

SAS® Information Delivery Portal – A Tutorial

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ABSTRACT

Access data from throughout your organization via a single set of web interfaces. With the ability to author reports, view reports, execute stored processes, apply report level or data level security, deploy custom portlets utilizing the WIK API, and personalize user experience, the SAS® Information Delivery Portal gets data into the hands of business users in an automated and secure fashion.

INTRODUCTION

The purpose of this paper is to provide examples of functionality from within SAS® Information Delivery Portal in a manner that is easy to follow and replicate.

SAS® Information Delivery Portal is similar to the popular TV device Tivo®, in the fact that users can organize their favorite programs (or for SAS, its reports) and view them when they desire. Also, administrators can push specific Tivo® suggestions (again for SAS its reports) out to user communities.

CONNECTIONS

The SAS specific users that are required before SAS v9 Server installs have designated responsibilities within the SAS Information Delivery Portal. It is extremely important for the SAS administrators to understand the differences.

sasadm – This administrator has the ability to change permissions in the SAS Management Console, but sharing pages from within the SAS Information Delivery Portal user interfaces will not get you anywhere.

sasdemo – This sample user is capable of doing most anything, since it is set up for testing the systems after installation.

saswbadm – This WEB administrator is the log in to use when you are setting up new pages for the entire company or one group. However, you can not modify the main page otherwise known as the Public Kiosk.

sasguest – Be careful who you share this user id with. This is the account to use when setting up or changing the Public Kiosk.

Refer to Appendix 1 in the Security Administration guide for more information on SAS user accounts. (<http://support.sas.com/documentation/configuration/bisecag.pdf>)

But before I move on, I heard someone ask: "What is the Public Kiosk?"

PUBLIC KIOSK

When you first open the SAS Portal, you are directed to the log in page. Some organizations like to have some (if not all) information accessible to all users, so the first page is a portal page rather than the log in screen. This is when the sasguest account and the Public Kiosk come into play.

Log into the SAS Portal as sasguest and add a page called the Public Kiosk. (Search to verify it doesn't exist already, since having two might be confusing.) Add content, modify the display, etc. When anyone goes to the <http://hostname:8080/Portal> URL, they will then be directed to an initial page(s) and for authentication will need to select 'Log in' on the top right of the page.



EXAMPLES

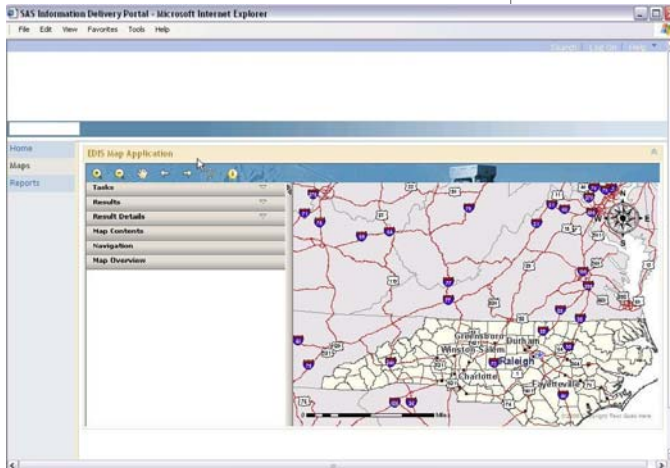
Included are four examples of how organizations have implemented the SAS Information Delivery Portal for their project, department, initiative, etc. As you can see, the Information Delivery Portal is flexible in its ability to include the image, content, and utilization of preferences. (Note: Logos were removed to ensure confidentiality.)

Monthly Portal

Measurement Level	NOVEMBER	DECEMBER	JANUARY	Baseline	QTD Total	Goal	QTD Goal	Var	Rate	Points
BRG-Areas										
PRG_Reg_23	12.75	11.50	11.00		35.42	0	100	50		
PRG_Reg_23	173.00	228.00	118.00		519.00	0				
PRG_Reg_23	79,186,413.07	72,254,109.92	65,365,436.61	78097959.40	215,895,958.61	816,300	25490.0%	400	200	52,987
PRG_Reg_23	91.00	134.00	91.00		260.00	0				
PRG_Reg_23	82,953,714.60	83,633,072.47	87,503,696.23	78329411.81	253,480,475.29	6,000,000	4224.84%	300	100	4,225
PRG_Reg_23	69.00	100.00	63.00		222.00	543	40.68%	300	100	41
PRG_Reg_23	203.00	106.00	94.00		403.00	525	76.78%	300	100	77
PRG_Reg_23	7.00	11.00	20.00		38.00	525	7.24%	150	50	4
PRG_Reg_23	120,590.00	25,203.00	4,000.00		149,693.00	13,265,117	0.72%	300	150	1
PRG_Reg_23	211,950.00	80,000.00			3,960,000.00	100	50			
PRG_Reg_23	875,000.00	137,500.00	62,500.00		875,000.00					
PRG_Reg_23	340,967.14	340,967.14	340,967.14		1,022,901.41					

