

How to achieve executions from SAS Job Execution with Guest user in SAS Viya 3.5

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ABSTRACT

SAS Viya 3.5 is a new cloud-based version of SAS tools with incredible potential for analytics and reporting. However, there are certain functionalities that are only defined for authenticated users by default, one of which is the ability to execute or launch code through SAS Job Execution from SAS Visual Analytics reports. Although it may sound abstract, we can execute SAS code from SAS Visual Analytics using an object known as Data Driven Content. Currently, this functionality can only be employed by authenticated users within the platform. This paper aims to inform you that, by combining a set of configurations within SAS Viya 3.5, you can expose this functionality in your portals for SAS Visual Analytics reports.

INTRODUCTION

One of the main components in SAS Viya 3.5 is the SAS Job Execution, which allows users to program under SAS code, tasks that can be automated or scheduled, is a powerful component when performing tasks within SAS Visual Analytics reports that require data manipulation under the code scheme that cannot be covered with the elements provided by SAS Visual Analytics.

All these facilities by default can be done with authenticated user, however, it is possible that you want to use these features and potentials in reports exposed to the Web to which they are accessed with guest user.

HOW TO USE JOBS IN SAS VISUAL ANALYTICS?

SAS Viya 3.5 has SAS Visual Analytics 8.5.1 in which the object of study of this paper is centered, one of the elements available when reporting in our CANVA is the Data Driven Content object, by default it allows us to show a listed table of the content of our input source, as well as allowing you to list required fields and apply filters, one of the super useful options of this object is that it allows us to make references to web links, and this is the option that allows us to refer to a Job, and this is achieved by making use of the URL that is the job details option, In relation to this previously Renato Lupi in made an article in SAS Community where he explains how is the integration of SAS Visual Analytics with SAS Jobs via Data Driven Content, in it details how the parameters selected in a report can be passed to the DDC and then processed by the SAS Job in figure 1 describes a little the flow of the process, Internally the DDC object resolves to a Json file with the input information of the variables associated with the DDC, which can be processed as a SAS table.

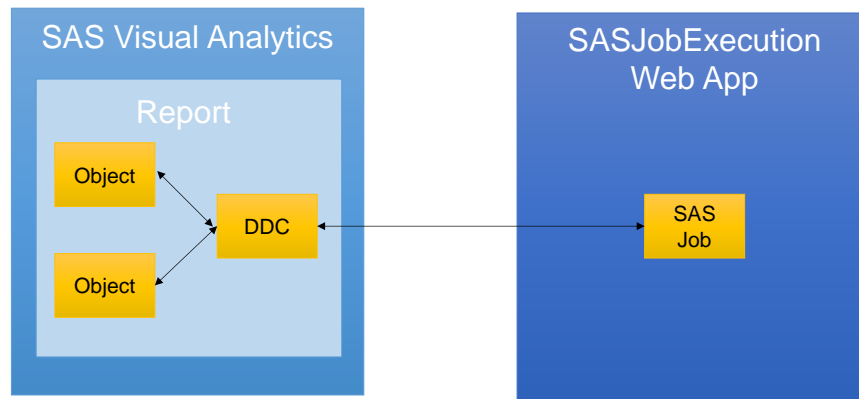


Figure 1. Integration of SAS Job with SAS Visual Analytics (Lupi, Renato. 2020).

It is also possible that this job has an associated form, in it we can complement this powerful component with the use of HTML and JavaScript language that will allow us to give more useful Web answers within our reports

How can the characteristics of the SAS Job be exposed?

By default, the installation of SAS Viya brings rules in the SAS Environment Manager that allow to grant capabilities to the roles and users within the package of installed tools, in this sense, the Guest user after its configuration brings by default rules but associated purely to SAS Visual Analytics means that the facilities provided by SAS Job Execution are not permissible by default in this user, In order to solve this problem, an experiment was made with a report in which it was required that through a button it was possible to download an Excel file with a particular design of several sheets in the same book, based on the selections and filters applied in the report, the design was based on the article by Renato Lupi, with certain adjustments to the code that allowed to design the following report structure: :

Figure 2. Modelo de reporte con integración de SAS Job.

All controls adjust the generated file and is designed conditionally with SAS code depending on the filters applied, at this point the experiment was totally successful with authenticated users, but to allow it to be exposed on the web, a set of configurations were adjusted for it:

1. 50 rules were applied from the SAS Environment Manager to the Guest user as evidenced in Table 1.

