CHAPTER

1

Introduction to the SAS/ACCESS Interface to CA-DATACOM/DB

Introduction

This chapter introduces you to SAS/ACCESS software and briefly describes how to use the interface. This chapter also introduces the sample CA-DATACOM/DB tables, view descriptors, and SAS data files used in this book.

Purpose of SAS/ACCESS Software

SAS/ACCESS software provides an interface between the SAS System and the CA-DATACOM/DB *database management system* (DBMS). You can perform the following tasks with this SAS/ACCESS interface:

☐ create SAS/ACCESS descriptor files using the ACCESS procedure

☐ directly access data in CA-DATACOM/DB tables from within a SAS program, using the descriptor files created with the ACCESS procedure

☐ extract CA-DATACOM/DB data and place them in a SAS data file using the ACCESS procedure or the DATA step

☐ update data in CA-DATACOM/DB tables using the SQL procedure, the APPEND procedure, SAS/FSP software, or SAS/AF software.

Overview of Using the Interface

This SAS/ACCESS interface consists of two parts:

☐ the ACCESS procedure, which you use to define the SAS/ACCESS descriptor files

☐ the interface view engine, which allows you to use CA-DATACOM/DB data in SAS programs in much the same way as you use SAS data files.

The ACCESS procedure enables you to describe CA-DATACOM/DB data to the SAS System. You store the description in SAS/ACCESS descriptor files, which you can use in

SAS programs much as you would use SAS data files. You can print, plot, and chart the data described by the descriptor files, use them to create other SAS data files, and so on. Chapter 4, "Using CA-DATACOM/DB Data in SAS Programs," on page 23 presents several examples of using CA-DATACOM/DB data in SAS programs. Chapter 5, "Browsing and Updating CA-DATACOM/DB Data," on page 45 shows you how to use descriptor files to update CA-DATACOM/DB data from within a SAS program.

The interface view engine is an integral part of the SAS/ACCESS interface, but you do not have to deal directly with the engine. The SAS System automatically interacts with the engine when you use view descriptors in your SAS programs, so you can simply use CA-DATACOM/DB data just as you would use SAS data.
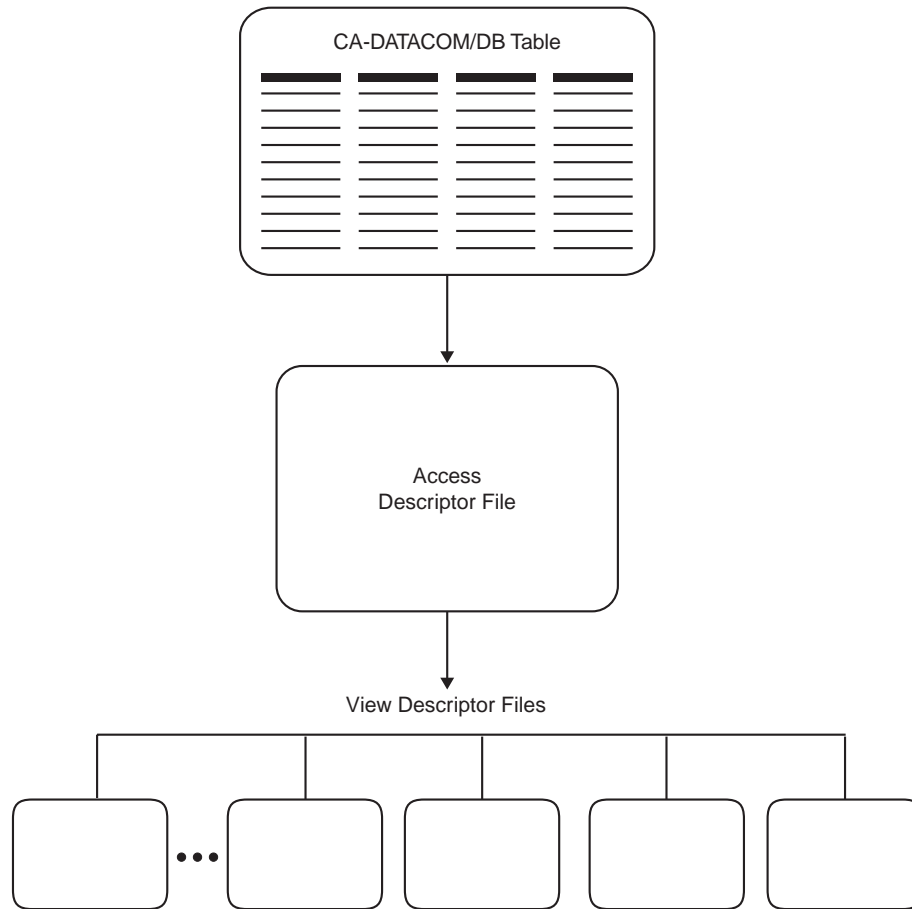
You can combine data from several CA-DATACOM/DB tables, Version 6 data sets, and Version 8 SAS data sets. Such combinations are not only possible but easy to do. The SAS System can distinguish among SAS data files, SAS/ACCESS descriptor files, and other types of SAS files, and the software will use the appropriate access method. See "Updating a SAS Data File with CA-DATACOM/DB Data" on page 39 for an example of combining data from Version 6 and Version 8 data sets.

