

# What are SAS Libraries and how can they be used in SAS tutorials?

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## RECOMMENDED CITATION

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SAS Libraries are predefined storage locations within the SAS software that contain datasets, programs, and other resources. These libraries serve as a central repository for managing and organizing data and programs, making them easily accessible for analysis and manipulation.

In SAS tutorials, libraries can be used to demonstrate the process of importing and exporting data, creating and modifying datasets, and performing statistical analysis. They provide a structured and efficient approach to learning SAS, allowing users to access and manipulate data without having to manually type in the entire dataset.

Furthermore, SAS Libraries allow users to store and share their own datasets and programs, making it a valuable tool for collaboration and knowledge sharing within a team or organization. By utilizing SAS Libraries in tutorials, users can gain a better understanding of how to effectively manage and utilize data in the SAS environment.

## SAS Libraries

A SAS library is a folder located on a user's disk drive or on the internet that is specially designated for use by SAS. SAS libraries allow users to safely store things like data sets and user-defined formats so that they can be accessed without having to reload or re-read them from an external file every time SAS is started.

If the data you want to work with is already a SAS dataset stored somewhere on your computer, then all you need to do to start working with your data is assign a library name to the location of the dataset. If it is stored as a file other than SAS (Excel, SPSS, text, etc.) then you'll need to help SAS read it with one of the methods described in the next sections of this tutorial. Alternatively, you can create your own data in SAS, which is also covered below.

One or many datasets can be assigned to the same library. A library is assigned a location with a `LIBNAME` statement in SAS. A `LIBNAME` statement is one of those global statements that we mentioned in Section 1 that does not occur in a data step or a proc step. The format of the `LIBNAME` statement is:

```
LIBNAME libref 'Folder path name here';
```

Here the first word (`LIBNAME`) is the SAS keyword that tells it to create a library. The second word (*libref*) is what you name the library. It must be eight or less characters and start with a letter. Finally, the text in quotes is what path name you tell SAS to assign the library to. (This folder must already exist on your computer.) Here is an example `LIBNAME` statement that creates the library named `practice` and assigns it to a folder in the directory 'C:UsersResearchThesis.'

```
LIBNAME practice 'C:UsersResearchThesis';
```

Most SAS users put their `LIBNAME` statements at the beginning of the program, but you can put a `LIBNAME` statement anywhere in the program as long as it comes before you reference a file in that location. You will get an error message if you try to refer to a dataset that has not yet been pointed to in a `LIBNAME` statement. Once a library has been assigned to a location with a SAS dataset, the dataset can be referred to in statements using two parts:

```
libref.SAS-dataset-name
```

The first part of the name (before the period) is the dataset's library assignment. The second part of the name (after the period) is the dataset's name. For example, if we have a dataset named *sample* stored in the folder 'C:UsersResearchThesis', which we've told SAS is the location of our library called *practice*, then we refer to that dataset as

```
practice.sample
```

When you end your SAS session, any libraries that you've defined will be lost. This just means that when you restart SAS, you will need reload the library again in order to access its contents.

## The Work Library

SAS has a built-in temporary library called Work. The Work library is a place to store data you are working on in your current session. Because the Work library is temporary, you will lose any datasets you created and stored in the Work library when you close out of your SAS session.

You do not have to declare the Work library with a `LIBNAME` statement because it is automatically created when you open SAS. Furthermore, you do not have to include it as the libref when you reference a dataset - a dataset named without a libref is assumed to be in the Work library.

A data step that starts with this line:

```
DATA work.StatsRule;
```

is the same as a data step that starts with this line:

```
DATA StatsRule;
```

Both will create a dataset called *StatsRule* in the work library. The *Work* library can be extremely useful when you want to manipulate a dataset with multiple data steps and you don't necessarily want to save the datasets resulting from the interim steps.

The *Work* library can also be helpful if you want to work on your stored dataset, but you are nervous about manipulating the original file - just copy the dataset into the *Work* library and you can manipulate it there. Copying a dataset into the *Work* library is easy:

```
DATA test;  
SET practice.sample;  
RUN;
```

The program above copies the dataset *sample* (which is located in the SAS library called *practice*) into a temporary dataset called *test* (which is located in the *Work* library). Now you can try out some manipulations on your temporary dataset called *test* without altering your original dataset. Once you are sure you've got it right, you can save the dataset back into your permanent library.

## Using Libraries in SAS University Edition or SAS OnDemand for Academics

SAS University Edition and SAS OnDemand for Academics both use the SAS Studio interface. It is possible to use SAS libraries in both of these programs, but because these programs run on "virtual machines", the appropriate file paths for your libraries will be different than if you were using "desktop" SAS.

**If you are using SAS University Edition**, your library file paths will always begin with:

```
/folders/myfolders/
```

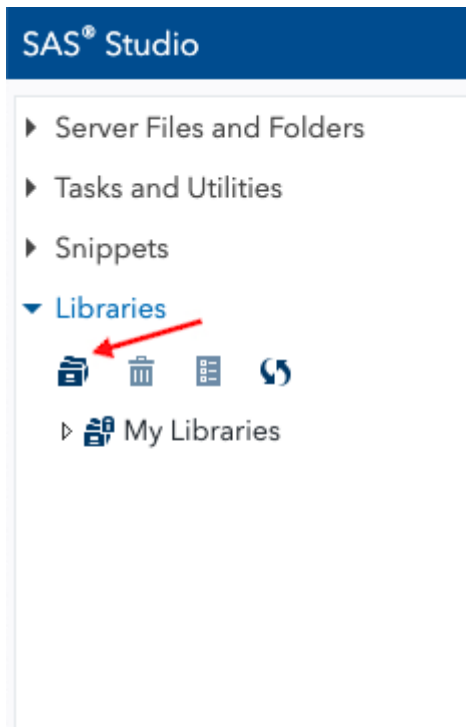
**If you are using SAS OnDemand for Academics**, your library file paths will always begin with:

```
/home/your-user-name/
```

(where *your-user-name* will be replaced with the user name associated with your SAS account)

These programs will not recognize file paths to locations on your computer.

Fortunately, both SAS University Edition and SAS OnDemand for Academics make it easy to set up libraries in your account without necessarily needing to write and execute a LIBNAME declaration. Within the Libraries navigation pane, click on the small filing cabinet icon under "Libraries".



This will open the New Library window:

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**New Library** ×

To create a library for this session, specify these values:

**A** Name:  
practice

**B** Path:  
/folders/myfolders/ Browse

Options:  
LIBNAME options (separated by spaces)

**C**  Re-create this library at start-up  
(adds the library to the SAS autoexec file)

OK Cancel

**AName:** Create a name for the new library.

**BPath:** The directory where the library is located, equivalent to the file path specified in a normal LIBNAME statement. Click the **Browse** button to select the directory to use for this library.

**CRe-create this Library at start-up:** Optional setting for SAS to "remember" this library definition every time you use SAS University Edition. (This means that you wouldn't have to re-run the LIBNAME syntax or re-do the New Library steps the next time you launch SAS University Edition.) For most users, this is a nice convenience, especially if you will be using the same library over many sessions.