

A Peek at PROC DOCUMENT

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Abstract

The DOCUMENT destination, added to SAS 9 Software, is a significant enhancement to the Output Delivery System that offers new capabilities to work with "objects" created by the interplay of SAS Procedure and ODS functionalities. By learning how to use this new feature of the SAS System you can work even more efficiently with Procedure-generated output.

Essential Concepts

The Output Delivery System has revolutionized the way SAS users work with Procedure-generated output. With the implementation of ODS as a production feature of Version 8 of the SAS System, users now have a vast array of tools with which to modify the appearance, as well as the "output destination" of their Procedure output. One "missing link," with ODS in Version 8 was, however, the ability to store and subsequently "re-use" output objects without having to re-run the Procedure.

To fix ideas, let's review how ODS "works" within the SAS System. Starting in Version 8, SAS Procedures pass their output (called a "Data Component") to the Output Delivery System. ODS then "binds" the Data Component to a Table Component to create an "Output Object." Once the Object is created, it is immediately sent to the open "Destinations." By default, the LISTING Destination, or the Output Window, is an open destination. Users may open (and close) other destinations, such as PDF, HTML, RTF, etc., in order to have the objects "delivered" to the desired destinations.

The Output Delivery System therefore gives SAS users a great measure of control over the structure and appearance of their output. What was previously either very difficult (or impossible) to perform with SAS Output is now a relatively straightforward process. SAS users can quickly "render" their Procedure-generated output as PDF files, HTML files, SAS data sets, and to other file formats.

What has been missing however, is the ability to save and re-use the output objects. For example, suppose you are using PROC REPORT to create an report from a very large data set. Most likely you'll want to look at the report in the Output Window

before making it in to, say, an HTML file for posting on the corporate intranet. You may need to run several PROC REPORT tasks until the report has the desired structure, analyses, etc.

But, once the report is "in shape," perhaps the next step in Version 8 would be to re-run PROC REPORT once again to render the output to the HTML destination. And, maybe after someone sees the report on the corporate intranet, they ask you for a copy of it in PDF format. In Version 8, you would have to re-run PROC REPORT against the source data set once again in order to "render" it as a Portable Document File.

Why? In Version 8, there is no way to store ODS objects in "raw" form. Instead, ODS immediately renders objects to the specified open destinations, and that's that. There's no way to re-use, or "replay" objects once they are output to a destination.

This limitation may be just a minor frustration to some users of the SAS System. For others, however, having to re-run a SAS Procedure against a large data set in order to render its output to a new ODS destination means increased processing time and resource utilization.

The DOCUMENT ODS Destination

The DOCUMENT Destination, new to SAS 9 software, addresses this limitation. This destination can be used to store ODS objects in a special SAS "itemstore" that can be saved and re-used as often as you'd like, without having to re-run your procedure. Both permanent (two-level) and temporary (one-level) "documents" can be created. The "document" is a hierarchical file of output objects created from the time you open the DOCUMENT destination until you subsequently close it.

The ODS documents you create contain the procedure-generated Data Component and the ODS-generated Table Component. You can use either Document Procedure (PROC DOCUMENT) or the Document Window, both new to SAS 9, to work with the documents you create via the ODS Document destination.

The DOCUMENT Window

This window will appear on your SAS desktop by submitting "odsdocuments" from the Command Line or as a Display Manager command [i.e., DM 'ODSDOCUMENTS';] from the Program Editor.

Once you submit this command, you can work with both permanent and temporary documents via the GUI [Graphical User Interface] provided by the Document Window.

Among the functions you can execute via this point-and-click interface with your ODS Documents, are the ability to re-organize the structure of output before "replaying" it to various destinations, deleting or renaming objects, and related tasks.

In the pre-release version of SAS 9.0 software with which I have been working, the Document Window still has a few places where improvements are in order. For example, although you can "replay" a Document (or any part thereof) to most ODS Destinations from the Document Window, you can't specify either the file name or the folder to which the output should be stored. Hopefully this capability will be in place in either SAS 9.1 or 9.2. When added, it will be even easier to work "replay" objects to desired Destinations.

The DOCUMENT Procedure

PROC DOCUMENT is a new (to SAS 9) BASE SAS Procedure that allows you to work with your objects by submitting Procedure syntax instead of using the DOCUMENT Window. While you can do pretty much everything in PROC DOCUMENT that you can in the DOCUMENT Window, users who need to perform extensive manipulation of their Documents will probably want to master PROC DOCUMENT's syntax and submit the commands in batch, rather than point-and-click, mode.

The DOCUMENT Procedure is an interactive procedure that is used to create, manage, and replay Documents. PROC DOCUMENT commands can be submitted in conjunction with other ODS statements.

Learning More

More information about the DOCUMENT Destination, Window and Procedure are available from the Base SAS Research and Development segment of SAS Institute's web site at:
<http://support.sas.com/rnd/base/topics/odsdocument/>

A PDF version of the PROC DOCUMENT documentation and other information, is available for download from the web site.

PROC DOCUMENT in SAS Release 8.2

In theory, these features of SAS are available as (very) experimental elements of Release 8.2. But, you may find trying to use them quite vexing, as well as full of bugs. Better to wait until your site obtains SAS 9.0 or 9.1

Summary and Conclusions

The new DOCUMENT Destination, Procedure and Window expands ODS capabilities to a new level of power and flexibility. While there is something of a learning curve with PROC DOCUMENT syntax, taking the time to master its capabilities will be worth the effort.

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