Futrix V5 – Integration with the SAS BI Server for OLAP Cubes

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ABSTRACT

The Futrix tool set had already provided extensions to the SAS System that made the building of OLAP Server cubes a painless and quick process. Futrix V5 is the first release that integrates with the SAS 9 BI Server architecture in an iterative approach. In addition to the previous ability to build, query, and optimize OLAP cubes, Futrix users can now integrate the application with the SAS Metadata Server, the SAS Information Delivery Portal, and utilize the SAS 9 security architecture. This presentation will demonstrate Futrix V5 and how it efficiently interacts with the SAS 9 BI Server.

INTRODUCTION – WHAT IS OLAP?

OLAP - The term, of course, stands for 'On-Line Analytical Processing'. But that is not a clear description of what OLAP means. It certainly gives no indication of why you would want to use an OLAP tool, or even what an OLAP tool actually does. And it gives you no help in deciding if a product is an OLAP tool or not.

In simplified terms, an OLAP solution should allow the end-users quick access to summarized data which is generated from a vast amount of detailed information. Why is this important? Decision makers often need access to accurate information. Instant answers are often expected so timely decisions can be based on facts and not gut feelings. A robust OLAP system can also support various end user types – from the CIO that needs a fast enterprise-wide source of summarized data of strategic information; IT Managers with a large group of customers requiring rapid self-service navigation through summarized data; and department heads with teams that require frequent access to summaries that support business analysis and decisions.

OLAP will allow the various end user types to analyze information in the way that they think, across multiple dimensions at the same time. For example, what product sold best, in a specific region, during a specific time period, for a specific sales channel. Because it is inherently clear what specifically you are analyzing in each dimension, OLAP provides excellent visibility into the data, something traditional summary and listing reports cannot do.

The simplicity of OLAP, and the delivery of information within a dimensional framework that users understand, means they can conduct their own analysis quickly and easily – thereby leaving the more complicated programming to the technical roles in a traditional IT setting. And, since OLAP scales to thousands of users at very little cost, it is an ideal technology to delivery information to a large number of users.

WHAT IS FUTRIX?

Futrix is a SAS-based, intuitive and interactive reporting and analytical OLAP tool powered by a comprehensive point and click management console, which integrates and harnesses a number of the most powerful Business Intelligence technologies. One important distinction between Futrix and other OLAP tools (including SAS) is the ability to "drill anywhere" – even across unlike categories of data. This will become important for users who do not want to be restricted by pre-defined hierarchies established by IT administrators.

The SAS BI platform offers various methods of creating OLAP cubes. The SAS OLAP Cube Studio is a Java interface for defining and building OLAP cubes in SAS 9.1. Its main feature is the Cube Designer wizard, which guides you through the cube registration and creation process. The Cube Designer wizard is also integrated with SAS DI Studio (formerly called SAS ETL Studio). If you have SAS DI Studio installed, you can include cube creation as a transformation. Note however that you cannot *view* a cube using either of these tools. You must use other tools such as SAS Enterprise Guide, SAS Web Report Studio, SAS Information Delivery Portal, Microsoft Excel, or any other tool capable of displaying OLAP cubes.

Although there are many other differences and similarities between the SAS and Futrix tools, they are able to work together (Futrix is after all a SAS application!) and can utilize the same input data sources and resulting output. In short, Futrix is focused on the delivery of SAS BI server solutions. Futrix is ideal for organizations that have embraced SAS as a strategic platform for information delivery.