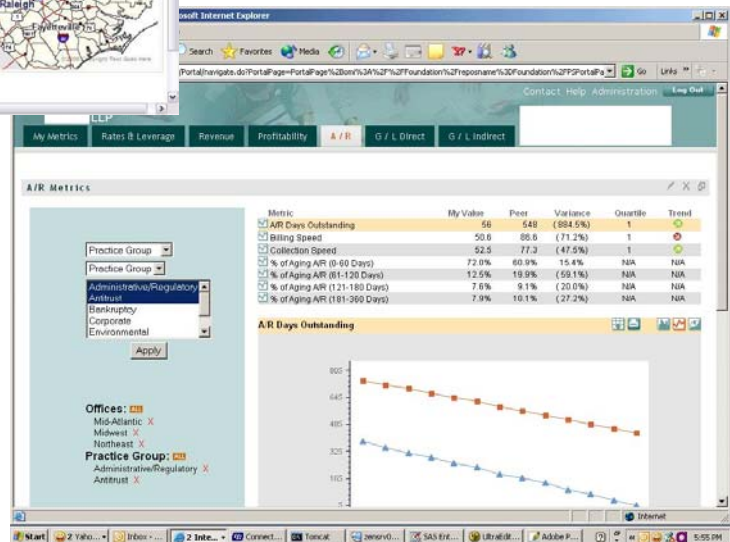
WebDAV Content of SAS Data Table

Report Navigator Listing Web Report Studio Reports



Including content from external applications (in this case ESRI) in a URL Display Portlet

Custom Displays with user selections via drop down boxes and OLAP cube queries and graphs.



PREREQUISITES FOR EXAMPLES

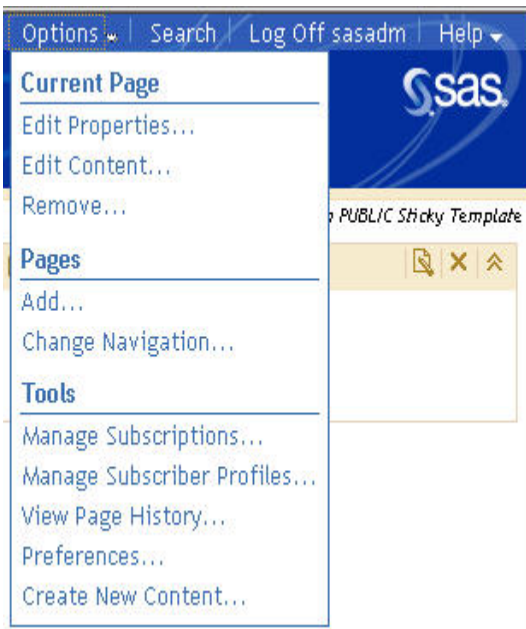
The examples are based off of the reports generated during the SAS® Web Report Studio and SAS® Information Map Studio Tutorials (see SGF Paper 212-2007).

ADDING A PORTAL PAGE

In 99.9% of cases, the Home Page just isn't enough when using the Portal. Organizing all of the information into actionable tabs, organizations, or some other logical breakout is required for a user or company to keep the current view from becoming unwieldy. Adding a page alone is simple enough. There are just two prefaces:

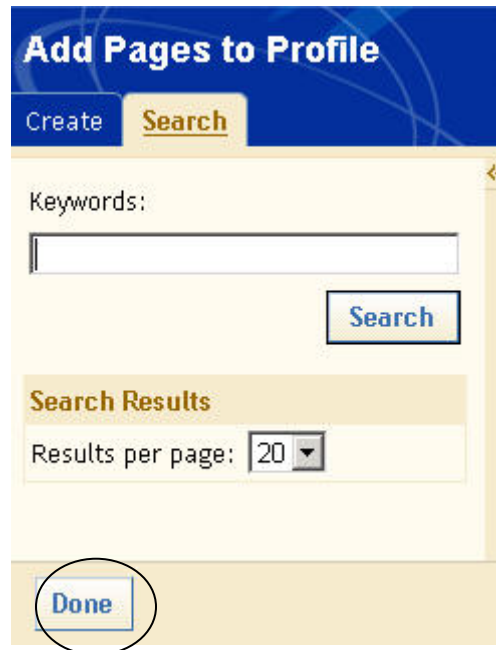
1. You must have access to this feature.
2. **Be aware of the log in id that you choose:**
 - As SASGUEST, you are adding information that any user can see before authenticating.
 - As SASWBADM, you have the ability to share the page with other users or groups.

Step 1. The first step in adding a page to the portal is to select Options, Pages, Add...

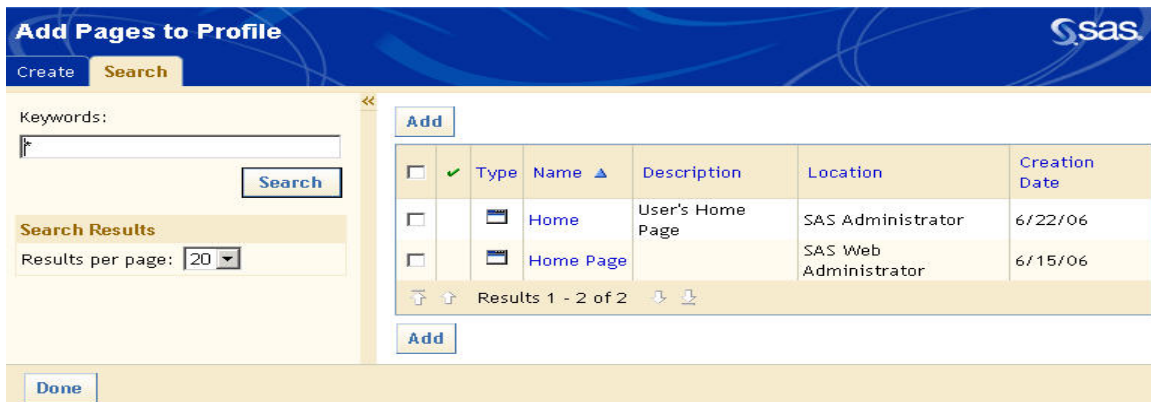


Step 2: To add an existing page, run a search by selecting Search and entering in a keyword (* is the wildcard).

