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Preparing for a SAS® Intelligence Platform Environment Deployment/Migration

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ABSTRACT

Getting a new SAS® Intelligence Platform deployed or migrated is an exciting time for a company. The promises heard during the sales cycle and project demonstrations need to become actionable processes by the administrators, power users and information consumers once the installation is complete. The reality is that this can only happen with careful planning and preparation before, during and after the SAS platform installation process.

This paper will address how to plan and prepare for each phase of a SAS Intelligence Platform deployment/migration, such that, when the installation and configuration is complete; the platform can be leveraged in an organized manner. We assume that SAS® Enterprise Business Intelligence platform has already been chosen.

INTRODUCTION

We have all been there. Our organization purchases a new software tool and **poof**, we need to utilize this tool to perform our everyday work yesterday. If the proper planning and training have not been done, users will gravitate to use the old methods to get their reporting and analytics done.

Some situations that will lead to an inefficient SAS Enterprise Business Intelligence environment rollout are:

- not mapping current needs to the Enterprise Business Intelligence software features and functionality
- SAS pre-installation checklists, system requirements and configuration guidelines documents are not examined before the deployment/migration
- not taking into account IT support and processing power requirements
- not setting expectations on the configuration with the installation person
- SAS Enterprise Business Intelligence user groups have not been designed/evaluated
- naming conventions and storage for project artifacts such as Information Maps, Web Reports, EG projects, stored processes and data have not been documented
- data has not been organized effectively and modeled to support reporting and analytics
- migration of programs or applications to work in SAS Enterprise Business Intelligence environment have not been thought out
- knowledge transfer or training is not mapped to actual user's tasks
- SAS Enterprise Business Intelligence users do not understand when to use what tool for which task
- SAS Enterprise Business Intelligence administrators and users do not understand how to effectively use SAS support resources
- proper training has not been scheduled for SAS Enterprise Business Intelligence administrators and users

CONCEPTS

As one can imagine, a deployment/migration requires a significant amount of planning. This planning should map out tasks that are organized to be executed in the following phases.

1. **Pre-Deployment/Migration**
2. **Deployment/Migration**
3. **Post-Deployment/Migration**

If planning is not performed until after the pre-deployment/migration phase, there will most likely be significant re-work and chaos after administrators and users begin using the environment.

Deployment and Promotion versus Migration

Deployment and Promotion

For the sake of this paper, deployment and promotion implies that a fresh SAS Enterprise Business Intelligence environment will be deployed and metadata content will be moved manually using promotion methods such as the

import and export of SAS Package files.

Migration

Migration has many meanings depending on the context of the conversation. For the sake of this paper, we use the term migration as moving metadata from one SAS Enterprise Business Intelligence environment to another using the SAS Migration Utility (SMU).

Deciding whether to use the deployment and promotion approach or to migrate using the SMU, depends on a number of factors. Some of the most important factors are listed below:

Change in Operating System Family

If the current environment and future environment will involve a change in operating system family, the SMU will not be appropriate to use.

Change in Topology

If there will be a change in the distribution of SAS Enterprise Business Intelligence components across the SAS servers or a change in the number of SAS servers in the SAS Enterprise Business Intelligence environment architecture, the use of the SMU must be carefully planned. For example, if the current architecture has the Metadata Server and Application Server on one physical SAS server and the SAS Mid-tier on a second physical SAS server, moving to a three physical SAS server environment would require a two phase process. Phase 1 would involve a two server to two server migration and phase 2 would then define a new application tier on the third physical server. Custom configuration would then be required to leverage the new SAS Application tier in the new SAS environment.

The following sections of this paper suggest the planning tasks that should be mapped out to properly prepare for a SAS Enterprise Business Intelligence deployment/migration.

PRE-DEPLOYMENT/MIGRATION ACTIVITIES

Hardware and Software

SAS Enterprise Business Intelligence software has been chosen for deployment or migration and now it is time to define the hardware on which it will run. The user client machines that will be connecting to the SAS Enterprise Business Intelligence platform should be evaluated although they typically do not have to be replaced; the server environment will need careful consideration and usually will require some hardware investment. It is important to realize the server architecture needed as it will be a significant factor on the price for the licensing of the platform.

