

Merge multiple RTF files, convert to PDF and add bookmark

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ABSTRACT

As usual, we will combine lots of RTF output files about statistical analysis into an RTF file to expedite the review process which gets requests from the client or business user. In order to make the merged file is easy to browse, we need adding a TOC (table of contents) to link to the corresponding table. We also need converting merged files to PDF file and add bookmark, so that it won't modify easily. However, multiple RTF files will cause some problems, for example, support in both English and Chinese and spend a lot of time to add a bookmark manually.

The paper focuses on introducing the process of Combining RTF and some skills on common problem. It covers three parts: merging multiple RTF files, converting it PDF and adding bookmarks. There will be many outputs to explain the methods to solve the problem. Finally, showing the advantages and disadvantages of it.

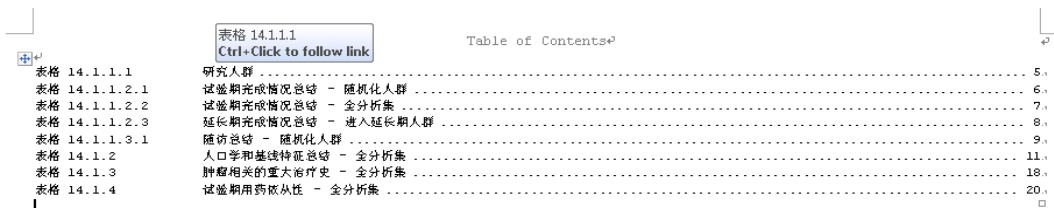
INTRODUCTION

In Pharmaceuticals/CRO industries, expediting the review process which is business user frequently request to combine all tables and listings into one rtf document. The client or business user can put forward the comments in one document will make programming job easier and time-saving. Also, we need to provide a PDF and add bookmarks for reviewing.

Part 1: Merge Multiple RTF Files

Step 1: Make TOC

We add a TOC (table of contents) Links to each individual table. In order to make TOC more beautiful and concise, Toc is divided into three parts: Table number, Title, Page number. As the following example shows:



The screenshot shows a document titled "Table of Contents" with a list of tables and their corresponding page numbers. A tooltip is visible over the first entry, indicating that clicking the link will follow the link to the table.

Table Number	Title	Page Number
表格 14.1.1.1	研究人群	5
表格 14.1.1.2.1	试验期完成情况总结 - 随机化人群	6
表格 14.1.1.2.2	试验期完成情况总结 - 全分析集	7
表格 14.1.1.2.3	延长期完成情况总结 - 进入延长期人群	8
表格 14.1.1.3.1	随访总结 - 随机化人群	9
表格 14.1.2	人口学和基线特征总结 - 全分析集	11
表格 14.1.3	肿瘤相关的重大治疗史 - 全分析集	18
表格 14.1.4	试验期用药依从性 - 全分析集	20

Then we need prepare a sheet about the information of TOC. As the following example shows:



The screenshot shows an Excel spreadsheet with two columns: 'header1' and 'header2'. The data rows correspond to the TOC entries from the previous screenshot.

header1	header2
表格 14.1.1.1	研究人群
表格 14.1.1.2.1	试验期完成情况总结 - 随机化人群
表格 14.1.1.2.2	试验期完成情况总结 - 全分析集
表格 14.1.1.2.3	延长期完成情况总结 - 进入延长期人群
表格 14.1.1.3.1	随访总结 - 随机化人群
表格 14.1.2	人口学和基线特征总结 - 全分析集
表格 14.1.3	肿瘤相关的重大治疗史 - 全分析集
表格 14.1.4	试验期用药依从性 - 全分析集
表格 14.1.5	伴随疾病 - 全分析集
表格 14.1.6.1	先前用药 - 全分析集

After preparing the sheet of Toc, we use the macro %MAKETOC to generate the TOC.