And choosing a result, clicking Add, and clicking Done.



Included are the search results for the * wildcard in an initial installation.

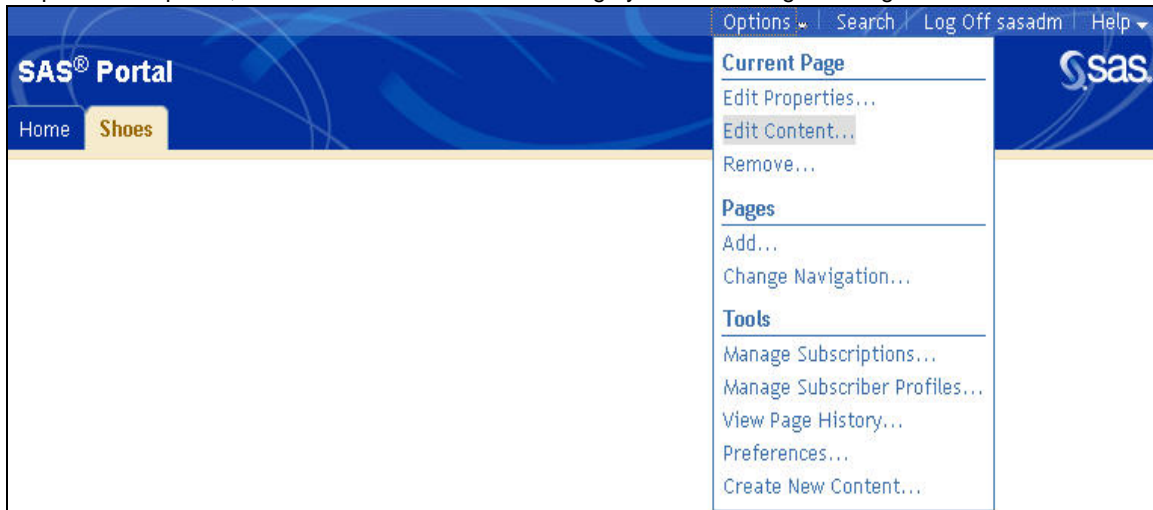


Since this was pretty boring, I added a new Page called 'Shoes' by going back to the 'Create' tab, typing the word 'Shoes' and selecting 'Add'. As you can see below this screen was added successfully, but know the white space has to be eradicated.



ADDING CONTENT (PORTLETS)

So how to eliminate an empty Portal Page you ask? You know real content is needed to add the real value. Step 1. Click Options, and Edit Content while on the Page you are working to change.



Step 2. Search for an existing Portlet by click Search, typing in a keyword and selecting from the results.

The screenshot shows the 'Add Portlets to Page' interface for 'Shoes'. It features a search bar with the text 'Shoes' and a 'Search' button. Below the search bar, there is a 'Search Results' section with a dropdown menu set to '20' results per page. To the right, there is a table of search results with columns for checkboxes, Type, Name, Description, Location, and Creation Date.

<input type="checkbox"/>	✓ Type	Name ▲	Description	Location	Creation Date
<input type="checkbox"/>	Alerts Portlet	Alerts Portlet	A portlet for sending alerts	SAS Web Administrator	6/15/06
<input type="checkbox"/>	Alerts Portlet	Alerts Portlet	A portlet for sending alerts	SAS Administrator	6/22/06
<input type="checkbox"/>	Bookmarks	Bookmarks	Portlet for managing bookmarks	SAS Web Administrator	6/15/06
<input type="checkbox"/>	Bookmarks	Bookmarks	Portlet for managing bookmarks	SAS Administrator	6/22/06
<input type="checkbox"/>	Bookmarks Portlet	Bookmarks Portlet	Portlet for managing	SAS	6/22/06

Step 3. Create a new Portlet by Choosing from the Available Types.

The screenshot shows the 'Add Portlets to Page' interface for 'Shoes' with the 'Create' tab selected. It displays a form for creating a new portlet. The 'Portlet type' dropdown menu is open, showing a list of available types: Collection Portlet, Information Map Viewer, Quiesce Portlet, URL Display Portlet, WebDAV Content Portlet, WebDAV Graph Portlet, and WebDAV Repository Navigator. The 'Collection Portlet' option is currently selected.

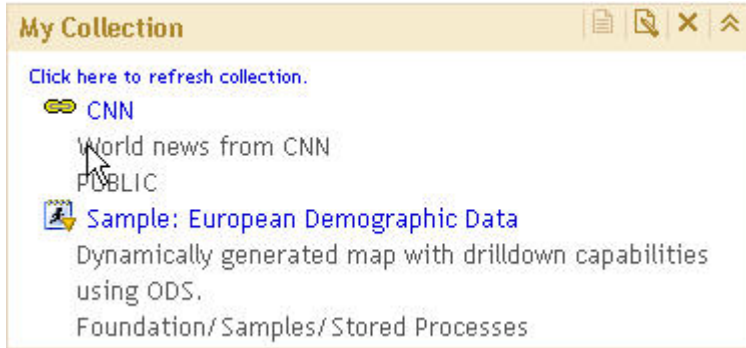
Now wait, what do these types mean? Most general web users have no idea what the differences are, how they work, and more importantly what is necessary to get them to work.