- Number of concurrent users by type of user
- Amount of data used in reports and analysis (I/O needs)
- Type of processing in reports and analysis
- Sensitivity of downtime for environment
- Number of environments (dev/test/prod)
- Future growth of users, data or functionality
- Background of support staff / approved hardware vendors
- Non-SAS software or databases running on the same server

Based on the answers to the above questions, the following attributes of the SAS Enterprise Business Intelligence platform can be planned:

- Number of servers in the architecture
- Memory, disk space and CPU attributes of each server
- Type of operating systems to run on each server
- Type of web applications server(s) to run
 - JBoss, Weblogic, Websphere
- Future scalability needs for architecture
- Choosing between a deployment and migration approach

Supporting SAS Artifacts

SAS Software Order

Once the hardware and software has been determined, it is time to acquire the SAS software. There are essentially, two methods for acquiring SAS software (DVD or Electronic Download). Just before the SAS software becomes available, there is a SAS Order e-mail sent to the designated SAS representative at your company. This software should be examined to ensure the correct product set and operating system are stated. For example, if you are sent software for Windows x64, it is not the same as Windows 32 bit software. Not catching errors such as this will cause delays in your deployment.

SAS Installation Data (SID) File

The SAS Installation Data (SID) File defines what one has licensed and is included in the SAS Software Depot or attached to the SAS Software Order e-mail.

SAS Software Media

Once the SAS Software Order e-mail has been verified, you will either receive a package containing DVDs or electronically download the SAS Software Depot using the SAS Download Manager.


SAS Plan File

The SAS Plan File defines what tiers are installed on which server. SAS has plan files for some standard configurations on their web site. For example, the link to a standard plan file for SAS Enterprise Business Intelligence, four machines with JBoss can be found at the link:

http://support.sas.com/demosdownloads/downarea_t6.jsp?productID=110783&jmpflag=N

This plan is for a four machine environment. This means that there are three SAS servers (metadata, application, and mid-tier) and one client profile within the plan. If there is not a plan that lines up with the topology of your desired architecture, a custom plan file needs to be constructed by SAS or a trained SAS Consulting Partner.

Four Machine Environment



Metadata Server
Windows
Metadata Server
Clients - Administrative

Software to Install/Configure


- Enterprise BI Clients - Administrative 9.3
- SAS Metadata Server 9.3



SAS Application Server
Windows
SAS Application Server
Clients - Administrative

Software to Install/Configure


- Enterprise BI Clients - Administrative 9.3
- SAS Enterprise BI Server 9.3



Middle Tier
Windows
Middle Tier
Remote Services
Clients - Administrative

Software to Install/Configure

- Enterprise BI Clients - Administrative 9.3
- Enterprise BI Remote Services Tier 9.3
- SAS Enterprise BI Middle Tier 9.3

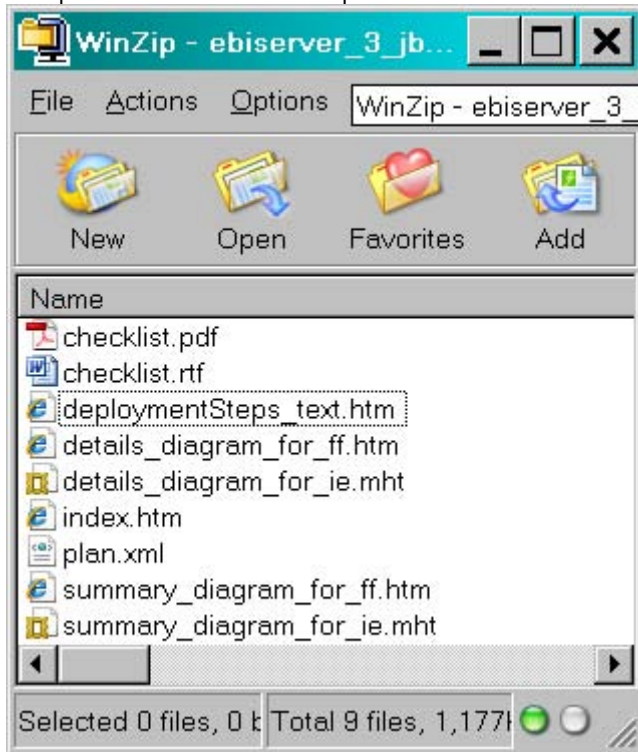


Clients
Windows
Clients - Administrative
Clients - Analytics
Clients - End User

Software to Install/Configure

- Enterprise BI Clients - Administrative 9.3
- Enterprise BI Clients - End User 9.3

This plan is downloaded as a zip file and will contain the following documents:



Third Party Software

The pre-installation checklist (checklist.pdf or checklist.rtf) will indicate which third party software needs to be installed on each SAS machine. The SAS web site has a link to find the necessary third party software:

<http://support.sas.com/resources/thirdpartysupport/>

Typically the necessary third party software consists of one or more of the following:

- Java Runtime Environments (JRE)
- Java Development Kits (JDK)
- Web Application Servers and HTTP Servers
- Web Browsers and Plug-ins
- Others such as: .JUnit, Eclipse, ESRI, etc.

