

MS ACCESS MACRO MAKES SAS EASY FOR YOU, FOR EVERYONE

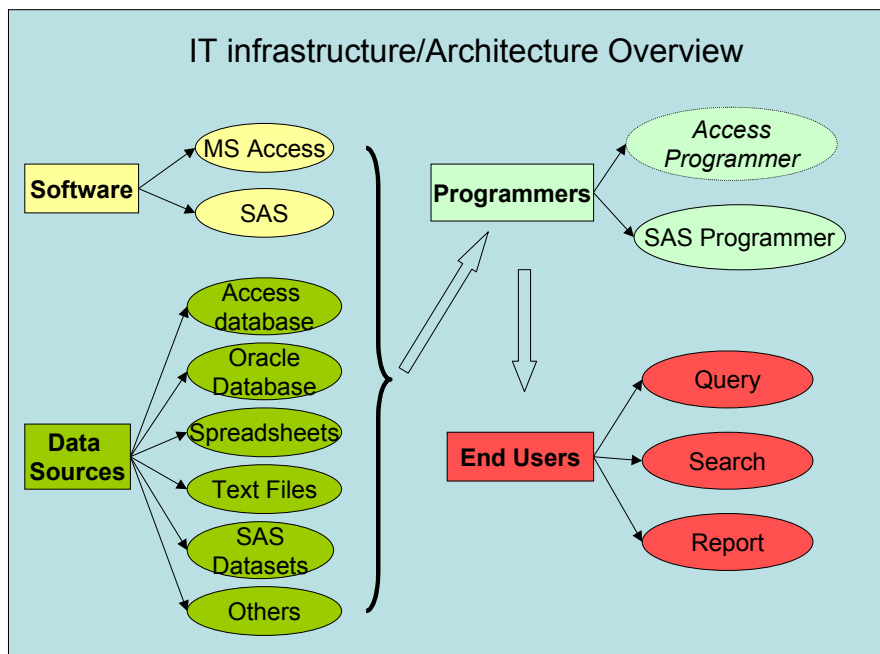
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Introduction

Today's complex and dynamic business environment requires companies to make faster and smarter decisions. Many organizations have utilized SAS® to develop sophisticated dashboard reports and scorecards. While information piles up in unbelievable quantities, providing those reports in a timely fashion becomes increasingly critical. How can we empower business users across an organization and give them the ability to efficiently generate reports in their desired formats?

This paper introduces an application that utilizes MS Access® macros to leverage the power of SAS. The discussion on various user interfaces for SAS can be complex. With simplicity in mind, we focus on the easy-to-follow techniques that can be applied immediately to organizations' on-going business to free SAS analysts from requests of repetitive reports and achieve efficiency. Designed as a point-and-click tool to empower business users, it does not require manipulation of SAS codes. Real-world examples will be used in the demo, including direct marketing campaign evaluation, customer profile, and financial KPI analysis.

