

Experiences of using SAS/Access Interface to SAP R/3 from technical perspective – a practical case

Abstract

Many leading organisations have made large investments in enterprise resource planning (ERP) systems. These systems automate such business-critical operations as finance, logistics (in whole), inventory and production planning - and are vital for day-to-day efficiency within an enterprise. However, while ERP systems can collect and provide important data as the basis for attaining competitive advantage through information, many organisations are finding ERP systems to be very complex. In fact, they are discovering it is not at all easy to get the kinds of information and reporting flexibility that business users need and desire to support their decision-making processes.

Experiences of using SAS/Access Interface to SAP R/3 in this case has recognised in using the sales reporting system in HK Food Ltd, the leading producer of branded fresh foods in Finland. Sales reporting system is used to support the management of sales in HK Food Ltd's business units more effectively and consistently, help the users of the system to focus their tasks correctly, observe and understand the effects of actions and see the trends and changes within the market area.

This presentation is oriented to solution providers and decision-makers who are looking for experience in installation and using of SAS/Access Interface to SAP R/3. This presentation deals with technical environment, installation phases and problems within installation, add-in tools and some conclusions.

Technical environment

SAP R/3 is an open environment, which contains functions, procedures, transactions and data. The data that are covered in the SAP system are accessible through different ways: ODBC, SQL, ABAP, extraction method and remote function call method (RFC). In this paper we are focused on RFC method.

SAS Access Interface to SAP R/3 provides an easy-to-use, reliable and intelligent solution to access SAP R/3 data. It consists of SAS/Access to R/3 Application, DD Extracts, SAS Views of the R/3 Data, SAS RFC Server and R/3 system.

SAP R/3 and SAS

HK Food Ltd has chosen SAP R/3 in 1997. Project is being implemented with ICL Data Oy, which one of the biggest software houses and SAP R/3 implementers in Finland.

SAS has a relatively long history as a reporting tool in HK Food Ltd since 1995. With SAS have been developed several wide client/server applications, including executive information and sales reporting systems. Some applications are deployed also via web by SAS/IntrNet product. SAS-applications are now used by a group of 100 users in business units of HK Food Ltd and the number of users is increasing while web usage is expanding.

SAS Server

<i>Model</i>	<i>Compaq Proliant 5500</i>
<i>Operating system</i>	<i>Windows NT Version 4.0 (Service Pack 3)</i>
<i>Main memory</i>	<i>512 Mb</i>
<i>Hard disk</i>	<i>60 741 Mb (=60 Gb), Raid 1,5</i>
<i>Processors</i>	<i>2* Intel, 400 MHz</i>

SAS products in NT Server:

- ACCESS TO R/3
- INTRNET
- BASE Product
- SAS/CONNECT

Current SAP modules

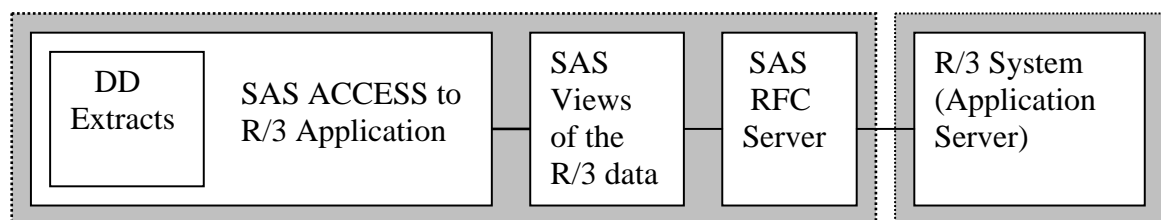
- FI – Financial Accounting
- LO – Logistics
 - MM – Material Management
 - PP – Production Planning
 - SD – Sales & Distribution

Underlying DBMS

- Oracle

Configuration

Configuration of the system is typical: SAS Access to SAP R/3 and SAS RFC Server are installed on the same machine while R/3 System (Application Server) is installed on other NT Server.



Installation experiences

The main installation was done by SAS institute Finland and SAP R/3 consultant but in Data Dictionary Extracts the installation run in error messages. The rest of the installation was done by Niklas Data Finland. During Data Dictionary Extracts we had nearly all common error messages and solved them one by one. There were some lacks of definitions in the SAP R/3 side, some bugs in the ACCR3 product (which were corrected afterwards by SAS Institute) and our lack of experience in the usage of the product. After all, the installation was complete and next time we will know the pitfalls of the installation.

SAS Interface to R/3 Add-ins

The Access to R/3 Add-ins represent some useful extensions to the standard SAS/Access software to R/3: with Add-ins it is possible to maintain formats, extract hierarchy from R/3, split extraction process into time slices and search for tables with multi-field search. In tis case every add-in has been helpful for building a datawarehouse from R/3. Especially format generation control has been very useful also in creating dynamic, real-time web reporting, when the key issue was how to cut the execution time.

