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Do More with Less: Programming Efficiently with Keyboard Macros

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ABSTRACT

Time spent searching through previous programs for recycled code can be repurposed through the utilization of keyboard abbreviations. Keyboard abbreviations are a means of creating keystroke shortcuts or abbreviations that tie directly to a curated library of code. This library can then be distributed through the use of keyboard macro files, enabling an increase in coding efficiency among teams.

INTRODUCTION

To be an efficient programmer there is a requirement to consistently and effectively handle repetitive coding. Keyboard abbreviations, or snippets, address this need through creating shorthand names which are then replaced with the desired code. This paper will define keyboard abbreviations, along with demonstrating how to create and share keyboard macro files (.kmf) within SAS® Enterprise Guide®.
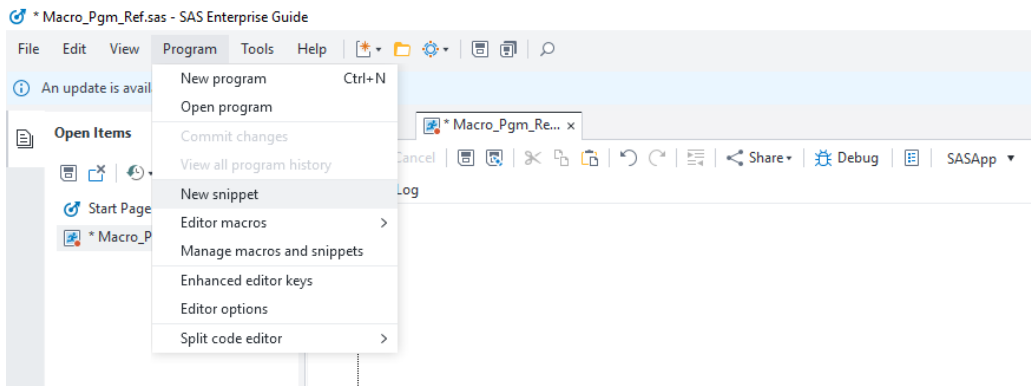
KEYBOARD ABBREVIATIONS

A keyboard abbreviation is a text string recognized in a SAS program, which can be replaced by a text that you pre-define (Van Campen & Haemhouts, 2012). These abbreviations are created through SAS Enterprise Guide, and are able to be prompted through the local install after being defined. Once created, these keyboard abbreviations can be shared through the utilization of a keyboard macro file. This paper details the process for creating keyboard abbreviations, along with explaining how to share these abbreviations through keyboard macro files.

DEFINING KEYBOARD ABBREVIATIONS

Creating keyboard abbreviation in SAS is a simple repeatable process that can be used for generating numerous connections to frequently utilized code. The details for how to define and prompt keyboard abbreviations are demonstrated utilizing SAS Enterprise Guide 8.1. Notes for utilizing previous installs are included throughout the text.

1. To create a keyboard abbreviation open a new, or current, session of SAS Enterprise Guide, and open a new program. Select **Program>New Snippet.** (Figure 1)

Note: For SAS Enterprise Guide 7.1 **Program>Add Abbreviation Macro**

Figure 1 Generating a new keyboard abbreviation

2. Name your keyboard abbreviation and then insert the code you wish to generate in the 'Text to Insert' section. When complete select **OK**. (Figure 2)
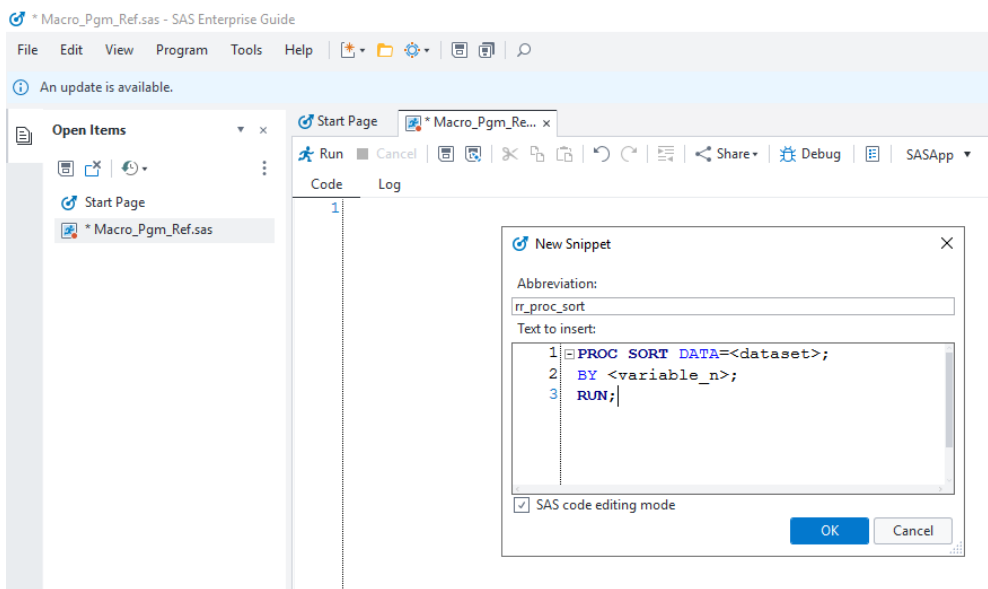

