

TECHNOLOGY BRIEF: CA ERWIN SAPHIR OPTION

CA ERwin[®] Saphir Option

Table of Contents

Executive Summary

SECTION 1 **2**

Introduction

SECTION 2: OPPORTUNITY **2**

Modeling ERP Systems

ERP Systems and Data Warehouses

Why Model an ERP System?

Why Simple Reverse Engineering is Not Enough

SECTION 3 **3**

CA ERwin® Saphir Option

Supported Platforms

Displaying Intelligible Names

Metadata Exploration

Export to CA ERwin® Data Modeler

SECTION 4: CONCLUSIONS **8**

Executive Summary

Challenge

Enterprise resource planning (ERP) systems are mission critical to many organizations. We can gain enormous business benefits by extracting the data from ERP systems and integrating it with our other systems, but there are challenges to overcome before we can achieve this:

- Extracting data from ERP systems requires knowledge of their structure.
- Understanding the structure of ERP systems is complex due to the code names used for tables and columns.

Opportunity

If we can meet the challenges of ERP data extraction, several opportunities are available to us:

- Creating a data warehouse.
- Developing custom reports.
- Building interfaces between disparate systems.

Benefits

By using CA ERwin Saphir Option, we can help to achieve several important benefits:

- Understanding the ERP metadata.
- Making ERP data extraction straightforward.

*The mark Saphir is used with the consent of Silwood Technology Limited.

SECTION 1

Introduction

ERP systems are increasingly used at the heart of organizations today. In addition, data warehouses are becoming a common source of enterprise information. If we can combine all of this information in one place, we can unlock and integrate the vast quantities of information in our organizations. CA ERwin Saphir Option provides the key to unlock this information.

SECTION 2

Modeling ERP Systems

ERP Systems and Data Warehouses

Typically, ERP systems hold information that is mission critical to the organization. ERP systems attempt to integrate all of the business and reporting functions into one central system. However, there is usually the need to extend the functionality beyond the capabilities of the ERP system. A data warehouse is a good example of this. Data warehouses seek to extract data from every system—legacy, current, internal, or external—and store it in a central database for reporting. ERP systems are obviously an excellent source for this data.

Why Model an ERP System?

ERP systems use standard relational databases to store their data, so it should be straightforward to extract this data. Many extract, transform, and load (ETL) tools are available, from both relational database vendors and specialist suppliers. These tools enable us to connect to the ERP data source, extract the data, transform the data into a structure that is useful for our destination system, and finally load the data into the warehouse.

So far, information extraction from ERP systems seems straightforward. Unfortunately, ETL tools are of no use unless we understand the structure and meaning (or metadata) of the ERP system. The metadata is the structure of the tables and relationships that make up the database. We need metadata to find the information we are interested in, that is, the table and column that contains the relevant value. When we understand the metadata, it is straightforward to extract the data.

Why Simple Reverse Engineering is Not Enough

ERP systems store information in relational databases, so we could use a modeling tool, such as CA ERwin® Data Modeler, to extract the schema of the ERP system through reverse engineering.

This approach would generate a set of tables. However, ERP systems are intended to be multi-language. The most common way to achieve this is to use code names for tables and views and create a complementary data dictionary to convert the name into the language of your choice. For example, the table that contains customer data in SAP is called KNA1. Unfortunately, the modeling tool only sees the code names, so the model is meaningless. Furthermore, an ERP database contains many tables, and this quantity of tables is very difficult to display in an intuitive way. Using CA ERwin Saphir Option, we can organize subsets of the database structure into subject areas, and then export each of these subject areas as a CA ERwin Data Modeler model.

CA ERwin Saphir Option

Supported Platforms

CA ERwin Saphir Option supports a wide range of ERP systems. It can extract metadata and convert data dictionaries to meaningful information from SAP, Siebel, J.D. Edwards, PeopleSoft, and Oracle E-Business Suite.

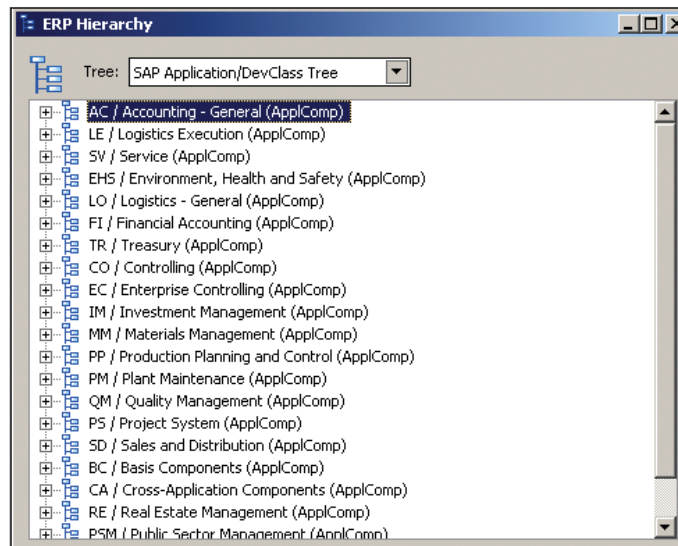
Displaying Intelligible Names

In Figure A, we can see the table names followed by a description. CA ERwin Saphir Option has extracted the description from the data dictionary. In this case, we have set CA ERwin Saphir Option to retrieve the English definitions.