MACRO SYNTAX

```
%MAKETOC (  
    RTFPATH=,  
    EXCELTOC=,  
    RTF1STOBS=,  
    RTFOBS=,  
    TOCROW=,  
    LANGUAGE=, /*CN or EN*/  
    MAXLEN=90,  
    STYLE=kltnr_9_uk  
);
```

MACRO PARAMETERS

RTFPATH= specifies the path of rtf (required)

EXCELTOC= specifies the excel about content

RTF1STOBS= specifies the positions of the first title in RTF

RTFOBS= specifies the positions of the last title in RTF

TOCROW= specifies rows in one page

LANGUAGE= specifies the language version (required), Including CN (GB2312), U8 (UTF8), EN

MAXLEN= specifies the max length in one row if language is English.

STYLE= specifies the RTF style (required)

When language is Chinese, the default encoding of SAS is GB2312(CN), but sometimes the encoding of SAS dataset is UTF8(U8). Also the macro support English encoding(EN).

Example A:

```
%let infolder=C:\combineRTF\U8;

%MAKETOC (

    RTFPATH=& infolder,

    EXCELTOC=,

    RTF1STOBS=38,

    RTFOBS=42,

    TOCROW=34,

    LANGUAGE=u8, /*CN or EN*/

    MAXLEN=90,

    STYLE=kltnr_9_uk
```

The macro will automatically add dots between Title and Page number according to language. If language is English and the length of title beyond the MAXLEN, it will truncate title to fit on 1 line and the rest title will be present on next line.

Step 2: Combine RTF Files

After generating Toc, we can use macro %COMBINERTF to combine all rtf files.

```
%COMBINERTF (

    RTFPATH =,

    TOCFILE = toc,

    OUTRTF =,

    SAMEPAGE =Y) ;
```

MACRO PARAMETERS

RTFPATH= specifies the path of rtf (required)

TOCFILE= specifies the TOC (required)

OUTRTF= specifies the name of combined file (required)

SAMEPAGE=Y represents that the original page will not be changed, N represents that repaginates from page 1 (1/x).

Example B:

```
%let infolder=C:\combineRTF\U8;
%COMBINERTF (
    RTFPATH =&infolder,
    TOCFILE = toc,
    OUTRTF =ALL Figures,
    SAMEPAGE =Y) ;
```

Note: Delete any RTF files not used when re-creating.

Manual update: Distribute the TOC page evenly between left and right margins.

The idea to implement the page of combined file is consistent with the page of original file: Replacing total page number of combined file into the original page.

RTF Page Tag:

```
{field{\*\fldinst {\cs17 PAGE }}{\fldrslt{\cs17 1}}}
{\cs17 of }
{field{\*\fldinst {\cs17 NUMPAGES }}{\fldrslt {\cs17 1}}}
```

RTF Page Tag After Replaced:

```
catx(' ',{\cs17',put(page,best.),'of',"&totalpage",'})
```

Implementation of the statement:

```
string=tranwrd(string,'{\field{\*\fldinst {\cs17 PAGE }}{\fldrslt{\cs17 1}}}{\cs17
of }{\field{\*\fldinst {\cs17 NUMPAGES }}{\fldrslt {\cs17 1}}}',catx('
','{\cs17',put(page,best.),'of',"&totalpage",'}));
```

Part 2: Convert to PDF

After opened the merged file, we can save it as PDF format by using the WORD's built-in functionality or ADOBE ACROBAT. There should be has the TOC directory can click jump in the first page of PDF at this point and it doesn't have PDF bookmarks.

Using ADOBE ACROBAT to convert to pdf will be faster. So that, we recommended to use ADOBE ACROBAT.

Part 3: Add bookmark

We can use FreePic2Pdf to add bookmarks. FreePic2Pdf is a freeware developed by Ma Jian.

