

# Performance Tips and Tricks: Spend Performance Management



## Applies to:

SAP Spend Performance Management 2.1, SAP BW, SAP SRM, Analytics, SAP eSourcing, Enterprise Performance Management (EPM), Operational Performance Management (OPM)

## Intended Audience:

Customers of SAP Spend Performance Management  
Implementation Partners

## Summary

This paper provides suggestions and guidelines to improve performance for SAP Spend Performance Management.

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## Author Bio



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## Document History

Document Version	Description
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## Table of Contents

Introduction .....	3
Architecture.....	3
Hardware Sizing .....	4
Data Base .....	4
NW Considerations .....	4
Single or Dual Stack.....	4
Java/J2EE .....	4
BW .....	4
Application Specific Performance Considerations.....	5
SPM Simple Cache (Release 2.1 and above) .....	5
Counts and Related Dimensions .....	5
Compressing Cubes.....	5
Aggregates .....	5
Memory Monitor Settings .....	5
Advanced Considerations .....	6
Remove navigation attributes .....	6
On-the-fly currency and UoM conversions.....	6
Dimension Distribution .....	6
Data Level Authorizations .....	7
Analytical Habits .....	7
Network.....	8
Distance to server .....	8
Firewall Crossings.....	8
Client Side.....	8
Hardware.....	8
Flash Player .....	8
Browser .....	8
Application Startup.....	9
Browser Cache Settings.....	9
Web Service Configuration .....	9
Java Stack Memory Allocation .....	9
JVM Version and Parameters on the Java Stack .....	9
Query Registration .....	9
UoM Note .....	9
Extractor Starter Kit .....	9
Data Management Tool .....	10
Data Management Screens .....	10
Data Load.....	10
TIC Review Service .....	10

## Introduction

SAP Spend Performance Management application is designed, ground up, to deliver high a impact [business solution](#) with an equally high degree of usability. This unique combination of form and function is realized by different components of the technology stack working together harmoniously like a symphony orchestra. In an orchestra, a single instrument being out of tune has an impact on the overall quality of music. Similarly, extending the analogy, all the different parts of the technology stack that make up the application need to be in tune in order to be able to *enjoy the music* from a performance point of view.

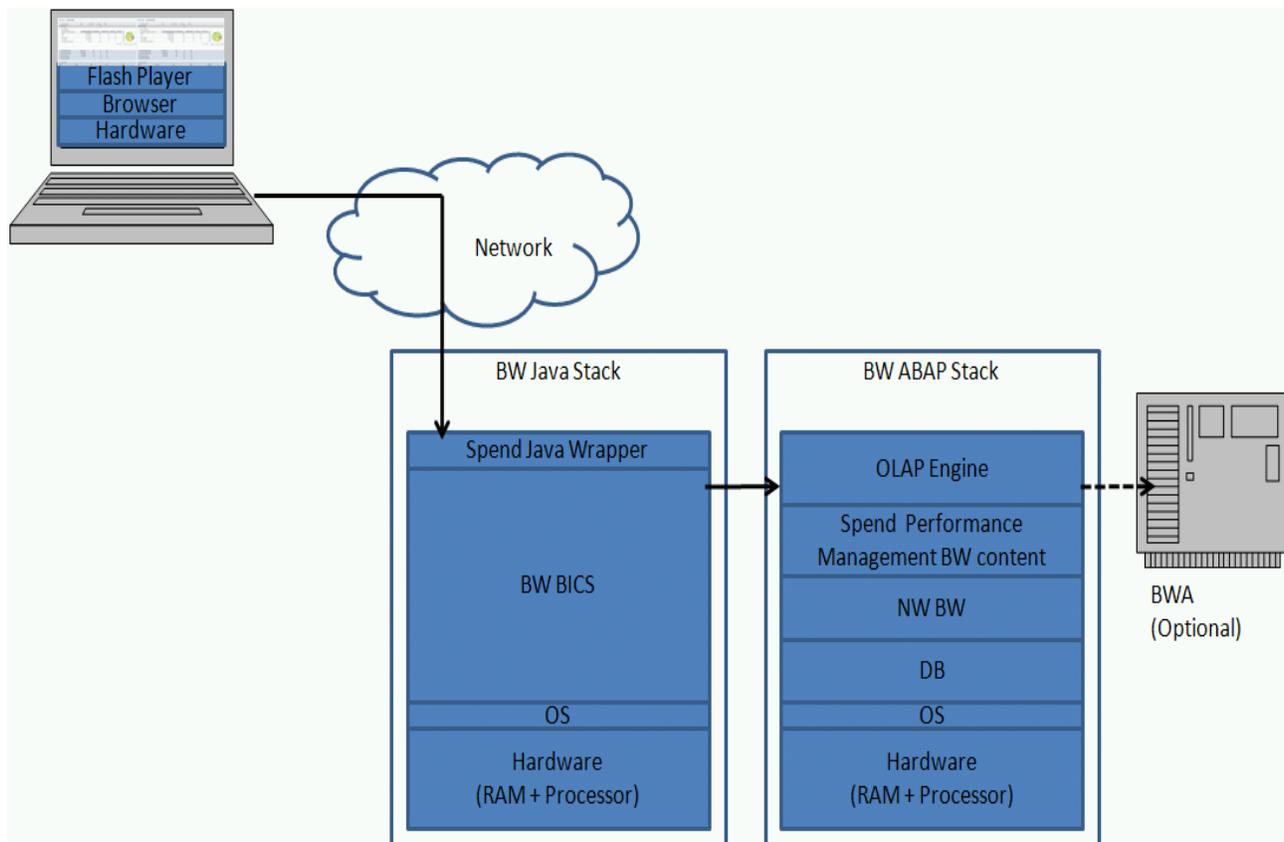
I will list out all of these components that have an impact on the application performance in this article. The focus will be on raising the awareness, not on the details, especially for things like the Data Base (where you might need to read through the DB provider's manual and also involve the DB experts). Additionally, as and when my colleagues and I post details on a specific area, I will update this document with the relevant link.