Technical overview

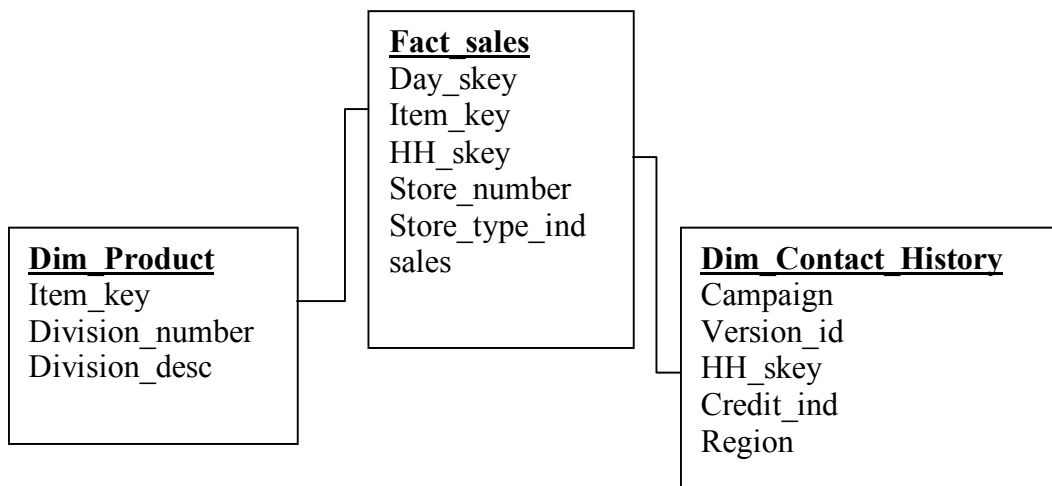


SAS Base and Microsoft Access are required software. Other modules of SAS may be needed depending on the data sources. SAS Base is used for data retrieval and manipulation in the background. MS Access is used as the front-end tool.

Command buttons are set up in MS Access. Clicking a command button triggers a series MS Access macros and their associated SAS program. Output can be viewed in desired formats- SAS dataset, HTML, ASCII data file, Word or Excel. Without any sophisticated programming knowledge of SAS and MS Access, business users can click the corresponding command button(s) and create reports at their figure tip.

Data source

For demonstration purpose, our data sources are three tables stored in an Oracle database.



User Interface- Microsoft Access form

Three reports are included in the demo:

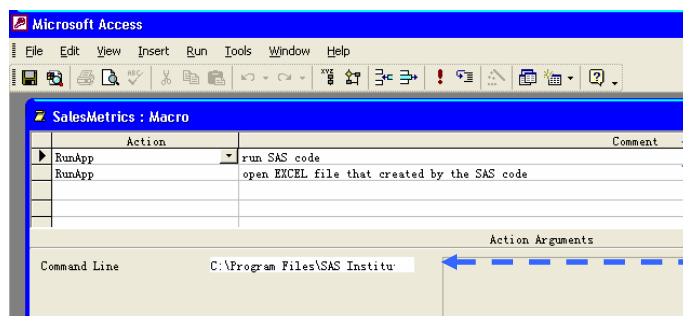


MS Access Form is used to create an interface to accept user input. Each command button on the form is associated with a macro that composed of a sequence of actions:

1. to invoke SAS to run the corresponding SAS program
2. to invoke applications to generate desired output (MS word, MS Excel, Internet Explore, etc.)

Users can check one or multi command buttons and MS Access carries out these actions each time a macro runs.

When creating a macro,



Enter the following argument at the command line to start the SAS application and run the SAS code:.

`C:\Program Files\SAS Institute\SAS\V8\sas.exe C:\PNWSUG\yoursasprogram.sas`

Enter the following argument at the command line to start the application to generate the report (Excel in this example) by SAS ODS:

`C:\Program Files\Microsoft Office\OFFICE11\EXCEL.EXE C:\PNWSUG\yourreport.xls`

Here are some examples:

View reports in .RTF format

In SAS program, use ODS to create an rtf (word file).

```
ods listing close;
ods rtf file="C:\PNWSUG\Campaign Analysis.rtf";
proc print data=region;
  title "Campaign Analysis - Region";
run;
ods rtf close;
ods listing;
```

MS Access Interface:

Command button	Access Macro Action	Purpose	Command Line
Campaign Analysis Reports	1. runApp	Invoke SAS to run the SAS program	C:\Program Files\SAS\V8\SAS.EXE C:\PNWSUG\CampaignAnalysis.sas
	2. runApp	Invoke MS word to open the .rtf file that generated by SAS code	C:\Program Files\Microsoft Office\OFFICE11\MSWORD.EXE C:\PNWSUG\CampaignAnalysis.rtf



RTF File

Campaign Analysis - Region					
Obs	TEST	summary	sales	sales_per_lh	circulation
1	Control	California	\$38,040.09	\$85.10	447
2	Control	Capital	\$13,232.16	\$77.38	171
3	Control	Midwest	\$12,312.56	\$76.00	162
4	Control	Northeast	\$7,595.39	\$87.30	87
5	Control	Northwest	\$7,314.53	\$60.95	120
6	Control	South	\$11,832.39	\$89.64	132
7	Mail	California	\$134,145.16	\$71.24	1883
8	Mail	Capital	\$56,346.08	\$82.86	680
9	Mail	Midwest	\$59,557.31	\$73.35	812
10	Mail	Northeast	\$48,627.98	\$82.28	591
11	Mail	Northwest	\$88,422.60	\$70.74	1250
12	Mail	South	\$100,181.50	\$94.07	1065

