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Linking Strategy Data to BI Applications

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ABSTRACT

SAS® Enterprise BI is a key part of every strategy management implementation, but it is not always easy to link strategy data with the correct views of information in sas Enterprise BI. And even when the linking is straightforward, users may not be authorized to see all of the information. As a result, several views of the same report must be created for linking. Users need an easier way to link and display the correct view of strategy management content in SAS Enterprise BI. This paper reveals how to link information created in SAS Enterprise BI that is context-aware and secure.

INTRODUCTION

SAS Enterprise Business Intelligence (EBI) is a key part of every Strategy Management implementation. With Strategy Management, you can communicate clear strategy goals and provide focus to get the right things done. With EBI, you can measure things in more detail than ever before. When your strategy system and your business intelligence system work well together, you can change the way you make decisions and ultimately reach goals faster.

Despite significant commitment to delivering information in the way that you need it, progress is sometimes stalled because of technology interoperability. When a user does not have the right information to link to, they often have to spend time finding data and creating reports that might already be available to get facts to support decisions.

Efforts to link strategy content with business intelligence data have partially succeeded, but there are still challenges:

- Links to specific views sometimes require creating new content.

- Because links are unique, you have many links to manage and reports to keep up-to-date.

- When you do have access to the right view, you sometimes see information that you should not.

In spite of these challenges, you still need to get to the detailed information in your EBI system to make good decisions.

It's not enough to simply connect to the content source through links. You want to control what and how information is displayed. You want to do less work, all while delivering the same results. You want the systems to be smart and work together.

This paper offers a practical set of steps to show you how to make the most of linking in Strategy Management. We will show you how to:

- set up and reuse a named link.

- use a named link with parameters to get the perfect view every time.

- use the different types of supported links and demonstrate the number of link choices available to get the right information to users.

- apply the links to get the best results while keeping information secure.

THE BENEFITS OF NAMED LINKS

In earlier versions of Strategy Management, users assigned links to strategy results but had little control over what and how the results were displayed. This lack of control sometimes caused a site to create link sources that were either:

- very complicated reports containing all of the needed information

- multiple reports containing similar content with slightly different perspectives on the data

Users wanted a better way to connect to detailed business intelligence information. Users wanted to:

- create a link once and use it in many places.

- customize the information that is displayed depending on where the link is activated in a project.

- customize the type of target destination that displays the information.

- control the information that is displayed depending on the user that activates the link.

REUSABLE LINKS

Strategy Management now gives you a new way to create and manage links to supporting information with named links. *Named links* are reusable links. You can reuse a link throughout a project. Named links are also customizable.

CUSTOMIZE INFORMATION BY CONTEXT

You can customize a link to display information depending on its context. To a strategy user, *context* means the place in the strategy where the information they are looking at is found. Not just the place, but all of the things that make up that place, includes:

- information about the strategy

- the location of the content

- the goals or objectives associated with the content

- the relationships the content has with the other strategy information

A good strategy communicates the plan, defines common goals, and measures the execution and results of the strategy. The information that makes up the strategy is a part of the strategy story. Knowing where the information is found is insightful and helps you understand the significance of the information as it relates to your strategy. Take this information out of its context and you reduce it to merely data.

Context here refers to the Strategy Management information that you are working with. Context provides the information from the source system, which in this case is a Strategy project. The named link can pass this information to the link destination. Then the destination uses the context information to provide relevant information to the end user.

A Strategy project consists of various things such as scorecards, elements that represent measures, and metric data for the measures. Passing this information over to the EBI provides for more intelligent and context-aware information presented to the end user.

To enable the passing of context, Strategy Management provides two types of parameters that help you provide the context for a link: built-in types and advanced parameters.

Built-in types represent parts of the scorecard project that you can select to pass with the link. The values are dynamic in nature. The values of these types are dependent on where the link is applied. For example, one of the built-in types is Scorecard name. By choosing this type, you set up the link to pass the scorecard name. If you apply this link to an element in the Canada scorecard, the parameter passes Canada as the scorecard name. If you apply the same link to another element in the United States scorecard, the parameter passes United States as the scorecard name.

