

PharmaSUG 2016 - Paper QT20

SAS® Abbreviations: a Shortcut for Remembering Complicated Syntax

Yaorui Liu, Department of Preventive Medicine, University of Southern California

ABSTRACT

One of many difficulties for a SAS® programmer is remembering how to accurately use SAS syntax, especially the ones that include many parameters. Not mastering the basic syntax parameters by heart will definitely make one's coding inefficient because one would have to check the SAS reference manual constantly to ensure that one's syntax was implemented properly. One of the more useful tools in SAS, but seldom known by novice programmers, is the use of SAS Abbreviations. It allows users to store text strings, such as the syntax of a DATA step function, a SAS procedure, or a complete DATA step, with a user-defined and easy-to-remember abbreviated term. Once this abbreviated term is typed within the enhanced editor, SAS will automatically bring-up the corresponding stored syntax. Knowing how to use SAS Abbreviations will ultimately be beneficial to programmers with varying levels of SAS expertise. In this paper, various examples by utilizing SAS Abbreviations will be demonstrated.

INTRODUCTION

Suppose that you would like to use the NWKDOM function that returns a SAS date value for the *n*th weekday of the month and year that you specify. The syntax of the NWKDOM function is as follows:

```
NWKDOM (n, weekday, month, year)
```

NWKDOM requires four arguments. The *n* argument is used to specify the numeric week of the month that contains the specified day. The *weekday* specifies the number that corresponds to the day of the week. The *month* specifies the number that corresponds to the month of the year. And lastly, the year argument specifies a four-digit calendar year.

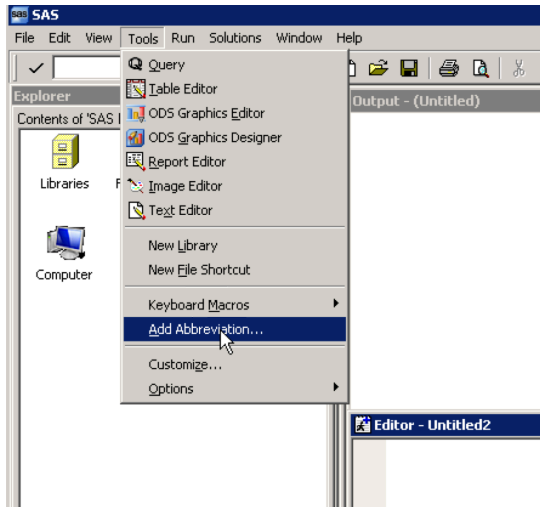
For a seldom-used function like NWKDOM, or a function with multiple arguments, one generally doesn't have the syntax memorized by heart. Instead of reading the manual to figure-out what the arguments are every time one uses this function, one can utilize a convenient tool from SAS, which is SAS abbreviations.

SAS abbreviations are macros that one can create in the SAS Enhanced Editor window. One can define an abbreviation and corresponding character strings. The string can be one's SAS code. Every time one types the abbreviation name, then presses the TAB key or the ENTER key, the abbreviation name will expand to a corresponding longer character string. Furthermore, one can share abbreviations with others by exporting and importing them as a KMF file.

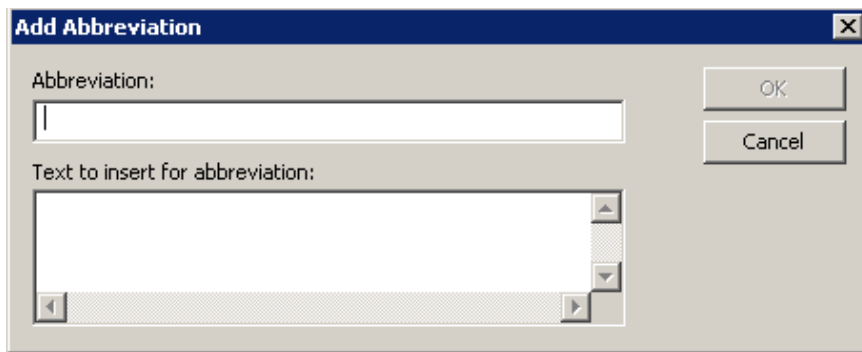
Once one masters this tool, it allows them to reduce repetitive typing and, more importantly, it will remind them of one's frequently-used syntax of a function or procedure.