ObjectURI	Permissions				Type	Condition
	read	create	update	delete		
/compute/	X				grant	
/compute/commons/settings	X				grant	clientId() == 'sas.jobExecution'
/compute/contexts	X				grant	
/compute/contexts/*	X				grant	
/compute/contexts/*/sessions		X			grant	
/compute/jobs		X			grant	clientId() == 'sas.jobExecution'
/compute/providers/**	X				grant	clientId() == 'sas.jobExecution'
/compute/sessions	X				grant	
/compute/sessions/*/**	X	X	X	X	grant	currentUser() == #session.owner
/compute/sessions/*/data/**	X				grant	currentUser() == #session.owner
/compute/sessions/*/data/**/columns/**	X				grant	currentUser() == #session.owner
/compute/sessions/*/data/**/rows/**	X				grant	currentUser() == #session.owner
/compute/sessions/*/data/**/views/**		X			grant	currentUser() == #session.owner
/files/files	X				grant	
/files/files/**		X	X	X	grant	
/jobDefinitions/definitions/*	X	X			grant	
/jobDefinitions/definitions/**	X				grant	clientId() == 'sas.SASJobExecution'
/jobExecution/**	X	X	X	X	grant	
/jobExecution/jobRequests		X			grant	clientId() == 'sas.SASJobExecution'
/jobExecution/jobRequests	X				grant	
/jobExecution/jobRequests/*	X		X	X	grant	currentUser() == #jobRequest?.createdBy
/jobExecution/jobRequests/*/jobs	X				grant	clientId() == 'sas.SASJobExecution'
/jobExecution/jobRequests/*/jobs		X			grant	currentUser() == #jobRequest?.createdBy
/jobExecution/jobs	X				grant	
/jobExecution/jobs/**	X		X	X	grant	
/jobExecution/jobs/**		X			grant	
/jobExecution/jobs/*/state/**		X			grant	
/jobExecution/providers/**	X				grant	clientId() == 'sas.SASJobExecution'
/launcher/	X				grant	clientId() == 'sas.jobExecution'
/launcher/contexts	X				grant	clientId() == 'sas.jobExecution'

ObjectURI	Permissions				Type	Condition
	read	create	update	delete		
/launcher/contexts/*	X				grant	clientId() == 'sas.jobExecution'
/launcher/processes	X	X			grant	clientId() == 'sas.jobExecution'
/launcher/processes/*				X	grant	currentUser() == #process?.createdBy
/launcher/processes/*/exitCode	X				grant	clientId() == 'sas.jobExecution'
/launcher/processes/*/port			X		grant	currentUser() == #process?.createdBy
/launcher/processes/*/state	X				grant	clientId() == 'sas.jobExecution'
/launcher/processes/*/state			X		grant	currentUser() == #process?.createdBy
/notifications/	X				grant	
/notifications/notifications	X				grant	
/notifications/notifications/*/**	X		X	X	grant	currentUser() == #notification.recipientId
/SASJobExecution/	X	X			grant	
/SASJobExecution/csrf/**	X	X			grant	
/SASJobExecution/debug/	X				prohibit	
/SASJobExecution/form/**	X	X			grant	
/SASJobExecution/guest/	X				grant	
/SASJobExecution/jobs/**	X	X			prohibit	
/SASJobExecution/prompts/**	X	X			grant	
/SASJobExecution/session/**	X	X			grant	
/SASJobExecution/theme/**	X	X			grant	
/SASJobExecution/user/**	X	X			grant	

Table 1. Reglas de configuración de SAS Jobs para usuario Guest

2. To allow executions without authenticated users it was necessary to create a service account taking into account the following steps:
 - a. Create a profile with the following command lines

```
sas-admin profile init
./sas-admin -k auth login -user username --password writeword
```
 - b. Create service account

```
./sas-admin -k compute credentials create
Userid> account_service (debe estar en directorio activo)
Password> contraseña (debe ser la misma que directorio activo)
Description> AccountService
```
 - c. Validate creation

```
./sas-admin -k compute credentials list
```
 - d. In SAS Environment Manager perform the following configurations:
 - o Access "Contexts" and select in Vista initially "Launcher Contexts" and then "SAS Job Execution Compute Context".

- Select from the list "SAS Job Execution Launcher Context" click on the edit icon.
- Add the environment variables as shown in Figure 3, taking into account the service account.

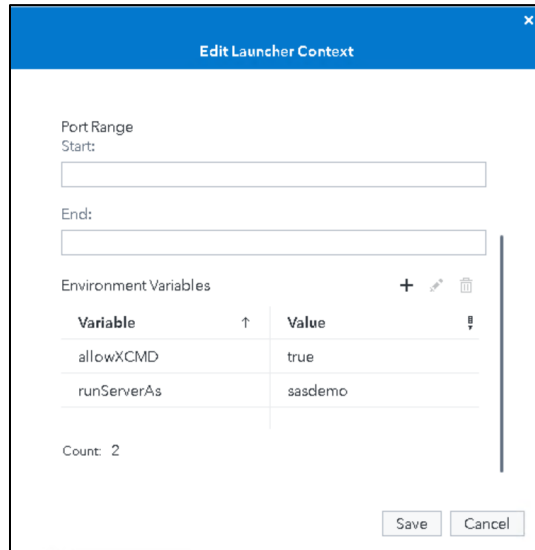


Figure 3. Configuración de variables de ambiente.