The advantage of named link parameters is that you could reuse the same link within other parts of the scorecard project. Strategy Management provides the following built-in types:

Type Names	Type Description
Element ID Element name	- *Element ID* represents the internal universal unique identifier[1] (UUID) representation for the element in the scorecard project. - *Element name* represents user-friendly name for the element. For example, "sales" is a name and "157d8da6-0a15-0d4f-6892-58c75ea9b147" is a UUID.
Column ID Column name	- *Column ID* represents the internal UUID representation for the metric attribute in the scorecard project. - *Column name* represents the user-friendly name for the metric attribute. For example,

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[1] A number that is used to uniquely identify information in distributed systems without significant central coordination. There are 32 hexadecimal digits in a UUID, and these are divided into five groups with hyphens between them as follows: 8-4-4-4-12. Altogether the 16-byte (128 bit) canonical UUID has 32 digits and 4 hyphens, or 36 characters.

	"actual" and "target" are column or metric attribute names.
Period ID Period name	• *Period ID* represents the internal identifier for a period for the source element. • *Period name* represents the user-friendly display name for a period, for example, apr2013.
Metric value Metric text	• *Metric value* represents the numeric value for the element on which the link is applied. • *Metric text* represents the metric text value for the element on which the link is applied.
Project ID Project name	• *Project ID* represents the internal UUID representation for the scorecard project. • *Project name* represents the user-friendly name for the project.
Scorecard ID Scorecard name	• *Scorecard ID* represents the internal UUID representation for the scorecard. • *Scorecard name* represents the user-friendly name for the scorecard.
Current display date	Represents the date selected in the Strategy Management user interface. The value is a 3 part formatted date. The first part represents the date, the second part represents the month, and the third part is the year. For example, 01may2013 is a current display date.
Period start date Period end date	These two dates represent the start and end dates for the element's period. The dates use the same format as the current display date.

Table 1. Built-in Types

CUSTOMIZE THE LINK DESTINATION

A link type represents the type of information for the link destination. In other words, link types provide you with the flexibility to connect to information stored in various forms. The destination can be a Word document or a SAS® Web Report Studio report. The destination can be a SAS stored process that generates the information for you. This flexibility allows you to leverage existing content without spending extra effort. Also, by providing the context, you can customize your content to satisfy various requirements.

Link Type	Description
External link	Opens a web page or an external document. ***Note:*** You can use this link type to open Portable Document Format (PDF) files and Microsoft Office documents.
File	Opens any type of file that is registered as DAV content in the SAS® Content Server.
SAS® Financial Management report	Opens an associated form if SAS Financial Management is installed in your environment.
SAS® Information Map	Opens a SAS Information Map.
SAS Portal page	Opens a SAS® Information Delivery Portal page. By using this link type, you can open a pre-existing portal page that can contain dashboards, reports, and other information.
SAS Stored Process	Runs a SAS stored process.
SAS Web Report Studio report	Opens a report that was created by using SAS Web Report Studio.
SAS Strategy Management project	Opens a SAS Strategy Management project

Table 2. Link Types and Their Destinations

Most of these link types can use advanced parameters. *Advanced parameters* are another way to pass context to the link destination.

Note: It's important to understand that the advanced parameters are useful only as long as they are used on the destination side. The destination side can take advantage of the parameters sent with the link to provide useful customization or provide relevant information based on the information sent.

CONTROL LINK RESULTS

Creating a strategy plan requires genuine effort and planning. While creating and refining the strategy, there are sometimes details that you want to keep private. Examples that require privacy are:

- competitive pressures
- future activities that are not commonly known
- content that is appropriate for some people and not others

Strategy Management enables you to ensure privacy with the following features:

- a layer of security to protect the data through user roles and capabilities
- information security by creating SAS Information Maps
- the advanced parameters used in named links

SAS Information Maps are a powerful way to create reports from strategy content. According to the *SAS Information Map: Getting Started Guide*, SAS Information Maps are a business metadata layer that is applied on top of the data sources in your warehouse. When creating reports, these maps deliver significant benefit because they are designed for business users and are easy to use. When business intelligence views are built from Strategy Management-created information maps, a security layer checks the user's strategy authorization. This extra check ensures that users do not see content they do not have authorization to see.