CREATING AN ABBREVIATION

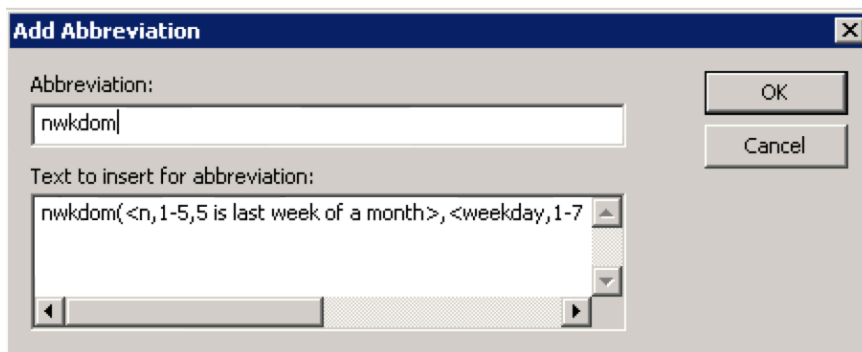
To create an abbreviation, one needs to click on the "Tools" button in the Enhanced Editor window, then click on "Add Abbreviation." (Press Ctrl + Shift + A).



Next, a window will pop-up which allows one to create their abbreviation. In this window, one will enter the name of the abbreviation and the corresponding content of the abbreviation. One can use any characters, including blanks, as an element of the name of the abbreviation. However, it is better to not use a simple letter as the name because this letter usually appears in one's program.

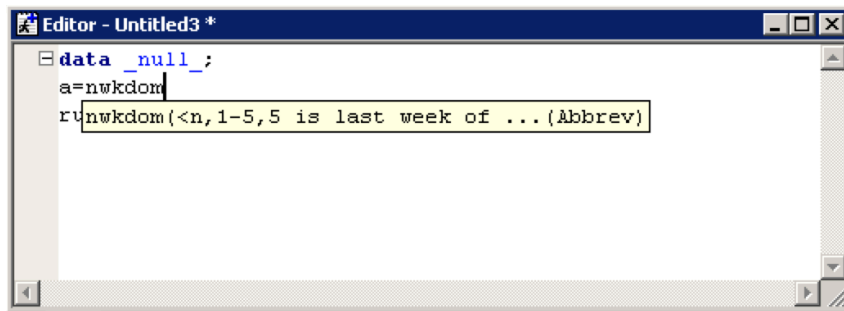


For example, let's enter "nwkdom" as the abbreviation name and type the syntax for the NWKDOM function along with the possible values for each argument in the "Text to insert for abbreviation" box. Then click "OK."

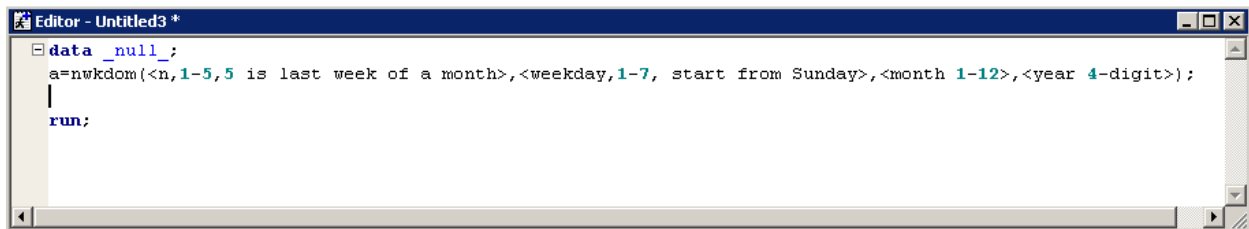


USING AN ABBREVIATION

When using an abbreviation that one stored, one simply types the abbreviation name and SAS will then display the content of the abbreviation in a popped-up window.