INTEGRATION WITH SAS BI SERVER

One of the most important new features of Futrix V5 is the integration of the application with the SAS 9 BI Server. Although previous versions of Futrix only required Base SAS and SAS/Graph, the latest version exploits the open Metadata standards provided by the SAS BI platform. The usage of these standards greatly facilitates the building and querying of SAS9 OLAP cubes by:

- Exploiting the SAS Metadata, Workspace, and OLAP Servers
- Enabling the migration of Futrix metadata into SAS metadata
- Enabling the creation of OLAP cubes from SAS BI source data
- Utilizing MDX standards
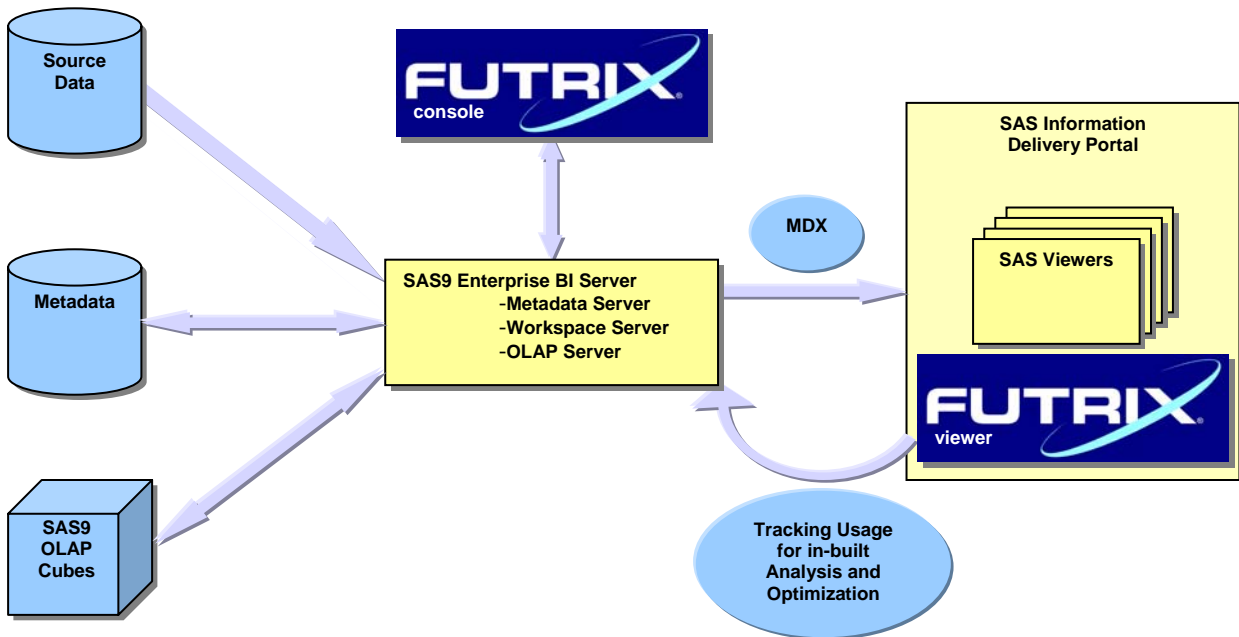
Access to the Metadata, Workspace, and OLAP Servers is easily done within the Futrix Administrator. Simply provide the Host Server name, Port, Repository, and User/Password information and the system will be instantly connected!

If we look into this example SAS Management Console, we can see various SAS Libraries that were set up for this BI Server platform instance. Within the Futrix Administration application, we can modify the Custom Data & Application Libraries. Here we have an option to add any Simple SAS, SPDE, Access, or Metadata Repository Library.
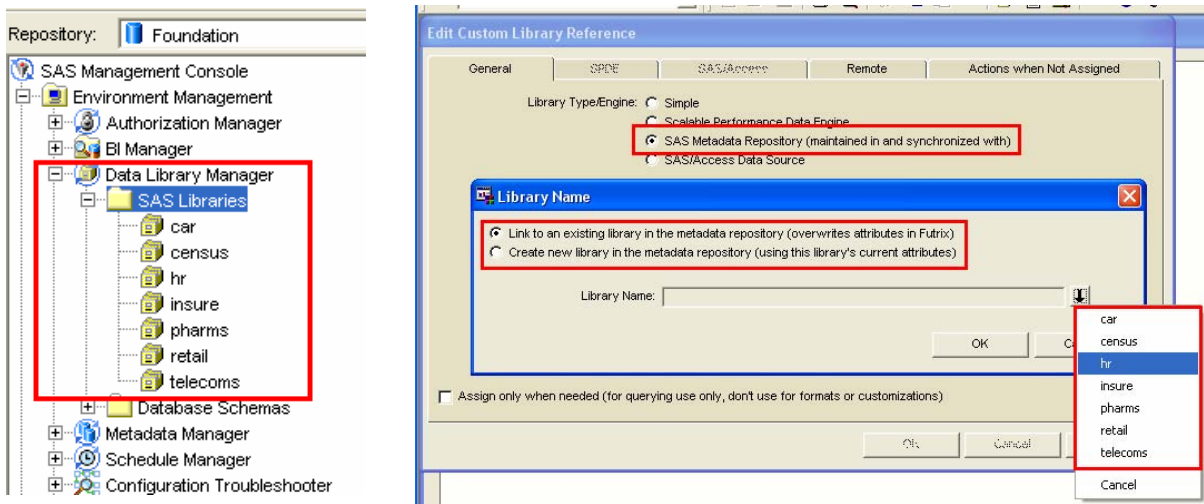

