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SILWOOD TECHNOLOGY LTD

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Safyr Metadata Discovery Software

**safyr**<sup>®</sup>

# Safyr User Guide

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SILWOOD TECHNOLOGY LIMITED

# Safyr User Guide – Safyr 7.5

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## Introduction

### *Describes how to use this manual*

This manual describes the various features of Safyr in detail and in particular the powerful features for exploring the metadata extracted from your chosen environment.

### Where do I find what I need?

#### Installing and configuring

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

#### Extracting metadata from the Enterprise Application

Once Safyr is installed and configured, an extraction of metadata needs 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 the Safyr 'Getting Started Guide'.

#### Exploring the contents of the Safyr repository

Safyr's main purpose is to allow exploration of the data structures extracted from your environment and stored in the Safyr Repository. To understand the features available, refer to the chapter on Browsing Safyr metadata below.

#### Exporting metadata from Safyr into other environments

Having located particular data structures with the Safyr browsing interface, users may wish to export these data structures into other tools and formats. See the Chapter: 'Exporting metadata from Safyr' below for more details.

#### Task Automation with Safyr

Many of the main Safyr capabilities can be run unattended. An introduction to these features can be found in Appendix D of this manual, and full details are in the 'Safyr Task Automation Guide'.

### Safyr manual set

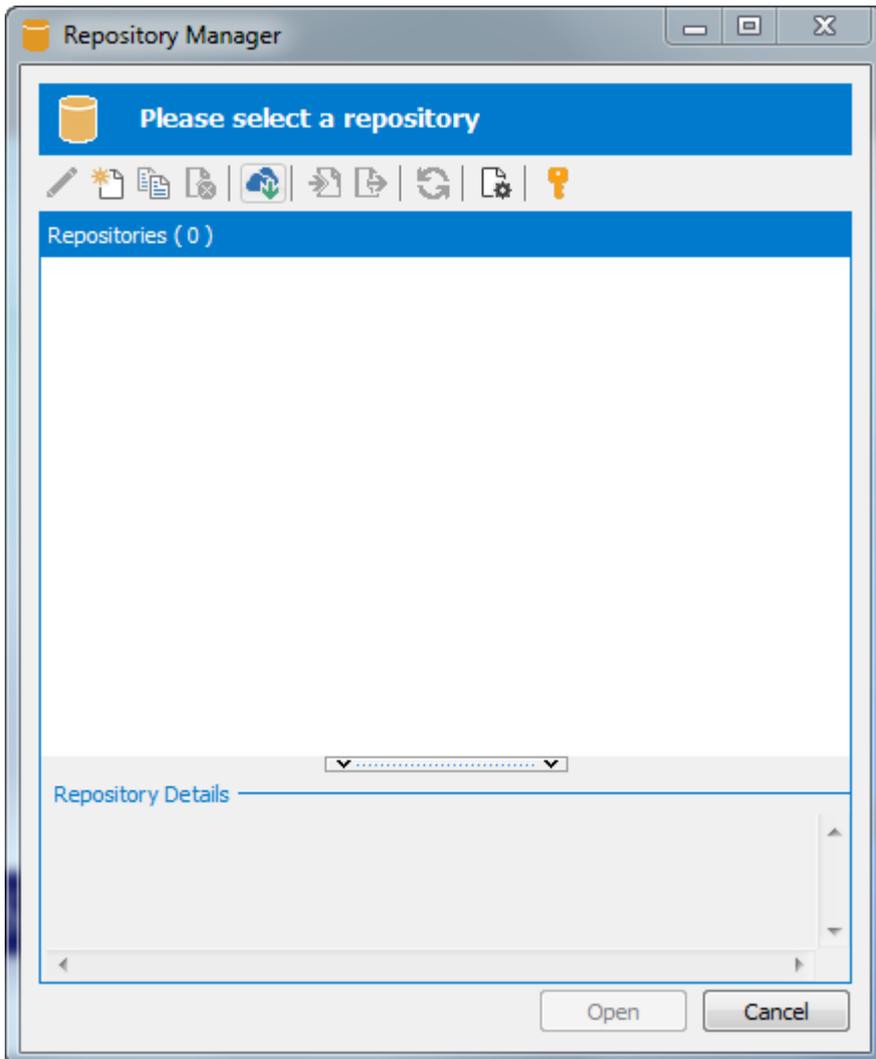
There are three Safyr manuals supplied in Adobe Acrobat format (.pdf files) with the Safyr software.

- Getting Started Guide: Use this manual for details of product installation and an overview of Safyr features
- User Guide (this manual): Describes all of the Safyr functions in detail
- Task Automation Guide: Explains how to Automate features of Safyr like Extraction from the source Application.

## The Repository Manager

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

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



The Repository Manager form

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

## 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
	Create and populate demonstration	Importing a demonstration repository
	Import repository	Import/Export a repository
	Export repository	Import/Export a repository
	Repository Maintenance	Repository maintenance
	Repository Inifile	The repository .ini file
	Start License Dialog	Safyr Licensing

### 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 Safyr repository and the connection to the 'source' system. See the Safyr 'Getting Started Guide' Chapter on Installation for details on how to complete the required information.

### 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.

### 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 Safyr repository database and its contents will still exist.

### Import/export a repository

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

## Import Repository

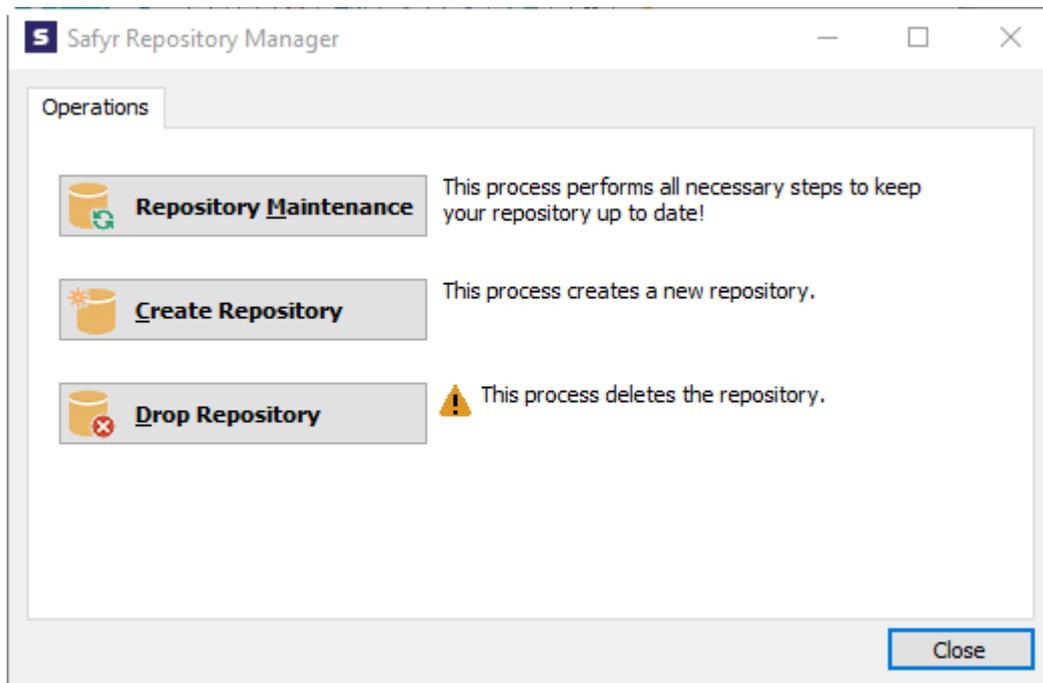
Clicking this button will display a form for selecting the import/export file. This is in the form of a 'zip' file and must have been produced from the Safyr Repository export process (see 'Export Repository' below). Locate the file and select it to begin the import process. Importing a repository will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

## 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.

## Repository maintenance

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



Repository Maintenance form

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

There are three buttons on the form:

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

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

## The repository .ini file

Safyr 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 Safyr. Appendix B of the Safyr 'Getting Started Guide' gives details on the structure and purpose of this Excel file.

The Repository Ini file button on the Repository Manager allows the location and name of the .ini file to be specified. By default the file is called safyr.ini and is located in \Users\\Appdata\Roaming\Silwood\Safyr7 for Windows 10. On clicking the button, a form is displayed which allows you to specify the name and location of the file. The SafyrSettings.xlsx file can also be located in the same folder as the .ini file.

## Safyr Licensing

The licensing screen shows details of any existing product license, and enables the user to apply for a product license. The actual options shown will vary depending on how the product was purchased.

## Importing a Demonstration Repository

Your Safyr product vendor may have provided one or more demonstration repositories to enable you to become familiar with the features of Safyr. These repositories are provided in the form of a SQLite database. Using this Import feature, Safyr will download the repository from the URL provided by your vendor and make the necessary setting for browsing and using the metadata. Please see the evaluation guide provided by your vendor for more details.

## Managing Multiple Repositories

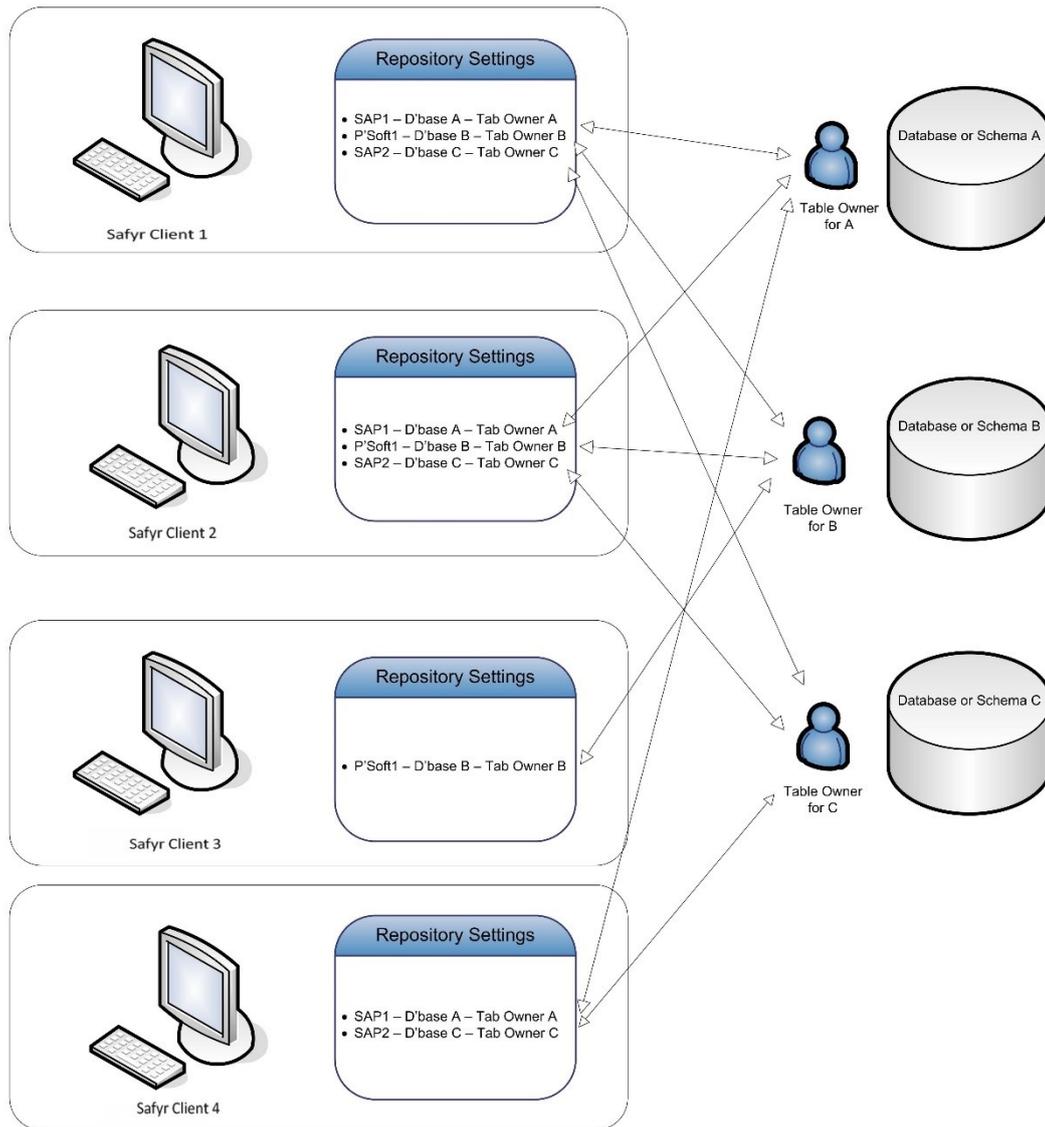
Most Safyr customers will use the product to extract and store multiple sets of metadata from their chosen ERP environment(s). This section describes how to achieve this.

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

The following example shows a typical scenario; 4 Safyr 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.

## THE REPOSITORY MANAGER



Safyr Client 1 has 3 Repositories defined:

- SAP1 pointing to Database A using Table Owner A as the database user
- P'Soft1 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

Safyr Client 2 has the same 3 Repositories defined

Safyr Client 3 is only interested in the PeopleSoft system:

- P'Soft1 pointing to Database B using Table Owner B as the database user

Safyr 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

## Browsing the metadata in Safyr

### *A detailed description of the features for browsing the extracted metadata*

Safyr's main purpose is to make the discovery and scoping of the extracted application metadata easy. This chapter describes the various features for exploration in detail.

### The Safyr workspace

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

#### Elements of the Safyr workspace

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

In the middle of the form are the Navigation tiles. These represent the most common Safyr tasks and are designed to guide new or infrequent Safyr users how to start accessing the products features. The Navigation feature is described in Chapter 3 of the Safyr Getting Started Guide. However, a summary of the features provided is also given in this chapter for convenience. See 'Safyr Navigation Tiles' below for more details.

At the bottom of the window is the 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 Safyr repository
- Repository Type – identifies the type of the Safyr repository (e.g. SAP)
- Selected Language – shows the language code that is being used for 'descriptive' fields like field names and table names.

The Safyr menus

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

<b>Menu</b>	<b>Menu Item</b>	<b>For more details see...</b>
File	Repository Manager	The Repository Manager chapter
	ERP Extract	Safyr Getting Started Guide : Extracting Metadata
	Export Data Model as...	Chapter: Exporting metadata from Safyr
	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	Multi Object Search...
Safyr Options		'Safyr Options' in this chapter
Compare Subject Areas		Chapter: Comparing metadata
Show ERP Extract Log...		'The ERP Extract Log' in this chapter
Show Export Log...		'The Export Log' in this chapter
Open ER Diagrammer		See Chapter: Exporting metadata from Safyr 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	

The Safyr toolbar

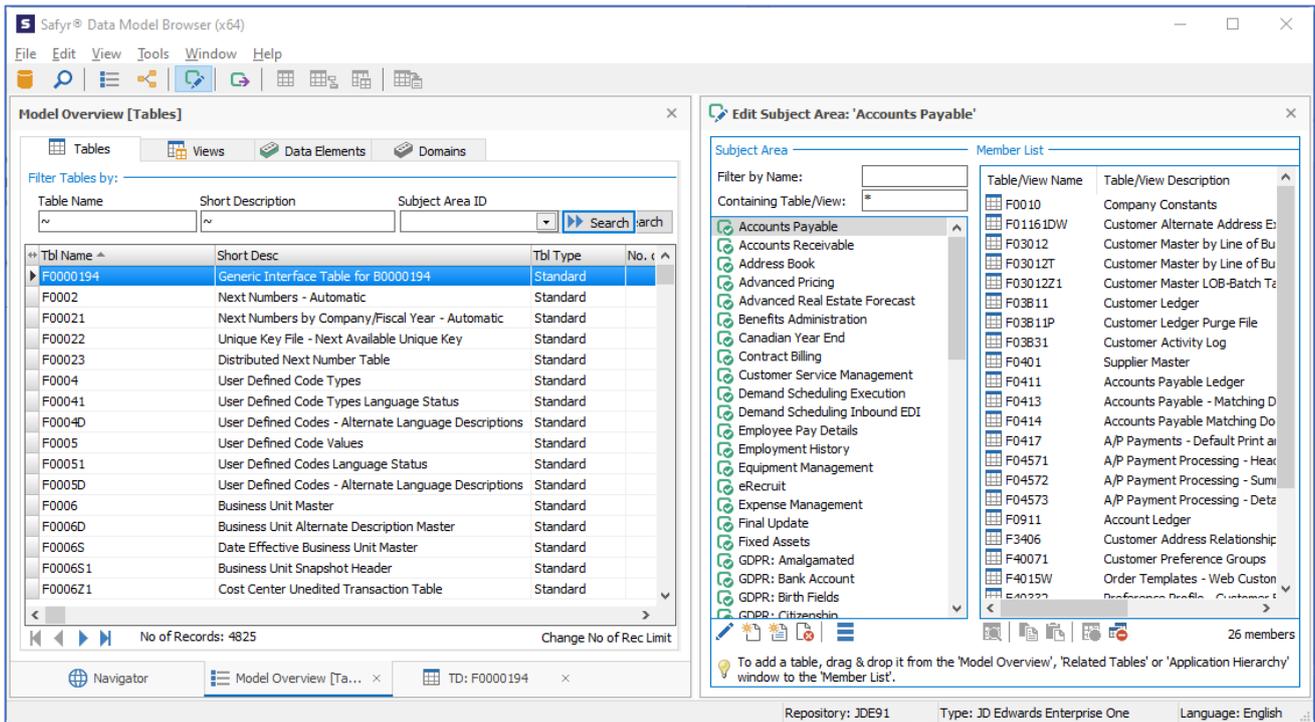
The Safyr Toolbar options are summarized in the following table. See the referenced section to find out more on each option.

