

For Coders Only: The SAS® Enterprise Guide® Experience

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ABSTRACT

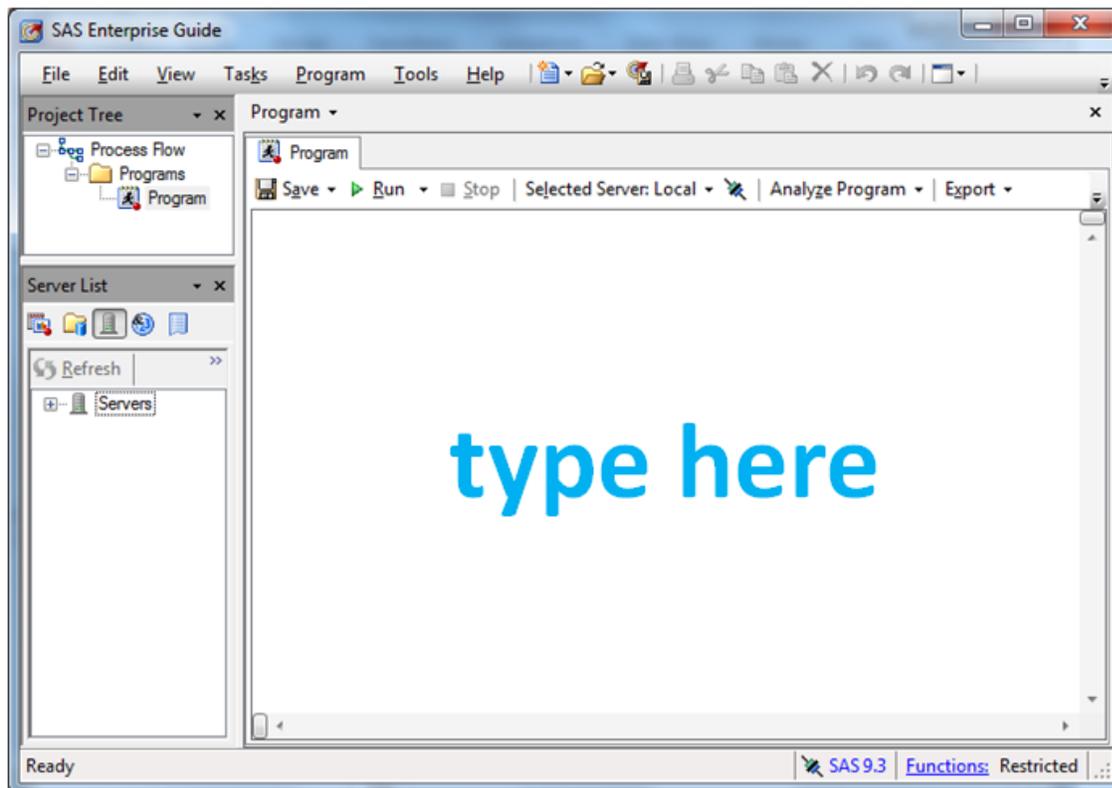
“No way. Not gonna happen. I am a real SAS® programmer.” (Spoken by a Real SAS Programmer.) SAS® Enterprise Guide® sometimes gets a bad rap. It was originally promoted as a code generator for non-programmers. The truth is, however, that SAS Enterprise Guide has always allowed programmers to write their own code. In addition, it offers many features that are not included in PC SAS®.

INTRODUCTION

There are many papers on the many features of SAS Enterprise Guide, but many do not focus on writing SAS code. Experienced SAS Programmers often think that SAS Enterprise Guide is only for people who do not know how to code. This paper describes ten features of interest to people who like to write code but have not used SAS Enterprise Guide.

1. WRITING CODE

SAS Enterprise Guide makes it quick and easy to write code: **File > New > Program**:



Display 1. New SAS program

You can also click the New icon  and select **Program**.

A blank Program tab opens. Start typing SAS code as usual.

Go to **Program > Editor Options...** to customize settings.

