Chapter 14
Storage Features

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Chapter 14
Storage Features

Overview

SAS/IML software can store user-defined modules and the values of matrices in special library storage on disk for later retrieval. The library storage feature enables you to perform the following tasks:

- store and reload IML modules and matrices
- save work for a later session
- keep records of work
- conserve space by saving large, intermediate results for later use
- communicate data to other applications through the library
- store and retrieve data in general

Storage Catalogs

SAS/IML storage catalogs are specially structured SAS files that are located in a SAS data library. A SAS/IML catalog contains *entries* that are either matrices or modules. Like other SAS files, SAS/IML catalogs have two-level names in the form *libref.catalog*. The first-level name, *libref*, is a name assigned to the SAS data library to which the catalog belongs. The second-level name, *catalog*, is the name of the catalog file.

The default libref is initially SASUSER, and the default catalog is IMLSTOR. Thus, the default storage catalog is called SASUSER.IMLSTOR. You can change the storage catalog with the RESET STORAGE command (see the discussion of the RESET statement in Chapter 17, "Language Reference.") Using this command, you can change either the catalog or the libref.

When you store a matrix, IML automatically stores the matrix name, its type, its dimension, and its current values. Modules are stored in the form of their compiled code. Once modules are loaded, they do not need to be parsed again, making their use very efficient.

Catalog Management

IML provides you with all the commands necessary to reference a particular storage catalog, to list the modules and matrices in that catalog, to store and remove modules and matrices, and to load modules and matrices back to IML. The following commands enable you to perform all necessary catalog management functions:

LOAD	recalls entries from storage.
REMOVE	removes entries from storage.
RESET STORAGE	specifies the library name.
SHOW STORAGE	lists all entries currently in storage.
STORE	saves modules or matrices to storage.

Restoring Matrices and Modules

You can restore matrices and modules from storage back into the IML active workspace using the LOAD command. The LOAD command has the general form

LOAD;
LOAD *matrices*;

LOAD MODULE=*module*;

LOAD MODULE=(*modules*);

LOAD MODULE=(*modules*) *matrices*;

Some examples of valid LOAD commands are shown below:

```
load a b c;                       /* load matrices A,B, and C   */
load module=mymod1;               /* load module MYMOD1         */
load module=(mymod1 mymod2) a b; /* load modules and matrices  */
```

The special operand _ALL_ can be used to load all matrices or modules, or both. For example, if you want to load all modules, use the statement

```
load module=_all_;
```

If you want to load all matrices and modules in storage, use the LOAD command by itself:

```
load;                    /* loads all matrices and modules  */
```

The LOAD command can be used with the STORE statement to save and restore an IML environment between sessions.

Removing Matrices and Modules

You can remove modules or matrices from the catalog using the REMOVE command. The REMOVE command has the same form as the LOAD command. Some examples of valid REMOVE statements are shown below:

```
remove a b c;                       /* remove matrices A,B, and C */
remove module=mymod1;                     /* remove module MYMOD1 */
remove module=(mymod1 mymod2) a; /* remove modules and matrices */
```

The special operand _ALL_ can be used to remove all matrices or modules, or both. For example, if you want to remove all matrices, use the statement

```
remove _all_;
```

If you want to remove everything from storage, use the REMOVE command by itself:

```
remove;
```

Specifying the Storage Catalog

To specify the name of the storage catalog, use one of the following general forms of the STORAGE= option in the RESET statement:

RESET STORAGE=*catalog*;
RESET STORAGE=*libref.catalog*;

Each time you specify the STORAGE= option, the previously opened catalog is closed before the new one is opened.

You can have any number of catalogs, but you can have only one open at a time. A SAS data library can contain many IML storage catalogs, and an IML storage catalog can contain many entries (that is, many matrices and modules).

For example, you can change the name of the storage catalog without changing the libref with the statement

```
reset storage=mystor;
```

To change the libref as well, use the statement

```
reset storage=mylib.mystor;
```

Listing Storage Entries

You can list all modules and matrices in the current storage catalog using the SHOW STORAGE command, which has the general form

SHOW STORAGE;

Storing Matrices and Modules

You can save modules or matrices in the storage catalog using the STORE command. The STORE command has the same general form as the LOAD command. Several examples of valid STORE statements are shown below:

```
store a b c;                    /* store matrices A,B, and C    */
store module=mymod1;            /* store module MYMOD1          */
store module=(mymod1 mymod2) a; /* storing modules and matrices */
```

The special operand _ALL_ can be used to store all matrices or modules. For example, if you want to store everything, use the statement

```
store _all_ module=_all_;
```

Alternatively, to store everything, you can also enter the STORE command by itself:

```
store;
```

This can help you to save your complete IML environment before exiting an IML session. Then you can use the LOAD statement in a subsequent session to restore the environment and resume your work.

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