<b>Tool Button</b>	<b>Tool Button Name</b>	<b>For more details see...</b>
	Repository Manager	Chapter : The Repository Manager
	Multi-Object Search	'Multi-Object Search' in this chapter
	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
	Start Export Wizard	Chapter: Exporting metadata from Safyr
	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

### Safyr and Docked Forms

The Safyr workspace uses a Docked forms approach. The Navigation Screen, Model Overview and Table/View Details forms are presented in the main work space, with a tab at the bottom of the screen for each window.

Other forms such as the Application Hierarchy and Subject Area Editor are docked to the side of the main work area. (See 'Safyr options' below for details of how to control the position of the Docking Area).



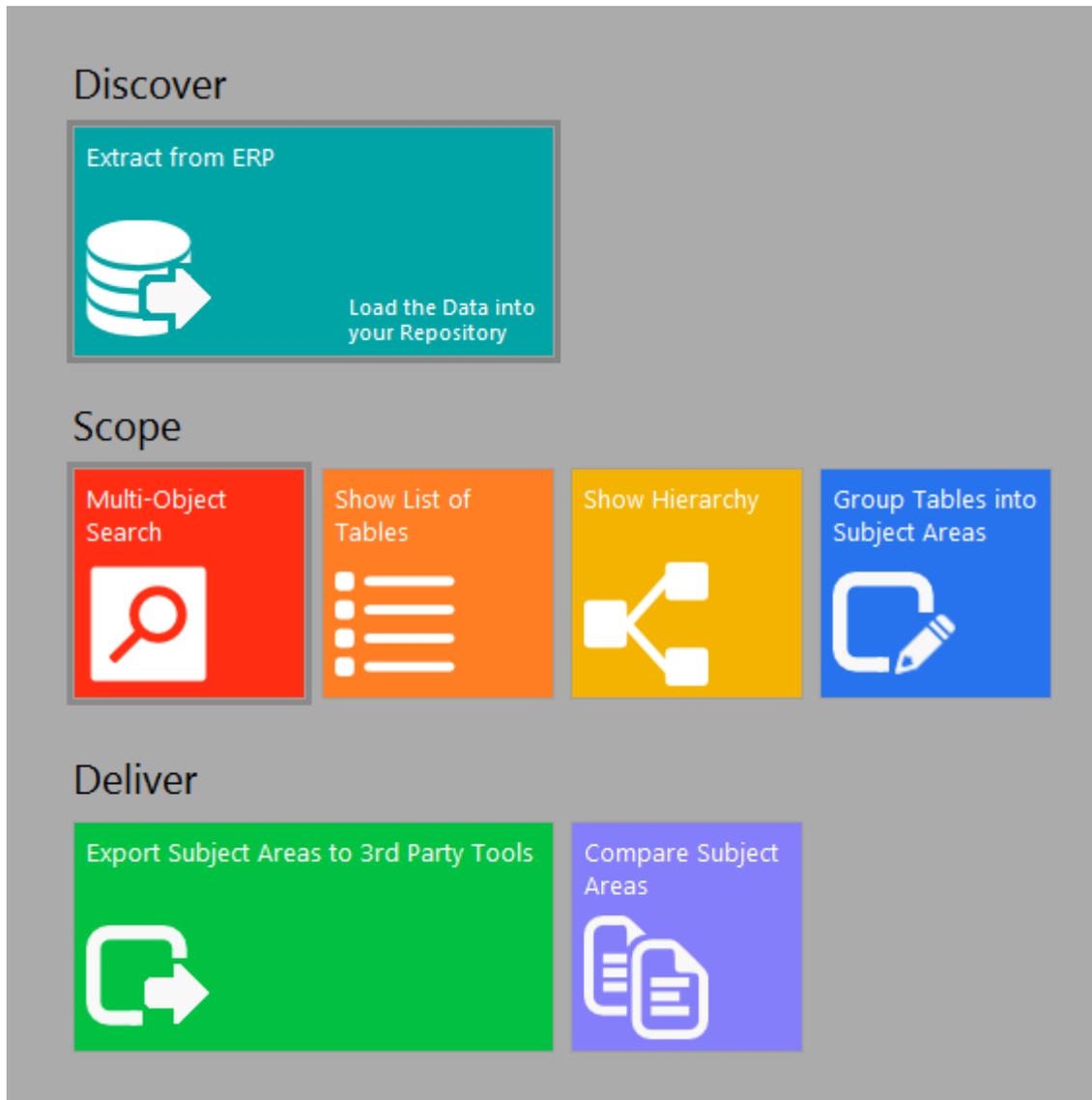
### Safyr Docked Forms

Forms in the main work area (those with a tab at the bottom), can be undocked by dragging the tab up into the main work space.

The Docked forms on the side of the Safyr work area can only be undocked when the 'Enhanced Docking Mode' option is enabled (See 'Safyr options' below for details of this option).

## Safyr Navigation Tiles

These are a set of clickable tiles that represent the most regularly used product features.



Safyr Navigation Tiles

The workflow typically used in Safyr is composed of three phases: 'Discover, Scope and Deliver'.

### *Discover*

- This is the process of extracting the metadata from the 'source' ERP system

*Scope*

This area encompasses the main activities of searching and sub-setting tables using Safyr. There are 4 tiles:

- Multi-Object Search – a facility for searching across a range of object types
- Show List of Tables – display the Safyr Model Overview screen to allow querying on Tables
- Show Hierarchy – display the Application Hierarchy
- Group Tables by Subject Area – show the Subject Area editor for grouping tables

*Deliver*

This covers the capability for exporting Subject Areas. There are 2 tiles:

- Export Subject Areas to 3<sup>rd</sup> party Tools – export Subject Area contents to a range of formats
- Compare Subject Areas – compare contents of two Subject Areas to determine differences

All of the capabilities on the navigation screen are also available from the Safyr menu and/or icon bar.

The following table shows where to find more details on these features.

<b>Tile Category</b>	<b>Tile</b>	<b>For more details see...</b>
Discover	Extract from ERP	The Getting Started Guide Chapter: Extracting Metadata
Scope	Multi-Object Search	Multi-Object Search in this chapter
	Show List of Tables	The Model Overview in this chapter
	Show Hierarchy	The Application Hierarchy in this chapter
	Group Tables into Subject Areas	Subject Areas in this chapter
Deliver	Export Subject Areas to 3 <sup>rd</sup> Party Tools	Chapter: Exporting Metadata from Safyr
	Compare Subject Areas	Chapter: Comparing metadata

## Safyr options

The Safyr Options form is displayed by selecting 'Safyr 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 Safyr down. When not checked, Safyr will close down without the confirmation form.
- Show Navigator – When checked 'on', the Navigation Tiles screen will be displayed when entering Safyr
- Safyr Logo visible for [sec] – The Safyr logo is displayed at startup. Select the number of seconds that the logo is to be displayed for
- Enhanced Docking Mode – Gives greater flexibility in positioning of the Safyr forms.
- Position of Tool Docking Area – Allows the location of docked forms to be determined. Possible values are 'Left' and 'Right'.
- Repository Definition file – Use this to specify the location of the Safyr 'ini' file.
- Repository Language – Where the extraction of metadata has been performed in more than one language, this option allows the selection of the language for displaying language-dependent data such as attribute and table names.

Safyr Option form

## Licensing Information

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

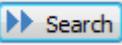
## Browsing the metadata

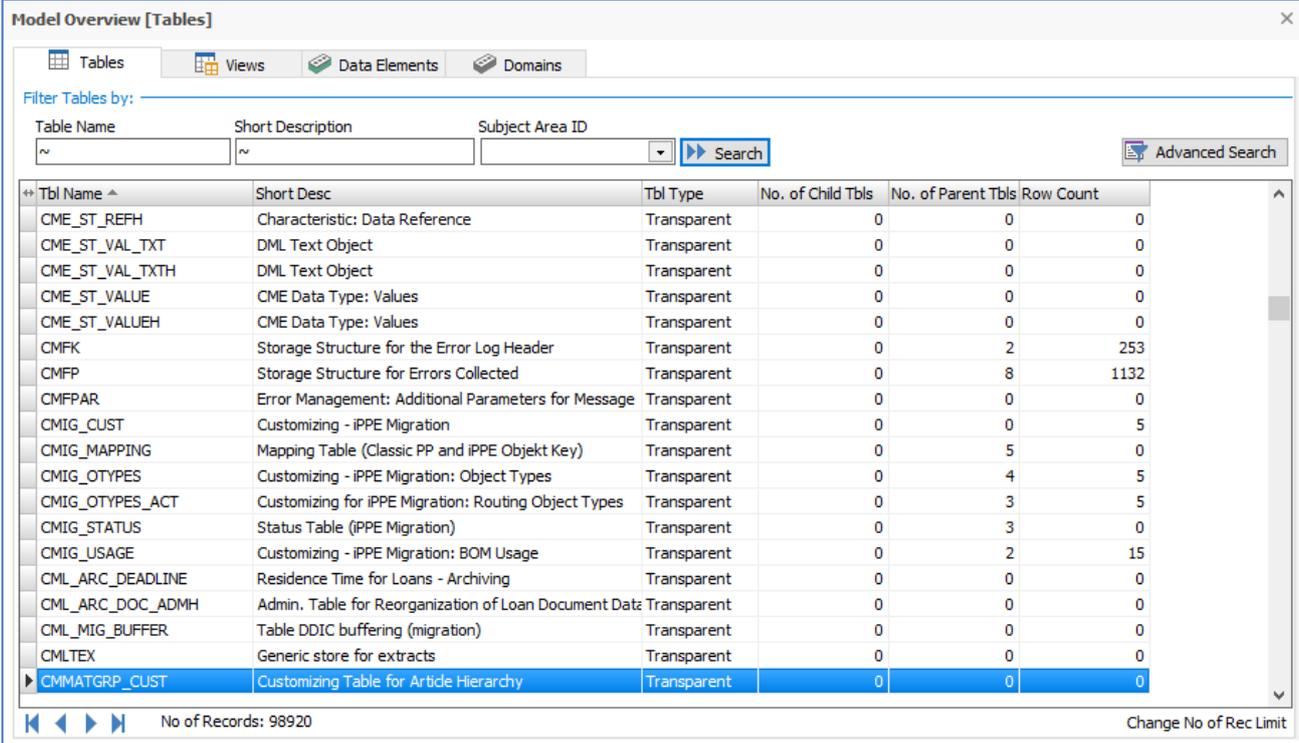
There are two main 'entry points' for Browsing the metadata:

- 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 shows the tables and views organised by Application Module. For more details see 'The Application Hierarchy' later in this chapter.

## The Model Overview

The Model Overview form is displayed by clicking  on the Safyr toolbar or selecting 'Model Overview' from the 'View' menu, or by clicking the 'Show List of Tables' tile on the Navigation screen.

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



The screenshot shows the 'Model Overview [Tables]' window. At the top, there are tabs for 'Tables', 'Views', 'Data Elements', and 'Domains'. Below the tabs is a search filter section with fields for 'Table Name', 'Short Description', and 'Subject Area ID', along with a 'Search' button and an 'Advanced Search' link. The main area contains a table with the following columns: 'Tbl Name', 'Short Desc', 'Tbl Type', 'No. of Child Tbls', 'No. of Parent Tbls', and 'Row Count'. The table lists various tables such as CME\_ST\_REFH, CME\_ST\_VAL\_TXT, CMFK, CMFP, CMFPAR, CMIG\_CUST, CMIG\_MAPPING, CMIG\_OTYPES, CMIG\_OTYPES\_ACT, CMIG\_STATUS, CMIG\_USAGE, CML\_ARC\_DEADLINE, CML\_ARC\_DOC\_ADMH, CML\_MIG\_BUFFER, CMLTEX, and CMMATGRP\_CUST. The 'CMMATGRP\_CUST' table is highlighted in blue. At the bottom of the window, it shows 'No of Records: 98920' and a 'Change No of Rec Limit' button.

Tbl Name	Short Desc	Tbl Type	No. of Child Tbls	No. of Parent Tbls	Row Count
CME_ST_REFH	Characteristic: Data Reference	Transparent	0	0	0
CME_ST_VAL_TXT	DML Text Object	Transparent	0	0	0
CME_ST_VAL_TXTH	DML Text Object	Transparent	0	0	0
CME_ST_VALUE	CME Data Type: Values	Transparent	0	0	0
CME_ST_VALUEH	CME Data Type: Values	Transparent	0	0	0
CMFK	Storage Structure for the Error Log Header	Transparent	0	2	253
CMFP	Storage Structure for Errors Collected	Transparent	0	8	1132
CMFPAR	Error Management: Additional Parameters for Message	Transparent	0	0	0
CMIG_CUST	Customizing - iPPE Migration	Transparent	0	0	5
CMIG_MAPPING	Mapping Table (Classic PP and iPPE Objekt Key)	Transparent	0	5	0
CMIG_OTYPES	Customizing - iPPE Migration: Object Types	Transparent	0	4	5
CMIG_OTYPES_ACT	Customizing for iPPE Migration: Routing Object Types	Transparent	0	3	5
CMIG_STATUS	Status Table (iPPE Migration)	Transparent	0	3	0
CMIG_USAGE	Customizing - iPPE Migration: BOM Usage	Transparent	0	2	15
CML_ARC_DEADLINE	Residence Time for Loans - Archiving	Transparent	0	0	0
CML_ARC_DOC_ADMH	Admin. Table for Reorganization of Loan Document Data	Transparent	0	0	0
CML_MIG_BUFFER	Table DDIC buffering (migration)	Transparent	0	0	0
CMLTEX	Generic store for extracts	Transparent	0	0	0
CMMATGRP_CUST	Customizing Table for Article Hierarchy	Transparent	0	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 Custom, Standard, TRANSP (Transparent), POOL or CLUSTER. TRANSP, POOL and CLUSTER are only applicable to SAP systems. Custom is only applicable to Salesforce systems.

- **No. of Child Tbls:** The number of related 'child' tables.
- **No. of Parent Tbls:** The number of related 'parent' tables.
- **Row Count:** The number of rows in the table. See 'How Safyr determines the Row Count' below

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'.

### How Safyr determines the Row Count

The Safyr Row Count shows the number of rows in each table. The row count is obtained from the database statistics and can only be evaluated correctly if:

- the database user specified in the connection properties to the source ERP system (see Chapter : Overview of Safyr Workflow in the Getting Started Guide for details of connecting to the source ERP) has access to the DBMS statistics (note: for a SAP system, access to statistics is via ABAP)
- the database statistics are processed (normally such a process is scheduled on the DBMS system)

Safyr only provides the row count feature for ERPS based on Oracle, SQL Server, DB2 and HANA, and for Sybase ASE where the ERP system is SAP. Other platforms will result in the Row Count being set to '-1'.

If the statistics are unavailable or the Table does not exist in the physical database, the Row Count for the table will be set to '-1'.

*Note:* Safyr does not currently extract Row Counts for a Microsoft Dynamics AX 2012 system.

For a SAP system, the meaning of the Row Count will depend on the SAP table Type.

- **Transparent Tables** The Row Count will indicate the actual number of Rows in the table
- **Pool Tables** The Row Count will show only that there is data or not in the table. Pool tables with data will have the Row Count set to 1. Tables without data will have the Row Count set to zero.
- **Cluster Tables** The Row Count will show the actual number of rows in the 'physical' table that stores the Cluster table. Therefore, each Cluster table that resides in a given physical table will show the same number of rows.

### Special Considerations for SAP and Siebel Systems

The row count capability of Safyr takes no account of multiple systems that may exist in the same 'source' ERP system. SAP (via the MANDT – Client approach) and Siebel (via the Repository approach) permit several parallel systems to be stored within the same database. For example, within one Siebel system there might be a 'Standard' repository and a 'Custom' repository. Because the row count capability of Safyr is based upon the physical row count in the system catalog, the resulting row count for a given table will reflect all rows, regardless of which of the rows belongs to which Repository.

### 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.

### 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.

## Selecting tables in the Model Overview

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

Table Name	Short Description	Subject Area ID	
~	~		Search

Search Criteria

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.

- ~ Like
- !~ Not Like
- = Equal
- <> Not Equal
- > Greater
- >= Greater or Equal
- < Less
- <= Less or Equal
- N NULL
- !N Not NULL

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

Butto	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

Safyr 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)

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.

### Using Advanced Search

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

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

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
- Row Count: Enter the desired number of rows in the table
- 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 (Note: In the case of a SAP system, the Long Descriptions are held at the Data Element level, not at the Field level, and so a search for a string within the Long Description will not return any results.)

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.

Clicking the 'Clear Filter' button will remove any search terms in any of the search screens.

Filter Tables by

Standard Filter | Search for Field Patterns | Extended Filter

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

Clear Filter Ok Cancel

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.

