

SAS® Web Report Studio - Enabling Flexible Reporting for End-Users

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ABSTRACT

SAS® Web Report Studio is a web reporting tool that allows end-users to develop, run, and share reports utilizing an intuitive interface. As the name implies, end-users only need a web browser to develop and run the reports. This paper will discuss features, limitations, server requirements, security options, and provide some practical how-to tips.

INTRODUCTION

SAS® Web Report Studio (WRS) is a business intelligent component part of the SAS Intelligence Platform that allows end-users to view, create, and share web-based reports. WRS provides reporting capabilities without end-users having to understand how to join tables and write reporting code. Here is a brief synopsis of the capabilities of WRS:

- Create reports from relational tables
- Create multiple section reports based on different sets of the data
- Build report templates that contain commonly used report layouts
- Report upon multi-dimensional cube data
- Six different graph types: bar charts, bar-line charts, line graphs, pie charts, progressive bar charts, and scatter plots.
- Link text, images, group break values, table values, and graph values to other reports or web pages
- Creating filters that can easily be reused
- Schedule report run times and automatic report distribution via e-mail
- Save reports as pdf files
- Export tables and/or reports to Microsoft Excel

SAS/SOFTWARE, SERVER, AND CLIENT REQUIREMENTS

WRS is a component of both the SAS BI Server and SAS Enterprise BI Server packages. Thus one of those two packages must be licensed from SAS.

Supported server systems for the SAS Servers (including Base SAS and SAS Metadata Server) include:

- AIX (64-bit), Release 5.1+
- HP/UX (64-bit), Release 11i+*
- HP/UX Itanium (64-bit), Release 11i+
- HP/UX PA-RISC
- Linux for Intel (32-bit): Red Hat Linux 8.0, RHAS 2.1, RHEL 3.0; SuSE SLES 8, SLES 9
- Linux for Itanium (64-bit): Red Hat RHEL 3.0
- OpenVMS Alpha (64-bit), Release 7.2+ (excluding Release 7.3)*
- OS/390, Version 2, Release 10*
- Solaris (64-bit), Version 8, 9 or 10
- Tru64 UNIX (64-bit), Version 5.1A or 5.1B*
- Windows (x86-32): Windows 2000 Professional, Windows XP Professional, Windows NT 4 Server
- Windows (64-bit on Itanium): Windows Server 2003
- z/OS, Version 1

SAS includes a reference implementation of Apache Tomcat. Sites can optionally choose to license WebLogic or WebSphere directly from the vendor:

- BEA WebLogic (AIX, HP/UX Itanium, Solaris, Windows 2000 Server, Windows Server 2003).
- IBM WebSphere (AIX, Windows 2000 Server, Windows Server 2003).
- Tomcat (AIX, HP/UX Itanium, Solaris, Windows 2000 Server, Windows Server 2003).

All SAS Business Intelligence clients run in a Windows desktop environment.

- Windows (x86-32): Windows 2000 Professional, Windows XP Professional
- Internet Explorer 5.5+ (but not Internet Explorer 7 – yet)