Advanced parameters also help control the content that is displayed for users. When a user is in Strategy Management, they see only the content they have authorization to see. However, the user might link to an EBI report or dashboard created with an unsecured data source. By using advanced parameters, you can secure the information that is displayed even if the report or dashboard uses an unsecured data source. When you pass parameters in a named link, you can filter the report or dashboard to only show the content that matches the parameter.

CREATING A LINK

To create a named link, open a project in the Strategy Management Builder and click **Project → Manage Links**. On the Manage Links page, click **New**.

SPECIFY GENERAL SETTINGS

On the New Link page, you can customize the link to use in the project. Enter a name for the link. Then select one of the link types.

Figure 1. Create a New Link on the New Link Page

Depending on the link type, you must provide additional information. The following table describes the additional setup information that each link type requires to identify the destination.

Link Type	Additional Setup Information
External link	In the **Link location** field, enter the web address for the external site.
File *	Click the **Select Location** button to choose the filename. Files must be registered in the DAV repository of your system.
SAS Information Map *	Click the **Select Location** button to choose the SAS Information Map. Only registered SAS Information Maps are available to be selected.
SAS Portal page *	Click the **Select Location** button to choose a SAS Portal page. By using this link type, you can open a pre-existing portal page that can contain dashboards, reports, and other information. You can select only portal pages (Personal and/or Shared) that you have access to.
SAS Stored Process *	Click the **Select Location** button to choose the SAS stored process.
SAS Web Report Studio report *	Click the **Select Location** button to choose a SAS Web Report Studio report.
SAS Strategy Management project *	Click the **Select Location** button to choose a Strategy Management project.
* The selection list on the Select Location page is filtered based on your security credentials.	

Table 3. Link Type Setup Information

SPECIFY PARAMETER DEFINITIONS

In the Parameter Definitions section, you can provide optional Strategy Management project-context information to the destination. This information is provided by the built-in types. You can select zero or more built-in types to send to the destination. Each of these built-in types is sent as a key-value pair. You can customize the key name for each built-in type. The value is filled in dynamically by the system when the user clicks on the link in a strategy project.

SPECIFY ADVANCED PARAMETERS

You can specify parameter definitions for non-Strategy Management information in the Advanced Parameters section. In this section, you have full control on the text that is added to the link. Typically, this text uses the format of <key>=<value> pairs separated by the & character. This text is appended to the end of the destination hyperlink.

OTHER LINK OPERATIONS

Additional operations that are supported by the Strategy Management Builder are:

- Edit a link
- Edit Link properties - editing an existing link
- Delete a link
- Copy a link

APPLYING LINKS

You can apply links to Strategy Management content in the following ways:

- The Strategy Management Builder provides an interface to apply links to elements. The interface is perfect for all types of users.
- In the Builder, Modelers have an additional option to assign links to element values in bulk.
- When you define your links by using Microsoft Excel or a SAS data set, use the Import feature to map content from your source into Strategy Management.
- When you want to enter a lot of content at once, use the Batch Maintenance Facility to assign links.

You can assign a named link to three types of strategy content: element names, element values, and the attribute of an element. An element is a detailed piece of information in your strategy. For example, you might have measures in your strategy. Each measure is an element. Every measure has a name (element name), there might be values associated with the measure that are associated with time (element values), and you might include attributes such as text, date, and web address that are not associated with time (non-metric attributes).

Display 2. Strategy Content that You Can Assign Named Links

ASSIGN LINKS BY USING THE STRATEGY MANAGEMENT BUILDER

The Strategy Management Builder delivers an interactive user experience. Start by defining the link, and then apply the link as many times as you need. The system displays all defined links in the interface making selection straightforward. Using the Strategy Management Builder, you can assign links for element values, element names, and non-metric attributes.