Once the libraries are defined, you have the option to Sync the SAS Metadata Repository Libraries with Futrix, and/or Sync the Futrix Libraries with the SAS Metadata Repository. This will allow you to utilize either application as the source for your data.
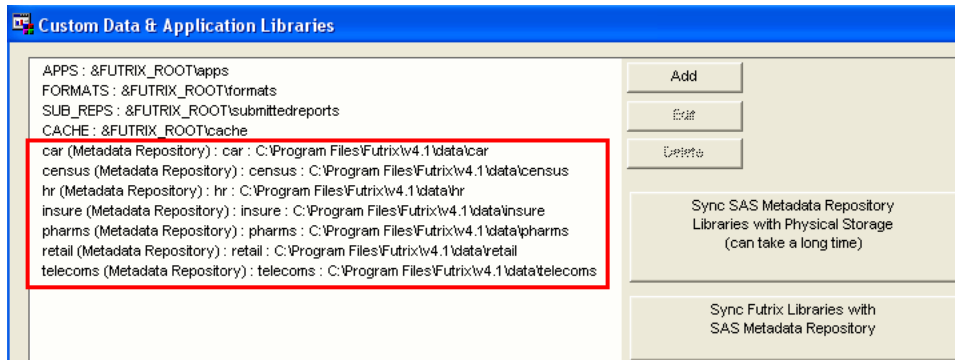
When creating Futrix cubes, you can also specify a Secondary Source for Querying as a standard SAS OLAP Server Cube. This will utilized and shared throughout the SAS BI Server tools and applications.