FIGURE A

ERP hierarchy in CA ERwin Saphir Option with the table names and data dictionary definitions in English.

ENGLISH ERP HIERARCHY



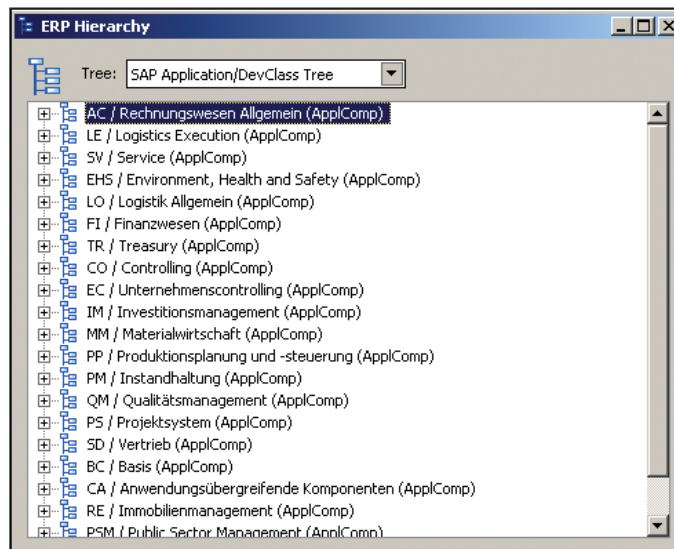
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In Figure B, we can see the same system as Figure A. Note that the table names are the same, but many of the definitions have changed. This is because CA ERwin Saphir Option has been set to retrieve the German descriptions from the data dictionary.

FIGURE B

ERP hierarchy from Figure A in CA ERwin Saphir Option with the table names and data dictionary definitions in German.

GERMAN ERP HIERARCHY



Furthermore, the ERP systems use the relational databases as simple data stores. Information such as relationships is also held in the data dictionary and is invisible to modeling tools.

Fortunately, CA ERwin Saphir Option can display both the code name of a table and the description from the data dictionary. It also displays relationships as if they were created in the native relational database.

Metadata Exploration

CA ERwin Saphir Option stores the metadata in its own Saphir repository. This prevents continual extraction of metadata and separates CA ERwin Saphir Option from the source ERP system. This separation prevents CA ERwin Saphir Option from having any effects on the performance of the underlying ERP system.

After the data is extracted and stored in the Saphir repository, we can search and navigate the metadata. Most ERP systems have a hierarchy of tables and views. This hierarchy can be straightforward, but is typically complex due to the use of code words for table, view, and column names.

CA ERwin Saphir Option connects to the data dictionaries of the ERP systems and provides a description of each table, view, and column. This enables us to gain a much better understanding of the purpose of the entity. Furthermore, it is straightforward to browse the ERP data directly from CA ERwin Saphir Option so that we can verify that we are viewing the correct entity.

Even with a description of the tables, it can be time consuming to find a table that contains a particular piece of information. However, there is a powerful search function that we can use to perform exact, or wildcard, searches on the table names and descriptions (see Figure C).

FIGURE C

CA ERwin Saphir Option table search for tables that contain the string *customer* in their description.

TABLE SEARCH

Filter Tables by:				
Table Name	Short Description	Subject Area ID		
~	*customer*		Search	
Grid-Filter	Filter-Form			
Tbl Name	Short Desc	Tbl Type	No. of Child Tbls	No. of Parent Tbls
▶ KNA1	General Data in Customer Master	Transparent	45	4
TVV1	Customer Group 1	Transparent	2	0
TVV2	Customer Group 2	Transparent	2	0
TVV3	Customer Group 3	Transparent	2	0
TVV4	Customer Group 4	Transparent	2	0
TVV5	Customer Group 5	Transparent	2	0
KNB1	Customer Master (Company Code)	Transparent	2	5
KNB4	Customer Payment History	Transparent	0	1

In Figure C, we can see the results of a search for tables that have a description that contains the string “customer.” Note the use of wildcards and the ambiguous table names.

Often, we find a table that does not have the exact information that we require, but is related to the required table. Using CA ERwin Saphir Option, we can follow a relationship with a single click and investigate related tables. Furthermore, if we want to export the metadata to CA ERwin Data Modeler, we can select all related tables with one click.