PORTLET DEFINITIONS

Included is reference material available from SAS Information Delivery Portal's online Help, and examples from our new installation.

Collection Portlets

"A collection portlet is a portlet that contains a list of portal content items. The items can be of any type or combination of types." This is a great place for a user to list multiple media items in a central location. The example below is the 'My Collection' default portlet that you find on you home page by default.



Now think in context of your organization. If there is a topic of great interest, say 'Shareholder Value', you might then link to an external site (Yahoo Finance) that details the stock price, an internal intranet site that provides the recent Customer Satisfaction results, and links to web report studio reports and stored processes that detail return on value, employment attrition, backlog, etc. The point is that now this portlet can be published to all of your users, or anyone can be given access so they may add it to their page and not have to search on all the individual pieces.

Information Map Viewer

"An information map viewer portlet displays data by using bookmarks that you create in the Visual Data Explorer component. For more information about the Visual Data Explorer, see Overview of Viewing Information Maps."

But what does that mean? Well, you can use SAS Web OLAP Viewer to navigate through an OLAP cube, save this as a Data Exploration and then surface that on a Portal Page. Providing this to other users will then remove the need of explaining the BIP Tree drill path and bookmarks of the report. Then all they need to do is open the SAS Portal Page.

After adding a new portlet to the page with the type of Information Map Viewer the page displays an initial display of a blank table. Select the 'Edit Content' button on the top right corner of the portlet.

Shoes Report					
	Column 1	Column 2	Column 3	Column 4	Column 5
1					
2					
3					
4					
5					
6					
7					
8					
9					

Shoes Report			
Bookmark1			
Refresh			
	Number Of Stores	Product	Region
1	140	Boot	Africa
2	140	Boot	Asia
3	208	Boot	Europe
4	266	Boot	North America
5	110	Boot	South America
6	37	Men's Casual	Africa
7	92	Men's Casual	Asia
8	95	Men's Casual	Europe
9	144	Men's Casual	North America

Quiesce Portlet

"Prepares the portal Web application to be shut down by preventing new users from logging on. This portlet type is only available to SAS Web administrators." So I haven't tried this portlet but it looks awfully handy. If you have to restart the SAS system and need everyone to be out of the application you can utilize this.

The screenshot shows the 'Quiesce Portlet' configuration window. It has a title bar 'Quiesce Portlet' and a yellow background. The 'Current State' is 'Running'. There is a checkbox for 'Quiesce SAS Services' which is currently unchecked. Below that is a text input field for 'Quiesce Wait' with the unit 'seconds'. At the bottom left is a blue button labeled 'Quiesce'.

URL Display Portlet

"URL display portlet is a portlet that accesses a specified URL address and displays the returned information inside the portlet's borders. You can create your own URL display portlets to point to a URL that you specify. The URL can point to either a complete HTML page or to an HTML fragment."

Step 1. Select the URL Display Portlet when Creating a New Portlet.

The screenshot shows a portlet titled 'Google Finance' with a yellow background. It contains a message: "No URL has been specified. Please edit the portlet to set a URL." In the top right corner, there are icons for document, search, close, and up.

Step 2. Select the Edit option on the top right of the portlet to enter the webpage URL to display.

The screenshot shows the 'Edit Portlet' configuration screen for 'Google Finance'. It has a blue header with 'Edit Portlet' and 'Google Finance'. Below the header, there is a form with a 'URL' field containing 'http://finance.google.com', a checked checkbox for 'Show URL content inside an I-Frame', and an 'I-Frame Height' field containing '700'. At the bottom are 'Save' and 'Cancel' buttons.

The screenshot shows the URL Display Portlet displaying the Google Finance website. It features a 'Market summary' section with a line chart showing market performance from 10am to 4pm. Below the chart is a table of market indices: Dow Jones (12,621.69, +98.38, 0.79%), Nasdaq (2,163.83, -15.29, -0.62%), and S&P 500 (1,433.24, +9.32, 0.66%). There is also a 'Today's new' section with various news headlines.

Step 3. View the content on the Portal Page.

This is another view of the URL Display Portlet showing the Google Finance website content, identical to the previous screenshot.

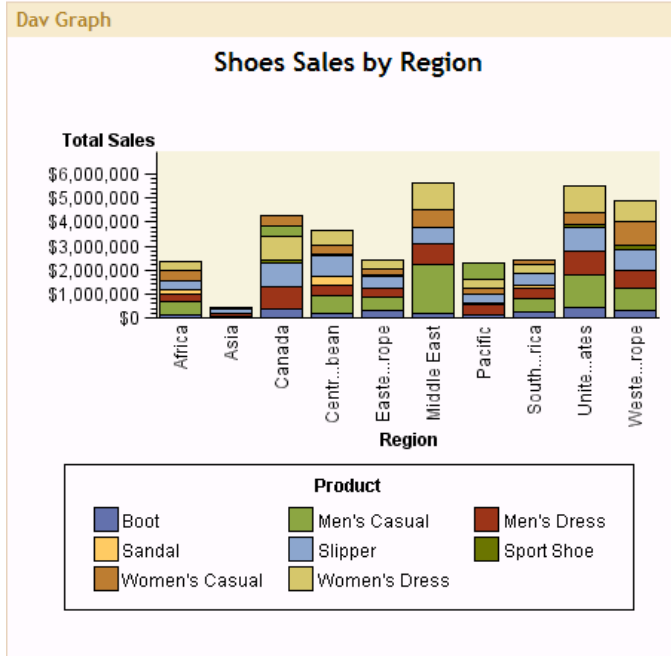
Businesses derive value out of this by displaying java applications within the branding of the SAS Portal. Having a one-stop shop for multiple media can require a URL Display for another corporate intranet website.