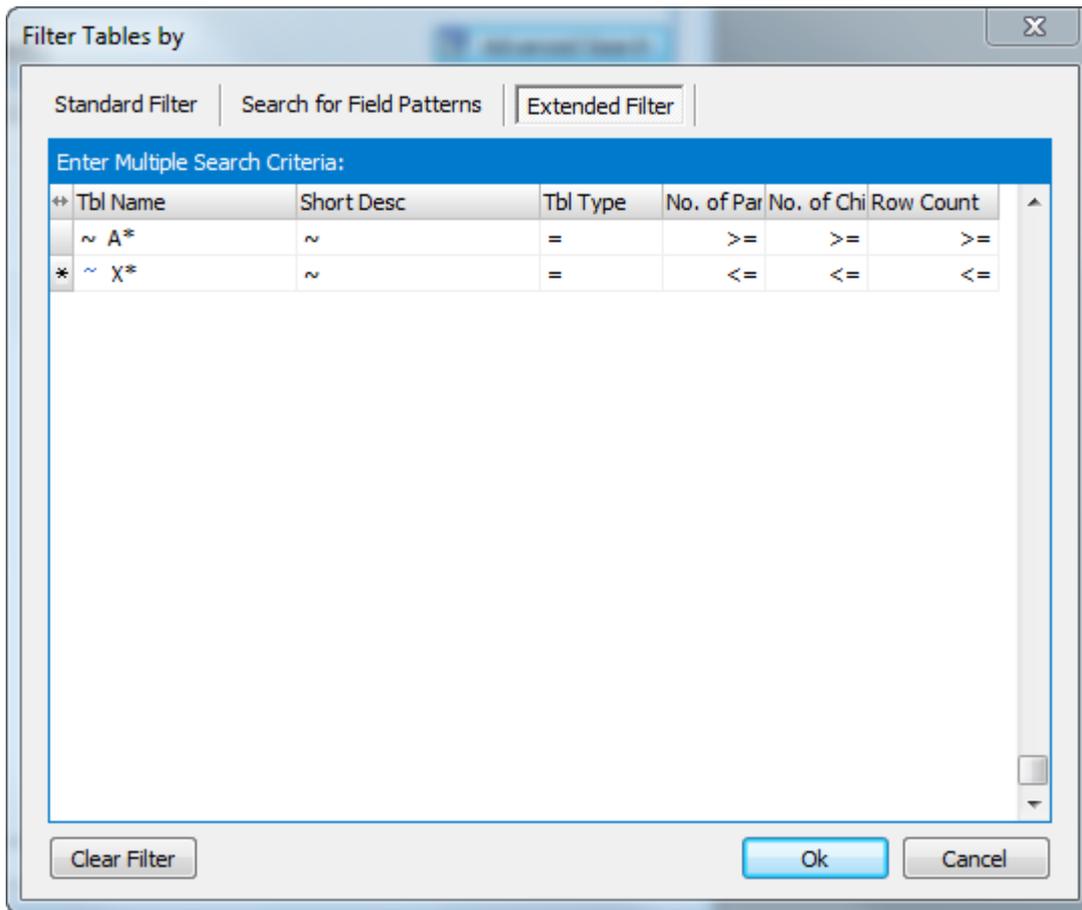
The available options are:

- 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.

Clicking the 'Clear Filter' button will remove any search terms in any of the search screens.

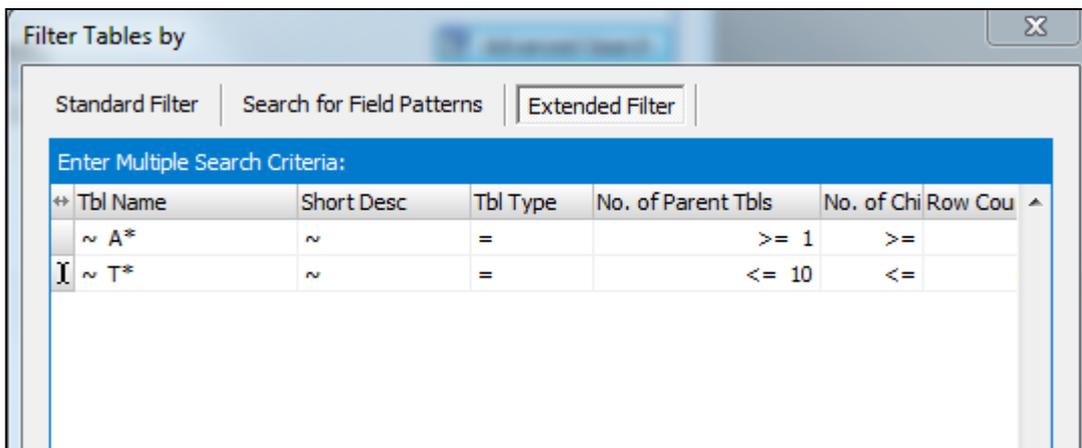
The 'Extended Filter' form has features for entering multiple selection criteria in one query.



Extended Filter

This form can then be used to enter search criteria, similar to those 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 between 1 and 10 'child' tables.

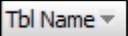


Example with multiple selection lines

## 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.

## Clearing Search Criteria in the Model Overview

When search criteria have been entered, either in the Model Overview screen, or using the 'Advanced 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

## 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 Mouse Click on the highlighted table and select 'Table Details' from the pop-up menu.

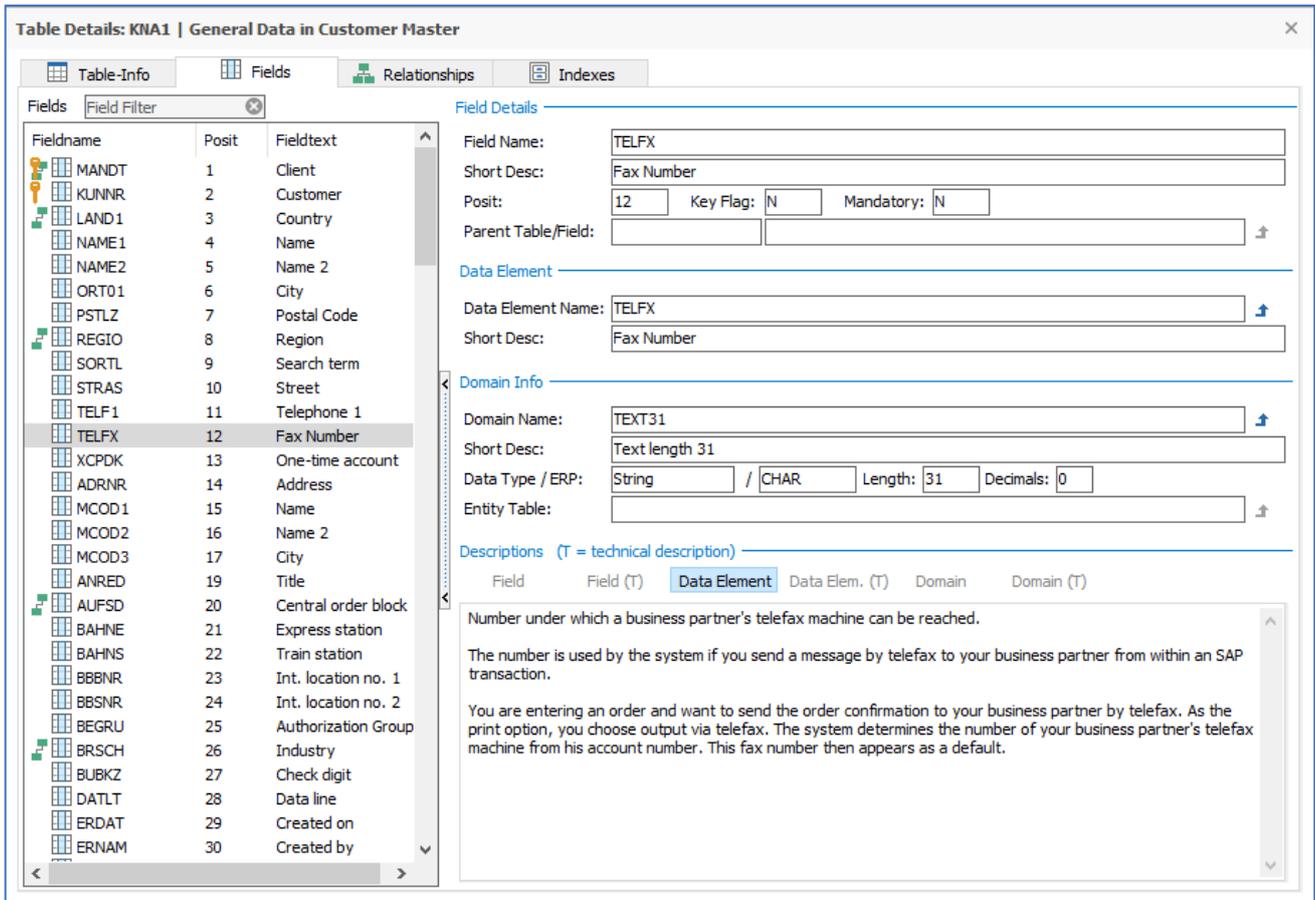
*Note:* It is possible to open a number of separate table details windows.

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: -

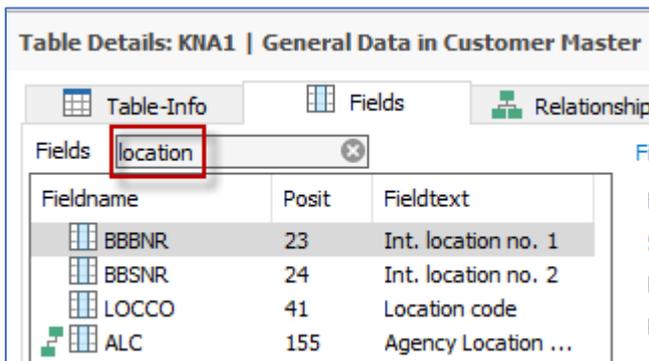
-  The Field is part of the Table's Primary Key
-  The Field is part of the Primary Key and also a Foreign Key
-  The Field is a Foreign Key field

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 Details, 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

At the top of the Field list is a Field Filter option. This can be used to reduce the list of fields displayed by entering a search string. Any fields matching that search string will then be displayed. The Field Filter search operates on the Fieldname, Posit and Fieldtext attributes.



Field Filter in operation showing reduced set of Fields

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

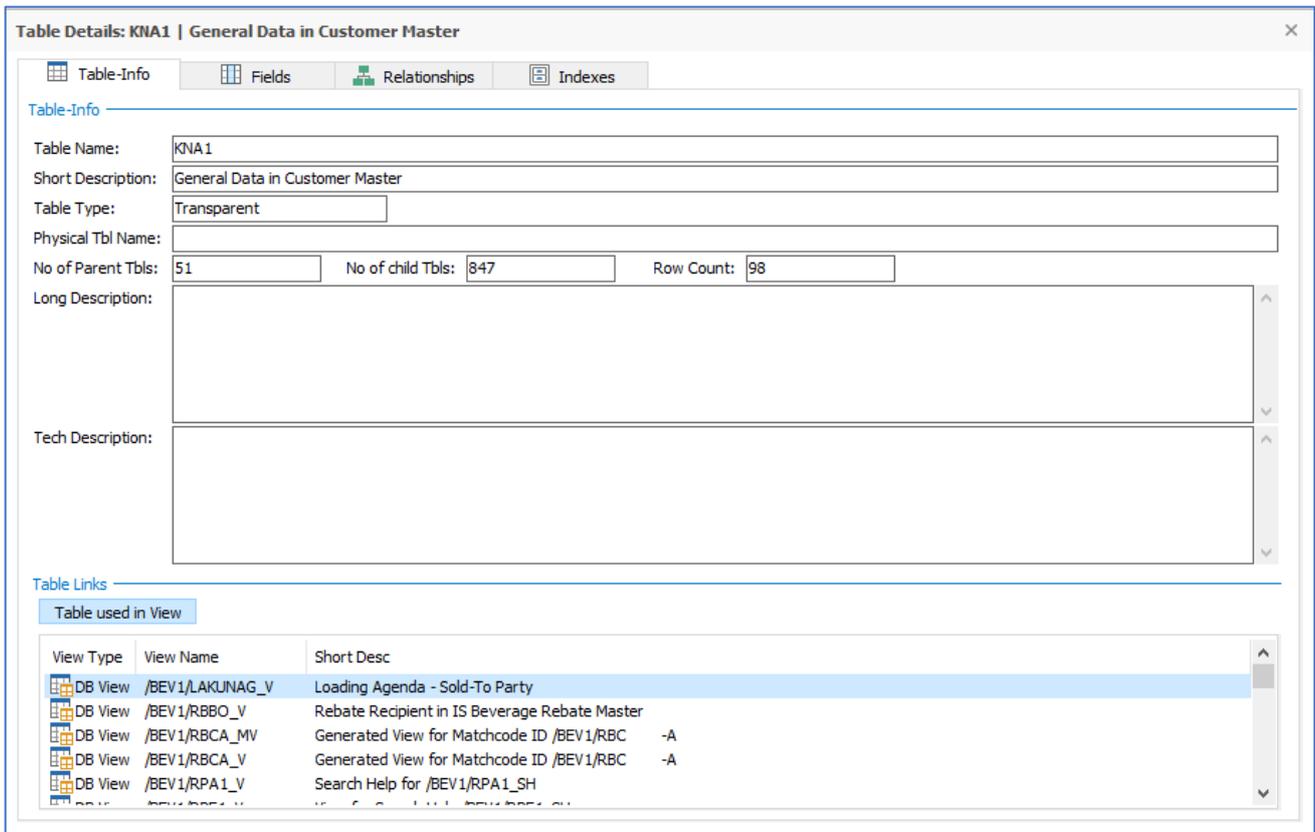
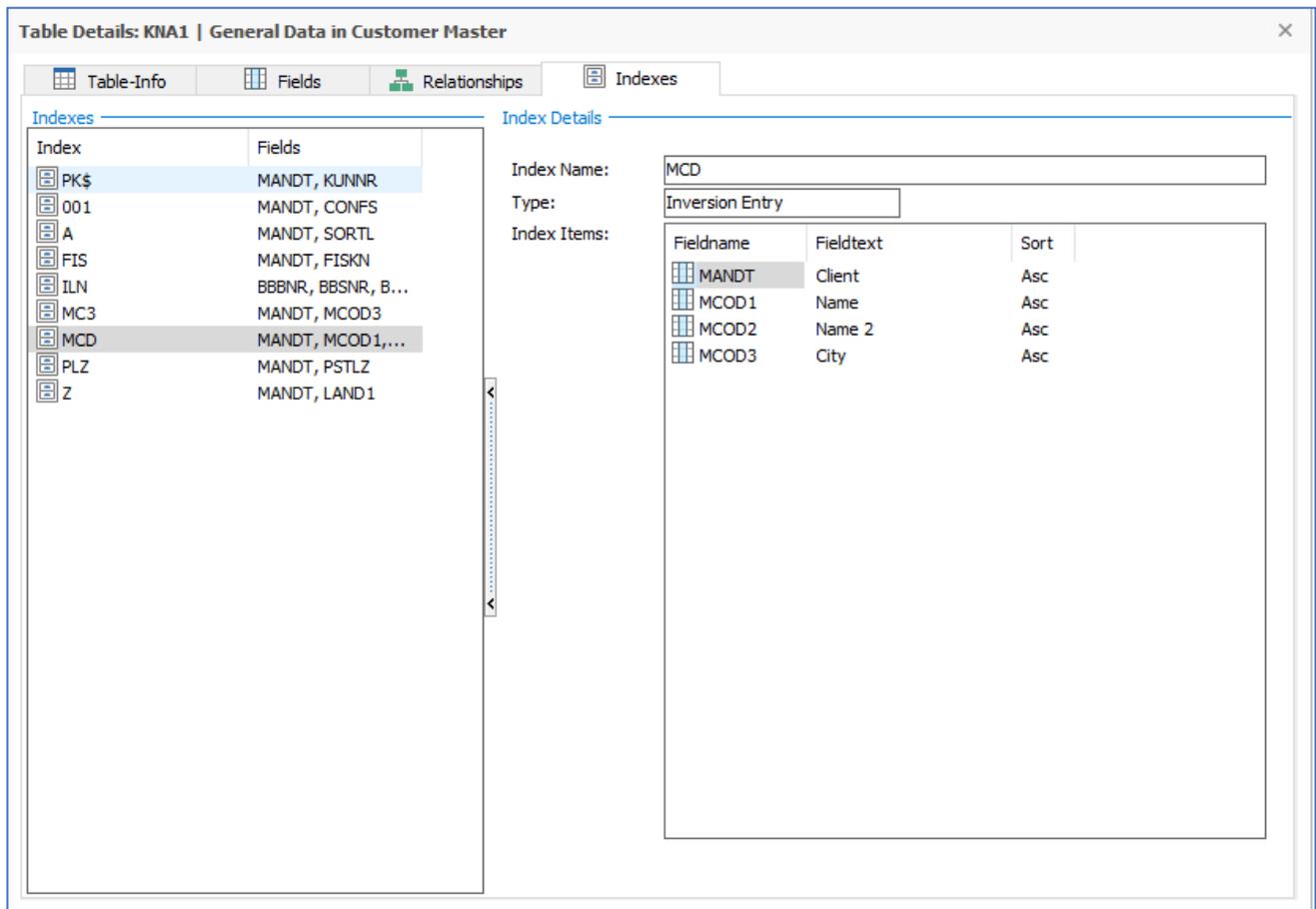


Table Information

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.