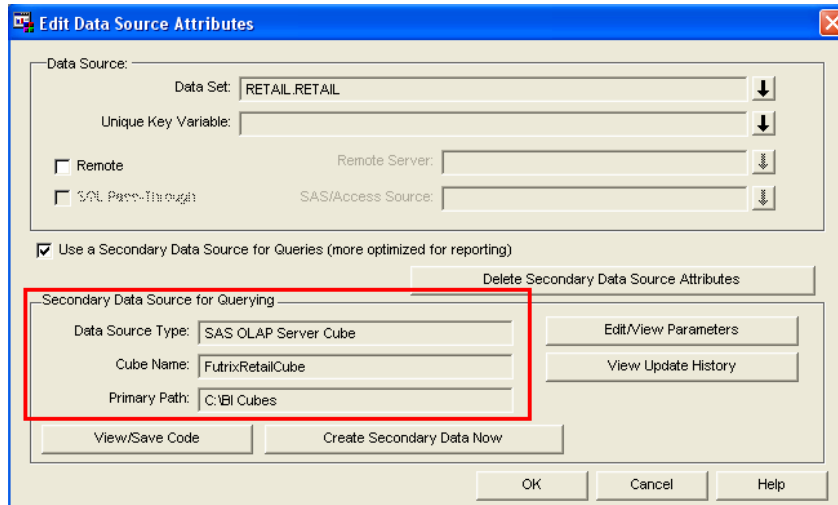
The screenshot below illustrates links to Futrix reports and administration activities via the SAS Information Delivery Portal. This portal contains OLAP reports that were generated in both SAS OLAP Cube Studio and in the cube generated in Futrix from the previous screenshot.
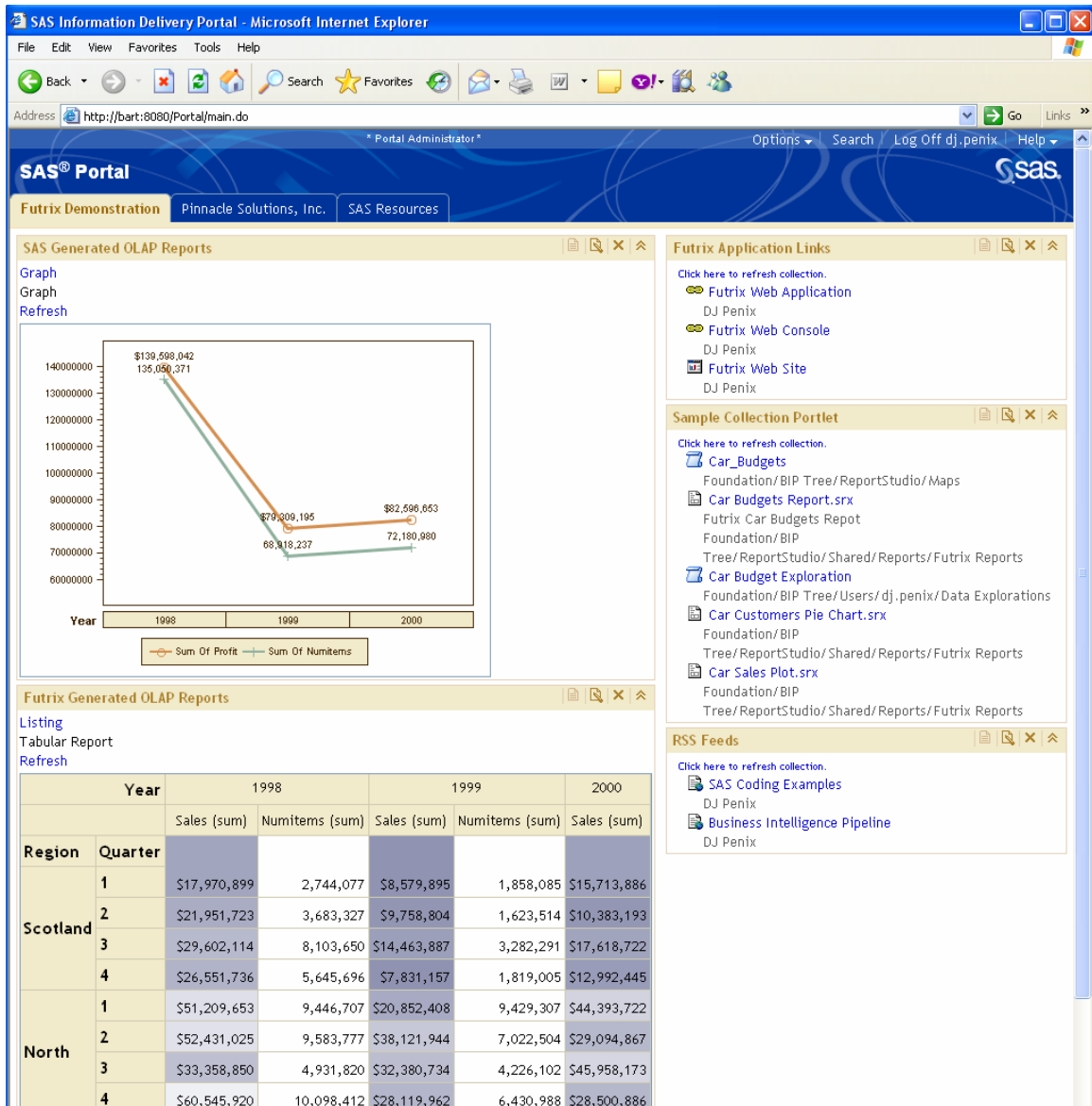
SECURITY INTEGRATION

