

Bridging the Gap: Using ODBC to Grab Data Stored in a SAS® Data Warehouse for Reporting in Microsoft Access

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Abstract:

The Center for Health Research (CHR) in Portland, Oregon, serves as a coordinating center for the DASH study, a four-site trial that compares the effects of three dietary patterns in persons with high normal diastolic blood pressure. This study involves substantial data collection and transmission from each site to the CHR. This paper describes our use of Open Data Base Connectivity (ODBC), one of the new features in SAS version 6.10, to manage DASH data and other project activities. We use SAS as a data warehouse because of its efficiency in manipulating and summarizing data, data storage, and data analysis. As a coordinating center, we produce monthly standardized reports to send to the respective clinical sites. We use Microsoft Access as a reporting tool because of its ease in producing reports with multiple fonts, shading, and boxes. Because Microsoft Access is an ODBC compliant application, it can use data stored in SAS with the new SAS ODBC driver. The SAS ODBC driver made the report production a quick and simple task.

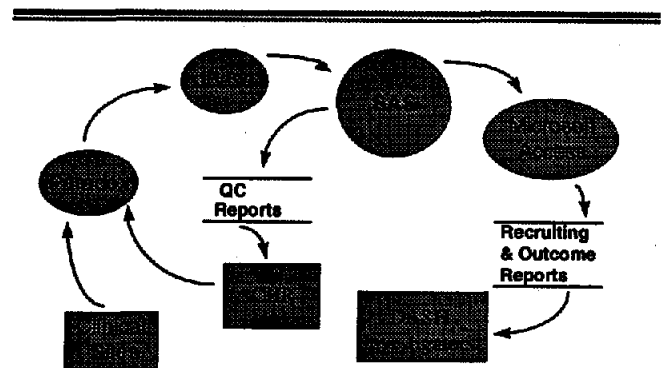
Introduction

At SUGI 20 in Orlando we attended a Hands on PC workshop entitled "ODBC: Windows to the Outside World," taught by S. David Riba. After seeing how easy it was to use ODBC, we decided to explore the ODBC connection between SAS and Microsoft Access. The DASH study had requested reports with multiple fonts, shading, and boxes. Previously, we used SAS/ACCESS® to move data to another software package by making a copy of the SAS data and putting it into the other package. With ODBC, you can either make a copy of the data or use the actual SAS data, running both packages at the same time.

Our Data Warehouse

The DASH study uses a distributed data entry system for collecting data from participants at each of the study's four intervention sites and entered daily into a Paradox application. After daily data collection is complete, the laptops are connected to a docking bay for uploading into a file server. These data are then transferred daily to the coordinating center by modem using PC Anywhere. The Paradox data are copied into SAS bimonthly using SAS/ACCESS. This system was developed two years ago. We did not have access to ODBC at that time, so we used the method of creating DBFs and reading them into SAS with SAS/ACCESS.

DASH DATA WAREHOUSE



"A data warehouse is simply the physical separation of an organization's operational system's data from its decision support data" (SAS communications®, 1995). Our data are brought down into SAS after data collection and audit reports are run. These data are verified using the SAS generated audit reports, then cleaned in the original data source (Paradox), so the sites always have access to the current data. The clean data are then put into the SAS summary/analysis files. Our reporting and

analysis are all done from the SAS summary/analysis files. "The data are reorganized and summarized so that data modeling and analysis are easier and so that end user data queries do not interfere with day-to-day, minute-to-minute updates and transfer of data in transaction-based operational systems" (Betancourt, 1995). The data in our data warehouse are reorganized and summarized for report writing and analysis.

How to setup the SAS ODBC Driver

Several steps are necessary to set up your SAS ODBC Driver. For more information about setting up the ODBC driver on your PC, refer to "ODBC: Windows to the Outside World," S. David Riba, JADE Tech, Inc., Clearwater, FL ; *Proceedings of the Twentieth Annual SAS Users Group International Conference*.

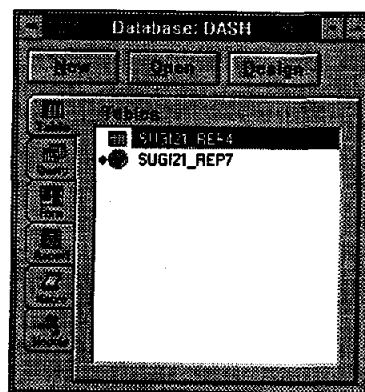
Reporting

Once the SAS ODBC driver is setup, you are ready to go into Microsoft Access. There are two ways to use SAS data via the ODBC link. You can either *import* the data into Microsoft Access or *attach* the data. When you attach the SAS dataset, you create a "live link" between the two software packages. We used both of these techniques, but at different points in developing DASH reports.