3. Configure Sandbox options, and although it does not correspond to functionality characteristics of the Job, by default it does not allow the generation and interaction with files and external links in the report:
 - a. Access SAS Environment Manager.
 - b. Access "Configuration" and select "Definitions" in View.
 - c. Filter "SAS Visual Analytics".
 - d. Filter "sas.visualanalytics" or "sandbox".
 - e. Edit option "IFrame Sandbox Attribute Value" to allow-forms allow-downloads allow-presentation allow-same-origin allow-scripts allow-popups allow-popups-to-escape-sandbow.

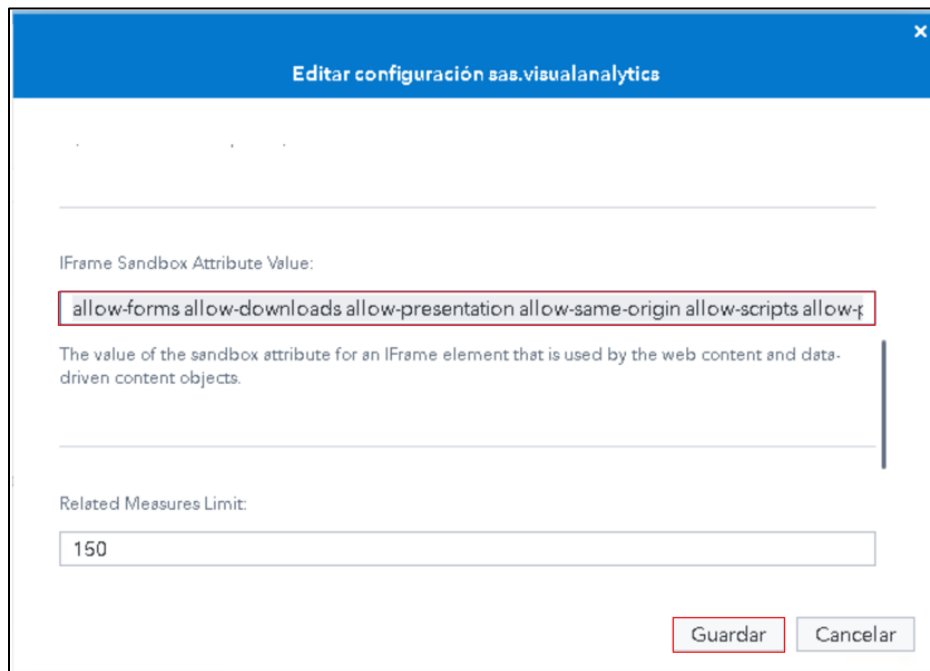


Figure 4. Configuración de sandbox en SAS Visual Analytics.

All these configurations made it possible to expose the report to external users, successfully allowing the generation of Excel files required by the end user, which also showed that there are endless possibilities to not only create buttons but any number of processes in SAS code..

¿Es posible trabajar reportes embebidos con SAS Job?

The answer to this question is yes, as long as the enabling of rules and permissions on which the Guest user interacts are taken into account, all this task is possible, however, because by default in mobile devices SAS makes a redirection to the download of the App, we must have certain considerations when embedding the object:

1. The functionality of interacting with external files in the browser is not allowed, i.e. the configured sandbox option has no effect on embedded reports using SDK.
2. The use of embedding with should be considered `<iframe>` to achieve the full functionality of the report, it is advisable to make use of the following structure in our embedded:

```
<iframe scrolling="no"
  src="https://hostname/SASVisualAnalytics/?reportUri=XXXX&sso_guest=true
  &reportViewOnly=true&reportContextBar=false
  &sas-welcome=false&appSwitcherDisabled=true" >
</iframe>
```

CONCLUSION

Being able to incorporate DDC objects into a SAS Visual Analytics report with SAS Jobs leaves a world of options that will allow the end user to interact with the data, and even launch statistical procedures not available within the usual reporting functions..

REFERENCES

Lupi, Renato. 2020. *Introduction to Integration of SAS Visual Analytics with SAS Jobs via Data-Driven Content-Part 1*. SAS Community. Available at <https://communities.sas.com/t5/SAS-Communities-Library/Introduction-to-Integration-of-SAS-Visual-Analytics-with-SAS/ta-p/670823>.

CONTACT INFORMATION

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