

## Paper 156-2007

**Tabbing Through ODS**

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**ABSTRACT**

The author presents a significant approach to aligning multiple variables inside a cell by applying tabs to the ODS reporting process. Consequently what appeared to be one limitation in classical ODS reporting has been overcome. The technique makes it easy to adopt mixed patterns in presenting the result of proc report, which have become necessary under certain circumstances such as patient profile.

**INTRODUCTION**

This paper will describe the challenging question of aligning variables in ODS reporting and why and how with the aid of tabbing (a control word in RTF) the difficulty will be solved. Throughout the duration of this paper, ODS destination RTF is assumed unless otherwise indicated. Familiarity with proc report and basic concepts in ODS as well as ODS template is preferred for better understanding the technical nature of the paper.

**THE QUESTION**

The question has its root in the column structure of proc report. The COL and DEFINE statement define each column for a report, no matter it's a summary or detail report. These columns are as important to a report as pillars to a building. Therefore, it's no wonder an experienced programmer would spend time designing these columns almost as seriously as an architect to a building. Follows is an example from SAS Online Doc, in which columns "Manager", "Department", and "Sales" pretty much defined the whole report.

Manager	Department	Sales
Smith	Paper	\$50.00
Smith	Meat/Dairy	\$100.00
Smith	Canned	\$120.00
Smith	Produce	\$80.00
Jones	Paper	\$40.00
Jones	Meat/Dairy	\$300.00
Jones	Canned	\$220.00
Jones	Produce	\$70.00
		=====
		\$980.00

However, these pre-defined "pillar" type construct will have problem when data requires more flexibilities. Using the above example for the purpose of illustration, is it possible to include employee numbers, but without changing the program? To achieve something like this:

Manager	Department	Sales
Smith	Paper	1 \$50.00
Smith	Meat/Dairy	2 \$100.00
...	...	...

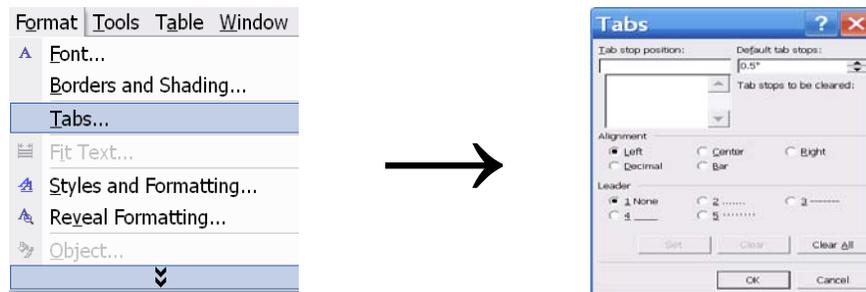
The solution for this particular case is not too difficult and will be presented later in this paper, with the use of tab stops.

It's very important to allow more data to be added into the columns when proc report is required to present data that are heterogeneous. Building standard reporting structure will become impossible if this feature doesn't exist. There may be many other approaches to this enhancement, a novel solution by combining ODS and tabbing controls is presented in this paper.

**HISTORY OF TABBING**

The history of tabbing goes all the way back to typewriter. A tab stop on a typewriter is a location where the carriage movement is halted by mechanical gears. Modern word processors generalize this concept by offering tab stops that have an alignment attributes and cause the text to be automatically aligned at left, at right or center of the tab stop itself.

You can customize these attributes in WORD by selecting Tabs under the pull-down menu of Format:



Tab stops can be configured through programming as well as manually. The control word “tab” moves the cursor by default spacing (0.5” in the above setting). What’s really useful and will be used to construct alignment within cell is the other adjustable control word “txN”, in which the N represents a tab position in twips from the left margin. A twip is 1/1440 of an inch, therefore, “tx1440” = “tabtab” and “tx720” = “tab”.

## THE SETTINGS

The settings comprise of four parts: template, ODS path, odson and odsoff.

### TEMPLATE

Modify styles.rtf to suit specific requirement. Often times the change has to do with table borders. This is demonstrated as follow:

```
proc template;
  define style tStyle/store=work.templ;
    parent=styles.rtf;
    style Table from output /
      ...
      rules=&ru frame=&fr;
```

Ru=groups Fr=void are used for the output in this paper. The table will hide grids and borders.

### ODSPATH

Invoke first the modified template:

```
ods path work.templ ...
```

Specify output destination:

```
%let odspath=...
```

### ODSON

A macro to open output destination:

```
ods rtf file="&odspath"...
```

### ODSOFF

A macro to close output destination:

```
ods rtf close;
```

## THE APPLICATIONS

With the above settings, tabs can be built into ODS formatting to keep data in alignment within a cell. The cases are presented in the order of increasing complexity.

### SHORT WORDS

Using “tab” for alignment is very efficient when data don’t contain long strings. Following is a sample code:

```
data one;
  format x $200.;
  x=' \S={font_weight=bold}Sub 1\R/RTF"\tab" Sub 2\R/RTF"\line" \S={}' ||
    'Word 11\R/RTF"\tab" Word 22\R/RTF"\line" ' ||
    'Word 111\R/RTF"\tab" Word 222';
run;
```

Generates this:

<b>Header</b>	
<b>Sub 1</b>	<b>Sub 2</b>
Word 11	Word 22
Word 111	Word 222

The blocks {Sub 1, Word 11, Word 111} and {Sub 2, Word 22, Word 222} are lined up perfectly!

### LONG WORDS

Default tab position is insufficient to line up long words:

### Header

---

<b>Sub 1</b>	<b>Sub 2</b>
Word 11	Word 22
Word 111 S	Word 222
Word 1111 Second	Word 2222

Using customized tab "\txN\tab" solves this problem:

```
data one;
  format x $200.;
  x='\S={font_weight=bold}Sub 1\R/RTF"\tx2000\tab" Sub 2\R/RTF"\line" \S={}'||
  'Word 11\R/RTF"\tab" Word 22\R/RTF"\line" '||
  'Word 111 S\R/RTF"\tab" Word 222\R/RTF"\line" '||
  'Word 1111 Second\R/RTF"\tab" Word 2222';
run;
```

The result looks like:

Header	
<b>Sub 1</b>	<b>Sub 2</b>
Word 11	Word 22
Word 111 S	Word 222
Word 1111 Second	Word 2222

The two blocks are lined up perfectly!

### WORDS THAT WRAP

Wrapping words within a cell is inevitable due to limitation of cell width. Algorithm macro %OCELL is carefully designed with the following features:

#### Segment strings properly

```
do l=&wlen to 1 by -1 until(substr(var,l,1)='');
end;
```

#### Add flexible tabs for alignment

```
...||'\R/RTF"\tx' ||trim(left(put((k-1)*&tab,??best.))||'\tab" ' |||...
```

#### Wrap strings

```
...||'\R/RTF"\line" ' |||...
```

#### Invoke in a data step

```
data two;
  set one;
  %ocell(tab=,wlen=,var=,fi=);
  ...
run;
```

Here is what the report looks like:

Record #	Header		
1	Conservative approach	That is a ship	What can I do now?
2	This is your gateway to becoming a part of SAS Global Forum 2007.		
3	SAS Global Forum 2007 depends on people like you.		From here, you can create and update profiles.

### CONCLUSION

It has been demonstrated that well-known tab keys can be integrated with ODS in-line formatting to create alignment structure inside a cell. The customized tab control provides powerful tuning capacity to wrap and line up data with long character strings. This technique is being widely used in the process of generating patient profiles.

**REFERENCES**

SAS Institute Inc. SAS Online Doc 9.1.3

**CONTACT INFORMATION (HEADER 1)**

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

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