Named Link for an Element Value

To assign a named link to an element value, select an element that has a value. Then, select **Edit Metric Attributes** from the drop-down menu.
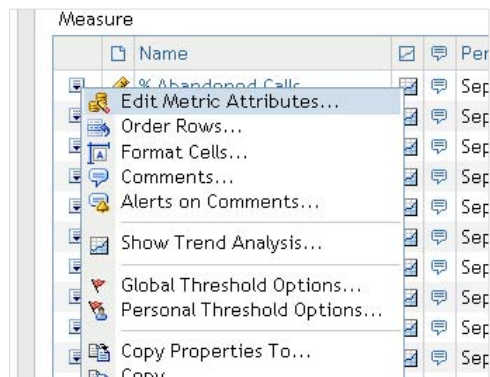
Display 3. Edit Metric Attributes

Strategy Management opens the Metric Attributes page. To assign a link, select a named link from the list.
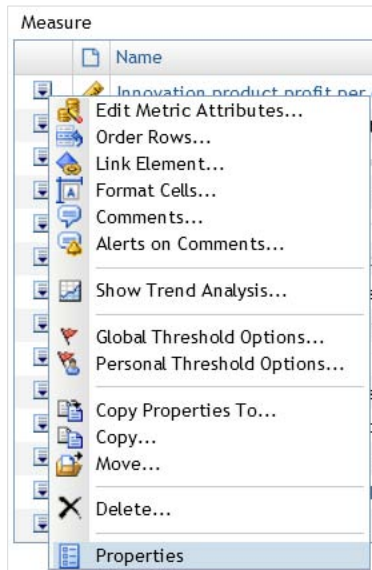

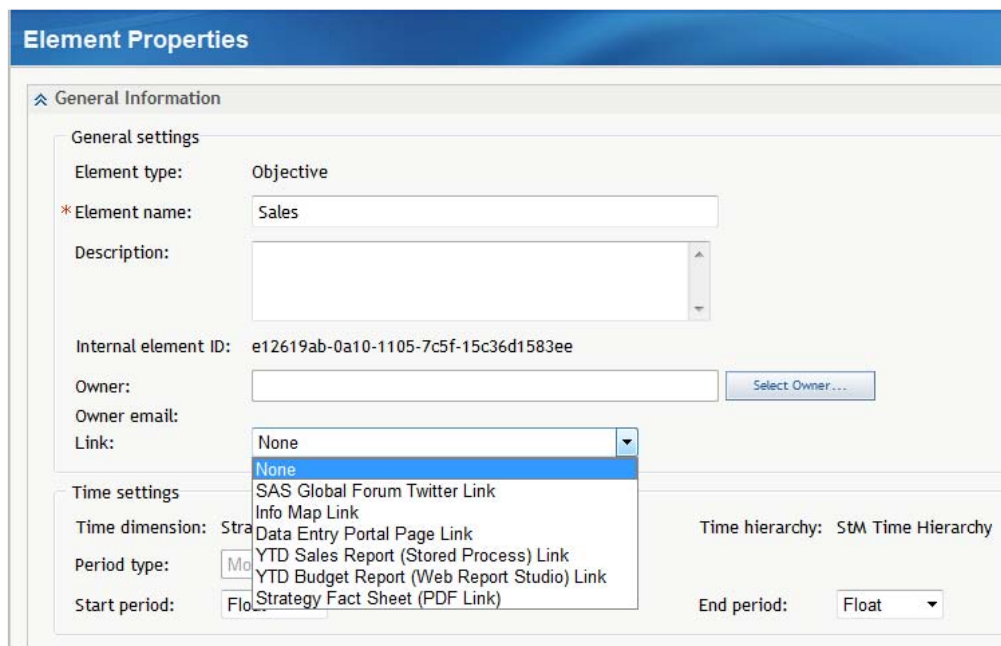
Display 4. Select a Named Link for an Element Value

Named Link for an Element Name

To assign a named link to an element name, select an element name that you want to associate with a link. Then, select **Properties** from the drop-down menu. Strategy Management opens the Properties page. Note that when a named link is assigned to an element name, it is not period sensitive and it is available for every period.