SAS format maintenance

R/3 is highly normalised system, which means that if you want to have explanations for classification variables in a query, you can easily run in complexed sql-coding and execution time problems within the application. SAS Formats can be used to avoid these problems. Solution is to define metadata to convert text lookup-tables into SAS formats. These formats can be language and R/3 client dependent. Format Generation Control tool generates source code that can be rerun whenever needed.

R/3 hierarchy extraction

Hierarchy extraction method creates a SAS Data Set in a form suitable for an Org Chart. Standard metadata for R/3 is supplied for Cost Centres, Cost Elements, Profit Centres and Business Processes.

Time-sliced extraction

The R/3 administrator may have set limits so that extractions time-out. This is a big problem when extracting large tables from R/3 to SAS-datawarehouse. Time slicing was developed to circumvent these global settings. The algorithm is to extract until time is almost finished and then generate a WHERE clause to continue with records that logically follow.

Multi-field search

R/3 consists of thousands of tables, same information seems to be represented in many tables and datawarehouse implementer needs to communicate with R/3 experts on site. However, R/3 expert often tells the DW- implementer the most important, but perhaps not all the necessary tables. With the multi-field search tool the developer can find a table containing a combination of fields, R/3 views that contain a join of certain fields, R/3 tables containing text descriptions of field values, or R/3 tables that contain fields with the same data elements. This is useful for example when we have to find text lookup tables for format generation.

Datawarehouse / real time reporting

Usually the mainstream in SAS-reporting from ERP-systems is to build a Datawarehouse by extracting the data from R/3 into SAS datasets. This approach has many advantages: it reduces the pressure on the operational system, speeds up the execution time of the reporting application, makes it easier to extend the deployment of the application without investments in R/3 hardware etc. However, this approach is not appropriate when the question is about having real time reports: the data in the datawarehouse may be updated frequently, but it is not real time.

As an example of real time reporting we have implemented a solution for dynamic web-reporting from SAP R/3 by using SAS/ACCESS Interface to R/3 and SAS Application Dispatcher, which is based on Common Gateway Interface (CGI). Predifined SAS views to R/3 tables are used instead of SAS datasets, which enables real timing. User selections (where clauses) are constrained so that users can not do too time-consuming queries to R/3.

Conclusions and future steps

In HK Food case SAS-Reporting system has provided a transient phase between old system and the new ERP-system. One corner of the system structure has remained unchanged and users feel more safe and comfortable within heavy turbulence. For system engineers SAS-reporting has been 'something we don't have to worry about'.

SAS Institute has a long experience in implementing datawarehousing and decision-making systems. Especially if SAS is already used as a reporting tool in the company, it is a natural choice for developing reporting applications from ERP systems.

When implementing a datawarehouse from SAP R/3, it is essential to have a R/3 expert to tell you, where you can find the appropriate data. It is also important to fill pre-installation checklist carefully. When implementing the system it is valuable to watch out the amount of network traffic and competition of resources. We also found it useful to complete a log file during the installation and testing the software.

SAS Access Interface to SAP R/3 provides an easy-to-use, reliable and intelligent solution to access SAP R/3 data. The ACCESS to R/3 Add-ins represent some useful extensions to the standard SAS/ACCESS software to R/3. Especially format generation control is very useful.

In the very near future we will investigate exporting SAP R/3 metadata to SAS/Warehouse Administrator.

HK Food Ltd

HK Food Ltd is a leading producer of branded fresh foods in Finland. It has over 700 products in its portfolio which are supplied to the fresh meat, processed meat, poultry and convenience food markets. Turnover of the group in year 1998 was about 2,8 Billion FIM and number of employees about 2800. The main customer base consists of largest wholesale and retail food outlets in Finland, including K-Group, S-Group, Tradeka and Tuko Spar. HK Food Ltd also exports over 6 million kg of meat to traders and retailers around the world.

Niklas Data Group

Niklas Data has grown from a small Swedish company to being a pan-European consulting company. The basis for our success can be found in our long-term partnership with our customers, partners and employees. Our goal is to be the preferred partner when it comes to implementing business solutions based on the SAS System. We plan to expand our presence in Europe as well as establishing offices in other parts of the world.

Niklas Data strives for a preferred status by their clients. To achieve this Niklas Data uses modern and SAS software adapted methodologies coupled with knowledge about clients' business, which is enhanced by close proximity to those clients. The proof of this long-term vision is that Niklas Data has a very high customer retention rate (93.4% from 1997 to 1998). The base for Niklas Data's strategic focus is product leadership, long-term partnership and a global and local ("glocal") learning organization focusing on national and international growth.

Trademark notes

SAS is a registered trademark of SAS Institute Inc.

SAS/Access Interface to R/3 is a trademark of SAS Institute Inc.