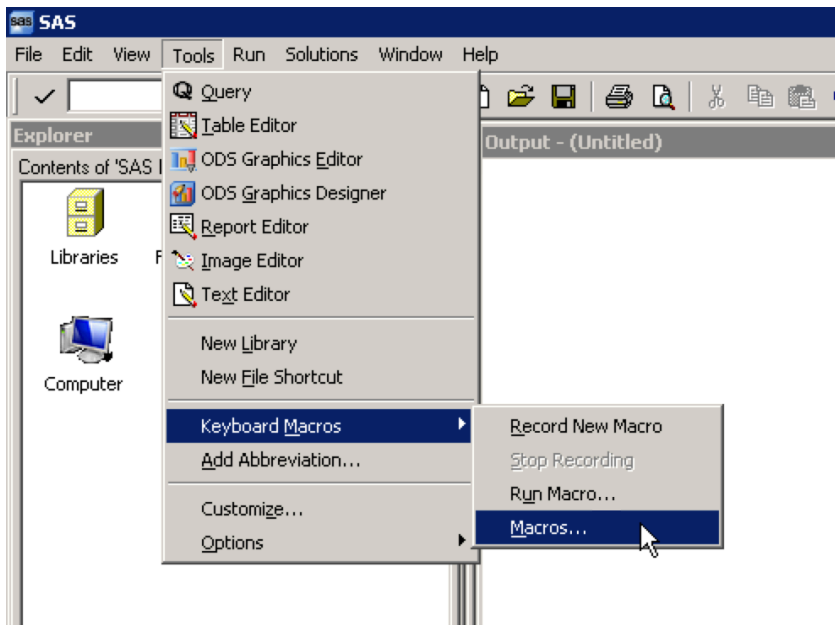


Next, after one presses the Enter key or the Tab key, the contents of the abbreviation will be copied into one's program. Based on the contents, one can then easily modify the parameters of the function.

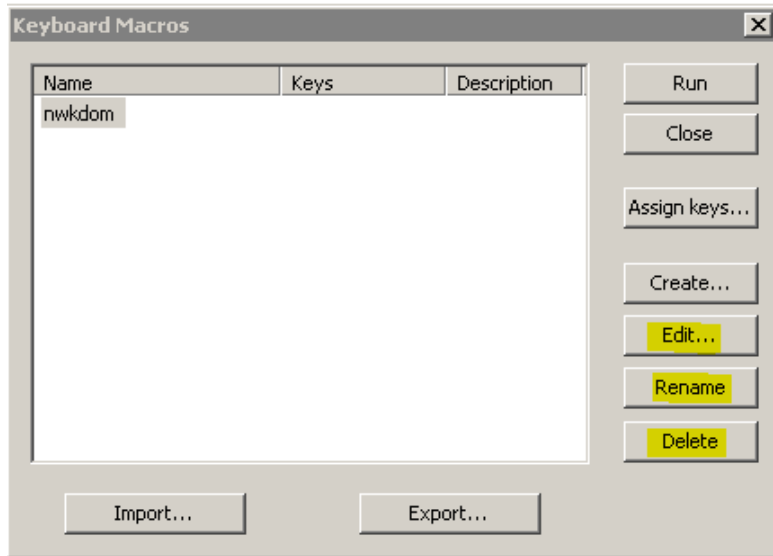


DELETING AND MODIFYING AN ABBREVIATION

One can delete or modify the abbreviations that one stored. To delete or modify an abbreviation, one can click on the "Tools" button, then click on "Keyboard Macros", and then "Macros...", or simply press Ctrl + Shift +M keys.

