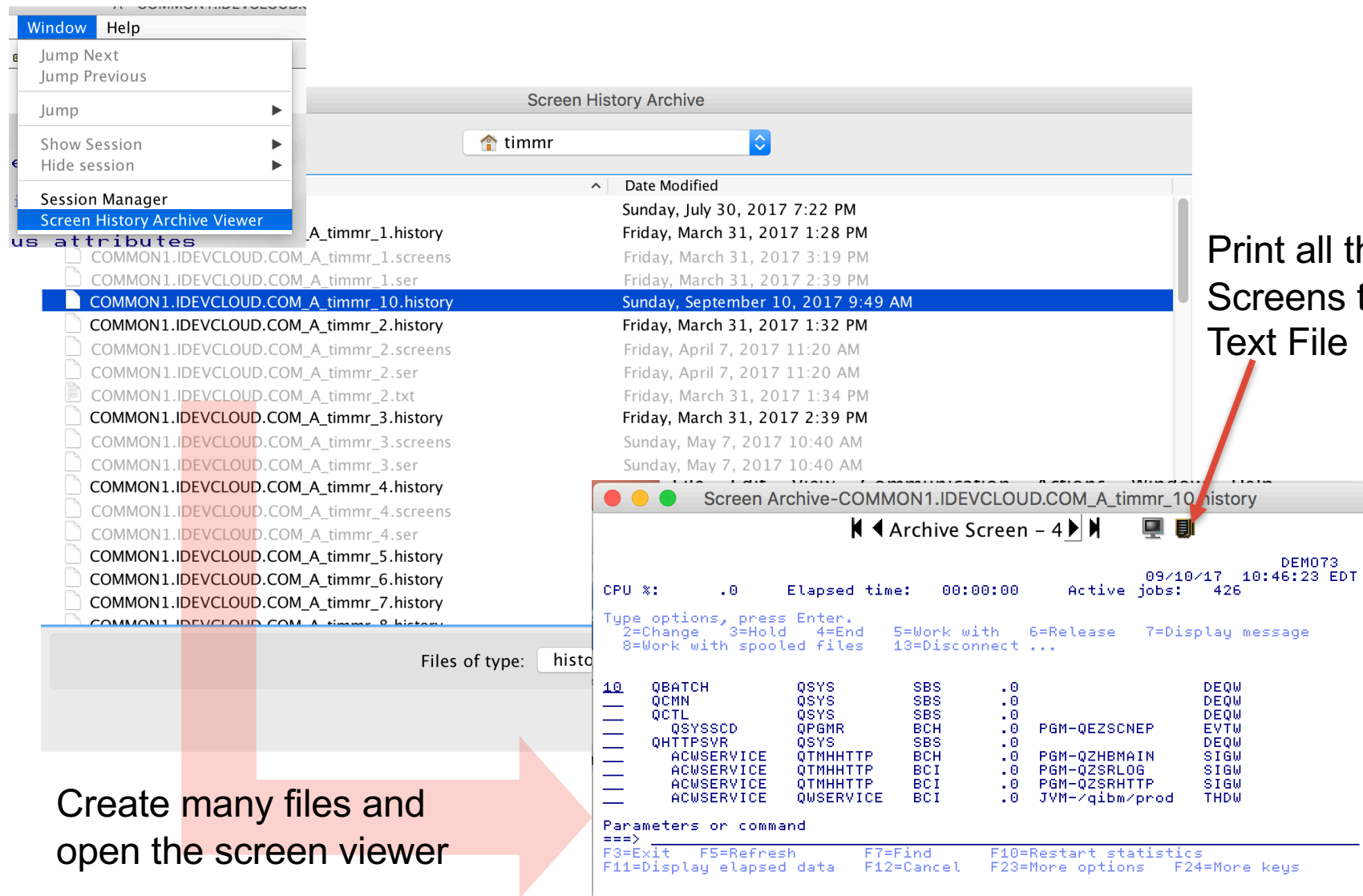
Screen History - Archive

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 'Window' menu is open, highlighting 'Screen History Archive Viewer'. Below it is a file tree listing various history files for user 'timmr'. The main pane shows a list of files with their 'Date Modified' dates. A red arrow points from the text 'Print all the Screens to Text File' to the printer icon in the preview window's toolbar. Another red arrow points from the text 'Create many files and open the screen viewer' to the file list.

Print all the Screens to Text File

Create many files and open the screen viewer

```
Screen Archive-COMMON1.IDEVCLLOUD.COM_A_timmr_10.history
Archive Screen - 4

          DEM073
          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
 8=Work with spooled files  5=Work with  6=Release  7=Display message
 13=Disconnect ...

10  QBATCH      QSYS      SBS      .0      DEQW
   QCMN       QSYS      SBS      .0      DEQW
   QCTL       QSYS      SBS      .0      DEQW
   QSYSSCD    QPGMR     BCH      .0      PGM-QEZSCNEP  EVTW
   QHTTPSVR   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
```

SSH Terminal

Easy access to
you favorite shell

Your new 'qsh' !



IBM i Access Client Solutions

File Edit Actions Tools Help

System: common1.idevcloud.com

- General
 - Data Transfer
 - 5250 Emulator
 - Integrated File System
 - Navigator for i
 - SSH Terminal
 - Printer Output
- Database
 - Schemas
 - Run SQL Scripts
 - SQL Performance Center
- Console
 - 5250 Console
 - Virtual Control Panel
 - Hardware Management Interface 1
- Management
 - System Configurations
 - 5250 Session Manager
 - HMC Probe Utility

SSH Terminal will launch an already-installed SSH client (terminal emulator). With an SSH terminal, it is easy to run IBM i commands or invoke things in the Portable Application Solutions Environment (PASE). Among other things, this is the preferred way to access several open source technologies, including Python, Node.js, git, and more.