SAS System Requirements and Configuration Guides

<http://support.sas.com/documentation/installcenter/93/index.html>

There are specific system requirements and configuration guides for each SAS version and operating system. These contain useful information to ensure you have the proper components for the software you have licensed. For example, if SAS/Access Interface to Oracle is licensed, there will be specific requirements defined in order for it to operate on the SAS server.

Process and Tool Mapping

In the process of deciding that a new reporting and analytics tool should be purchased, improvements over the current environment should have been highlighted. In order to realize these improvements with the new Enterprise Business Intelligence tool, the current tools and processes should be mapped to leverage the new environment. This may mean significant changes to processes that have been performed for years. A good way to approach this is by addressing all of your current standard operating procedures on how reporting and analysis are handled at your site. If you do not have standard operating procedures for each of your business processes, it is a good time to create them.

Following are processes that may need SOPs or Best Practices defined for your site:

- Data access
- Report specification communication
- Data analysis
- Coding standards
- Report development
 - Dev/Test/Prod processes required?
- Report QC/validation
- Report distribution/subscription
- Results organization

In documenting the best practices listed above, the Enterprise Business Intelligence tool(s) of choice should be referenced as appropriate so the users can have a guide on what tools to use for which processes.

Following are some tools that may be referenced within the process best practices:

- SAS® Add-in for MS Office
- SAS® Information Map Studio
- SAS® OLAP Cube Studio
- SAS® Web Report Studio
- SAS® Information Delivery Portal
- SAS® Stored Processes
- SAS® Enterprise Guide

DEPLOYMENT/MIGRATION

Installation and Configuration

There are many details and decisions to be made during a SAS Enterprise Business Intelligence installation. These are decisions that need to be monitored and documented. An expectation should be set that the technical details of the SAS Enterprise Business Intelligence platform are documented and presented by the installer at the end of the installation and configuration process. The person that is slated to be the SAS Administrator needs to be a part of this knowledge transfer. Another important issue is setting the scope of the installation and configuration. The expectations on what is included or excluded may be very different between the installer and the customer.

Some tips for a successful installation/configuration:

- Leave sufficient time to acquire and configure the hardware and operating systems for the servers
- Create the SAS Software depot ahead of time
- Have the SAS SID and plan files available and reviewed by the installer ahead of time
- Read over the pre-installation checklist and make sure that the sufficient user IDs are created ahead of time
- Schedule a server administration resource to be available during the installation and configuration
- Decide how involved you want to be during the installation and configuration
- Set platform testing / validation expectations
- Set knowledge transfer / training expectations
- Select at least one simple report to have up and running on the platform. This can be part of the knowledge transfer and build momentum quickly for your Enterprise Business Intelligence platform.










Business Intelligence User Groups & Roles

If you are deploying a fresh SAS Enterprise Business Intelligence environment, you must design your user groups and roles. If you are migrating a SAS Enterprise Business Intelligence environment, you must evaluate your current user groups and roles and decide if they are satisfactory or if you want to re-design them.


















A user's background, experience and role in the organization will usually determine the SAS Enterprise Business Intelligence client applications that he/she will need to use. The SAS Enterprise Business Intelligence platform has some users, groups and roles that are there from the beginning. It is important to understand these standard users, groups and roles before embarking on creating user groups and assigning roles.

There are some Initial SAS Enterprise Business Intelligence groups & roles to understand and take into consideration during this planning stage. These are based on the SAS Enterprise Business Intelligence tool perspective and not necessarily on your business needs.