Another idea is to create a custom HTML interface to your SAS Stored Processes and surface them through this technique.

WebDAV Graph Portlet

"A WebDAV graph portlet creates and displays a line graph, bar chart, or pie chart of data that is stored in a WebDAV repository. If data in the appropriate XML format is present in the WebDAV repository, then you can create your own WebDAV graph portlets to meet your specific requirements."

WebDAV Portlets only work for those using Xythos as the WebDAV server. When using Apache as the WebDAV, these portlets will not return results.

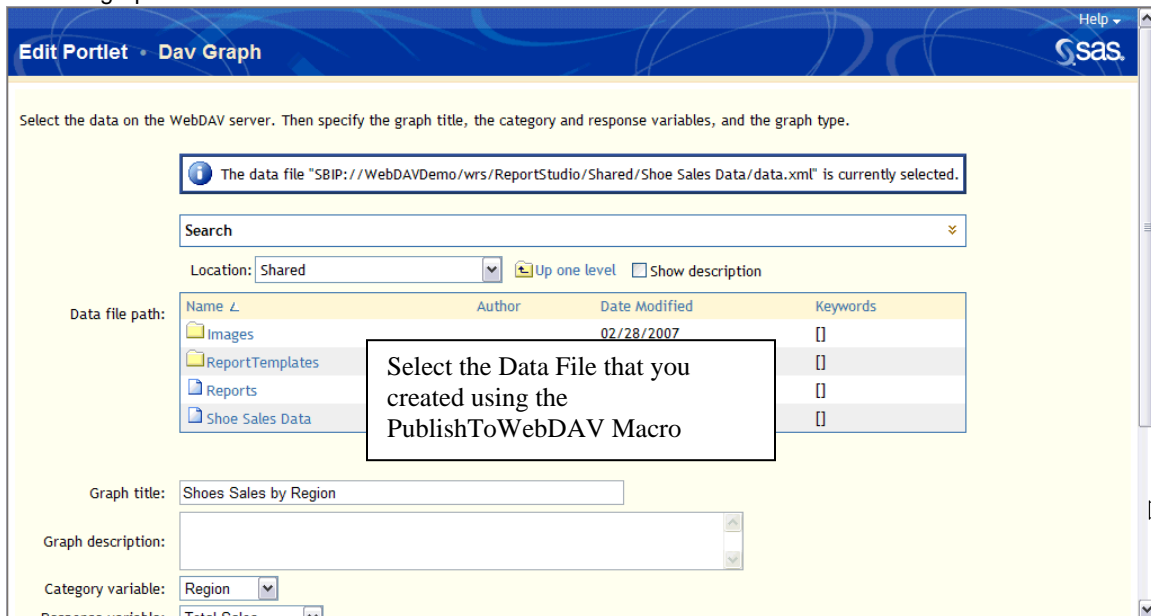


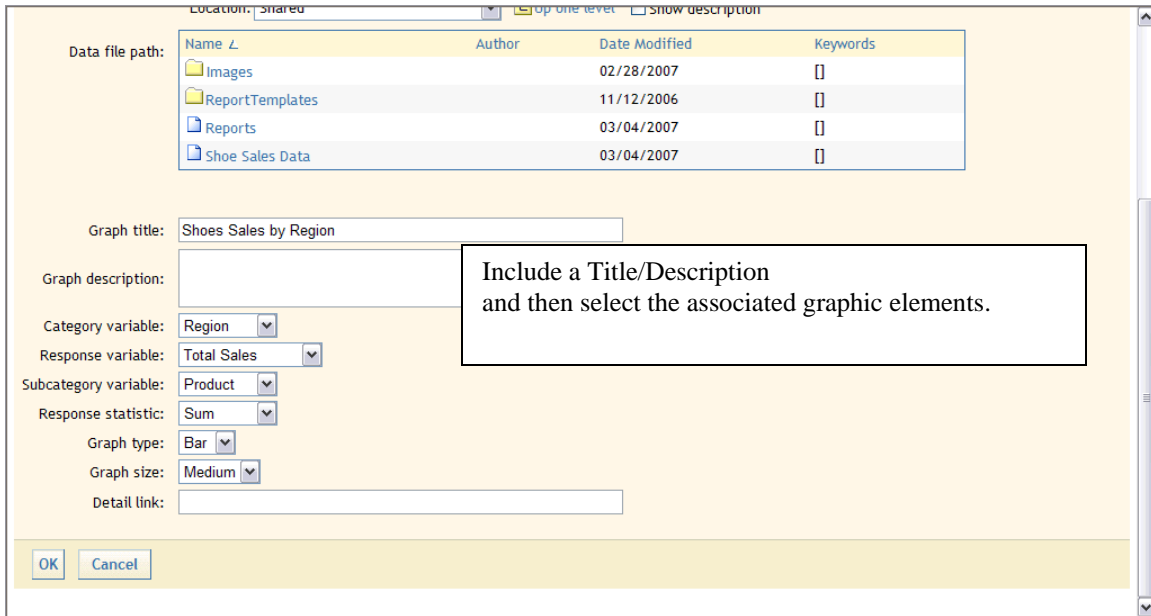
In order to get this DAV Graph populated, you will need to run the 'publishtowebdav' macro that SAS has provided users. Included in Appendix A is a copy of this valuable code.