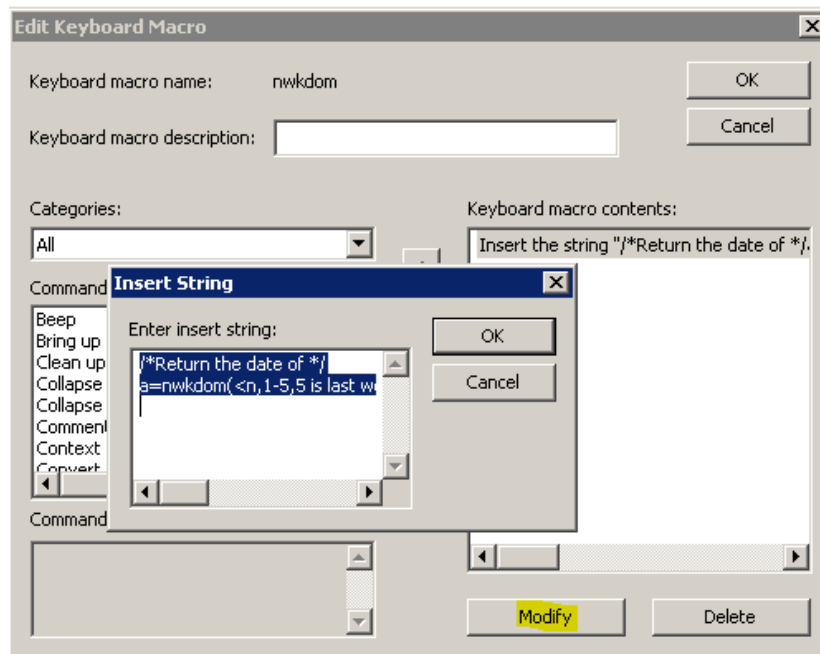


Once the "Keyboard Macros" window is open, one can then select the abbreviation that one wants to modify or delete.



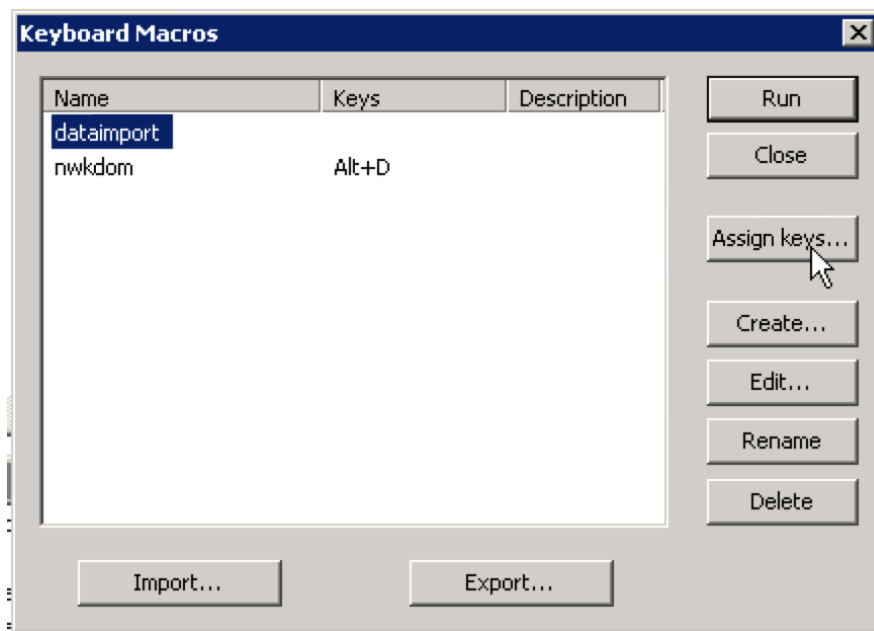
For example, to delete an abbreviation, one needs to click on the abbreviation name that one wants to delete, then click on the “Delete” button. One can also click on the “Edit” button if one wants to edit the abbreviation content, or click on the “Rename” button if one wants to give their abbreviation a different name.