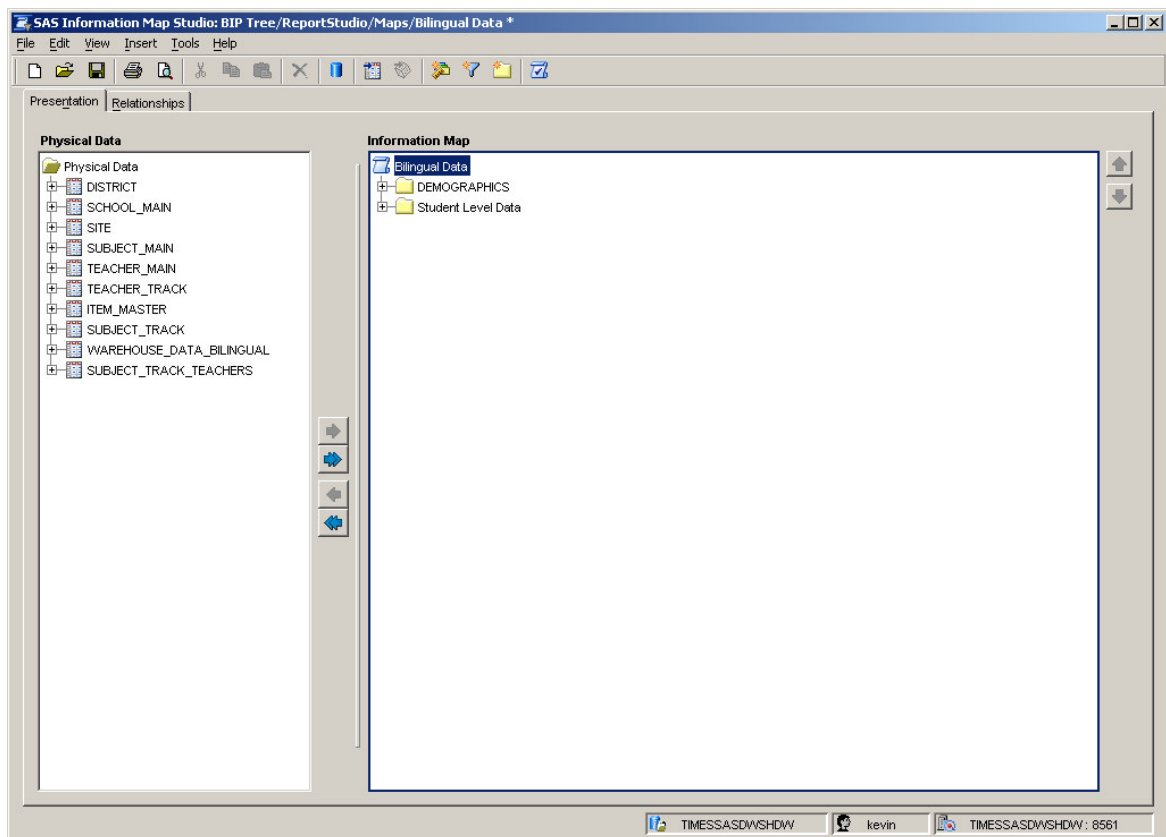
DATA SOURCES

INFORMATION MAPS

One of the primary benefits of WRS is that it shields the end-user from the complexities of the data. This is accomplished via the use of SAS Information Maps. SAS Information Map Studio (IMS) is another component of SAS BI Studio/SAS Enterprise BI Studio. In a nutshell, IMS allows you to specify how tables are joined. If the tables have primary and foreign keys already established, IMS can detect this and will prepopulate the linkage for you.

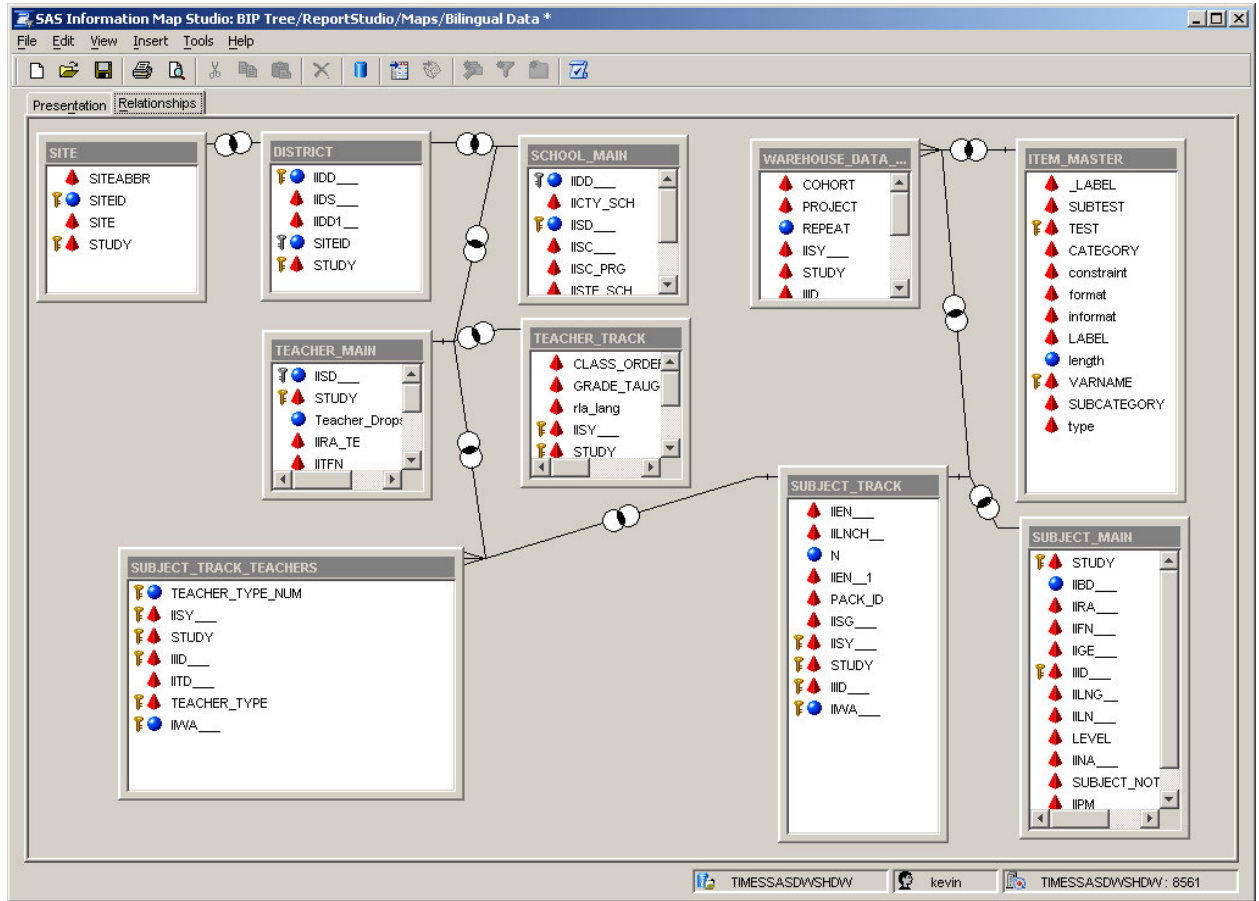
As presented in Figure 1, an information map consists of the registration of one or more tables (see the left side of the figure) and the selection and optional grouping and labeling of items into the information map.