View Reports in HTML format

In SAS program, use ODS to create an html file. The sample codes would like this:

```
ods listing close;
ods html file="C:\PNWSUG\SAS\12-Month Customer Profile Report.html";
proc print data=_12m;
```

```

title "12-Month Customer Profile";
run;
.....
ods html close;
ods listing;

```

MS Access Interface:

Command button	Access Macro Action	Purpose	Command Line
12-Month Customer Profile Reports	1. runApp	Invoke SAS to run the SAS program	C:\Program Files\SAS\V8\SAS.EXE C:\PNWSUG\customer_profile.sas
	2. runApp	Invoke Internet Explore to open the .html file that generated by SAS code	C:\Program Files\Internet Explorer C:\PNWSUG\12 month customer profile.html



HTML File

12-Month Customer Profile

Obs	segment	HouseholdCount	StoreSales	CatalogSales	WebSales	ShoeSales	WomenApparelSal
1	Total	1402	\$1,076,300.60	\$76,056.69	\$78,390.96	\$15,631.64	\$113,398
2	01) 00-03 Months	1041	\$938,587.83	\$64,948.02	\$60,868.41	\$12,941.46	\$102,245
3	02) 04-06 Months	230	\$93,498.93	\$8,000.72	\$13,242.51	\$2,145.08	\$8,010
4	03) 07-12 Months	131	\$44,213.84	\$3,107.95	\$4,280.04	\$545.10	\$3,142
5	1)>\$3000	65	\$297,010.48	\$17,923.85	\$9,539.28	\$2,296.08	\$37,661
6	2) \$1000-\$2999	302	\$440,147.88	\$25,036.36	\$26,319.89	\$4,995.38	\$48,916
7	3) \$500-\$999	348	\$211,837.10	\$18,098.47	\$21,672.55	\$4,820.80	\$17,871
8	4) \$1-\$499	687	\$127,305.14	\$14,998.01	\$20,859.24	\$3,519.38	\$8,949
9	9)Others	243	\$114,051.10	\$4,201.96	\$15,813.74	\$1,632.34	\$10,807
10	01) store+catalog+web	44	\$44,790.37	\$9,205.44	\$5,812.41	\$408.60	\$5,741
11	02) catalog+store	206	\$165,523.21	\$39,849.86	\$4,181.87	\$2,807.71	\$19,701
12	03) web+store	218	\$181,571.01	\$3,916.30	\$31,201.92	\$1,946.90	\$19,923

View reports in Excel format

In SAS program, use ODS to create an Excel file. The sample codes would like this:

```
ods listing close;
ods html file="C:\PNWSUG\Sales Metrics.xls";
proc print data=salesmetrics;
  title "Sales Metrics Report";
run;
.....
ods html close;
ods listing;
```

Command button	Access Macro Action	Purpose	Command Line
Sales Metrics Reports	1. runApp	Invoke SAS to run the SAS program	C:\Program Files\SAS\V8\SAS.EXE C:\PNWSUG\SalesMetrics.sas
	2.		
	3. runApp	Invoke MS Excel to open the .xls file that generated by SAS code	C:\Program Files\Microsoft Office\OFFICE11\EXCEL.EXE C:\PNWSUG\SalesMetrics.xls


Sales Metrics Reports

↓ Excel File

	A	B	C	D	E	F	G	H	I	
	2003-2005 KPI Reports									
1	8-Sep-05									
2										
3										
4	Year	catalog	Catalog	catalog	Web	Web	Web	Total	Total	Tc
5		Response	Unit	Sales	Response	Unit	Sales	Response	Units	Sa
6										
7	YTD2003	456	498	\$25,675.97	413	466	\$33,949.58	4644	964	\$59,6
8	YTD2004	570	619	\$38,081.36	514	564	\$42,877.04	5379	1183	\$80,9
9	YTD2005	653	733	\$42,895.28	352	395	\$29,517.21	5126	1128	\$72,4
10										

Acknowledgements

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