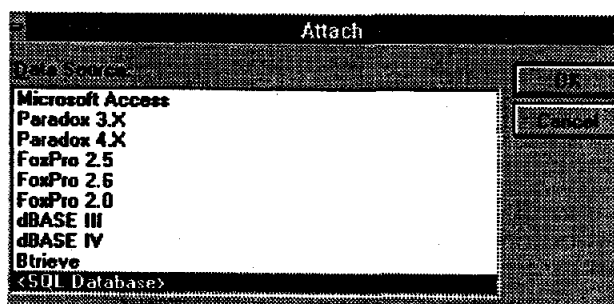
First we used *import* to bring a sample of the data over. Importing a SAS dataset effectively creates a copy of that dataset in a Microsoft Access format. It's like using SAS/ACCESS, but with only one step. Any changes you make in the data will be made only on that copy. We brought a copy of the data over, created a report, tested it until it was ready to go, and then moved onto the *attach* technique.

Attaching a SAS dataset means that you are working with the real SAS data but accessing it from Microsoft Access (Pretty Cool!!), running both packages simultaneously--no more extra copies of your data sitting out there in different formats. You can truly have your data in the SAS data warehouse and make use of other product features to enhance your reports. Thus, reports are always running on the most current data.

Here are a few of the steps involved in using Microsoft Access to create reports. You will need to create a new access database (mdb): select *file* and *new*, and a window will appear prompting for a name and location for this new access database.



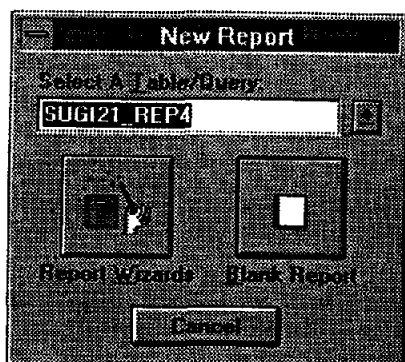
Microsoft Access is a relational database, so multiple tables, or SAS datasets, can reside within a database. In other words, you can bring more than one SAS dataset into a single Microsoft Access database. In the above Microsoft Access database, the same SAS dataset appears twice, once as an attached table and once as an imported Microsoft Access Table.



After creating this, go back to file and select either import or attach. Then select "<SQL Database>"

After creating your Access database, you are ready to create your report. Select the reports tab on the new/open database window. Choose select a table and then choose the report wizards. Microsoft Access provides step by step help for creating your reports. We used the

report wizards, which offers a variety of report formats to choose from, and Microsoft Access helps to create these reports with a detailed help system.



After creating a basic report style, you can go into design mode and revise it more to your specifications, changing formats and styles, adding

lines, boxes, shading, text and titles. You can cut and paste and move objects around to easily customize your report. Clicking the right button on your mouse will bring up the properties for the particular object you have highlighted. It doesn't take a lot of time, so just get in there, choose some different report styles and have fun customizing your reports.

Conclusion

With the coming of version 6.10, we now have the capability to use ODBC to grab data from SAS and use it in other software packages. We found this to be a fairly simple, straight-forward process. We chose to use SAS as our data warehouse, taking advantage of its efficiencies with summarizing, manipulating, and analysis. By using the ODBC feature available, we created a "live link" and connected our data in SAS with Microsoft Access, taking advantage of its flexibility and simplicity in creating customized reports. With the coming of SAS 6.11, you will be able to use ODBC with the Microsoft Access 95, which will have even more features for reporting and graphics.

Acknowledgments

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References

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DASH SV3 Outcome Report

for all data received as of November 9, 1995

Cohort = ALL

	Site				Race				Total
	Balto	B Rouge	Boston	Durham	Non Min	Afr Amer	Other Min	Unk	
# Eligible for SV3	200	171	125	166	203	427	29	3	662
% Run-In Eligible*	56.0	63.2	57.6	69.9	60.6	62.3	65.5	0.0	61.6
% Inelig per Visit/Labs	7.0	13.5	12.0	6.0	7.9	10.3	6.9	0.0	9.4
% Refusal	0.5	0.0	0.8	0.6	0.0	0.5	3.4	0.0	0.5
% Dropped	22.0	9.9	12.8	9.6	14.3	14.5	0.0	66.7	14.0
% Pending	14.5	13.5	16.8	13.9	17.2	12.4	24.1	33.3	14.5

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*SV3 completed and Labs okay
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DASH SV3 Outcome Report **for all data received as of November 9, 1995** **Cohort = all**

	Site				Race				
	Balti- more	Baton Rouge	Boston	Durham	Non Minority	African- American	Other Minority	Unknown	Total
# Eligible for SV3	200	171	125	165	202	427	29	3	661
%Run-in Eligible *	56	63.2	57.6	69.7	60.4	62.3	65.5	0	61.6
%Inelig per Visit/Labs	7	13.5	12	6.1	7.9	10.3	6.9	0	9.4
%Refusal	0.5	0	0.8	0.6	0	0.5	3.4	0	0.5
%Dropped	22	9.9	12.8	9.7	14.4	14.5	0	66.7	14.1
%Pending	14.5	13.5	16.8	13.9	17.3	12.4	24.1	33.3	14.5

* SV3 Completed and Labs okay
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