Step 1: Prepare bookmark.xls

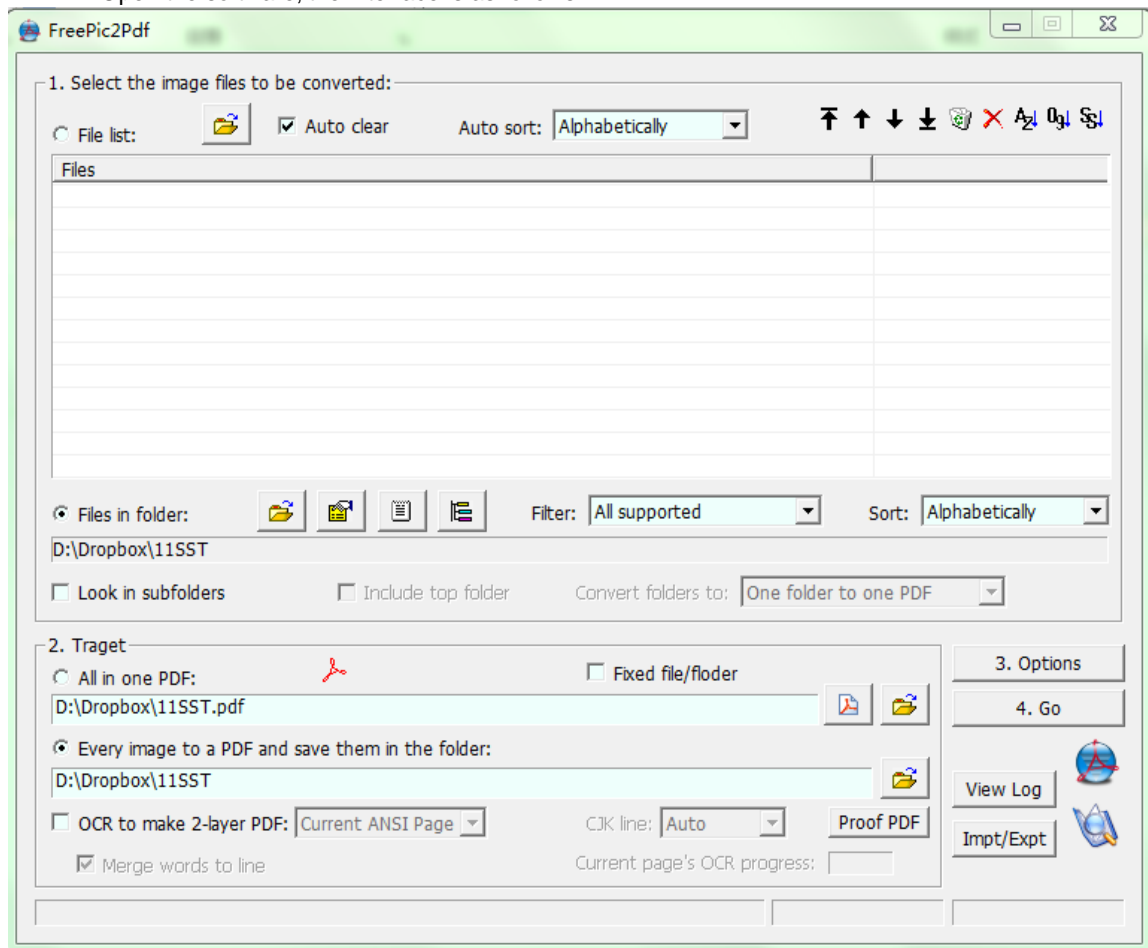
Firstly, we prepare an excel file named bookmark.xls and fill all bookmark information in it. The sheet has two columns: table number and page number.

As the following example shows: the first column is the information about Table number and Title, the second column is the information about page number.

