Creating document templates for use with SKF's Analysis and Reporting Module

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Introduction

You can output data from Analysis and Reporting Module to Microsoft® Word documents, using template files and bookmarks to produce documents formatted however you wish. You design your document in Word and save it as a template file, with bookmarks located where you want the text or graphics to go; then link these to a Word report in the Analysis and Reporting Module.

If you want to output more than one record to a single document, you will need to use a special numbering convention in order for this to work.

The Analysis and Reporting Module comes bundled with a number of pre-defined templates and associated reports which you can use as examples.

- *Note that for output to Microsoft Word documents, Microsoft Word must be installed correctly on your system and be registered (as happens normally) as an automation server. Analysis and Reporting Module does not do the actual writing of the documents, rather it controls Microsoft Word invisibly to do the writing.*

Analysis and Reporting Module will generate Microsoft Word documents using Microsoft Word 2000 or newer.

This document gives instructions on how to create templates in Microsoft Word and add bookmarks to them. Note that Microsoft Word 2003 was used for the examples here; other versions of Microsoft Word may be slightly different but the principals remain.

You can also create Microsoft Word documents without using templates with bookmarks. In this case, only simple tables and graphics are created, based on your normal template.

Creating a template (.dot)

When you create a new document using Microsoft Word, the settings and properties for this new document are taken from a file called "normal.dot". This file is located in a special place defined by Microsoft Word itself.

If you want to customise how your default documents behave, you can open this file and modify anything in it – the normal font, the paragraph spacing, or anything that you can format in any Microsoft Word document. When you save the file (keeping it as a template), it will provide your own preferred settings for new documents.

Further than this, you may create any number of template files defining different document formats, such as a standard home letter, a business letter, and so on.

To create a new document using a template, you use the *File | New* command in Microsoft Word, which should provide you with a list of templates to choose from.

When prompted to save a template by Microsoft Word, it usually offers you its standard template folder as a location, but you can save templates to anywhere. The only difference is that only templates in the standard locations are made available when you choose *File | New* in Microsoft Word.

- *Note that the only thing which distinguishes a template from a normal Microsoft Word document is the file extension – everything else is the same. This means you can make any document into a template simply by changing its extension from .doc to .dot!*

- *Note that you must "open" the template in a specific way in order to edit it – if you simply double-click on a template, Microsoft Word will assume you are creating a new document based on that template; you can tell this has happened because Microsoft Word will show the document name as "Document x" rather than use the name of the template file opened.*

To open a template for editing, right-click on it and choose the *Open* command, instead of the *New* command.

There are three ways to create a template:

- Open an existing template and save it under a new template name.
- Copy an existing template and rename it.
- Create a new document and select templates from the **Save as type** list box when you save it.

As already mentioned, it doesn't matter where you save the template; Analysis and Reporting Module comes with a set of pre-defined templates which are stored in a "Report templates" folder within its data folder ("Analysis and Reporting Module data" within your standard documents path).

Adding bookmarks

To add a bookmark to a template, choose **Insert | Bookmark** from the menu. This will make the **Bookmark** window appear[1]:
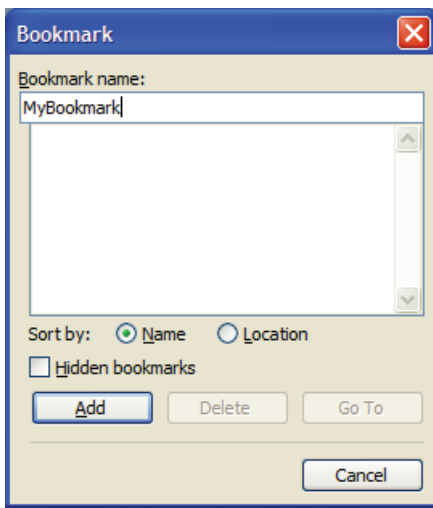
Before doing any serious bookmark editing, you should make a temporary change to your Word set up which will make the whole process a lot easier: go to **Tools | Options**, and check the **Bookmarks** checkbox on the **View** tab[1]:
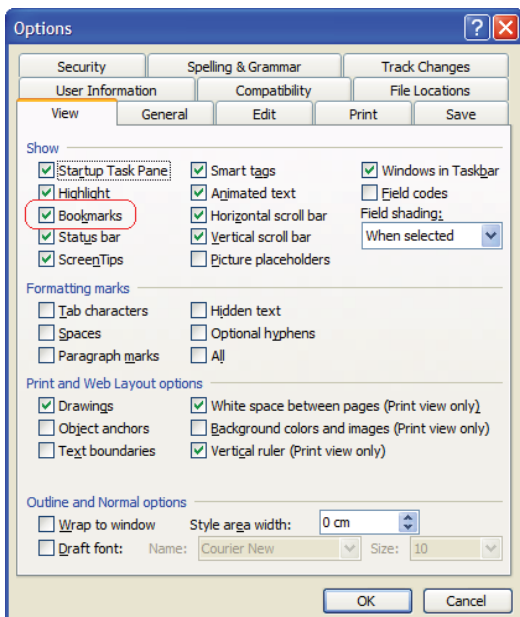