2. RUNNING SHORTCUTS

SAS Enterprise Guide includes many shortcuts specifically for programmers. Some of those shortcuts include:

Shortcut	Action
Ctrl+/ 	Comment line
Ctrl+Shift+F	Display formats
Ctrl+Shift+I	Display informats
Ctrl+Shift+F1	Display functions
Ctrl+Shift+F2	Display macro functions
Ctrl+L	Display libraries

Function Key	Action
F3 or F8	Run program (or selection)
F1	Help

Table 2. Select keyboard shortcuts and function keys

Go to **Program > Enhanced Editor Keys...** to see all shortcuts.

SAS Enterprise Guide also lets you define your own shortcuts via keyboard macros. You can write them from scratch: **Program > Editor Macros > Macros > Create...** Highlight any item in the Commands box and click the arrow to add.

It can be easier to use the macro record feature to see how things work: **Program > Editor Macros > Record New.** Perform any desired actions and then turn off macro recording with **Program > Editor Macros > Stop Recording.**

You are prompted for a keyboard macro name and macro description (optional). You can also assign a shortcut to run the keyboard macro. Go to **Program > Editor Macros > Macros > Edit...** to view or modify a keyboard macro.

Create keyboard macros for your common editing tasks. For example, to delete a line, repeat a line, or select a step.

3. USING VISUALS

SAS Enterprise Guide includes visual cues that are useful to coders. In the Program tab, for example:

```

*1. No WARNING or ERROR;
data temp;
set sashelp.class;
where sex='F';
run;

*2. WARNING;
proc print data=temp;
var age;
title 'PRINT of Females';
run;

```

- Program* = not saved
- Program = saved
- Program = WARNING
- Program = ERROR

Display 3. Program tab

Use visuals for instant information—but you should still always inspect your SAS Log carefully!

4. VIEWING DATA SETS

SAS Enterprise Guide makes it easy to view SAS data sets. Click on the Output Data tab:

	 Name	 Sex	 Age	 Height	 Weight
1	Alfred	M	14	69	112.5
2	Alice	F	13	56.5	84
3	Barbara	F	13	65.3	98
4	Carol	F	14	62.8	102.5
5	Henry	M	14	63.5	102.5
6	James	M	12	57.3	83
7	Jane	F	12	59.8	84.5
8	Janet	F	15	62.5	112.5
9	Jeffrey	M	13	62.5	84
10	John	M	12	59	99.5
11	Joyce	F	11	51.3	50.5
12	Judy	F	14	64.3	90
13	Louise	F	12	56.3	77
14	Mary	F	15	66.5	112
15	Philip	M	16	72	150
16	Robert	M	12	64.8	128
17	Ronald	M	15	67	133
18	Thomas	M	11	57.5	85
19	William	M	15	66.5	112

Display 4a. Output Data tab

 indicates a character variable

 indicates a numeric variable

 indicates a date variable (any variable with a SAS date format assigned)

Roll over any column header to display the variable type, length, and label.

(You can view any SAS data set in any library from the Server List window displayed on the lower left by default. Click on Servers, the server name (or Local for PC SAS), then Libraries, any library, and double-click on any SAS data set.)

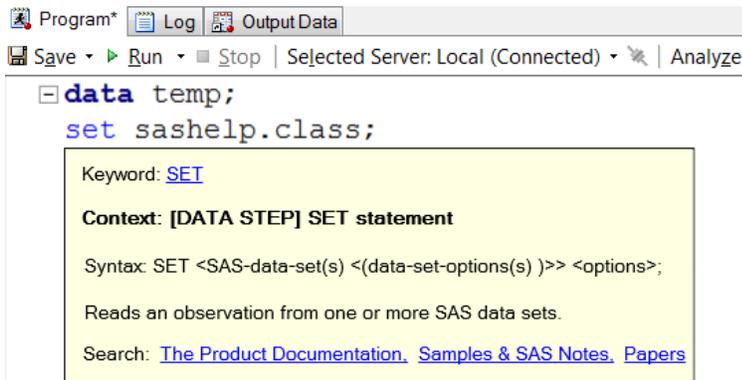
Click the Properties icon  on the upper right and General, Columns, Advanced, and Summary to display metadata. No PROC CONTENTS required:

Name	Type	Length	Format	Informat	Label
Name	Character	8			
Sex	Character	1			
Age	Numeric	8			
Height	Numeric	8			
Weight	Numeric	8			

Display 4b. Data set properties

5. GETTING HELP

SAS Enterprise Guide makes it simple to get help. Roll the mouse over any keyword (e.g., SET) and pause:



