

SAS® GLOBAL FORUM 2017

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Localized Messages

Make your SAS applications ready for any language

USERS PROGRAM



Localized Messages: Make your SAS applications ready for any language

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ABSTRACT

- STRING EXTERNALIZATION makes SAS applications speak multiple languages
- String externalization is the process of identifying and separating translatable strings from your SAS program

- Steps of string externalization:
 1. Identify and separate translatable strings from your SAS program
 2. Create EXCEL spreadsheets for messages
 3. Convert non-ASCII characters
 4. Create SMD files
 5. Create final SAS dataset

STRING EXTERNALIZATION PROCESS

STEP 1: CREATE EXCEL SPREADSHEETS FOR MESSAGES

- Move translatable strings to one or more spreadsheets in Excel
- Create one Key column and one English text column in the spreadsheets:
- Add a column for each additional language text
- English language message is a default message

STEP 2: IMPORT THE EXCEL SHEETS AND COVERT NON-ASCII CHARACTERS

- Use PROC Import, or assign a libref using Excel engine to import from EXCEL message spreadsheets
- All characters that cannot be expressed as 7-bit ASCII must be represented with UNICODE escape sequence
- The ‘UESC’ option in KPROPDATA function converts unprintable characters using a UNICODE escaped string

STEP 3: CREATE SMD FILES

- Create one text file with SMD extension for each localized language
- Each message occupies a row. An equal sign links the key and the message text
- Each file shares the same base name with the English message file
- Missing messages will be ignored and shall not be included in the text file

STEP 4: CREATE THE FINAL SAS DATASET

- The dataset can be created with the %SMD2DS macro function

RESULTS





Input: Excel message file

	B	C	D	E
1	KEY	ENGLISH	FRENCH	Spanish_Mexico
2	00-1	Hello %#1s! Today's date is %#2s.	Bonjour %#1s! Aujourd'hui nous sommes le %#2s.	
3	00-2	ERROR: Weight variable cannot have any other role assigned to it in the same table	ERROR: Variable pondérée ne peut pas avoir d'autre rôle lui est attribué par la même table	ERROR: Variable de peso no puede tener ninguna otra función asignada en la misma tabla
4	00-3	ERROR: %s variable must have at least one group	ERROR: %s variable doit avoir au moins un groupe	ERROR: Variable de %s debe tener al menos un grupo
5	00-4	ERROR: The variance method is supplied but BootStrap prefix <%s> is invalid	ERROR: La méthode de variance est fournie, mais le préfixe BootStrap <%s> est invalide	
6	00-5	ERROR: Input library libref <%s> is not assigned.	ERROR: bibliothèque d'entrée libref <%s> n'est pas affecté.	

Intermediary: French SMD file

```
00-1 = Bonjour %#1s! Aujourd'hui nous sommes le %#2s.
00-2 = ERROR: Variable pondérée ne peut pas avoir d'autre rôle lui est attribué par la même table
00-3 = ERROR: Niveau variable doit avoir au moins un groupe
00-4 = ERROR: La méthode de variance <&erroritem> fourni n'est pas valide. <BOOTSTRAP> Seulement est acceptée
00-5 = ERROR: bibliothèque d'entrée libref <&InLibref> n'est pas affecté.
```

Output: Dataset generated with the original Excel message file

	 locale	 key	 lineno	 text
1	en	00-1	1	Hello %#1s! Today's date is %#2s.
2	en	00-2	1	ERROR: Weight variable cannot have any other role assigned to it in the same table
3	en	00-3	1	ERROR: %s variable must have at least one group
4	en	00-4	1	ERROR: The variance method is supplied but BootStrap prefix <%s> is invalid
5	en	00-5	1	ERROR: Input library libref <%s> is not assigned.
6	es_MX	00-2	1	ERROR: Variable de peso no puede tener ninguna otra funci��n asignada en la misma tabla
7	es_MX	00-3	1	ERROR: Variable de %s debe tener al menos un grupo
8	fr	00-1	1	Bonjour %#1s! Aujourd'hui nous sommes le %#2s.
9	fr	00-2	1	ERROR: Variable pond��e ne peut pas avoir d'autre r��le lui est attribu�� par la m��me table
10	fr	00-3	1	ERROR: %s variable doit avoir au moins un groupe
11	fr	00-4	1	ERROR: La m��thode de variance est fournie, mais le pr��fixe BootStrap <%s> est invalide
12	fr	00-5	1	ERROR: biblioth��que d'entr��e libref <%s> n'est pas affect��.

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Message retrieval

```
option locale=en_ca;
```

```
%PrintMessage
```

```
"Hello Steve! Today's date is May 26."
```

ERROR: Weight variable cannot have any other role assigned to it in the same table

```
option locale=fr_ca;
```

```
%PrintMessage
```

```
"Bonjour Steve! Aujourd'hui nous sommes le 26 mai 2015."
```

ERROR: Variable pondérée ne peut pas avoir d'autre rôle lui est attribué par la même table

```
option locale=es_mx;
```

```
%PrintMessage
```

```
"Hello Steve! Today's date is 26 de mayo de 2015."
```

ERROR: Variable de peso no puede tener ninguna otra función asignada en la misma abla

REAL-WORLD EXAMPLE

- Programmers only provide one language
- *key* macro variable: display the unique key in the message
- *_gestMacroName* macro variable: name of the calling macro

1	Key	English	French
2	SAE-001	[&key..&_gestMacroName] Method=%#1s is not valid when SampleEstimateType=%#2s and SmoothingMethod=%#3s.	
3	SAE-002	[&key..&_gestMacroName] Some values of ParameterType are not %#1s.	
4	SAE-003	[&key..&_gestMacroName] Invalid combination. SampleEstimateType=SMOOTHED, SmoothingMethod=GVF.	
5	SAE-004	[&key..&_gestMacroName] After initial processing no valid Method values remain for processing.	
6	SAE-005	[&key..&_gestMacroName] %#1s=%#2s contains values less than zero.	

```
%Gest_PrintMessage(Key=SAE-002, s1=blank/MEAN/TOTAL)
```

ERROR: [SAE-002.GEST_PRINTMESSAGE] Some values of ParameterType are not blank/MEAN/TOTAL.

CONCLUSIONS

- This paper extends the multi-language framework outlined in Bouedo (2012) paper
- Utilizes EXCEL spreadsheets as an interface for both programmers and language translators
- Applications with a large number of messages or multiple languages benefit the most
- Investing in setting up this framework can easily transform your unilingual application to endless possibilities

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