SFF Committee documentation may be purchased in electronic form.
SFF specifications are available at ftp://ftp.seagate.com/sff

SFF Committee Specification

Guidelines to Editors of SFF Specifications

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These guidelines on the use of Word to prepare SFF Specifications are the product of
much frustration between editors who have found that shared DOCs were not alike in
what they displayed on screen between different user systems.

The exchange of Word specifications between multiple editors for review and/or
update in 2009/2010 was not as succesful as had been hoped. On some specifications
part of the content was not presented the same way. Most of the time only one
section or one figure which was affected. At other times there would be formatting
issues throughout a DOC.

In May 2011, Scott Shuey, Jay Neer and Dal Allan met to discuss the various kinds of
anomalies encountered in Word e.g. difficulties in opening each other's files,
content invisible on one system dominated appearance on another, figures which did
not display correctly, etc.

The assumption that the incompatibilites were version dependent proved false, some
occurred in the same version. It was decided to focus on understanding the issues
related to figures first.

FIGURES

Scott had encountered the situation in which a figure imported into Word 2003
required cropping the unwanted parts and centering what was wanted. The DOC looked
fine but the PDF showed artifacts of the figure around the perimeter and amongst the
text. It looked like an Adobe/Microsoft incompatibility until Dan Gorenc opened the
source DOC on his system and the artifacts were visible in his Word 2003. Both were
corporate-issued PCs with the same system loads.

It was not uncommon for rotated figures to display in a compressed horizontal format
on systems other than the one they were produced on. In somes cases, a rotated
figure which was viewable correctly in the DOC was represented in the output PDF as
a compressed horizontal.

NOTE: In Word 2000/2003 the corner points are black for a figure which has not been
manipulated. In Word 2000 the corners are gray, in Word 2003 the corners are circles
and there is a green rotator extension on one side.

It may be that changes to a figure are compiled in a list, and figures are
compressed. Between compression and the list of changes, the figure is effectively
encrypted. Each figure has to be decrypted when the file is opened: the
interpretation and application of either the compression or modifications is not
fully compatible between versions, and can even differ within the same version.

According to complaints on the web:

    "When Word 2007 graphics are saved in a DOCX the resolution is down-sampled
     to about 96 dpi."

Word's behavior can be modified via menus and drop down screens, but every
perturbation is not visible. DOCs produced and/or changed on different versions can
be implicitly modified in a way that affects the appearance and/or formatting of the
original.

Figures can appear in various ways in a DOC e.g.

  - Inserted between lines
  - Superimposed on top of lines
  - Implicitly anchored

At http://tinyurl.com/6aylazv is written:

> "Insert some pictures into a document, and you may be in for a surprise –
> they don't necessarily stay where you put them. Depending on how you add
> pictures and what formatting you apply, your pictures may move around a
> document the same way that your text can."

> "When you place a picture in a Word document, you can place it either inline
> or floating. The default placement method depends on the version of Word you
> are using."

The latter paragraph may explain the experience of adding a line of text and having
a figure appear across the boundaries of two pages. Two or more variations can occur
in the same DOC, so the problem may be more than just version-related, it may have
something to do with the figure's source.

On some imported figures, Word keeps the entire contents that has been imported, no
matter how much has been cropped away. 'Accept All Changes' will purge a DOC of
modified text history, but it does not eliminate those parts of a figure which have
been cropped. Word 2003/2007 has a Compress Pictures tab which provides a choice to
"Delete cropped areas of pictures".

Keith Lang generated a series of 600 dpi figures using "PDF Creator" to test for
image quality when inserted into Word and after being printed to PDF from Word. When
viewed in a DOC the figures looked similar but JPGs failed the PDF test, the figures
turned blurry on the line weights. PNG and TIF were both excellent in Word and PDF.

The files were generated from the source application (Keith had used PTC Solid
Designer). Although not obvious from its title, PDF Creator can print to several
image formats. If a source application cannot export to PNGs, PDF Creator (which is
free at http://tinyurl.com/3h62hyw) provides an excellent tool.

