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Start/Stop SAS® LASR Analytic Server using PROC HTTP

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ABSTRACT

As more and more organizations have started to adopt DevOps tools and practices, automating systems and services is the norm to achieve accuracy, reliability and avoid any human errors. Many organizations have integrated their SAS® platform with these tool sets to achieve maximum automation.

In this paper, we will discuss how we can automate start/stop of SAS® LASR Analytic server by making API calls using PROC HTTP.

INTRODUCTION

SAS® LASR Analytic server allows multi-user access to in-memory data. It supports both single machine and distributed computing workloads. This data is consumed by high performance products like SAS® Visual Analytics.

If you administer a SAS® platform with SAS® LASR Analytic server, you might be aware that you need to login to SAS® Visual Analytics Administrator user interface to start the server process. On Linux platform SAS® provides an out-of-the-box startup script "sas.servers" to start and stop SAS® platform services.

OBJECTIVE

Automate and integrate start/stop of SAS® LASR Analytic servers using "sas.servers" script using PROC HTTP.

PRE-REQUIREMENTS

- This code works on/after SAS® Release version 9.4 M6.

- You need to have SAS® LASR Analytic server installed and configured at your site

- Sudo privileges to SAS® Installer account (e.g. "sas") to execute shell script as SAS® LASR Administrator account (e.g. "lasradm") without asking for password

- SAS® Installer account (e.g. "sas") password to copy script files under the SAS® configuration directory

- Home directory exists for SAS® LASR Administrator account (e.g. "lasradm")

- All other SAS® services including Mid-Tier should be running

CONFIGURATION

Login to SAS® Compute server where SAS® LASR Analytic server context has been configured using Installer account (e.g. "sas") and navigate to your SAS® configuration directory (e.g. "/<sasconfig-path>/Lev1")

Download the SAS® program "lasr_ops.sas" and shell script "LASROps.sh" under the configuration directory. Links to GitHub repository are shared below.

Edit the SAS® program "lasr_ops.sas" and provide username and password.

```
%let username=; /* Provide your username here. Mostly lasradm account (LASR Administrator) */

%let pwd=; /* Provide your password here. Its a good practice to encode it using proc pwencode */
```

Edit the shell script "LASROps.sh" and updated the SAS® configuration directory path at your site.

```
/sasconfig/Lev1/SASApp/BatchServer/sasbatch.sh -sysin /sasconfig/Lev1/lasr_ops.sas -set operation $option -log ~/
```

By default, log output is pointed to LASR Administrator's account (e.g. "lasradm") home directory. You can also redirect the log to any location where the user has access.

```
<sasconfig>/Lev1/SASApp/BatchServer/sasbatch.sh -sysin <sasconfig>/Lev1/lasr_ops.sas -set operation $option -log <custom-path>
```

If you have the sudo permission correctly configured you can run below commands to start, stop and check status of the LASR servers.

```
cd <sasconfig>/Lev1

sudo -u lasradm ./LASROps.sh start

sudo -u lasradm ./LASROps.sh stop

sudo -u lasradm ./LASROps.sh status
```

To integrate this batch process into "sas.servers" script you will have to edit out-of-the-box "sas.servers.mid" script. In this script, at the end there is a case statement where you need to add the above command. Replace "/sasconfig/Lev1" path to match at your site.

Note: It's a good practice to take backup of any out-of-the-box file that you change.

Example below:

```
case "$1" in
  start)
     start_servers;
     sudo -u lasradm /sasconfig/Lev1/LASROps.sh $1
     exit $?
     ;;

  stop)
   sudo -u lasradm /sasconfig/Lev1/LASROps.sh $1
     stop_servers;
     ;;

  restart|reload)
     sudo -u lasradm /sasconfig/Lev1/LASROps.sh stop
     stop_servers;
     sleep 15;           # let everything quiesce
     start_servers;
     sudo -u lasradm /sasconfig/Lev1/LASROps.sh start
     exit $?
     ;;

  status)
     server_status;
     sudo -u lasradm /sasconfig/Lev1/LASROps.sh $1
     exit $?
     ;;

  *)
     echo "Usage $0 {$STARTCMD|$STOPCMD|$RESTARTCMD|$STATUSCMD}"
     exit 1;

esac
```

By default, status output is written to a text file "lasr_status.txt" under SAS® LASR Administrator account home directory on Linux based system. If you want to run this code on Windows based system you can modify the location to any path where the user has access to write. Example below:

```
Default:

proc export data=basetable outfile="~/lasr_status.txt" replace;

               putnames=NO;

        run;

Windows:

proc export data=basetable outfile="c:\lasr_status.txt" replace;

               putnames=NO;

        run;
```

FULL CODE

Download the full SAS code and shell script from the below links.

lasr_ops.sas: https://raw.githubusercontent.com/vyasanand/LASROps/master/lasr_ops.sas

LASROps.sh: https://raw.githubusercontent.com/vyasanand/LASROps/master/LASROps.sh

SAMPLE USE CASES

This automation can be useful in SAS environments in scenarios where:

- Maintenance
  - During scheduled maintenance window or system restarts, start/stop of SAS® LASR Analytic servers could be automated using this code
- Environment Monitoring
  - Proactively monitor status of SAS® LASR Analytic servers
  - Auto recover SAS® LASR Analytic servers in case of failure

CONCLUSION

This code is an example on how PROC HTTP can be used to automate SAS® LASR Analytic server operations using APIs. There are other ways to automate start/stop LASR servers using PROC LASR procedure or by enabling autoload option on the LASR library.

Using this approach SAS® LASR Analytic server would start in exactly same way as a user would do via user interface. This helps to automatically trigger any add-on properties like "reload-on-restart", if enabled.

REFERENCES

HTTP Procedure:

https://go.documentation.sas.com/?cdcId=pgmsascdc&cdcVersion=9.4_3.5&docsetId=proc&docsetTarget=n0bdg5vmrpyi7jn1pbgbje2atoov.htm&locale=en

The ABCs of PROC HTTP

https://www.sas.com/content/dam/SAS/support/en/sas-global-forum-proceedings/2019/3232-2019.pdf

What's New in SAS Environment Manager Administration

https://go.documentation.sas.com/?cdcId=bicdc&cdcVersion=9.4&docsetId=evadmfun&docsetTarget=evadmfunwhatsnew26.htm&locale=en#

CONTACT INFORMATION

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