Display 5. Select Properties for an Element Name

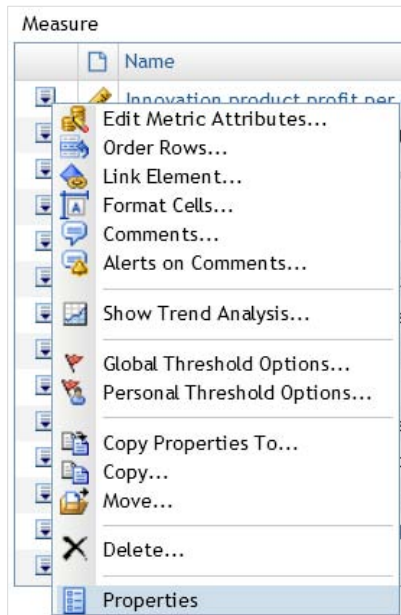Strategy Management opens the Element Properties page. To assign a link, select a named link from the list.

Display 6. Select a Named Link for an Element Name
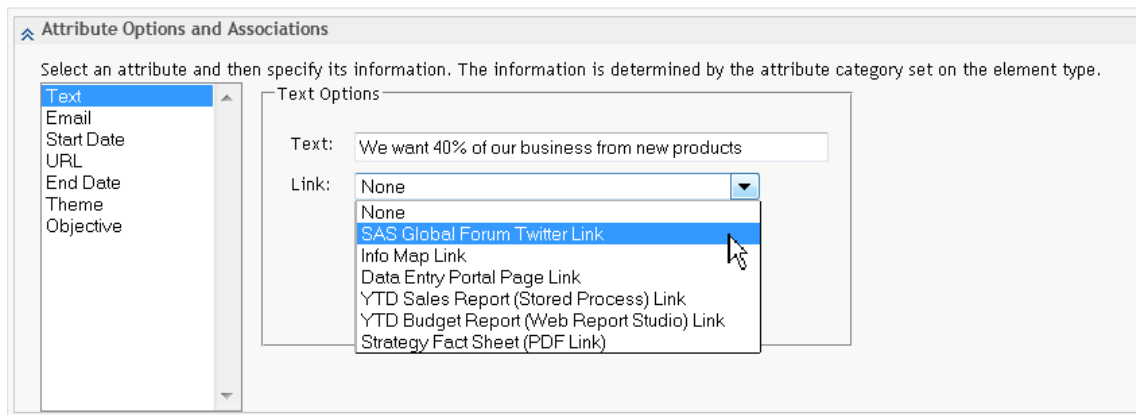
Named Link for a Non-Metric Attribute

You can assign a named link to text, date, and URL non-metric attributes. Non-metric attributes are not associated with time and appear for every time period.

To assign a named link to a non-metric attribute, select an element name and non-metric attribute[2] that you want to associate with a link. Then, select **Properties** from the drop-down menu. Strategy Management opens the Properties page.

Display 7. Select Properties for a Non-Metric Attribute

Strategy Management opens the Element Properties page. To assign a link, select a named link from the drop-down menu in the Attribute Options and Associations section.

Display 8. Select a Named Link for a Non-Metric Attribute

ASSIGN LINKS BY USING THE EDIT ELEMENTS PAGE IN THE BUILDER

Strategy Management uses scorecards to organize your strategy data. You can have more than one scorecard in a project. Scorecards can be arranged hierarchically. In some projects you might have the same element in different scorecards. You can have a scorecard hierarchy of your organization structure and the measure Innovation product per employee appears in each scorecard. If you want to apply the same named link to the element values for this measure, use the Edit Elements page.

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[2] Non-metric attributes are added and named in the project template.

On the Edit Elements page, you can apply a named link for more than one element value at time. To edit multiple element values open the Edit Elements page in the Strategy Management Builder.
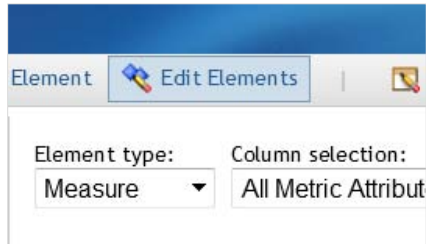
Display 9. Edit Elements to Add Links to Multiple Element Values

To assign a link, select a named link from the **Link** list in the Attribute Options and Associations section.