SAS/ACCESS Descriptor Files

SAS/ACCESS software uses SAS/ACCESS descriptor files to establish a connection between the SAS System and CA-DATACOM/DB. To create these files, you use the ACCESS procedure.

There are two types of descriptor files: *access descriptors* and *view descriptors*. Figure 1.1 on page 5 illustrates the relationships among a CA-DATACOM/DB table, access descriptors, and view descriptors.

Figure 1.1   Relationships Among a CA-DATACOM/DB Table, Access Descriptor Files, and View Descriptor Files

The two types of descriptor files are discussed next. Chapter 3, "Defining SAS/ACCESS Descriptor Files," on page 15 shows you how to create and edit these files.

Access Descriptor Files

Access descriptor files are of member type ACCESS. Each access descriptor holds essential information about one CA-DATACOM/DB table you want to access, for example, the table name, field names, and data types. It also contains corresponding SAS System information, such as the SAS column names, formats, and informats. Typically, you have one access descriptor for each CA-DATACOM/DB table.

An access descriptor describes one CA-DATACOM/DB table. You cannot create a single access descriptor that references two CA-DATACOM/DB tables.

View Descriptor Files

View descriptor files are sometimes called SAS *views*, because their member type is VIEW. This book uses the term *view descriptor* to distinguish them from views created by the SQL procedure.

Each view descriptor can define all of the data or a particular subset of the data described by one access descriptor (and therefore one CA-DATACOM/DB table). For

example, you may want to use only three of four possible fields in the table and only some of the values stored in the fields. The view descriptor allows you to select the fields you want and, by specifying selection criteria, to select only the specific data you want. (For example, your selection criteria might be that the date of transaction is January 3, 1989, and that customers' names begin with W.) Typically, for each access descriptor, you have several view descriptors, which select different subsets of data.

You can join data from multiple CA-DATACOM/DB tables with the SQL procedure. The SQL procedure can join SAS data files, PROC SQL views, and SAS/ACCESS view descriptors. See Chapter 4, "Using CA-DATACOM/DB Data in SAS Programs," on page 23 and Chapter 5, "Browsing and Updating CA-DATACOM/DB Data," on page 45 for examples that use the SQL procedure.

Example Data in This Book

This book uses several CA-DATACOM/DB tables to show you how to use the SAS/ACCESS interface to CA-DATACOM/DB. The tables were created for an international textile manufacturer. This company's product line includes some special fabrics that are made to precise specifications. The tables are named CUSTOMERS, EMPLOYEES, INVOICE, and ORDER. All the data are fictitious.

These tables are designed to show how the interface treats CA-DATACOM/DB data. They are not meant as examples for you to follow in designing tables for any purpose.

Appendix 3, "Data and Descriptors for the Examples," on page 125 gives more information about the tables, the data each table contains, and the sample descriptors. Appendix 3 also gives information about the sample SAS data files used in Chapter 4, "Using CA-DATACOM/DB Data in SAS Programs," on page 23.