Checking the **Bookmarks** control will make all bookmarks visible in your document as grey I-beams, as shown here:
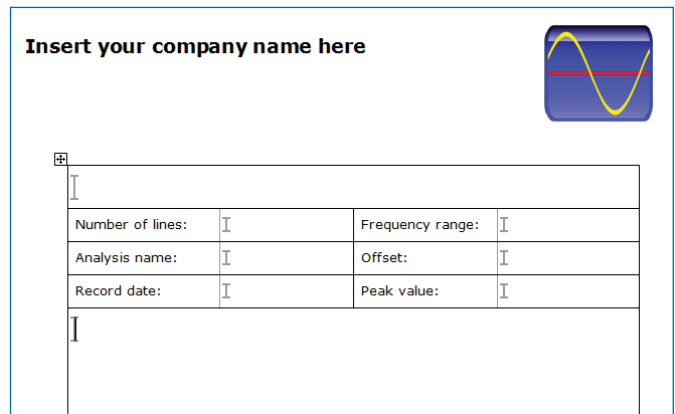
This makes it easier to see where you have placed them, although there is still room for confusion, as you will see!

- *Note that the **Bookmark** window allows you to view the bookmarks in the document sorted by name or location. It is easier to use the latter when adding new bookmarks to a template[1]:*
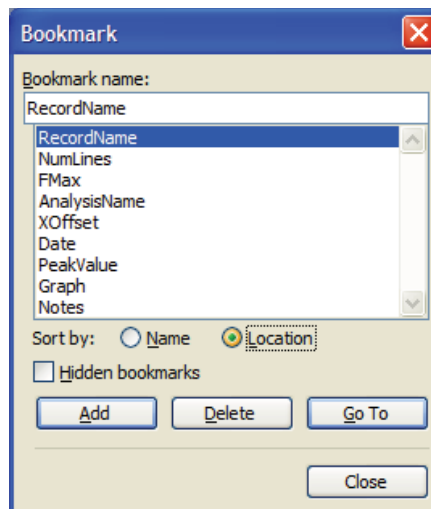
- *Note also that bookmark names must contain no spaces!*

To add a bookmark, first place the cursor at the position in your document where the bookmark is to go. This may be in free text, within a text box or in a table.

Choose **Insert | Bookmark** to make the **Bookmark** window appear, and type in a name for your bookmark.

When you have entered the name, press **Enter** to add it to the list; the **Bookmark** window will close (rather confusingly, since it gives no indication your operation was succesful). A grey I-beam should appear in your document at the chosen location.

To confirm the bookmark was entered, choose **Insert | Bookmark** and you should see your new bookmark in the list.

To add further bookmarks, simply repeat the above process, **remembering to move your insertion point each time to the correct location** – the bookmark editor window is hopeless at showing you where the bookmarks are!

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Using your template with Analysis and Reporting Module

You can output your data to Microsoft Word documents, using template files and bookmarks to produce documents formatted however you wish. You design your document in Microsoft Word and save it as a template file, with bookmarks located where you want the text or graphics to go; then link these to a Word report in analyzer support software.

The normal method of generating documents is to output one record to one document; however, you can output more than one record to a single document. To do this you will need to use a special numbering convention in order for this to work.

To generate Microsoft Word documents from your data, choose **Microsoft Word Report Generator Expert** from the **Tools** menu; this will open up the Report Generator for Microsoft Word window which will take you through the steps necessary to create the reports. If you want to use templates for the documents, you will need to have created or modified a Microsoft Word template file (.dot) containing one or more bookmarks; it is these bookmarks that the software uses to insert text or graphics into your document.

The software comes bundled with a number of pre-defined templates and associated reports which you can use as examples.

You can define as many report set ups as you like, and run them directly using the **Default Word Report** and **Select Word Report** options under the **Tools** menu; you may also delete any reports from there.

- Note that for output to Word documents, Microsoft Word must be installed correctly on your system and be registered (as happens normally) as an automation server. Analysis and Reporting Module does not do the actual writing of the documents, rather it controls Microsoft Word invisibly to do the writing.

Check-to-conformance reports may also be run into Microsoft Word documents. The process is the same but there are special rules governing how the data is output.

The Analysis and Reporting Module will generate Microsoft Word documents using Microsoft Word 2000 or newer.

Setting up your template report

Using the **Report Generator for Microsoft Word** window, you can create any number of "reports" which define the template, link bookmarks in the template to report elements[2] from your data, and the name and location of the files created.

The Analysis and Reporting Module provides a number of pre-defined templates, which will be located in a "Report templates" folder within its data folder ("Analysis and Reporting Module data" within your standard documents path). You can use and modify these, or define new ones; it doesn't matter where you store these templates, as long as you can identify them in the report set up.

When you select a template, SKF Analysis and Reporting Module reads it and extracts the list of bookmarks it contains. You can then associate any report item you wish to include in the output with whichever bookmark is appropriate.