Included is the resulting code to execute this macro.

```
%publishToWebDAV('sashelp.shoes',
'http://localhost:8300/sasdav/wrs/Report
Studio/Shared/Shoe Sales Data',
'saswbadm', 'xxxxxxx');
```

The next item is to connect a DAV Graph Portlet to the xml file generated and stored on the WebDAV server. After adding a blank DAV Graph Portlet to the page, select the 'Edit Content' icon at the top right corner. The next two images provide a summary of what edits are required to link into the data table and create a graph.



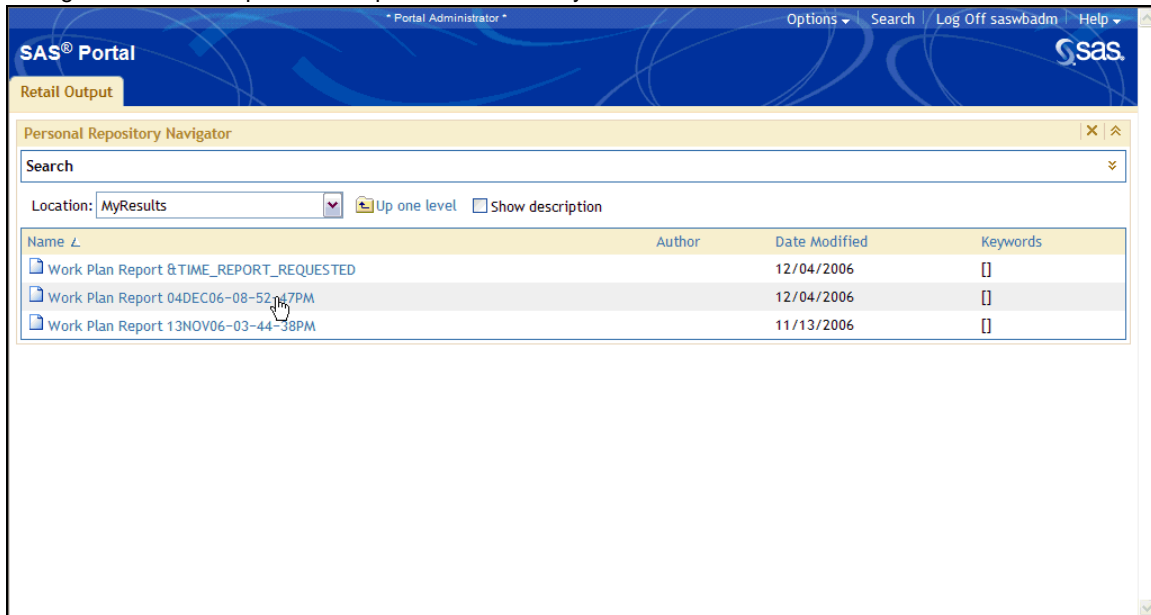


WebDAV Repository Navigator

“A WebDAV navigator portlet enables you to view files that are stored in a WebDAV repository, which is a collection of files that are stored on a Web server.”

WebDAV Portlets only work for those using Xythos as the WebDAV server. When using Apache as the WebDAV, these portlets will not return results.

These files can be the data elements published with the PublishToWebDav Macro, or elements published through the SAS Enterprise Guide publish functionality.



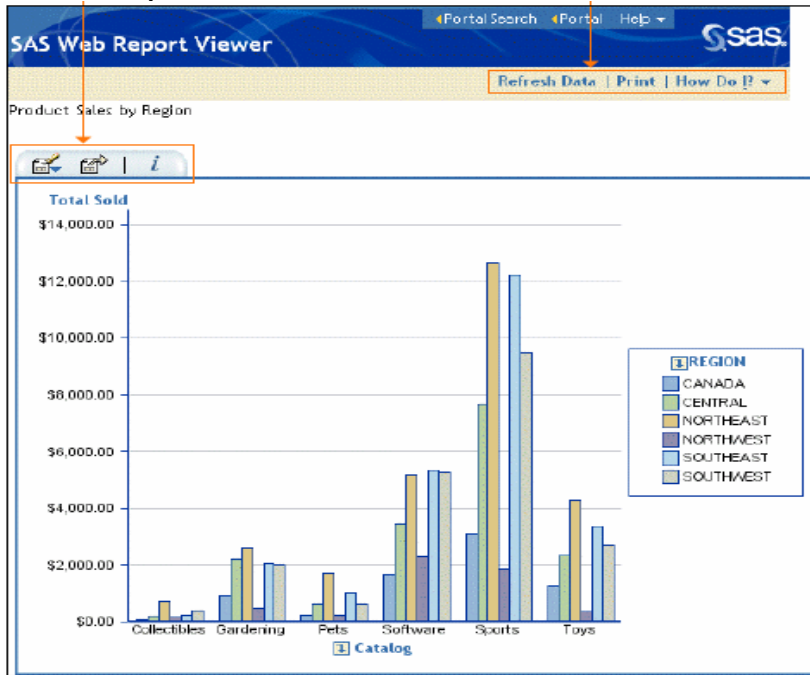
VARIOUS SAS DISPLAYS

Each type of SAS Output can be displayed within the SAS Information Delivery Portal.

These can be added to collection portlets, or viewed directly from Information Map Portlets.

