

# SAS® Web Report Studio Performance Improvement

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Using Stored Processes in Information Map  
Studio



THE  
POWER  
TO KNOW®

# A tale of two methods ...

- Direct access to relational databases
  - Including: DB2, SQL, MySQL, ODBC, Oracle, Teradata, etc.
- Some Web Reports open quickly, some do not

# Connection Styles

- Advantages – “Selecting a SAS/ACCESS Method”
- Libname Statement:

```
libname mysqllib mysql user=testuser password=testpass database=mysqlldb  
server=mysqlserv port=9876;
```

```
data test; set mysqllib.customers; run;
```

- SQL Pass-Thru:

```
proc sql;
```

```
connect to mysql (user=testuser password=testpass server=mysqlserv  
database=mysqlldb port=9876);
```

```
select * from connection to mysql
```

```
(create table test as select * from customers);
```

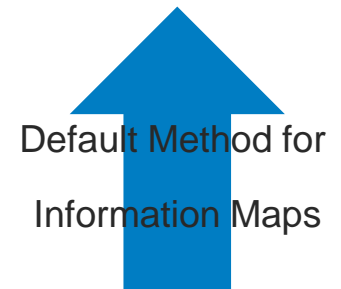
```
disconnect from mysql;
```

```
quit;
```

# Connection Differences

## Libname Statement

- Access Engine translates majority of SAS functions into the native client
- If a function doesn't translate, SAS copies all related data into SASWORK for processing.



## SQL Pass-Thru

- Uses SQL code native to database engine

# What functions pass to the Access Engine?

- SAS Access for Relational Databases
  - DBMS Specific Reference
  - Chapter on “Passing SAS Functions to “

## MySQL Functions:

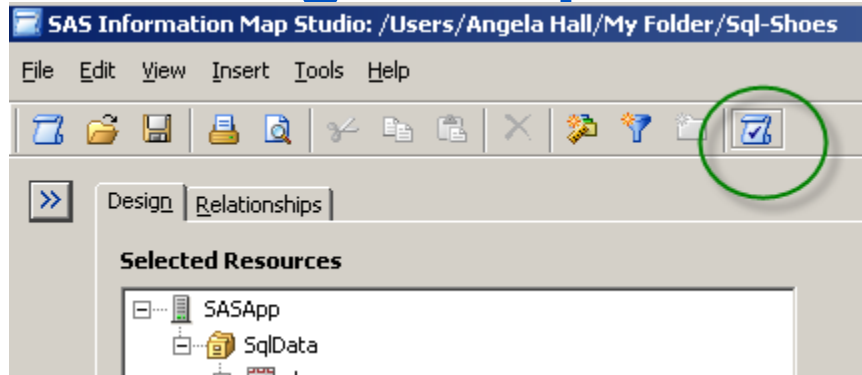
ABS	DTEXTWEEKDAY	REPEAT
ARCOS (ACOS)	DTEXTYEAR	ROUND
ARSIN (ASIN)	EXP	SECOND
ATAN	FLOOR	SIGN
AVG	HOUR	SIN
BYTE (CHAR)	INDEX (LOCATE)	SOUNDEX
CEIL (CEILING)	LENGTH	SQRT
COALESCE	LOG	STRIP (TRIM)
COMPRESS (REPLACE)	LOG2	SUBSTR (SUBSTRING)
COS	LOG10	TAN
COT	LOWCASE (LCASE)	TIME (CURTIME())
COUNT	MAX	TIMEPART
DATE (CURDATE)	MIN	TODAY (CURDATE())
DATEPART	MINUTE	TRIMN (RTRIM)
DATETIME (NOW)	MOD	UPCASE (UCASE)
DAY (DAYOFMONTH)	MONTH	WEEKDAY (DAYOFWEEK)
DTEXTDAY	QTR (QUARTER)	YEAR

# Does it pay to switch?

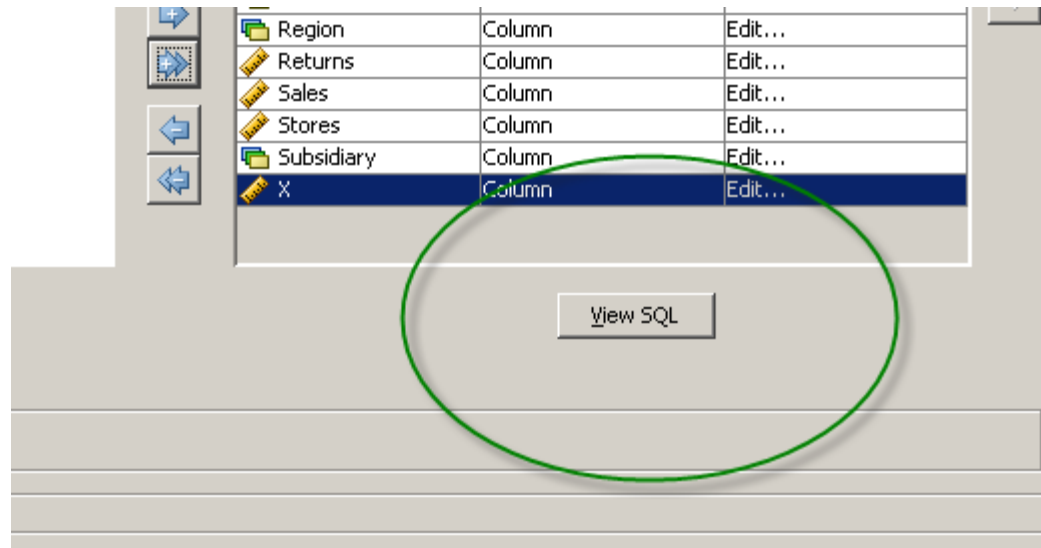
- Options fullstimer;
- Options sastrace=“,,,d” sastraceloc=saslog nostsuffix;
- The message you don't want to see:

SAS\_SQL: Unable to convert the query to a DBMS specific SQL statement due to an error.