For example, if your template contained a bookmark called "GraphPlot" which defined where you wanted the graphical plot to go, you would select "Graph" from the report elements list and pick the "GraphPlot" bookmark from the bookmark list.

You may also add in as many report items[3] to your report as you wish, allowing you to output simple data analysis.

Finally, you can choose the document naming to use – you can choose either the record name, a GUID[4] or use a custom name (to which is added a number to keep each file unique).

You can also choose which directory to write the files into. This is specific per report, allowing you to directly output to different places.

Once this is done, you click on the **Next** button to run the report; a progress bar shows you feedback; and once completed, if there were no errors, you can choose to view your documents in Microsoft Word.

Pre-defined reports may be run directly using the Default Microsoft Word report command, which when placed on a toolbar, will include a drop-down list allowing you to run any report directly:
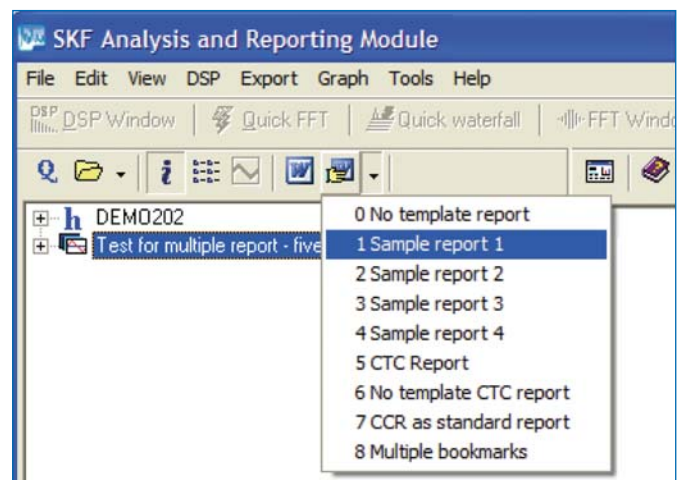
Output of check-to-conformance data

Special rules govern how check-to-conformance results are output to Word reports.

Check-to-conformance reports contain two things: the conformance check report, which is a table of measurement results and status values, and a set of spectral readings.

The conformance check report can provide three output items to the document – the results table, the machine graphic and the multiple plot of the CSV results. Alternatively, you can choose to ignore the conformance check results and simply output the individual spectral records like a standard report.

[1] Microsoft Word screen shots reprinted with permission from Microsoft Corporation.
[2] Report elements include the record name, reading date, spectral parameters, notes and graph plot.
[3] Reporting items in analyzer support software text reports and Word reports can include amplitudes at individual signature positions, or peak or RSS within user defined bands. Each item can also be configured to include the ordinate value (time or frequency).
[4] A GUID is a 128-bit Globally Unique Identifier. When created by your computer system, this value is guaranteed to be unique. GUIDs are numerical but are usually shown in the following form: {0F447726-A5E1-4340-AAD7-3BEC78B2CCBD}

For conformance check reports using a Microsoft Word template, three bookmark properties are available for the three output items. In addition, the standard report template items can be selected but will only operate on the first record taken, including its graph plot.

For non-template reports, the three check-to-conformance items are output to a plain table and two stand-alone images. If any standard report elements are selected they will be output to the single document, in sequence at the end, one per spectrum in the check-to-conformance.

Writing multiple records to a single Microsoft Word document

Generation of Microsoft Word documents from analyzer support application data (for both template/bookmark and non-template reports) allows you to output more than one record to a single document. This is simpler in non-template reports as each record is simply written out to the document in simple tables; for templated reports, you have to use a special numbering scheme in order for this to work, as described here.

The first thing you have to be aware of is that you have to have one or more bookmarks for each record that is going to be output from your data structure.

You may only run these multiple-bookmark reports on whole data structures. If you run one on a record, you will only get that record reported as a single element in the document.

You must define your bookmarks with identical names, all of which must end with a number; you must use the same names, with different end numbers, for each report parameter.

For example, if you wanted to output three records to a file, and include the record name and the graph plot for each, you should define six bookmarks in the template like this:

```
RecordName1
Graph1
RecordName2
Graph2
RecordName3
Graph3
```

You must only use the first set (those bookmarks ending in '1') when you pick the bookmarks in the Fields and Bookmarks tab of the Report Generator for Microsoft Word window.

For the example above, you would choose bookmark "RecordName1" to receive the record name, and bookmark "Graph1" to receive the graph plot. The second record in the data structure would then be written to bookmarks "RecordName2" and "Graph2" and so on. The application automatically generates these bookmark names to receive the output for every record in the chosen data structure.

This leads to one final further restriction: you must have at least as many sets of numbered bookmarks as records that you wish to output, otherwise the file generation will fail.
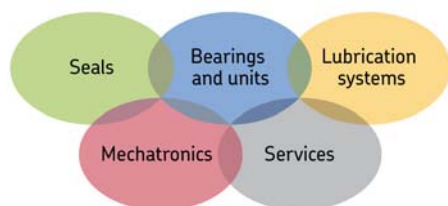
The Power of Knowledge Engineering

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