To begin, simply run a Search, limit the type of content to SAS Report, or SAS Stored Processes, for example and you can quickly see how information is displayed within the SAS Portal frame.

SAS Web Report Studio Results



SAS Stored Processes

Portal Page Search

Sales Donut Chart

Bookmark Publish E-mail

General

Execution Options

Execute

General

* **Product:**

* Indicates a required field.

SAS OLAP Cubes

The screenshot shows the SAS OLAP Cubes interface. At the top, there is a navigation bar with 'Portal Page', 'Search', and 'Help'. Below this is a title bar for 'Product Report - Bookmark1' with 'Bookmark', 'Publish', and 'E-mail' options. A menu bar includes 'File', 'Data', 'View', 'Query', 'Navigator', 'Bookmarks', and 'Pref'. The main area is divided into a 'Query' panel on the left and a data table on the right. The 'Query' panel shows 'Selected Items' (Rows, Location, Columns) and 'Available Items' (Shoes Cube, Sum Of Sales, Sum Of Returns). The data table displays sales and returns data for different regions.

Product	Boot		Men's Casual		M	D
Region	Sum Of Sales	Sum Of Returns	Sum Of Sales	Sum Of Returns	Sum Of Sales	Sum Of Returns
Africa	\$119,835	\$4,613	\$562,794	\$16,108	\$	\$
Asia	\$62,708	\$1,376	\$11,754	\$833	\$	\$

PREFERENCES

There are options available for the user to modify their view of the portal.

From the initial Preferences page, a user can change the theme and create alerts for themselves when changes occur to the system.

The screenshot shows the 'Preferences' dialog box with the 'General' tab selected. The 'Default theme' is set to 'SAS Default'. Under 'Notifications', 'Email notifications' are set to 'HTML-formatted email' and 'Alert notifications' are set to 'My alerts inbox portlet'. There are 'Ok', 'Cancel', and 'Restore Defaults' buttons.

When selecting Portal from the Preferences menu bar, a user can change the navigation on the page from Horizontal to Vertical. This means that the Portal Menu Bar with Home and other Portal Pages will be displayed from Top-Bottom on the left of the page (when selecting Vertical), versus across the top for Horizontal navigation.

The screenshot shows the 'Preferences' dialog box with the 'Portal' tab selected. The 'Preferred navigation' is set to 'Horizontal'. There are 'Ok', 'Cancel', and 'Restore Defaults' buttons.

ADVANCED TOPICS

Themes

Deploying additional themes is accomplished by following these steps.

1. Move the SAS Winter Theme from the Portal Configuration Directory into the Web Servlet Container.
 - a. This is located in Windows by default at: C:\Program Files\SAS\Web\Portal2.0.1\themes\SASTheme_winter
2. Restart (if necessary) the Web Servlet Container to recognize the new application.
3. Register this within the SAS Metadata by running the OMR Program on the SAS BI System
 - a. C:\Program Files\SAS\Web\Portal2.0.1\OMR\LoadThemeConnection.sas

Reference: http://support.sas.com/rnd/itech/doc9/portal_dev/themes/index.html

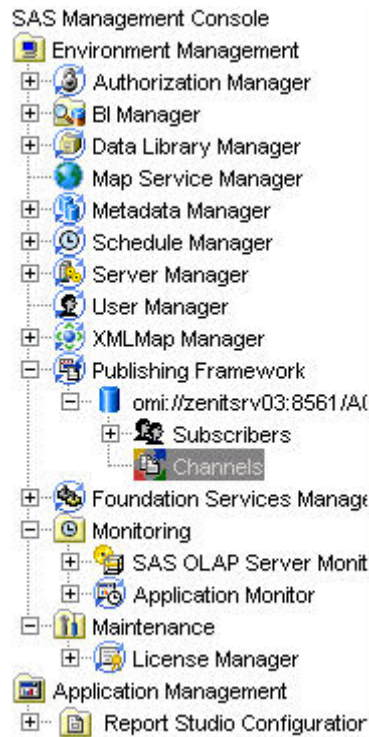
Custom Portlets

On various occasions, the packaged/standard portlets are not going to provide the content display that users require. Custom developed portlets allow for greater flexibility and can be developed by java programmers. The following reference material is a great starting point for developers.

Reference: http://support.sas.com/rnd/itech/doc9/portal_dev/portlets/dg_portlets.html

PUBLICATION CHANNEL / PACKAGE

Step 1: Have subscribers and channels defined via SAS Management Console within the Publishing Framework.



Step 2: Utilize SAS EG to create content and publish packages to the framework.

There is another SAS Users Group paper that provides more details for those publication questions: <http://www2.sas.com/proceedings/sugi31/217-31.pdf>.

APPENDIX A PUBLISHTOWEBDAV MACRO

/*Copyright (c) 2005 by SAS Institute Inc., Cary, NC
27513. All Rights Reserved.

publishToWebDAV

This macro takes a sas dataset and converts it to
SASReport XML and then publishes it to a WebDAV
server.

Parameters:

sasdsn - name of the sas dataset, e.g. 'sashelp.class'
davloc - URL to publish to, e.g.

'http://domain.com/sasdav/public/graph1'
each dataset to be published
should go to a unique location, or else
it will be overwritten.

userid - userid to authenticate to the WebDAV server,
e.g. 'domain\sasdemo'

passwd - password to authenticate to the WebDAV
server, preferably encoded and
not clear text.