Figure 2 Defining the keyboard abbreviation name and replacement text

3. Prompt the abbreviation by its defined name - in this example, the abbreviation **"rr_proc_sort"** is replaced by PROC SORT (Figure 3)
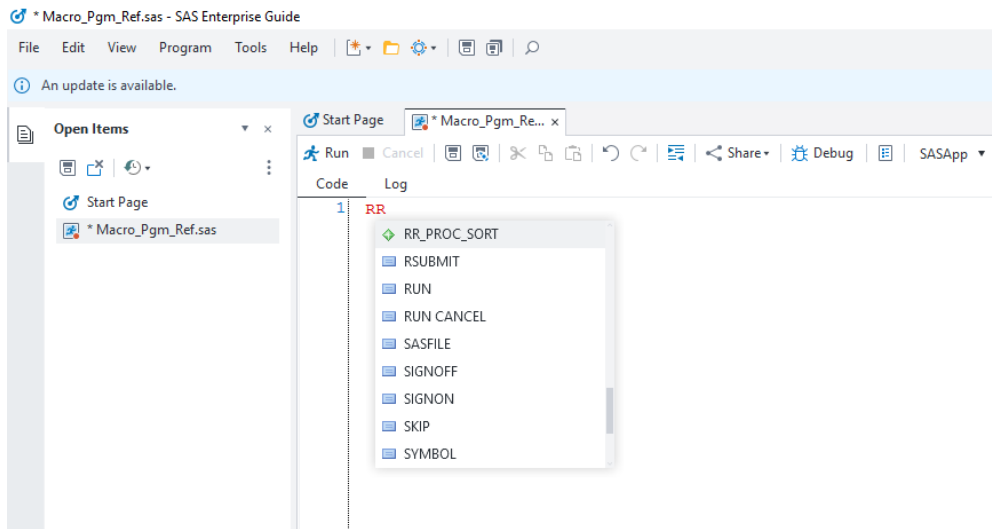

Figure 3 Prompting keyboard abbreviations

TECHNICAL LIMITATIONS OF KEYBOARD ABBREVIATIONS

- Abbreviations will be limited to the local SAS Enterprise Guide installation where they were created – details on how to share are noted below under Keyboard Macro Files

- There is a maximum of 401 keyboard abbreviations (Van Campen & Haemhouts, 2012)

- The replacement text is limited to 30,000 characters (Van Campen & Haemhouts, 2012)

FORMATTING NOTES FOR KEYBOARD ABBREVIATIONS

When building out a library of keyboard abbreviations it can be helpful to have a common naming scheme to easily recall the desired abbreviation. In addition to standard naming, by starting keyboard abbreviations with a duplicate letter can reduce the amount of noise present when prompting the abbreviation. A possible approach on how to standardize abbreviation naming is noted in Table 1.

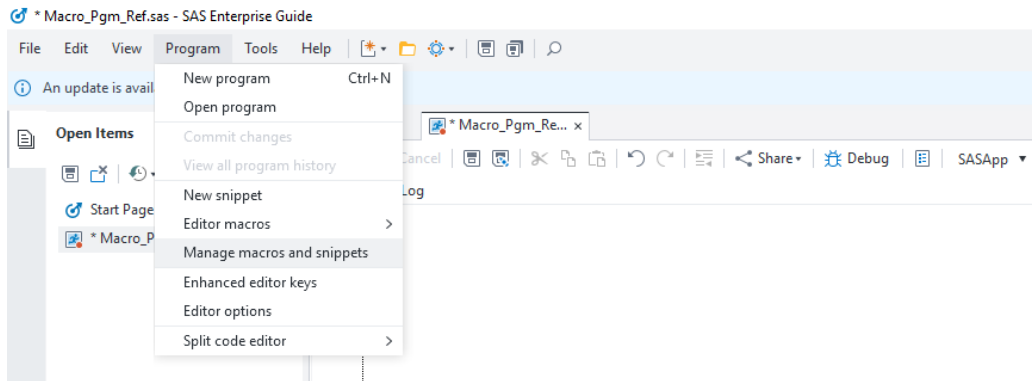| Header	Definition	Example
rr	Procedures	rr_sort
cc	Common code formatting (comments, program headers ect)	cc_pgmheader
dd	Data step	dd_import
ff	Formats (date, character, number ect)	ff_date_mmddyy
gg	Programming	gg_sql_casewhen
mm	Macro programs	mm_dashboard_input