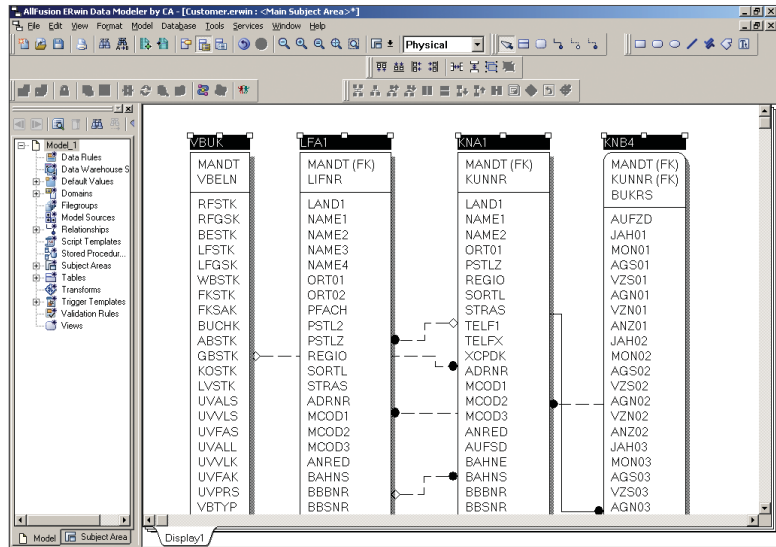
Export to CA ERwin Data Modeler

As we have seen, CA ERwin Saphir Option is an essential tool if we need to extract data from an ERP system. However, it is not a specific modeling tool and users typically want to store the data models to a standard format. Fortunately, we can export some, or all, of the model to CA ERwin Data Modeler. When the ERP model is in CA ERwin Data Modeler, it is treated as a standard database model, so all of the tools and functions of CA ERwin Data Modeler are available (see Figure D).

FIGURE D

ERP data in CA ERwin Data Modeler.

ERP DATA IN CA ERWIN DATA MODELER



In Figure D, we can see metadata that has been extracted with CA ERwin Saphir Option and then exported to CA ERwin Data Modeler.

Typically, we are interested in specific areas of the ERP system rather than the entire schema. Therefore, before we export the model to CA ERwin Data Modeler, we would use the Subject Areas tool in CA ERwin Saphir Option. Subject areas are subsets of the model that can be used to focus on particular tables or to organize sections of the model for export. It is straightforward to add tables to a subject area, and also to find one table and add all tables related to it.

After we have exported the model to CA ERwin Data Modeler, we can see the complex physical names from the native ERP system (see Figure E) compared to the more descriptive logical names that CA ERwin Saphir Option provides (see Figure F).

FIGURE E

Physical model of ERP metadata in CA ERwin Data Modeler.

PHYSICAL MODEL

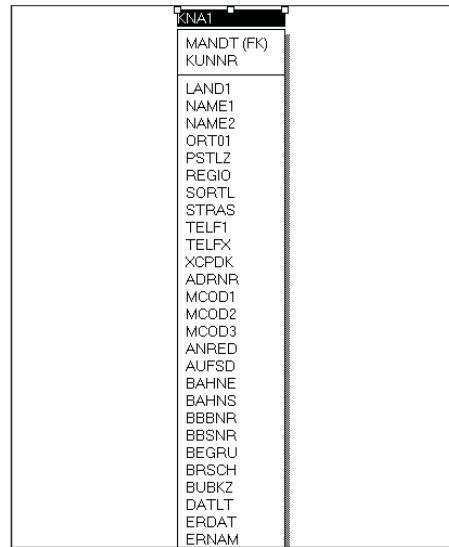
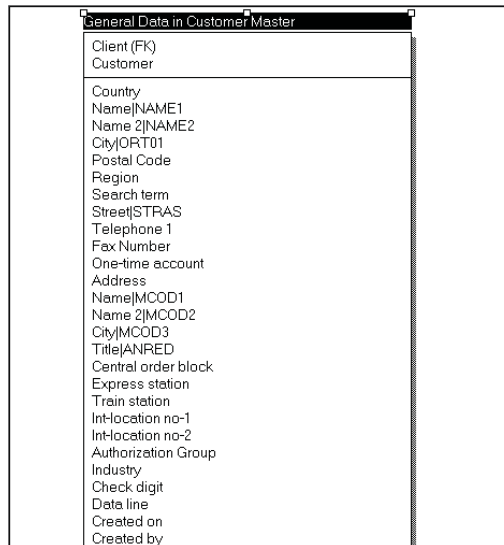


FIGURE F

Logical model of ERP metadata in CA ERwin Data Modeler.

LOGICAL MODEL



Figures E and F display the same table, but highlight the difference between the physical and logical models. Figure F has a straightforward and descriptive structure, but Figure E is almost impossible to understand. These two images demonstrate the advantage of CA ERwin Saphir Option. Without CA ERwin Saphir Option, we would only have the metadata from Figure E; the descriptive information in Figure F would be unavailable.

In CA ERwin Data Modeler, it is very straightforward to switch between models, using the logical model for information and the physical model when we need to perform data extraction.

SECTION 4: CONCLUSIONS

We have seen that, although ERP systems hold vast quantities of data, it may be difficult to find the correct information to integrate that data into other systems. CA ERwin Saphir Option uses the data dictionaries of the ERP systems to convert ambiguous code names into meaningful descriptions. This enables us to find the information we need to create meaningful models in CA ERwin Data Modeler.

To learn more about the CA ERwin Modeling Family and data modeling, please, visit ca.com/contact/rmdm.

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