Suppose one wants to add a comment within the abbreviation. One will need to first click on the “Edit” button, then the “Edit Keyboard Macro” window will pop-up. Next, click on the “Modify” button. One can then enter their comments; for example `/*Return the date of*/`, in the “Insert String” box and then click OK.

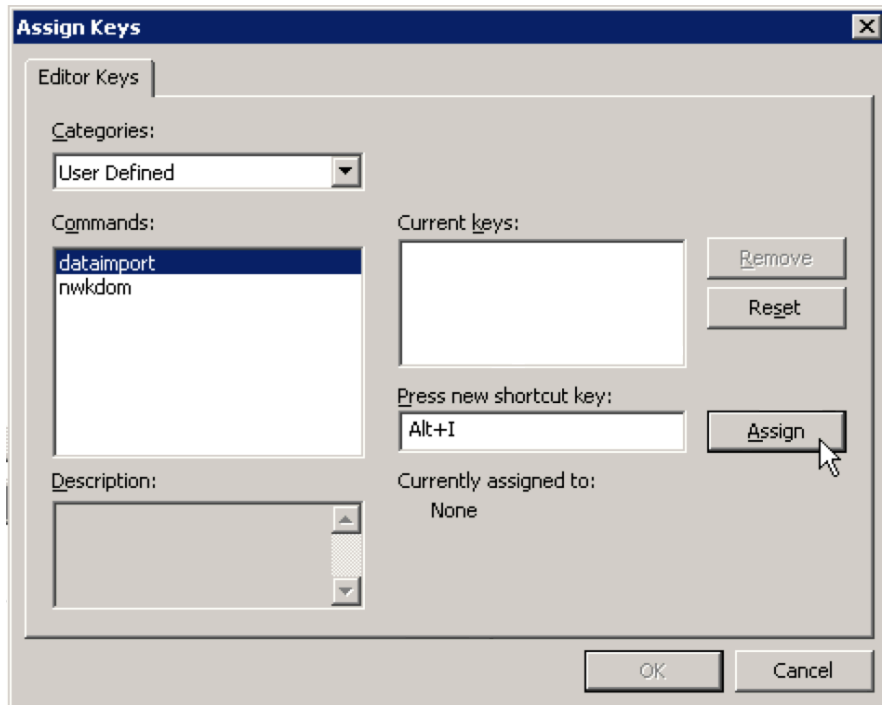


ASSIGNING KEYSTROKES FOR THE ABBREVIATION

For an often-used abbreviation, one can assign a keystroke to eliminate typing the abbreviation name. For example, the syntax for PROC IMPORT is stored in the abbreviation tool box and named "dataimport." To assign a keystroke to this abbreviation, one needs to select "Tools →Keyboard Macros" or press the Ctrl + Shift +M keys. Next, one needs to click on the "Assign Keys" button.



Next, select the abbreviation that one would like to assign a shortcut key and then enter a shortcut key, such as "Alt + I", in the "Press new shortcut key" box. Then click on the "Assign" and "OK" buttons.



Once the shortcut key is defined, one can then press the Alt + I keys and SAS will bring-up the contents of the abbreviation.

