

Libname: Start Your Engines

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ABSTRACT

A libname associates a library reference with a SAS® data library. An engine is a part of SAS software that reads from or writes to a file. New in version 7 and greater is the ability to assign a libref to a DBMS like DB2 or Oracle. This paper will show you how to do it and explore the benefits and pitfalls of its use.

INTRODUCTION

In previous versions of SAS, when working with a relational database, the data had to be extracted into a SAS data set before any other processing or analysis could be done in SAS. In order to accomplish this one had to run SQL-pass-through code or PROC ACCESS to extract the data. You can now use a LIBNAME statement with a SAS/ACCESS engine to read from or write to a relational database table or view as if it were a regular SAS data set. This method allows you to connect to a relational database management system (DBMS) and specify the relational database table as a two-level SAS name. There are many options you can use on the LIBNAME statement. What you chose is going to be dependent on your site requirements.

SYNTAX

LIBNAME *libref* SAS/ACCESS-engine-name
options;

EXAMPLES

A. Example of a LIBNAME statement
LIBNAME mydb db2 user=myid
password=mypass database=prodsys
schema=dev;

For example, MYDB is a SAS library reference that points to a particular group of DBMS objects. TABLE1, TABLE2, etc. would be the DBMS table names. When you specify MYDB.TABLE1 in a DATA step or procedure, you dynamically access the DBMS table. Beginning in Version 7, reading, updating, creating, and deleting DBMS tables dynamically are supported.

B. Examples of its use
1. Using only tables from the DBMS

```
LIBNAME mydb db2 user=myid  
password=mypass database=prodsys  
schema=dev;
```

```
proc sql;  
select  
    t1.id,  
    t2.id,  
    t1.name,  
    t2.address  
from    mydb.table1 as t1,  
        mydb.table2 as t2  
where   t1.id=t2.id  
order by 3;  
quit;
```

2. Using a combination of SAS data sets and DBMS tables

```
LIBNAME mydb db2 user=myid  
password=mypass database=prodsys  
schema=dev;
```

```
LIBNAME myds 'c:\mydir\mysas';
```

A. Example using PROC SQL

```
proc sql;  
select  
    t1.id,  
    ds.id,  
    t1.name,  
    ds.state  
from    mydb.table1 as t1,  
        myds.info as ds  
where   t1.id=ds.id  
order by t1.name;  
quit;
```

B. Example using DATA step

```
data getdata;  
merge mydb.table1(in=a)  
      myds.info(in=b);  
by id;  
if a;  
run;
```

BENEFITS and PITFALLS

Benefits

Using the LIBNAME statement with a SAS/ACCESS engine provides the means to merge or join data from different formats coming from different applications. This was not possible in prior versions of SAS. It was necessary to read the information into a SAS data set and then manipulate the data or perform an analysis. Whether your data is in Excel or a relational database, the data can be read into any of the SAS procedures or a DATA step.

Another important benefit is the ability to define the data being read in once. When using PROC ACCESS or the SQL pass-through, the connection to the database must be defined each time the DBMS tables are referenced. With the LIBNAME engine, the data definition happens just once.

Pitfalls

When reading data from a relational database, it is important that a schema is defined and that data is not read cross schema. Another major problem is the use of a WHERE statement versus an IF statement within a DATA step. If reading data from a DBMS it is important to use a WHERE statement rather than an IF statement, especially if you are reading from a table that is large. The performance of the action will be severely affected if using an IF statement.

CONCLUSION

In previous versions of SAS, the use of relational database systems was tedious, time consuming and repetitive. With the advent of the LIBNAME engine, programming has become easier. There are performance enhancements if used appropriately.

REFERENCES

SAS version 8 software, online documentation, Cary, NC, SAS Institute Inc. 1999..

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