

SILWOOD TECHNOLOGY LTD

Saphir Metadata Explorer

User Guide

SILWOOD TECHNOLOGY LIMITED

User Guide – Saphir 5.5

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Table of Contents

1	Introduction.....	4
1.1	Where do I find what I need?.....	4
1.1.1	Installing and configuring	4
1.1.2	Extracting metadata from the Enterprise Application	4
1.1.3	Exploring the contents of the Saphir repository	4
1.1.4	Exporting metadata from Saphir into other environments	4
1.2	Saphir manual set.....	4
2	The Repository Manager.....	5
2.1	Repository Manager toolbar	6
2.2	Editing repository settings or creating a new repository	6
2.3	Copying an existing repository definition.....	6
2.4	Deleting a Repository	6
2.5	Import/export Repository	6
2.5.1	Import Repository.....	6
2.5.2	Export Repository.....	7
2.6	Repository maintenance	7
2.7	The Repository .ini file	8
2.8	Managing Multiple Repositories.....	8
3	Browsing the metadata in Saphir	10
3.1	The Saphir workspace.....	10
3.1.1	Elements of the Saphir workspace	10
3.1.2	The Saphir menus	11
3.1.3	The Saphir toolbar	12
3.2	Saphir options	13
3.3	Licensing Information	13
3.4	Browsing the metadata	14
3.5	The Model Overview.....	14
3.6	Opening additional Model Overview windows	15
3.7	Seeing View, Data Element and Domain information.....	15
3.8	Selecting tables in the Model Overview.....	16
3.8.1	To select tables	17
3.9	Using Advanced Search.....	17
3.10	Sorting columns in data mode.....	21
3.11	Clearing Search Criteria in the Model Overview	22
3.12	Viewing table details	22
3.12.1	Table details	24
3.12.2	Index details	25
3.12.3	Relationship details	26
3.13	Viewing parent/child relationships.....	27
3.14	Using the Overview to browse Views.....	28
3.14.1	Showing the View fields.....	30
3.14.2	View Elements Information.....	31
3.15	Using the Overview to browse Data Elements	32
3.16	Searching for tables using a Data Element.....	32
3.17	Using the Overview to browse Domains	33

3.18	Searching for tables using a Domain.....	34
3.19	The Model Overview context pop-up menu	34
3.19.1	Finding a table in the Application Hierarchy	35
3.20	The Application Hierarchy	36
3.21	Available actions from the Hierarchy.....	37
3.22	Searching for tables and views in the Application Hierarchy	38
3.23	Searching Tree Nodes in the Application Hierarchy	40
3.24	What does the Application Hierarchy show for each ERP type?	41
3.24.1	Application Hierarchies for SAP	41
3.24.2	Application Hierarchies for Siebel.....	41
3.24.3	Application Hierarchies for PeopleSoft Enterprise	41
3.24.4	Application Hierarchies for PeopleSoft EnterpriseOne (JDEdwards)	41
3.24.5	Application Hierarchies for Oracle Enterprise Business Suite.....	41
3.25	Drilling into data.....	42
3.26	Using QBE (Query by Example) to interrogate data.....	43
3.27	Exporting data to flat files	45
3.27.1	Exporting data from a single table.....	45
3.27.2	Export of a number of tables.....	47
3.28	Creating SQL scripts for table access.....	48
3.28.1	To generate Views or Select Statements.....	48
3.29	Creating a report of table attributes.....	50
3.30	Exporting a list of tables	51
3.31	Viewing Model Statistics	53
3.32	The ERP Extract Log.....	54
3.33	Subject Areas.....	55
3.34	Managing Subject Areas	56
3.35	Adding tables to a Subject Area	57
3.35.1	Populating a Subject Area from the Model Overview.....	57
3.35.2	Populating a Subject Area from the Related Tabled pop-up menu.....	58
3.35.3	Populating a Subject Area from the Application Hierarchy	60
3.36	Expanding a Subject Area with related Parent or Child tables.....	61
3.37	Creating additional Relationships not extracted from the source Application	64
3.38	Creating additional Relationships.....	65
3.39	Reviewing generated Relationships.....	65
3.39.1	To delete a Rules Based or Extended Relationship	66
4	Exporting metadata from Saphir	67
4.1	Getting ready to export	67
4.2	The CSV export format.....	71
4.3	Exporting to the Saphir ER Diagrammer.....	72
4.3.1	The ER Diagrammer toolbar	73
4.3.2	The ER Diagrammer Right Mouse Click Menu	73
5	Comparing metadata.....	76
5.1	Creating a Comparison File	76
5.2	Performing the Subject Area comparison	78
5.3	Results of a comparison	78
5.4	Analyzing the comparison report.....	79

6	Special Product Features for SAP BW	80
6.1	How Saphir represents InfoCubes.....	80
6.2	The Model Overview and BW	81
6.2.1	Using Advanced Search to select BW Table types.....	82
6.3	The Application Hierarchy and BW.....	82
6.3.1	Choosing which Hierarchy to Use.....	83
6.4	Right Mouse Click Options for BW Repositories.....	83
6.4.1	RMC Options from the Model Overview.....	83
6.4.2	RMC Options from the Application Hierarchy.....	84
Appendix A.	The Saphir Meta Model.....	85
Appendix B.	Adding Additional Relationships	92
B.1	Understanding the PeopleSoft and JDEdwards rules sheets	92
B.2	Special Considerations for PeopleSoft Relationships.....	93
B.3	Defining a Rule	93
B.4	Examples of using the rules	94
B.5	Adding rules to the spreadsheet	95
B.6	Running an update to process new rules.....	96
B.7	What happens if a spreadsheet rule conflicts with an Existing Relationship?	97
B.8	Method for Generating Extended Relationships.....	97
B.8.1	Pass 1: identifying relationships	97
B.8.2	Pass 2: identifying relationships (PeopleSoft & J.D. Edwards EnterpriseOne only) 99	
B.8.3	Pass 3: identifying relationships (PeopleSoft & J.D. Edwards EnterpriseOne only) 99	
B.8.4	Pass 4: 'Dimension' search (J.D. Edwards EnterpriseOne only).....	99
B.8.5	Pass 5: 'Dimension' search (J.D. Edwards EnterpriseOne only).....	99
B.8.6	Pass 6: 'Dimension' search (J.D. Edwards EnterpriseOneOnly).....	99
B.8.7	Influencing the Extended Relationship generation process for PeopleSoft and JDEdwards relationships	100
Index.....	101

1 Introduction

Describes how to use this manual

Welcome to the Saphir User Guide. This manual describes the various features of Saphir in detail and in particular the powerful features for exploring the metadata extracted from your chosen environment.

We recommend that you refer to the Saphir ‘Getting Started Guide’ for details of how to install and configure the product.

1.1 Where do I find what I need?

1.1.1 Installing and configuring

For information on installing and configuring Saphir, refer to Chapter 2 of the Saphir ‘Getting Started Guide’. Saphir will need to be fully installed before you can attempt an extraction of metadata from your ‘source’ system.

1.1.2 Extracting metadata from the Enterprise Application

Once Saphir is installed and configured, an extraction of metadata need to be carried out by connecting to the Enterprise Application you require (e.g. SAP, PeopleSoft...). The detailed steps for achieving this are described in Chapter 3 of the Saphir ‘Getting Started Guide’.

1.1.3 Exploring the contents of the Saphir repository

Saphir’s main purpose is to allow exploration of the data structures extracted from your environment and stored in the Saphir Repository. To understand the features available, refer to Chapter 3 of this manual.

1.1.4 Exporting metadata from Saphir into other environments

Having located particular data structures with the Saphir browsing interface, users may wish to export these data structures into other tools and formats. See Chapter 4 of this manual for more details.

1.2 Saphir manual set

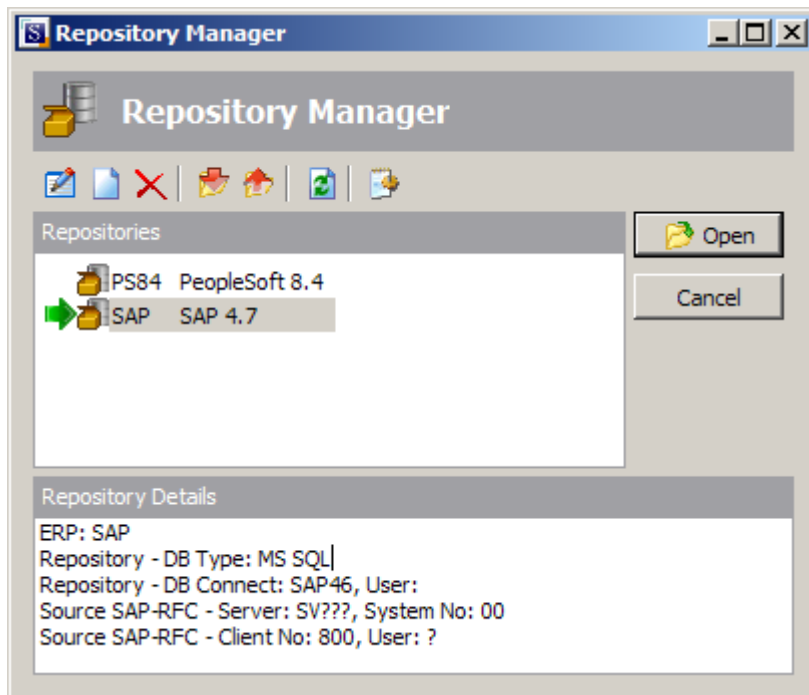
There are two Saphir manuals supplied in Adobe Acrobat format (.pdf files) with the Saphir software.

- Getting Started Guide: Use this manual for details of product installation and an overview of Saphir features
- User Guide (this manual): Describes all of the Saphir functions in detail

2 The Repository Manager

Describes the features for creating and managing multiple sets of metadata in Saphir

The Saphir Repository Manager centralises all the features and functions related to creating, maintaining and managing one or more Saphir repositories. On starting Saphir, the Repository Manager form is automatically displayed.











The Repository Manager form

To open an existing Repository, select the appropriate entry from the list of repositories and click the 'Open' button.

2.1 Repository Manager toolbar

The options for managing and maintaining repositories are accessed from the toolbar.

Tool Button	Tool Button Name	For more details see...
	Edit repository settings	Editing repository settings or creating a new repository
	Create a new repository	Editing repository settings or creating a new repository
	Copy a repository	Copying an existing repository definition
	Delete selected repository	Deleting a Repository
	Import repository	Import/Export Repository
	Export repository	Import/Export Repository
	Repository Maintenance	Repository Maintenance
	Repository Infile	The Repository .ini file

2.2 Editing repository settings or creating a new repository

Clicking the ‘Edit Repository Settings’ or ‘Create New Repository’ button displays a series of forms for configuring the Saphir repository and the connection to the ‘source’ system. See the Saphir ‘Getting Started’ guide, Chapter 2 – Installation for details on how to complete the required information.

2.3 Copying an existing repository definition

Clicking the ‘Copy a repository’ button will copy the currently selected repository definition and automatically create a new set of definitions with ‘Copy of’ in front of the name.

2.4 Deleting a Repository

Clicking the ‘Delete selected repository’ button will remove the entry from the available list of repositories. Please note that this only removes the entry from the list. The Saphir repository database and its contents will still exist.

2.5 Import/export Repository

The contents of a Saphir repository can be moved from one instance of Saphir to another using the repository import/export feature.

2.5.1 Import Repository

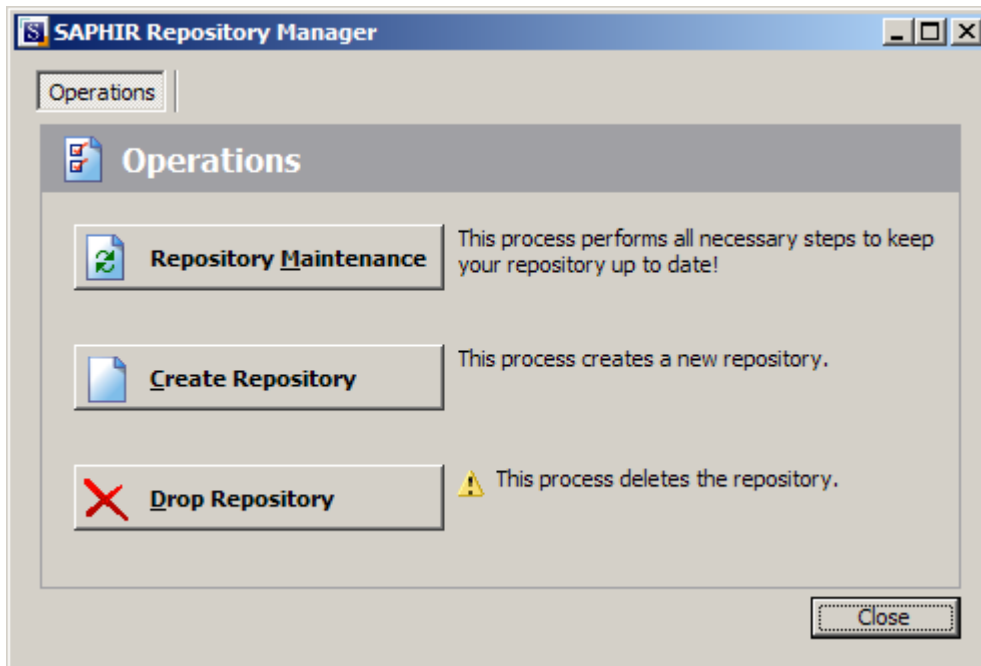
Clicking this button will display a form for selecting the import/export file. This is in the form of a ‘zip’ file and must have been produced from the Saphir Repository export process (see ‘Export Repository’ below). Locate the file and select it to begin the import process. Importing a repository will overwrite the previous contents of that repository. *Note: Do not unzip the repository import file. Saphir reads the file in its zipped format.*

2.5.2 Export Repository

Clicking this button will display a form for specifying the location of the export file. Enter an appropriate name and location and press the ‘Save’ button to proceed with the export process.

2.6 Repository maintenance

Clicking the Repository Maintenance button displays a form that controls the tasks involved in maintaining the structure of the tables in the Saphir Repository.



Repository Maintenance form

The Repository Maintenance form deals with the Creation, Deletion and Modification of the tables and other RDBMS objects in a Saphir repository. The process will appear automatically when configuring a new repository, or when upgrading from an older version of Saphir.

There are three buttons on the form:

- **Repository Maintenance:** Click this button to check the structure of the Saphir repository against the latest standard. This will typically be used when upgrading from an earlier Saphir release
- **Create Repository:** Click this button to create the tables, views and triggers that form the structure of the Saphir repository.
- **Drop Repository:** Click this button to drop all the tables, views and triggers in an existing Saphir repository. Please note that this will delete the entire contents of the repository!

In each case, Saphir executes a set of SQL scripts to perform the required database tasks.

2.7 The Repository .ini file

Saphir uses an .ini file to record details of each Repository created. In addition to this, a Microsoft Excel file is used to store a set of options used by Saphir. Appendix B of the Saphir 'Getting Started Guide' gives details on the structure and purpose of this Excel file.

The Repository Inifile button on the Repository Manager allows the location and name of the .ini file to be specified. By default the file is called saphir.ini and is located in the Saphir root folder (typically Program Files\Silwood\Saphir 5\saphir.ini). On clicking the button, a form is displayed which allows you to specify the name and location of the file.

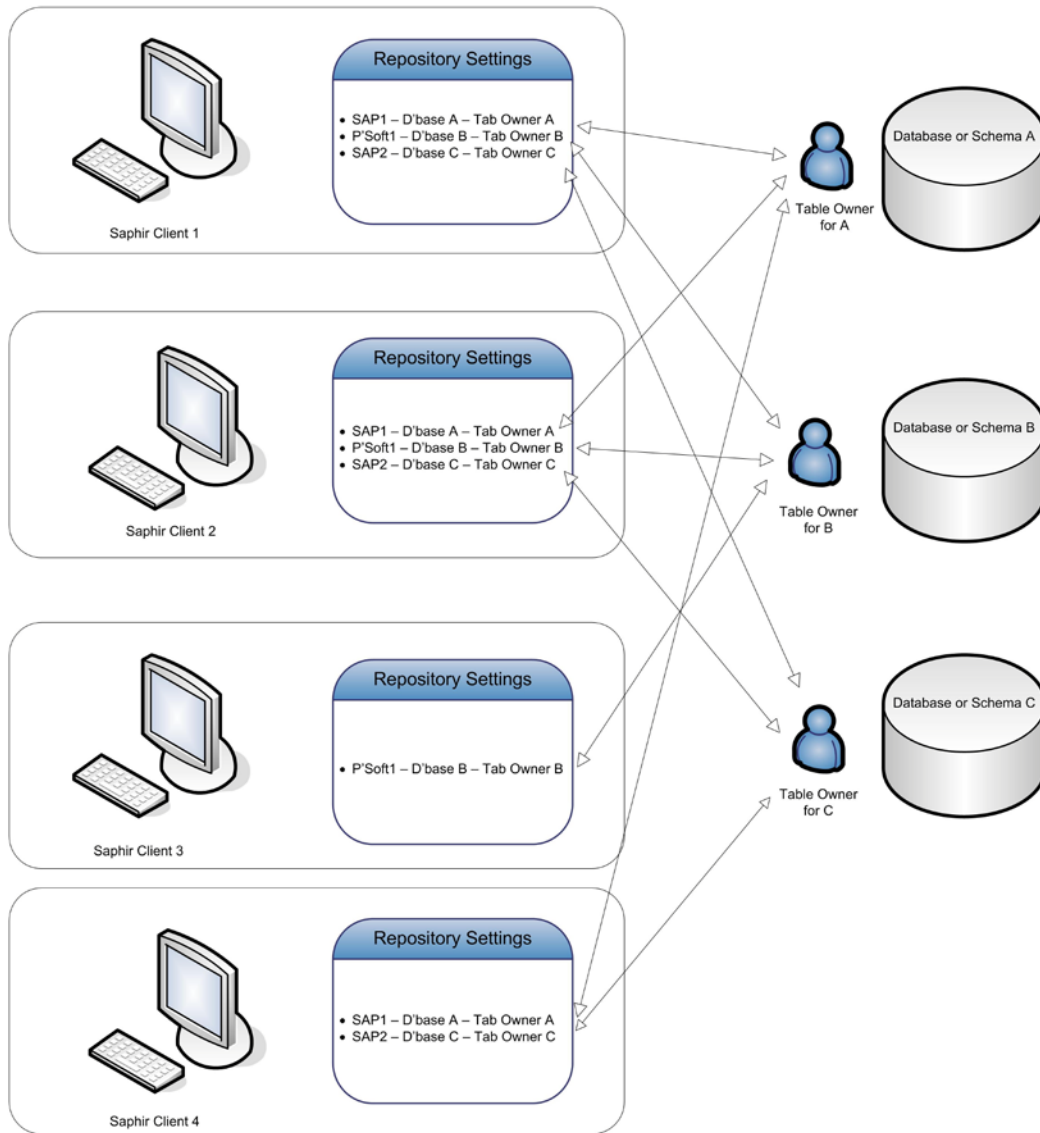
2.8 Managing Multiple Repositories

Most Saphir customers will use the product to extract and store multiple sets of metadata from their chosen ERP environment(s). This section describes how to achieve this.

Saphir needs a separate database or schema for each set of metadata to be stored. Each database will require a database user to be specified and this user must be the Table Owner for the database.

Each and every Saphir user wishing to share the metadata in a Saphir repository must specify the same database (or schema) and database user when defining a new Saphir repository within their local Saphir environment.

The following example shows a typical scenario; 4 Saphir users wanting to connect to a mixture of SAP and PeopleSoft systems. There are 3 databases (or schemas). Database A stores metadata from a SAP system, Database B metadata from a PeopleSoft system and Database C from another SAP system.



Saphir Client 1 has 3 Repositories defined:

- SAP1 pointing to Database A using Table Owner A as the database user
- PSoft1 pointing to Database B using Table Owner B as the database user
- SAP2 pointing to Database C using Table Owner C as the database user

Saphir Client 2 has the same 3 Repositories defined

Saphir Client 3 is only interested in the PeopleSoft system:

- PSoft1 pointing to Database B using Table Owner B as the database user

Saphir Client 4 is only interested in the SAP systems:

- SAP1 pointing to Database A using Table Owner A as the database user
- SAP2 pointing to Database C using Table Owner C as the database user

3 Browsing the metadata in Saphir

A detailed description of the features for browsing the extracted metadata

Saphir's main purpose is to make the exploration of the extracted application metadata easy to explore. This chapter describes the various features for exploration in detail.

3.1 The Saphir workspace

When the Saphir application is started, a list of available Repositories is displayed and after selecting the appropriate one, the Saphir toolbar and menu options provide the means to explore the metadata. The following sections describe the characteristics of the Saphir workspace.

3.1.1 Elements of the Saphir workspace

At the top of the Saphir window is the Menu system and the Toolbar. The options available from these are described below.

At the bottom of the window is the status bar.



Saphir Status Bar

The status bar is divided into 4 areas which are (from left to right) as follows:

- Micro Help – displays a short description as the mouse is positioned over menu items and buttons
- Repository Identifier – shows the name of the currently selected Saphir repository
- Repository Type – identifies the type of the Saphir repository (e.g. SAP)
- Selected Language – shows the language code that is being used for ‘descriptive’ fields like field names and table names.










3.1.2 The Saphir menus

The Saphir menu options are summarized in the following table. See the referenced section to find out more on each menu option.

Menu	Menu Item	For more details see...
File	Repository Manager	Chapter 2 – The Repository Manager
	ERP Extract	Saphir Getting Started Guide, chapter 3
	Export Data Model as...	Chapter 4 – Exporting metadata from Saphir
	Exit	
Edit	Subject Areas	‘Subject Areas’ in this chapter
View	Model Overview	‘The Model Overview’ in this chapter
	Application Hierarchy	‘The Application Hierarchy’ in this chapter
	Table Details	‘Viewing Table Details’ in this chapter
	Table Relationships	‘Viewing parent/child relationships’ in this chapter
	View Details	‘Using the Overview to browse views’ in this chapter
	Source Data	‘Drilling into data’ in this chapter
	Statistics	‘Viewing Model Statistics’ in this chapter
	Tools	Saphir Options
Compare Subject Areas		Chapter 5 – Comparing metadata
Show ERP Extract Log...		‘The ERP Extract Log’ in this chapter
Open ER Diagrammer		See Chapter 4 for details of ER Diagrammer
Licensing		‘Licensing Information’ in this chapter
Window	Cascade	
	Tile Horizontally	
	Tile Vertically	
	Minimize All	
	Close All	
Help	User Guide	
	About	

3.1.3 The Saphir toolbar

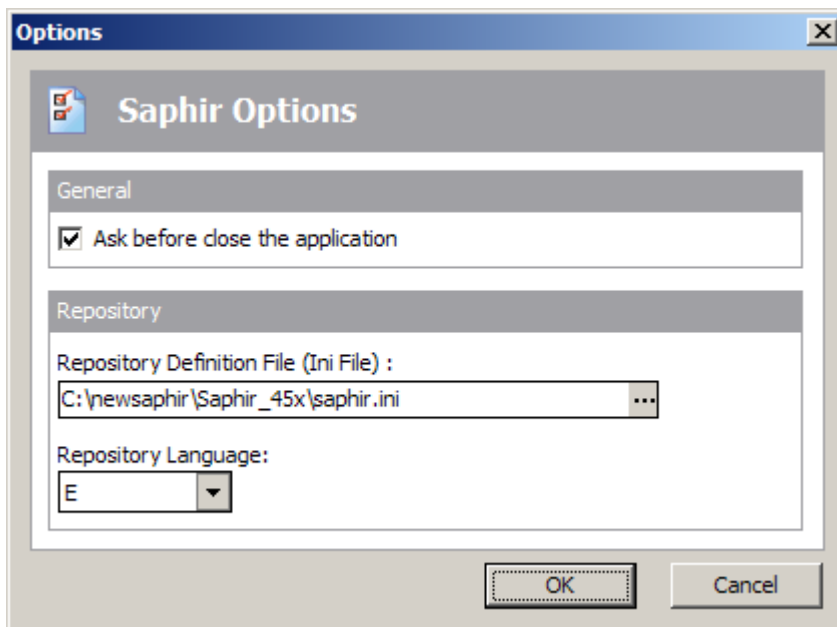
The Saphir Toolbar options are summarized in the following table. See the referenced section to find out more on each option.

Tool Button	Tool Button Name	For more details see...
	Repository Manager	Chapter 2 – The Repository Manager
	Show Model Overview	‘The Model Overview’ in this chapter
	Show Application Hierarchy	‘The Application Hierarchy’ in this chapter
	Edit Subject Areas	‘Subject Areas’ in this chapter
	Show Table Details	‘Viewing Table Details’ below
	Show Table Relationships	‘Viewing parent/child relationships’ in this chapter
	Show View Details	‘Using the Overview to browse views’ in this chapter
	Drill into Source Data	‘Drilling into data’ in this chapter
	Start Export Wizard	Chapter 4 – Exporting metadata from Saphir

3.2 Saphir options

The Saphir Options form is displayed by selecting ‘Saphir Options’ from the ‘Tools’ menu. The available options are:

- Ask before closing application – When checked ‘on’, you will be asked to confirm that you wish to exit when closing Saphir down. When not checked, Saphir will close down without the confirmation form.
- Repository Definition file – Use this to specify the location of the Saphir ‘ini’ file.
- Repository Language – Where the extraction of metadata has been performed in more than language, this option allows the selection of the language for displaying language-dependent data such as attribute and table names.



Saphir Option form

3.3 Licensing Information


Saphir needs an appropriate licensing key, not only enable the product usage, but to determine which product features are enabled. Saphir is distributed via a number of licensing systems. Please contact your Saphir software provider for more details of licensing options.

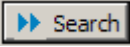
3.4 Browsing the metadata

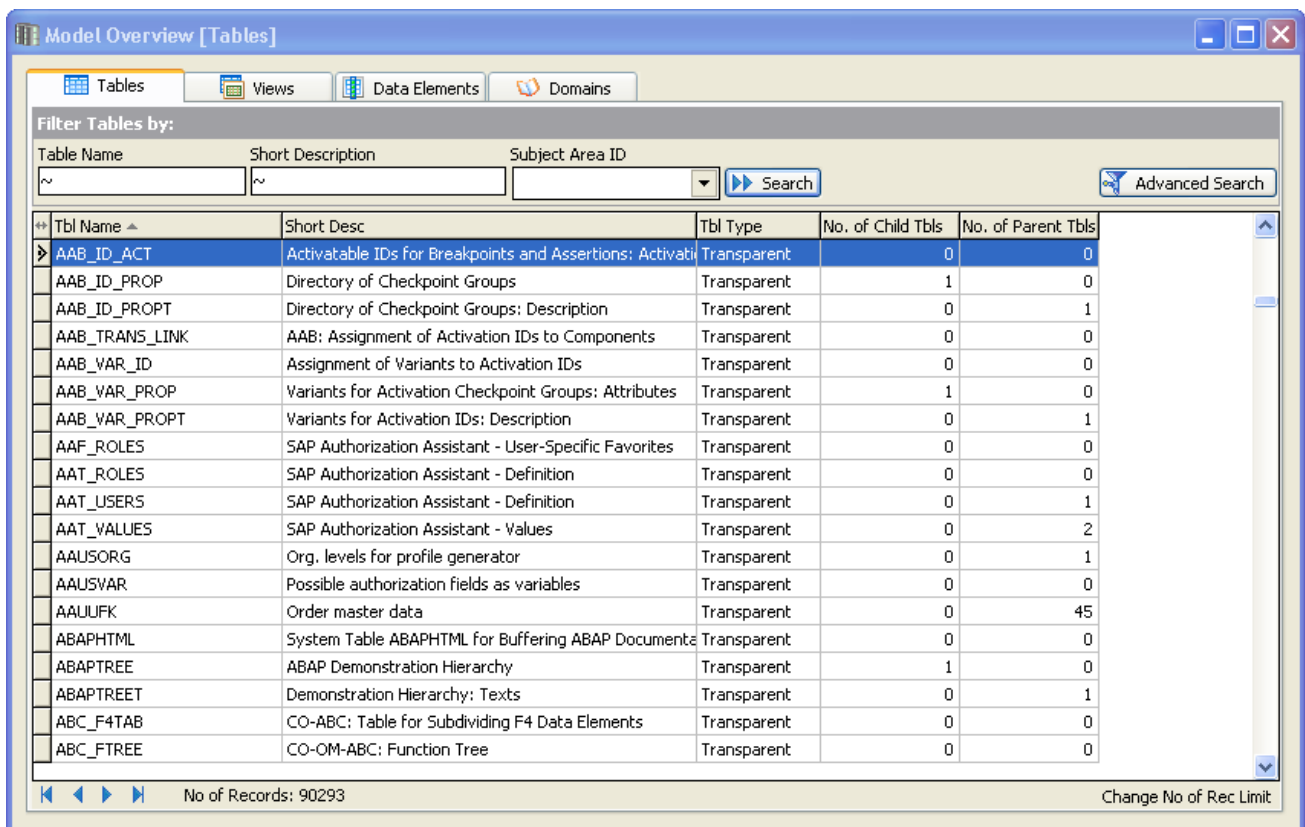
There are two main ‘entry points’ for Browsing the metadata:

- The Model Overview – this displays a list of tables, views or domains in the repository. You can use search facilities to refine the list. For more details see ‘The Model Overview’ below.
- The Application Hierarchy – this show the tables and views organised by Application Module. For more details see ‘The Application Hierarchy’ later in this chapter.

3.5 The Model Overview

The Model Overview form is displayed by clicking  on the Saphir toolbar or selecting ‘Model Overview’ from the ‘View’ menu.

Clicking the  button will return a list of all the tables in the Saphir repository.



Tbl Name	Short Desc	Tbl Type	No. of Child Tbls	No. of Parent Tbls
AAB_ID_ACT	Activatable IDs for Breakpoints and Assertions: Activati	Transparent	0	0
AAB_ID_PROP	Directory of Checkpoint Groups	Transparent	1	0
AAB_ID_PROPT	Directory of Checkpoint Groups: Description	Transparent	0	1
AAB_TRANS_LINK	AAB: Assignment of Activation IDs to Components	Transparent	0	0
AAB_VAR_ID	Assignment of Variants to Activation IDs	Transparent	0	0
AAB_VAR_PROP	Variants for Activation Checkpoint Groups: Attributes	Transparent	1	0
AAB_VAR_PROPT	Variants for Activation IDs: Description	Transparent	0	1
AAF_ROLES	SAP Authorization Assistant - User-Specific Favorites	Transparent	0	0
AAT_ROLES	SAP Authorization Assistant - Definition	Transparent	0	0
AAT_USERS	SAP Authorization Assistant - Definition	Transparent	0	1
AAT_VALUES	SAP Authorization Assistant - Values	Transparent	0	2
AAUSORG	Org. levels for profile generator	Transparent	0	1
AAUSVAR	Possible authorization fields as variables	Transparent	0	0
AAUJFK	Order master data	Transparent	0	45
ABAPHTML	System Table ABAPHTML for Buffering ABAP Documents	Transparent	0	0
ABAPTREE	ABAP Demonstration Hierarchy	Transparent	1	0
ABAPTREET	Demonstration Hierarchy: Texts	Transparent	0	1
ABC_F4TAB	CO-ABC: Table for Subdividing F4 Data Elements	Transparent	0	0
ABC_FTREE	CO-OM-ABC: Function Tree	Transparent	0	0

The Model Overview form

For each table, the following fields are displayed:

- **Table Name:** The ‘physical’ table name.
- **Short Desc:** The ‘logical’ name.
- **Tbl Type:** Possible values are TRANSP (Transparent), POOL or CLUSTER. POOL and CLUSTER are only applicable to SAP systems.
- **No. of Child Tbls:** The number of related ‘child’ tables.

- **No. of Parent Tbls:** The number of related ‘parent’ tables.

Below the grid are a set of controls for moving through the result set.



From left to right these will:

- Move to the first record in the result set
- Move to the previous record in the result set
- Move to the next record in the result set
- Move to the last record in the result set

The total number of rows in the result set is displayed next to ‘No of Records’. By default, there is a limit to the number of records that are retrieved of 2,500. This limit can be changed by clicking the ‘Change No of Rec Limit’. Setting this to zero means there is no limit to the number of returned records.

If the actual number of rows available is higher than the Record Limit set, the words ‘Limit Exceeded!’ are displayed beside the ‘No of Records’.

3.6 Opening additional Model Overview windows

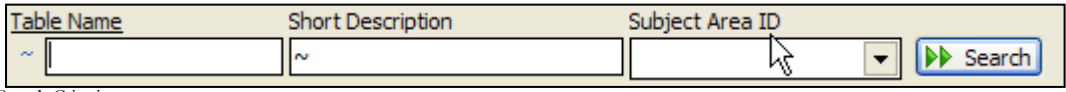
Multiple ‘Model Overview’ forms can be opened. Each window functions separately allowing a number of different object lists to be displayed concurrently.

3.7 Seeing View, Data Element and Domain information


The Model Overview can be switched between ‘Table, View, Data Element and Domain display using the tabs above the form. See ‘Using the Overview to browse Views’, ‘Using the Overview to browse Data Elements’ and ‘Using the Overview to browse Domains’ later in this chapter for more details.

3.8 Selecting tables in the Model Overview

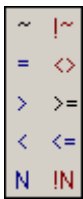
The three fields above the table list can be used for selecting tables from the full list.













The Start Select button uses the entered selection criteria to search for a matching table set.

Each of the three fields is preceded by a  button which allows the type of search criteria to be specified.

Clicking this button reveals a set of searching options.



The meaning of each of these buttons is described in the table below.

Button	What Does it Do?
	Wild Card Search - find rows starting with or containing the specified string
	Negated Wild Card Search - find all rows <i>not</i> containing the specified string
	Exact Match - find rows exactly matching the specified string
	Negated Match - any rows exactly matching the specified string are excluded
	Greater than - finds all rows greater than the specified string in the collating sequence
	Greater than or equal to - find all rows greater than or equal to the specified string in the collating sequence
	Less than - finds all rows less than the specified string in the collating sequence
	Less than or equal to - finds all rows less than or equal to the specified string in the collating sequence
	Null search - finds all rows containing Null value
	Not Null search - finds all rows containing a Not Null value

Saphir search types

The default search type is ~ - Wild Card Search. This will probably satisfy most of the normal searching requirements.

The three search fields are: -

- **Table Name:** The physical name of the table
- **Short Description:** The descriptive name for the table


- **Subject Area ID:** The id of the Subject Area (see ‘Subject Areas’ later in this chapter for more details of subject areas)

3.8.1 To select tables

- Enter the selection criteria for the desired tables
- Click the ‘Search’ button.

The set of tables satisfying the criteria will then be displayed.

3.9 Using Advanced Search

The selection criteria described in the previous section cover most of the day-to-to-day queries. The Advanced Search button  displays a form allowing for more flexible search capabilities. This is particularly useful for searching for a given field occurrence.

The form consists of three tabs: ‘Standard Filter’, ‘Search for Field Patterns’ and ‘Extended Filter’.

The screenshot shows a dialog box titled "Filter Tables by" with three tabs: "Standard Filter", "Search for Field Patterns", and "Extended Filter". The "Standard Filter" tab is selected. It contains several search criteria:

- Table Name: ~
- Short Description: ~
- Table Type: [dropdown]
- Physical Tbl Name: ~
- No. of Parent Tbls: >=
- No. of Child Tbls: >=
- Long Description: ~
- Contains Fields with:
 - Field Name: ~
 - Short Description: ~
 - Data Elmnt Name: = ...
 - Domain Name: = ...
 - Long Description: ~
- Subject Area:
 - in: [dropdown]
 - not in: [dropdown]

At the bottom, there are three buttons: "Clear Filter", "Ok", and "Cancel".

Advanced Search form

The Standard Sections tab includes a range of search fields, including Field Name, Short Description and Long Description. These are described below.

The search options are grouped into 3 different areas:

Table related search criteria:

- Table Name: Enter a Table Name or partial Table Name
- Short Description: Enter a Short Description or partial Short Description
- Table Type: use the drop down list to choose Transparent, SAP Pool or SAP Cluster. The latter two are only relevant to an SAP system
- Physical Table Name: Enter a Table Name or partial Table Name. This is the name of the actual Table in the underlying ERP database
- No of Parent Tables: Enter the desired number of 'Parent' tables
- No of Child Tables: Enter the desired number of 'Child' tables
- Long Description: Enter a string to be located within the Table Long Description

Field (or Column) related search criteria:

- Field Name: Enter a Field Name or partial Field Name
- Short Description: Enter a Short Description or partial Short Description
- Data Element Name: Enter a Data Element Name or Partial Name
- Domain Name: Enter a Domain Name or Partial Name
- Long Description: Enter a string to be located within the Field Long Description

Subject Area related search criteria:

- in: Enter the Subject Area name containing the tables to be searched
- not in: Enter the Subject Area name containing the tables *not* to be included in the search

Having entered the appropriate search conditions, click 'OK' to perform the actual search.

Field Name	Position	Key Flag	Data Element name
~	=	= ?	= ...
~	=	= ?	= ...
~	=	= ?	= ...
~	=	= ?	= ...
~	=	= ?	= ...
~	=	= ?	= ...

Advanced Search - Search for Field Patterns

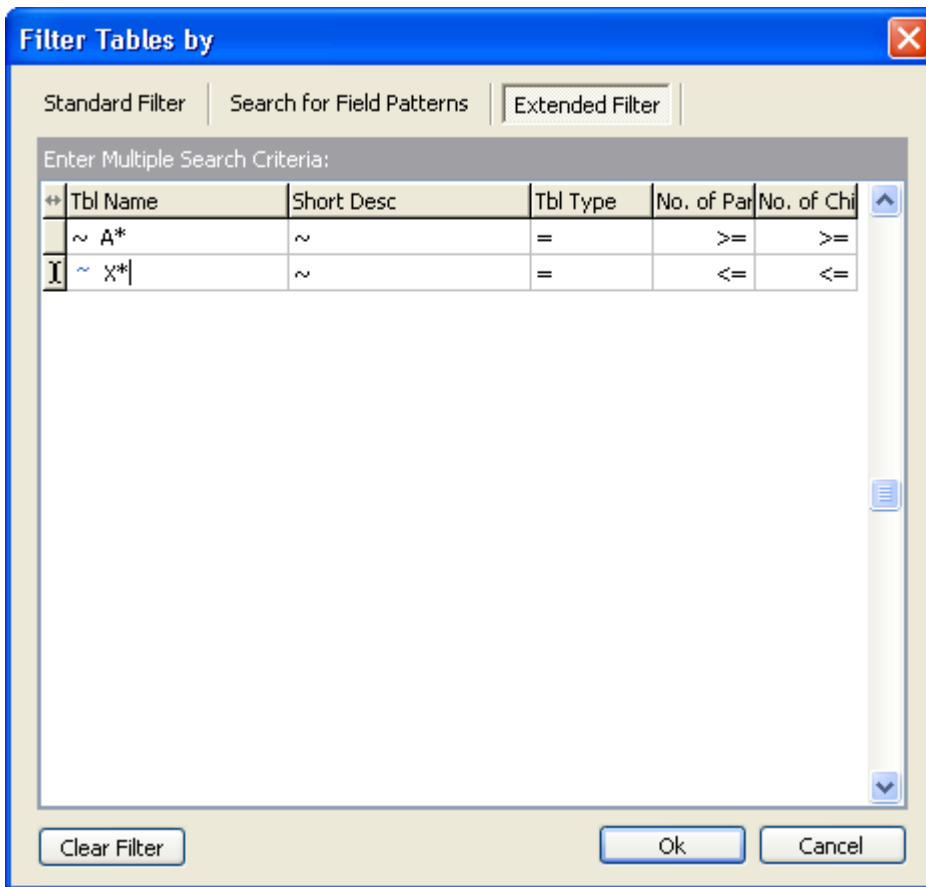
The 'Search for Field Patterns' form allows for combinations of fields and field characteristics to be used as search criteria.

The available options are:

- Field Name: Enter a Field Name or Partial Field Name
- Position: Use the scroll bar to select the actual numeric position of the field in the table
- Key Flag: toggle between Key Field ('X'), Not Key Field ('empty') or Wild Card ('?')
- Data Element Name: Enter a Data Element Name or Partial Name

Having entered the appropriate search conditions, click 'OK' to perform the actual search.

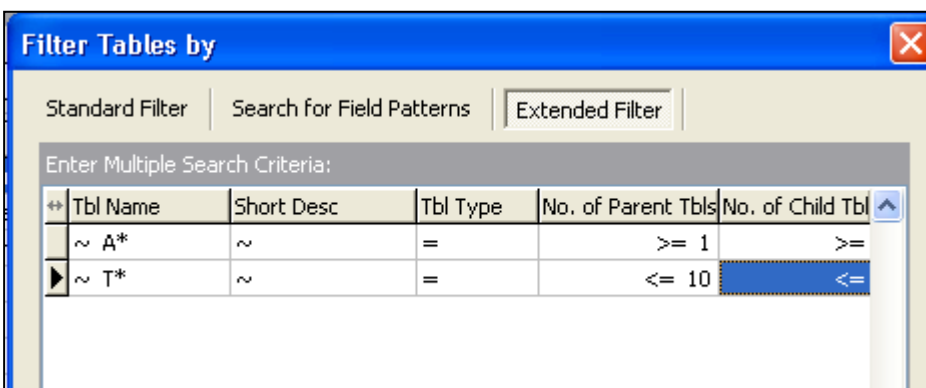
The ‘Extended Filter’ form has features for entering multiple selection criteria in one query.



Extended Filter

This form can then be used to enter search criteria, much as described for the ‘Standard Filter’ form. However, multiple search criteria can be entered by adding additional lines to the search. Lines are added by using the ‘Down Arrow Key’.

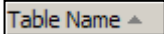
The following example shows a query that looks for tables starting with an ‘A’ or a ‘T’ and having Parent relationships to between 1 and 10 ‘child’ tables.

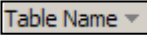


Example with multiple selection lines

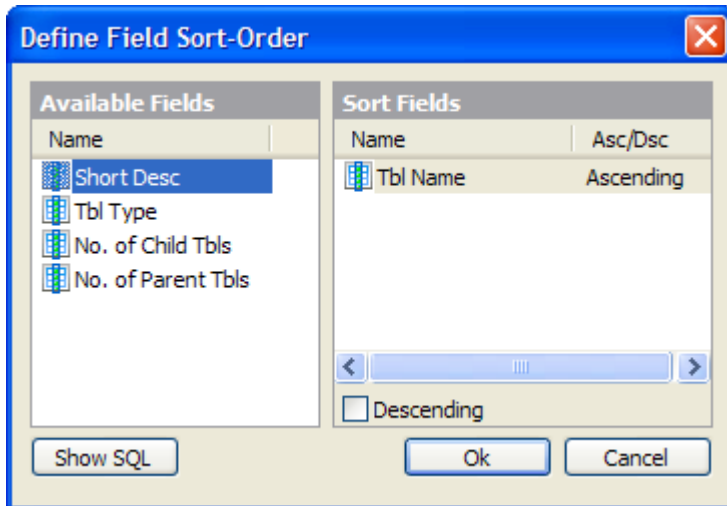
3.10 Sorting columns in data mode

The data can be sorted on any of the available columns by clicking on the field heading.

The current sort field is denoted by a sort icon  next to the name of the sorted column.

An inverted sort icon  denotes a column sorted in descending order.

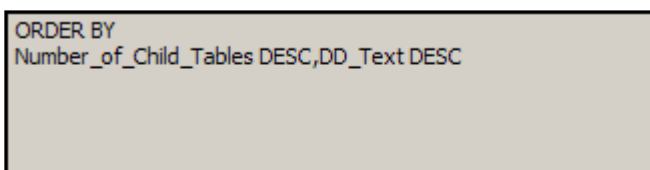
More complex sort criteria can be specified in the Define Field Sort-Order form. This is opened by a *Right Mouse Click* on the field heading.



Defining Field Sort Order

Specify the sort order by dragging the appropriate fields from the Available fields window into the Sort fields window. The sequence of fields in the Sort fields window determines the sort order. The Descending check box can be checked to specify Descending sort sequence for that field.


Click the 'Show SQL' button to see the order by clause of the SQL Query representing the requested sort.

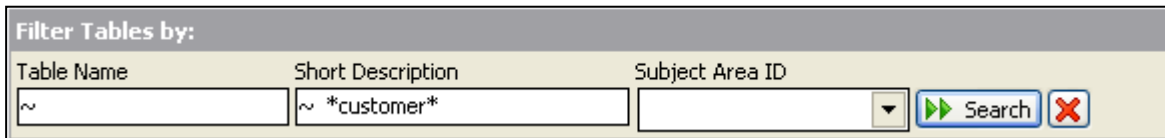


Displaying the Query SQL.

Click the OK button to perform the sort.

3.11 Clearing Search Criteria in the Model Overview

When search criteria have been entered, either in the Model Overview screen, or using the Advance Search, a Clear Search Criteria button -  - appears next to the 'Search' button. This indicates that there are search criteria active, and by clicking this button, all search criteria will be cleared. The button is only visible when search criteria are present.




The Clear Search Criteria button




3.12 Viewing table details

Full details of a given table can be displayed by double clicking on the row for that table in the Table list. This opens the Table Details window. Alternatively, Right Click on the highlighted table and select 'Table Details' from the pop-up menu.

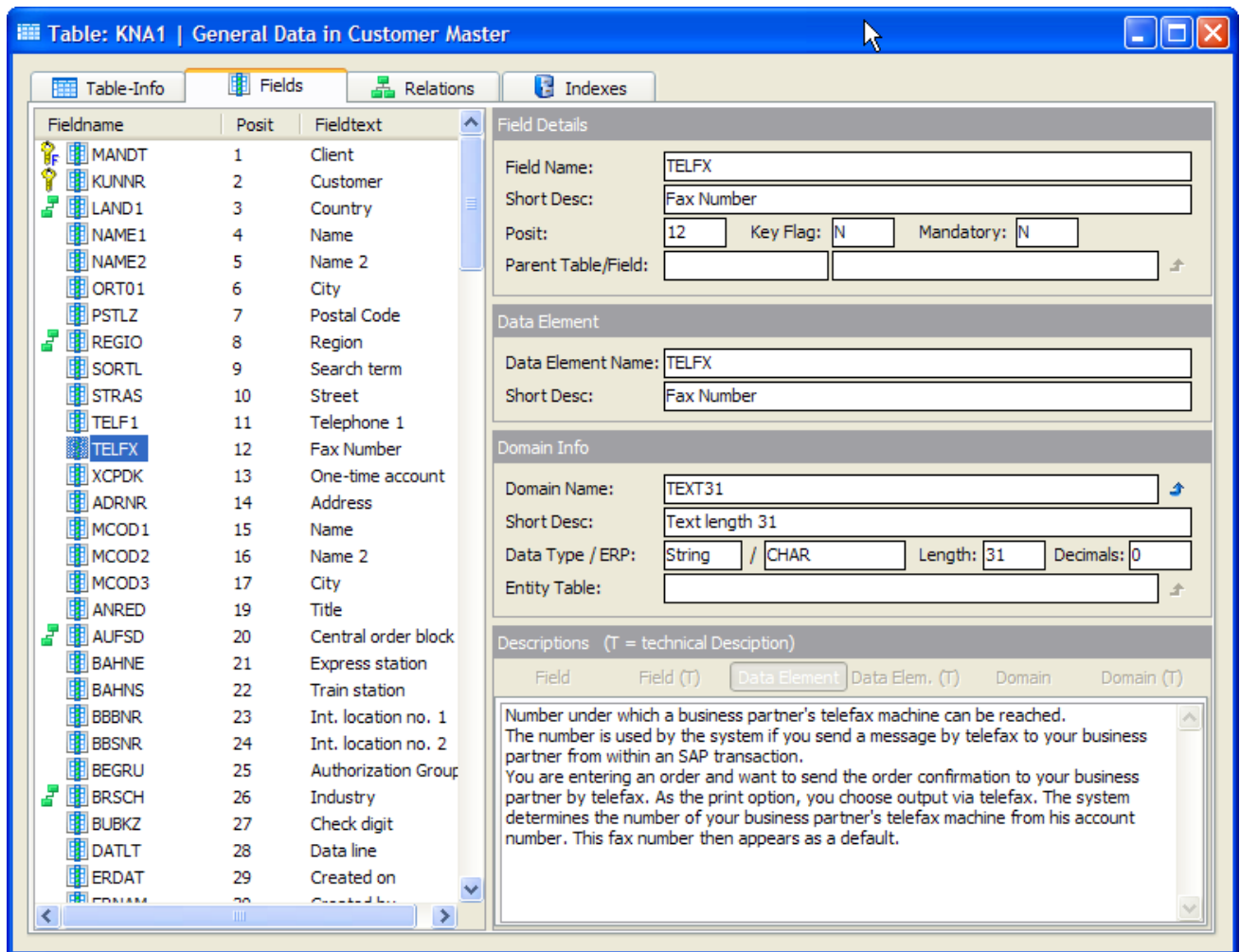
Note: It is possible to open a number of separate table details windows.

When the Table Details form is opened a list of fields is displayed for that table. Other table information can be displayed from this form using the Buttons on the left-hand side of the form.

The default display format shows details of each field in the table. To the left of each field icon  there may be an additional icon. This can be: -


-  The Field is part of the Table's Primary Key
-  The Field is part of the Primary Key and also a Foreign Key
-  The Field is a Foreign Key field

As each field is selected, further information about that field is shown in the tabbed display to the right. There are three levels of information about each field: The field itself, the Data Element for that field and the Domain to which the Data Element belongs. The three levels can be displayed by clicking on the appropriate tab.



Displaying Field Details

3.12.1 Table details

The Table Information tab  **Table-Info** will show details including the Business name of the Table, its Class and any Views based on the table.

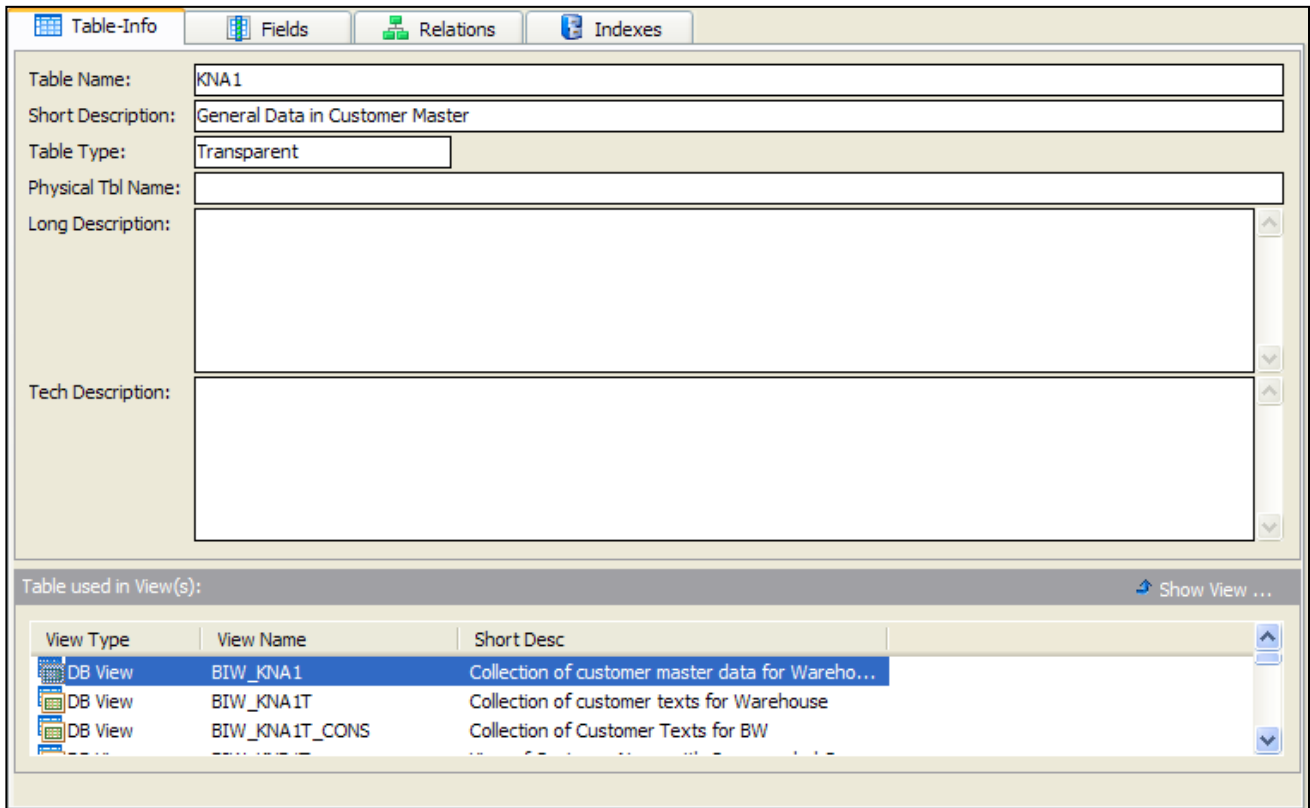
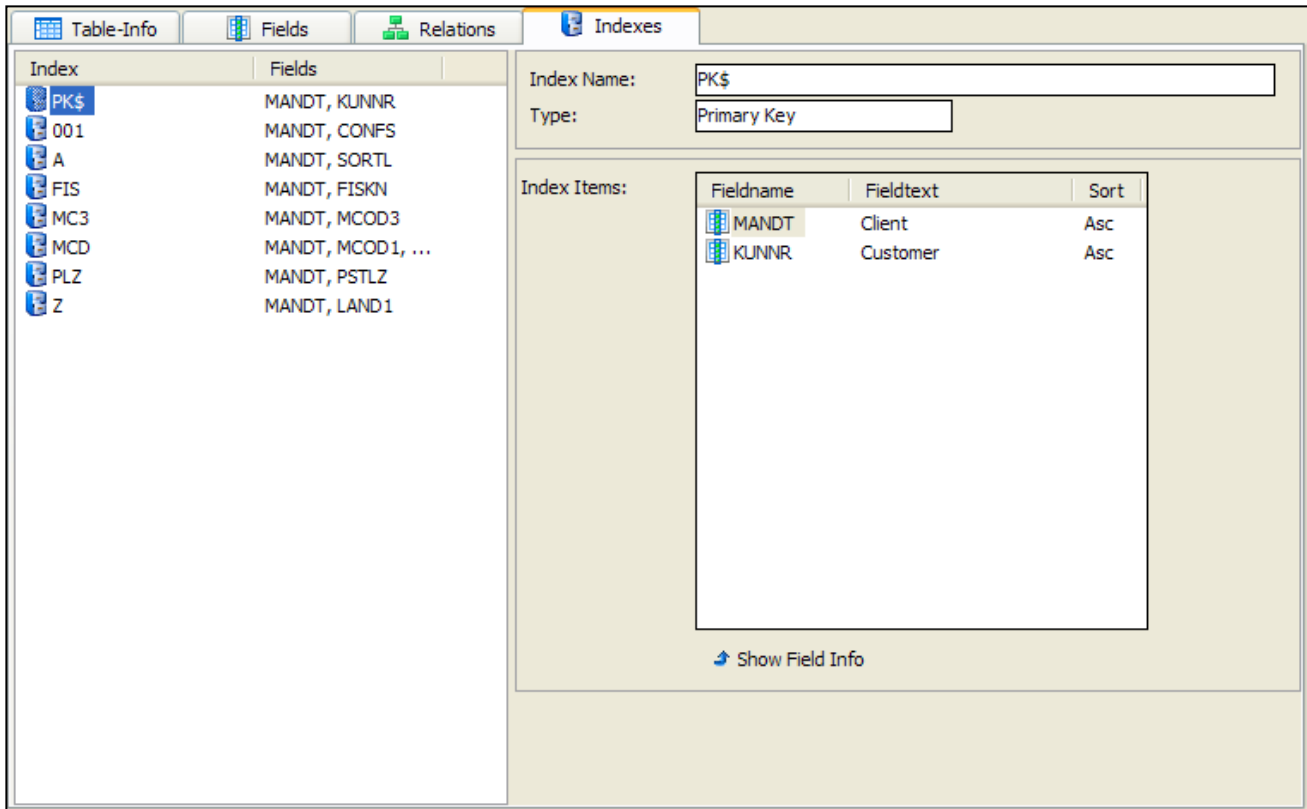


Table Information

Details of a given view can be displayed by double-clicking the view name. This will display the View details form. See ‘Showing the View fields’ later in this chapter for more details.

3.12.2 details

Clicking on the index tab  **Indexes** displays a list of indexes for the currently selected table.



The screenshot shows the 'Indexes' tab in the SAPHIR interface. The left pane displays a list of indexes and their associated fields:

Index	Fields
PK\$	MANDT, KUNNR
001	MANDT, CONFS
A	MANDT, SORTL
FIS	MANDT, FISKN
MC3	MANDT, MCODE3
MCD	MANDT, MCODE1, ...
PLZ	MANDT, PSTLZ
Z	MANDT, LAND1

The right pane shows the details for the selected index 'PK\$':

Index Name: PK\$
 Type: Primary Key

The 'Index Items' section displays a table of field components:


Fieldname	Fieldtext	Sort
MANDT	Client	Asc
KUNNR	Customer	Asc

Below the table is a button labeled 'Show Field Info'.

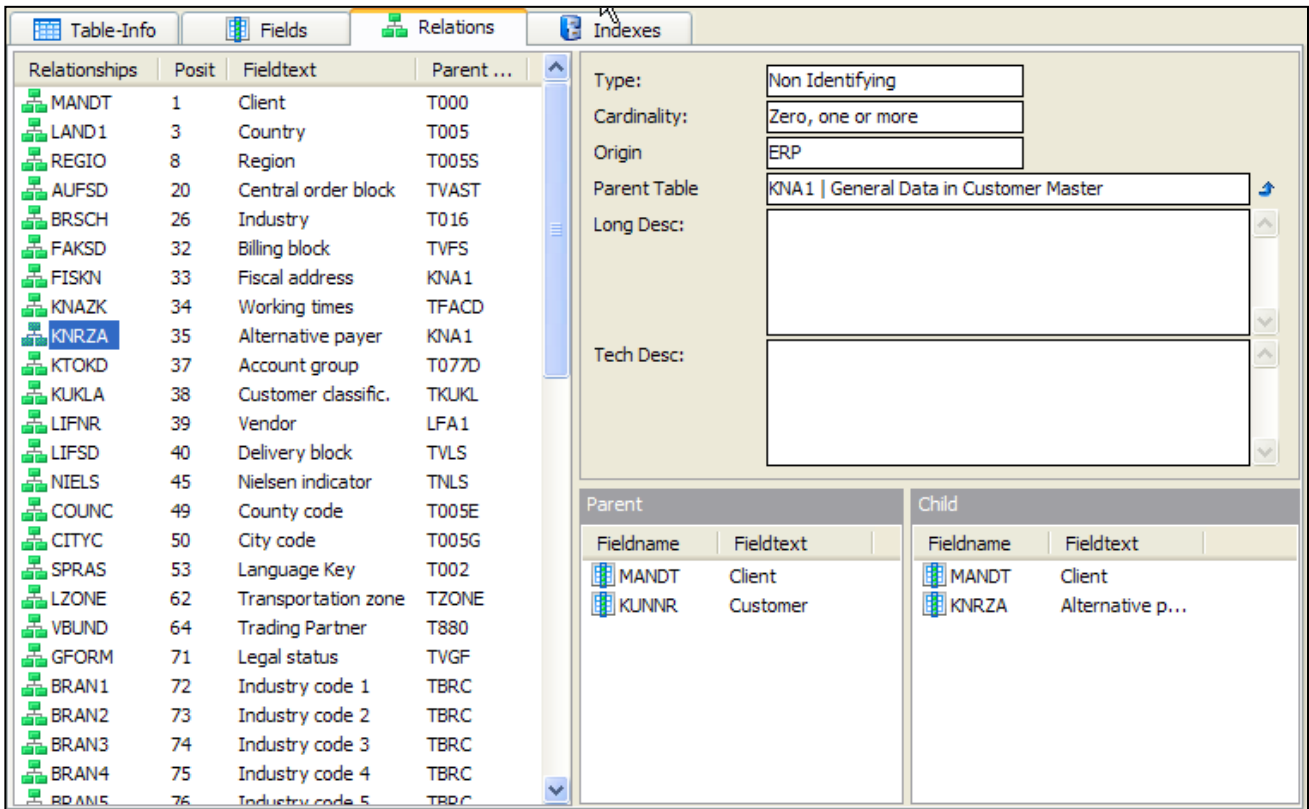
Viewing Index Information

Clicking on an index in the list displays the field components of that index in the box to the right.

3.12.3 Relationship details

Clicking on the Relations tab  **Relations** reveals a list of all the relationships between the current table and any 'parent' tables.

Note: This will only find relationships where the current table in the Tables Details is a 'child'. To find both parent and child relationships see 'Viewing parent/child relationships' later in this chapter.



The screenshot shows the SAPHIR interface with the 'Relations' tab selected. The main panel displays a list of relationships with columns: Relationships, Posit, Fieldtext, and Parent ... The relationship 'KNRZA' is selected. The right-hand panel shows details for this relationship:


- Type: Non Identifying
- Cardinality: Zero, one or more
- Origin: ERP
- Parent Table: KNA1 | General Data in Customer Master
- Long Desc: (empty)
- Tech Desc: (empty)

Below the details, there are two tables: 'Parent' and 'Child'.


Parent		Child	
Fieldname	Fieldtext	Fieldname	Fieldtext
MANDT	Client	MANDT	Client
KUNNR	Customer	KNRZA	Alternative p...

Relationship details

Clicking on a particular relationship will show the fields participating in the relationship at bottom right for both the 'child' and 'parent' table, along with more information about the relationship at top right.

The 'Parent Table' field in the top right panel shows the Parent table for the selected relationship. Clicking on the  icon to the right of this field can be used to display details of the 'parent' table in the relationship.

3.13 Viewing parent/child relationships

From the Model Overview with a table selected, clicking on the  tool from the toolbar, or selecting the 'Table Relationships' option from the View menu will display the Table Relationships context pop-up form.

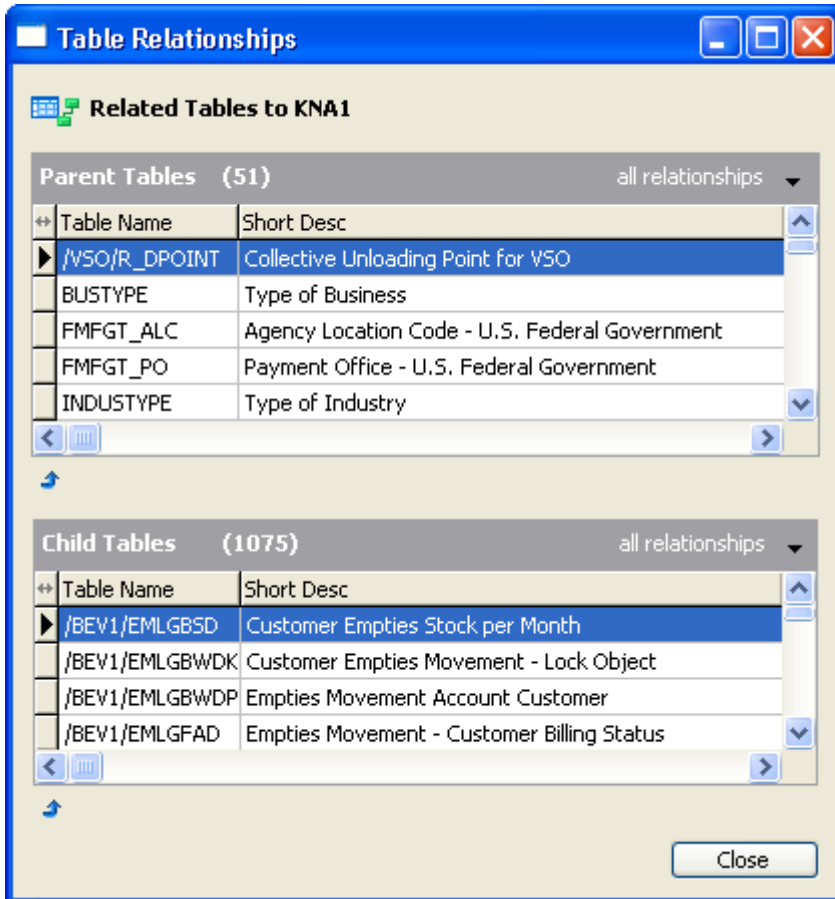


Table Relationships form

This form is split into two sections: The top section shows a list of tables that have a 'parent' relationship to the currently selected table in the model overview. This means that each of the parent tables contributes a foreign key to that table. The bottom section shows a list of tables that have a 'child' relationship to the currently selected table in the model overview. This means that each of the child tables receives a foreign key from that table.

The total number of tables is shown in brackets at the top of each section.


The list of 'parent' and 'child' tables displayed can be refined using the drop down lists for each section. The available choices are shown in the table below.

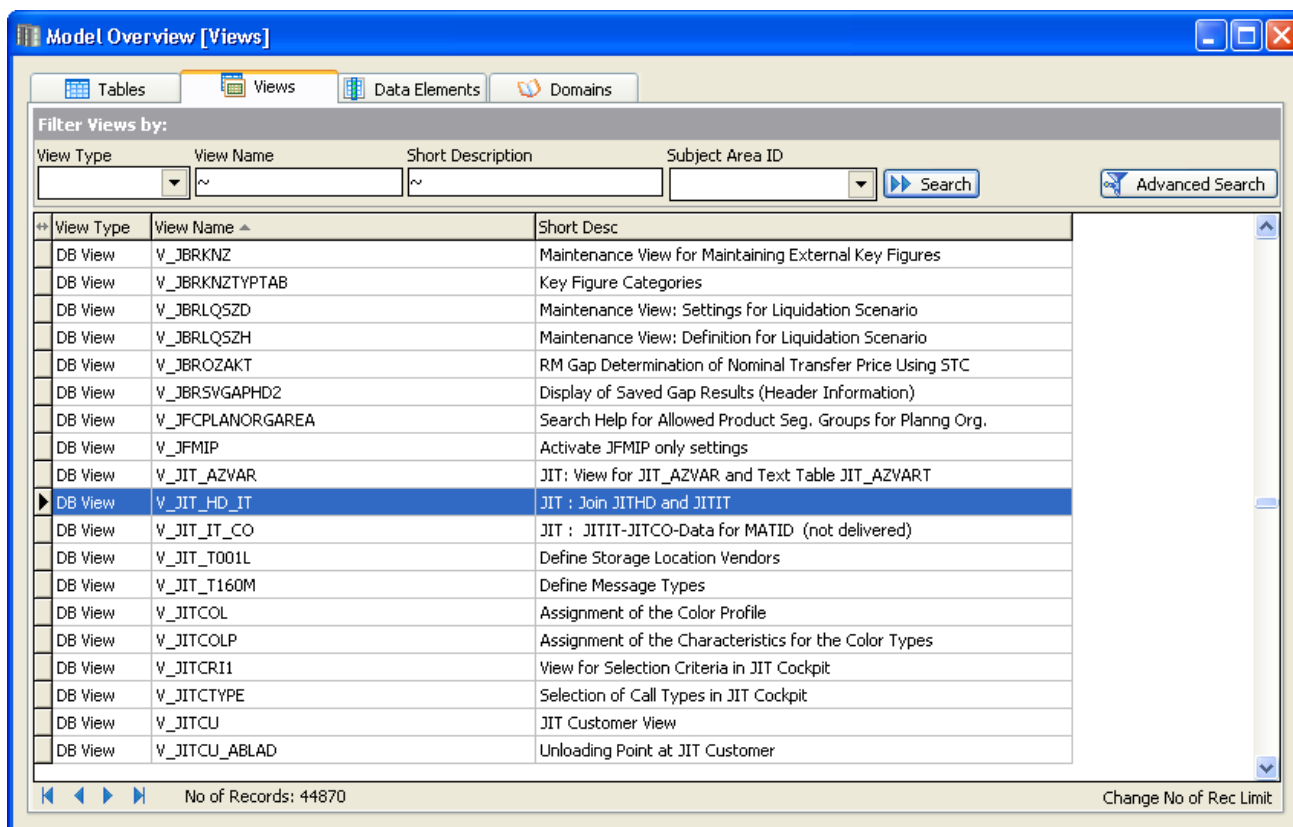
All relationships	All relationships are displayed
Identifying relationships	Only relationships where the migrated primary key is part of the receiving table's primary key are displayed
Non-identifying mandatory relationships	Only relationships where the migrated primary key is not part of the receiving table's primary key, and the parent is mandatory, are displayed
Non-identifying optional relationships	Only relationships where the migrated primary key is not part of the receiving table's primary key, and the parent is optional, are displayed

Full details of any of the tables shown in the 'parent' or child' area can be displayed by double-clicking on the table. This uses the Table Details form to show the structure of the selected table (see 'Viewing table details' earlier in this chapter.)

3.14 Using the Overview to browse Views

Saphir can display details of application Views in a similar manner to the way it shows base tables in the Model Overview. (Note: There are no Views available in Saphir for PeopleSoft Enterprise applications).

To display a list of views in the Model Overview, click on the  Views tab and then click the Search button.



Model Overview: Views

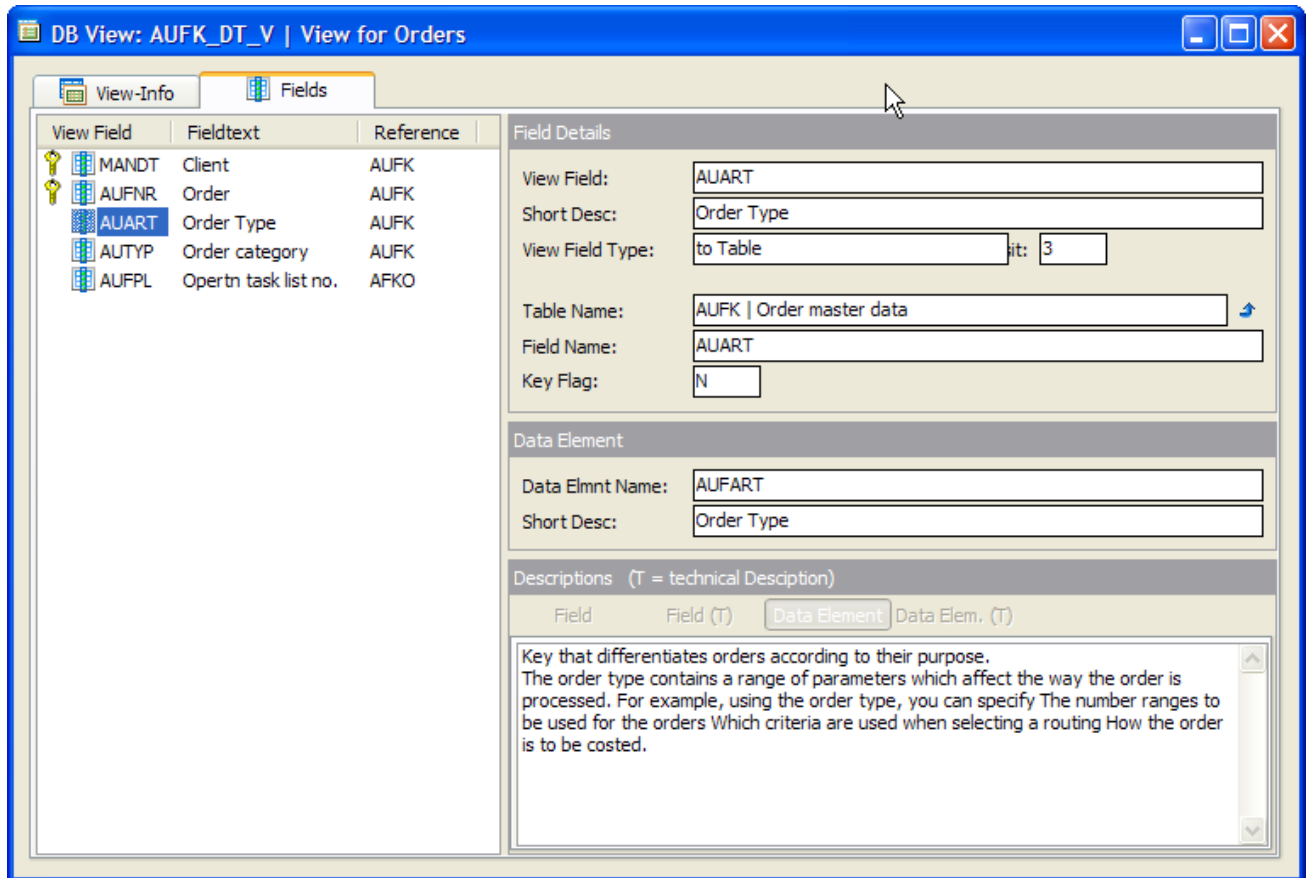
The View list is similar in usage and appearance to the base table list in the Model Overview.

Available fields in the View List include: -

- View Name The internal Name for the View
- Short Desc. The Business Name for the View

3.14.1 the View fields

Double clicking on the view will show full details of the selected view.

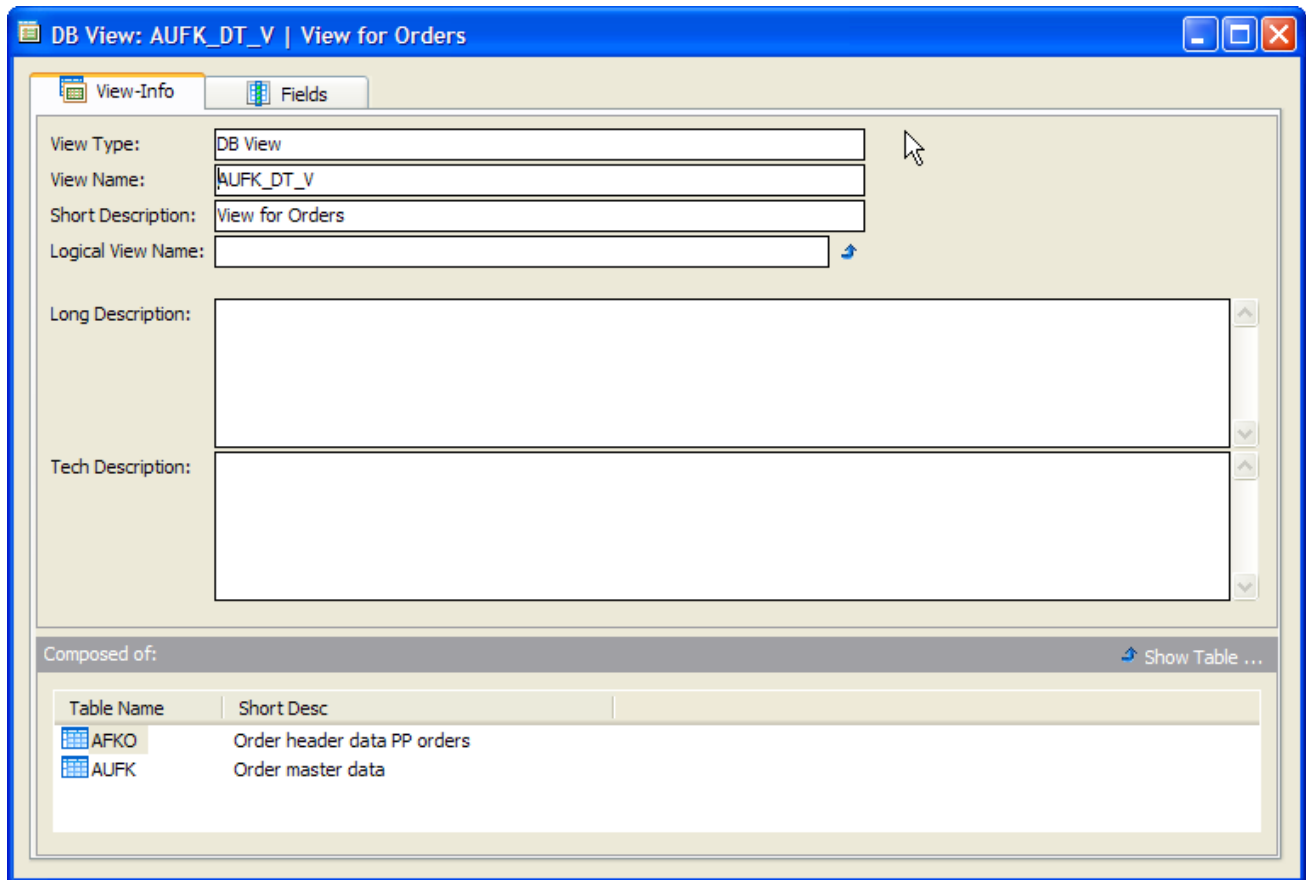


View Details

This is very similar in content and purpose to the base table details form (see 'Viewing Table Details' earlier in this chapter).

3.14.2 View Elements Information


Clicking on the view info button  View-Info reveals more details of the view and a list of the Base tables on which the view is based.

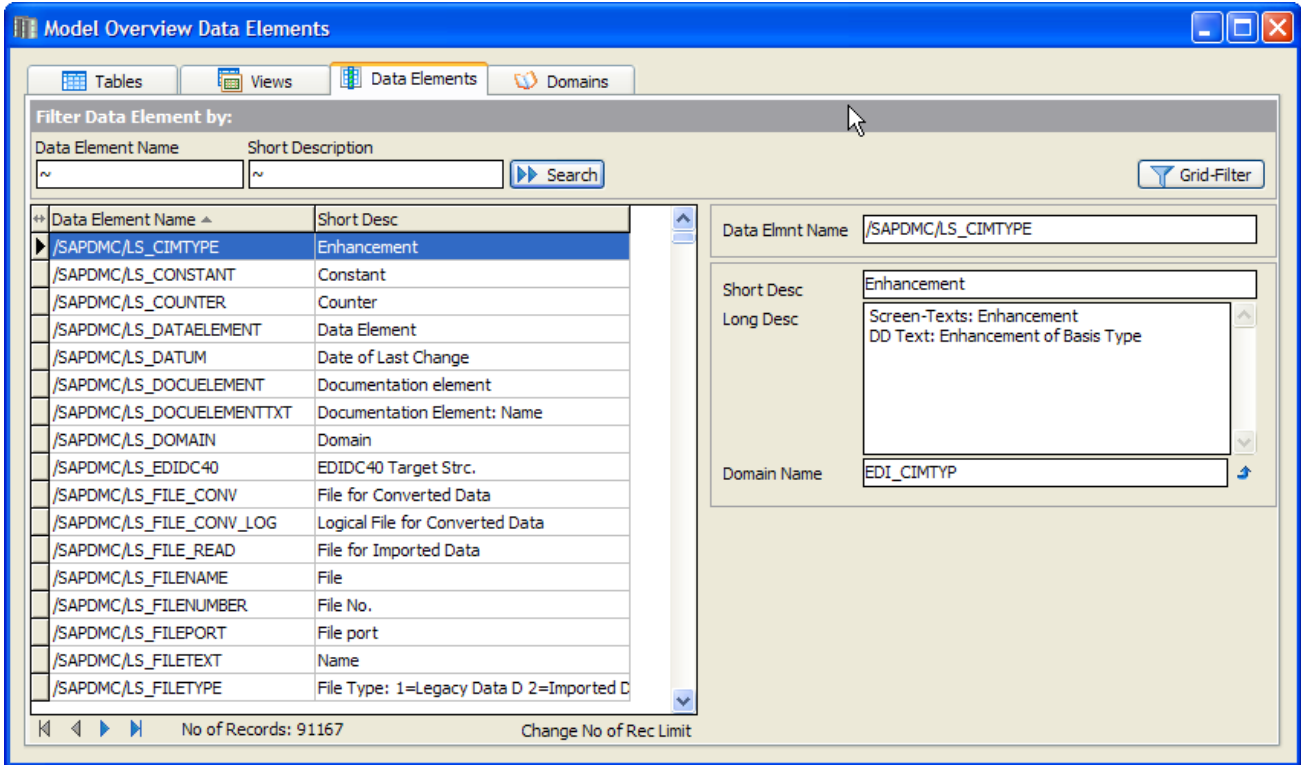


View Info

Double clicking on one of the 'component' Table Names will open the Table Details Window for that base table (see 'Viewing table details' earlier in this chapter).

3.15 Using the Overview to browse Data Elements

Clicking on the  **Data Elements** tab on the Model Overview form displays a list of available Data Elements. Initially the list is empty; pressing the ‘Search’ button retrieves a full list of Data Elements.



Model Overview: Data Elements

Clicking on a Data Element in the list box on the left reveals full details of that Data Element on the right of the form.

The search facilities at the top of the form are similar in function to those for Base Tables and described in Selecting Tables in the Model Overview above.


3.16 Searching for tables using a Data Element

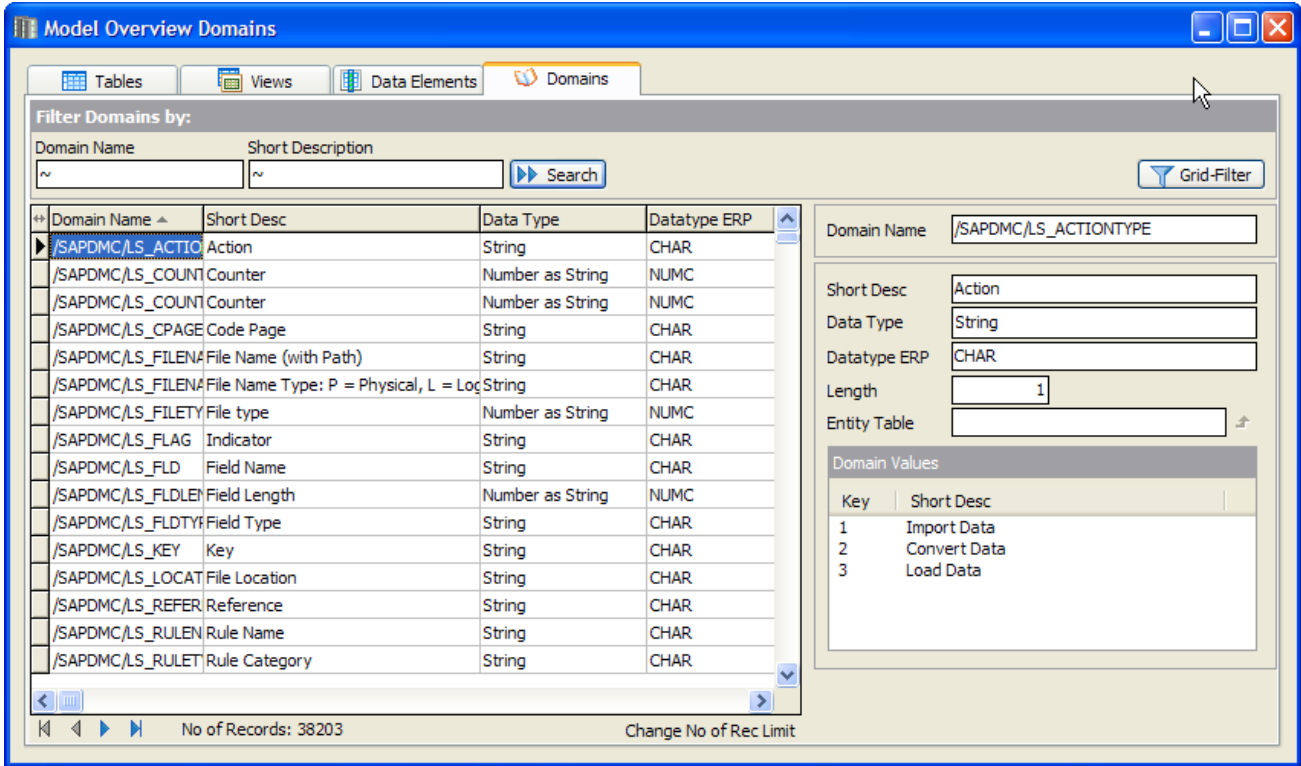
This feature finds all the tables using a specified Data Element.

From the ‘Model Overview Data Element’ form, right mouse clicking on a Data Element reveals a pop-up menu showing ‘Find Tables using DataElement’. When selecting this, a search is initiated to find all Tables containing Fields that belong to the chosen Data Element.

Note: This feature sets the ‘Data Element’ field in the Search parameters (see ‘Using Advanced Search’ above) to the selected Data Element. It is advisable to clear this field after completing the search to prevent further searches from including this setting.

3.17 Using the Overview to browse Domains

Clicking on the  Domains tab on the Model Overview form displays a list of available Domains. Initially the list is empty; pressing the ‘Search’ button retrieves a full list of Domains.



Model Overview: Domains

Clicking on a Domain in the list box on the left reveals full details of that domain on the right of the form.

The search facilities at the top of the form are similar in function to those for Base Tables and described in Selecting Tables in the Model Overview above.

Where a Domain has associated ‘fixed’ values, these are shown in the panel at bottom right as Domain values.

3.18 Searching for tables using a Domain

This feature finds all the tables using a specified Domain.

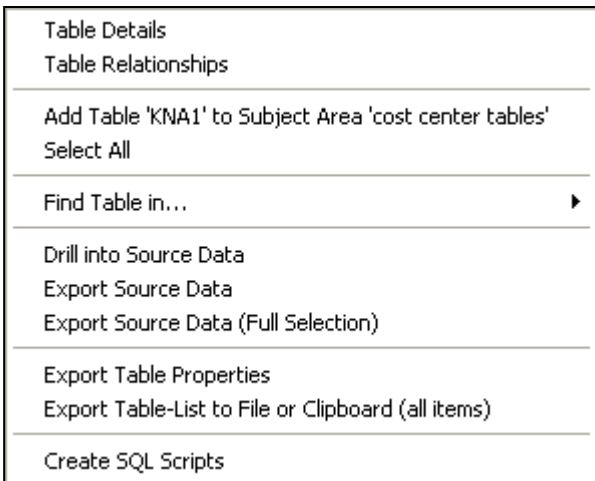
From the 'Model Overview Domains' form, right mouse clicking on a Domain reveals a pop-up menu showing 'Find Tables using Domain'. When selecting this, a search is initiated to find all Tables containing Fields that belong to the chosen Domain type.

Note: This feature sets the 'Domain' field in the Search parameters (see 'Using Advanced Search' above) to the selected Domain. It is advisable to clear this field after completing the search to prevent further searches from including this setting.

3.19 Model Overview context pop-up menu

Right-Clicking on a row in the Model Overview will display the Model Overview context pop-up menu.

Pop-up menu on right mouse click



The available options are summarized in the following table:

Menu	Usage or For more details see...
Table Details	'Viewing Table Details' in this chapter
Table Relationships	'Viewing parent/child relationships' in this chapter
Add Table <name> to Subject Area <name>	Adds the currently selected Table to the currently open Subject Area
Select All	Selects all the tables in the current list
Find Table in...	See 'Finding a table in Application Hierarchy' below
Drill into Source Data	'Drilling into data' in this chapter
Export Source Data	'Exporting data from a single table' in this chapter

Export Source Data (Full Selection)	'Export of a number of tables' in this chapter
Export table Properties	'Creating a report of table attributes' in this chapter
Export table List...	'Exporting a list of tables' in this chapter
Create SQL Scripts	'Creating SQL scripts for table access' in this chapter


3.19.1 Finding a table in the Application Hierarchy

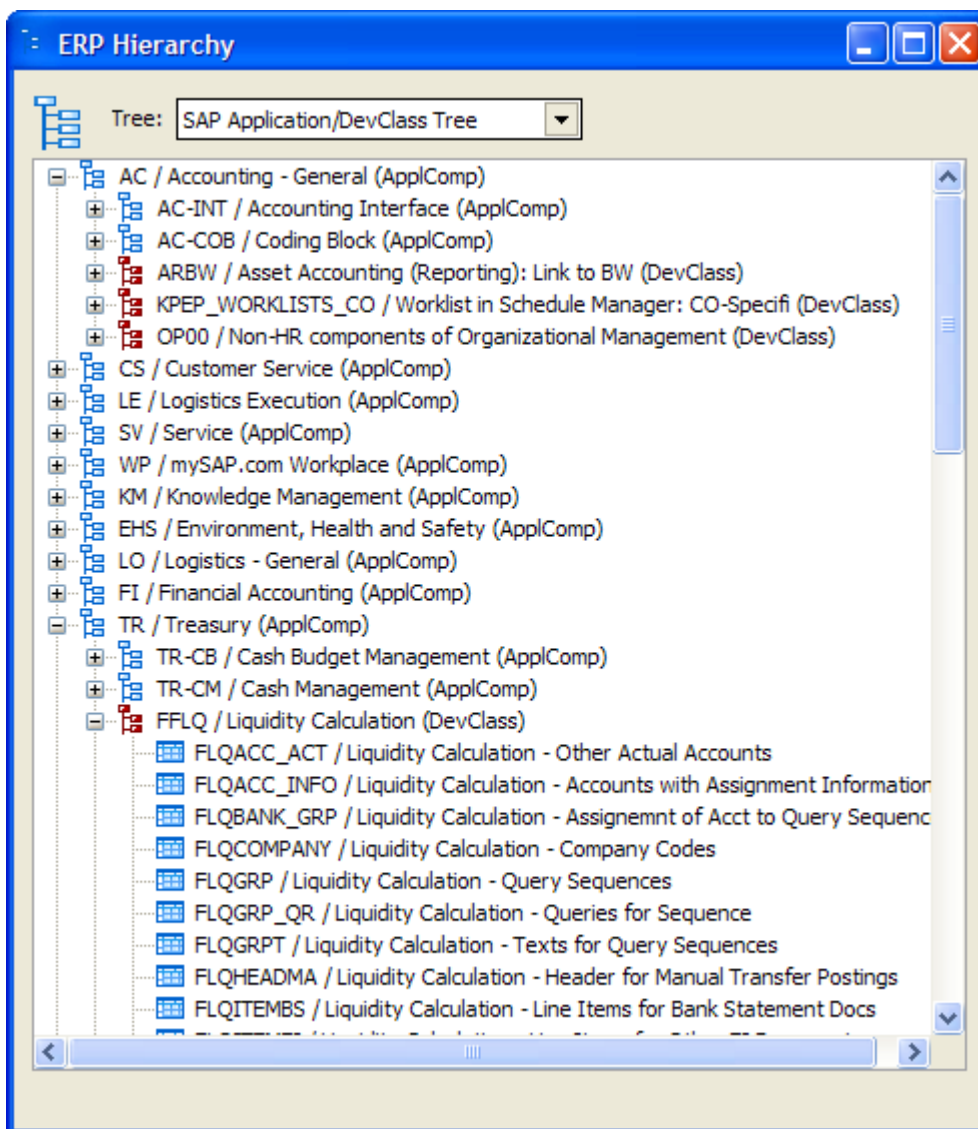
This option, when selected from the Model Overview context menu, will show a list of one or more available Hierarchies in which to search for the table or view. Once the desired Hierarchy has been selected, the Hierarchy is opened at the appropriate table or view. This allows the selected object to be seen in context to its position in the hierarchy.

For more details of Application Hierarchy see 'The Application Hierarchy' later in this chapter.

3.20 The Application Hierarchy

The Application Hierarchy is an alternative way of looking at the contents of the Saphir repository. The same set of Tables and/or Views seen in the Model Overview are organised in a ‘tree’ structure. Depending on the Enterprise Application being viewed, there may be more than one ‘Tree’ to choose between.

Click the  icon on the Saphir toolbar or click ‘Application Hierarchy’ from the ‘View’ menu to display the Application Hierarchy screen. If there is more than one type of Hierarchy available for the currently selected Enterprise Application, the ‘Tree’ drop down list box will show the possible choices.






The Application Hierarchy

The Application Hierarchy is presented as a tree structure. Click the ‘+’ and ‘-’ icons to open and close successive tree nodes.

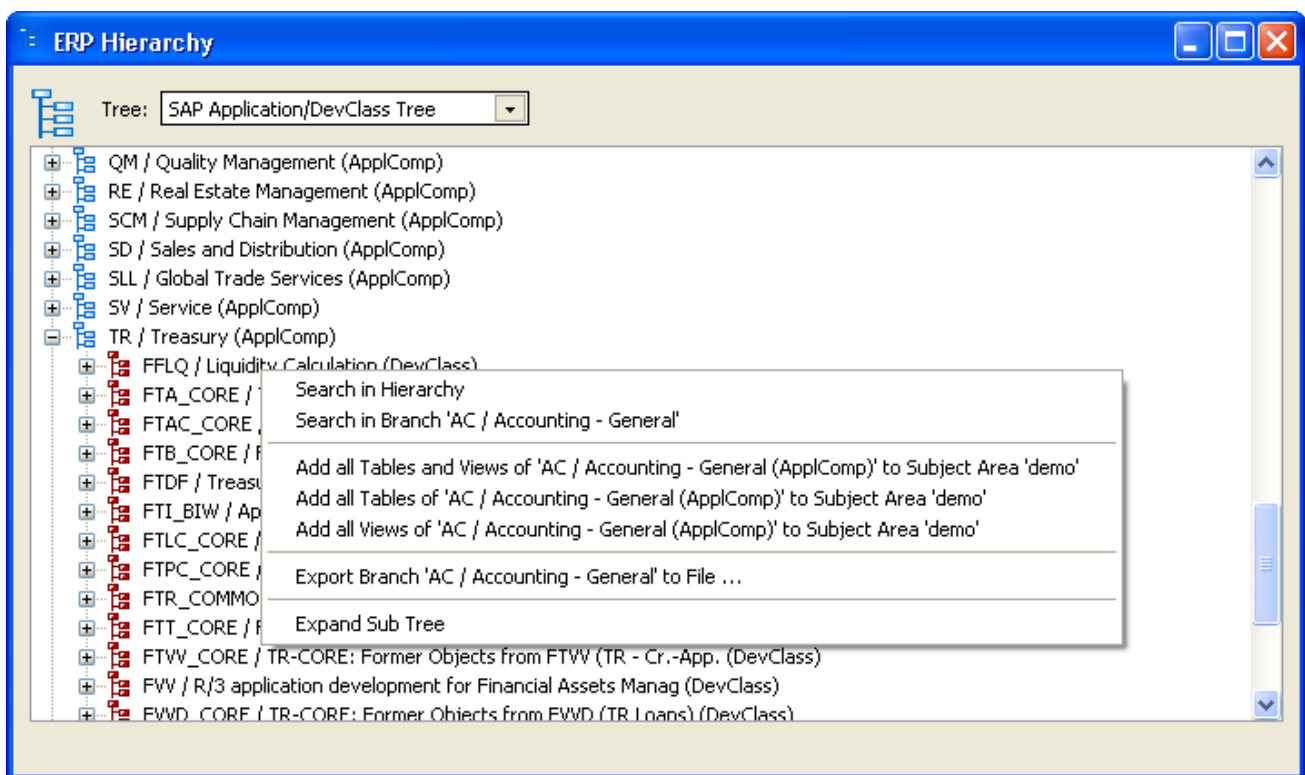
The set of highest level tree nodes correspond to the various modules within the Enterprise Application.

Various icons are used in the hierarchy as follows:

-  indicates a module or a sub-module
-  indicates a Table
-  indicates a View

3.21 Available actions from the Hierarchy

Right Mouse Clicking on a node in the application hierarchy presents a pop-up menu. The available options on this menu are context-dependant.



Context menu from Application Hierarchy

The available actions are:

Search in Hierarchy: - This displays a form for searching the entire hierarchy. See ‘Searching for tables and views’ and ‘Searching for Nodes’ below.

Search in Branch <branch name>: - This displays a form for searching within the currently selected hierarchy branch. See ‘Searching for tables and views’ and ‘Searching for Nodes’ below.

Show Table/View Info - This option is only available if the current selected node is a table or view. It shows the details of the selected table or view. See ‘Viewing Table Details’ and ‘Showing the View fields’ earlier in this chapter for more details.

Show Table Relationships – This option is only available if the current selected node is a table. The related ‘parent’ and ‘child’ tables form will be displayed. See ‘Viewing parent/child relationships’ earlier in this chapter for details.

Add all Tables and Views of <node> to subject area <subject area name> - This option is only available if the ‘Subject Area’ form is open. (See ‘Subject Areas’ later in this chapter). All the tables and/or views belonging to the node are added to the current subject area.

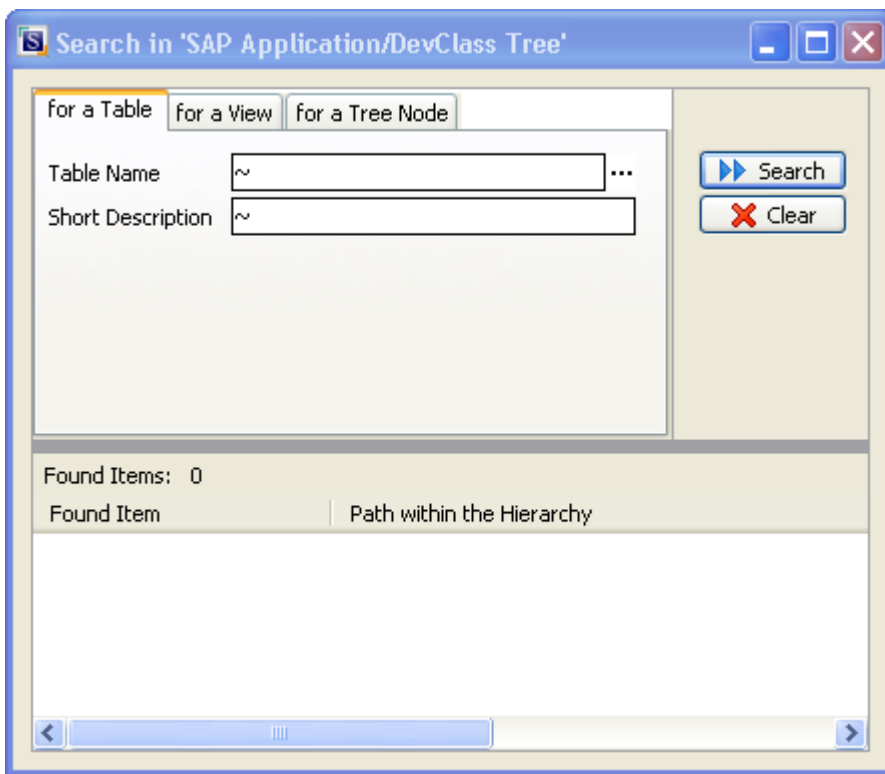
Add all Tables of <node> to subject area <subject area name> - This option is only available if the ‘Subject Area’ form is open. (See ‘Subject Areas’ later in this chapter). All the tables and/or views belonging to the node are added to the current subject area.

Add all Views of <node> to subject area <subject area name> - This option is only available if the ‘Subject Area’ form is open. (See ‘Subject Areas’ later in this chapter). All the tables and/or views belonging to the node are added to the current subject area.

Expand Sub Tree – opens the currently selected node.

3.22 Searching for tables and views in the Application Hierarchy

Clicking the ‘Search in Hierarchy’ or ‘Search in Branch’ options in the Application Hierarchy pop-up menu displays the ‘Search’ form. This has three tabs, the first two being for searching for Tables and Views respectively. Both features work in the same way and the ‘Search for a Table’ option will be used here to describe the functionality.



Search Tables feature

To find the location of a table in the application hierarchy, or currently selected node, enter the ‘physical’ Table Name or ‘logical’ Short Description string and click the ‘Search’ button. A list of matching tables will then be displayed.

Note that the Table Name and Text search fields have the same searching options as described above for the Model Overview (see ‘Selecting Tables in the Model Overview’).

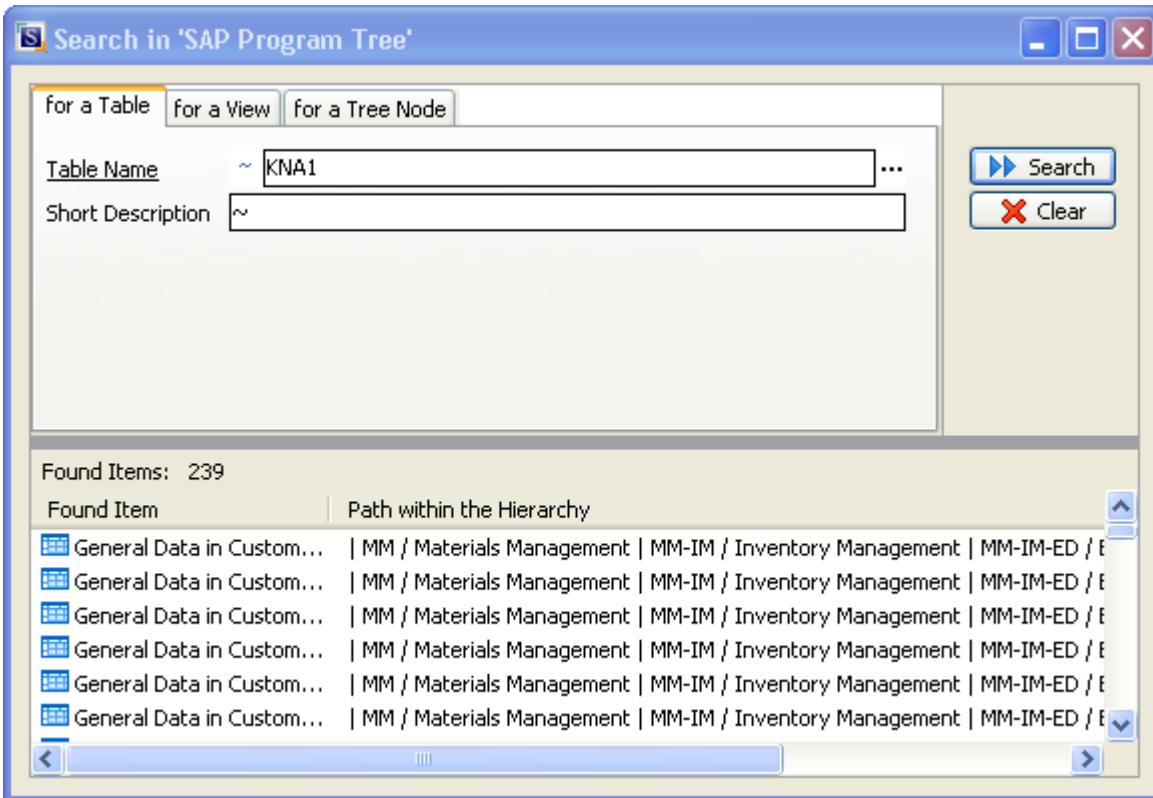
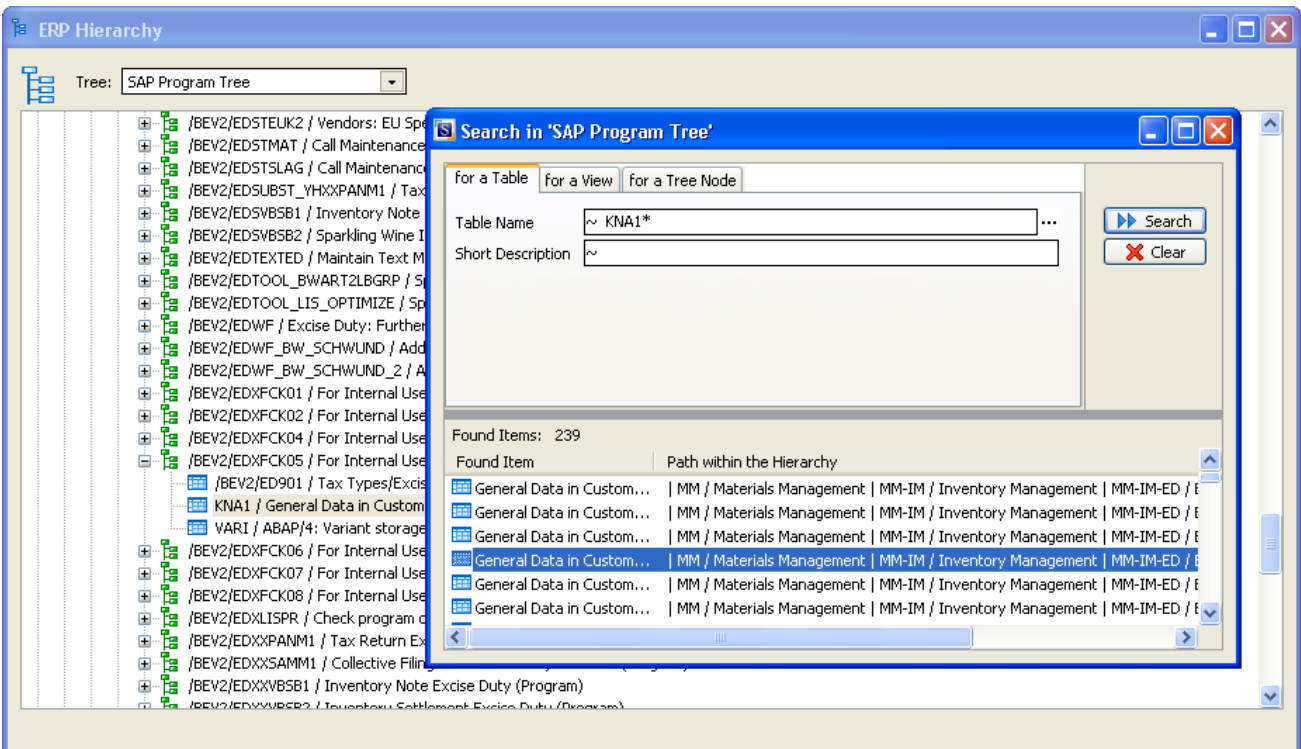


Table Search –result

Once the search is complete, double-clicking on an item in the search results will position the Application Hierarchy at that point.



Using the Search Tables result to locate a table in the Hierarchy

3.23 Searching Tree Nodes in the Application Hierarchy

Clicking the 'Search in Hierarchy' or 'Search in Branch' options in the Application Hierarchy pop-up menu displays the 'Search' form. This has three tabs, the first two being for searching for Tables and Views, and the third tab for search Tree Nodes.

Clicking the 'Search for Tree Node' tab displays the 'Search for a Tree Node' form.

The screenshot shows a window titled "Search in 'SAP Program Tree'". At the top, there are three tabs: "for a Table", "for a View", and "for a Tree Node", with the last one being active. Below the tabs are two input fields: "Treenode Class ID" with a dropdown arrow and "Short Description" with a tilde (~) as a placeholder. To the right of these fields are two buttons: "Search" (with a right-pointing arrow) and "Clear" (with a red X). Below the input fields is a section labeled "Found Items: 0" and a table with two columns: "Found Item" and "Path within the Hierarchy". The table is currently empty. At the bottom of the window is a horizontal scrollbar.

Search Tree Node form

To find node in the application hierarchy, enter a search string in the 'Short Description', and optionally select a Tree node class from the drop down list. The Treenode classes available in the list are dependent on the Enterprise Application selected. Clicking the 'Search' button will display a list of matching nodes.

Having arrived at a list of items for the search performed, double clicking on an item in the list will locate that item in the Hierarchy.

3.24 What does the Application Hierarchy show for each ERP type?

As mentioned above, the actual structure of the Application Hierarchy is dependent on which ERP is shown within Saphir. This section describes the ERP-specific ‘objects’ available.

3.24.1 Application Hierarchies for SAP

There are two Application Hierarchies created in Saphir for SAP. These are:

SAP Application/Development Class Tree This tree shows Table and Views grouped by Application Component and SAP Development Class. An important point to understand is that the location of a Table or View in a tree node is related to which component the table was originally allocated when it was created. That is, a table will only belong to one node in the tree.

SAP Program Tree This tree shows Table and Views grouped by Application Component, Program, Function Group and/or Transaction. A SAP transaction is associated with a Program or Function Group. The Tables and Views are shown in the hierarchy associated with the Program or Function group that *uses* them. So searching for a given Transaction will locate the Program/Function Group associated with that Transaction, and then the Table/Views used by that Program/Function Group are grouped below that Program/Function Group.

Note: For a SAP BW system, see Chapter 6, Special Product Features for SAP BW.

3.24.2 Application Hierarchies for Siebel

There are two Application Hierarchies created in Saphir for Siebel. These are:

Siebel Application and Business Objects This tree shows Siebel Applications, and for each Application the Business Objects associated with that Application. Each Business Object is associated with a set of Business Components which form the next level of the hierarchy.

Siebel Application, Screens and Views This tree shows Siebel Applications at the top level, and for each Application the associated Screens, then Views and for each View the Business Components associated with that View.

3.24.3 Application Hierarchies for PeopleSoft Enterprise

PeopleSoft Application Tree This tree shows PeopleSoft Applications, and for each Application the Tables associated with that Application. The Application is based upon the Object Owner Id of each Table.

3.24.4 Application Hierarchies for PeopleSoft EnterpriseOne (JDEdwards)


JDEdwards System Code Tree This tree shows JDEdwards tables grouped by System Code. The System Code comes from the JDEdwards Table definition.

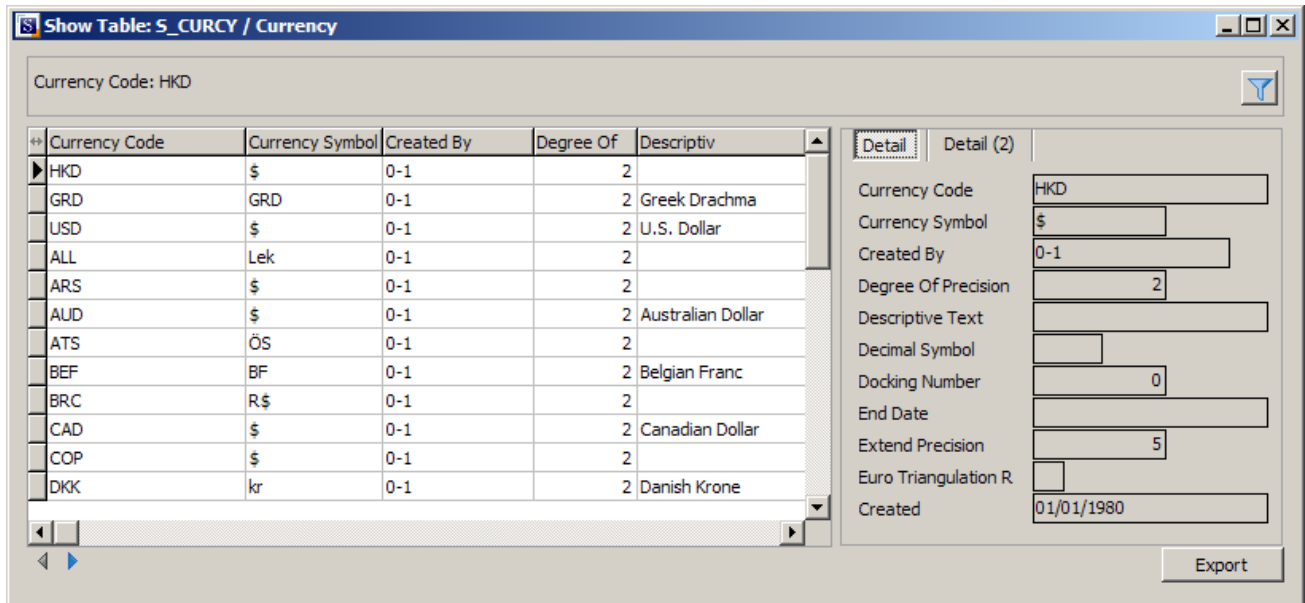
3.24.5 Application Hierarchies for Oracle Enterprise Business Suite

EBS Application Tree This tree shows Oracle EBS tables grouped by Application. The Application Id comes from the EBS Table definition.

3.25 Drilling into data

In addition to looking at the metadata for tables, Saphir allows the actual data itself to be displayed, subject to the appropriate data access authorities.

This is achieved by selecting the table from the Model Overview, and then clicking  on the toolbar, or by Right-Mouse-Clicking on the table in the list and selecting 'Drill into Source Data'. Saphir then performs a query to retrieve the data from the table.



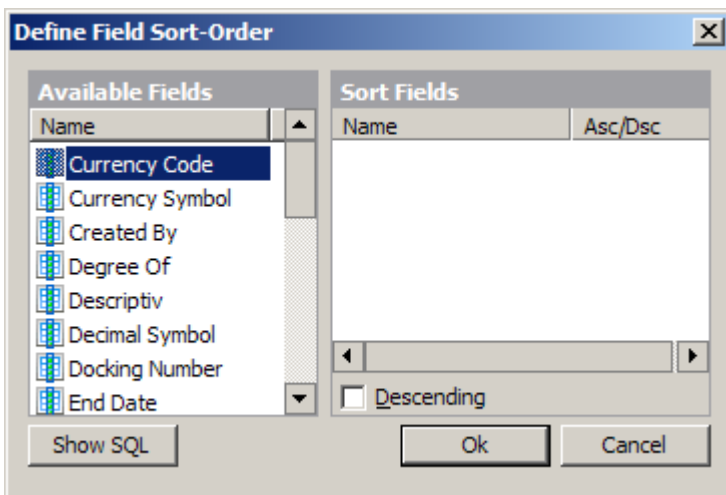
Drilling into Data

Saphir displays the result data set in tabular form. Additionally there are one or more Detail Tabs to the right of the screen, which allow the user to examine all the fields of one row.

The columns in the data set can be re-arranged by dragging and dropping a column to a new position using the column title.

The data set can be sorted by clicking on the title for the required sort column. A second click will sort that column in descending order.

For more complex sorting, Right Click on the column title to access the Define Field Order form.

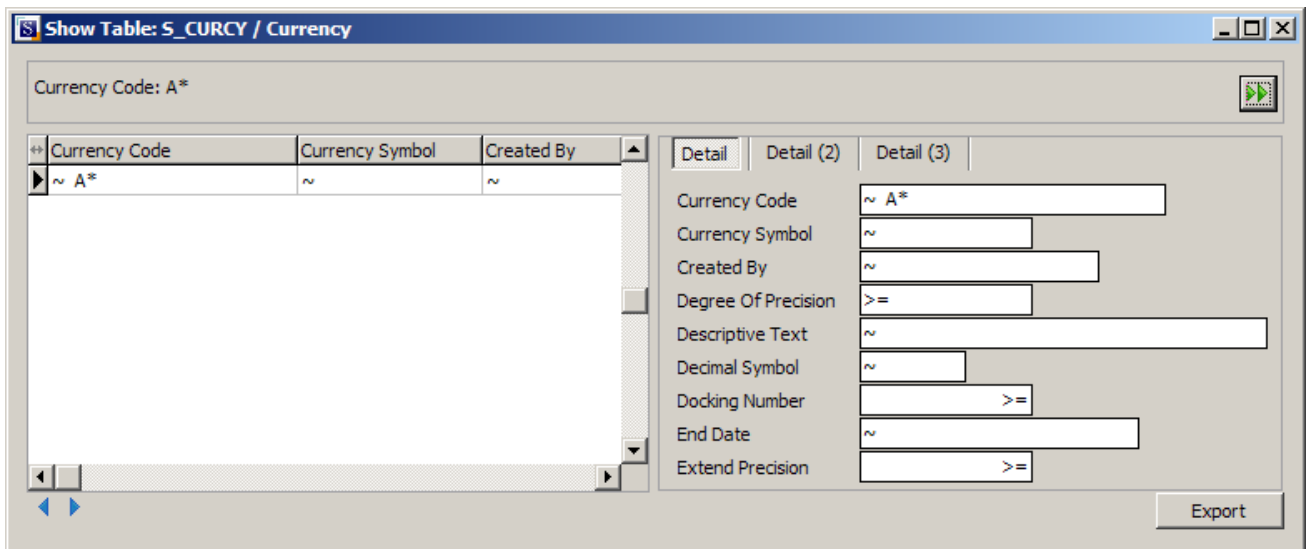


Changing the Sort Order

Use drag-and-drop to select the fields for sorting. Use the 'Descending' check box to change the sort between Ascending/Descending.

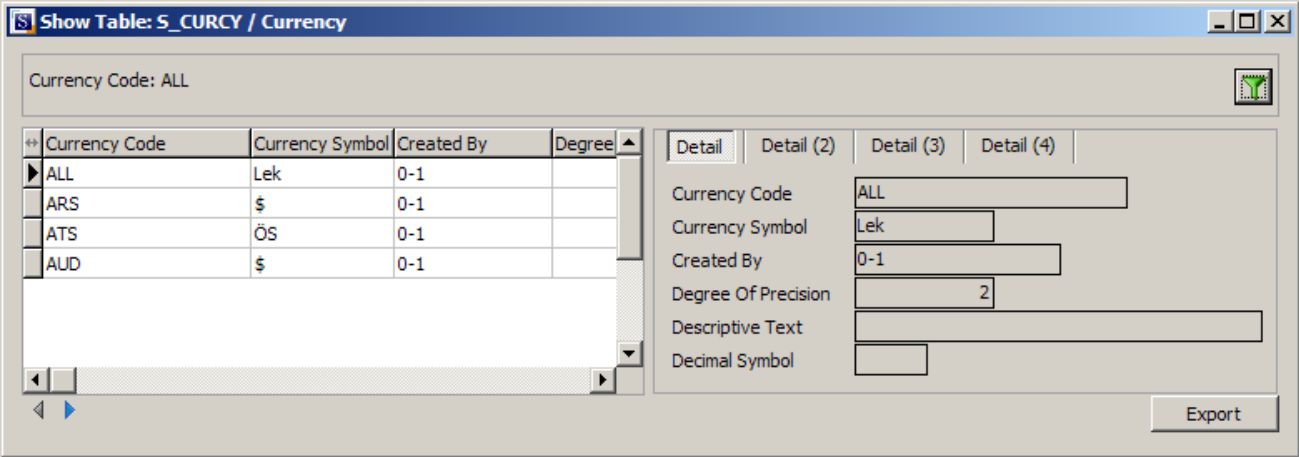
3.26 Using QBE (Query by Example) to interrogate data

To restrict the data retrieved, click on the QBE Button . Queries can be built up by adding selection criteria to one or more fields. Search Criteria can be added to the tabular display area or to the detail tabs.



Setting QBE Selection Criteria

Click the Execute Button  to run the query.



Currency Code	Currency Symbol	Created By	Degree
ALL	Lek	0-1	
ARS	\$	0-1	
ATS	ÖS	0-1	
AUD	\$	0-1	

Detail view fields:


- Currency Code: ALL
- Currency Symbol: Lek
- Created By: 0-1
- Degree Of Precision: 2
- Descriptive Text:
- Decimal Symbol:

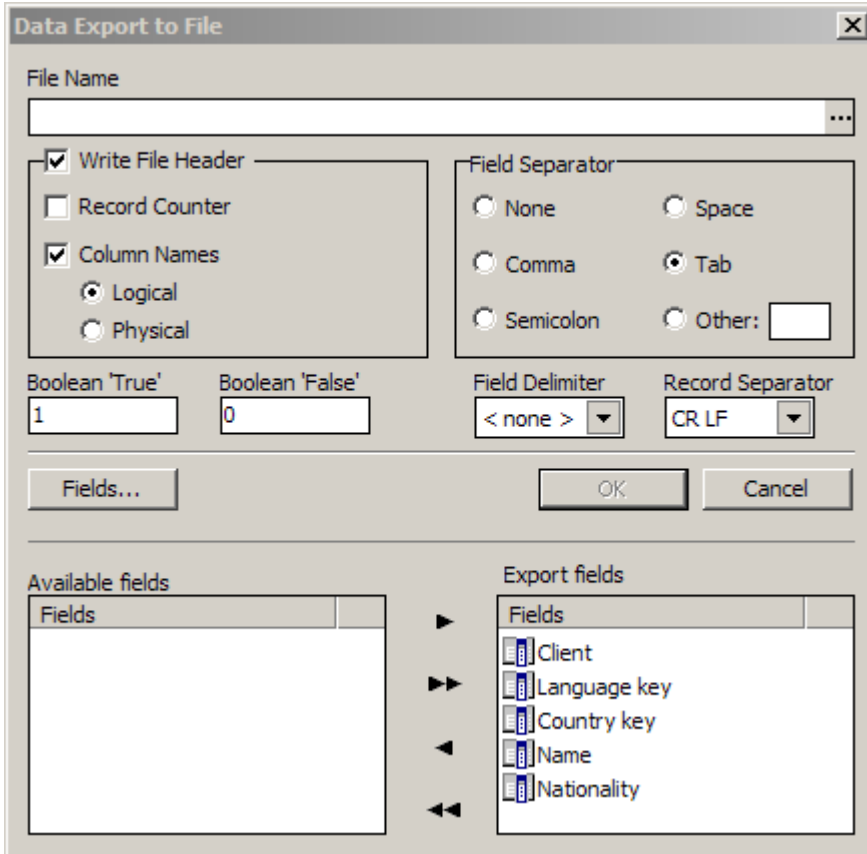
Export

Query Results

3.27 Exporting data to flat files


3.27.1 Exporting data from a single table

Having selected the required data, click on the  Button. The data can be exported with or without column headings, using logical or physical names. A comma, tab or other character can be specified to delimit the export file.

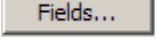


Export Form

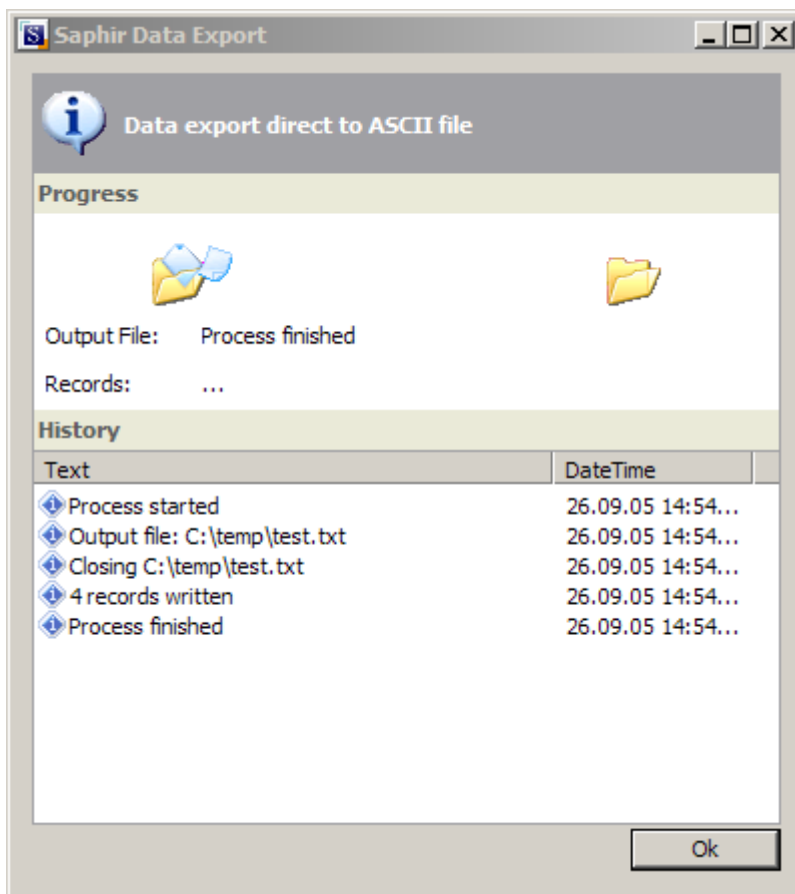
The Export form options are as follows:

- **File Name:** Enter the name of the file to export to. Use the  button to browse for a file or folder. If this file does not exist, Saphir will create it.
- **Write File Header::** Checking this option enables the additional options in the panel of 'Record Counter and 'Column Names'.
- **Record Counter:** Select this option to include a row count at the beginning of the export file.
- **Column Names:** Click the appropriate radio button to include either Logical or Physical names as column headers.
- **Field Separator:** Choose the appropriate character to act as a field separator in the exported file.
- **Boolean 'True' or 'False':** allows the user to specify suitable text values by which to represent Boolean values in the file.

- **Field Delimiter:** Choose the appropriate character to act as a field delimiter in the exported file
- **Record Separator:** Choose the appropriate character to act as a record separator in the exported file

The  button toggles the 'Field' selector portion of the form on and off. In the field selector you can select fields for inclusion in the exported file.

Once the export options have been set, click OK to start the export. The following progress form shows the export running.



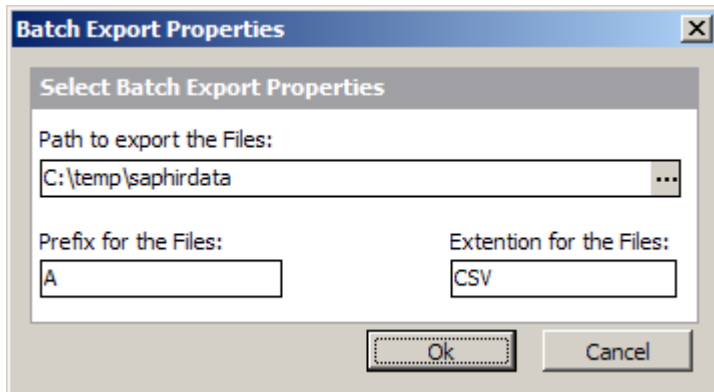
Export Progress Form

3.27.2 Export of a number of tables

This facility must be used with care as it will export all the data from any number of tables.

Firstly select the tables to be exported either using the various Saphir search facilities or by putting selected tables into a subject area and loading the subject area into the model browser.

All tables selected into the Model Browser can be exported by Right-clicking on the model browser and selecting **Export Source Data (Full Selection)** from the pop-up menu. The 'Batch Export Properties' form is then displayed.



Set export properties

For the export, each table will be exported into a separate file in the chosen export directory. Specify a Path for the location of the exported text files.

Select a prefix and extension for the export files.

On clicking OK Saphir displays the same Data Export form used for a single table data export (but without the 'Field' selection feature).

After selecting the appropriate setting and clicking the 'OK' button, each table in the Model Overview selection is exported to flat file.

3.28 Creating SQL scripts for table access

This feature of Saphir is an aid to making direct access to the source application (e.g. PeopleSoft) easier for any tool that uses SQL to interrogate the data.

By selecting a base table, a database view can be generated, or a select statement that uses the 'business names' as an alias. The example below shows a view generated from SAP table A008. The Table Description from SAP becomes the View name and the Field Description for each field becomes an alias.

```
CREATE VIEW V_Plant_Additional_selling_plant AS
SELECT
  MANDT AS Client,
  KAPPL AS Application,
  KSCHL AS Condition_type,
  WERKS AS Plant,
  WERKV AS Resale_plant,
  DATBI AS Valid_to,
  DATAB AS Valid_from,
  KNUMH AS Cond_record_no
FROM A008;
```

3.28.1 To generate Views or Select Statements

Right Mouse Click on the appropriate table in the Saphir Model Overview and choose 'Create SQL Scripts'. This displays the script creation form shown on the next page.

Script generation form

- The options on the left of the form dictate how the view or select statement is generated.
- To create a view – check this box to create a view, leave unchecked to create a select statement.
- With readable field names – check this box to use the field name as an alias.
- Uppercase Statement – check to have the generated text in upper case characters.
- Table Owner – specify the database table owner to be used as a prefix to the Table Name in the generated text.
- Prefix for created views – specify a string to be used as a prefix for the View name.
- Add Client where clause – allows specification of a SAP ‘Client’ (MANDT) for inclusion in the generated text ‘where’ clause.
- Add ‘;’ at the end – tail the generated statement with an ‘;’.

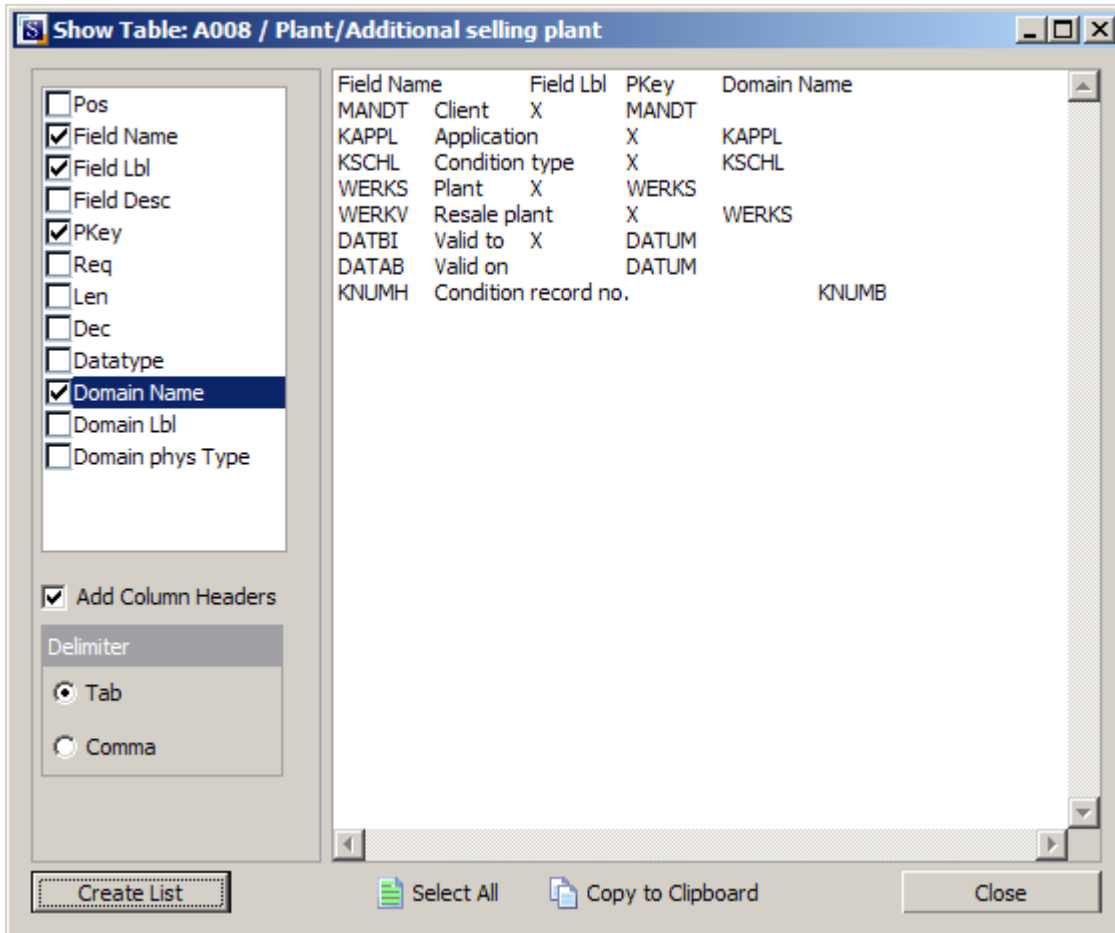
Having made the appropriate elections, click the ‘Create SQL’ button to generate the required statement.

The ‘Select All’ and ‘Copy to Clipboard’ button scan now be used to select and copy the generated text for transfer to another application, if required.

3.29 Creating a report of table attributes

This feature of Saphir can be used to create simple reports of table attributes.

Right Mouse Click on the appropriate table in the Saphir Model Overview and choose 'Export Table Properties' to display the following form.



The Export Table Properties form

The check boxes at top left lists the reportable properties. Check each property to be included in the report.

Add Column Headers – check this box to see the property names as header on the list.

Delimiter – chose 'Tab' or 'Comma' as the delimiter to separate the report columns.

The buttons at the bottom of the form are as follows: -

Create List – This produces the Report text, based upon the options specified above.

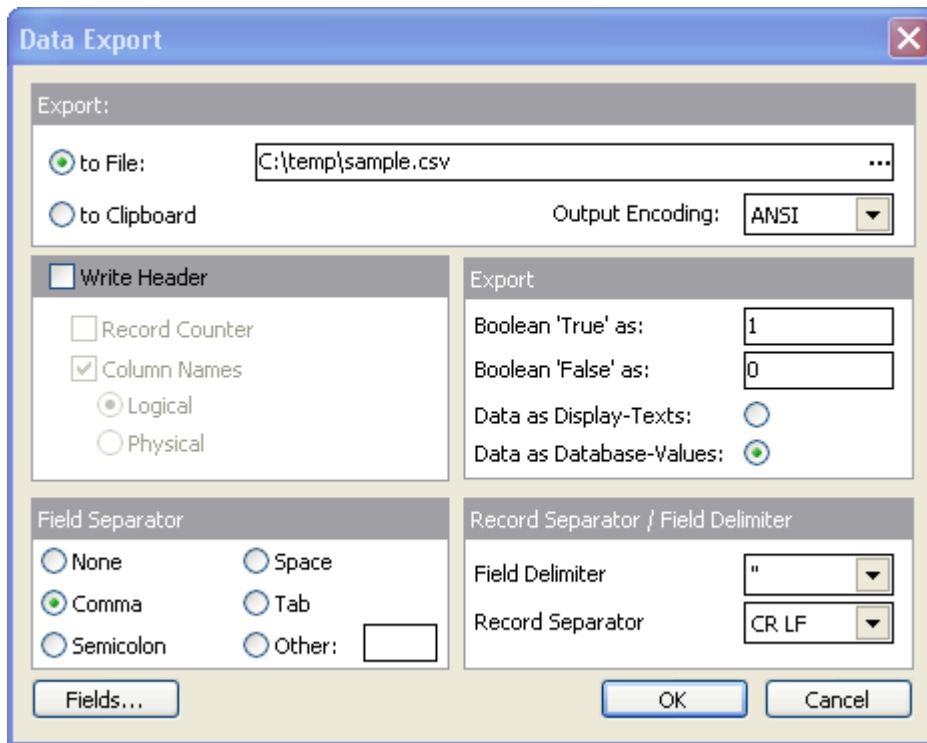
The 'Select All' and 'Copy to Clipboard' buttons can now be used to select and copy the generated text for transfer to another application, if required.

3.30 Exporting a list of tables

This feature of Saphir can be used to create simple list of tables from the Model Overview.


Right Mouse Click on the Saphir Model Overview and choose 'Export Table List to File or Clipboard'

The follow screen is then displayed.

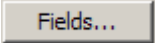


Export table List screen

The Export form options are as follows:

- To File or to Clipboard Choose the appropriate option to export to a file or to the Clipboard
- File Name Enter the name of the file to export to. Use the  button to browse for a file or folder. If this file does not exist, Saphir will create it
- Output Encoding Choose the output encoding required. This can be ANSI, UTF16 or UTF8
- Write File Header:: Checking this option enables the additional options in the panel of 'Record Counter and 'Column Names'.
- Record Counter: Select this option to include a row count at the beginning of the export file.
- Column Names: Click the appropriate radio button to include either Logical or Physical names as column headers.
- Field Separator: Choose the appropriate character to act as a field separator in the exported file.

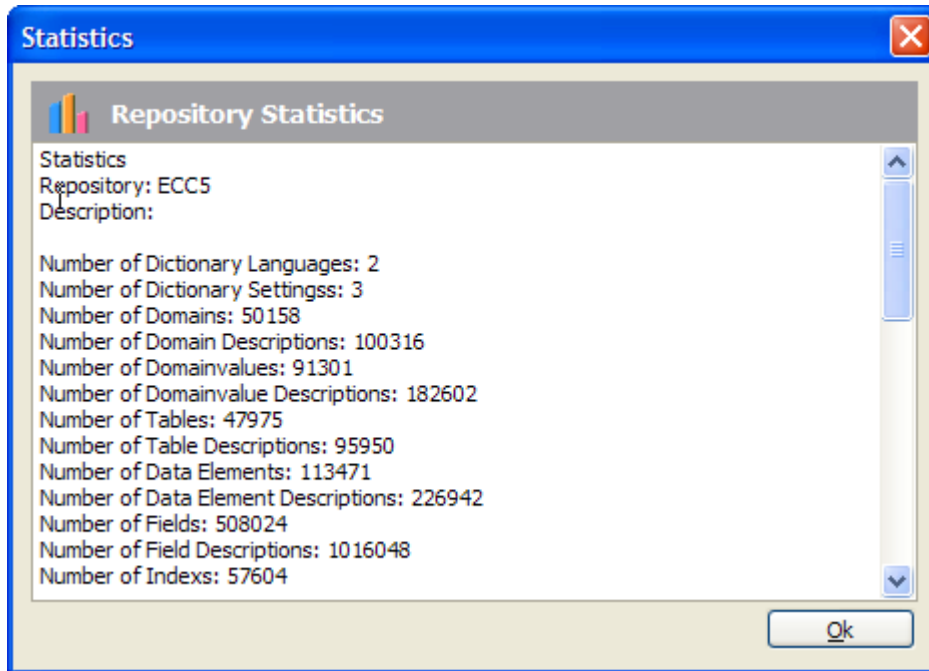
- Boolean 'True' or 'False': allows the user to specify suitable text values by which to represent Boolean values in the file.
- Field Delimiter: Choose the appropriate character to act as a field delimiter in the exported file
- Record Separator: Choose the appropriate character to act as a record separator in the exported file

The  button toggles the 'Field' selector portion of the form on and off. In the field selector you can select fields for inclusion in the exported file.

After making the appropriate selections, click 'OK' to generate the export to the specified File or the Clipboard.

3.31 Viewing Model Statistics

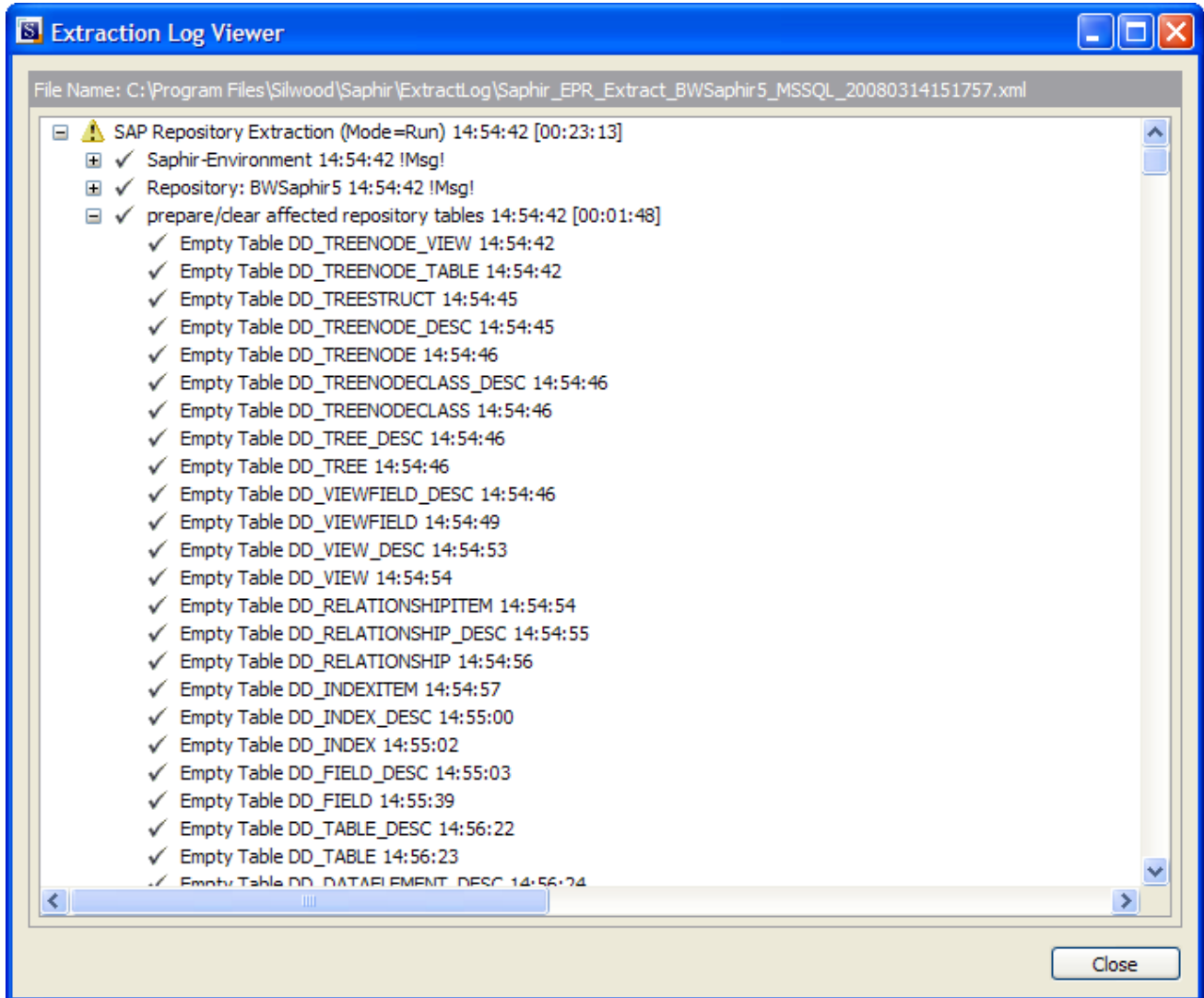
The 'Statistics' option on the Saphir View menu will display a form showing a summary of the 'objects' extracted and stored in the Saphir repository.



Model Statistics

3.32 The ERP Extract Log

During the extraction of metadata from the chosen Enterprise Application, Saphir records a log of the extraction steps in the form of an XML file. This log file can be viewed by selecting ‘Show ERP Extract Log...’ from the Saphir ‘Tools’ menu.



Viewing the Extract Log

At the completion of each extract the log file is written to the ExtractLog folder. This folder is located within the Saphir folder. The default location for this is \ProgramFiles\Silwood\Saphir 5\ExtractLog\.

During the extract process, the Log can be saved at any stage by Right Mouse Clicking on the background and select ‘Export Log...’

3.33 Subject Areas


Subject Areas allow tables and views in Saphir to be divided into manageable ‘chunks’. Subject Areas allow you to:

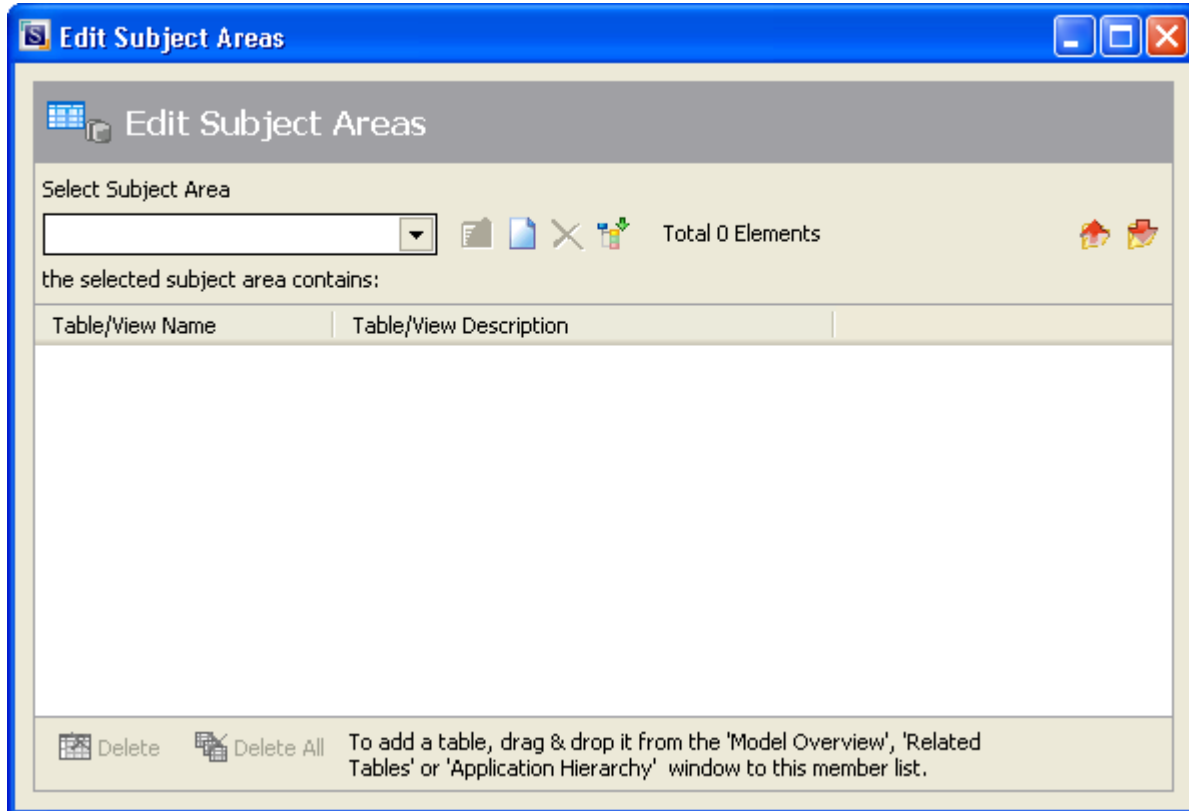
- Create subsets of the full set of tables in the Saphir repository – a Saphir subject area is like a folder where you can group together tables of interest.
- Qualify Searches – A subject area can be used in combination with the other Saphir search capabilities to limit the scope of the search being performed. E.g. “Find me all the tables that have a field with the text “order date” in the field description that are in the ‘Warehouse’ subject area”
- Export into other tools – The subject area is the vehicle for exporting data definitions into any of the Saphir tool interfaces. All the tables of the subject area will be exported to the chosen tool.

The members of a subject area are simply references to the tables and views grouped in that subject area. Deleting a subject area member only deletes the *reference* to that table or view and not the table or view itself.

The contents of a subject area can be moved from one subject area to another using the subject area import/export feature described below.

3.34 Managing Subject Areas

To create, delete or change a Subject Area, click the  icon on the Saphir toolbar, or select 'Subject Areas' from the 'Edit' menu. This will display the Edit Subject Areas form which has features for creating and populating subject areas.



The Subject Area form

The controls on the form are as follows:

Select Subject Area: Use this dropdown list to select an existing Subject Area. The contents of the subject area will be displayed in the window below the dropdown list.



Click this icon to change the name of the current Subject Area.



Click to create a new Subject Area.



Click to delete the currently selected Subject Area. You will be asked to confirm this deletion and then the Subject Area and its contents will be deleted.



Expand the Subject Area by creating a list of related parent and/or child tables. See 'Expanding a Subject Area with related Parent or Child Tables' below.



Import Subject Area members. A subject area and its contents, previously exported, may be loaded into a separate subject area. On clicking this option, you will be prompted for the file name of the subject area to be imported. On accepting this, the current subject area will be updated with the contents of the export file.



Export Subject Area members. This option exports the currently selected subject area into an export file. This file can be used to populate another subject area in the same or a different Saphir repository. On clicking this option you will be prompted for the file name of the subject area to be exported. On accepting this, the current subject area and its members will be written to the export file.



Delete. This option will delete the currently selected item in the subject area.



Delete All. This will delete all the items in the subject area. A form will be displayed, asking for confirmation of the delete action before the items are removed.

3.35 Adding tables to a Subject Area

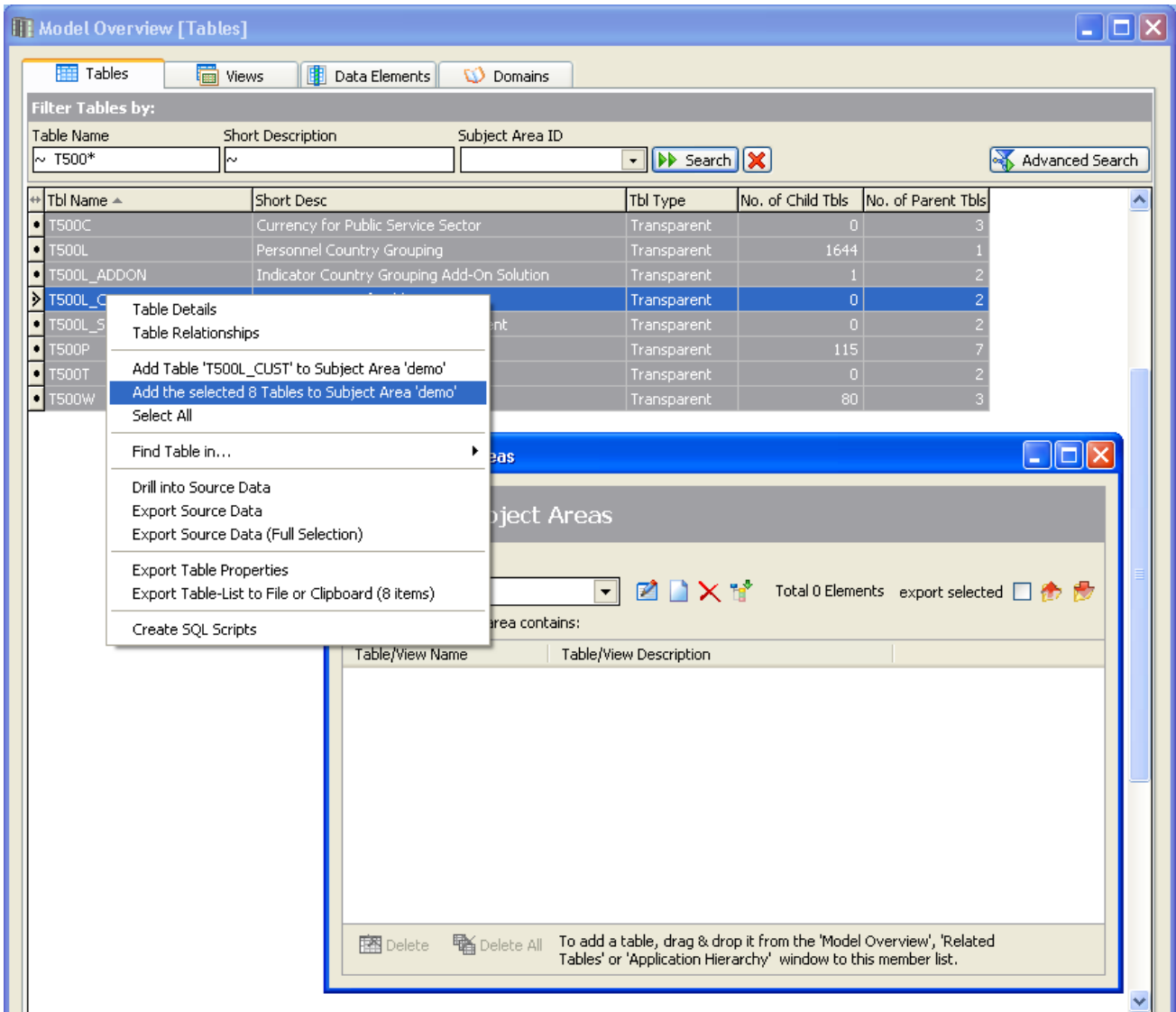
There are three main places for populating a subject area, each of which is described in the following sections.

- From the Model Overview
- From the Related Tables pop-up menu
- From the Application Hierarchy

3.35.1 Populating a Subject Area from the Model Overview

This approach to populating a subject area uses the current set of tables in the Model Overview.

The Subject Area form needs to be open in addition to the Model Overview. Individual tables can be added to the currently selected subject area by dragging and dropping from the Model Overview into the Subject Area. Alternatively, use the Select Tables features described above (see ‘Selecting tables in the model overview’) to reduce the list of tables to a manageable size. Then, Right Mouse Click on the list of tables in the Model Overview and click the ‘Add Allto Subject Area...’ button.



Populating a Subject Area from the Model Overview

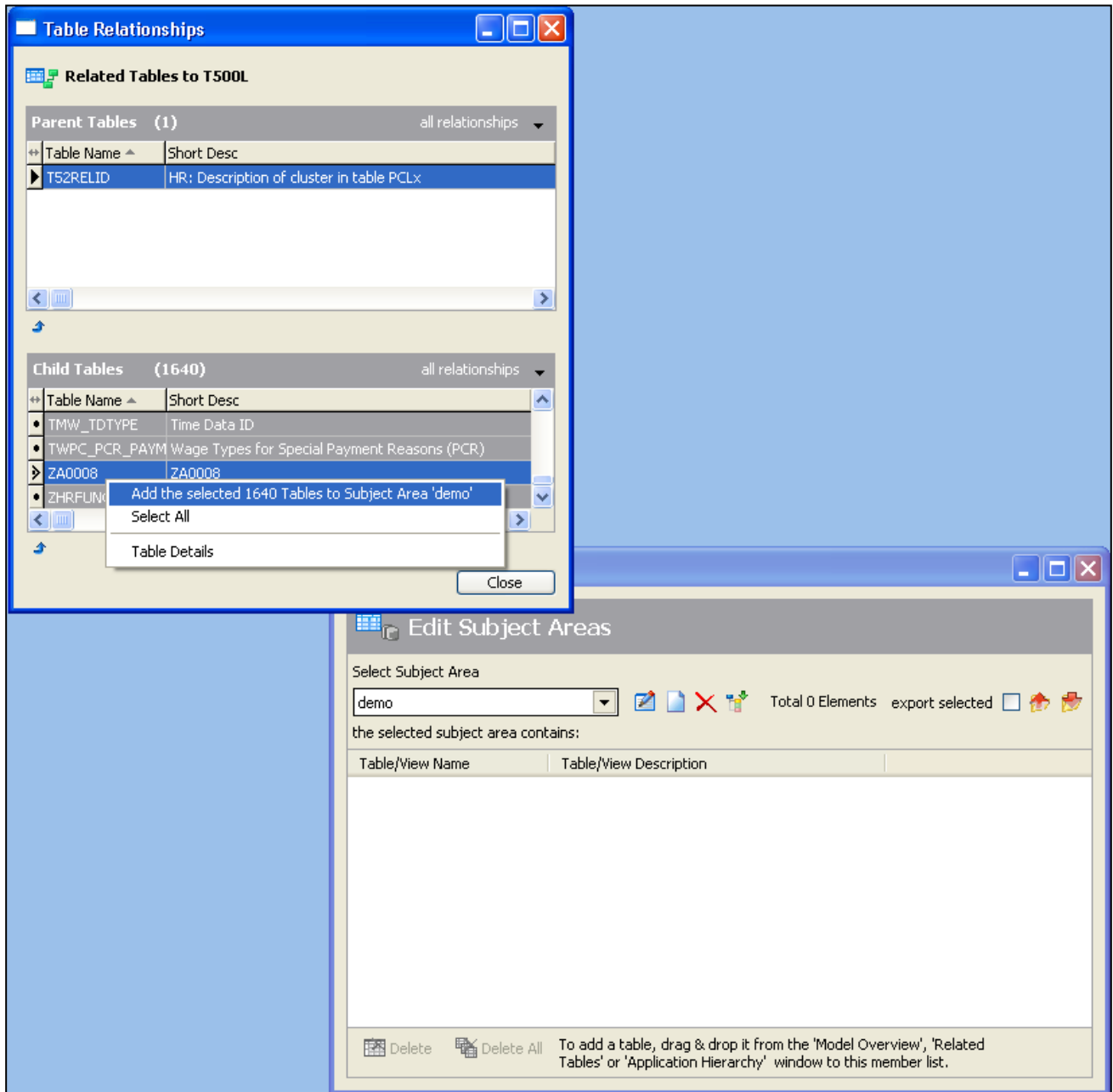
You will be asked to confirm the action and then a pop-up form shows the selected set of tables being added to the subject area.

3.35.2 Populating a Subject Area from the Related Tabled pop-up menu

Another method of adding tables to a subject area is to choose tables from the Related Tables form. This is useful when looking for tables that are ‘parent’ or ‘child’ tables of a given table.

To achieve this display the Related Tables form for the appropriate table (see “Viewing parent/child relationships’ in this chapter).

Now drag and drop individual tables from the Related Tables form into the current subject area, or right mouse click on the Parent Tables or Child Tables area and then choose ‘Add the selectedtables to the subject area....’ from the resulting pop-up menu.

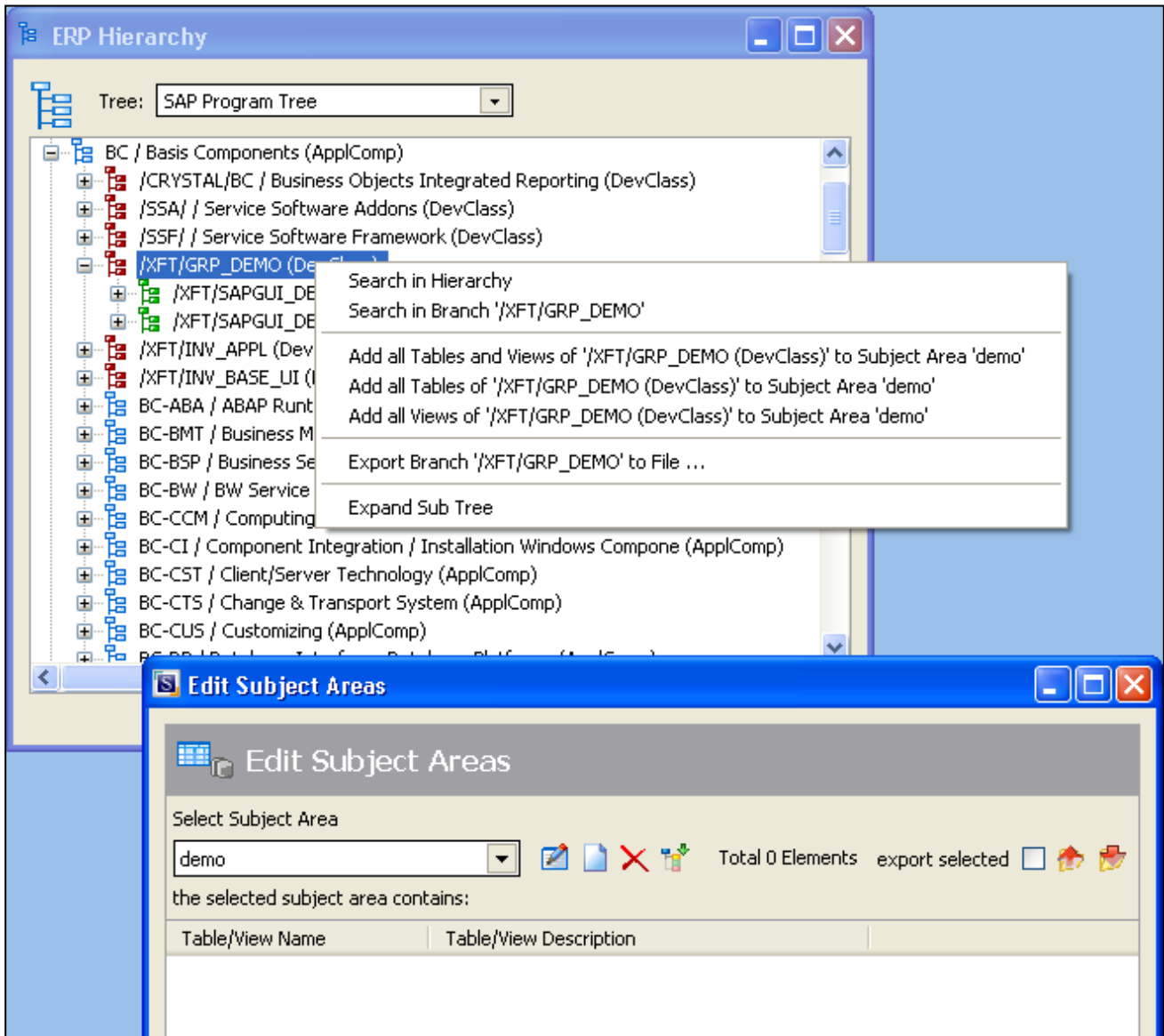


Adding related tables to a subject area

3.35.3 Populating a Subject Area from the Application Hierarchy

The Application Hierarchy presents tables and views as nodes of a ‘tree’ where the nodes represent application modules and sub-modules. Any node of this tree can be used to populate a subject area.

Either drag and drop the node or table from the hierarchy into the subject area, or use the right mouse menu and select one of the ‘Add all...’ options to add the tables and/or views belonging to that node to the subject area.




Populating a subject area from the Application Hierarchy

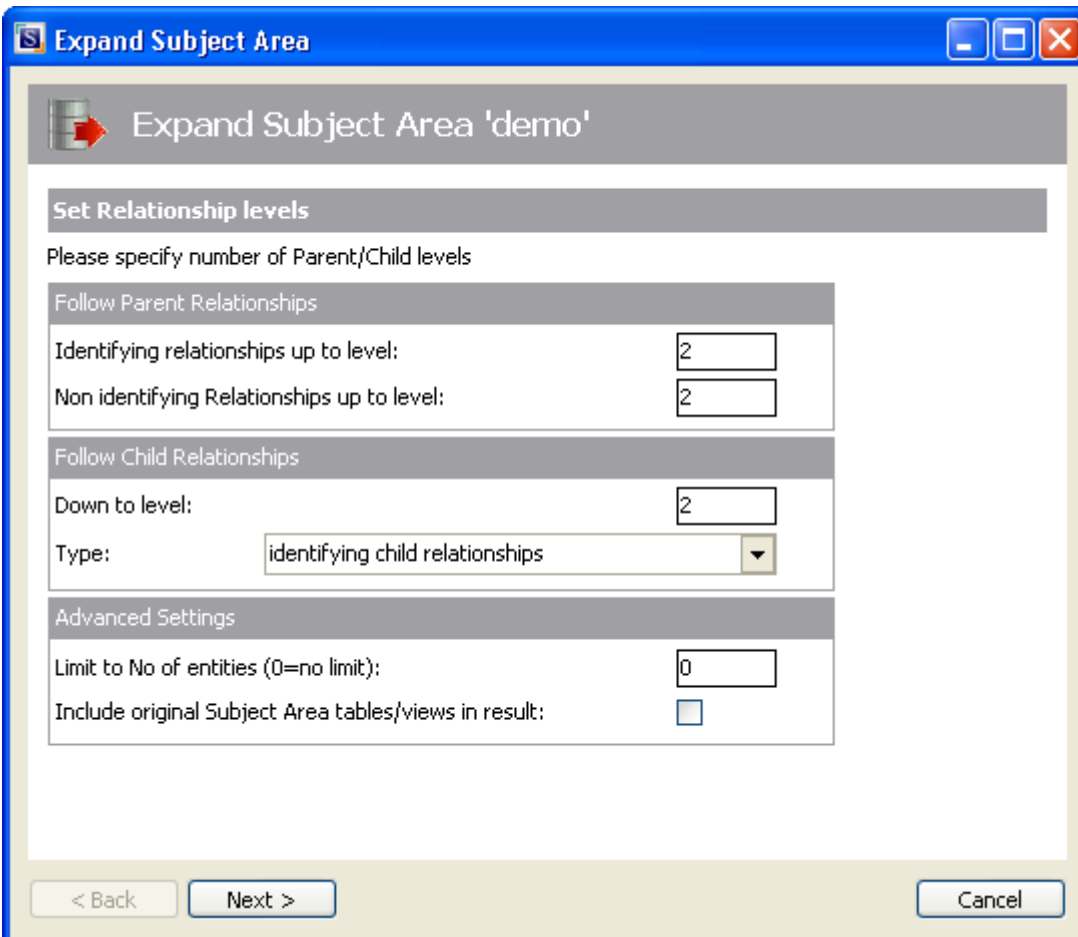
3.36 Expanding a Subject Area with related Parent or Child tables

The sections above have dealt with populating a Subject Area by finding tables and adding those tables to the Subject Area. The Subject Area itself can also be used to ‘expand’ the tables in the Subject Area by finding the related Parent and/or Child tables.

This feature uses the tables already in the Subject Area as ‘seed tables’. The user can then choose options that will generate a list of tables related to each table in the Subject Area to a user-specified level of Parent and/or Child tables. This generated list can then be reviewed and the tables either added to the starting Subject Area, or added to a separate Subject Area.

The expansion process is started by choosing the Subject Area containing the ‘seed’ tables and then clicking the  icon on the Subject Area tool bar.

This will display a screen for selecting the levels of related tables to be included.



Expand Subject Area

Expand Subject Area 'demo'

Set Relationship levels

Please specify number of Parent/Child levels

Follow Parent Relationships

Identifying relationships up to level:

Non identifying Relationships up to level:

Follow Child Relationships

Down to level:

Type:

Advanced Settings

Limit to No of entities (0=no limit):

Include original Subject Area tables/views in result:

< Back Next > Cancel

Specifying levels of tables to be included in a Subject Area expansion

Possible Settings are: -

- Follow Parent Relationships. This option will include any tables that have 'Parent' relationships to the tables in the Subject area chosen. For each of the two options available, the level number dictates how many generations of 'ancestors' to include. '1' indicates direct parent ancestors. '2' would indicate parents of the parents and so on. The two further options within this are:
 - Identifying relationships up to level: includes those relationships where the primary key fields of the 'parent' table form part of the primary key of the child table
 - Non Identifying relationships up to level: includes those relationships where the primary key fields of the 'parent' table do not form part of the primary key of the child table
- Follow Child Relationships: - This option will include any tables that have 'Child' relationships to the tables in the subject area. This option is further qualified by the next option of 'Type'.

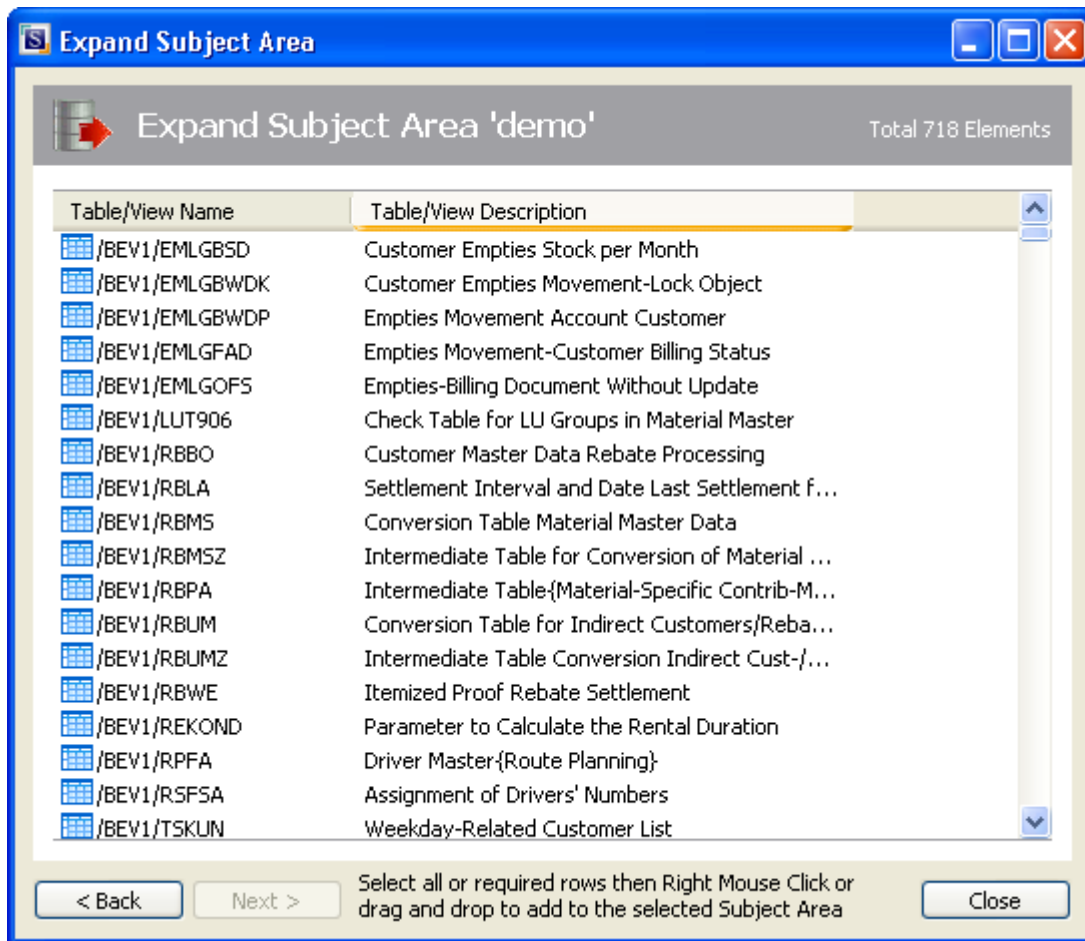
Type – this determines the scope of the 'child' related tables to be included. Possible values are:

- All child relationships
- Identifying only child relationships - only includes 'child' tables where the primary key fields of the 'parent' table form part of the primary key of the child table.

Limit To: The Maximum Number of Entities to be assembled. '0' denotes no limit.

Include original Subject Area tables/views in result: The set of tables in the Subject Area that are used as the basis of finding related tables will also be included in the result set of this option is selected.

After setting the Relationship Levels as described above, clicking the 'Next' button will start the process of assembling the related table list. The resulting set of tables are then displayed.

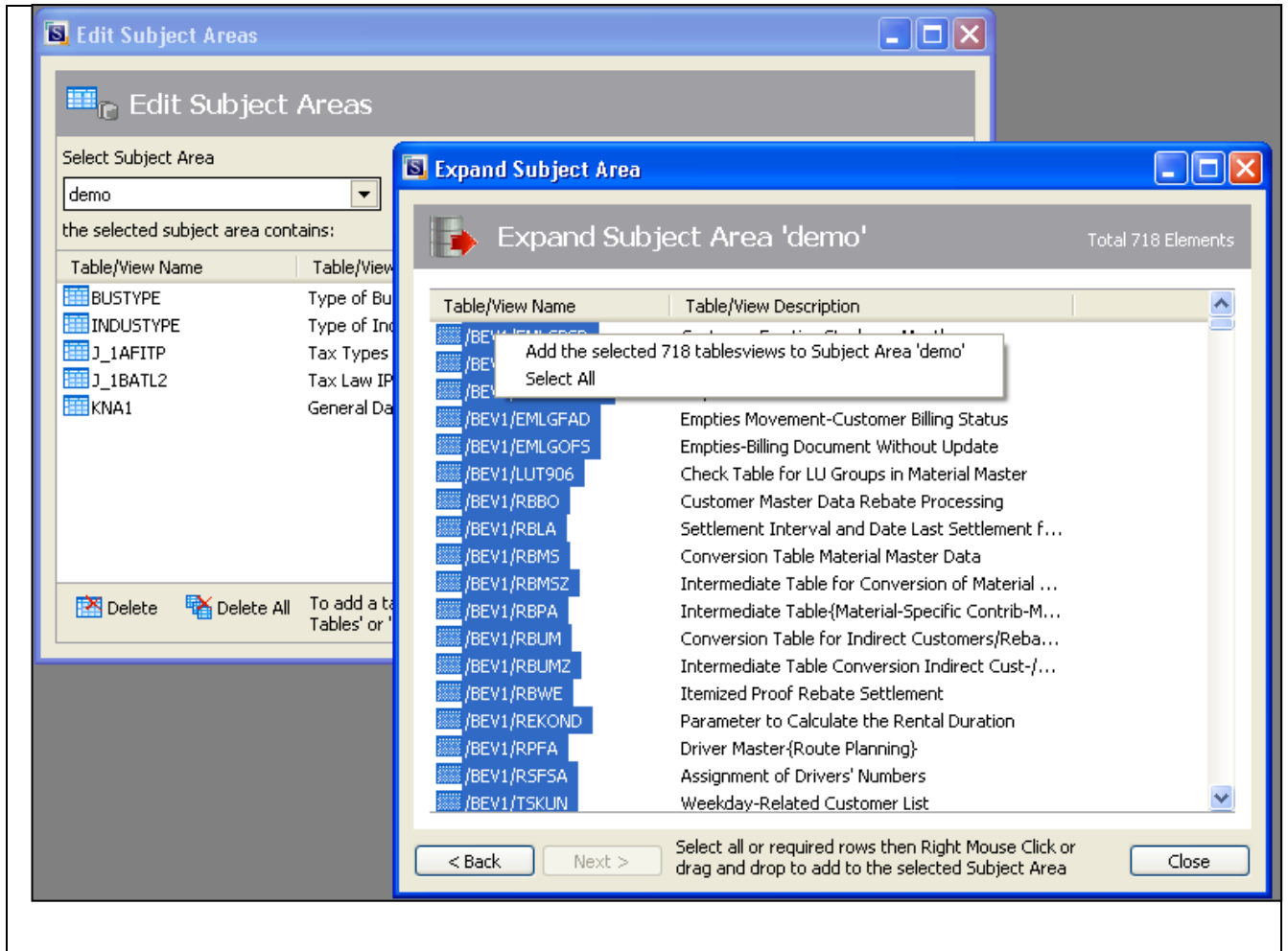


Result set from using the Expand Subject Area feature

The number of tables in the list is displayed at the top right of the screen.

From this screen the options for the user can be:

- Clicking the 'Back' button to refine the selection criteria to produce a different list of tables
- Clicking the 'Close' button to terminate the process
- Selecting rows from the result set and adding these to the original Subject Area or a different Subject Area.



Using the Right Mouse Click menu to select and then add the relationships to a Subject Area

3.37 Creating additional Relationships not extracted from the source Application

Saphir represents relationships from SAP by extracting the relationship definitions defined within the SAP Repository. This means that the relationships represented by Saphir are the same as those viewable by the ABAP Workbench Data Dictionary tool.

In the case of J.D. Edwards EnterpriseOne, there are no formal relationship definitions within the data dictionary.

The PeopleSoft data dictionary defines some relationships but not really enough to allow good data models to be derived.

Saphir users can use features within the product to add additional relationships to those found in the ERP data dictionary. Slightly different approaches have been taken for SAP, PeopleSoft Enterprise and J.D. Edwards EnterpriseOne, taking into account the characteristics of these three applications.

There are two possible methods for creating these additional relationships:

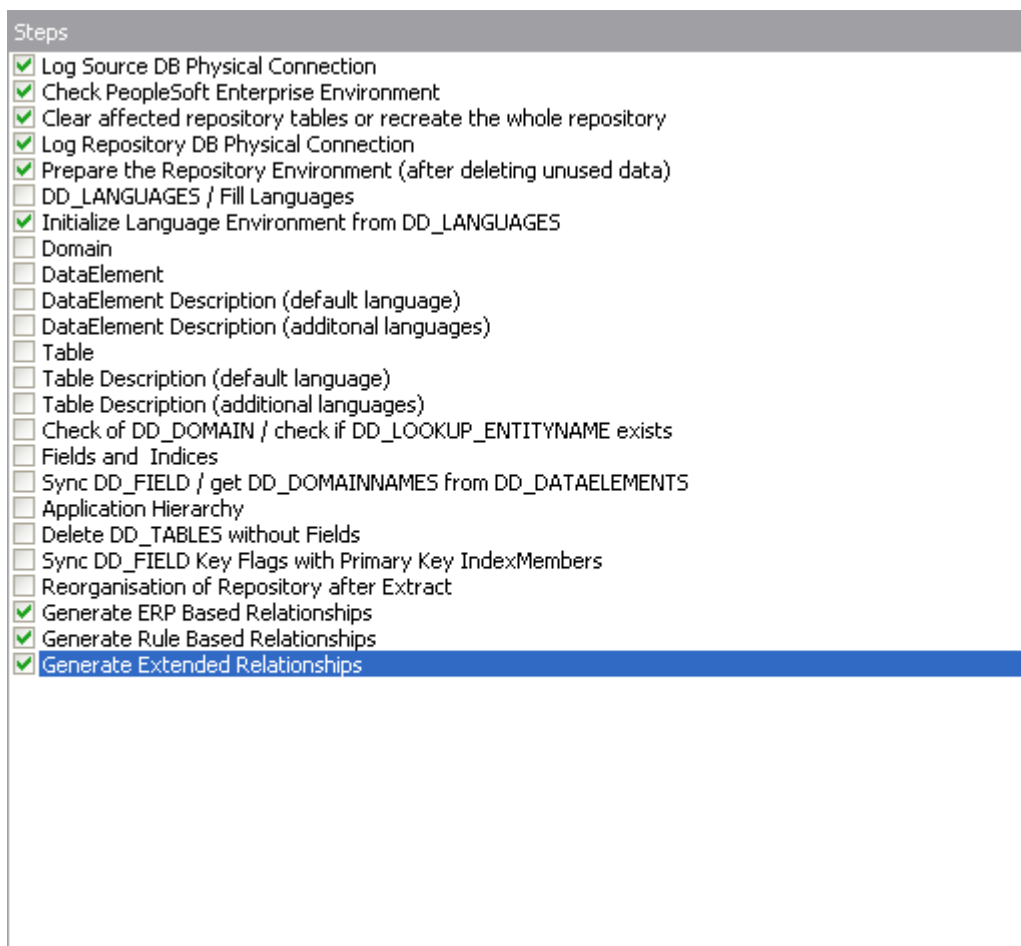
Creating Rules Based Relationship This method is available for PeopleSoft and JDEdwards repositories. Saphir uses a set of spreadsheet based relationships definitions to build additional relationships.

Creating Extended Relationships This method is available for SAP, PeopleSoft and JDEdwards repositories. Saphir infers additional relationships by looking for possible Primary Key and Foreign Key pairings.

Full details of these methods are described in Appendix B.

3.38 Creating additional Relationships

The creation of additional relationships is normally carried out as part of the application extraction process (see the Saphir ‘Getting Started Guide’, Chapter 3 – Extracting Metadata for more details.)



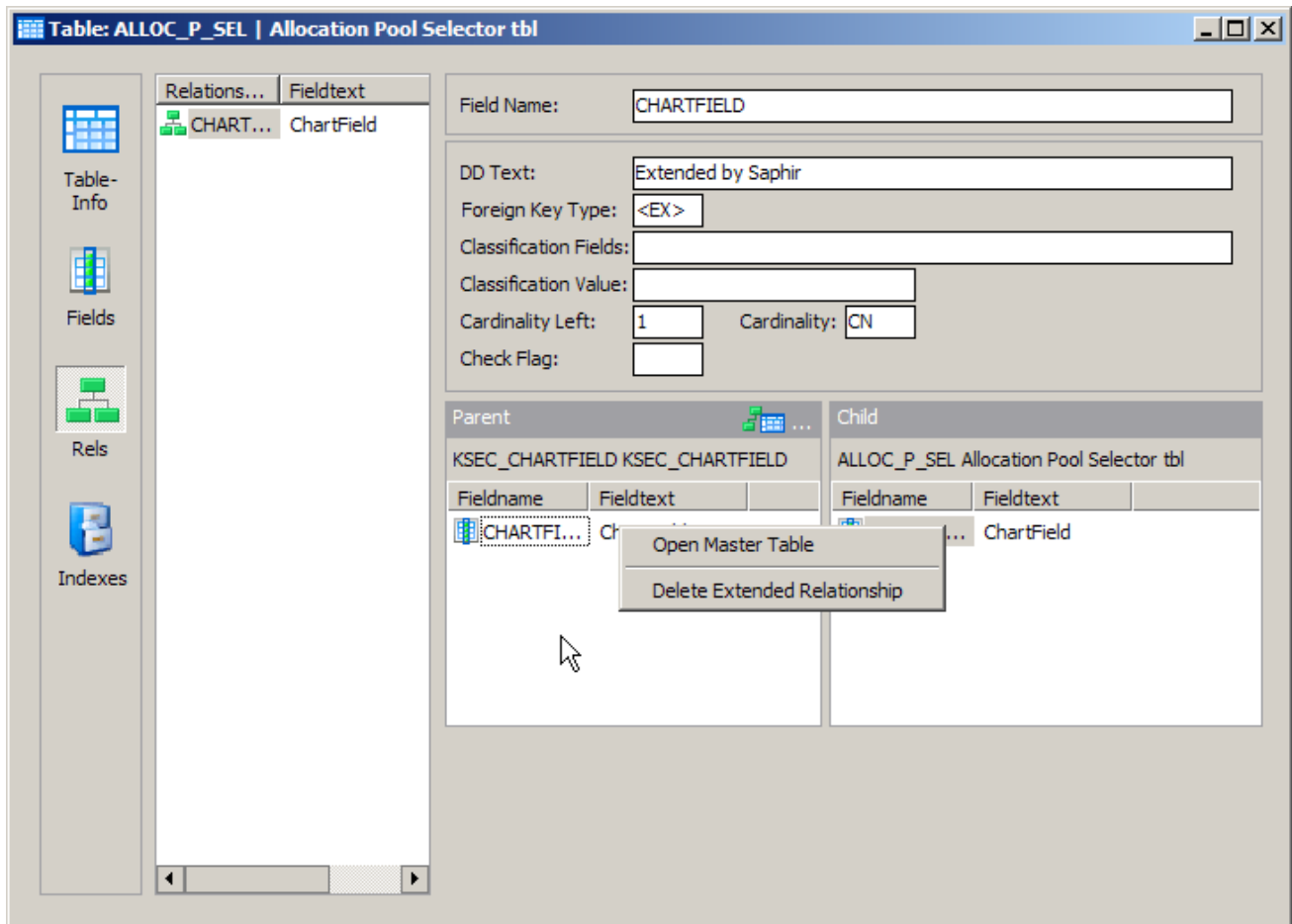
Setting the extraction options to only run the ‘Generate Relationships’ process

3.39 Reviewing generated Relationships

Saphir creates rules-based and extended relationships using the approach described above. Using such an approach, it may be possible that relationships are created that do not have a ‘real world’ existence. To accommodate this, a Delete feature is available to physically remove the relationship from the Saphir repository.

3.39.1 To delete a Rules Based or Extended Relationship

Locate the Relationship to be removed and open the Relationship details in the Table Details form. Right Mouse Click on the join conditions of the chosen relationship to show a pop-up form.



The Rules based/Extended Relationship Delete Pop-up

From the pop-up choose 'Delete Rules Based relationship' or 'Delete Extended Relationship'. It will be necessary to confirm the deletion to actually remove the relationship from the Saphir repository.

This 'Delete' feature is not enabled for relationships ERP-based relationships.

Note: Once a Rules Based or Extended Relationship has been removed from the repository, the only way to reinstate is to rerun the 'Generate Rules Based Relationship'/'Generate Extended Relationship' option again.


4 Exporting metadata from Saphir

Describes how to move metadata out of Saphir and into other environments

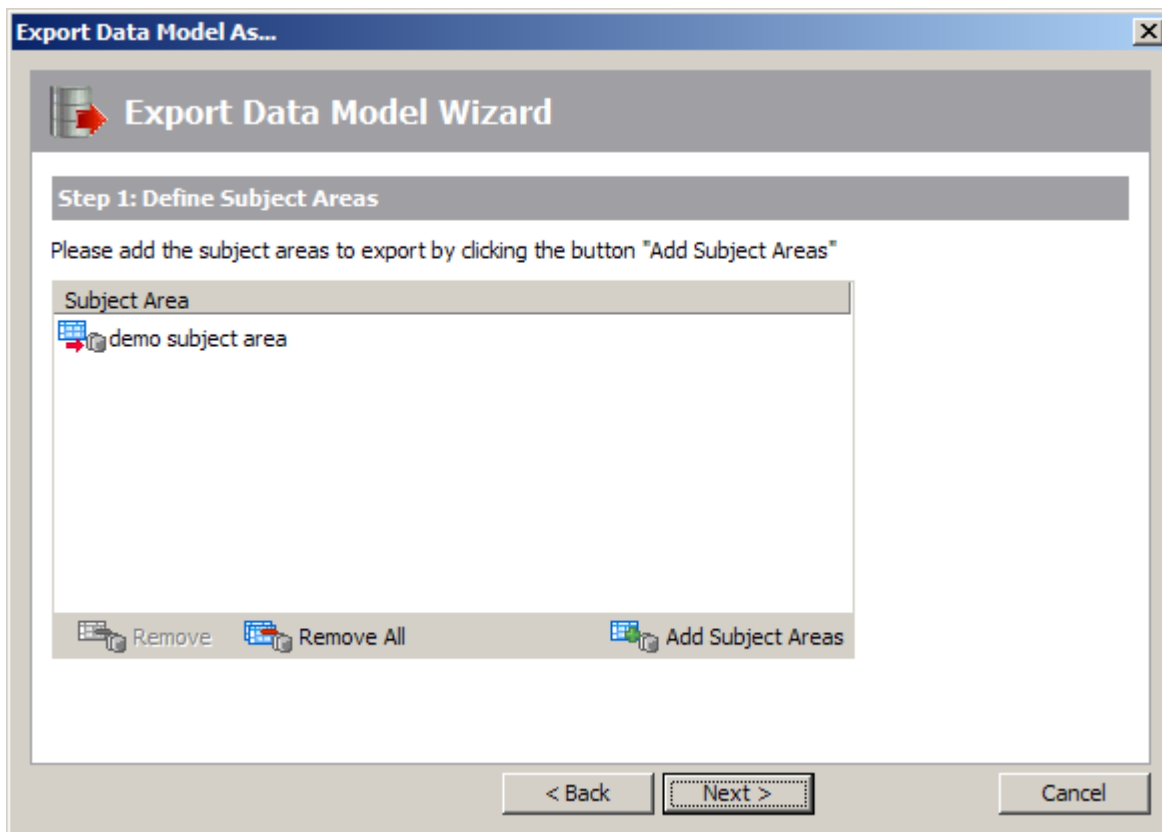
The exploration features described in the previous chapter are principally aimed at locating data items of interest from the set of tables available in the Saphir repository. There will often be a need to move subsets of the objects into other tools in use within the organization.

The vehicle for exporting metadata from Saphir is the Subject Area. Whilst the target tool that requires the metadata will differ in how it deals with the information provided by Saphir, the general procedures for exporting metadata are identical.

4.1 Getting ready to export

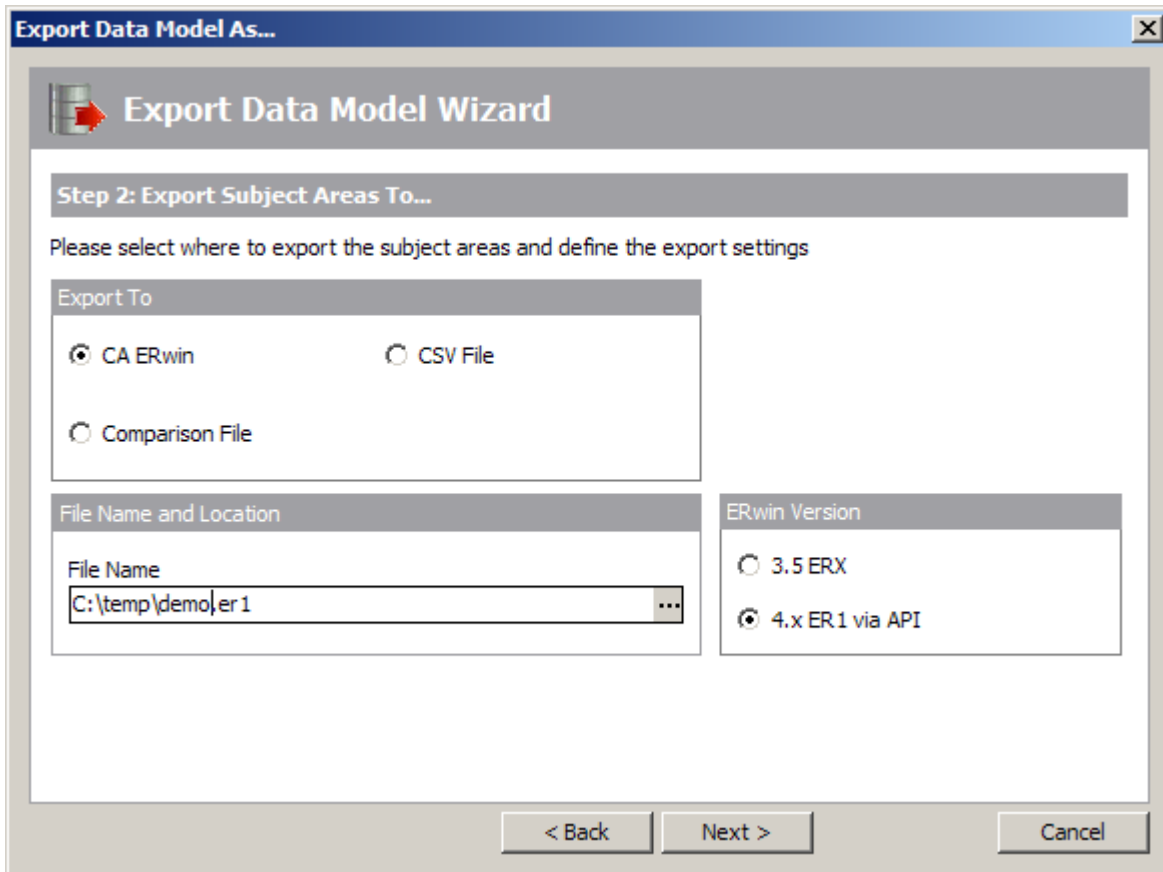
To begin the process of exporting the chosen data definitions to the tool of choice, click the  icon on the Saphir tool bar, or choose 'Export Data Model as...' from the File menu. This opens the Export Data Model Wizard. Click the 'Next' button to start the export steps.

The 'Define Subject Areas' form is for selecting one or more subject areas to be exported. Click the 'Add Subject Areas' button and then use drag and drop to add one or more subject areas you require. Click the 'Next' button to progress to the next stage of the export wizard.



The Export Wizard – specifying the subject areas required

The next form displayed is the place to choose the export format. The actual export formats displayed and the subsequent wizard steps will depend on the formats that your Saphir installation has been configured to use.



Export Wizard – choosing the export format

- ***Export to:*** This is for choosing the target for the Export information. The available options will depend upon the Saphir product license.
- ***File Name and Location:*** Use this control to specify a location and name for the export file.

Click the 'Next' button to move to the next stage of the Export wizard.

The export functionality is influenced by the 'Building Options' form, which is the next step of the export wizard.

Export Wizard Building Options

Possible Settings are: -

- Follow Parent Relationships. This option will include any tables that have 'Parent' relationships to the tables in the Subject area chosen. For each of the two options available, the level number dictates how many generations of 'ancestors' to include. '1' indicates direct parent ancestors. '2' would indicate parents of the parents and so on. The two further options within this are:
 - Identifying relationships up to level: includes those relationships where the primary key fields of the 'parent' table form part of the primary key of the child table
 - Non Identifying relationships up to level: includes those relationships where the primary key fields of the 'parent' table do not form part of the primary key of the child table
- Follow Child Relationships: - This option will include any tables that have 'Child' relationships to the tables in the subject area. This option is further qualified by the next option of 'Type'.

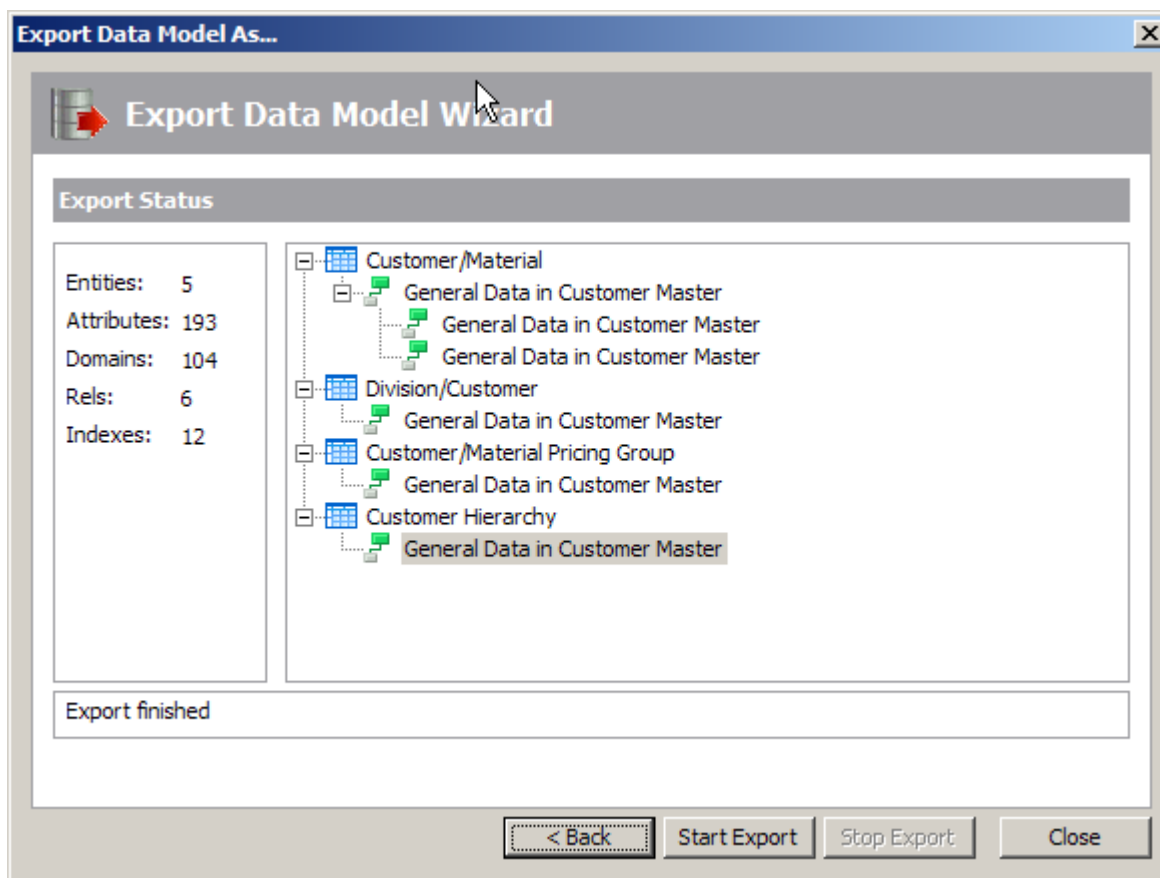
Type – this determines the scope of the 'child' related tables to be included. Possible values are:

- All child relationships
- Identifying only child relationships - only includes 'child' tables where the primary key fields of the 'parent' table form part of the primary key of the child table.

Limit To: - The Maximum Number of Entities to be exported. 0 denotes no limit.

Export using Physical Table Names (not Table Name): - This option only applies to PeopleSoft systems. Checking this option will use the PeopleSoft physical name for the export rather than the internal Table Name. An example of these two names is PS_PERSONAL_DATA (Physical Table Name), PERSONAL-DATA (Table Name).

Now click the 'Start Export' button to begin the export process. The export Status form is displayed to allow you to monitor the progress of the export. This shows a 'hierarchy' of tables being exported and a running total of the objects being exported. Once this process has completed, the exported information will be available for use.



Export Wizard – Export Status

4.2 The CSV export format

Whilst the available Export formats may vary depending upon the Saphir license agreement, one Export Format is always present and that is the CSV (Comma Separated Values) Format.

This is a proprietary, text-based file, aimed at providing a means to export metadata from Saphir for any third party tool to access.

The CSV format includes details of Tables, Columns and Relationships and is in a self-documenting format.

```

<TABLES>
TABLE_OBJECT_ID,PHYSICAL_NAME,LOGICAL_NAME,IS_VIEW,IS_POOL,POOLTABLE,POOLDES
C
0,MARA,Material Master  General Data,0,0,,
<END_TABLES>

<COLUMNS>
COLUMN_OBJECT_ID,TABLE_OBJECT_ID,PHYSICAL_NAME,LOGICAL_NAME,IS_PK,IS_FKEY,IS
_NULLABLE,FULLSQLTYPE,LEN,DEC,SQLTYPE,DOMAIN_DATATYPE,POOLEXPR,POOLDLLFLDNR
10001,0,MANDT,Client,1,0,0,VARCHAR(3),3,0,VAR,CLNT,,
10002,0,MATNR,Material,1,0,0,VARCHAR(18),18,0,VAR,CHAR,,
10003,0,ERSDA,Created on,0,0,1,CHAR(8),8,0,CHAR,DATS,,
10004,0,ERNAM,Created by,0,0,1,VARCHAR(12),12,0,VAR,CHAR,,
10005,0,LAEDA,Last change,0,0,1,CHAR(8),8,0,CHAR,DATS,,
10006,0,AENAM,Last changed by,0,0,1,VARCHAR(12),12,0,VAR,CHAR,,
10007,0,VPSTA,Compl  maint  status,0,0,1,VARCHAR(15),15,0,VAR,CHAR,,

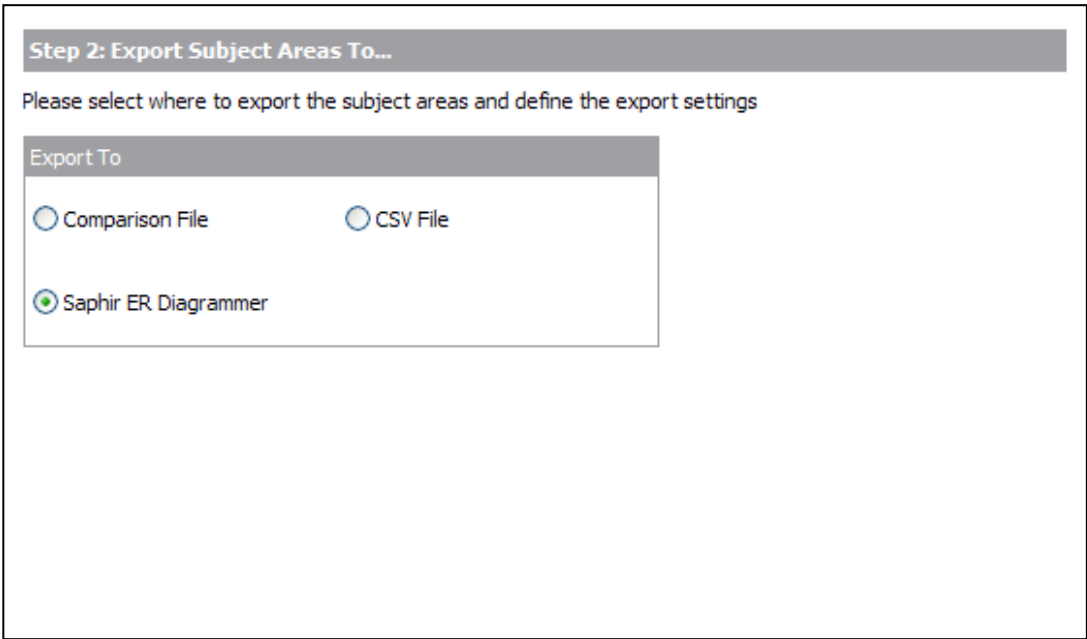
```

Sample CSV file output

4.3 Exporting to the Saphir ER Diagrammer

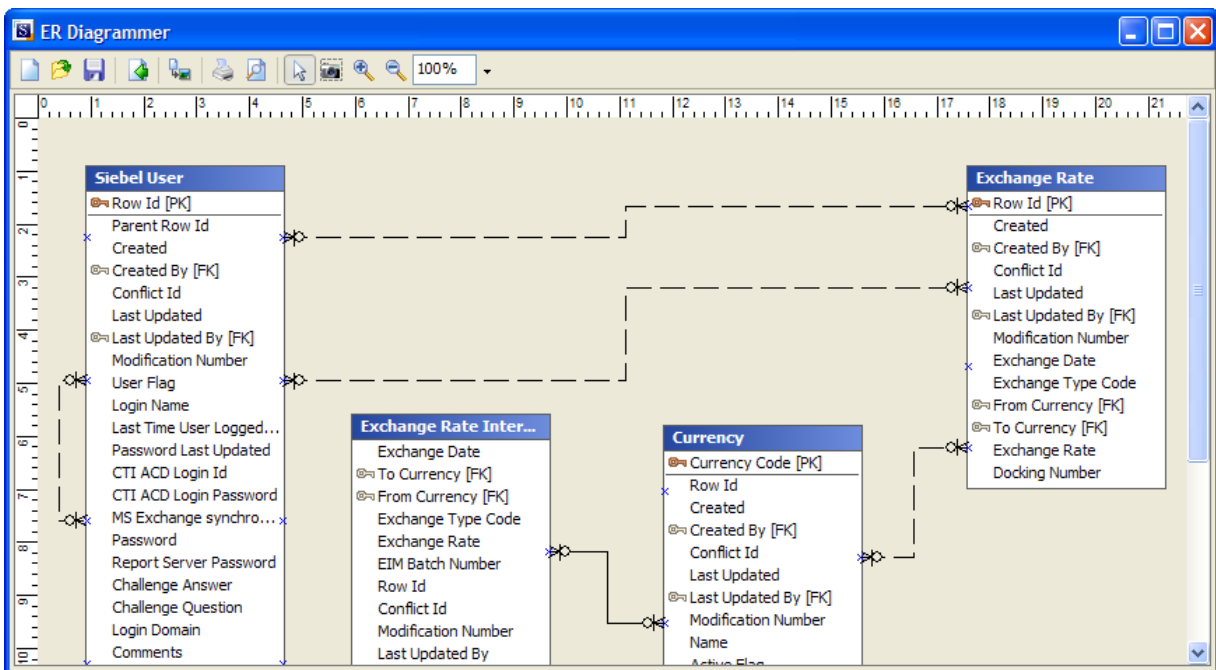
One of the optional export formats available with the product is Saphir’s own diagramming environment, ER Diagrammer. This provides a simple method for representing the chosen tables as a datamodel.

To create a diagram in ER Diagrammer, use the Export Wizard, as described above, choosing ‘Saphir ER Diagrammer’ as the Export type.



Choosing the ER Diagrammer export format











Once the export process is completed, the diagram will appear as a new window within the Saphir environment.



The ER Diagrammer window

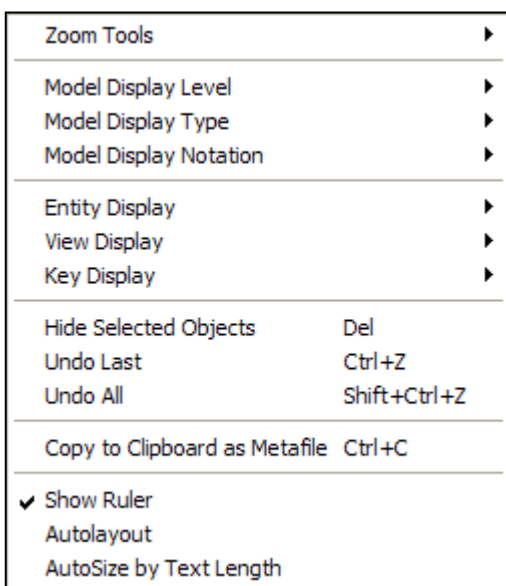
4.3.1 The ER Diagrammer toolbar

ER Diagrammer has its own toolbar. The available options are described in the table below.

Tool Button	Tool Button Name	Details
	Open diagram	Open an existing diagram, saved in ER Diagrammer
	Save diagram	Save the diagram
	Export diagram as image	Export the diagram in bitmap or Windows metafile format
	Print	Print the current diagram
	Print Preview	Show how the model will look when printed
	Select Tool	Switch to the Select tool for selecting objects on the diagram
	Snapshot Tool	After selecting this, click on the diagram and select an area to be copied to the clipboard
	Zoom In	Increase the magnification level for the diagram
	Zoom out	Decrease the magnification level for the diagram
	Set zoom level	Enter a percentage scale for zooming the diagram, or select one of the preset levels using the drop down list.

4.3.2 The ER Diagrammer Right Mouse Click Menu

A right mouse click on the diagram will show a pop-up menu with a range of options for refining the model display.



ER Diagrammer Right Mouse Click menu

This menu is context sensitive. All available options are summarized in the following table:

Menu	Sub-menu	Details
Zoom tools	Zoom In	Changes the cursor to the 'Zoom in' tool.
	Zoom Out	Changes the cursor to the 'Zoom out' tool.
	Fit Model	Fits the diagram into the available ER Diagrammer work space
	Fit Selection	Fits the diagram to encompass selected objects. If no objects are selected, the behaviour is the same as for 'Fit Model'
Model Display Level	Entity	Changes the diagram to display only Entity names (i.e. no Attributes are displayed)
	Primary Key	Changes the diagram to display only Primary Key attributes
	Primary and Foreign Keys	Changes the diagram to display only Primary and Foreign Key attributes
	All Attributes	Changes the diagram to display all Attributes
Model Display Type	Logical	Display Logical Entity and Attribute names on the diagram
	Physical	Display Physical Entity and Attribute names on the diagram
	Logical/Physical	Display both Logical and Physical Entity and Attribute names on the diagram
Model Display Notation	Information Engineering	Use Information Engineering for the model notation
	IDEF1X	Use IDEF1X for the model notation
Entity Display	Domain	For each Entity in the model, show the Domain name of each Attribute
	Datatype	For each Entity in the model, show the Data type of each Attribute
View Display	Datatype	For each View in the model, show the Data type of each Attribute
	Null Option	For each View in the model, show the Nullability of each Attribute
	Domain	For each View in the model, show the Domain name of each Attribute
	Expression	For each View in the model, where an Attribute is a calculated field, show the Expression for that field
Key Display	Primary Key Designator	Show the Primary Key Designator ('PK') for each Primary Key Attribute

	Foreign Key Designator	Show the Foreign Key Designator ('FK') for each Foreign Key Attribute
	Primary Key Icon	Show the Primary Key Icon for each Primary Key Attribute
	Foreign Key Icon	Show the Foreign Key Icon for each Foreign Key Attribute
Hide Selected Objects		Hide objects on the diagram, previously selected using standard Windows selection techniques (e.g. Shift Click on each object)
Undo Last		Undo the most recent 'Hide' activity
Undo All		Undo all 'Hide' activities
Copy to Clipboard as Metafile		Copy the diagram to the Windows Clipboard (e.g. for subsequent pasting into a Word Document)
Show Ruler		Toggle the diagram ruler
Autolayout		Redraw the Diagram taking account of any display changes
Autosize by Text Length		Resizes the Entity boxes based upon the length of the Entity name.

5 Comparing metadata

Describes how to use the Saphir compare feature to identify differences between subject areas from different repositories

This chapter describes features for comparing metadata from two different Saphir repositories. The two systems might be different release levels, or different installations.

The feature requires the user to export one or more Saphir subject areas into a special comparison file format for each of the systems to be compared. The comparison function then takes these comparison files and reports the differences via a text-based comparison report.

Two Repositories will need to be defined for the two differing sets of metadata before the comparison can take place (see Chapter 2 – ‘The Repository Manager’ for details of configuring repositories).

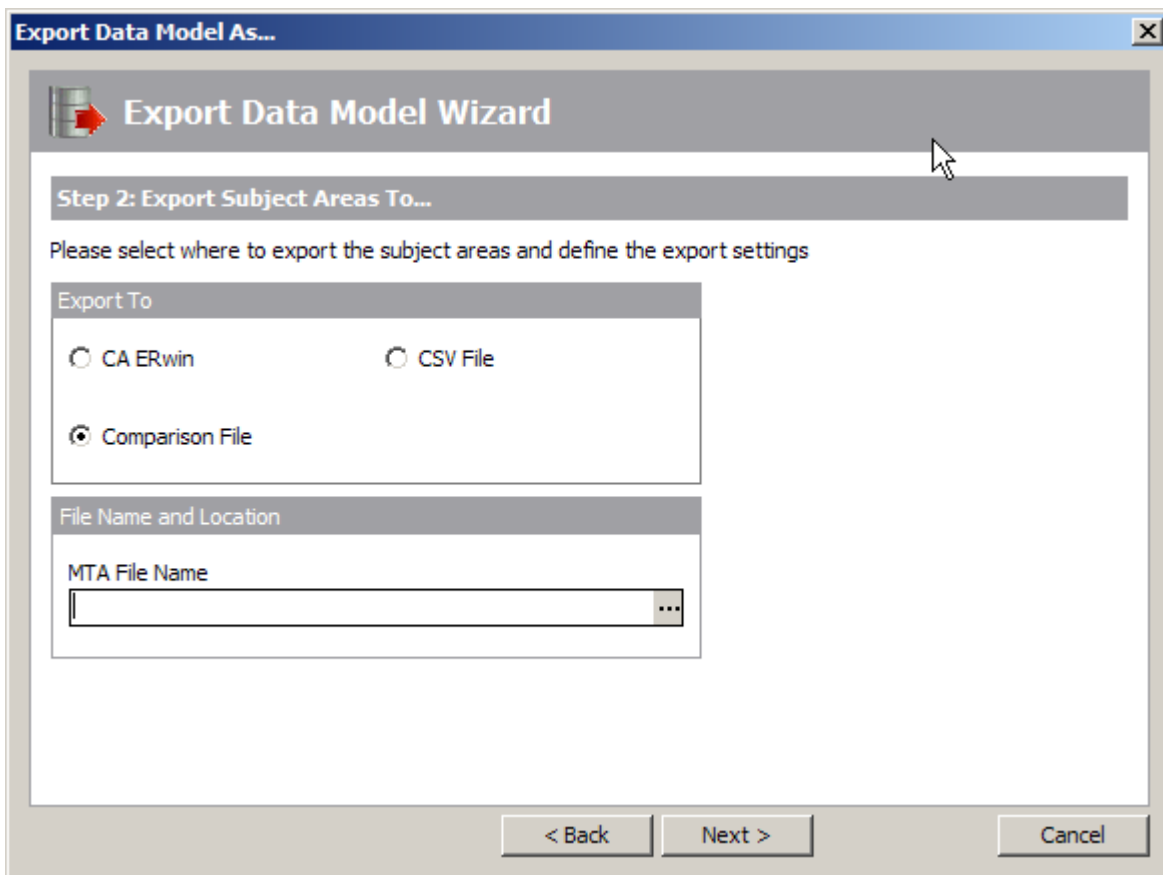
5.1 Creating a Comparison File

One of the ‘Export To’ radio buttons on the ‘Export Wizard’ is ‘Comparison File’. Selection of this will create a special comparison file for use by the Compare routines.

To create a comparison file, create and populate one or more Saphir subject areas as per normal. Use these subject areas in the Export Wizard and check ‘Comparison file’ as the export format.

A file selection form will request the name and location for a .MTA file which forms the Comparison Details file.

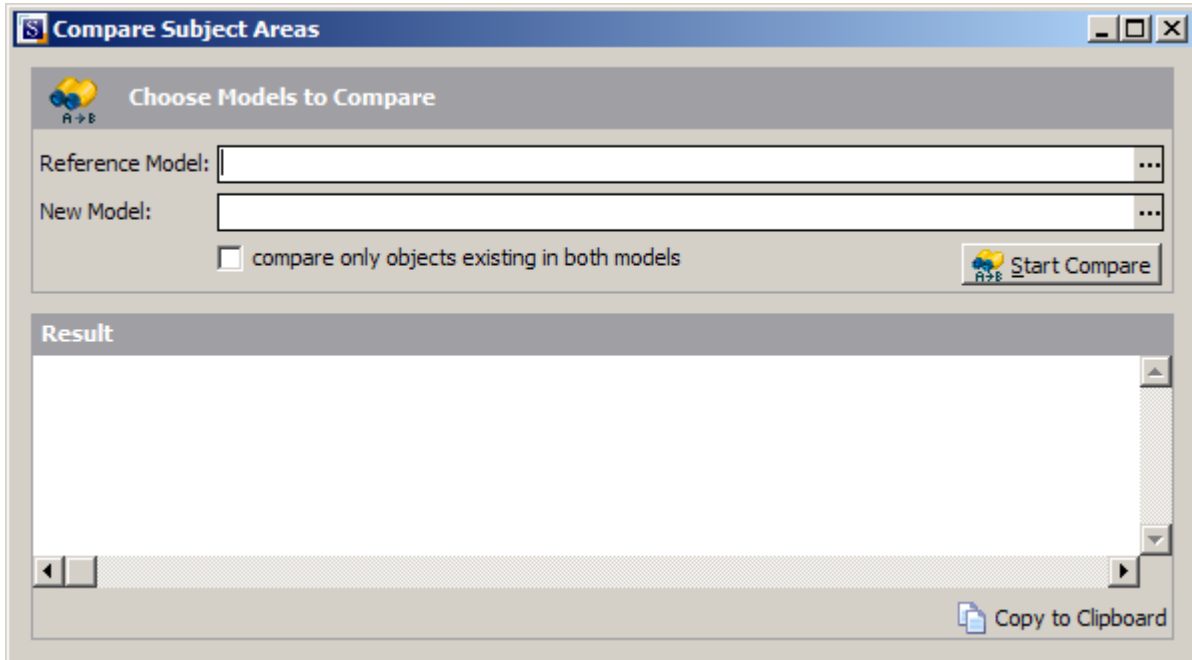
Now switch to another repository, define and export a similar subject area set. The two .MTA files will now be ready for comparison.



Choosing the Comparison File format in the Export Wizard

5.2 Performing the Subject Area comparison

The Comparison feature is accessed from the Tools Menu, 'Compare Subject Areas'.

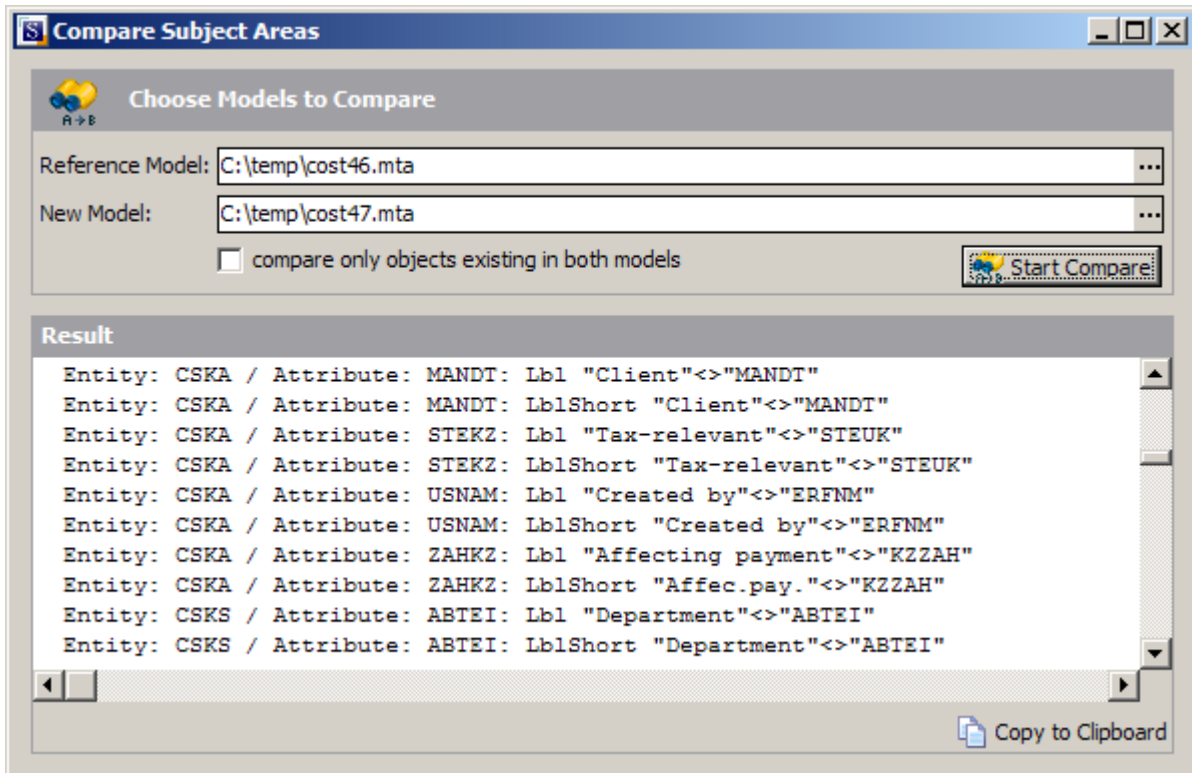


The Compare Subject Areas form

- Specify the two comparison MTA files to be compared using the file selectors at the top of the form.
- Check the 'compare only objects...' box to exclude any objects from the comparison that do not exist in both models.
- Click the 'Start Compare' button to perform the comparison.

5.3 Results of a comparison

The results of the comparison are displayed in the text window. Scroll through this to review the results, or click the 'Copy to Clipboard' button and then Paste into a Text Editor or Word Processing package.



Results of a Comparison

5.4 Analyzing the comparison report

The results shown in the Comparison Report will depend upon which of the two models is chosen as the 'Reference' model. The terms 'Reference Model' and 'New Model' are arbitrary and really only serve to differentiate the two models.

The report has two major sections. The first compares objects in the Reference Model with those in the New Model, and for each of the object types Domain, Attribute, Entity and Relationship, identifies where a given instance of these object types is not in the New Model, or has different properties to the New Model. Where the properties are different, the difference is identified.

The second report section examines the same set of object types looking for instances of those objects that are present in the Reference Model but no longer exist in the New Model.

6 Special Product Features for SAP BW

Describes features in Saphir that are specific to working with metadata from a SAP BW system

SAP BW (Also known as SAP BI) is a particular type of SAP system, largely orientated around the representation multi-dimensional reporting 'Cubes', known as InfoCubes. The main aim of the Saphir features for a SAP BW instance is to represent an InfoCube in the form of a 'Star Schema'.

Once the metadata from a SAP BW system has been loaded into Saphir, there are a number of BW-specific features that make the process of creating a Star Schema easier.

6.1 How Saphir represents InfoCubes

There are two popular approaches to the representation of multi-dimensional feature such as an InfoCube.

A Star Schema: A Fact Table and its related Dimensions.

A Snowflake: A Fact Table, associated Dimension tables and one or more levels of related Master tables (known as Characteristics in BW)

Saphir extracts and stores the appropriate BW tables to allow both these representations.

In addition, Saphir can display an InfoCube in both 'Logical' and 'Physical' forms. To achieve a Logical representation, a set of 'Virtual' tables are generated in the Saphir Repository. These virtual tables are created in order to bypass some of the complexities of the BW physical model.

6.2 The Model Overview and BW

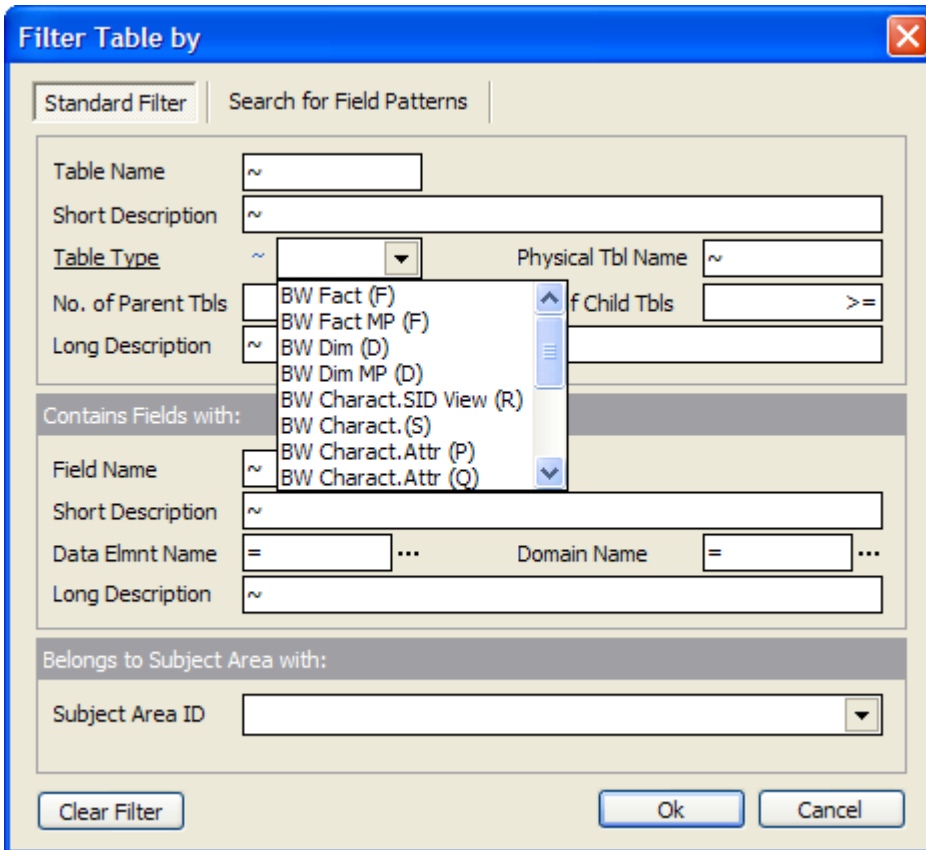
BW metadata appears in the Model Overview in the same manner as for any other system handled by Saphir with one exception, and that is the usage of Table Type.

The Table Type in a Saphir BW system describes the purpose of the table. Possible values are shown in the table below.

Table	Description
BW Fact (F)	Fact Table
BW Fact MP (F)	Fact Table for a Multi-Provider
BW Dim (D)	Dimension Table
BW DIM MP (D)	Dimension Table for a Multi-Provider
BW Charact.SID View (R)	A View table that acts as an intersection between a SID table and a Dimension
BW Charact. (S)	Characteristic SID table
BW Charact.Attr (P)	Table defining the attributes of a Characteristic
BW Charact.Attr (Q)	Table defining the attributes of a Time-dependent Characteristic
BW Charact.Attr (T)	Table defining the text attributes of a Characteristic
BW ODS (A)	An ODS table (Operational Data Store)
BW Logical Fact	A 'virtual' table that presents a Logical view of a Fact table
BW Logical Fact MP	A 'virtual' table that presents a Logical view of a Multi-Provider Fact table
BW Logical Dim	A 'virtual' table that presents a Logical view of a Dimension table
BW Logical Dim MP	A 'virtual' table that presents a Logical view of a Multi-Provider Dimension table
BW Logical Charact.	A 'virtual' table that presents a Logical view of a Characteristic table

6.2.1 Using Advanced Search to select BW Table types

The Advance Search feature ‘Standard filter’ tab (see Chapter 3 for more details), has a Table Type dropdown list that, for a BW system, displays the possible Table Types listed in the table above.



Advanced Search showing BW Table Types

The Table Type selection can be used in combination with any of the other search features to limit the range of tables displayed in the Model Overview.

6.3 The Application Hierarchy and BW

There are two Application Hierarchies created in Saphir for BW. In Both cases the nodes of the tree structure are InfoAreas (An InfoArea is a BW concept for grouping together objects).

The two hierarchies are:

Logical Info.Area Tree This tree shows the hierarchy of InfoAreas with the ‘virtual’ Fact tables (FV prefix) and ODS tables as the lowest node level.

Physical Info.Area Tree This tree shows the hierarchy of InfoAreas with the ‘physical’ Fact tables (F prefix) and ODS tables as the lowest node level.

Both hierarchies will show identical sets of InfoAreas, and in both cases, the only tables represented in the hierarchy are Fact tables and ODS tables.

6.3.1 Choosing which Hierarchy to Use

The purpose of the two hierarchies for BW is to aid in the location of the Fact table that will be the focus of the required model. If the model is to show a ‘physical’ representation of a cube, with all the tables that are involved, then the Physical InfoArea Tree is the one to use.

If the model is to be a ‘logical’ representation of a cube, then Logical InfoArea Tree would be the start point.

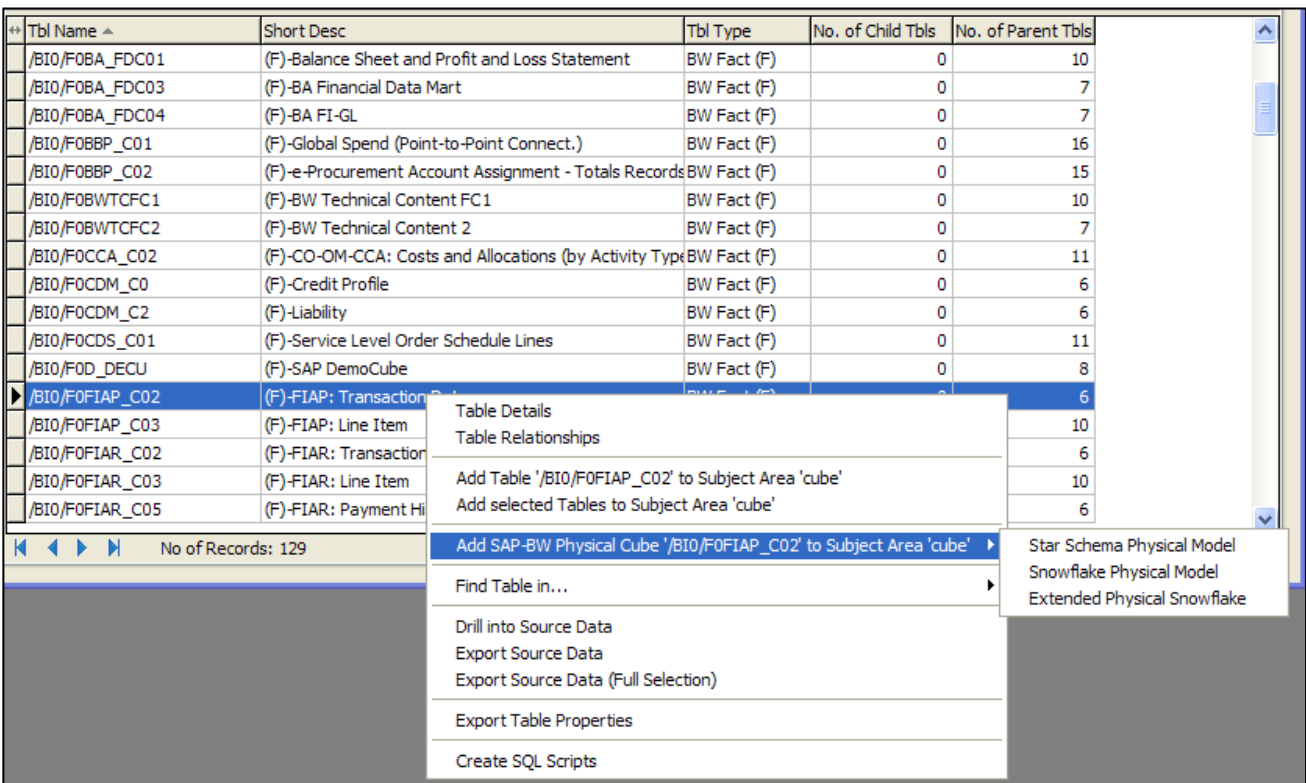
6.4 Right Mouse Click Options for BW Repositories

Special Right Mouse Click (RMC) options are available for Saphir BW Repositories. These RMC options are only available when a Subject Area is open.

There are two areas where these RMC options are available.

6.4.1 RMC Options from the Model Overview

Choosing to RMC on a Fact (‘Physical’ Fact) table in the Model Overview when a Subject Area is open will display a popup menu that includes the option ‘Add SAP-BW Physical Cube <cube name> to Subject Area <subject area name>’



RMC Options for a Fact table on the Model Overview

Clicking on this option displays a subsidiary menu with three entries. These control which tables will be added to the Subject Area. The three options are:

- Star Schema Physical Model The Fact and associated Dimension tables are added
- Snowflake Physical Model The Fact, Dimensions and all associated tables needed to include the related Characteristic tables are added
- Extended Physical Snowflake As for the Snowflake Model, but in addition, any Characteristic table 'parent' tables (Characteristic tables related to Characteristic tables) are also included

A similar set of options exist when selecting an RMC on a 'Logical' Fact Table.(FV table):

- Star Schema Logical Model The Fact and associated Dimension tables are added
- Snowflake Logical Model The Fact, Dimensions and associated Characteristic tables are added
- Extended Logical Snowflake As for the Snowflake Model, but in addition, any Characteristic table 'parent' tables (Characteristic tables related to Characteristic tables) are also included

6.4.2 RMC Options from the Application Hierarchy

When Right Mouse Clicking on a Logical or Physical Fact Table in the Application Hierarchy, similar options are available to those described for the Model Overview above.

Appendix A. The Saphir Meta Model

Below are descriptions of the Tables that make up the Saphir Meta Model. Each table is briefly described, the attributes listed and comments provided where applicable.

Table Name: DD_DATAELEMENT

Definition: A data element is a definition of an attribute, independent of an entity

Table Column Name	Table Column Comment
DD_DATAELEMENTNAME	Data Element Name
DD_DOMAINNAME	Parent Domain Name
DD_ORIGIN	Possible Values – E –from ERP, GE – Generic Element (generated by Saphir)
TEMP_EXTRACT_INFO1	
TECH_DESC	

Table Name: DD_DATAELEMENT_DESC

Definition: The descriptive text for a Data Element

Table Column Name	Table Column Comment
DD_DATAELEMENTNAME	Data Element Name
DD_LANGUAGE_ID	Language Code
SHORT_DESC	
LOGICAL_UNIQUENAME	
LONG_DESC	

Table Name: DD_DOMAIN

Definition: A Domain is a generic definition of an Attribute type

Table Column Name	Table Column Comment
DD_DOMAINNAME	Domain Name
DD_DATATYPE	Logical Datatype
DD_DATATYPE_ERP	ERP-specific Datatype
DATA_LENGTH	Datatype length
DATA_DECIMALS	Datatype Decimals
DD_LOOKUP_ENTITYNAME	Name of the associated Entity Lookup table
DD_ORIGIN	Possible Values – E –from ERP, GD – Generic Domain (generated by Saphir)
TEMP_EXTRACT_INFO1	
TECH_DESC	

Table Name: DD_DOMAIN_DESC

Definition: The descriptive text for a Domain

Table Column Name	Table Column Comment
DD_DOMAINNAME	Domain Name
DD_LANGUAGE_ID	Language Code
SHORT_DESC	
LOGICAL_UNIQUENAME	
LONG_DESC	

Table Name: DD_DOMAINVALUE

Definition: A set of fixed values associated with a Domain

Table Column Name	Table Column Comment
DD_DOMAINNAME	Domain Name
DD_DOMAINVALUE_KEY	Domain Value Key
POSIT	
TECH_DESC	

Table Name: DD_DOMAINVALUE_DESC**Definition:** The descriptive text for a Domain value

Table Column Name	Table Column Comment
DD_DOMAINNAME	Domain Name
DD_DOMAINVALUE_KEY	Domain Value Key
DD_LANGUAGE_ID	Language Code
SHORT_DESC	
LONG_DESC	

Table Name: DD_FIELD**Definition:** A Field is an attribute belonging to a Table

Table Column Name	Table Column Comment
DD_TABLENAME	Table Name
DD_FIELDNAME	Field Name
POSIT	
KEY_FLAG	Indicates a Primary Key field – Possible values are ‘Y’ or ‘N’
MANDATORY	Indicates if Field is Mandatory – Possible values are ‘Y’ or ‘N’
DD_DATAELEMENTNAME	Parent Data Element Name
DD_DOMAINNAME	Parent Domain Name
DD_PARENT_TABLENAME	Where the Fields is a Foreign Key, the Parent Table Name
DD_PARENT_FIELDNAME	Where the Fields is a Foreign Key, the Parent Field Name
TEMP_EXTRACT_INFO1	
TEMP_EXTRACT_INFO2	
TECH_DESC	

Table Name: DD_FIELD_DESC**Definition:** The descriptive text for a Field

Table Column Name	Table Column Comment
DD_TABLENAME	Table Name
DD_FIELDNAME	Field Name
DD_LANGUAGE_ID	Language Code
SHORT_DESC	
LOGICAL_UNIQUENAME	
LONG_DESC	

Table Name: DD_INDEX**Definition:** An Index is a definition of a database index for a Table

Table Column Name	Table Column Comment
DD_TABLENAME	Table Name
DD_INDEXNAME	Index Name
DD_INDEXTYPE	The Index Type – A for Alternate, I for Inversion Entry, P for Primary Key Index
TECH_DESC	

Table Name: DD_INDEX_DESC**Definition:** The descriptive text for an Index

Table Column Name	Table Column Comment
DD_TABLENAME	Table Name
DD_INDEXNAME	Index Name
DD_LANGUAGE_ID	Language Code
SHORT_DESC	
LONG_DESC	

Table Name: DD_INDEXITEM**Definition:** An Index Item is a definition of a field that belongs to an Index

Table Column Name	Table Column Comment
DD_TABLENAME	Table Name
DD_INDEXNAME	Index Name
POSIT	
DD_FIELDNAME	
DESCENDING	Indicates if Index Item is a Descending Index Item – possible values are ‘Y’ or ‘N’

Table Name: DD_LANGUAGE**Definition:** A definition of a Language for descriptive text fields

Table Column Name	Table Column Comment
DD_LANGUAGE_ID	Language Code
SHORT_DESC	

Table Name: DD_RELATIONSHIP**Definition:** A Relationship defines a link between two tables

Table Column Name	Table Column Comment
DD_RELATIONSHIP_ID	Relationship Id
DD_PARENT_TABLENAME	Parent Table Name
DD_CHILD_TABLENAME	Child Table Name
DD_RELATTYPE	The Relationship Type. I – for Identifying, N for Non-Identifying
DD_CARDINALITY	The Relationship Cardinality. Possible values are: ZM - Zero, one or more 1M - One or more Z1 - Zero or 1 E1 - Exact 1
DD_ORIGIN	The origin of the Relationship. Possible values are ‘E’ – from the ERP, ‘XR’ – Extended relationship, ‘RR’ – Rules Based relationship
TEMP_EXTRACT_INFO1	
TECH_DESC	

Table Name: DD_RELATIONSHIP_DESC**Definition:** The descriptive text for a Relationship

Table Column Name	Table Column Comment
DD_RELATIONSHIP_ID	Relationship Id
DD_LANGUAGE_ID	Language Code
SHORT_DESC	
LONG_DESC	

Table Name: DD_RELATIONSHIPITEM**Definition:** A relationship Item is a definition of a Field that belongs to a Relationship

Table Column Name	Table Column Comment
DD_RELATIONSHIP_ID	Relationship Id
POSIT	
DD_PARENT_TABLENAME	The Parent Table for the Relationship
DD_PARENT_FIELDNAME	The Parent Field for the Relationship Item
DD_CHILD_TABLENAME	The Child Table for the Relationship
DD_CHILD_FIELDNAME	The Child Field for the Relationship Item
DD_CHILD_FIELDVALUE_FIXED	Where the Relationship Item is to a 'fixed' value, the fixed value
TECH_DESC	

Table Name: DD_SUBJECTAREA**Definition:** A Subject Area is a grouping of Tables and/or Views

Table Column Name	Table Column Comment
DD_SUBJECTAREA_ID	Subject Area Id
DD_SUBJECTAREANAME	

Table Name: DD_SUBJECTAREA_TABLE**Definition:** An intersect table between a Subject Area and a Table

Table Column Name	Table Column Comment
DD_SUBJECTAREA_ID	Subject Area Id
DD_TABLENAME	Table Name

Table Name: DD_SUBJECTAREA_VIEW**Definition:** A n intersect table between a Subject Area and a View

Table Column Name	Table Column Comment
DD_SUBJECTAREA_ID	Subject Area Id
DD_VIEWTYPE	(For a future release of Saphir)
DD_VIEWNAME	View Name

Table Name: DD_TABLE**Definition:** A table is a definition of a database Base Table

Table Column Name	Table Column Comment
DD_TABLENAME	Table Name
DD_TABLETYPE	The Table Type – T – Transparent, P – Pool, C – Cluster (P & C values are only relevant to SAP)
PHYSICAL_TABLENAME	Physical Table Name
NUMBER_OF_PARENT_TABLES	
NUMBER_OF_CHILD_TABLES	
TEMP_EXTRACT_INFO1	
TEMP_EXTRACT_INFO2	
TECH_DESC	

Table Name: DD_TABLE_DESC

Definition: The descriptive text for a Table

Table Column Name	Table Column Comment
DD_TABLENAME	Table Name
DD_LANGUAGE_ID	Language Code
SHORT_DESC	
LOGICAL_UNIQUENAME	
LONG_DESC	

Table Name: DD_TREE

Definition: A definition of a Tree Type for the Application Hierarchy

Table Column Name	Table Column Comment
DD_TREE_ID	Tree Id
DD_ROOTNODE_ID	

Table Name: DD_TREE_DESC

Definition: The descriptive text for a Tree type

Table Column Name	Table Column Comment
DD_TREE_ID	Tree Id
DD_LANGUAGE_ID	Language Code
SHORT_DESC	

Table Name: DD_TREENODE

Definition: A definition of a Tree Node within the Application Hierarchy

Table Column Name	Table Column Comment
DD_TREE_ID	Tree Id
DD_TREENODE_ID	
DD_TREENODECLASS_ID	
HAS_CHILDNODES	Indicates if there are Nodes below current level – possible values are ‘Y’ or ‘N’
HAS_TREENODE_TABLES	Indicates if there are Nodes containing Tables associated with this Node – possible values are ‘Y’ or ‘N’
HAS_TREENODE_VIEWS	Indicates if there are Nodes containing Views associated with this Node – possible values are ‘Y’ or ‘N’
TEMP_EXTRACT_INFO1	
TEMP_EXTRACT_INFO2	

Table Name: DD_TREENODE_DESC

Definition: The descriptive text for a Tree Node

Table Column Name	Table Column Comment
DD_TREE_ID	Tree Id
DD_TREENODE_ID	Tree Node Id
DD_LANGUAGE_ID	Language Code
SHORT_DESC	

Table Name: DD_TREENODE_TABLE

Definition: An intersect between a Tree Node and a Table

Table Column Name	Table Column Comment
DD_TREE_ID	Tree Id
DD_TREENODE_ID	Tree Node Id
DD_TABLENAME	Table Name

Table Name: DD_TREENODE_VIEW

Definition: An intersect between a Tree Node and a View

Table Column Name	Table Column Comment
DD_TREE_ID	Tree Id
DD_TREENODE_ID	Tree Node Id
DD_VIEWTYPE	(For a future release of Saphir)
DD_VIEWNAME	View Name

Table Name: DD_TREENODECLASS

Definition: A classification of a Tree Node

Table Column Name	Table Column Comment
DD_TREE_ID	Tree Id
DD_TREENODECLASS_ID	Tree Node Class Id
ICON_ID	Indicates the type of icon to be used for this Tree Node Class
DELETEIFHASNOCHILD	Should this Tree Node type be deleted if there are no levels below it. Possible values are 'Y' or 'N'

Table Name: DD_TREENODECLASS_DESC

Definition: The descriptive text for a Tree Node Class

Table Column Name	Table Column Comment
DD_TREE_ID	Tree Id
DD_TREENODECLASS_ID	Tree Node Class Id
DD_LANGUAGE_ID	Language Code
SHORT_DESC	
DESC_SUFFIX	

Table Name: DD_TREESTRUCT

Definition: The link between a Parent and Child Node in a Tree

Table Column Name	Table Column Comment
DD_TREE_ID	Tree Id
DD_PARENTNODE_ID	Id of Parent Node
DD_CHILDNODE_ID	Id of Child Node
TEMP_EXTRACT_INFO1	

Table Name: DD_VIEW

Definition: Details of each View (a View can be a Database View, or an 'abstracted view')

Table Column Name	Table Column Comment
DD_VIEWTYPE	(For a future release of Saphir)
DD_VIEWNAME	View Name
TEMP_EXTRACT_INFO1	
TECH_DESC	

Table Name: DD_VIEW_DESC

Definition: The descriptive text for a View

Table Column Name	Table Column Comment
DD_VIEWTYPE	(For a future release of Saphir)
DD_VIEWNAME	View Name
DD_LANGUAGE_ID	Language Code
SHORT_DESC	
LOGICAL_UNIQUE_NAME	
LONG_DESC	

Table Name: DD_VIEWFIELD**Definition:** A View Field is an attribute of a View

Table Column Name	Table Column Comment
DD_VIEWTYPE	(For a future release of Saphir)
DD_VIEWNAME	View Name
DD_VIEWFIELDNAME	View Field Name
POSIT	
DD_VIEWFIELDTYPE	The View Field type. Possible values are: UK -Undefined TB – maps to a Table VW – maps to another View CL – Calculated Field
DD_TABLENAME	Table Name
DD_FIELDNAME	Field Name
DD_PARENT_VIEWTYPE	(For a future release of Saphir)
DD_PARENT_VIEWNAME	Where a View Field is based upon another View, the View Name of that Parent
DD_PARENT_VIEWFIELDNAME	Where a View Field is based upon another View, the View Field Name of that Parent
DD_DATAELEMENTNAME	Parent Data Element Name
TEMP_EXTRACT_INFO1	
TECH_DESC	

Table Name: DD_VIEWFIELD_DESC**Definition:** The descriptive text for a View Field

Table Column Name	Table Column Comment
DD_VIEWTYPE	(For a future release of Saphir)
DD_VIEWNAME	View Name
DD_VIEWFIELDNAME	View Field Name
DD_LANGUAGE_ID	Language Code
SHORT_DESC	
LOGICAL_UNIQUE_NAME	
LONG_DESC	

Appendix B. Adding Additional Relationships

Details of the Saphir features for creating additional relationships based upon a series of spreadsheet-based rules and inference rules

Saphir creates relationships for a PeopleSoft system by looking at the relationships defined in the PeopleSoft data dictionary. However, there are a number of relationships not explicitly defined in these tables. For a JDEdwards system, there are no relationships explicitly defined in the Data Dictionary.

For both of these environments, Saphir users can extend the relationships extracted from the ERP by defining relationship creation rules in the SaphirSettings.xls spreadsheet. Saphir refers to these relationships as 'Rule Based Relationships'.

In addition, Saphir has an inference process which can create relationships for SAP, PeopleSoft and JDEdwards. Saphir refers to these as 'Extended Relationships'.

The following sections describe these features in detail.

B.1 Understanding the PeopleSoft and JDEdwards rules sheets

The SaphirSettings.xls Excel spreadsheet is located in the Saphir installation folder (normally \Program Files\Silwood\Saphir 5\). There are two sheets in the spreadsheet for influencing the relationship creation process: PSoftRuleBasedRelationships for PeopleSoft and JDEDRuleBasedRelationships for JDEdwards. The PeopleSoft rules sheet has a layout as shown in the following example. The JDEdwards sheet has an identical layout.

	A	B	C	D	E	
1	ChildTableName	ChildFieldNames	ParentTableName	RuleNotActive	ExtRelGenParent	Remark
2	AAP_YEAR_GOALS		AAP_YEAR			
3	AAP_YEAR_JOBGRP		AAP_YEAR			
4	AAP_YEAR_JG_GLS		AAP_YEAR_JOBGRP			
5	VENDOR_ADDR		VENDOR		X	
6	VENDOR_ADDR_LNG	+EFFDT	VENDOR_ADDR	X		
7	VENDOR_ADDR_PHN		VENDOR_ADDR			
8	VENDOR_ADDR_TMP		VENDOR_ADDR			
9	VENDOR_CNTCT		VENDOR			
10	VENDOR_LOC		VENDOR			
11	VENDOR_LOC_TMP		VENDOR_LOC			
12	VENDOR_PAY		VENDOR_LOC			
13	VENDOR_PAY_TMP		VENDOR_PAY			
14	VENDOR_POLICY		VENDOR			
15	VENDOR_SF_TBL	SETID;VENDOR_ID;	VENDOR			
16	VENDOR_SF_TBL	EXT_ORG_ID;*	VENDOR			
17	EPPCM_CATG_HIER		EPPCM_CATEGORY			
18	EPPCM_CATG_HIER	EPPCM_PARPORTALNM;EPPCM_PARCATGID;	EPPCM_CATEGORY			

PeopleSoft Rules Sheet of SaphirSettings.xls

The spreadsheet columns are as follows:

- ChildTableName: The name of the Child table for the relationship.
- ChildFieldNames: See ‘Defining a Rule’ below for details of the possible values.
- ParentTableName: The name of the Parent table for the relationship.
- RuleNotActive: If blank, then the rule is active. If ‘X’ then the rule will be ignored.
- ExtGenRelParent Used by the Extended Relationship generation process (See ‘Influencing the Extended Relationship generation process for PeopleSoft and JDEdwards relationships’ below for details).
- Remark: A free-format comment area for entry of optional notes describing the rule

When the PeopleSoft or JDEdwards Extraction process is run (see ‘Extracting metadata from PeopleSoft Enterprise’ and ‘Extracting metadata from JDEdwards EnterpriseOne’ in the Saphir Getting Started Guide), if the user has elected to include Rules-based relationships, each entry in this sheet is processed and a relationship added (subject to the details being correct).

B.2 Special Considerations for PeopleSoft Relationships

Many PeopleSoft tables have fields EFFDT, EFFSEQ and SETID, which have particular purposes in the PeopleSoft architecture. Saphir will ignore these fields when building a relationship as they are not truly part of a logical relationship between tables.

B.3 Defining a Rule

To define a new rule, decide which tables the relationship is to be between. Then add a new row to the spreadsheet, enter the name of the Parent table in the ParentTableName and the name of the Child table in the ChildTableName. The content of the ChildFieldNames will depend upon the nature of the relationship. Possible values for ChildFieldNames are as follows:

Leave blank to have a relationship built matching all the Primary Key attributes of the Parent Table with correspondingly-named attributes in the Child Table. (Note: for a PeopleSoft system, this will exclude fields named EFFDT, EFFSEQ and SETID – see ‘Special Considerations for PeopleSoft relationships’ above).

MYFIELD1;MYFIELD2 A list of the child field names that the Parent Primary Key fields are to be matched with. The field names must be in the same order as the Primary Key fields in the parent table. (Note: for a PeopleSoft system, the optional fields EFFDT, EFFSEQ and SETID cannot be specified).

*;;MYFIELD3 * or ;; define fields within the parent table that do not have a corresponding field in the child table.

'X';MYFIELD2 'X' (any simple string can be used) is a fixed value in the Parent table not having a corresponding field in the child table

+REPLLAST;MYROLENAM; Uses the default field mapping between Parent and Child fields but replaces the last field name in with the field MYROLENAM.

+EFFDT Only applicable to PeopleSoft - EFFDT will be included explicitly in the relationship

+EFFSEQ Only applicable to PeopleSoft - EFFSEQ will be included explicitly in the relationship

+SETID Only applicable to PeopleSoft - SETID will be included explicitly in the relationship

B.4 Examples of using the rules

1) RoleNames

‘Parent’ table with Primary Key fields ParentA, ParentB, ParentC. ‘Child’ table fields of ChildA,ChildB,ChildC.

To form a relationship where ParentA maps to ChildA, ParentB to ChildB and ParentC to ChildC the ChildFieldNames would contain:

ChildA;ChildB;ChildC

2) Partial-Relationships

Same Parent and Child tables as example (1) but the relationship is to be formed from ParentA mapping to ChildA and ParentC to ChildC. In this case the ChildFieldNames would contain:

ChildA;*;ChildC (ChildA;;ChildC would have the same result)

3) Last-Attribute-Rolename

‘Parent’ table with Primary Key fields AAA, BBB, CCC. ‘Child’ table fields of AAA, BBB, TTT.

To form a relationship where AAA maps to AAA, BBB to BBB and CCC to TTT the ChildFieldNames would contain:

+REPLAST;TTT

4) Include-optional-Attributes

Parent’ table with Primary Key fields SETID, BBB. ‘Child’ table fields of SETID, BBB.

To form a relationship where SETID maps to SETID and BBB to BBB the ChildFieldNames would contain:

+SETID

B.5 Adding rules to the spreadsheet

Saphir users may want to add rules to the spreadsheet in order to create additional relationships in the Saphir repository.

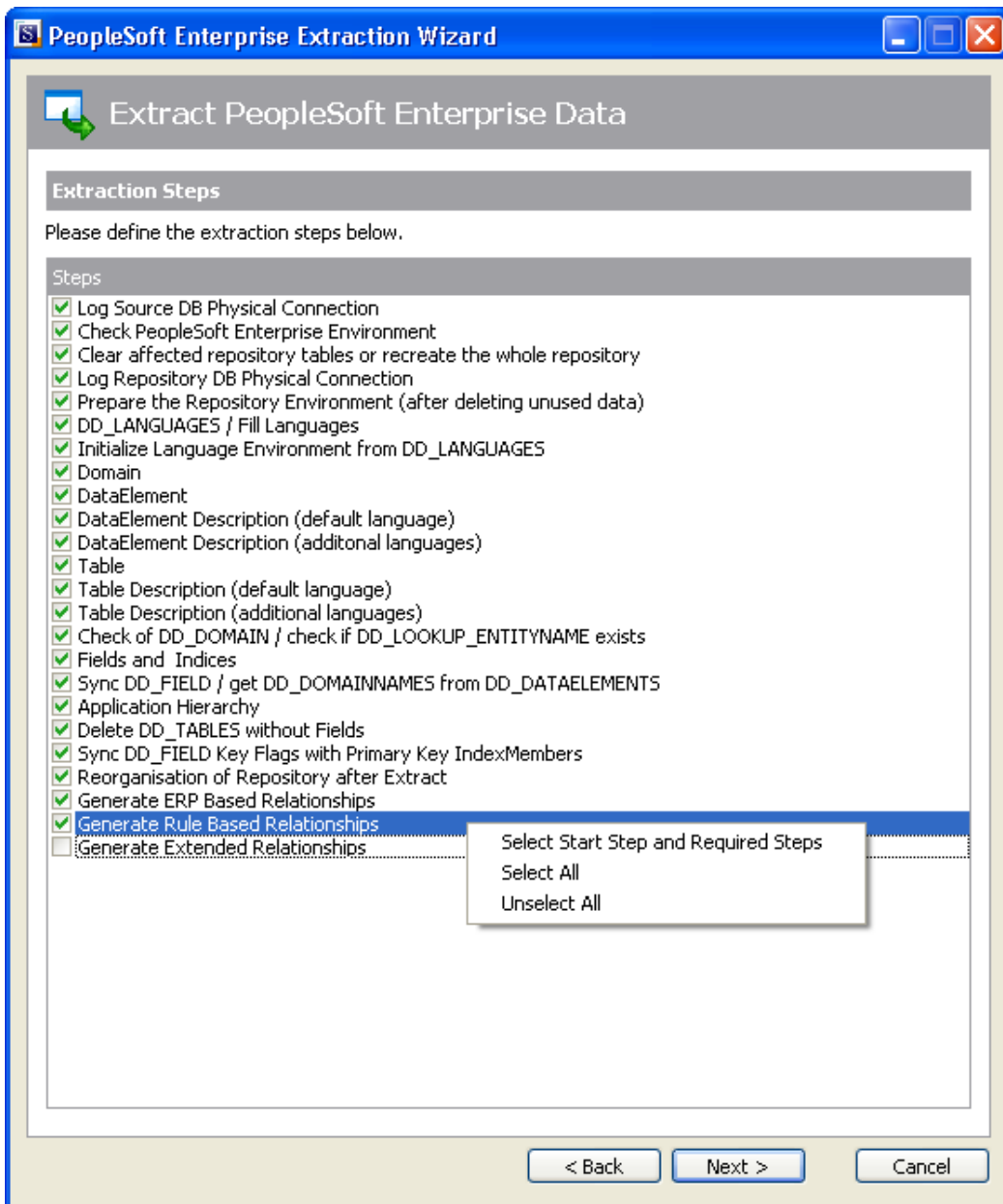
Before doing this, copy the SaphirSetting.xls and use this to create a copy named SaphirSettings_Cust.xls in the Saphir installation folder. Then add the required rules to this SaphirSettings_Cust.xls spreadsheet.

When the Saphir application is started, if the file SaphirSettings_Cust.xls exists, then this will be used instead of the delivered SaphirSetting.xls file.

B.6 Running an update to process new rules

Rules added to the spreadsheet are actioned by running the ERP Extraction process. However, it is not necessary to run the entire extraction of metadata each time, the extraction options can be set to only process the relationship creation elements of the extraction process.

From the Extraction Steps screen of the PeopleSoft or JDEdwards Extraction Wizard, check the ‘Generate Rules Based Relationships’ checkbox and then Right Mouse Click. Now choose ‘Select Start Step and Required Steps’



Using Right Mouse click to select the Starting Step for Extraction

This will set all the necessary steps for the extraction process to process the Rules. Now proceed with the extraction as normal.



Extraction Options after selecting Starting Step for Rule Based relationships

B.7 What happens if a spreadsheet rule conflicts with an Existing Relationship?

If at least one rule based relationships is identifying for a child-table, than all other identifying relationships (ERP-derived or Extended) are removed for that child-table.

This is an implicit 'Delete' function to allow an existing relationship to be replaced by a user-defined rule.

B.8 Method for Generating Extended Relationships

This 'Extended Relationship' process involves an automatic search for possible pairings of Primary and Foreign Keys. The process involves up to 6 passes through the Saphir Repository. For SAP, only pass 1 is applicable. For PeopleSoft Enterprise, only the first 3 passes are applicable, and J.D. Edwards EnterpriseOne systems will require all 6 passes

B.8.1 Pass 1: identifying relationships

The first phase, involves selecting all Tables with at least 2 Primary Key Fields (for SAP, where the first Primary Key field has the physical name of 'MANDT', or for PeopleSoft where the first Primary Key field has

the physical name of 'SETID', the selection will be for at least 3 Primary Key Fields). The last field in the Primary Key must not be part of any existing Relationship. These form the set of potential 'Child Tables' for identifying relationships.

For each of the tables in this set, a search is made for a match of 'all the Primary Key-Fields minus the last Primary Key field' for a parent table with the same set and order of fields. These are potential Parents of a 1:N-identifying relationship.

In addition to the above criteria:

- For SAP and PeopleSoft: only Parents with existing 'Children' are selected.
- For J.D. Edwards EnterpriseOne: only Parent-Child-Relationships that are represented by a join in the EnterpriseOne 'Business Views' are considered.

Given the above criteria, if exactly 1 Parent is found, then a relationship is added.

If more than 1 potential parent is found then:

For SAP: the parent table showing to the Default Domain Lookup Table is selected.

If the 'potential parent' already has its own 'Parent' based upon the same 'field set' then this same relationship is also applied to the child (For example if Table A is already a parent to Table B and a potential child table (Table C) to Table B is found with the same potential foreign key, then Table C is made a child of Table A, not Table B.

For J.D. Edwards EnterpriseOne: if the first 3 Characters of the Table Names of the two tables correspond then this Parent is chosen.

For PeopleSoft:: reference is made to the 'PSOFTHINTS' area of the Saphir.ini file to see if there is a preferred parent listed (see the section 'Influencing the generation of additional PeopleSoft relationships' below). If no 'parent' is found in the .ini file, then the first of the available potential parents is chosen.

These steps are then repeated for smaller sets of Primary Key-Fields down to:

- J.D Edwards EnterpriseOne: 1 Field.
- SAP: If Primary Key-Field 1 is MANDT then MANDT plus 1 Field, otherwise 1 Field.
- PeopleSoft: If Primary Key-Field 1 is SETID then SETID plus 1 Field, otherwise 1 Field.

B.8.2 Pass 2: identifying relationships (PeopleSoft & J.D. Edwards EnterpriseOne only)

This is the same as Pass 1 but:

For J.D.Edwards EnterpriseOne: the requirement for there to be a corresponding join in the Business Views is dropped and instead only Parent tables with existing Child tables are considered.

For PeopleSoft: only Parent tables that were found as 'Child' tables in Pass 1 are considered as new potential 'Parents', and with only 1 level of difference between the Primary Key and potential Foreign Key attributes.

B.8.3 Pass 3: identifying relationships (PeopleSoft & J.D. Edwards EnterpriseOne only)

This is the same as Pass 2 but:

For J.D.Edwards EnterpriseOne: allows any order of the attributes in the Parent-to-Child Relationship.

For PeopleSoft Enterprise: no restriction on the number of levels of difference between the Primary Key and potential Foreign Key attributes.

B.8.4 Pass 4: 'Dimension' search (J.D. Edwards EnterpriseOne only)

A search is made for all Tables with just 1 Primary Key (typically those tables that would form the dimensions in a data warehouse).

Then a search for potential child tables is made by searching all tables for fields with the same Role Name as the potential Dimension-Master-Table Primary Key.

A relationship is then added only if the two tables being considered are used in the same 'Business View'.

B.8.5 Pass 5: 'Dimension' search (J.D. Edwards EnterpriseOne only)

A search for all Tables with just 1 Primary Key that are already part of an existing relationship is made (these will be based on relationships generated by previous passes).

Child tables are then selected in the same way as for pass 4, but the need for a join to exist in the Business View between the two tables being considered is replaced with a match between the first 3 letters of the two table names involved (for example F0111 and F0112 would be a match).

B.8.6 Pass 6: 'Dimension' search (J.D. Edwards EnterpriseOneOnly)

A search is made for all Tables with just 1 Primary Key and having an existing relationship (these will be based upon relationship generated by previous passes.)

A select of child tables is made, similar to in pass 4, but without the restriction on there needing to be a join in the Business Views for the two tables.

B.8.7 Influencing the Extended Relationship generation process for PeopleSoft and JDEdwards relationships

When inferring relationships for PeopleSoft Enterprise and JDEdwards, there are often circumstances where there is more than one potential 'parent' table for a relationship. Users can influence the relative importance of a table by making entries in the SaphirSettings.xls file (see Appendix B of the Saphir 'Getting Started Guide' for details of the SaphirSettings.xls file).

The worksheets 'PSoftRuleBasedRelationships' and 'JDEDRuleBasedRelationships' contain a column named ExtRelGenParent where a Table Name can be recorded. The generation rule is that if there is more than one potential Parent for a relationship, the inference process will use this list to help determine which to use.

Index

- Advanced Search, 18
- Application Hierarchy, 36, 37
 - available actions, 38
 - JDEdwards, 42
 - Oracle EBS, 43
 - PeopleSoft, 42
 - SAP, 42
 - Siebel, 42
- comparing metadata
 - creating file for, 78
 - results of, 80, 81
- context pop-up menu, 35
- CSV export format, 73
- data
 - drilling into, 44
 - exporting, 36, 47
- Data Elements, 16
 - searching for tables using, 33
- Domains, 16
 - searching for tables using, 35
- ER Diagrammer, 74
 - toolbar, 75
- Extract Log, 56
- indexes, 26
- InfoCube, 82
- JDEdwards
 - relationships, 102
- Licensing Information, 14
- menus, 11, 12
- metadata
 - browsing, 15
 - exporting, 69
- Model Overview, 15
 - Data Elements, 33
 - Domains, 34
 - Views, 29
- PeopleSoft
 - Physical Table Name, 72
 - relationships, 102
- QBE, 45
- relationships, 27, 28
 - creating, 67
 - creating additional, 66
 - deleting, 68
 - reviewing, 67
- Repository
 - copying, 6
 - deleting, 6
 - importing/exporting, 6
 - maintenance, 7
 - Manager, 5
 - Managing Multiple, 9
 - opening, 5
 - settings, 6
- Repository Manager
 - toolbar, 6
- SAP BW, 82
- Saphir
 - .ini file, 14
 - Manuals, 4
 - Meta Model, 87
 - toolbar, 13
- Saphir export formats, 71
- Saphir Settings
 - .ini file, 9
- search criteria, 17
- Search Criteria
 - Clearing, 23
- Select statement
 - generate, 50
- Sorting, 22
- SQL Query, 22
- SQL Script
 - creating, 50
- Statistics, 55
- status bar, 11
- Subject Areas, 57
 - comparing, 80
 - Expanding, 63
 - import/export, 58
 - populating, 59
- Table Attribute Report, 52
- Table details
 - Viewing, 23
- Table List Export, 53
- Tables
 - Searching for, 39
- Toolbar, 11
- Tree Nodes
 - Searching for, 41
- View statement
 - generate, 50
- Views, 16
 - Searching for, 39
- Workspace, 11