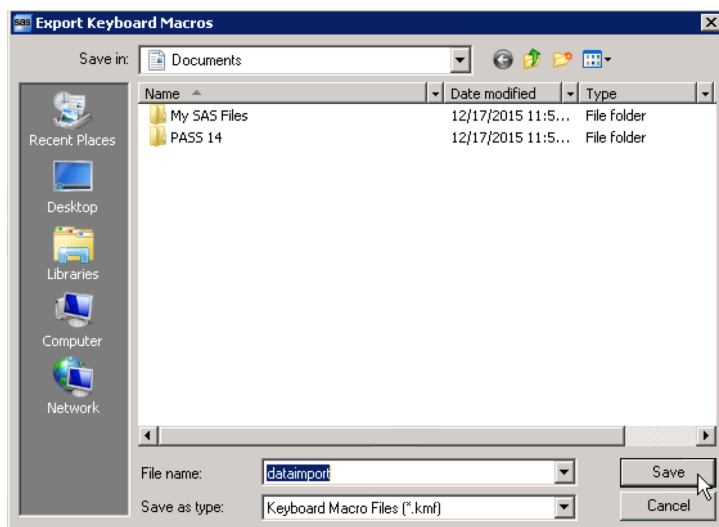
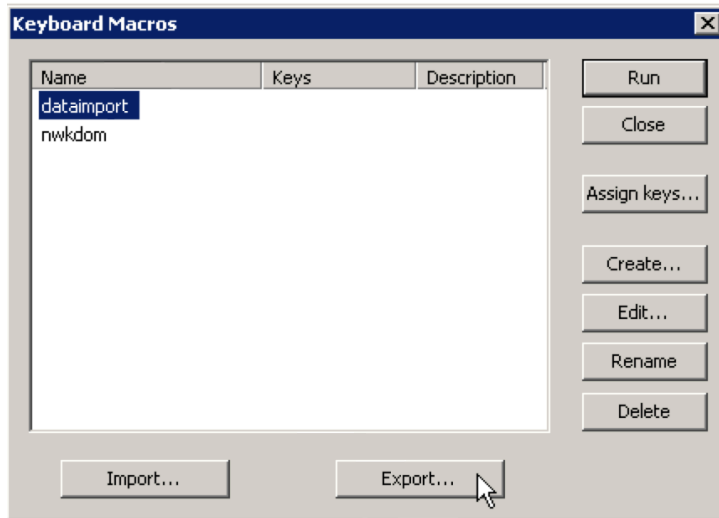


EXPORTING/IMPORTING ONE'S SAS ABBREVIATION

SAS Abbreviations are saved in the computer where the abbreviations were created. If one works on a different computer, they can export their abbreviations and then import them to a different computer.

To export the abbreviations, one needs to click on "Tools menu → Keyboard Macros → Macros." Next, click on the "Export" button. Just like saving a typical SAS program, one can assign a physical address and file name as one wishes and then click on the "Save" button. One's abbreviation will be automatically saved as a Keyboard Macro File (*.kmf).

To save multiple abbreviations, one can hold the CTRL key to select multiple abbreviations that one wants to export or one can select the first abbreviation, then hold the shift key, and then click the last abbreviation to select all abbreviations for exporting.



After one saves their abbreviation file to a different computer, they can also import their abbreviations by selecting “Tools→ Keyboard Macros → Macros”. Then one needs to click on the “Import” button and navigate the keyboard macro file that they would like to import.

CONCLUSION

SAS Abbreviations is a good way to save coding time and it is also a good friend to programmers, especially for SAS beginners. SAS Abbreviations allows one to edit comments, statements, procedures, or any characters one may want to display as an enhanced editor. One can simply add a couple of lines in order to save a significant amount of time by going back and forth while looking-up syntax protocols or by typing the same syntax and comments repeatedly.

REFERENCES

- Ceranowski, Elizabeth (2009). “SAS® Abbreviations Are Your Friends; Use a Template Method to Code!” in Proceedings of SAS Global Forum, Washington D.C.
- Chen, Mina (2015). “Saving Typing with SAS® Editor Abbreviations.” in Proceedings of PharmaSUG China, Shanghai, China.
- SAS Institute. (2010). *SAS(R) 9.4 Companion for Windows*. Cary, NC: SAS Institute.

ACKNOWLEDGEMENT

I would like to thank Arthur Li for mentoring me with ideas and valuable input in writing this paper.

CONTACT INFORMATION

Yaorui Liu
Keck School of Medicine USC
1975 Zonal Ave
Los Angeles, CA 90033
626-554-7192
yaoruli@usc.edu

SAS and all other SAS Institute Inc. product or service names are registered trademarks or trademarks of SAS Institute Inc. in the USA and other countries. ® indicates USA registration.

Other brand and product names are trademarks of their respective companies.