### Index details

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



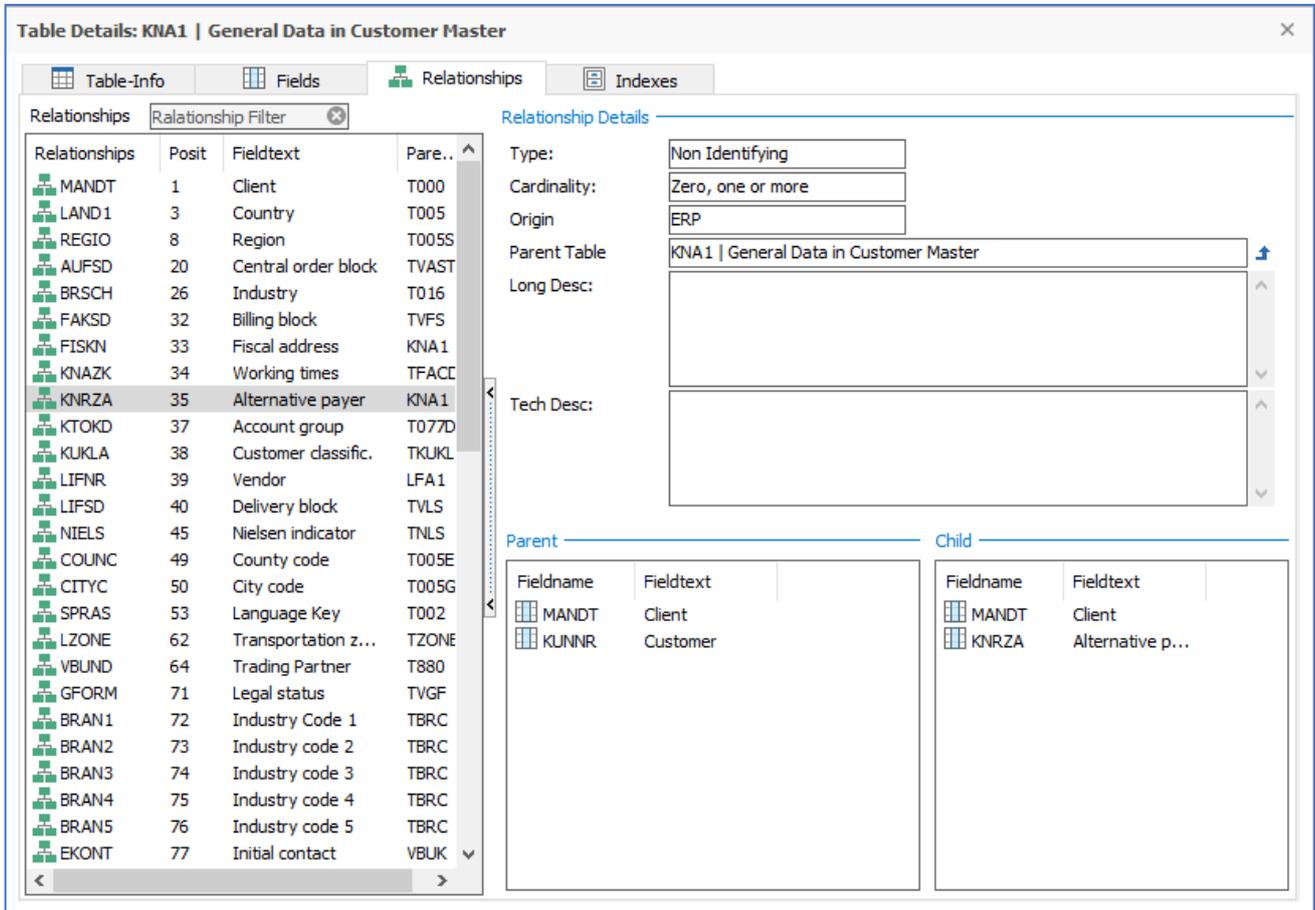
Viewing Index Information

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

Relationship details

Clicking on the Relationships tab  Relationships 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.



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.

At the top of the Relationships list is a Relationship Filter option. This can be used to reduce the list of relationships displayed by entering a search string. Any relationships matching that search string will then be displayed. The Relationship Filter search operates on the Relationship Field, Posit, Fieldtext and Parent Table attributes.

## 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 form.

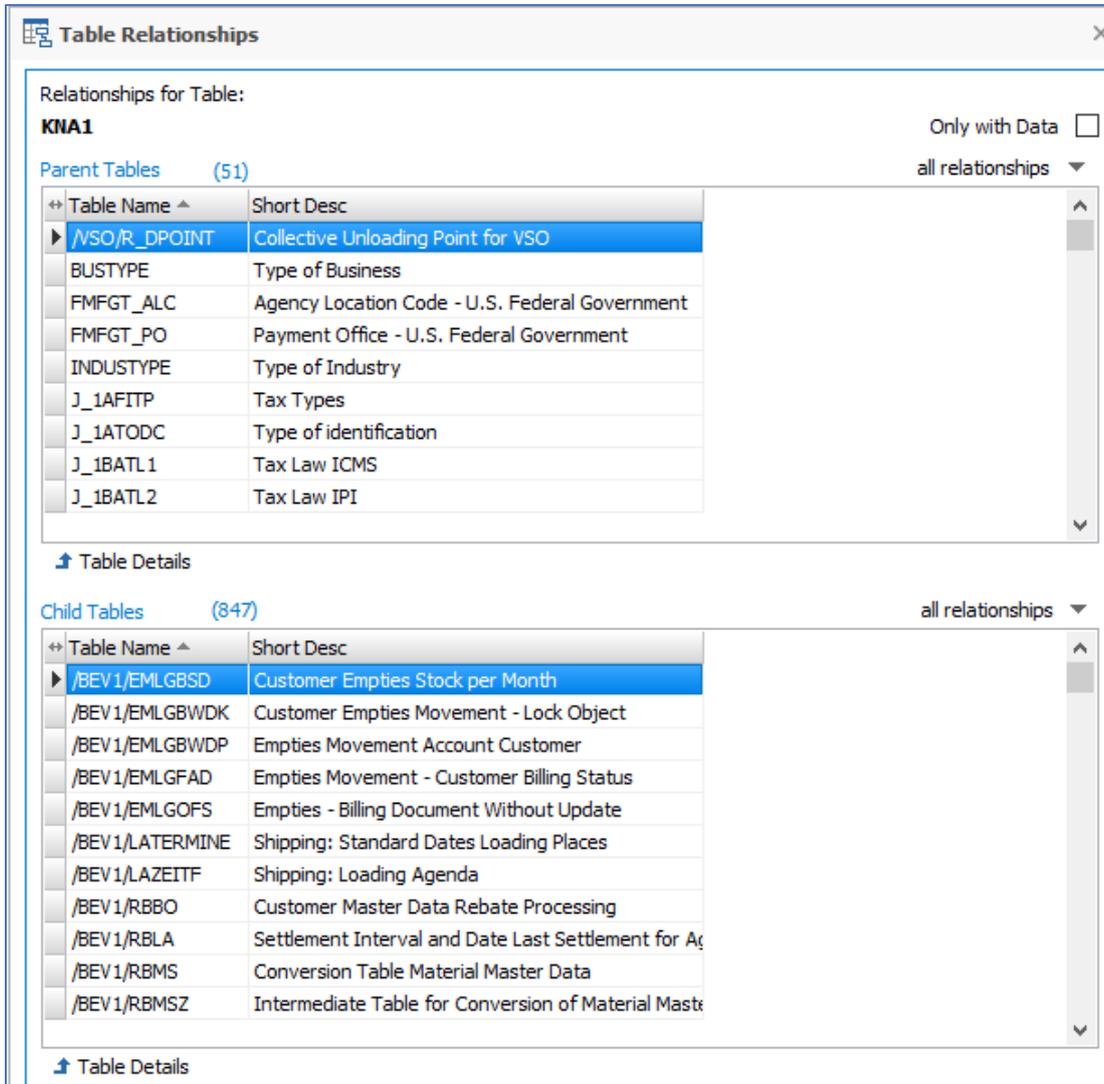


Table Relationships form

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 'only with data' checkbox can be used to reduce the 'parent' and 'child' table lists to only those with a 'Row Count' greater than zero.

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

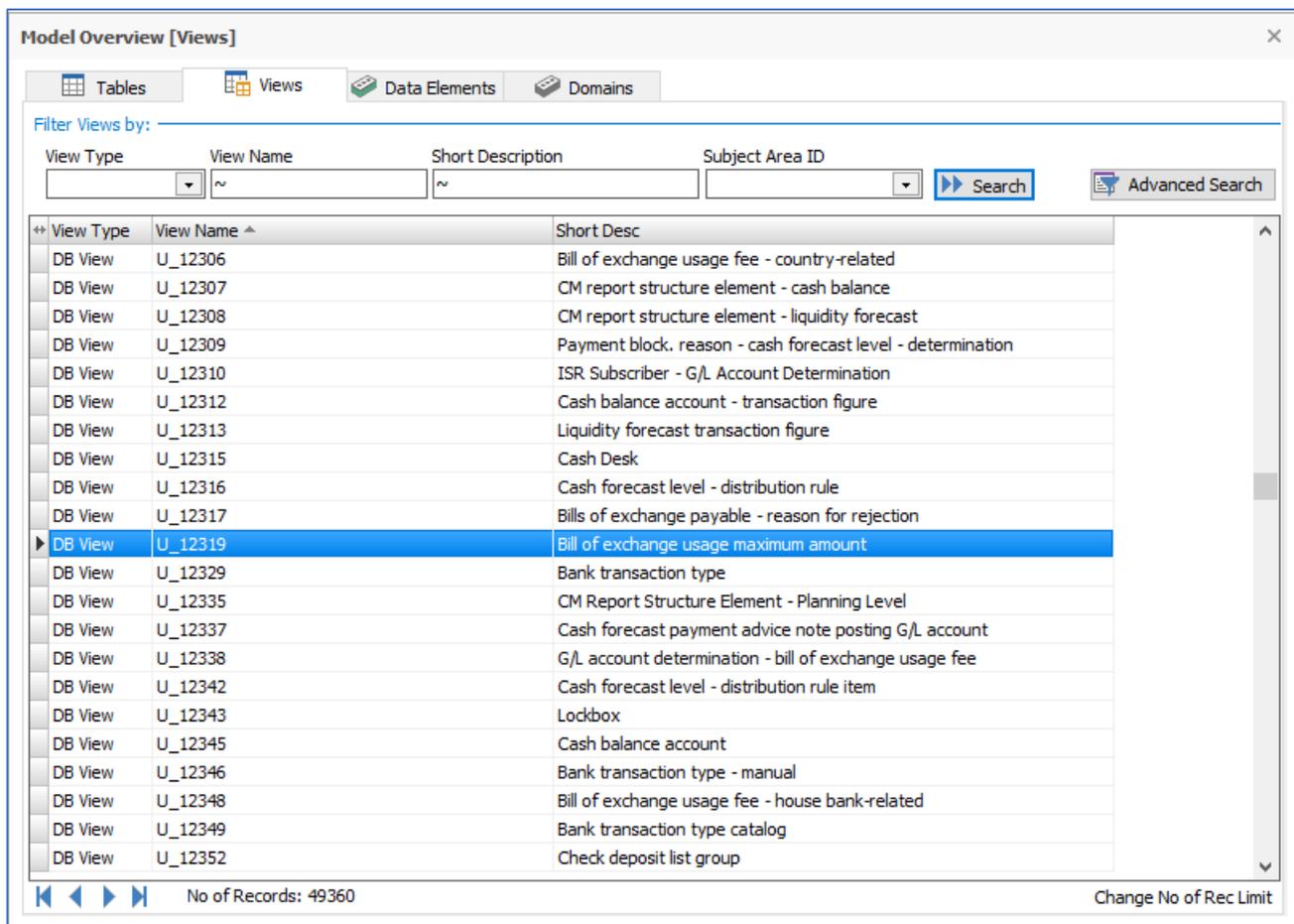
All relationships	All relationships are displayed
Identifying relationships	Only relationships where the migrated primary key is part of the receiving table's primary key are displayed
Non-identifying mandatory relationships	Only relationships where the migrated primary key is not part of the receiving 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.)

### Using the Overview to browse Views

Safyr 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 Safyr for PeopleSoft Enterprise or Oracle E-Business Suite 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

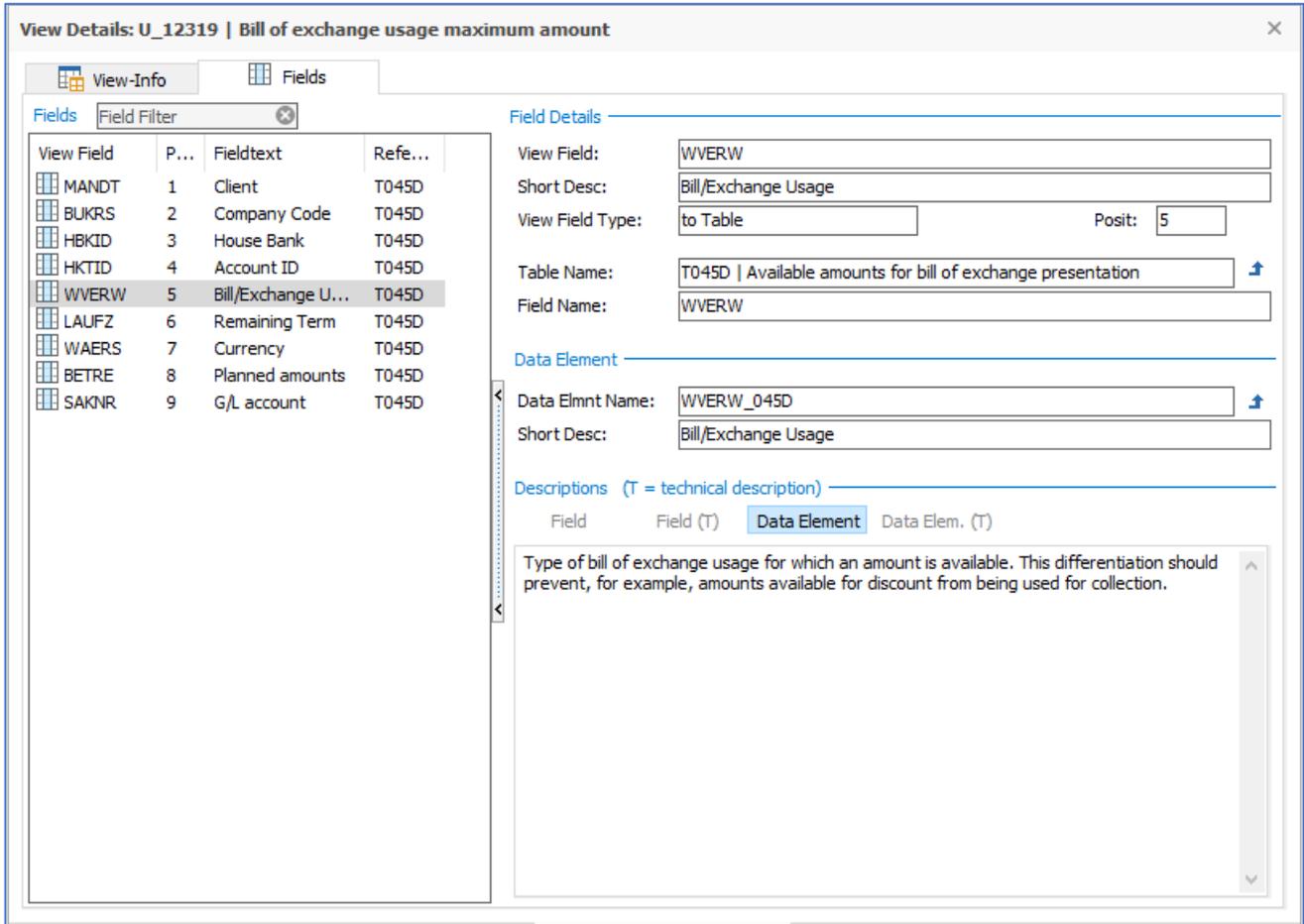
The View list is similar in usage and appearance to the base table list in the Model Overview.