Futrix also now allows administrators to select user databases available from the SAS Metadata Server, which allows you to leverage security and user databases that have been set up using SAS 9 directly. Although various LDAP and an internal Futrix based database for maintaining user security have been allowed in the past, the integration of user security with the SAS BI server will allow a consistent and single access for security.
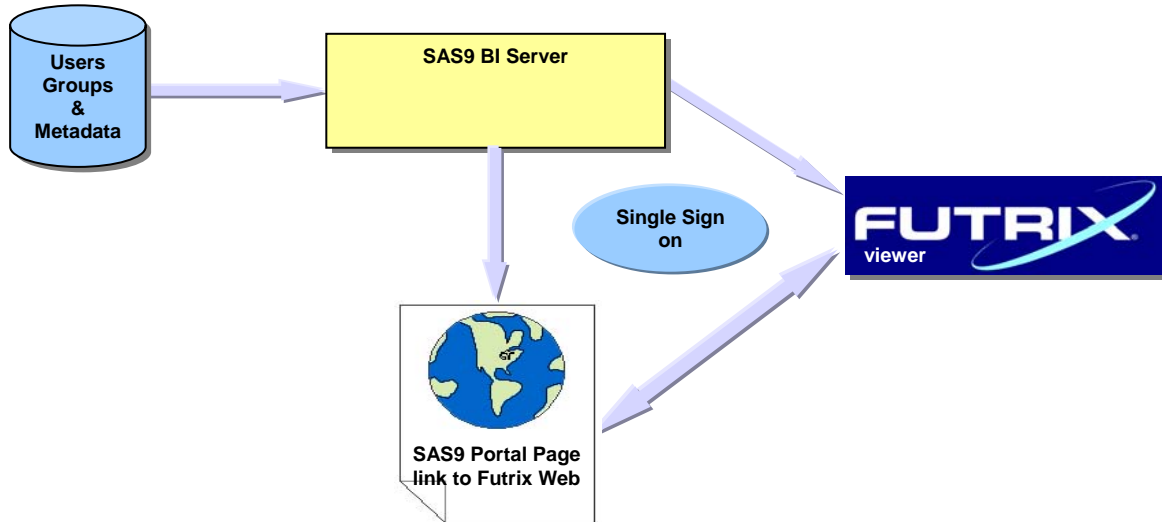