Display 5. Help and hyperlinks

Click on any of the hyperlinks for more information:

The first hyperlink ([SET](#)) searches support.sas.com

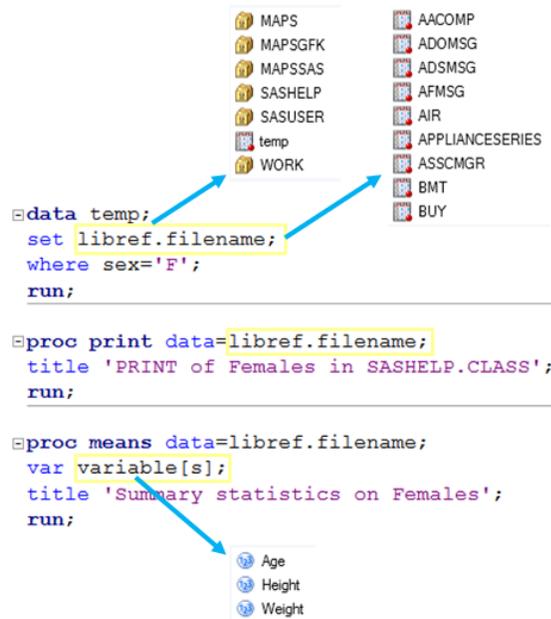
[The Product Documentation](#) searches online documentation

[Samples & SAS Notes](#) searches sample code and SAS Notes

[Papers](#) searches technical papers and conference proceedings

6. USING AUTOCOMPLETE

SAS Enterprise Guide suggests ways to complete keywords as you type. It also suggests options, librefs, data set names, variables, and macro variables:



Display 6a. Autocomplete suggestions

Accept a suggestion by typing the Space, Enter, or Tab key or specific symbols. (See Display 6c.)

Alternately, keep typing to ignore suggestions.

Autocomplete also walks you through function arguments step by step and displays context-specific options:

```
data temp2;
set sashelp.class;
first_initial=substr(
```

▲ 1 of 2 ▾ SUBSTR(string, position<, length>)
string:
Specifies a character constant, variable, or expression.

```
proc freq data=temp
tables age*sex/
```

PROC FREQ statement options

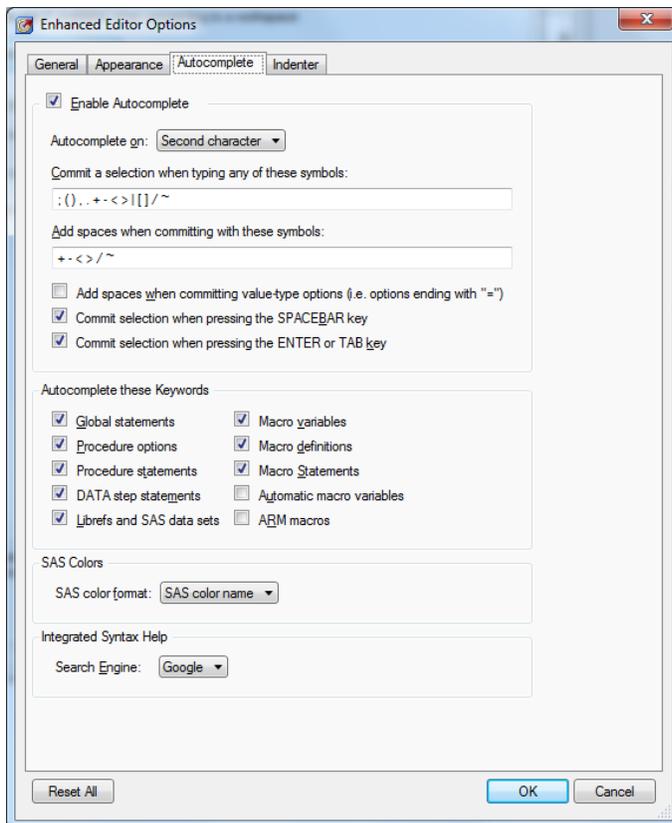
- COMPRESS
- FORMCHAR(1,2,7)=
- FORMCHAR=
- NLEVELS
- NOPRINT
- ORDER=
- PAGE