Available fields in the View List include: -

- View Type                      Some ERPs have more than one type – for most this will be a Database View
- View Name                      The internal Name for the View
- Short Desc.                      The Business Name for the View

### Showing the View fields

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

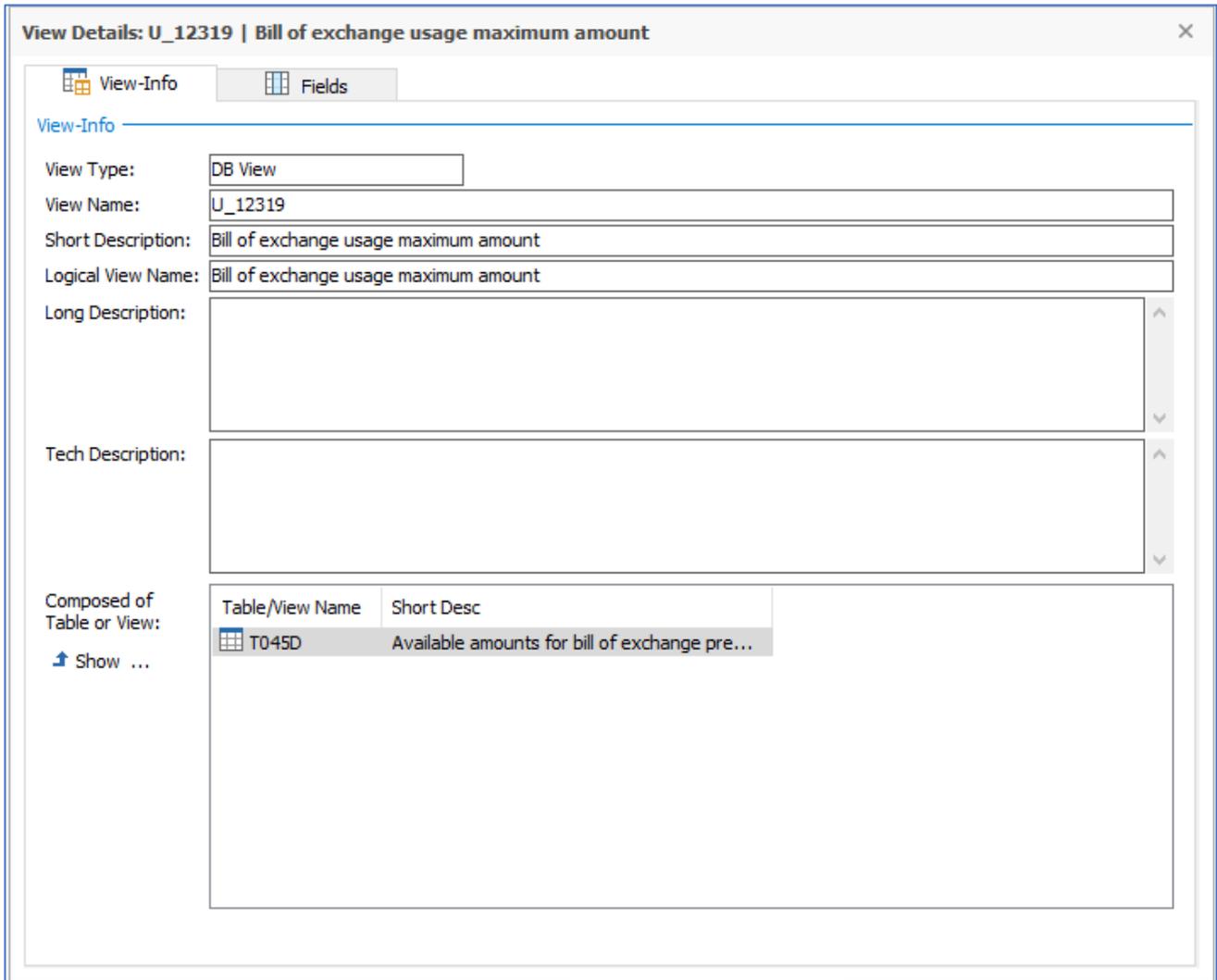


View Details

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

### 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.

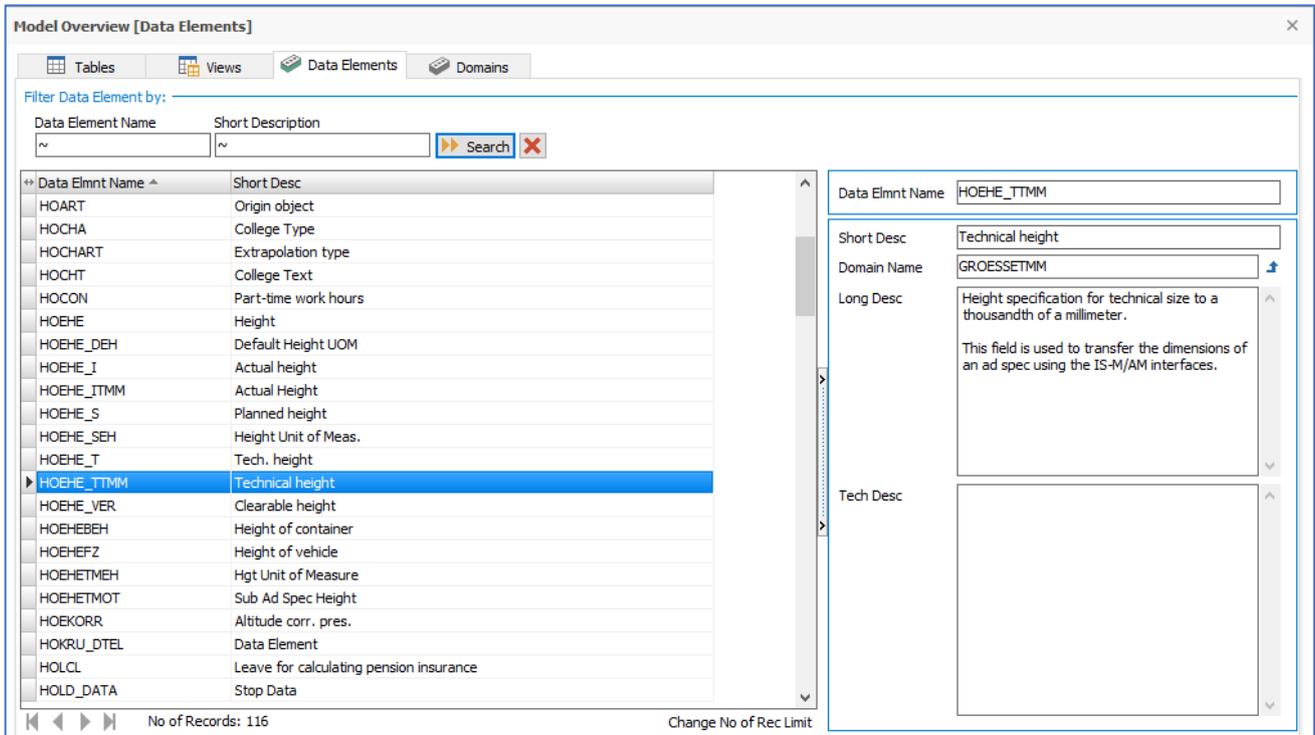


View Information

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).

## 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.

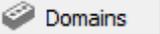
## Searching for tables using a Data Element

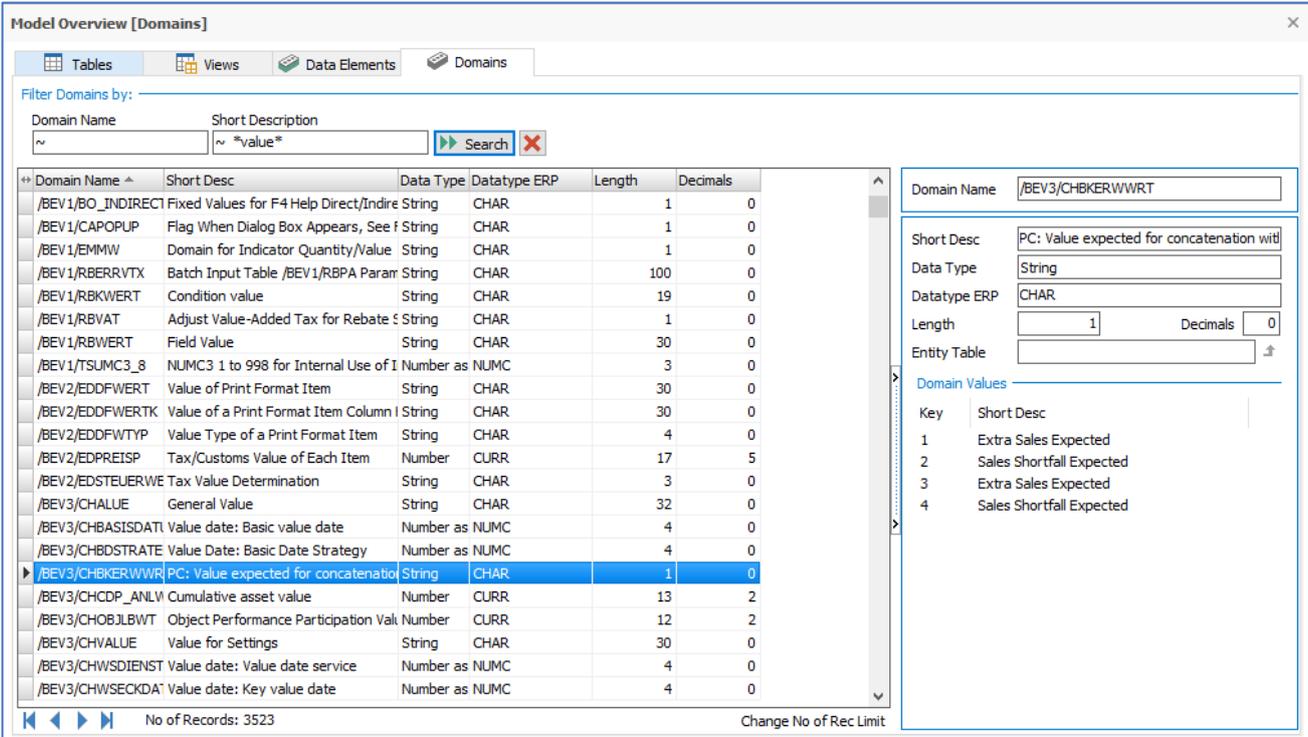
This feature finds all the tables using a specified Data Element.

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.

## 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.



The screenshot shows the 'Model Overview [Domains]' window. At the top, there are tabs for 'Tables', 'Views', 'Data Elements', and 'Domains'. Below the tabs is a search filter section with 'Filter Domains by:' and two input fields: 'Domain Name' and 'Short Description'. A 'Search' button is visible. The main area contains a table of domains with columns: Domain Name, Short Desc, Data Type, Datatype ERP, Length, and Decimals. The domain /BEV3/CHBKERWWRT is selected and highlighted. To the right of the table, a detailed view for the selected domain is shown, including its Short Desc, Data Type, Datatype ERP, Length, Decimals, and Entity Table. Below this, a 'Domain Values' section lists key-value pairs.

Domain Name	Short Desc	Data Type	Datatype ERP	Length	Decimals
/BEV1/BO_INDIRECT	Fixed Values for F4 Help Direct/Indire	String	CHAR	1	0
/BEV1/CAPOPOP	Flag When Dialog Box Appears, See f	String	CHAR	1	0
/BEV1/EMMW	Domain for Indicator Quantity/Value	String	CHAR	1	0
/BEV1/RBERRVTX	Batch Input Table /BEV1/RBPA Param	String	CHAR	100	0
/BEV1/RBKWERT	Condition value	String	CHAR	19	0
/BEV1/RBVAT	Adjust Value-Added Tax for Rebate S	String	CHAR	1	0
/BEV1/RBWERT	Field Value	String	CHAR	30	0
/BEV1/TSUMC3_8	NUMC3 1 to 998 for Internal Use of I	Number as NUMC		3	0
/BEV2/EDDFWERT	Value of Print Format Item	String	CHAR	30	0
/BEV2/EDDFWERTK	Value of a Print Format Item Column I	String	CHAR	30	0
/BEV2/EDDFWTYP	Value Type of a Print Format Item	String	CHAR	4	0
/BEV2/EDPREISP	Tax/Customs Value of Each Item	Number	CURR	17	5
/BEV2/EDSTEUERWE	Tax Value Determination	String	CHAR	3	0
/BEV3/CHALUE	General Value	String	CHAR	32	0
/BEV3/CHBASISDATL	Value date: Basic value date	Number as NUMC		4	0
/BEV3/CHBDSTRATE	Value Date: Basic Date Strategy	Number as NUMC		4	0
/BEV3/CHBKERWWRT	PC: Value expected for concatenatio	String	CHAR	1	0
/BEV3/CHCDP_ANLV	Cumulative asset value	Number	CURR	13	2
/BEV3/CHOBJLBWT	Object Performance Participation Val	Number	CURR	12	2
/BEV3/CHVALUE	Value for Settings	String	CHAR	30	0
/BEV3/CHWSDIENST	Value date: Value date service	Number as NUMC		4	0
/BEV3/CHWSECKDA	Value date: Key value date	Number as NUMC		4	0

Domain Name: /BEV3/CHBKERWWRT

Short Desc: PC: Value expected for concatenation with

Data Type: String

Datatype ERP: CHAR

Length: 1 Decimals: 0

Entity Table:

Domain Values

Key	Short Desc
1	Extra Sales Expected
2	Sales Shortfall Expected
3	Extra Sales Expected
4	Sales Shortfall Expected

No of Records: 3523 Change No of Rec Limit

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.

## Searching for tables using a Domain

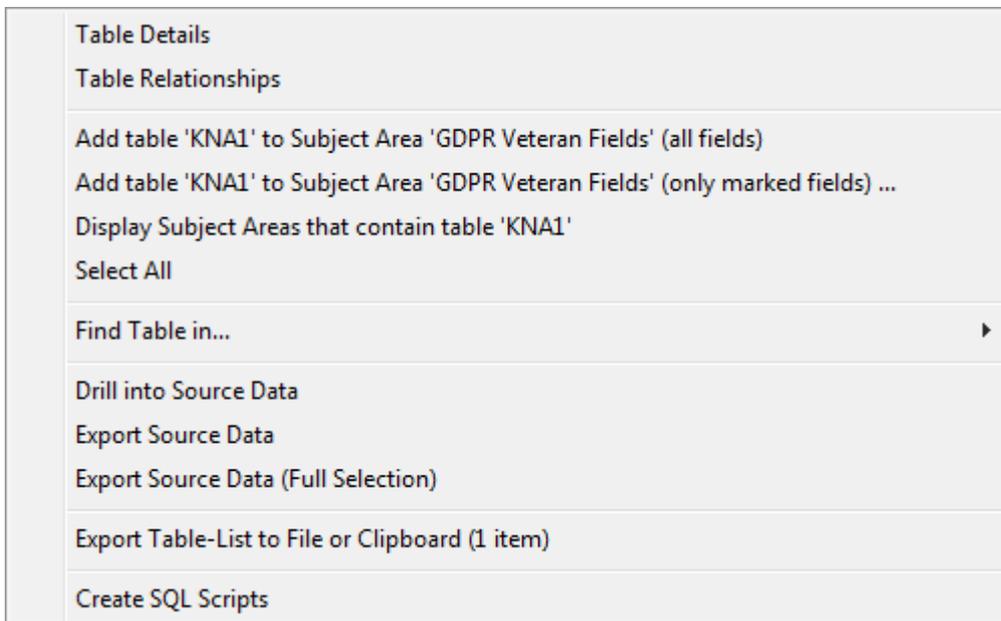
This feature finds all the tables using a specified Domain.

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.

## The Model Overview context pop-up menu

Right Mouse 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> (all fields)	Adds the currently selected Table to the currently open Subject Area, with all the fields of each table
Add Table <name> to Subject Area <name> (only marked fields)	Adds the currently selected Table to the currently open Subject Area, with only the marked fields
Display Subject Areas that contain Table <name>	Opens the Subject Area editor and filters the view to those Subject Areas containing the table

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 List...	'Exporting a list of tables' in this chapter
Create SQL Scripts	'Creating SQL scripts for table access' in this chapter

### Finding a table in the Application Hierarchy

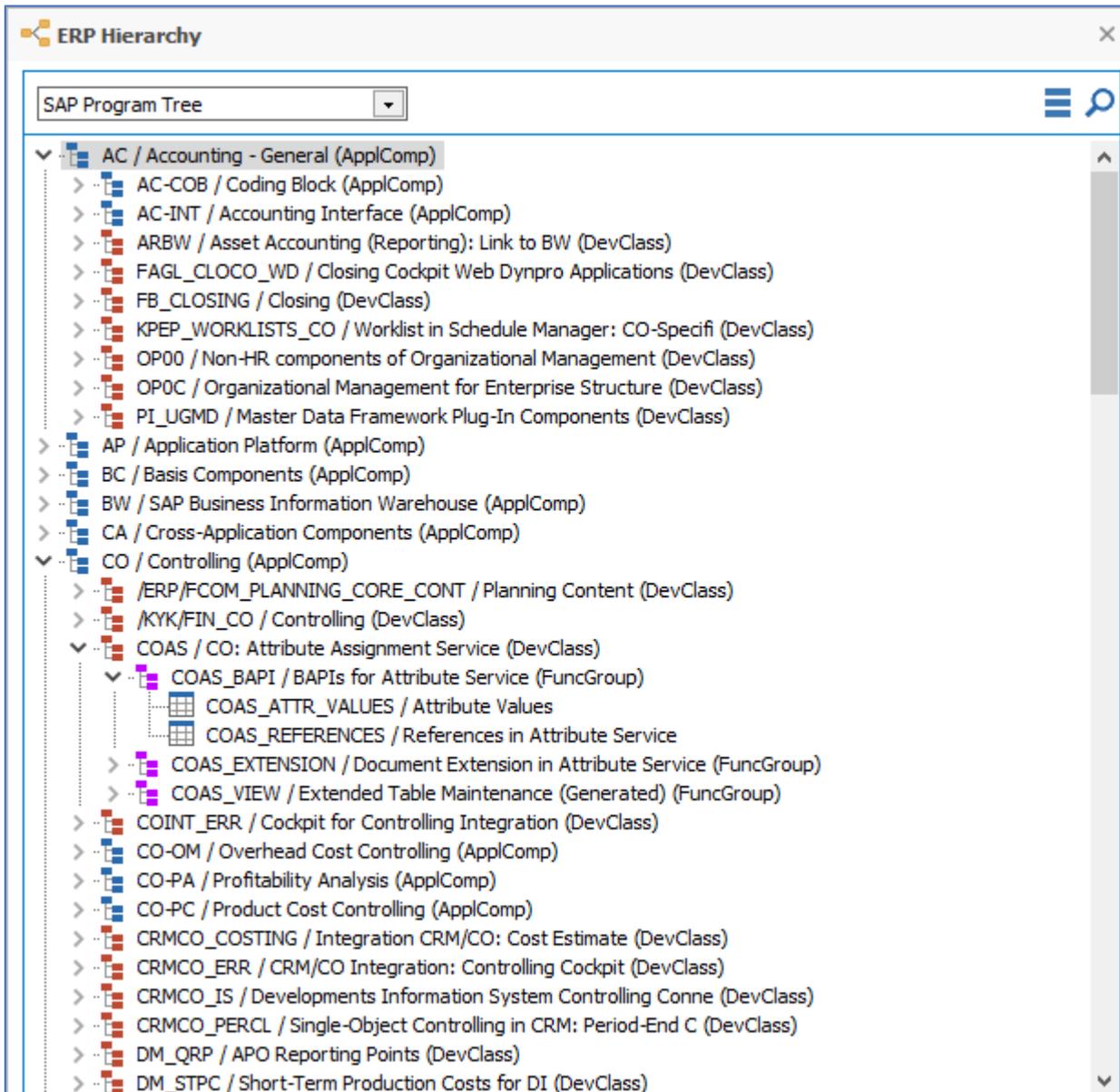
This option, when selected from the Model Overview context menu, will show a list of one or more available Hierarchies in which to search for the table or view. Once the desired Hierarchy has been selected, the Hierarchy is opened at the appropriate table or view. This allows the selected object to be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

For more details of Application Hierarchy see 'The Application Hierarchy' in the next section.

