SAS® Life Science Analytics Framework

SAS Macro API 2.1
User's Guide

SAS® Life Science Analytics Framework 5.1.x: SAS® Macro API 2.1 User's Guide

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SAS Institute Inc., SAS Campus Drive, Cary, North Carolina 27513.

2nd electronic book, April 2019

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1 CHAPTER Introduction

Audience *1*

Audience

This guide is intended for users who want to access functionality within the SAS Life Science Analytics Framework using macros.

You must be familiar with SAS Life Science Analytics Framework functionality, such as type definitions, contexts, files, and access permissions. For reference information on SAS Life Science Analytics Framework functionality, see the SAS Life Science Analytics Framework online help and User's Guide.

2 CHAPTER Installing the Macros

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Overview

This document describes how to install the SAS Life Science Analytics Framework Macro API, which is distributed in the lsaf-sas-macro-2.1.zip.

Requirements

The SAS Life Science Analytics Framework Macros requires the SAS Life Science Analytics Framework Java API client version 2.1.

Install Macros on Microsoft Windows

1. Follow the instructions in the *Getting Started with the SAS Life Science Analytics Framework Java API* document to install the Java API client. Be sure to note the location of the lib directory. Typically, this location is:

   ```
   C:\lsaf-java-api-client-2.1\lib
   ```

2. Unzip the contents of lsaf-sas-macro-2.1.zip to C:\.

   This creates the following files and folders in C:\:

   - lsaf-sas-macro-2.1\conf

     This folder contains example configuration files.
   - lsaf-sas-macro-2.1\docs

     This folder contains the documentation for the SAS Life Science Analytics Framework Macro API which includes the detailed documentation that describes all macros that are delivered with the distribution.
   - lsaf-sas-macro-2.1\lib

     This folder contains the sas.lsaf.api.macro.jar.
   - lsaf-sas-macro-2.1\sasmacros

     This folder contains the SAS Life Science Analytics Framework macros as .sas files.
3. Determine the location of your SAS installation and the configuration file. In a typical Windows Unicode support installation, **!sasroot** points to:

```
C:\Program Files\SASHome\SASFoundation\9.4\nls\u8
```

4 Back up the file !sasroot\sasv9.cfg.

You will edit in the next step

Caution: Use extreme care when you edit this file, and modify only the indicated text. Ensure that you don not insert any carriage returns in the sas.app.class.dirs option. If you have any questions, concerns, or problems, contact SAS Technical Support.

5 Edit the file **!sasroot\sasv9.cfg** to add the lines near the top of the file, right before the comment box with the "WARNING:" label in it:

/* define the location of the SAS Life Science Analytics Framework Macro API */

-insert sasautos "C:\lsaf-sas-macro-2.1\sasmacros"

/* put both the macro and java api client jars on the classpath */

-JREOPTIONS (-Dsas.app.class.dirs=C:\lsaf-sas-macro-2.1\lib;C:\lsaf-java-api-client-2.1\lib)

/* prevent a classpath not set warning from javaobj */

-SET CLASSPATH !CLASSPATH

6 Save the file and start a new SAS session to verify the installation.

Verify the Installation

In the SAS session, run the following SAS code to display the settings for the JREOPTIONS and to verify that the JRE is configured properly.

This code also verifies that the SAS Life Science Analytics Framework macros are installed and functioning as expected. Replace ***lsaf-instance***, ***lsaf-user-ID***, and ***lsaf-password*** with the values for your instance of the SAS Life Science Analytics Framework.

```
/* verify the JRE settings */
options mprint;
proc javainfo;
run;

/* initiate a connection to SAS Life Science Analytics Framework */
%lsaf_login(lsaf_url=%str(https://lsaf-instance), lsaf_userid=%str(lsaf-user-ID),
lsaf_password=%str(lsaf-password));

/* print version information */
%lsaf_getapiversions();

/* List the contents of a folder in the SAS Life Science Analytics Framework
repository */
%lsaf_getchildren(lsaf_path=%str(<valid container path>));
proc print;
  title "List of Items in <valid container path>";
run;

/* terminate the connection to the SAS Life Science Analytics Framework */
%lsaf_logout();
```

The code generates a list of the contents in the specified container that is in the SAS Life Science Analytics Framework repository.

The SAS log contains information that might be useful for debugging the installation of the SAS Life Science Analytics Framework macros.

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Introduction

The SAS Life Science Analytics Framework SAS Macro API enables you to use familiar SAS macro syntax to act on the content that is in the SAS Life Science Analytics Framework repository and workspace.

Macro Return Codes

After the execution of each macro, the global macro variable _LSAFRC_ contains a return code that indicates the success or failure of the operation. The global macro variable _LSAFMSG_ contains text information that indicates the success or the cause of the failure.

SAS Macro Return Codes:

Value	Explanation
0	The macro executed without error.
-1	The macro executed with an error. See return message for error details.
-100	There is no SAS Life Science Analytics Framework session. This is applicable only when calling a macro from PC SAS.
-500	An unexpected error has occurred.
-999	No return code was set.

Using the Macros

Using the Ampersand Character (&) in URLs

For a macro with a parameter that specifies a URL, such as a macro that sets properties, you cannot embed the ampersand character (&) in the URL. The ampersand character is a special character in SAS. If you embed an ampersand character, SAS attempts to resolve the subsequent text as a macro variable.

The Proper Case for Parameter Values

Although SAS is case insensitive, the parameter values passed to the SAS Life Science Analytics Framework might be case sensitive.

Quoting Parameter Values

To ensure consistent results, it is recommended that parameters of type String be specified one of the string functions, such as %str() or %nrbquote(). Using double quotes results in a SAS system syntax error.