TABLES statement options

- AGREE
- ALL
- ALPHA=
- BDT
- BINOMIAL
- BINOMIALC
- CELLCHI2
- CHISQ
- CL

Display 6b. Function help, PROC options, and statement options

Customize settings with **Program > Editor Options... > Autocomplete tab:**



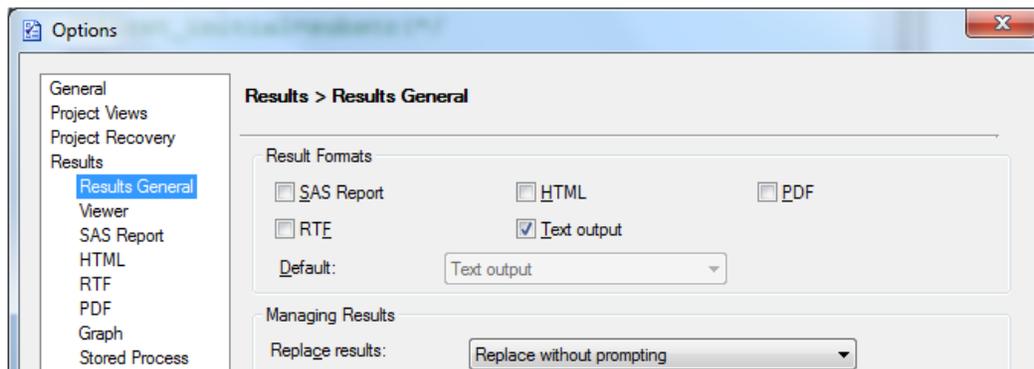
Display 6c. Autocomplete settings

You can try using Autocomplete on Third character via the drop-down or turn off autocomplete for types of Keywords by unchecking specific boxes.

Recommendation: give Autocomplete a try. It is easy to ignore when you do not need it but invaluable for reminders. Note that you can roll over suggestions (e.g., PROC options) to get additional help.

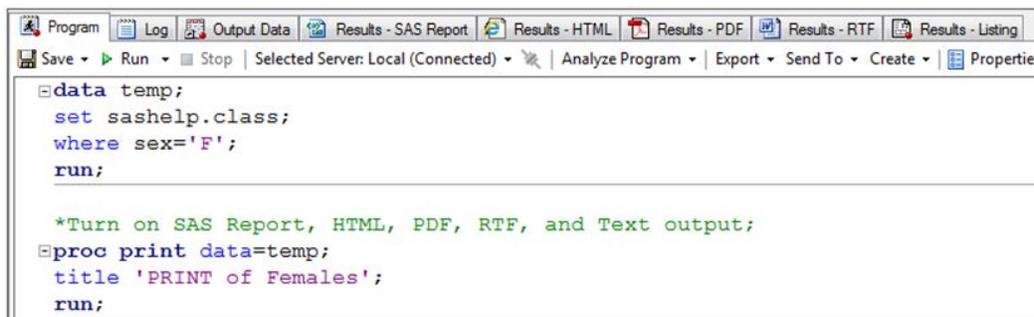
7. FORMATTING RESULTS

SAS Enterprise can produce results in different formats: **Tools > Options... > Results General:**



Display 7a. Result Formats

The default result format is SAS Report. Check one or more boxes; SAS “publishes” the results to each destination:



Obs	Name	Sex	Age
1	Alice	F	13
2	Barbara	F	13
3	Carol	F	14
4	Jane	F	12
5	Janet	F	15
6	Joyce	F	11
7	Judy	F	14
8	Louise	F	12
9	Mary	F	15