# Information Map Studio – Enterprise Guide Testing – Step 1



# Information Map Studio – Enterprise Guide Testing – Step 2





# Information Map Studio – Enterprise Guide Testing – Step 3

```
Proc SQL; Create Table %DATA% as
SELECT
    SUM(table0.Inventory) AS DIR_2 LABEL='Inventory',
    table0.Product AS DIR_3 LABEL='Product' FORMAT=$14.,
    table0.Region AS DIR_4 LABEL='Region' FORMAT=$25.,
    SUM(table0>Returns) AS DIR_5 LABEL='Returns',
    SUM(table0.Sales) AS DIR_6 LABEL='Sales',
    SUM(table0.Stores) AS DIR_7 LABEL='Stores',
    table0.Subsidiary AS DIR_8 LABEL='Subsidiary' FORMAT=$12.,
    SUM(table0.x) AS DIR_9 LABEL='X'
FROM
    sqldata.shoes table0
GROUP BY
    2,
    3,
    7
;
quit;
```

# Monitoring from the Server

- Add sastrace and fullstimer options
  - PooledWorkspaceServer\autoexec\_usermods.sas
- Turn on logging
  - <http://support.sas.com/kb/34567>
  - Requires a restart of the Object Spawner

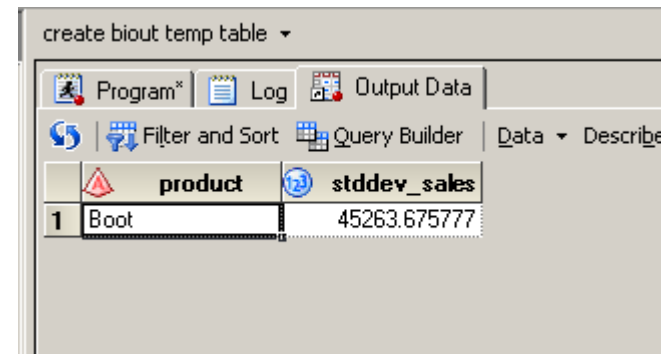
# Steps Required for an Explicit Switch

- Metadata Location for Output Table Definitions
  - No permanent file is needed
  - No conflicts - users will be pointed to a temporary SAS work location
- Stored Process
  - Explicit Query
  - Runs on Workspace Server
  - Prompt creation and programming required here if needed within explicit query
- Information Map that utilizes the two components

# Easy way to metadata

- Create a 1 record base table

```
libname biout "fileloc";  
data biout.shoereport;  
set sashelp.shoes (obs=1);  
run;
```



The screenshot shows a SAS window titled "create biout temp table". The window contains a data table with two columns: "product" and "stddev\_sales". The first row of data shows "Boot" in the "product" column and "45263.675777" in the "stddev\_sales" column. The table is displayed in a grid format with a header row and one data row.

	product	stddev_sales
1	Boot	45263.675777

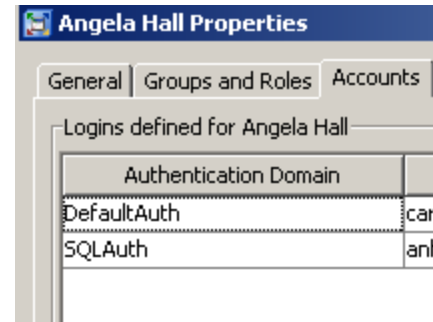
- Import into SAS Metadata
- Feel free to delete the base table from the file system

# Create a SAS Stored Process

- \*ProcessBody;
- libname BiOUT (work);
- Set to Execute on the SAS Workspace Server
  
- Wait? What? Authentication? Oh yeah.

# Authentication

- Typically SAS Metadata includes a separate AuthDomain for RDBMS Access

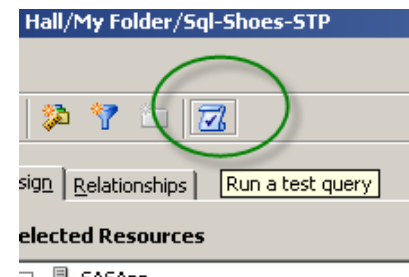
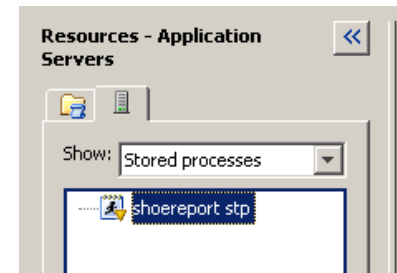
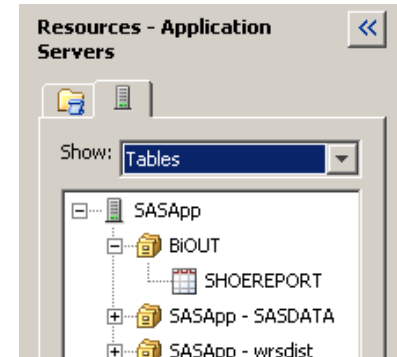


- Within the Proc SQL connect statement, change the user and password to AuthDomain

connect to mysql (AuthDomain="SQLAuth" server=l17795  
database=sasdata port=3306);

# Create the new Information Map

- Select the BiOUT table metadata
- Select the stored process
- Run a test



# What about prompts?

- Define them in the Stored Process



# Other Ideas

- Stored Processes
  - Querying an OLAP Cube
  - Reusing Existing SQL Code
  - Refining the Query Joins based on Prompts
  - Other Ideas?
- Web Report Studio Tweaks
  - <http://support.sas.com/kb/39065>