Table 1 Standardized naming for keyboard abbreviations

KEYBOARD MACRO FILES

SHARING KEYBOARD ABBREVIATIONS

Keyboard macro files (**.kmf**), can be utilized to share defined keyboard abbreviations among SAS users. Detailed below is the process for creating .kmf from keyboard abbreviations.
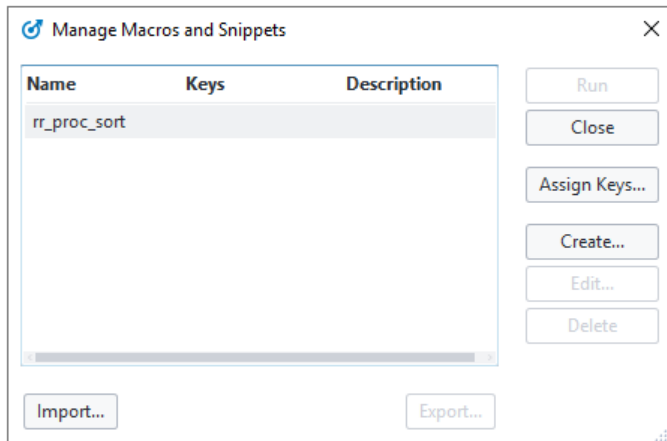
1. In a SAS Enterprise Guide program select **Program>Manage macros and snippets** (Figure 4)

Note: For SAS Enterprise Guide 7.1 **Program>Editor Macros>Macros**

Figure 4 Managing keyboard abbreviations

2. Once macro manager is open, all current abbreviations will be listed. Keyboard abbreviations can be created, edited, executed and deleted through the macro manager (Figure 5)

Note: Multiple keyboard abbreviations can be selected at a time for export.

Figure 5 Macro manager window

3. To export the keyboard abbreviation, highlight the abbreviation name and then select **Export –** this will generate a .kmf named after the original keyboard abbreviation (Figure 6)
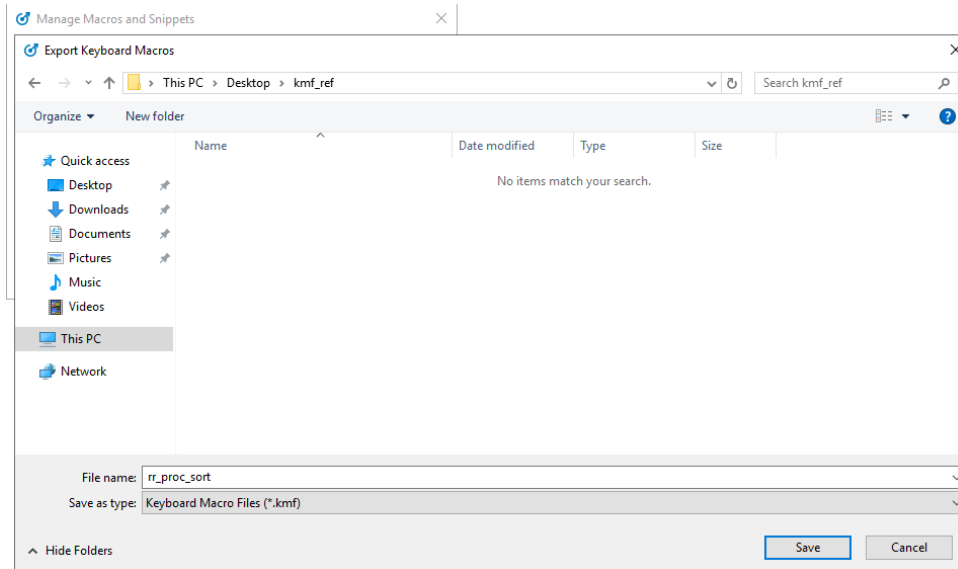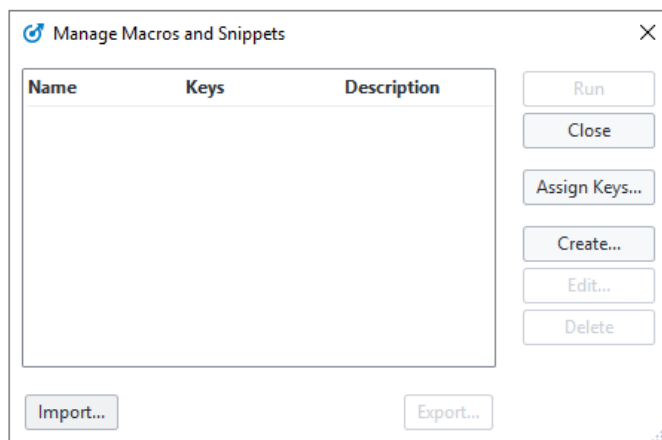