If you receive a connection error within the launched SSH client (for instance, "connection refused"), or if a window pops up but immediately vanishes, you may need to start the SSH server job by running this CL command (This requires the 5733-SC1 product):

```
STRTCPSVR *SSHD
```

```
timmr — ACS.7966488607109693180 — ssh - -bash — 80x24
```

```
Last login: Thu Sep 7 12:59:42 on ttys000
Tims-MacBook-Pro-2:~ timmr$ /var/folders/2b/l_8df55d76d6v5sdgwh6b0wm0000gn/T/ACS
.7966488607109693180 ; exit;
The authenticity of host 'common1.idevcloud.com (65.183.160.53)' can't be estab
lished.
ECDSA key fingerprint is SHA256:bu6+3FPpN1+FYBdmGAZve0H7Cwva5wnEXe3umCbLRA.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added 'common1.idevcloud.com,65.183.160.53' (ECDSA) to the
list of known hosts.
[timmr@common1.idevcloud.com's password:
-bash-4.3$
```

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	QNPSEVS
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](#)

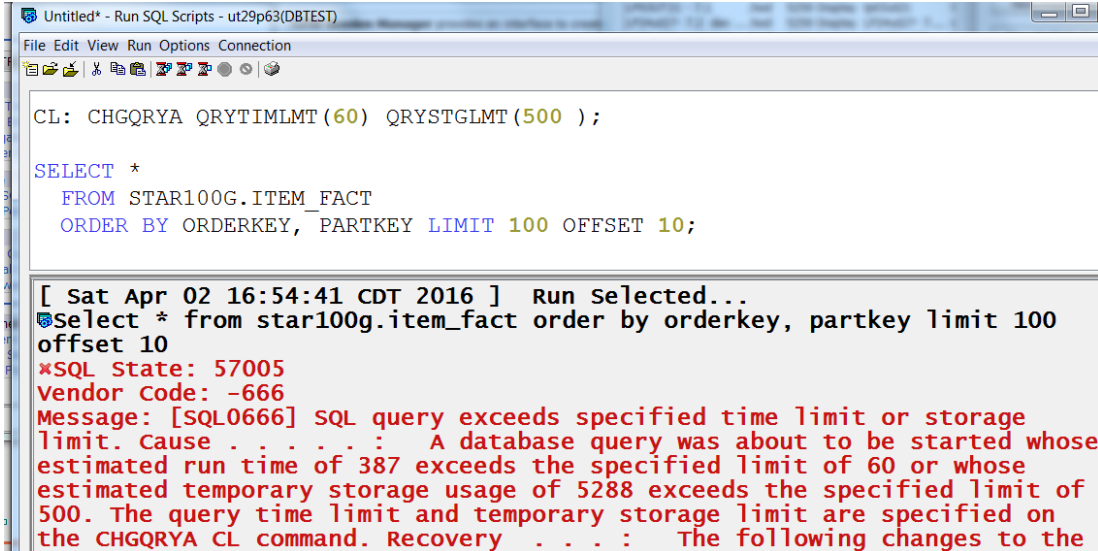
These sample IBM i exit programs do not show all possible programming considerations or techniques, but you can review the examples before you begin your own design and coding.

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.



```
Untitled* - Run SQL Scripts - ut29p63(DBTEST)
File Edit View Run Options Connection
CL: CHGQRYA QRYTIMLMT(60) QRYSTGLMT(500);

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

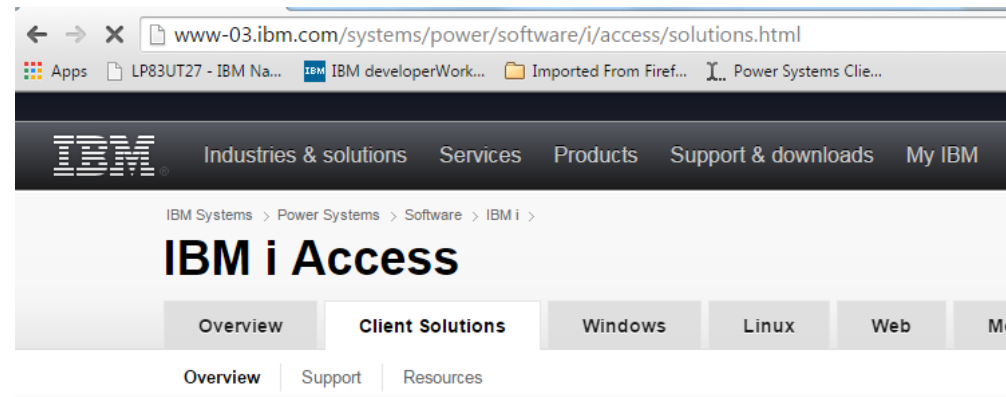
[ Sat Apr 02 16:54:41 CDT 2016 ] Run selected...
Select * from star100g.item_fact order by orderkey, partkey limit 100
offset 10
*SQL State: 57005
Vendor Code: -666
Message: [SQL0666] SQL query exceeds specified time limit or storage
limit. Cause . . . . . : A database query was about to be started whose
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/rzajg/govrle.htm?lang=en

How do you get it ???

NO ESS!

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



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Revised September 26, 2006

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Revised December 2, 2010