Word compresses drawings with PNG. Being a lossless format it should be excellent
but the reduction to a low dpi destroys the quality of a drawing. Fortunately, if a
drawing is inserted as a PNG, Word retains the original settings i.e. an inserted
PNG compressed at 600dpi will retain its sharpness but the same drawing CtlCed into
Word will drop dramatically in quality.

Recommendations for Incorporating Figures into Word

Do not manipulate figures inside Word, make all changes in the source application or with graphics software, and export as a PNG.
PDF Creator can be used to 'print' a PNG if PNG is not an export choice.
Use Insert Picture/File to incorporate the PNG into Word.
Do not CtlC/CtlV (Copy/Paste) a figure because it raises the likelihood of either softening the line width and/or losing resolution. The problem is not always obvious in Word, it occurs in the output PDF.
Do not use Word's "Rotate Left 90 Degrees" or green tag on a figure to obtain vertical representation. Rotate outside of Word and import as a vertical PNG.
Cropping PNGs to eliminate white space and help with positioning and sizing on the page does not cause issues.

NOTE: PNGs are recommended because although both TIFs and PNGs are equivalent in
quality, the same cannot be said of size: TIFs are huge. In one comparison the PNG
filesize was only 41KB compared to 6,375KB for the TIF.

STYLES

Another source of unusual behavior was encountered with DOCs that turned out to have a long list of customized Styles. The SFF template uses a dozen different Styles (Headings and TOCs have 10 variations).

If a DOC makes extensive use of customized Styles, the editor should delete all those that are 'user-defined', though this may not always result in the remaining Styles working correctly. In at least one case, Word's Heading styles would not generate automatic TOC entries, suggesting that the cutomization affected normal behavior. In such cases it is necessary to start with a new base such as the SFF TEMPLATE.DOC (contact the chair at endlcom at acm dot org for a copy).

Care must be taken when importing the contents of a source DOC into the template, the CtlC from one to the other will import the Styles of the source into the destination. Even if a DOC is CtlA'd/Normal to remove Style settings before doing a CtlC/CtlV between the two, a selection of more than a few lines will cause the Styles to transfer over.

If it is realized that a selection has imported Styles, and a CtlZ is done to reverse the action, the import will disappear BUT the Styles do not. Undo does NOT completely undo, even the slightest mistake is irreversible when it comes to Styles.

Changing a Caption to Normal does not release the automatic TOC entries. Deleted Captions can have lingering effects e.g. numbers generated in the order of 3.1, 3.2, and 3.4 indicates that a previous Heading has been deleted. To correct, Accept All Changes, select the 3.4 line and CtlF9.

The CtlC of raw text from outside Word works best, it imports as Normal and then the Styles of the template can be used to identify the headings and captions to build an automatic TOC.

The safest way to import text from the source DOC is to CtlA/CtlC it into Wordpad (or Textpad, or some other text processor). When the CtlC of selected text is CtlVed into the destination DOC the Styles are not imported. Clumsy yes, but it is a surefire way to protect the destination DOC.

Tables require special care because they cannot be CtlCed from Wordpad. Select the table and set Style to Normal (cells can have Styles) before using CtlC/CtlV to import into the destination.

Recommendations to Avoid Isseues with Styles

Limit the use of Styles, and do not replicate Styles which are provided by Word.
'Sanitize' source DOCs as recommended above before importing any content into the destination DOC.

HISTORY

Word keeps track of all changes, which can clutter up a DOC and complicate the generation of history for purposes of review. Prior to making changes to a specification which is to be reviewed, 'Accept All Changes' to re-establish a base document. Word's Compare capability and/or highlight changes will then only display the differences between the two revisions. Note: A positive consequence of accepting changes is that file size can shrink by half or more.

CORRELATION

Keeping a figure's title and figure together requires manual management. After selecting the title and figure, use "Keep with Next" under Format-Paragraph-Line&Page Breaks. The same works for table titles and table.

Word offers the choice to untick "Allow row to break across pages" under Table

Properties/Row, but it does not always work the expected way. Manual control via "Keep with Next" provides precise control.

The Styles in template.doc for Headings are set so that a space line is automatically generated after the heading and "Keep with Next" is set. If the next line after the heading is the descriptive text, the first line will always remain with the heading. However, if the next line is a manual space then the heading and first line of text can break over a page.