Figure 6 Exporting keyboard abbreviation as .kmf

4. Once the .kmf is created other users can then select **Import** in the Manage macros and snippets window (Figure 7)

Note: Importing keyboard abbreviations is done one .kmf at a time.

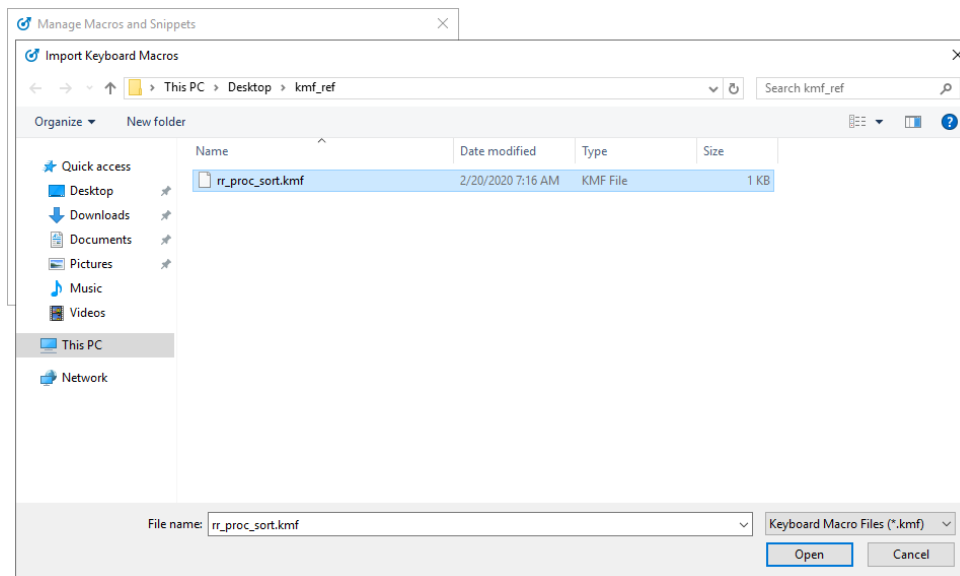**Figure 7 New user's macro manager**

Figure 8 Selecting .kmf for import

Once imported the shared .kmf can then be prompted **in the new user's session by the** abbreviation name. Through the use of keyboard abbreviations, in hand with a shared .kmf library, a team can share and easily manage a code repository.

CONCLUSION

Leveraging keyboard abbreviations, with .kmf, can improve coding for yourself and your team. Our team has started to utilize keyboard abbreviations as a way to reduce time spent searching past programs for code syntax and formatting along with standardizing our code formatting. If your team is looking to scale keyboard abbreviations to create a shared code library I recommend creating a less-manual process for generating keyboard abbreviations and .kmf. In the below recommended reading section I have noted a paper that created the process that I referenced when building out our teams automated keyboard abbreviation process.

REFERENCES

Van Campen, Tom, & Haemhouts, Benny. **2012 "Dynamically generating macro invocations** using SAS keyboard abbreviations**."** SAS Conference Proceedings: Pharmaceutical Users Software Exchange 2012, Budapest, Hungary: PhUSE 2012. Available at https://www.lexjansen.com/phuse/2012/cc/CC03.pdf.

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RECOMMENDED READING

- "Dynamically generating macro invocations using SAS keyboard abbreviations" by Tom Van Campen & Benny Haemhouts

- *The Little SAS Book: A Primer, Fifth Edition*

CONTACT INFORMATION

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