Figure 1. Presentation tab of SAS Information Map Studio



As shown in figure 2, the relationships among the tables are specified within the Information Map and it is these relationships that WRS utilizes when creating a report so it is known how to join the tables together when report items from various tables are selected by the end-user.

Figure 2. Relationships tab of SAS Information Map Studio



Note that the person who creates the Information Map has a great deal of flexibility in how to logically group the items within folders so they can easily be found by the end-users.

STORED PROCESSES

A second data source for WRS reports are stored processes. Stored processes can be used within WRS in one of two ways. First, a stored process can run whenever an Information Map is accessed so that the data sources within the Information Map are updated. Second, a stored process can be executed by itself with the stored process providing all of the report content. This feature is extremely powerful in that it essentially allows you to run any SAS program that you want within WRS, as long as you successfully register the SAS program as a stored process within the metadata.

WRS INTERFACE

The WRS interface is simple and straightforward and should be readily understandable to most end-users.

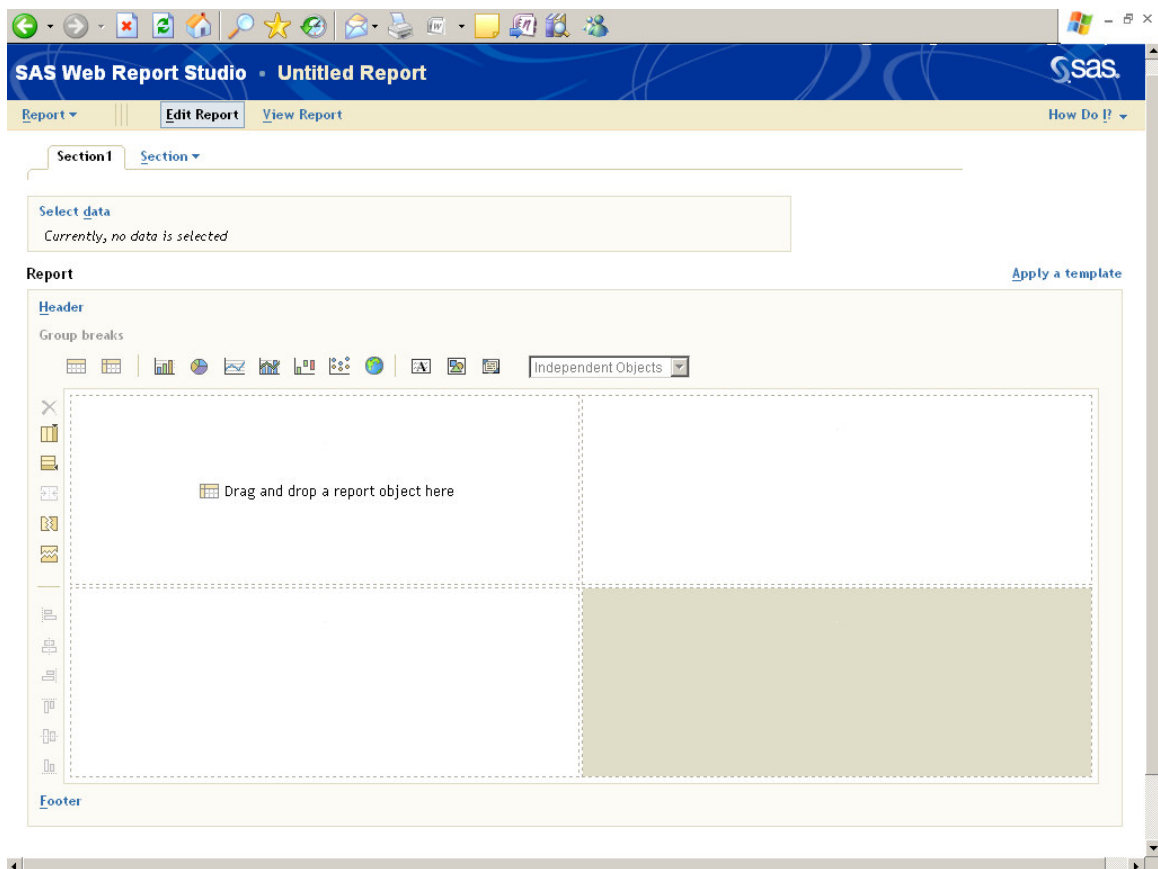
RUNNING EXISTING REPORTS

Running existing reports is very simple. You simply select 'Report-Open' and then navigate to the report or stored process that you want to run. Navigation is accomplished using a very Windows Explorer-like interface with file names, drill-down into folders, and an 'Up One Level' button. In addition, there is a radio button that allows end-users to search through 'Shared' reports that multiple people may have access to as well as a 'My Reports' button that shows only the reports that you want to keep private. As your number of reports grows, you can also conduct searches for reports by report name, keywords, or report descriptions.

CREATE NEW REPORTS

Figure 3 gives you an idea of what the interface looks like as you create a new report. After selecting 'Report-New' from the WRS main menu, a blank report appears.

Figure 3. Creating a new report in Web Report Studio



From this point, there are basically 3 steps that are followed to create a report.

- 1) Use the 'Select Data' option to select the Information Map that will be utilized and then to select the items from the Information Map that will be used in this particular report.

- 2) After the report items are selected, you can specify any needed filtering either dynamically or utilizing pre-defined filters within the Information Map.
- 3) The content of the report is specified within sections. Each section can contain a graph, a listing report, or a crosstabulation report. Once those steps are completed you are ready to generate and view the report. Headers, footers, fonts, styles, and other options can be altered as well.

SECURITY FEATURES

There are multiple levels of security that can be enforced with WRS. Among the common security steps that can be applied:

- 1) Basic capabilities can be controlled via controlling rights assigned to individual users or groups.
 - Report Consumer (view reports)
 - Report Author (create and schedule reports)