So what are these components that we need to be mindful about when we talk about performance?

Read on >>

## Architecture

The diagram below depicts the application Architecture from a performance point of view.



The configuration depicted above is just one of the possible combinations. But it does include all of the components involved in the landscape of the application (for example BW Accelerator or BWA can be included, optionally, to improve performance).

For more on application architecture go to this [resource location](#).

## Hardware Sizing

Obviously, one of the first steps during an implementation is determining hardware sizing. In general number of concurrent users, type of analysis and volume of data determine server size. The Quick Sizer tool can be used to determine the appropriate sizing requirements. Details of hardware sizing for Spend can be found at the [blog](#) and [note 1253768](#).

## Data Base

Since the application is installed on NW BW, which uses the relational DB for its persistence. Tuning this RDBMS correctly can make a world of a difference. Refer to your DB provider's manuals, and the SAP supporting documents for further information. It is highly recommended that you enroll a DB expert to set it up correctly. The experts will help ensure that for example the statistics are correct and up-to-date, is the data buffer quality to the level of SAP recommendation (which is 97%)...etc.

Here are some key notes to get you started:

- Oracle: Notes [180605](#), [351163](#) and [428212](#)
- Informix: Note [181945](#)
- DB2: Notes [390016](#), [307077](#), [501572](#) and [541508](#)
- SQL Server: Notes [327494](#) and [28667](#)

## NW Considerations

### Single or Dual Stack

The article "[How to deploy NW](#)" does a very good job at explaining the two stack architecture and helping you make a decision. Involve your NetWeaver j2EE system administrator to help you make a decision.

### Java/J2EE

Using the most current JVM is generally beneficial performance wise. Also ensure that the JVM parameters are correctly setup. For more details on JVM parameters and java server setup in general, read the articles "[How To Fine Tune the J2EE Engine Performance](#)" and "[Java Performance tuning for beginners](#)" and also the [Note 723909](#). Involve your NetWeaver j2EE system administrator to help you make a decision.

### BW

NetWeaver BW is at the heart of Spend Performance Management, the importance of correctly tuning it goes without saying. There is a plethora of information available on [sdn.sap.com](#) and [help.sap.com](#). Cache and Query Settings and BIA/BWA (if available on the target landscape) are a great place to start. Additionally setting the correct basis level parameters is crucial, BW Basis Parameters: [Note 192658](#). Involve your BW system administrator to help you make a decision.

It is highly recommended to involve your Database and SAP NW administrators to apply the appropriate settings and notes. The above mentioned notes are only suggestions and are not directly related to the application codeline. But nevertheless, these two areas do have a considerable influence on the performance of the application.