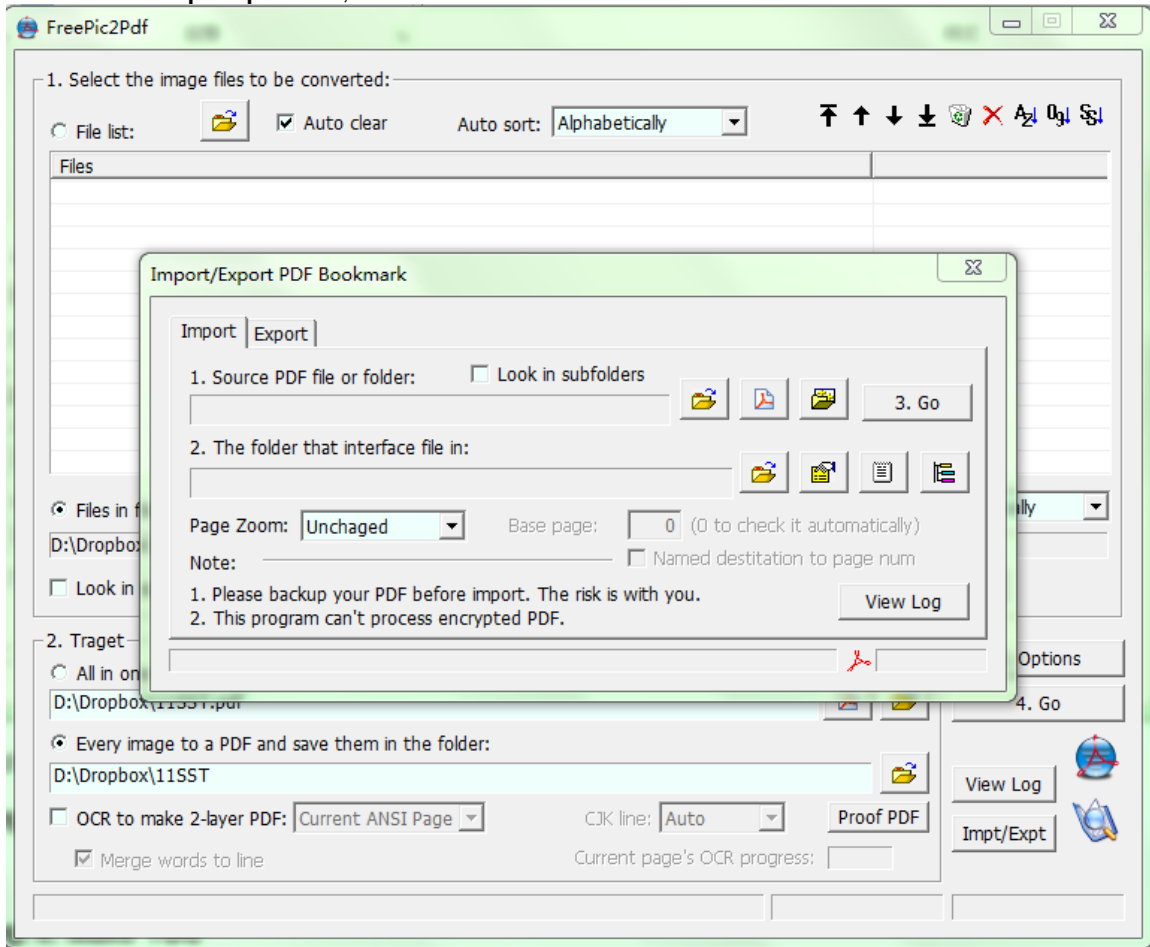
	A	B	C
1	表格 14.1.1.1	2	
2	表格 14.1.1.2.1	3	
3	表格 14.1.1.2.2	4	
4	表格 14.1.1.2.3	5	
5	表格 14.1.1.3.1	6	
6	表格 14.1.1.3.2	7	
7	表格 14.1.2	8	

Step 2: Use FreePic2Pdf

1. Open the software, the interface is as follows:





2. Click **Imppt/Expt** button,





3. Click **Export** bottom, then we will see two path. Click  in Source PDF file or folder and select the converted pdf file. Then click  It will generate a folder that its name is same as pdf file.

4. Open the generated folder, we can find two file as follow.

 FreePic2Pdf.tif
 FreePic2Pdf_bkmk.txt

Open FreePic2Pdf_bkmk.txt. If the pdf file doesn't have bookmark, the txt file should be blank. We can copy the information about bookmark from bookmark.xls completely.

5. Open the software again and click **Imppt/Expt** bottom. Click **Import** bottom  and select pdf file, then click **GO** .

We will find the bookmark has been added into the pdf file.

CONCLUSION

The paper introducing the process of combing RTF files and the methods to bookmark effectively. It supports multilingual perfectly and quickly. Also, we need to manually distribute the TOC page evenly between left and right margins if the uneven distribution of dots in the TOC.