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## Using SAS® for Generating and Sending Certificates by Email

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## ABSTRACT

This paper shows a %certificate macro to create a basic structure of a certificate and then send it by email in a pdf format. Before to use the %certificate macro, it is required only a list (or a file) with the name and email of the participants.

## INTRODUCTION

After the conclusion of a course or a presentation, it is interesting to send to participants the certificate of conclusion or of attendance. In general, these certificates follow a standard format, with the name of the institution, the course, the name of the participant, number of training hours, date and the name/signature of the chair/instructor. In addition, they are **exactly the same, except by the participant's name. So, this paper aims to show a SAS macro named %certificate to create and send to participants by email the certificate in pdf format.**

## SAS MACRO

The SAS Macro basically uses DATA STEPS and PROC GANNO and it has only one parameter (local=), which is the path of the file.

```
%macro certificate(local=);
options nodate nonumber leftmargin=1cm rightmargin=1cm topmargin=1cm
bottommargin=1cm papersize=A4 orientation=landscape;

%do i=1 %to &n;
ods pdf file="&local\certificate &&name&i...pdf" style=printer;

data text;
length function style $30. color $6. text $150.;
retain line 1 xsys ysys '2' hsys '3' x 8;
function='label';color='black';position='5';style="'Bradley Hand
ITC';size=4.3;x=50;y=70;
text="The Department of Statistics of the University of
Brasilia";output;
text="certify that &&name&i has successfully
completed";x=50;y=65;output;
text="course of study,";x=50;y=60;output;
text="with 4 hours which took place";x=50;y=55;output;
text="from xx to yy May 20xx in University of Brasilia
.";x=50;y=50;output;
text="Brasilia, May xx 20xx";x=50;y=35;output;
text="_____";style="'Times New
Roman';size=3.5;x=50;y=21;output;
text="Prof. Alan Ricardo da
Silva";style="'Mistral';x=50;y=17.5;output;
text="Instructor";x=50;y=14.5;output;
x=38; y=19; function='move';imgpath="&local\signature.jpg";output;
x=60; y=26; imgpath="&local\signature.jpg";style =
'fit';function='image';output;
run;
```



```

data database;set database;
call symput('name' || trim(left(_n_)),trim(left(upcase(name))));
call symput('email' || trim(left(_n_)),trim(left(email)));
run;
%put &name1 &email1;

```

And PROC SQL can be used to create a macro variable with the number of participants of the database. The %certificate macro uses a looping to create and send the certificates by email to participants:

```

proc sql noprint;
select count(*) into:n from database;
quit;
%put &n;

```

## ILLUSTRATION

To illustrate the use of the %certificate macro, let us use the data presented before and we can just call the macro with the path, for example:

```

%let local=C:\Papers_ALAN\GLOBALSAS\2020;
%certificate(local=&local);

```

Figure 1 shows the certificate created by the %certificate macro for the first line of the data set. Note that I am using a background image and the instructor signature, which has been scanned and saved as a JPG file. Of course, the content of the certificate can be changed and the signature can be deleted.



Figure 1. Example of a certificate in a pdf format

Figure 2 shows the SAS log with the information about the EMAIL statement and Figure 3 shows the screen of the email received.

```
NOTE: The file MYFILE is:
      E-Mail Access Device

Message sent
  To:          "djalan@bol.com.br"
  Cc:
  Bcc:
  Subject:     Certificate of Completion
  Attachments: "C:\Papers_ALAN\GLOBALSAS\2020\certificate
ALAN DA SILVA.pdf"
NOTE: 4 records were written to the file MYFILE.
      The minimum record length was 1.
      The maximum record length was 88.
NOTE: DATA statement used (Total process time):
      real time          3.15 seconds
      cpu time           2.84 seconds
```