MARGINS

Word defaults to generous margins, and the SFF template.doc has them set to Top/Bottom of 0.7"/0.6" and Left/Right of 0.8"/0.7" (in points these are values of 50.4/43.2 and 57.6/50.4 respectively). Note: Even though the measurement preference can be set at Options/General/Measurement Units, not all measurements work that way e.g Spacing and Tabs are always in points.

SYMBOLS and SUB/SUPER SCRIPTS

Microsoft and Adobe are less than compatible in some areas, the concern when producing an SFF specification is the treatment of symbols and subscripts.

Symbols such as Ohm, micro, etc may translate successfully but all too often the symbol appears in the PDF as an empty space or an unreadable character. Single character representations of +/-, 1/4, 1/2, et al may not appear at all, or only partially.

Subscripts and superscripts appear in such small characters that they may be invisible in a PDF.

Where symbols could be used in a specification they need to be spelled out, and subscript/superscript represented in normal text e.g. 1,000,000 as 10^6.

PRINTING

WYSIWYG (What You See Is What You Get) may be what Word displays but when it comes to printed output it may well be a case of WYSInWYG (What You See Is **Not** What You Get). A 30-page on screen specification can become a 36-page paper printout when side margins grow and text spills over from one page to two.

Printing to PDF before printing to paper does not necessarily avoid this kind of problem because the PDF may not match Word's pagination either i.e. Print to Acrobat PDF or Acrobat Distiller often produces a different page count than Word. There is a way to anticipate this by doing a Print to PDF soon after opening a DOC. If the Word pagination and printer pagination disagree, the printer pagination is set internally until Word is closed, and the pagination of DOCs will match those of PDFs.

TABLE OF CONTENTS

Having an automatically generated TOC is a convenience that requires that each section and sub-section by identified with a Heading Style. The template has been set up so that the Pull Down Menu identifies how the Headings will look. Headings 7-9 have been modified to work for an Appendix. Setting the style is done by leaving the cursor on a line, and selecting the Heading style from the Pull Down list in the Formatting bar.

When setting Styles, Word will at times pop up a pane which offers the choice of using the current line to set the Style or apply the Style to the line. The default may be forced by some difficult-to-find setting, but it is not known where that would be. The default is usually 'use the current line' and that is the WRONG thing to accept, because all the lines/paragraphs of that Style will be changed. Always apply the style to the line.

Headings appear in the TOC automatically, but Figure and Table titles take a little

more effort. Choose an empty line below the figure or above the table and select Insert/Caption, which brings up a Caption Pane. Choose the Label from the pull down list, Figure and Table are for those in the body, Figure: and Table: are for those in the Appendix.

Note: Captions are not automatically included in the TOC. To add them, choose Insert/Index and Tables to bring up the pane and select 'Table of Figures'. Use the Caption Label pull down menu to select which kind of Label to include in the TOC. This only has to be done once for a document, and the template has them established already. Applying Caption style to a pre-existing title changes the appearance on screen but does not build a TOC entry, that is best done by CtlCing the title, Insert/Caption on a new line and CtlV it in the Caption Label pane.

The Caption style automatically converts all text to bold capital letters so that the figure and table titles 'pop' in the specification as they are often being searched for. This looks ugly in the TOC so natural case (that which is typed) is used. The way titles are entered or CtlCed is how they appear in the TOC, and Title Case is the preferred representation.

The TOC is not automatically updated by Word, that is why at Print time a pane pops up to ask whether to update Page Numbers Only or the Entire Table. There are two ways to force the TOC to be updated in the document.

 a) Right click on each group in the TOC, and select Update Field
 b) CtlA the whole document and click F9.

Each of these brings up the same pane as printing, and the default is typically the wrong one, Page Numbers Only. Choose Entire Table. The pane will ask this several times (once for each group in the TOC). Always choose Entire Table. If you have just updated the document's TOC immediately before printing, the pane still asks, so click Cancel.

TEMPLATE

The SFF template.doc is located in the Members section at www.sffcommittee.org