Display 10. Select Named Link in the Metric Attribute Properties Section

ASSIGN LINKS BY USING THE STRATEGY MANAGEMENT IMPORT FEATURE

With the Import feature in Strategy Management, you can map content from Microsoft Excel and SAS data sets to your Strategy Management projects. By using the step-by-step interface, you can create import configurations for hierarchies, element data, and metric data. After an import configuration is created, and as long as the source structure is unchanged, you can schedule or manually run an import to update content in your project.
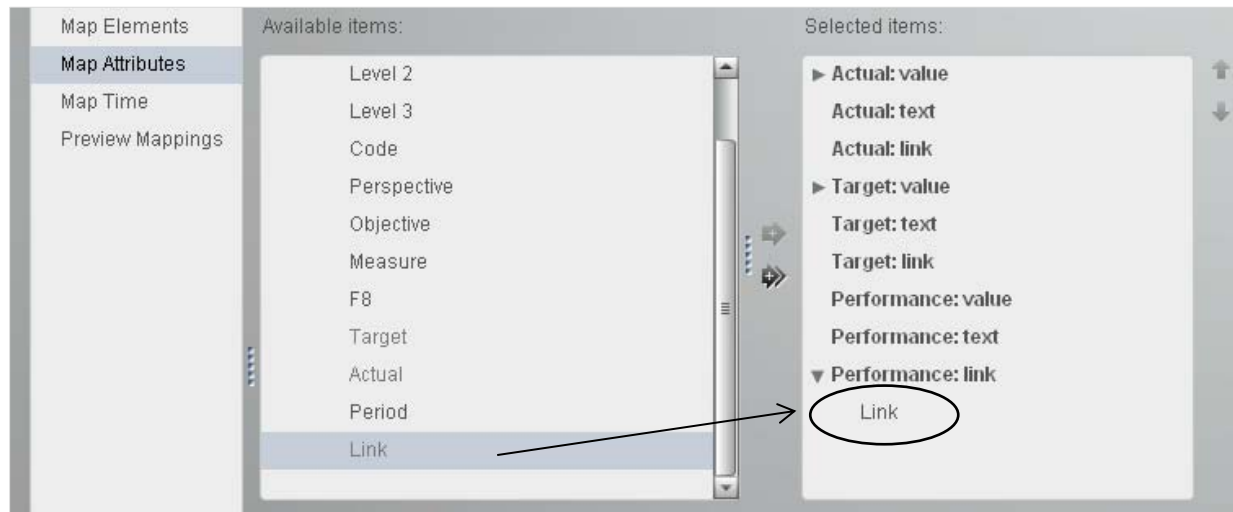
You can import named links for element values using the Import feature.

Select **Project → Manage Import Options**.
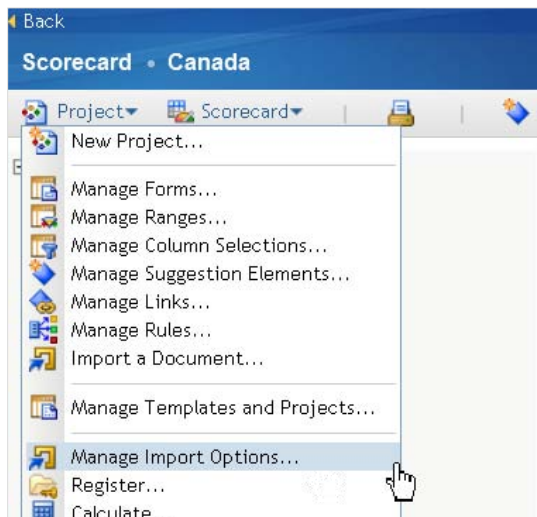
Display 11. Open the Import Feature By Selecting Manage Import Options

Map the link column in your Excel spreadsheet or SAS data set to the element value link in your project.