Display 7b. Multiple Result Formats

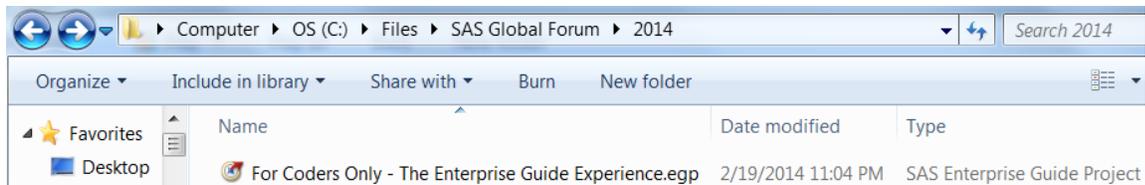
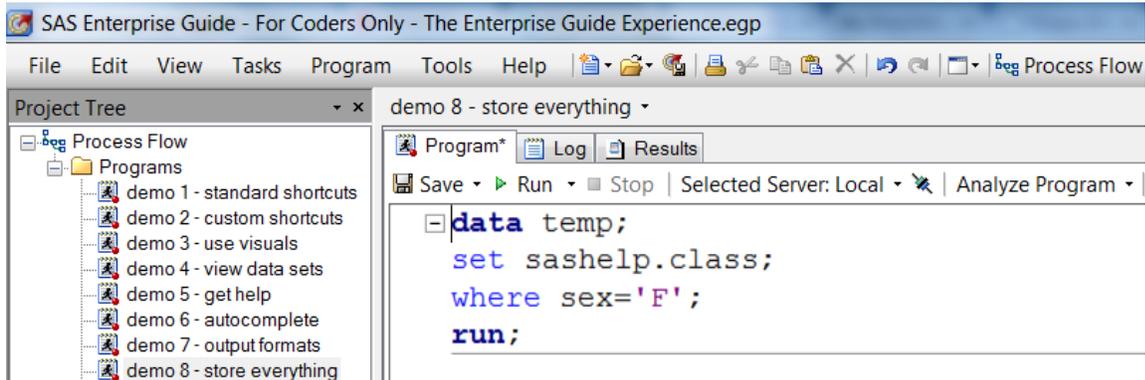
Choose a style with **Tools > Style Manager...** (optional).

There is a separate tab for each result format. Note that producing results as Text output is usually the fastest. More than one result format can be checked, but it takes time to publish to multiple destinations.

Output will be sent to all open destinations. You can programatically save respective output to specific destinations or write to external files with ODS *destination* statements.

8. STORING EVERYTHING

SAS Enterprise Guide saves the Program, Log, and Results as a single file: **File > Save Project As...**:



Display 8. Saving a project

Alternately, click the Save Project button  to save the current project.

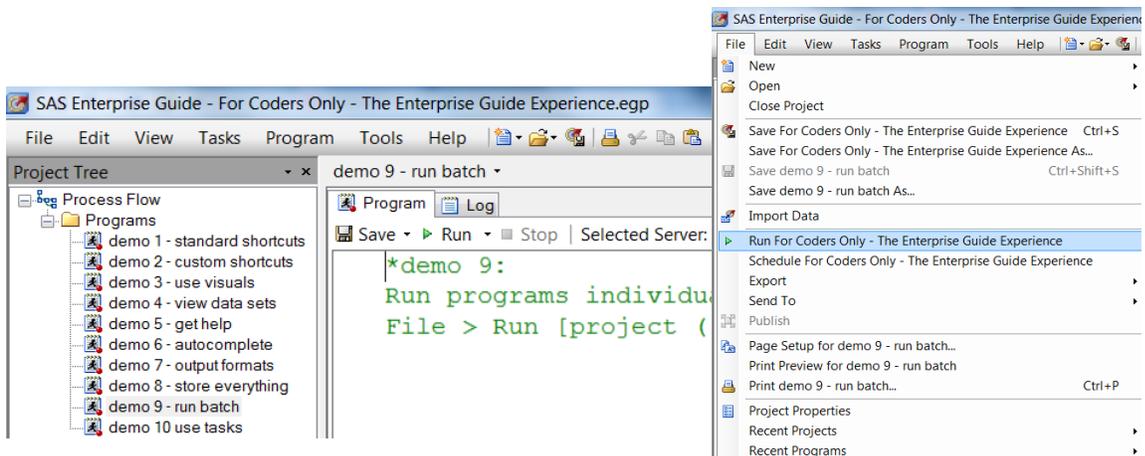
Everything except SAS data sets is saved in a single Enterprise Guide Project (.EGP) file. Temporary data sets are available during the SAS Enterprise Guide session but deleted when it is closed. Permanent data sets are stored outside of the project file in the location specified in your code.

9. RUNNING "BATCH"

SAS Enterprise Guide can store *multiple* Program, Log, and Results in a single Enterprise Guide Project file.

Click on a Program in the Project Tree window (displayed on the upper left by default) to view any given set of Program, Log, and Results.