Figure 2. Log showing the message sent

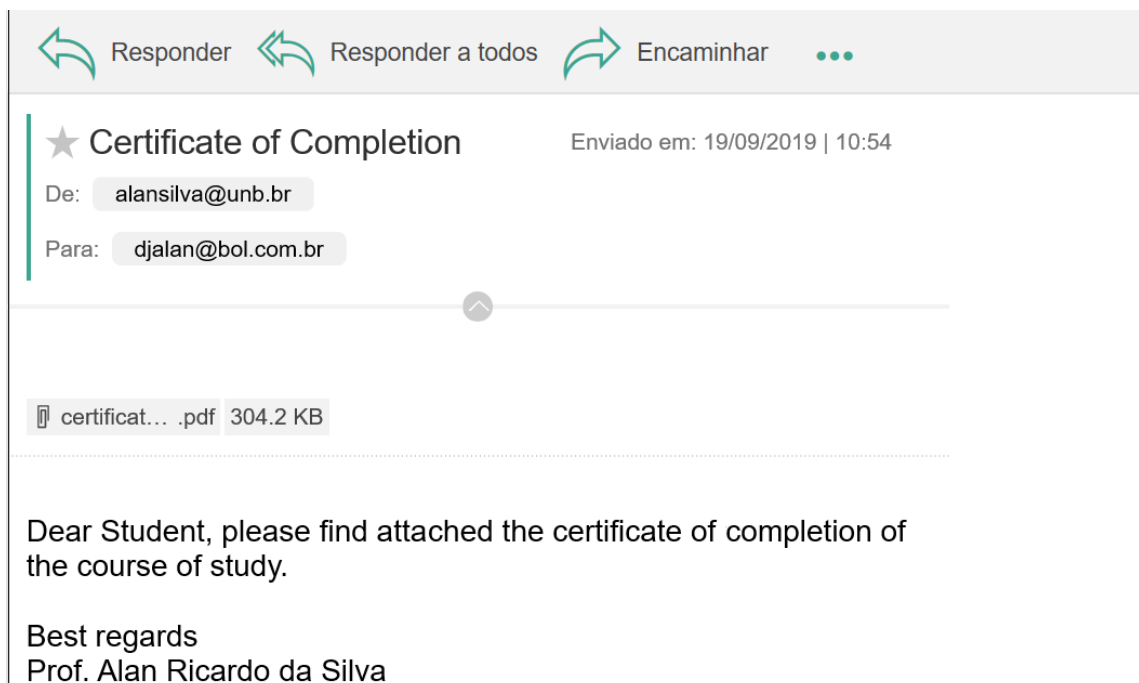


Figure 3. Email received

## CONCLUSION

This paper shows a simple way to create a certificate and send it by email to any number of participants. The certificate can have a background image and the signature of the instructor, facilitating its design.

## CONTACT INFORMATION

Your comments and questions are valued and encouraged. Contact the author at:

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Web: [www.est.unb.br](http://www.est.unb.br)

## APPENDIX I – SAS MACRO

```
%let local=C:\Papers_ALAN\GLOBALSAS\2020;

options reset=all iback="&local\template.PNG" imagestyle=fit border;

options noemailfrom emailsys=smtp emailhost=SMTP emailauthprotocol=login
emailport=PORT emailid="e-mail" emailpw="password";

data database;
input name $1-37 email $38-66;
cards;
Alan da Silva                                djalan@bol.com.br
YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY          yyy@email.com
zzzzzzzzzzzzzzzzzzzzzzzzzzzzzzzzzzzzzzzz zzz@email.com
;

data database;set database;
call symput('name' || trim(left(_n_)),trim(left(upcase(name))));
call symput('email' || trim(left(_n_)),trim(left(email)));
run;
%put &name1 &email1;

proc sql noprint;
select count(*) into:n from database;
quit;
%put &n;

%macro certificate(local=);
options nodate nonumber leftmargin=1cm rightmargin=1cm topmargin=1cm
bottommargin=1cm papersize=A4 orientation=landscape;

%do i=1 %to &n;
ods pdf file="&local\certificate &&name&i...pdf" style=printer;

data text;
length function style $30. color $6. text $150.;
retain line 1 xsys ysys '2' hsys '3' x 8;
function='label';color='black';position='5';style="'Bradley Hand
ITC'";size=4.3;x=50;y=70;
text="The Department of Statistics of the University of Brasilia";output;
text="certify that &&name&i has successfully completed";x=50;y=65;output;
text="course of study,";x=50;y=60;output;
text="with 4 hours which took place";x=50;y=55;output;
text="from xx to yy May 20xx in University of Brasilia .";x=50;y=50;output;
text="Brasilia, May xx 20xx";x=50;y=35;output;
text="_____";style="'Times New
Roman'";size=3.5;x=50;y=21;output;
text="Prof. Alan Ricardo da Silva";style="'Mistral'";x=50;y=17.5;output;
text="Instructor";x=50;y=14.5;output;
x=38; y=19; function='move';imgpath="&local\signature.jpg";output;
x=60; y=26; imgpath="&local\signature.jpg";style =
'fit';function='image';output;
run;

proc ganno anno=text;run;
ods pdf close;
```

```
filename myfile email
to= "&&email&i"
subject= "Certificate of Completion"
attach="&local\certificate &&name&i...pdf";
data _null_;
file myfile;
put "Dear Student, please find attached the certificate of completion of the
course of study.";
put " ";
put "Best regards";
put "Prof. Alan Ricardo da Silva";
run;

%end;
%mend certificate;
```