Initial User Groups in the Management Console:

User, Group, or Role
 SASUSERS
 PUBLIC
 SAS Administrators
 SAS System Services
 SAS General Servers
 Table Server Administrators
 BI Web Services Users
 BI Dashboard Administrators
 BI Dashboard Users

Initial Roles in the Management Console

User, Group, or Role
 Metadata Server: Unrestricted
 Metadata Server: User Administration
 Metadata Server: Operation
 Add-In for Microsoft Office: Advanced
 Add-In for Microsoft Office: Analysis
 Add-In for Microsoft Office: OLAP
 Enterprise Guide: Advanced
 Enterprise Guide: Analysis
 Enterprise Guide: OLAP
 Enterprise Guide: Programming
 Management Console: Advanced
 Management Console: Content Management
 Theme Designer for Flex: Administration
 Web Report Studio: Report Viewing
 Web Report Studio: Report Creation
 Web Report Studio: Advanced
 BI Dashboard: Administration

Depending on your processes, organization structure and security needs, you will want to design your own groups. You may already have user groups defined on your operating system that it makes sense to leverage. I would encourage you to construct groups that are easy to maintain and understand and possess minimal redundancy.

POST-DEPLOYMENT/MIGRATION**Artifact Storage**

A frame work for storing project artifacts is needed as soon as possible so everything stays organized and documented. Hopefully, there is already a strategy in place for your current environment that can be used or adapted. If there are artifacts stored on client workstations, they need to be moved to a centralized network drive or server.

Data Architecture and Storage

A Enterprise Business Intelligence platform should run off of data optimized for the reporting and analysis. Transactional data needs to be modeled into data marts that will:

- Be centralized on the server
- minimize redundancy
- contain calculations to ease reporting
- has a purpose (do not try to build one huge data mart to serve all needs)

As with the artifacts, the data marts should not be on client work stations. A central location on the server or network drive is best. This will ensure consistency since everyone is using the same data sources.

Performance Tuning

Once the SAS environment is operational, the configuration settings may not be optimal for an efficient environment. Settings such as MEMSIZE, SORTSIZE, REALMEMSIZE, BUFNO, ..., etc. need to be reviewed. This is especially important to consider for Windows 64 bit SAS. There are changes to consider since 32 bit Windows environments. A good reference, [Configuration and Tuning Guidelines for SAS 9 in Microsoft Windows Server 2008](http://support.sas.com/resources/papers/WindowsServer2008ConfigurationandTuning.pdf), can be found at <http://support.sas.com/resources/papers/WindowsServer2008ConfigurationandTuning.pdf>. There are resources for other operating systems on the SAS Tech Support website as well.

Ongoing Training

When users approach a problem there are often multiple ways to solve it. Understanding the advantages and disadvantages of each SAS Enterprise Business Intelligence tool given the task at hand will be very advantageous for the success of each project. The best case scenario is to turn examples of their daily tasks into workshops so they can practice implementing in their own SAS Enterprise Business Intelligence environment. These can be implemented as custom onsite training by a partner or internally as your team gains more experience. Regularly scheduled "classes" or lunch and learns for your team will help build knowledge and cross-training. Following is a list of some of the different types of training that SAS offers:

[Public Training](#)

[On-Site Training](#)

[Self Paced E-Learning](#)

[Live Web Classes](#)

For more information, see www.support.sas.com/training.

Another source for building knowledge is leveraging SAS books. For more information, see www.support.sas.com/publishing.

Ongoing Support

Just like sufficient training is necessary for an efficient SAS environment, the users must also have a good support network that is easy for them to access and use.

Leveraging SAS Technical Support

Having a good support system can really make trouble shooting system and user problems much easier. SAS has free user support that is really easy to use and responsive. If it is after hours and it involves a production system being impacted, SAS will route you to an emergency technical support process. The following list contains just some of the ways to take advantage of SAS Technical Support.

Online Support and Documentation: www.support.sas.com

E-mail Support: support@sas.com

Phone Support: (919) 677-8008 (United States)

Tracking Issue Status: www.support.sas.com

Developing Internal Support Processes

Creating a network of resources inside of your company is typically a very beneficial scenario. Frequently asked questions and the corresponding answers for your site can be documented and pushed out to users specific for their role.

Utilizing a 3rd Party

Setting up a relationship with a SAS consulting partner, such as Experis, is also beneficial. Access to independent assessments, ideas, code reviews, troubleshooting, ..., etc. can create a much more robust SAS environment and users.

CONCLUSION

The lack of proper planning and knowledge transfer during a SAS Enterprise Business Intelligence installation project can impede the momentum of users leveraging the platform for their day to day work. With proper planning and organization for user groups, security, data, knowledge transfer and training early on, value will be recognized much earlier from the SAS Enterprise Business Intelligence environment. Communication is another important tool to keep momentum going. Everyone on your team can work more effectively if they understand each others processes and needs.

REFERENCES

SAS Knowledge Base / Install Center: <http://support.sas.com/documentation/configuration/index.html>

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