## The Application Hierarchy

The Application Hierarchy is an alternative way of looking at the contents of the Safyr 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 Safyr toolbar, click 'Application Hierarchy' from the 'View' menu, or click on 'Show Hierarchy' on the Safyr Navigation tiles 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 set of highest-level tree nodes correspond to the various modules within the Enterprise Application.

Various icons are used in the hierarchy as follows:

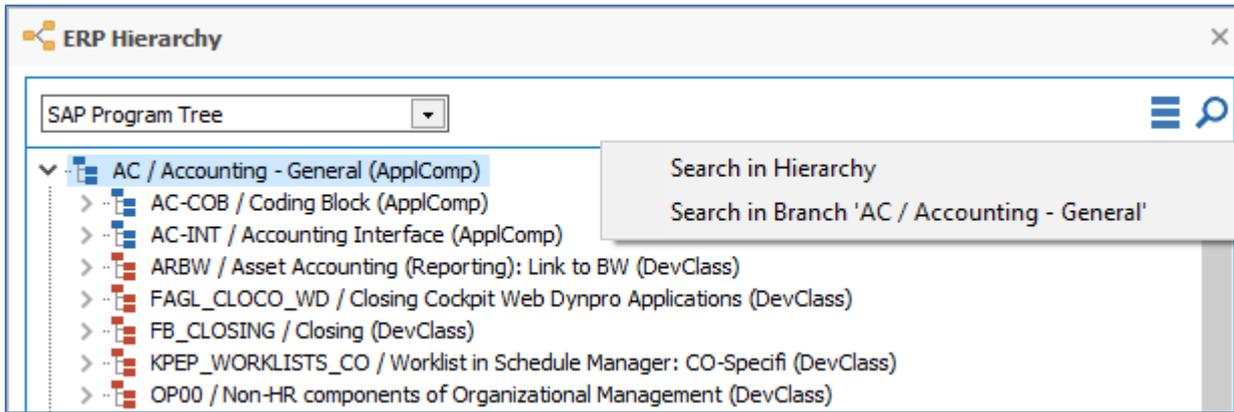
-  a module or a sub-module
-  a Table
-  a View
-  a Development Class (SAP only) or a Business Object (Siebel only)
-  a Function Group (SAP only)
-  a Program (SAP only) or a Screen (Siebel only)
-  a Transaction (SAP only) or a View (Siebel only)
-  a Business Component (Siebel only)
-  an OLTP Source (SAP only)
-  a SAP Function (SAP Only)

### Available actions from the Hierarchy

There are two icons on the Application Hierarchy screen:

-  Search for 'objects' in the Hierarchy
-  Perform Actions on the currently selected node

Clicking the 'Search' icon  presents a pop-up menu. The available options on this menu are context-dependent.



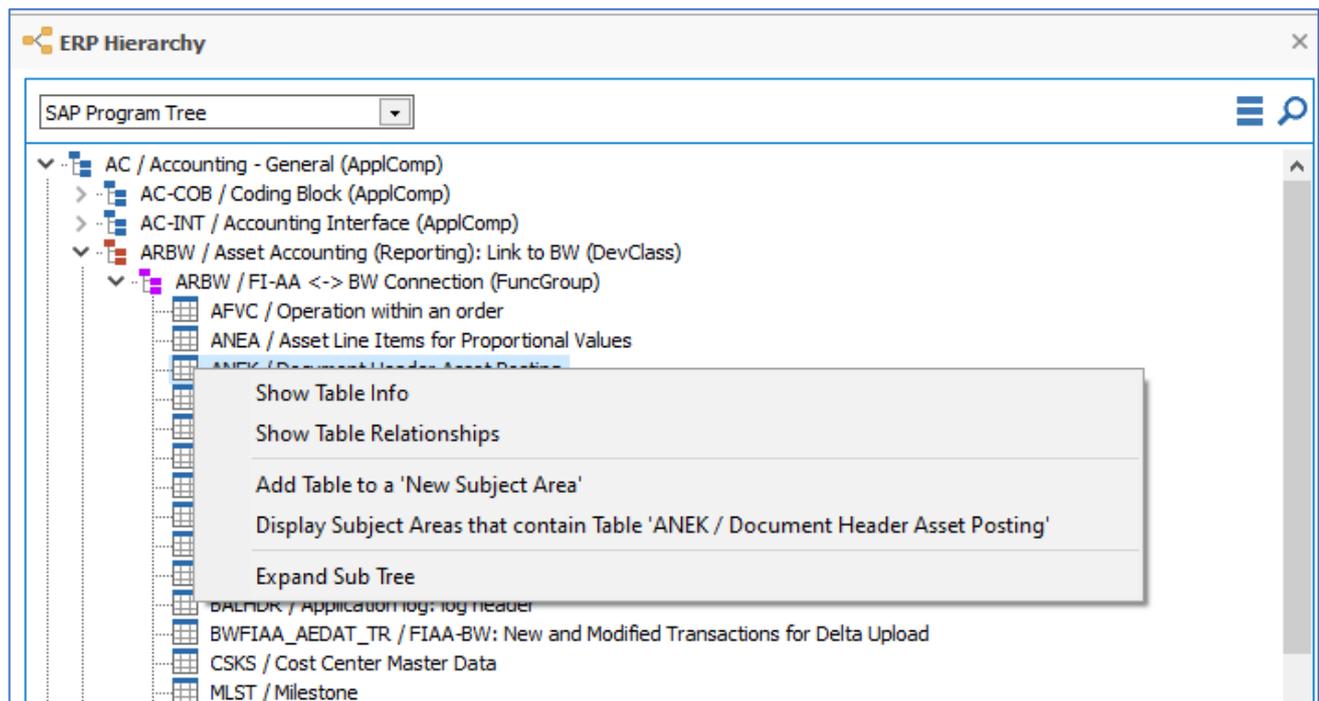
Search menu from Application Hierarchy

The available actions are:

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

Clicking the ‘Tools’ icon  or Right Mouse Clicking in the Hierarchy presents a pop-up menu. The available options on this menu are context-dependent.



Tools menu from Application Hierarchy

**Show Table/View Info** - This option is only available if the current selected node is a table or a 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.

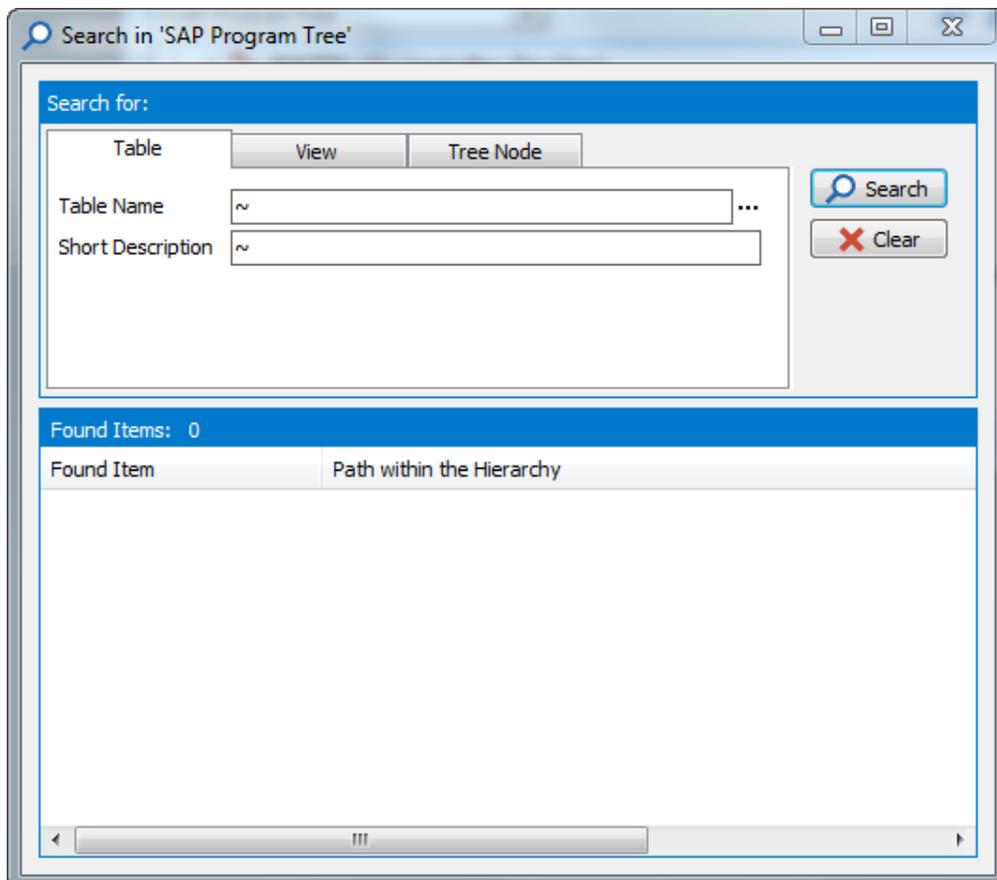
Export Branch <Node Name> to File... The currently selected Node, and its 'child' Nodes, will be exported to a text file format. After selecting this option, a File selection dialog is presented to specify the location of the text file.

Export Entire Hierarchy to File... The complete Hierarchy will be exported to a text file format. After selecting this option, a File selection dialog is presented to specify the location of the text file.

Expand Sub Tree – opens the currently selected node.

### 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 are 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

## BROWSING THE METADATA IN SAFYR

To find the location of a table in the application hierarchy, or currently selected node, enter the 'physical' Table Name or 'descriptive' 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').

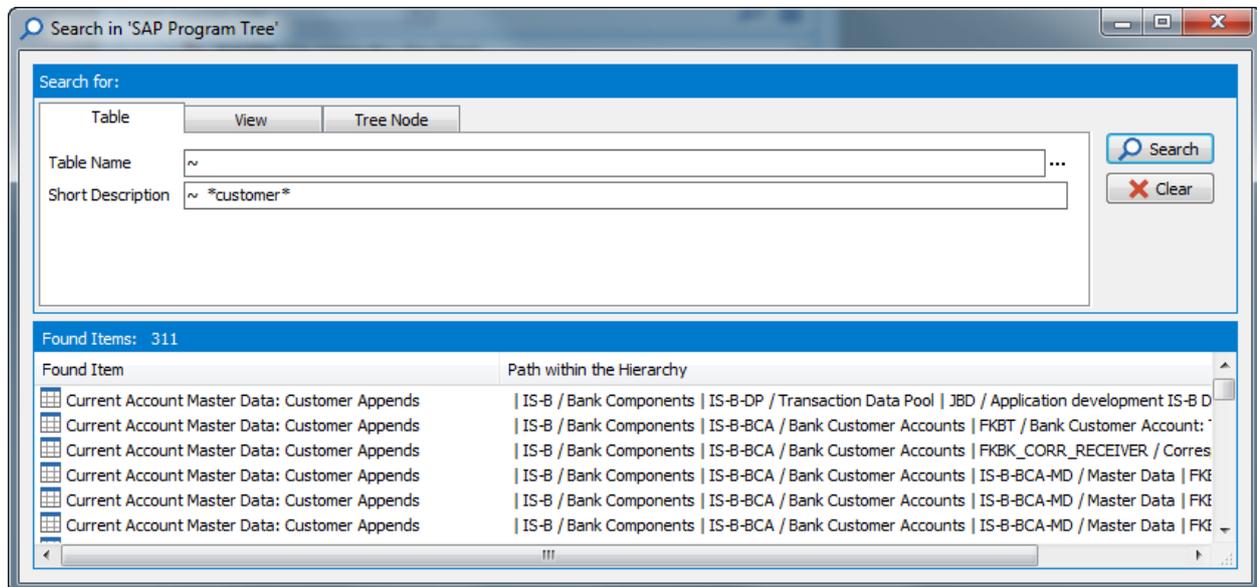
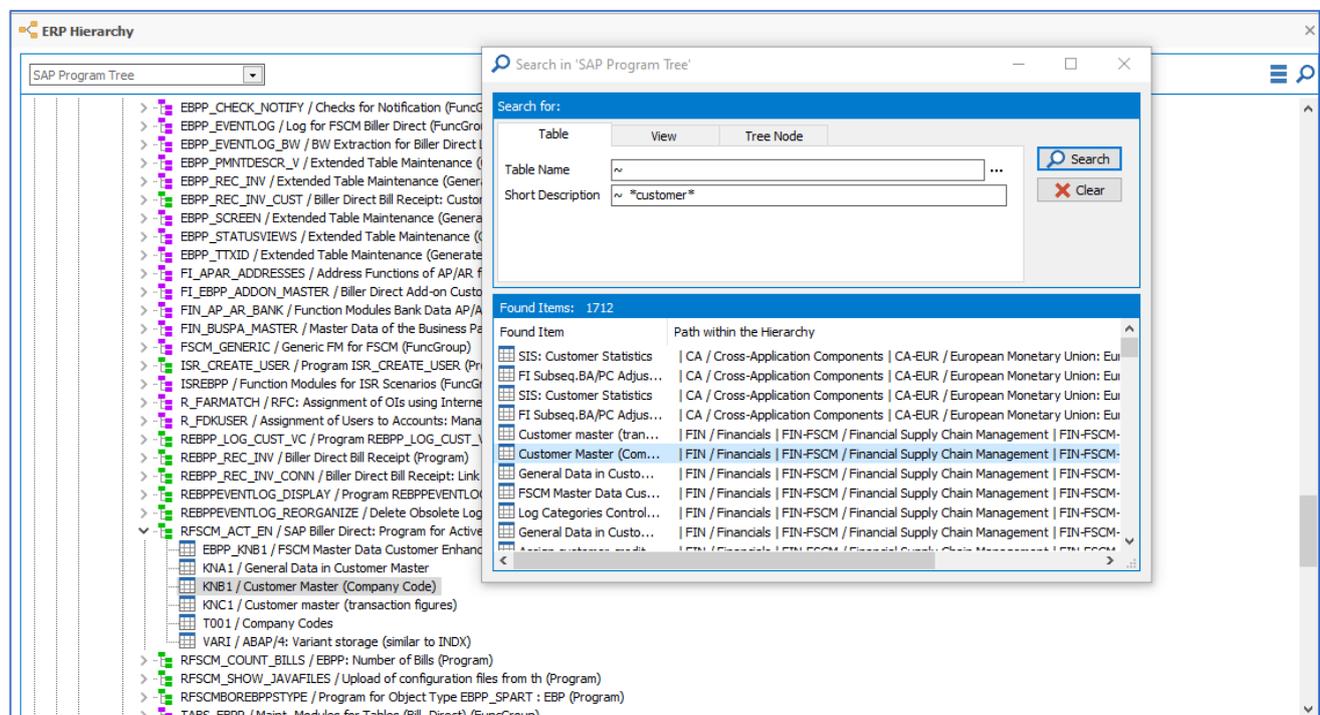


Table Search –result

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

## 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 are for searching for Tables and Views, and the third tab for searching Tree Nodes.

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

The screenshot shows a window titled "Search in 'SAP Program Tree'". It features three tabs: "Table", "View", and "Tree Node", with "Tree Node" being the active tab. The search area contains a "Search for:" label, a "Treenode Class ID" dropdown menu, and a "Short Description" text box with a tilde (~) entered. To the right are "Search" and "Clear" buttons. Below the search area is a table with the header "Found Items: 0" and two columns: "Found Item" and "Path within the Hierarchy". The table is currently empty.

Search Tree Node form

To find nodes 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 Tree Node 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.

## What does the Application Hierarchy show for each ERP?

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

*Note:* There is currently no Application Hierarchy in Safyr for a Salesforce or Microsoft Dynamics AX 2012 system.

### Application Hierarchies for SAP

There are three Application Hierarchies created in Safyr 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.

*OLTP Source Tree Suite* This tree shows the OLTP Sources that are called to populate SAP BW with data. Tables and Views are grouped by Application Component, Development Class, Function Group and Function. There are two types of OLTP Sources:

- *OLTP Source (F\*)* These are Extractors Suite that use a SAP Function to perform the data access
- *OLTP Source(V)* These are Extractors that use a Table or View as the source for the data access

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

### Application Hierarchies for Siebel

There are two Application Hierarchies created in Safyr 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.

### 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.

### 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.

### 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.

## Multi-Object Search

The concept of the Multi-Object search is to allow the user to get an overview of what metadata is available for a given 'object'.