## Application Specific Performance Considerations

### SPM Simple Cache (Release 2.1 and above)

This is an application specific cache. Pre-calculated result sets are persisted in the in DB on the ABAP side, when the report gets executed the first time. For every subsequent executions of the report (until the underlying data changes with a new upload), this stored result set is used and a call to BW is avoided. Other users executing this report also avail the benefit of this cache as long as their locale and formatting settings are same as the saved report.

### Counts and Related Dimensions

If business requirements do not put a lot of emphasis on counts and related dimensions, these can be configured out of the application.

### Compressing Cubes

After data validation has been performed and the production ready data load is complete, Spend cubes need to be compressed to achieve optimum OLAP performance. Here is the list of the Spend cubes:

- Invoice: 0ASA\_C02
- Invoice Counts: 0ASA\_C01
- Contracts: 0ASA\_C04
- PO: 0ASA\_C05
- Budget: 0ASA\_C11
- Projects: 0ASA\_C07
- External Factors: 0ASA\_C13

Additionally the Upload id can be unmapped so that the data loads do not contain the request like references. This can be done by manually un mapping the infoobject 0XSARFILEAL in all of the transformations feeding into the above listed cubes. This will improve compression.

### Aggregates

Based on the business requirements and the objective for the application, if common analytical scenarios can be mapped out, the aggregates can be built on top of the above listed Spend cubes.

### Memory Monitor Settings

The flex memory consumption can be controlled by setting the memory thresholds from within the application. Follow the instructions in the note [note 1477454](#).

## Advanced Considerations

### Remove navigation attributes

Based on the business requirements, all unnecessary navigation attributes can be removed from the Spend content.

### On-the-fly currency and UoM conversions

The application by default provides conversion of all currency and quantity to a reporting currency and a reporting quantity. Additionally, starting release 2.1, the application also provides on the fly conversions of currency and quantity. If these on-the-fly conversions are not a business requirement, these can be removed from the application. Steps to achieve this:

- a) Bring up the Spend Queries (like 0ASA\_MP01\_Q1002) from the keyfigures, remove any key figure with the reference to the variable 0SSATGTUOM and 0SSATGTCUR
- b) Save Queries
- c) As a check, when executed in RSRT the queries should not bring up the currency and UoM variable entry screen before execution
- d) Refresh datasource in Spend UI and refresh BW cache and also browser cache

### Dimension Distribution

Depending on the data set that is loaded, in some cases the dimensions are not properly distributed. This means that the characteristics bundled together in one or more dimensions are not co-occurring characteristics. By consequence, this leads to a higher number of permutations, and the size of this dimension with respect to the fact table grows beyond the ideal (ideal being close to 10%). Once all of the data is loaded, this can be verified by running the program RSDU\_INFOCUBE\_TABLE\_SIZES for all of the above listed InfoCubes. If issues are found, then these dimensions can be balanced out for better performance.

\*[Chapter 7 of the Installation Configuration guide]

After the content is changes at the customer end, applying fixes to it in future releases/SP becomes a challenge, so this should be done very carefully. We highly recommend that before you do any customizations or changes that limit functionality, ensure that business does not need that functionality in any of the current or future scenarios.

## Data Level Authorizations

Setting up user level data authorizations (Analysis Authorization) also introduces a default filters which helps improve system performance. These can be setup with the standard BW mechanism for analysis authorization. Some key characteristic info objects for Spend Performance Management application are:

- **Management Org:** 0XARMANORG
- **Site/Plant:** 0XARORGSITE
- **Controlling Area:** 0XSACOARR
- **Cost Center:** 0XARCOCTR
- **Buying Org:** 0XSARBUYORG
- **GL Account:** 0XARGLACC
- **Source Category:** 0XARLOCCAT
- **Source System:** 0XARSYSLID

## Analytical Habits

Business users need to analyze the data and perform their day-to-day tasks regardless of the impact on system performance. However, it is worthwhile to understand the implications of such choices on your system performance.

As already recommended, involving “on the fly” calculations only on a need basis helps improve performance for report executions in which these calculations are not included. For example, if counts are not required for all the reports, then excluding these measures has a positive impact on performance.

Applying filters to the report also has a high impact on report performance. The more filters you apply, the better the performance. For example, if you analyze spend by source system suppliers and items, and know beforehand, which items and suppliers you want to analyze, it would be beneficial performance-wise, if you included those filters before executing the report. For this reason, we strongly recommend filtering the report data.