 - Advanced User (distribute reports)
 - WRS Administrator
 - WRS Prohibited (cannot login to WRS).
- 2) Authorization to access a given information map (or a folder of information maps) can be done within IMS or SAS Management Console. Permissions can be managed for users and groups.
- 3) General pre-filters can be applied if there are portions of the data that no consumers of the information map should see. A general pre-filter applies to all map users. An example of a pre-filter might be to omit all records from a report that occur before a given date.
- 4) Filters can be applied such that particular groups of users can only see a given set of data. This can also be extended such that filters are specific to individual users (identity-driven filter). For example there might be situations where employees are only allowed to see their own data or managers can only see data for subordinates.

WRS LIMITATIONS AND DESIRED FEATURES

WRS is a fairly new product (current version is 3.1). Thus it will assuredly evolve and improve. Having worked with WRS for a while, here are a few limitations and desired features:

Currently you need to use Internet Explorer version 5 (5.5+) or version 6. If you have upgraded to IE 7 you will need to roll back to Internet Explorer 6 which reportedly is a fairly trivial process.

The ability to create parameter prompts within a WRS report so the end user can easily select the information of interest is a very nice feature that is easy to use. However, you currently cannot create dynamically linked prompts. For example, if you select to subset the data on parameter A, the ideal would be for the prompting mechanism to show you only the parameter B choices that remain after the parameter A filter is applied. Currently you see all parameter B choices as if A had never been chosen. This issue will be addressed in the next version of WRS.

In addition to simple listings and crosstabs, I would very much like to see a simple PROC FREQ like capability to see simple counts. Currently must add a numeric dummy measure with a constant value of 1 to do simple PROC FREQ like reports with the crosstab report.

When an end-user has sliced and diced there way to a subset of the data of interest, it would be extremely useful to provide the ability to save off a SAS data set so it can be further analyzed within SAS or Enterprise Guide. Currently the end-user is limited to being able to export to Excel files.

SUMMARY

SAS Web Report Studio is a very easy to use web application that can open up report creation to a wide number of users. The ease of use has the potential to ease the report generation burden, primarily due to the removal of the need to generate your own query syntax.

There are 3 pieces of knowledge that are important to setting up a WRS environment. First, the installation of BI Studio is not a trivial process and must be performed by someone with some basic training in doing so. Second, the ongoing maintenance and security is dependent on someone familiar with SAS Management Console as the maps and reports must reside within a given structure to be available to WRS. Third, administrators must understand Information Maps and Stored Processes which are fairly easy concepts to learn.

REFERENCES

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