The above diagram illustrates how Futrix security is an extension of the SAS BI Server platform.

- SAS metadata includes user and groups managed by the SAS Management console.
- A user logs into the SAS Information Delivery Portal. The SAS portal has a link to Futrix or to a Futrix Report & single signon so Futrix can use that login so the users don't have to log in again
- Reports can be secured based on users & groups present in the SAS metadata server

The screenshot below illustrates how the external database setup can be modified to utilize the SAS Metadata Server. You simply need to Re-synch Groups to External Database and all of the SAS BI maintained groups will come across. You have the ability to give relevance to some or all of the groups in Futrix.
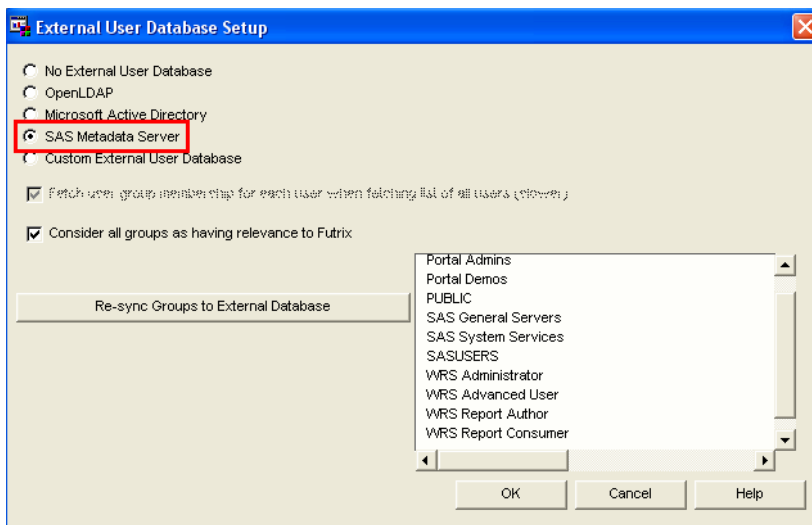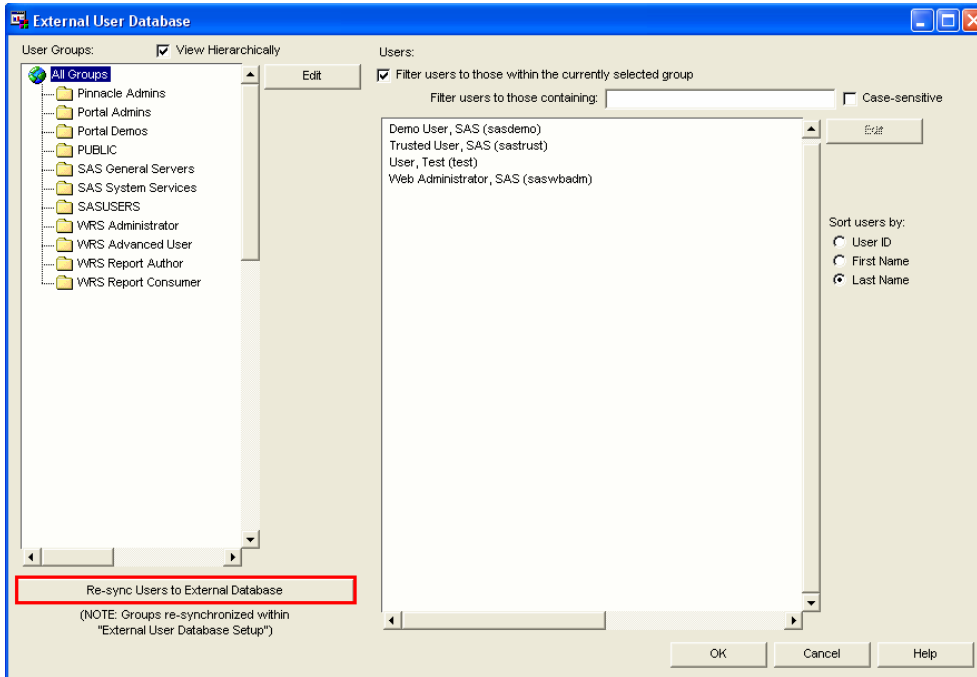
Once the external database has been set up and the user groups brought in, you can now sync the users within the groups into Futrix. Within the External User Database setup screen, simply click on the Re-sync Users to External Database button. Note that the user id that is provided in the Metadata Server login MUST be an unrestricted user, not just an administrator. The default sasadm account is usually set up as unrestricted. If you utilize a different account, then it needs to have an entry in the adminUsers.txt file (i.e. c:\sas\EntBIServer\Lev1\SASMain\MetadataServer\adminUsers.txt for example). Make sure the user id has an asterisk in front of it. More information on editing this file is available at http://support.sas.com/onlinedoc/913/getDoc/en/bicag.hlp/a003106388.htm

OTHER FUTRIX V5 ENCHANCEMENTS
You can now build OLAP server cubes in the same way as you can create MDDB Server cubes.
> To create a cube, in the Administration menu, select Metabase → Metabase Management then select the required subject. In the Metadata Matrix, edit the attributes of the required meta-item, select Data Source and Reporting Source, and select "Use a Secondary Data Source for Queries" then "SAS OLAP Server Cube".

Support has been added for SAS SPDE (Scalable Performance Data Engine) libraries.
> In the Metadata Matrix, you can register a new data source (meta-item) based on a data set currently stored in an SPDE library. You can also create a secondary data source for querying that is a Futrix Multi-Dimensional Database which may be stored in an SPDE library. This enables exploitation of the advantages of SMP hardware architectures for improved processing speed.