The primary focus of this application is analysis and not reporting. It is not designed to display line by line each and every transaction that exists. The transactional source system already has the capability. This application is designed for slicing, dicing, rolling up and then drilling down Spend related information. Its purpose is strategic.

\*[Chapter 7 of the Installation Configuration guide]

## Network

### Distance to server

The network, especially if the server is hosted far away, can add quite a bit of performance.

### Firewall Crossings

If the application is not on premise and its hosted on a cloud or with a BPO provider, the firewall crossing/security checks might also significantly impact the overall performance.

For both the above issues involve your networking experts, both in house and with your hosting/cloud partner.

## Client Side

### Hardware

Since the user experience for the application is enabled by the Rich Client nature of its UI which is a Adobe Flex Frontend, and that the analytical data is streamed into the client machine, the hardware resources made available to this Rich Client front end plays an important part. It is recommended to have 2 GB RAM at a minimal with appropriate processor.

### Flash Player

Adobe does a good job of taking in user feedback and quickly bringing it into its flash player code line, It frequently releases relevant patches and upgrades. My recommendation is to always get the latest [flash player addon](#).

### Browser

Just like the Flash Player, the browser that the flash player is housed in plays an equally important part in performance. Also its highly recommended to use the browser cache to your advantage.

Special Note on [Microsoft Internet Explorer](#): I have noticed some specific performance and security issues with some versions of IE6, so IE7 and above are highly recommended.

## Application Startup

If the application is taking a considerable amount of time to launch, then there are a couple of steps that can be undertaken.

### Browser Cache Settings

A sizable bulk of the application metadata has been designed to be *cacheable* from within the browser. Using this browser cache to your advantage can have a big impact on the application start up time.

### Web Service Configuration

If the web services, as explained in the installation and configuration guide, are not configured properly it will definitely have a big impact on the application startup. Ensure that all of the necessary web services are correctly configured.

### Java Stack Memory Allocation

Since the Adobe Flex client app is streamed to the browser from the Java/J2EE stack; ensure appropriate memory allocation to all of the nodes. \* refer to the chapter NW Considerations

### JVM Version and Parameters on the Java Stack

The JVM version and its configurations affect the performance of the java stack which in turn affects the performance of the startup. \* refer to the chapter NW Considerations

### Query Registration

The more number of Queries (DataSources) you register with the application the more information it needs to load during startup. Hence it is highly recommended to register only those that are necessary.

### UoM Note

Check to see if the directions in the [Note 1475471](#) are applicable, which resolves unnecessary computation for UoM conversions during startup (this is observed in SM50 transaction with the \*RSUOM\* process taking up a lot of time during startup).

## Extractor Starter Kit

Loading more historical data than what the business needs for its analysis (decided during the requirements gathering phase in blueprinting) will increase the extraction time, data load time and slow down Query performance. Load only the data (historical) that's necessary, as deemed by business.

Refer to the Spend Extractor Starter Kit, which is available in the note [Note 1239883](#), Refer to the chapter 4 of the document "Extractors\_configandtroubleshooting.doc" which details the necessary suggestions for performance improvement.

It includes tips for things like:

- Package Size Settings
- Invoice Extractors
- Scheduling Agreement and Contract Extractors
- Cost Center and GL Account Extraction

## Data Management Tool

### Data Management Screens

Apply the [Note 1464669](#) which restricts user retrievals limited to application specific users. Since by default all the users are loaded and there can potentially be tens of thousands of users in a productive system, this can slow down the data management screens. With this note only the Spend relevant users are loaded.

### Data Load

- **Background Processes:** Ensure that sufficient background processes have been allocated.
- **Buffer Size:** Ensure that other system level resources like buffer size allocation, at the BASIS level, is adequately done.
- **No Data Enrichment:** If Supplier normalization or Spend Category classification is not part of the implementation, based on business requirements, then the flag "LSUPPLIER\_UPDATE\_ALL" which helps data management to load all data without selectively processing it. Additional details on this configuration can be found at [this resource location](#).

### TIC Review Service

Finally, last but not the least a TIC (Technical Integration Check) review service can be requested from SAP before going live on the product. The details of this service would be available with your SAP contact. This is highly recommended.

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