Example usage:

```
%include 'publishToWebDAV.sas';
%publishToWebDAV('sashelp.class',
'http://localhost:8300/sasdav/graph1/', 'domain\userid',
'Password')
*/
```

```
%macro publishToWebDAV(sasdsn, davloc, userid,
passwd);
```

```
/* select a tempfile based on the current platform */
%if /* Unix */&sysscp=HP 800 or &sysscp=HP 300 or
&sysscp=SUN 4
%then
%do;
%let tempfile=/tmp/data.xml;
%end;
%else %if /* WINDOWS PLATFORMS */&sysscp=WIN
%then
%do;
%let tempfile=c:\temp\data.xml;
%end;
```

```
/* output simple data */
```

```
%let format=no;

data _null_ ;
file "&tempfile";
length ivar 8 irec 8 nvars 8 nobs 8 id 8 today 8 nvalue
8 rc 8 ;
length name $ 200 desc $ 200 type $ 1 cvalue $ 200
fmt $ 200 strg $ 200 ;
length temp $ 200 temp2 $ 200 ;
length idx 8 ;
format today date. ;
today = today() ;
id = OPEN( &sasdsn ) ;
if id ~= 0 then
do ;
nvars = ATTRN( id, 'NVARs' ) ;
nobs = ATTRN( id, 'NOBS' ) ;
end ;
else
```

```
do ;
nvars = 0 ;
nobs = 0 ;
end ;

put '<SASReport>' ;
put '<Data>' ;
put ' <IQData type="2DEmbedded" name="" &sasdsn
">' ;
put ' <EmbeddedData>' ;
put ' <Variables>' ;
do ivar = 0 to nvars-1 ;
name = VARNAME( id, ivar+1 ) ;
type = VARTYPE( id, ivar+1 ) ;
desc = VARLABEL( id, ivar+1 ) ;
fmt = VARFORMAT( id, ivar+1 ) ;

strg = '<Variable encoding="Text" name="" ||
trim(name) || "' varName="" || trim( name ) || "' ;
if desc ~= '' then strg = trim( strg ) || ' label="" || trim(
desc ) || "' ;
if fmt ~= '' then strg = trim( strg ) || ' SASFormat="" ||
trim( fmt ) || "' ;
if type = 'C' then
strg = trim( strg ) || ' type="String"/>' ;
else
strg = trim( strg ) || ' type="Numeric"/>' ; ;
put ' ' strg ;
end ;
put ' </Variables>' ;
if &format = 'rows' then
put ' <Rows>' ;
else
put ' <ValuesList>' ;
do irec = 0 to nobs-1 ;
rc = FETCHOBS( id, irec+1 ) ;
if rc ~= 0 then stop ;
if &format = 'rows' then
put ' <Row>' @ ;
else
put ' <Values>' ;
do ivar = 0 to nvars-1 ;
type = VARTYPE( id, ivar+1 ) ;
if type = 'C' then
do ;
cvalue = GETVARC( id, ivar+1 ) ;
strg = cvalue ;
end ;
else
do ;
nvalue = GETVARN( id, ivar+1 ) ;
strg = nvalue ;
end ;
temp = strg ;
idx = index( temp, '&' ) ;
if idx > 0 then
do ;
do while( idx > 0 ) ;
strg = substr( temp, 1, idx ) || 'amp;' ;
temp = substr( temp, idx+1 ) ;
idx = index( temp, '&' ) ;
```

```

        end ;
        strg = trim(strg) || temp ;
    end ;
    if &format = 'rows' then
        put "" strg +(-1) "" ' @ ;
    else
        put '      <Value>' strg +(-1) '</Value>';
        end ; /* do ivar */
    if &format = 'rows' then
        do ;
            put +(-1) '</Row>' ;
            end ;
        else
            put '      </Values>' ;
        end ; /* do irect */
    if &format = 'rows' then
        put '      </Rows>' ;
    else
        put '      </ValuesList>' ;
        put '      </EmbeddedData>' ;
        put ' </IQData>' ;
        put '</Data>' ;
        put '</SASReport>' ;
    run ;

data _null_ ;
rc = 0 ;
pid = 0 ;
fileName = "filename:&tempfile";
filetype = "binary";
desc = "WebDAVGraph Portlet data";
nameValue = "";
userString = "application/xml";
Call package_begin(pid, desc, nameValue, rc);
if rc ne 0 then do
    msg = sysmsg();

        put msg;
        ABORT;
    end;
    put 'Package init successful.';
    CALL INSERT_FILE(pid, filename, filetype,
userString, desc, nameValue, rc);
    if rc ne 0 then do;
        msg = sysmsg();
        put msg;
        ABORT;
    end;
    put 'XML is ok';
    pubType = "TO_WEBDAV";
    properties="COLLECTION_URL, HTTP_USER,
HTTP_PASSWORD";
    call package_publish(pid, pubType, rc, properties,
&davloc, &userid, &passwd);
    if rc ne 0 then do;
        msg = sysmsg();
        put msg;
        ABORT;
    end;
    put 'Publish successful';
    Call package_end(pid, rc);
    if rc ne 0 then do;
        msg = sysmsg();
        put msg;
        ABORT;
    end;
    put 'Package term successful';

run;
%let rc=%sysfunc(filename(filerf, &tempfile));
%let rc=%sysfunc(fdelete(&filerf));
%let rc=%sysfunc(filename(filerf));
%mend publishToWebDAV;

```

CONTACT INFORMATION

Your comments and questions are valued and encouraged. Contact the authors at:

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<http://www.zencos.com>

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