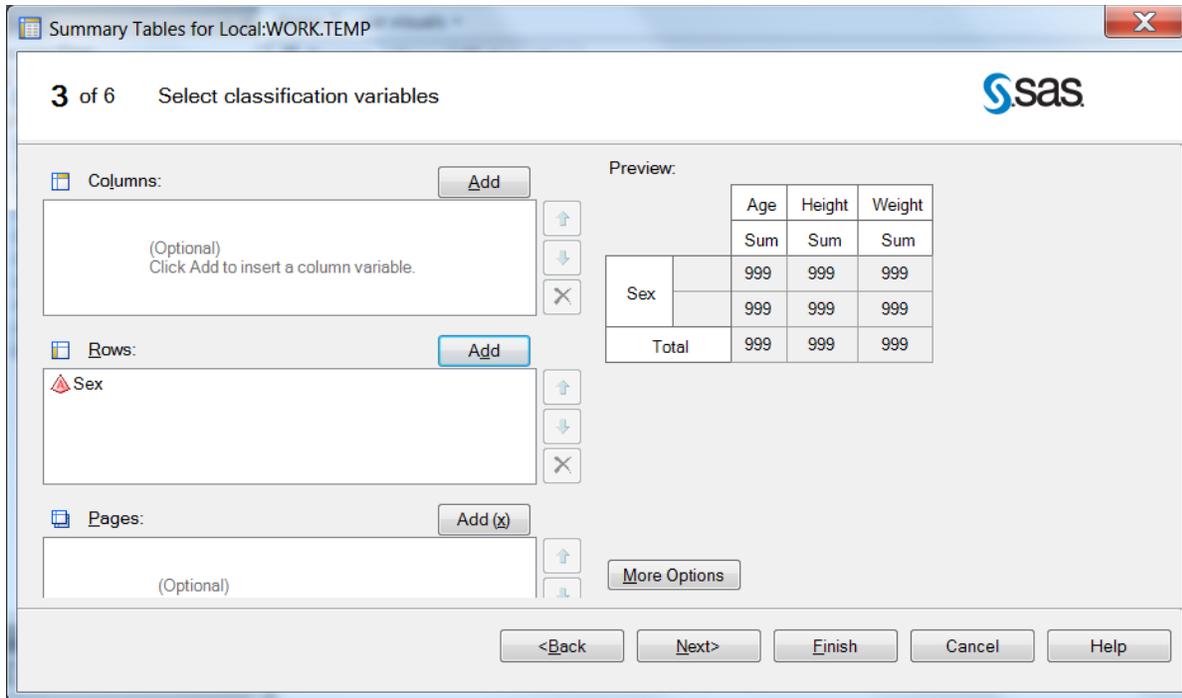
Storing multiple programs in a single Enterprise Guide Project file allows you to organize a series of related programs to run in a specific sequence. You can run individual programs, especially while they are still being debugged, and then run the entire project (i.e., all programs) with **File > Run project name**:



Display 9. Running multiple programs

10. USING TASKS

SAS Enterprise Guide includes tasks that generate code. While SAS programmers prefer to write their own code, tasks are useful to explore new or infrequently used procedures step by step. For example: **Tasks > Describe > Summary Tables Wizard...**



Display 10a. Summary Tables wizard

Note that the wizard supplies a helpful preview of what the table will look like. When finished, click the Code tab:

```

/* -----
   Run the tabulate procedure
   ----- */
PROC TABULATE
  DATA=WORK.TEMP

  ;

  VAR Age Height Weight;
  CLASS Sex / ORDER=UNFORMATTED MISSING;
  TABLE
    /* ROW Statement */
    Sex
    all = 'Total' ,
    /* COLUMN Statement */
    (Age * Sum={LABEL="Sum"} Height * Sum={LABEL="Sum"} Weight * Sum={LABEL="Sum"} )
  ;

RUN;
/* -----
   End of task code.
   ----- */
RUN; QUIT;
TITLE; FOOTNOTE;

```

Display 10b. Generated code

SAS Enterprise Guide generates documented code that can be used as-is or edited as needed. You are still a coder!

CONCLUSION

SAS Enterprise Guide helps SAS programmers write, save, run, and organize SAS programs. Check it out, try it out, and see which features are most helpful to you.

CONTACT INFORMATION

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

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