Display 12. Map a Link to an Element Value Link

ASSIGN LINKS BY USING THE STRATEGY MANAGEMENT BATCH MAINTENANCE FACILITY

When you need to create or update strategy content in bulk, use the Batch Maintenance Facility (BMF). With this SAS macro (%STMBMF), you can fetch content already in your strategy, modify content, or create new content. You can use either CSV files or SAS data sets as data sources.

Strategy Management links have a UUID. You can locate the UUID in the BMF Cell file. You can modify an existing Cell file by referencing the UUID for an existing link. You can add new links by using the Links file.

The following examples describe how to create and apply named links in BMF.

Note: These examples use CSV files.

To create a new named link, use the Link.csv file. When links are created, BMF assigns a UUID to reference the link in other files. If you need the UUID of a link, look in the Named Link ID column in the Link file.

KEYWORD	Operation Code	Named Link ID	Link Name	Link Descriptio	Link Type	Target Current	Web Address Path	Link Advanced Parameters
GENERAL		2101488c-0a10-1105-02ad-af6aac4c73c6	SAS Global Forum Twitter Link		EXTERNAL	NO	http://twitter.com/search/realtime	q=SASGF2013
GENERAL		5ef7b96f-0a10-1105-444c-bded04ebc770	Info Map Link		WEBREPORT	NO	SBIP://METASERVER/System/Applications/SAS Web Report Studio/Common/ConditionalHighlightingImages/01YellowSmiley.gif(Report)	

Figure 13. Create a New Named Link By Using the Link.csv File

To assign named links to strategy values, use the Cell.csv file. Insert the link UUID in the Named Link ID column in this file.

Operation Code	Container Name	Element Name	Element ID	Metric Attribute	Periodicity	Period	Cell Type	Value	Named Link ID	Range
	Canada	% staff with incentives aligned with strategy	48f62128-0a10-1105-37b0-33a18065a99d	Actual	Month	Feb-11	MANUAL	0.87	2101488c-0a10-1105-02ad-af6aac4c73c6	

Figure 14. Assign a Named Link to a Strategy Value

To assign named links to element attributes, use the Attribute.csv file. Insert the link UUID in the Named Link ID column in this file.

Operation Code	Element ID	Element Name	Container Name	Category	Category Label	Value	Original Element Type Element Attribute ID	Named Link ID	
	48f62128-0a10-1105-37b0-33a18065a99	% staff with incentives aligned with strategy	Canada	URL	URL	Strategy		6d191e1d-0a15-1056-50bb-85b48f107d76	
	48f62128-0a10-1105-37b0-33a18065a99	% staff with incentives aligned with strategy	Canada	TEXT	Text	MBO		5ef92c3e-0a10-1105-444c-bdedc9b90bba	

Figure 15. Assign a Named Link to Element Attributes

To assign named links to element names, use the Element.csv file. Insert the link UUID in the Named Link ID column in this file.

Element D	Container ID	Container Name	Element Type	Periodicity	Start Period	End Period	Link Element ID	Owner	Order	Security	Security Identity	Security	Securit	Named Link ID		
	48e1d2c3-0a10-1105-37b0	Canada	Measure	Month	Float	Float	48f6211d-0a10-	sasdemo	0		sasdemo	User	RU.A	6d191e1d-0a15-1056-50bb-85b48f107d76		

Figure 16. Assign a Named Link to Element Names

CONCLUSION

Organizations have a wealth of business intelligence information and want to use this information to support their strategy. Strategy communication is important because you want individuals and teams focused and working on the right things. As a business user, when the right information is at your fingertips you can understand issues quickly and make accurate decisions. As an IT professional, a good process for linking to key business intelligence content and improving system management process efficiencies not only saves money, but also results in better service levels.

RECOMMENDED READING

- *SAS Information Map Studio 4.2: Getting Started with SAS Information Maps*
- *SAS Strategy Management 5.4: User's Guide*
- *SAS Strategy Management 5.4: Administration Guide*

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