Futrix Web for SAS Integration Technologies
> The Futrix Web Console is available with Futrix Web for SAS Integration Technologies. The console can be used to manage application activity, check Futrix Administration reports, check the configuration data and start the Futrix web client.

> The console includes the Futrix Web Activity Manager which displays the following information:
> - application overview which shows the application instance id, application start date/time, application uptime, application state
> - session management overview which shows the overall session count since application startup, maximum concurrent session count since application startup, current active session count, session time-out
> - a list of currently active Futrix Web login sessions which shows the session id, user id, session creation date/time, session age, last accessed date/time, idle time, number of requests for the session
> - request management overview which shows the overall request count since application startup, maximum concurrent request count since application startup, current active request count
> - a list of currently active Futrix Web requests which enables you to see any long running queries which shows the request id , session id, user id, request start date/time, request age

> With the Futrix Web Activity Manager, you can:
> - terminate an active session to force user logoff
> - terminate an active requests to force the cancellation of an action – used mainly for long running/runaway queries if allowed by SAS API
> - turn on/off a block of new logins (user sessions) with a custom message - this allows Futrix use to be quiesced for management operations such as restarting the server or upgrading the software
> - turn on/off a block of new requests with a custom message - this allows Futrix use to be explicitly stopped for management operations such as restarting the server or upgrading the software

> Futrix Administration reports available include:
> - Tracking
> - User Database
> - Menu Item and Metadata Use in Reports

CONCLUSION

The SAS BI platform provides a wide variety of reporting interfaces and capabilities through a suite of components and products than an organization may already have. The SAS Web Report Studio, SAS Add-In for Microsoft Office, SAS Information Delivery Portal, SAS Information Map Studio, etc. all provide a means to help organizations make better decisions with their data. While Futrix already provided users with an intuitive, robust, and simply way to gain access to critical information, they now have the ability with version 5 to leverage the power of the SAS BI platform through the SAS metadata, workspace, and OLAP servers. Futrix can also leverage the security and the building and querying of OLAP cubes across both platforms. This new Futrix platform will have the ability to build layers on with future releases to additionally exploit other SAS BI features, such as portlets, stored processes, information maps, etc.

If you want to provide a common metadata layer, increase consistency of data and business rules and improve the availability of BI, then the SAS BI Server coupled with Futrix is a great way to achieve this.

REFERENCES

"Providing OLAP (On-line Analytical Processing) to User-Analysts: An IT Mandate" - In 1993, E.F. Codd & Associates published a white paper, commissioned by Arbor Software (now Hyperion Solutions).
"SAS OLAP Server Fact Sheet"
"Futrix-V5-Changes-Enhancements", Futrix Limited
Many thanks to Futrix Tech Support, Michelle Holmes, and Ian Sutton!

ABOUT PINNACLE SOLUTIONS

Pinnacle Solutions, an Indianapolis-based Business Intelligence Solutions provider, is a SAS Alliance Silver Partner and a Futrix Channel Member. Pinnacle Solutions has been granted distribution rights for Futrix, an Enterprise Business Intelligence suite based on the SAS® platform. Pinnacle Solutions has offered custom business intelligent solutions to medium-to-large companies in the Midwest since its founding in 1996

ABOUT FUTRIX LIMITED

Futrix was conceived in 1997 by a small group of visionary business minds and developers and has evolved into a robust, enterprise software suite with an impressive range of global clients serviced by an extensive distribution and support network. Futrix customers come from every industry sector, including insurance, banking, pharmaceutical, telecommunications, manufacturing, retail, energy and more. Futrix is developed and distributed by Futrix Software Limited, a company registered in the United Kingdom.

BIO

D.J. Penix is the President of Pinnacle Solutions, Inc., an Indianapolis-based Business Intelligence Solutions provider. D.J. has been building SAS based solutions for over 13 years in various industries including Pharmaceutical & Life Sciences, Manufacturing, Financial, Retail, and Government. He graduated from Kalamazoo College with a B.S. in both Mathematics and Computer Science and serves on the executive board of the MidWest SAS Users Group.

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