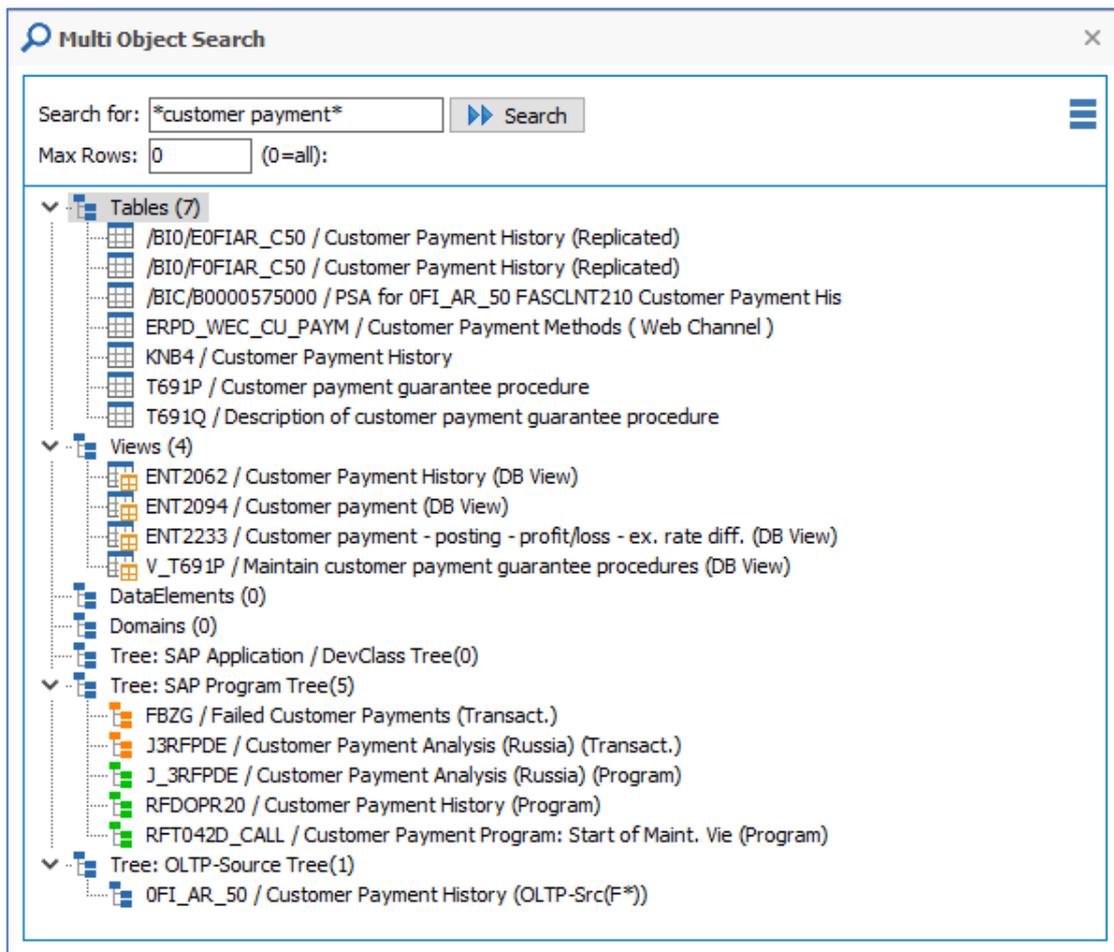
This is achieved by performing a text search across a set of 'object' types and returns a result list in a 'tree' format for further discovery and analysis.

The object types searched are Tables, Data Elements, Domains, Views and the Application Hierarchy.

Multi-Object Search

The wild card of '\*' used elsewhere in the product applies to the Multi-Object Search.

To start the search process, enter a search term in the 'Search for:' box. The number of results returned for each object type can be restricted by setting the 'Max Rows' box to a numeric value. Entering zero will return all results matching the search term.



Multi-Object Search showing search result

The above search example shows the search result after clicking the 'Collapse Tree' option from the Multi-Object 'Tools' icon .

Each node of the tree shows details of the objects returned.

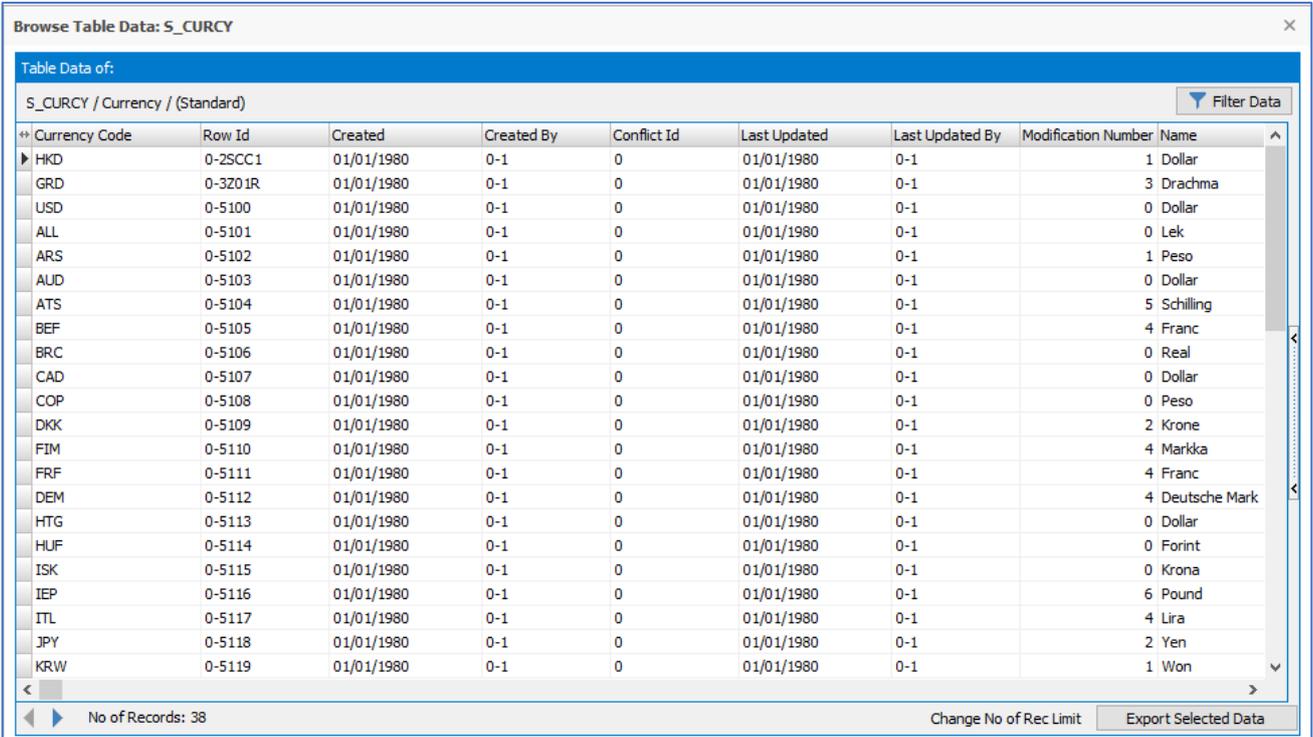
Further details of each object can be shown, either by double clicking on the object, or by Right Mouse Clicking and choosing 'Open Detailed Object Information'. The results of this action vary depending on the object type.

For a Table	The Table Details screen – see 'Viewing Table Details' earlier in this chapter
For a View	The View Details screen – see 'Showing the View Fields' earlier in this chapter
For a Data Element	The Data Element details in the Model Overview – see 'Using the Overview to Browse Data Elements' earlier in this chapter
For a Domain	The Domain details in the Model Overview – see 'Using the Overview to Browse Domains' earlier in this chapter
For a Hierarchy Object	The ERP-specific Hierarchy screen with the selected node opened – see 'The Application Hierarchy' earlier in this chapter.

## Drilling into data

In addition to looking at the metadata for tables, Safyr 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'. Safyr then performs a query to retrieve the data from the table.



The screenshot shows a window titled "Browse Table Data: S\_CURCY" with a table of currency data. The table has columns for Currency Code, Row Id, Created, Created By, Conflict Id, Last Updated, Last Updated By, Modification Number, and Name. The data includes various currencies like HKD, GRD, USD, ALL, ARS, AUD, ATS, BEF, BRC, CAD, COP, DKK, FIM, FRF, DEM, HTG, HUF, ISK, IEP, ITL, JPY, and KRW, each with its respective Row Id, Created date (all 01/01/1980), Created By (all 0-1), Conflict Id (all 0), Last Updated date (all 01/01/1980), Last Updated By (all 0-1), Modification Number, and Name.

Currency Code	Row Id	Created	Created By	Conflict Id	Last Updated	Last Updated By	Modification Number	Name
HKD	0-2SCC1	01/01/1980	0-1	0	01/01/1980	0-1	1	Dollar
GRD	0-3201R	01/01/1980	0-1	0	01/01/1980	0-1	3	Drachma
USD	0-5100	01/01/1980	0-1	0	01/01/1980	0-1	0	Dollar
ALL	0-5101	01/01/1980	0-1	0	01/01/1980	0-1	0	Lek
ARS	0-5102	01/01/1980	0-1	0	01/01/1980	0-1	1	Peso
AUD	0-5103	01/01/1980	0-1	0	01/01/1980	0-1	0	Dollar
ATS	0-5104	01/01/1980	0-1	0	01/01/1980	0-1	5	Schilling
BEF	0-5105	01/01/1980	0-1	0	01/01/1980	0-1	4	Franc
BRC	0-5106	01/01/1980	0-1	0	01/01/1980	0-1	0	Real
CAD	0-5107	01/01/1980	0-1	0	01/01/1980	0-1	0	Dollar
COP	0-5108	01/01/1980	0-1	0	01/01/1980	0-1	0	Peso
DKK	0-5109	01/01/1980	0-1	0	01/01/1980	0-1	2	Krone
FIM	0-5110	01/01/1980	0-1	0	01/01/1980	0-1	4	Markka
FRF	0-5111	01/01/1980	0-1	0	01/01/1980	0-1	4	Franc
DEM	0-5112	01/01/1980	0-1	0	01/01/1980	0-1	4	Deutsche Mark
HTG	0-5113	01/01/1980	0-1	0	01/01/1980	0-1	0	Dollar
HUF	0-5114	01/01/1980	0-1	0	01/01/1980	0-1	0	Forint
ISK	0-5115	01/01/1980	0-1	0	01/01/1980	0-1	0	Krona
IEP	0-5116	01/01/1980	0-1	0	01/01/1980	0-1	6	Pound
ITL	0-5117	01/01/1980	0-1	0	01/01/1980	0-1	4	Lira
JPY	0-5118	01/01/1980	0-1	0	01/01/1980	0-1	2	Yen
KRW	0-5119	01/01/1980	0-1	0	01/01/1980	0-1	1	Won

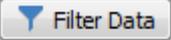
### Drilling into Data

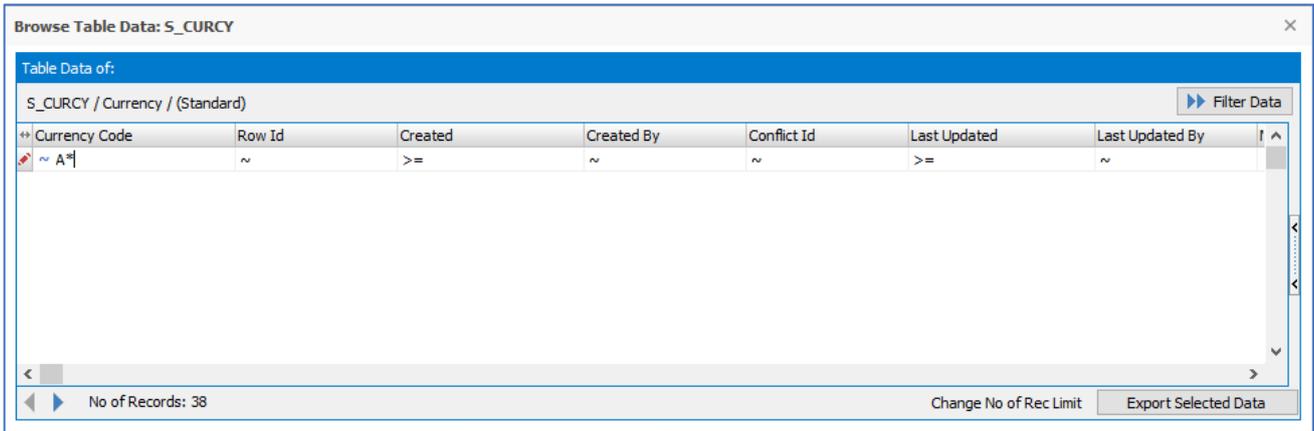
Safyr displays the result data set in tabular form. Additionally, there are one or more Detail Tabs to the right of the screen, which allow the user to examine all the fields of one row.

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

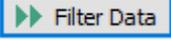
The data set can be sorted by clicking on the title for the required sort column. A second click will sort that column in descending order.

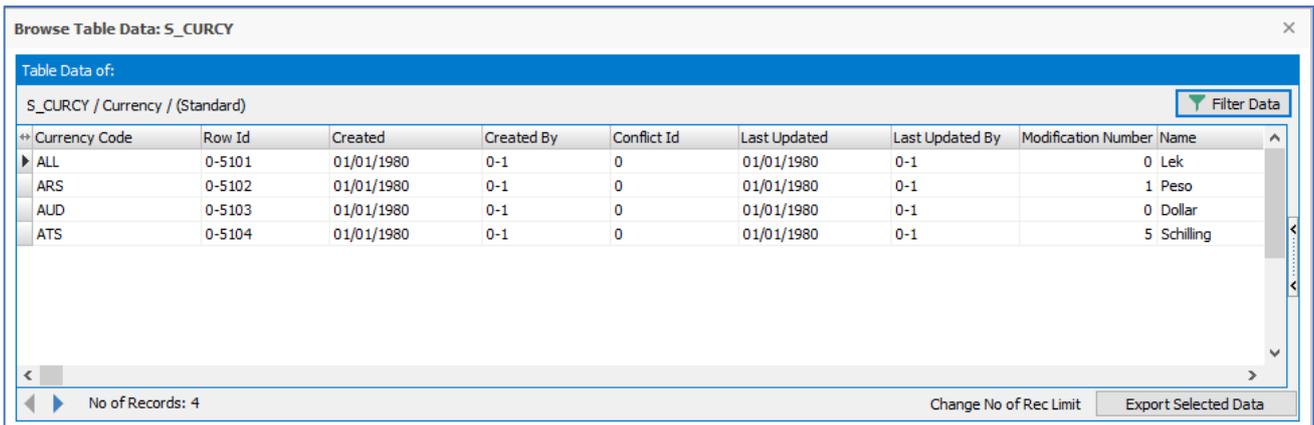
## Using QBE (Query by Example) to interrogate data

To restrict the data retrieved, click on the Filter Button . Queries can be built up by adding selection criteria to one or more fields.



Setting QBE Selection Criteria

Click the 'Filter Data' Button  to run the query.



Query Results

## Exporting data to flat files

Exporting data from a single table

Having selected the required data, click on the **Export Selected Data** 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:

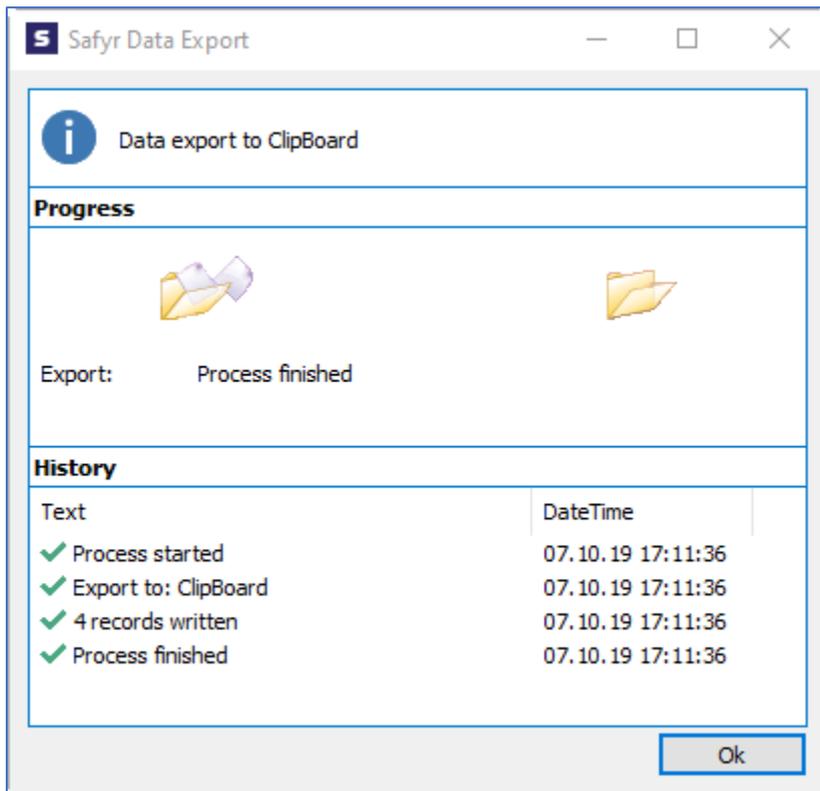
- File Name:** Enter the name of the file to export to. Use the  button to browse for a file or folder. If this file does not exist, Safyr will create it.
- Write File Header:** Checking this option enables the additional options in the panel of 'Record Counter and 'Column Names'.
- Record Counter:** 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 **Fields...** 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.



