Accessing Data from Your PC Using Version 7 of the SAS® System
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ABSTRACT

Data access technology is changing rapidly in today's computing environment, especially on the PC platform. The Version 7 release of the SAS System is the first release that contains a newly designed suite of SAS/ACCESS® software products that strive to take advantage of recent technological advances in data access.

This paper provides an overview of the SAS external data access capabilities that are available on the PC. Emphasis is placed on the SAS/ACCESS products, the Import/Export Facility, ODBC drivers that are available, and conversion utilities for existing MS SQL Server and AS/400® view descriptors.

INTRODUCTION

With the Version 7 release of the SAS System, SAS/ACCESS software and the Import/Export Facility contain many important enhancements that allow SAS users to transparently integrate their Database Management Systems with their SAS business solutions.

The new DYNAMIC LIBNAME ENGINES enable the SAS user to issue a LIBNAME statement to connect to a relational DBMS server and read, update and create relational DBMS tables directly. In fact, with relational DBMSs no static Access or View descriptors are required. These engines are available for ORACLE®, SYBASE®, ODBC, and DB2® for Common Servers. Additional features and performance improvements include support for table and column names up to 32 bytes, case-sensitive DBMS object names, line mode updating of Descriptors using PROC ACCESS, passing joins directly to the DBMS, integration of PROC SQL views, concurrency control, and more. PROC ACCESS, PROC DBLOAD, SQL Pass-through, and VIEW Descriptors are also supported for Version 6.x compatibility.

Two new procedures, PROC IMPORT and PROC EXPORT have been added to the Import/Export Facility to enable the SAS user to issue import and/or exports from a SAS program. Two new data sources, Microsoft Access and Excel 97, have also been added.

A conversion utility has also been developed to aid in the conversion of existing AS/400 and MS SQL view descriptors to ODBC view descriptors.

SAS/ACCESS SOFTWARE

SAS/ACCESS software is a set of products for the SAS System that provide a way to access data that is stored in other database management systems (DBMS) and several PC file formats. SAS/ACCESS products allow you to transparently interact with data stored in any non SAS data source for which a SAS/ACCESS interface (engine) is available. Each SAS/ACCESS engine provides one or more of the following capabilities:

• The ability to read data from an external data source.
• The ability to create a SAS view or data set from data stored in an external data source.
• The ability to update data stored in an external data source.
• The ability to write data stored in a SAS data set to an external data source.
• The ability to pass SQL logic directly to a non SAS DBMS.

In Release 6.12 of the SAS System, you could use either PROC ACCESS or the ACCESS Window to create an access descriptor that contained essential information about the structure of a non SAS data source. Using this access descriptor, one or more view descriptors could be created that defined some or all of the metadata that the access descriptor described. Once created, view descriptors could be processed in the same manner as SAS data sets.

In Version 7 of the SAS System, all SAS/ACCESS engines that communicate with relational databases (e.g. Oracle, Sybase, ODBC, and DB2 for Common Servers) have been completely redesigned and rewritten. Depending upon user needs and the capabilities of the SAS/ACCESS engine being used, one or more of the following Version 6 features are supported:

• Version 6 access and view descriptor compatibility
Version 7 SAS/ACCESS engines can read and update all existing Version 6.x access and view descriptors. Likewise, all existing SAS/ACCESS procedure line mode statements and batch SAS jobs will continue to run in Version 7.

• Version 6 PROC SQL Pass-Through compatibility
Version 7 SAS/ACCESS engines will support existing Version 6.x PROC SQL Pass-Through views and batch jobs that contain Version 6.x SQL Pass-Through statements will continue to run.

In Version 7 of the SAS System, the ACCESS Window, along with the full-screen interface to licensed SAS/ACCESS products, is no longer available. Because this interface has been removed, a new statement (the UPDATE statement) has been added to all SAS/ACCESS engines so that the contents of existing descriptors can be modified.

RELATIONAL DBMS SAS/ACCESS ENGINES ARE NOW DYNAMIC LIBNAME ENGINES

With Version 7 of the SAS System there is no longer a need to create Access and View Descriptors to access and manipulate data stored in an external relational Database Management System (DBMS). Now you can issue a libname statement with all the required options to establish a successful DBMS connection. Once the libname is assigned successfully, the tables and views in the DBMS can be accessed by using the libref as if it were a SAS data set. For example:

> **LIBNAME DBMS ORACLE USER=SCOTT**
> **PASSWORD=TIGER PATH=DBIPC1_ORCL;**

In the example above, "DBMS" is the libref. "ORACLE" is the SAS/ACCESS to ORACLE engine name. "SCOTT" and "TIGER" are the user ID and password that are passed to the Oracle engine to establish a connection. "DBIPC1_ORCL" is the service name that identifies where the Oracle database resides. The USER, PASSWORD, and PATH options provide the information needed to successfully connect to the Oracle DBMS. By default, a connection to the DBMS is established when the libname statement is issued. This connection can then used to get to the DBMS's tables and views. For example: