

# Using ODS and Template to Create RTF Files From SAS/Graph and Procedures

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# Topics

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- Introduction of ODS RTF
- Generating SAS graphs
- Creating User-defined Template to generate tables
- Discussion
- Questions and Answers

# Introduction

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- What is an RTF file?
- Why use RTF files?
- How to generate RTF files –  
ODS RTF Basics

# Why Use RTF Files?

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- Document Specifications
  - Paper size: 8.5 x 11 inches
  - All margins:  $\geq 1$  inch
  - Font type: true type or Adobe Type 1
  - Font size: close to 12 points

# ODS RTF Basics

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ODS Listing close; ①

ODS RTF file=c:\BASAS\myfile.rtf ②  
*style=styles.examp1;* ③

```
proc means data=examp1; ④
var age weight height;
class trtgroup;
title "Example #1";
run;
proc freq data=examp1;
tables sex*trtgroup;
run;
```

ODS RTF close; ⑤

ODS listing; ⑥

# Generating Figures

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- Graphics format
- Selecting device drivers
- Producing graphs
- Annotation

# Graphics Format

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- EMF – Enhances windows Metafile
- JPEG – Joint Photographic Experts Group Format
- **PNG – Portable Network Graphics**

# Device Driver

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```
goptions reset=all device=png  
target=png ①  
ftext="Times New Roman" ②  
gsfmode=REPLACE ③  
xmax=6.25in ymax=4.5in ④  
xpixels=3125 ypixels=2250 ⑤  
htitle=5 htext=4 colors=(black) ⑥;
```



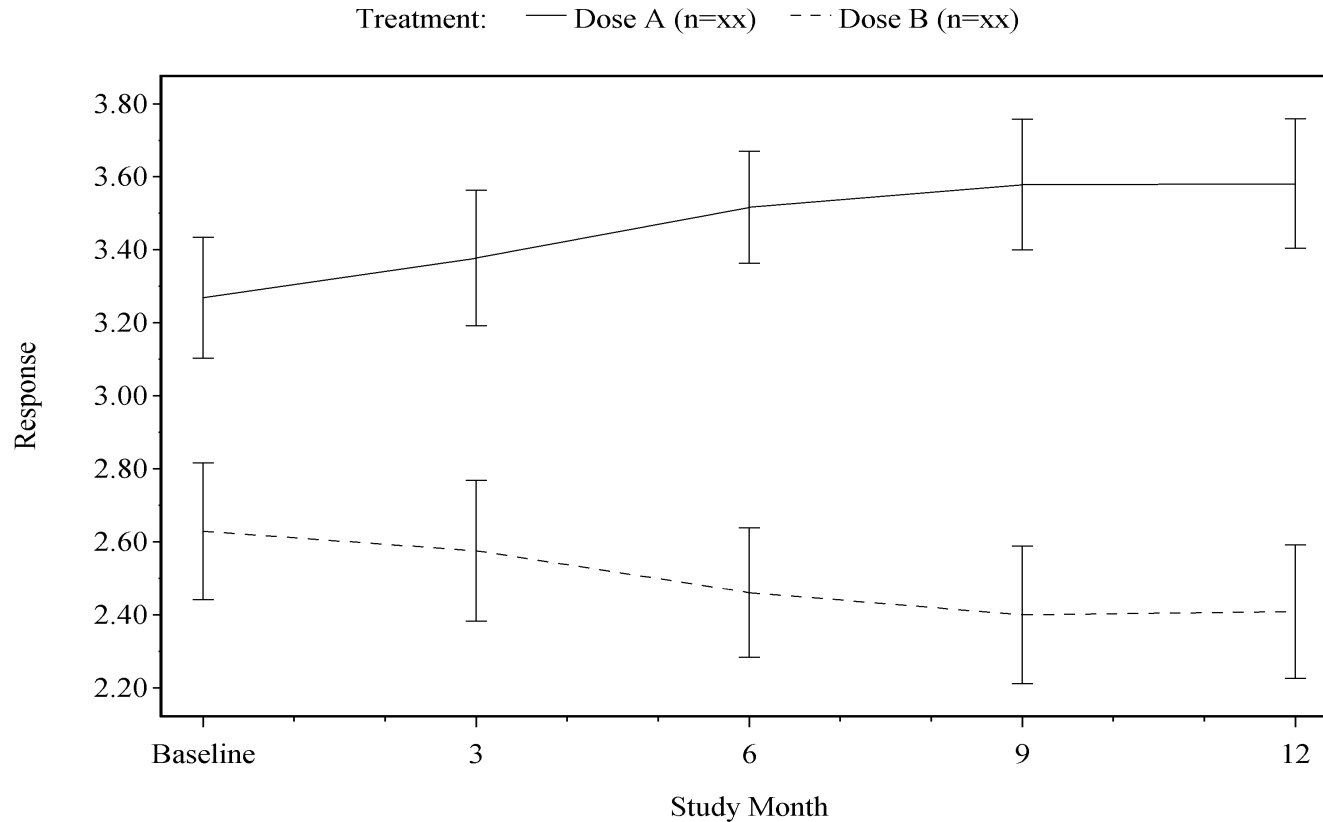
# Producing Graphs

```
/* Draw hilo plot */
symbol1 interpol=hiloctj width=2 line=1;
symbol2 interpol=hiloctj width=2 line=2;

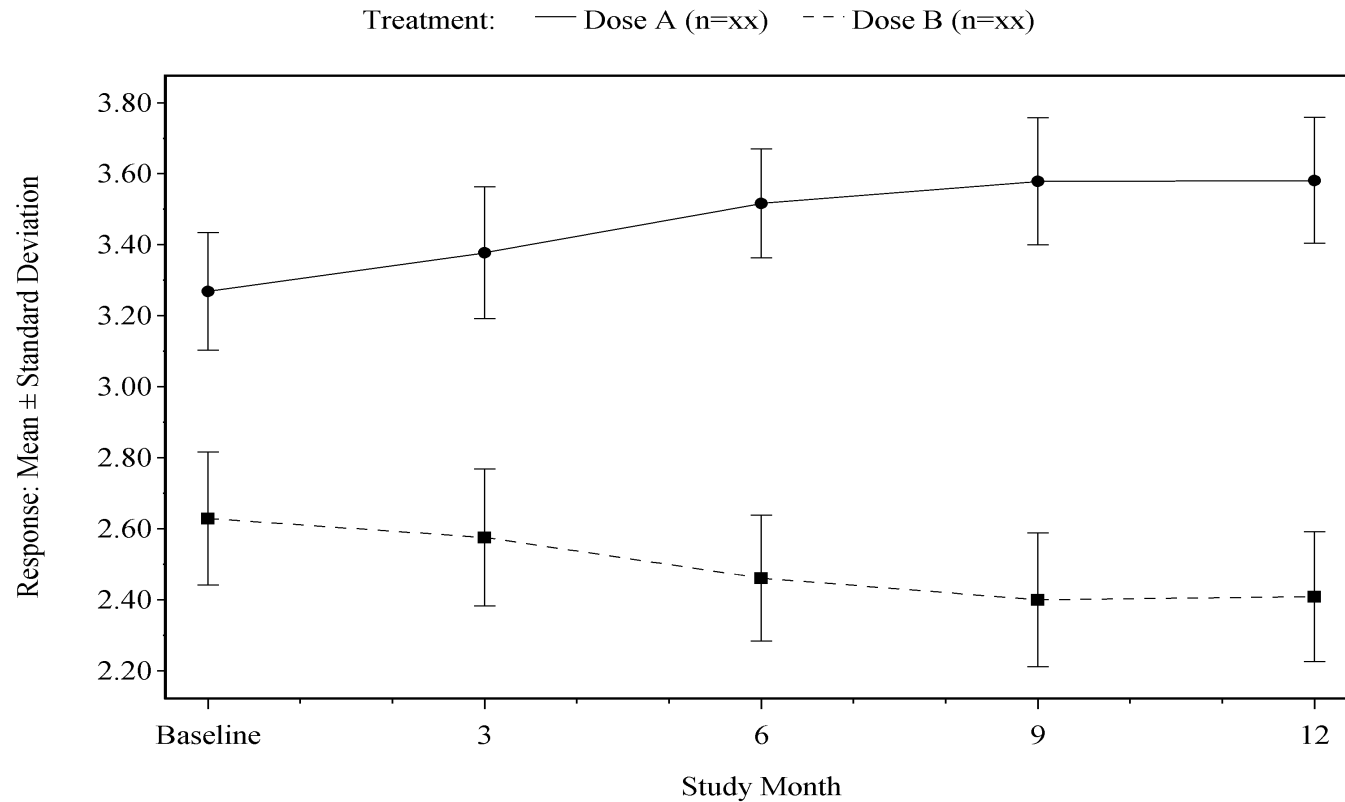
legend1 across=2 mode=share
lspace=1 position=(TOP CENTER OUTSIDE)
label=(position=left j=r h=3.5pct `
  Treatment' ) value=(j=1 h=3.5pct);

proc gplot data=examp2;
  plot yval*vst=trt / frame legend=legend1;
run;
quit;
```

# Graph Output



# Graph with Annotation



# Create Annotation

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```
data anno;  
  set stat;  
  length function style color $8 text $8;  
  retain xsys '2' ysys '2' hsys '1' ①  
  function 'symbol' ②  
  color 'black' position '5' when 'b'; ③  
  x=vst; ④  
  y=mean;  
  if trt=1 then do;  
    size=3.5; text='dot';  
  end;
```

# Create Annotation (Continued)

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```
else if trt=2 then do;  
    size=2.25; text='U'; ⑤  
    style='marker';  
end;  
keep x y xsys ysys hsys function  
color position when ;  
run;
```

# SAS Code with Annotation

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```
/* Draw hilo plot */
symbol1 interpol=hiloctj width=2 line=1;
symbol2 interpol=hiloctj width=2 line=2;

legend1 across=2 mode=share
      lspace=1 position=(TOP CENTER OUTSIDE)
      label=(position=left j=r h=3.5pct `
Treatment') value=(j=1 h=3.5pct);
proc gplot data=examp2;
      plot yval*vst=trt / annotate=anno
frame legend=legend1;
run;
quit;
```

# Creating User-Defined Template

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- Store and recall a template
- Define table template
- Define style template
- Put all together
- Special characters in ODS RTF

# Store and Recall a Template

---

Libname *temp*

"c:\basas\cmntempl\"; ①

ods path *temp*.templ(update) ②

sasuser.templat(update)

sashelp.tmp1mst(read);



# Create a Different Mean Output

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```
proc means
  n mean std median min max
  maxdec=1  data=subj;
  var age;
  class trt;
run;
```

# Use Table Template

Table 1. Default Output

Analysis Variable: AGE (YEARS)							
Trt	N Obs	N	Mean	Std Dev	Median	Minimum	Maximum
1	9	9	58.9	9.6	56.0	41.0	74.0
2	9	9	61.6	5.5	62.0	54.0	71.0

Table 2. Output Based on Modified Table.Summary Template

Analysis Variable: AGE (YEARS)				
trt	N	Mean / Std	Median	Min / Max
1	9	58.9 9.6	56.0	41.0 74.0
2	9	61.6 5.5	62.0	54.0 71.0

# Define a Table Template

---

```
proc template;
edit Base.summary;
    notes 'Summary table for MEANS and SUMMARY';
column class id type ways n (mean stddev) median (min
max);
edit mean;
    define header hmd; Text "Mean / Std"; end;
    header = hmd; generic;
end;
edit min;
    define header hmin; Text "Min / Max"; end;
    header = hmin; generic;
end;
end;
run;
```

# Default Template for Proc Report

	Baseline	Month 3	Month 6	Month 9	Month 12
Dose A (n=xx)	3.269 (0.166)	3.378 (0.186)	3.517 (0.154)	3.579 (0.179)	3.581 (0.177)
Change from baseline		0.109 (0.066)	0.248 (0.071)	0.310 (0.095)	0.312 (0.101)
Dose B (n=xx)	2.629 (0.187)	2.576 (0.193)	2.461 (0.177)	2.400 (0.188)	2.409 (0.183)
Change from baseline		-0.053 (0.028)	-0.168 (0.048)	-0.229 (0.050)	-0.220 (0.062)
Treatment comparison p-value [b]		0.0372	0.0002	0.0001	0.0004

# User-defined Style Template

Table 5. Summary output with User-defined Style Template and Special Characters

	Mean ± Standard Deviation <sup>a</sup>				
	Baseline	Month 3	Month 6	Month 9	Month 12
Dose A (n=xx)	3.269 (0.166)	3.378 (0.186)	3.517 (0.154)	3.579 (0.179)	3.581 (0.177)
Change from baseline		0.109 (0.066)	0.248 (0.071)	0.310 (0.095)	0.312 (0.101)
Dose B (n=xx)	2.629 (0.187)	2.576 (0.193)	2.461 (0.177)	2.400 (0.188)	2.409 (0.183)
Change from baseline		-0.053 (0.028)	-0.168 (0.048)	-0.229 (0.050)	-0.220 (0.062)
Treatment comparison p-value <sup>b</sup>		0.0372	0.0002	0.0001	0.0004

<sup>a</sup> Arithmetic mean and standard deviation.

<sup>b</sup> Student's t-test applied to the change from baseline.

# Define a Style Template

```
proc template;
define style styles.examp4; parent=styles.rtf;
replace fonts / ①
  'TitleFont2' = ("Times New Roman",11pt,Bold)
  'TitleFont' = ("Times New Roman",11pt,Bold)
replace Header from HeadersAndFooters /
  font=("Times New Roman, SAS Monospace, Courier",11pt,bold)
  background=_undef_; ②
replace RowHeader from Header /
  font=("Times New Roman, SAS Monospace, Courier",11pt,bold)
  background=_undef_; ③
replace Body from Document
  "Controls the Body file." / ④
  bottommargin = 1in    topmargin = 1in
  rightmargin = 1in    leftmargin = 1in;
replace Table from output / ⑤
  background=_undef_    Rules=groups
  Frame=void    cellpadding = 2pt cellspacing = 1pt;
End;
run;
```

# Put All Together

---

```
options orientation=portrait; ①
ods listing close;
ods rtf file="table5.rtf"
    style=styles.examp4; ②
run;
/* proc report code */
/* proc gplot code */
/* Other SAS procedures */
ods rtf close;
ods listing;
run;
```

# Special Characters

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- Escape character: `ods escapechar = '^';`
- Super or sub scripts: `^{super a}`, `^{sub b}`
- $\pm$  sign: press Alt key at the same time type code 0177 on the numeric keypad with numeric lock on

- Indentation:

```
%let string=%str('%') ^R%str('%') \li350%str('%') %str('%');  
term=%unquote(&string) || "Change from baseline";
```



# Discussion

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- Observations of ODS RTF
- Questions and Answers