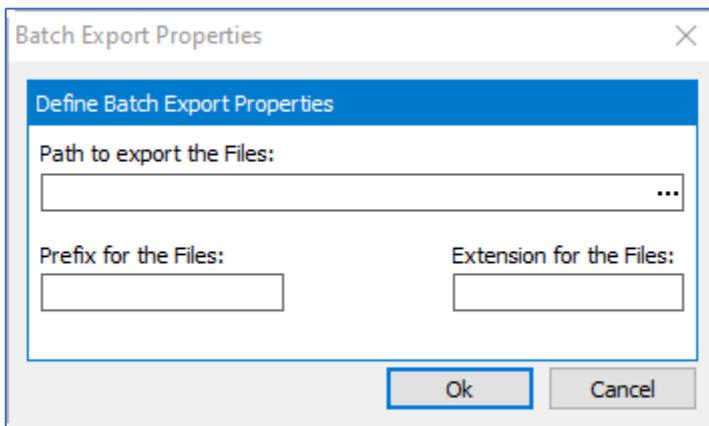
Export Progress Form

### 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 Safyr 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 Mouse 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 Safyr 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.

## Creating SQL scripts for table access

This feature of Safyr 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.

```
SELECT
  CURCY_CD AS Currency_Code,
  ROW_ID AS Row_Id,
  CREATED AS Created,
  CREATED_BY AS Created_By,
  CONFLICT_ID AS Conflict_Id,
  LAST_UPD AS Last_Updated,
  LAST_UPD_BY AS Last_Updated_By,
  MODIFICATION_NUM AS Modification_Number,
  NAME AS Name,
  ACTIVE_FLG AS Active_Flag,
  END_DT AS End_Date,
  START_DT AS Start_Date,
  CURCY_SYMBOL AS Currency_Symbol,
  DECIMAL_SYMBOL AS Decimal_Symbol,
  EURO_FLG AS Euro_Triangulation_Required_Flag,
  QUALIFIER AS Qualifier,
  DCKING_NUM AS Docking_Number,
  DEGREE_OF_PREC AS Degree_Of_Precision,
  EXTEND_PRECISION AS Extend_Precision,
  MIN_ACCT_UNIT AS Minimum_Acct_Unit,
  ISSUING_COUNTRY AS Issuing_Country,
  DESC_TEXT AS Descriptive_Text
FROM dbo.S_CURCY
```

To generate Views or Select Statements

Right Mouse Click on the appropriate table in the Safyr 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 selections, click the ‘Create SQL’ button to generate the required statement.

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.

## Exporting a list of tables

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

Right Mouse Click on the Safyr Model Overview and choose ‘Export Table List to File or Clipboard’

The following 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, Safyr will create it.
- Output Encoding: Choose the output encoding required. This can be ANSI, UTF16 or UTF8.
- Write 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.

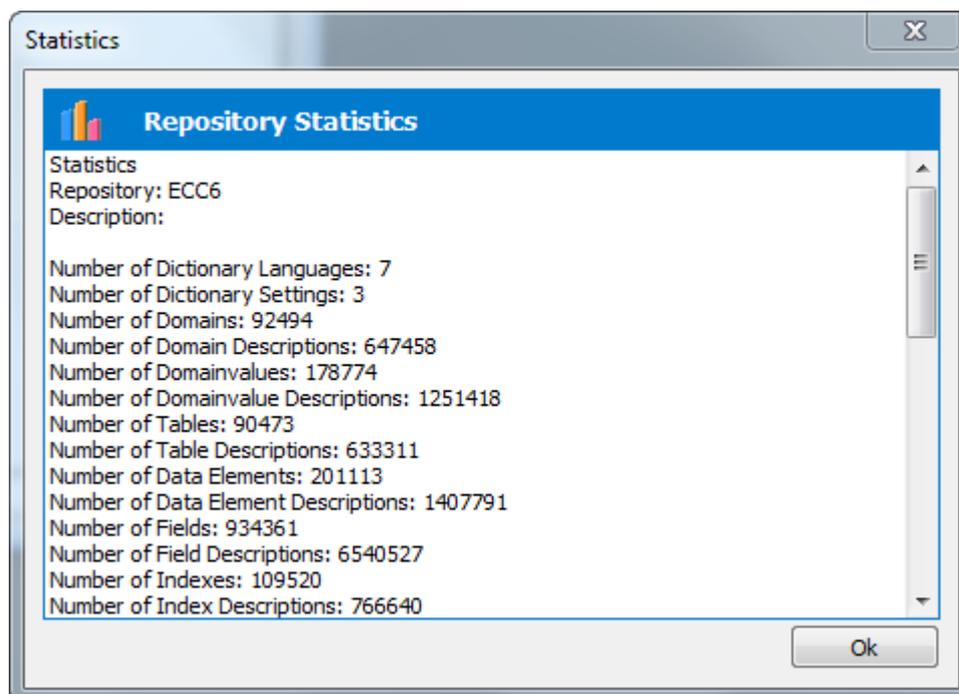
- Boolean 'True' or 'False': Allows the user to specify suitable text values by which to represent Boolean values in the file.
- Field Delimiter: Choose the appropriate character to act as a field delimiter in the exported file
- Record Separator: Choose the appropriate character to act as a record separator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

### Viewing Model Statistics

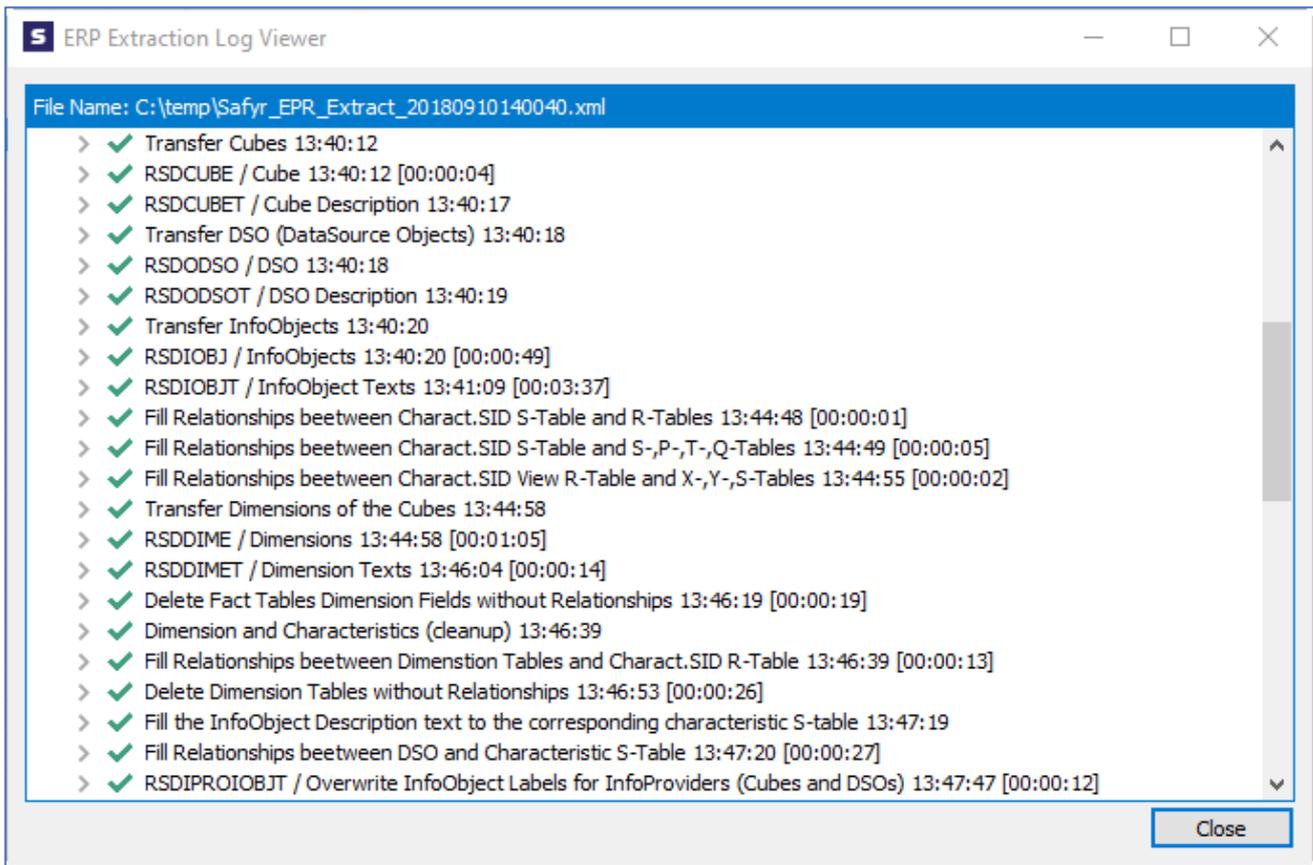
The 'Statistics' option on the Safyr View menu will display a form showing a summary of the 'objects' extracted and stored in the Safyr repository.



Model Statistics

## The ERP Extract Log

During the extraction of metadata from the chosen Enterprise Application, Safyr 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 Safyr '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 'Users' folder. This will typically be \Users\\AppData\Roaming\Silwood\Safyr 7\ExtractLog\.

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

## The Export Log

The Export Log is similar to the Extract Log described in the previous section. This log is produced when one of Safyr's Export formats is used. The log file can be viewed by selecting 'Show Export Log...' from the Safyr 'Tools' menu.

## Subject Areas

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

- Create subsets of the full set of tables in the Safyr repository – a Safyr subject area is like a folder where you can group together tables of interest.
- Create subsets of the fields for each table (see ‘Subject Areas and Marked Fields’ below). ERP/CRM packages often have tables with many fields (sometimes hundreds). This feature enables the user to select as many (or as few fields) as meets their requirement.
- Qualify Searches – A subject area can be used in combination with the other Safyr 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 Safyr 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 Repository to another Repository using the subject area backup/restore feature described below.

A table may exist in zero, one or more Subject Areas, and the field subsets (see ‘Subject Areas and Marked Fields’ below) are specific to a given Subject Area.

### Subject Areas and Marked Fields

Safyr uses a concept called ‘Marked Fields’ to allow the user to select one or more fields in a given table. When exporting a Subject Area from Safyr, the user can decide to export all fields for the tables in a Subject Area, or just the marked fields.

There are two approaches available in Safyr to ‘mark’ fields:

Using Search Criteria – when Safyr search criteria that select tables by ‘Field’ attributes are active, the matching fields can be automatically marked.

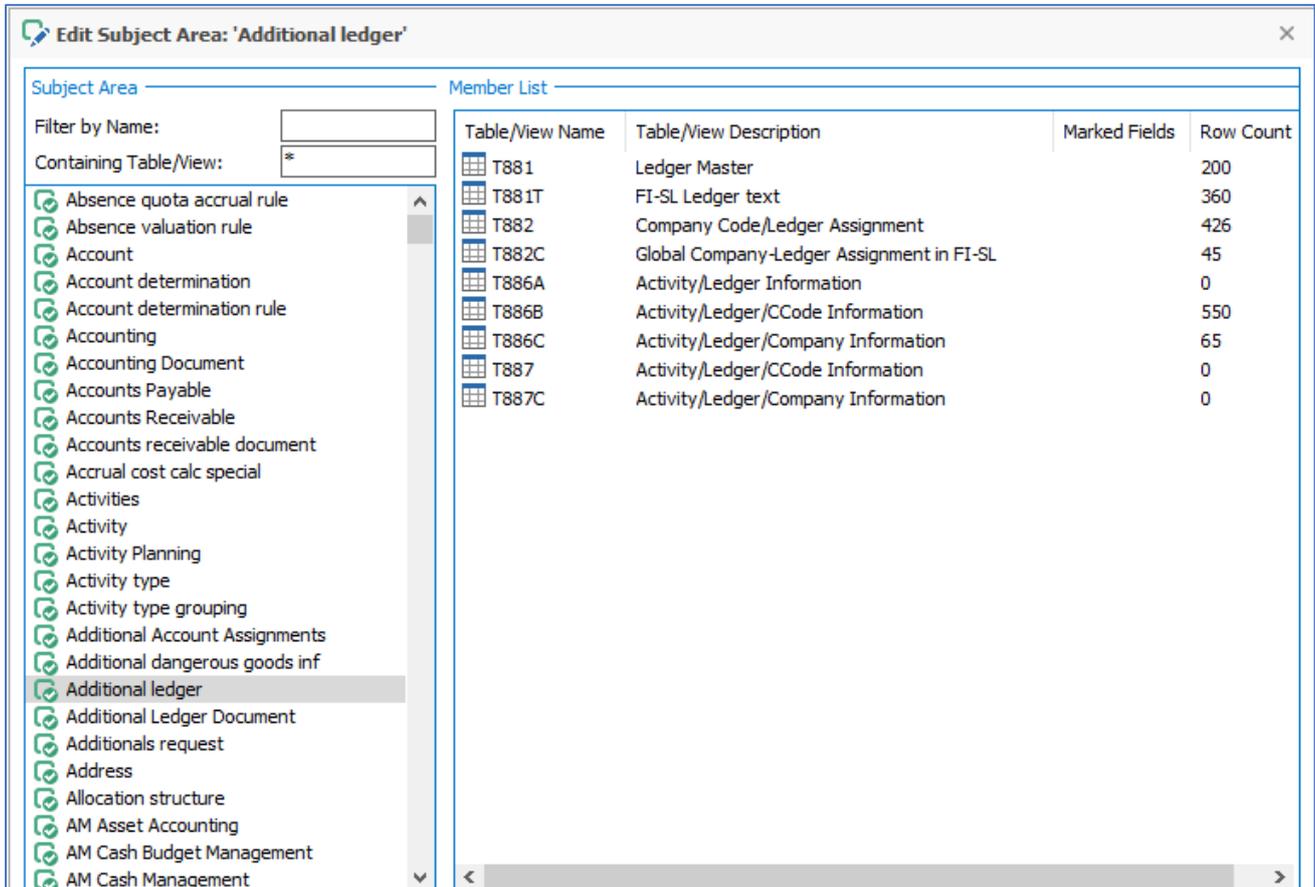
Marking fields manually – In addition to using search criteria, fields may be selected/deselected as ‘marked’. See ‘Marking Fields Manually’ below for details on how to manually mark fields.

*Note1* : If a Table is in a Subject Area and has no explicitly marked fields, then an export of that Subject Area to one of the Safyr export formats will include *all* the fields for that table.

*Note2*: Marked Fields can only exist within the context of a Subject Area. Two or more Subject Areas may reference the same table and each table can have differing Marked Fields.

## Managing Subject Areas

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



Table/View Name	Table/View Description	Marked Fields	Row Count
T881	Ledger Master		200
T881T	FI-SL Ledger text		360
T882	Company Code/Ledger Assignment		426
T882C	Global Company-Ledger Assignment in FI-SL		45
T886A	Activity/Ledger Information		0
T886B	Activity/Ledger/CCode Information		550
T886C	Activity/Ledger/Company Information		65
T887	Activity/Ledger/CCode Information		0
T887C	Activity/Ledger/Company Information		0

The Subject Area form

The list on the left shows the existing Subject Areas. This will be empty the first time an extraction is performed from a given ERP/CRM system. The members of a Subject Area are shown on the right when a Subject Area is selected.

Where Fields have been 'Marked', the number of Marked Fields is shown. If this is blank for a given table, then no Fields of that table have been Marked.

The Row Count column shows how many data rows are in each table. This will show as '-1' for Views.

The 'Filter by Name' box can be used to sub-set the list of Subject Areas to those matching the entered string.

The 'Containing Table/View' box can be used to sub-set the list of Subject Areas to those containing a Table or View that match the entered string.

The controls at the bottom of the Subject Area screen are as follows:

 Click to change the name of the current Subject Area.



Click to create a new Subject Area. See 'Adding a New Subject Area' below.



Copy the selected Subject Area to a new Subject Area. This will create a new Subject Area, copying the Subject Area Members from the first Subject Area and with the same name as the first Subject Area with '(Copy)' appended.



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.



Subject Area Tools – see below for the expansion of this menu



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.



Export Selected Subject Area. This option starts the Export Wizard (see Chapter : Exporting metadata) using the currently selected Subject Area.



Restore. A subject area and its contents, previously exported, may be loaded into a separate Repository. 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.



Import from Excel. A subject area can be created based upon an Excel spreadsheet. Details of the Excel structure are described in Appendix C.



Backup All Subject Areas. This option exports all subject areas into an export file. This file can be used to populate another subject area in the same or a different Safyr repository. On clicking this option, you will be prompted for the file name of the subject area to be exported. On accepting this, the subject areas and their members will be written to the export file.



Backup Selected Subject Area. 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 Safyr repository. On clicking this option, you will be prompted for the file name of the subject area to be exported. After accepting this, the current subject area and its members will be written to the export file.

For the Subject Area members, the following tools are available:



Show Details of the currently selected Table or View.



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.



Copy selected members.



Paste selected members. These two tools (Copy, Paste) can be used to copy not only the tables from one Subject Area to another but also their Marked Fields. Where the tables exist in both 'source' and 'target' Subject Areas, the Marked Fields for the two versions of the Table will be merged.

## Adding a New Subject Area

Clicking the 'Add new Subject Area' icon will display the 'Create New Subject Area' screen.

Adding a New Subject Area

Enter a suitable name for the Subject Area, and (optionally) a description. The Created User and Updated Date/Time are automatically set after clicking the 'OK' button.

## 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 form
- From the Application Hierarchy

### 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. These can be added to an existing Subject Area, or a new Subject Area can be created and populated with the chosen tables in one step.

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

**BROWSING THE METADATA IN SAFYR**

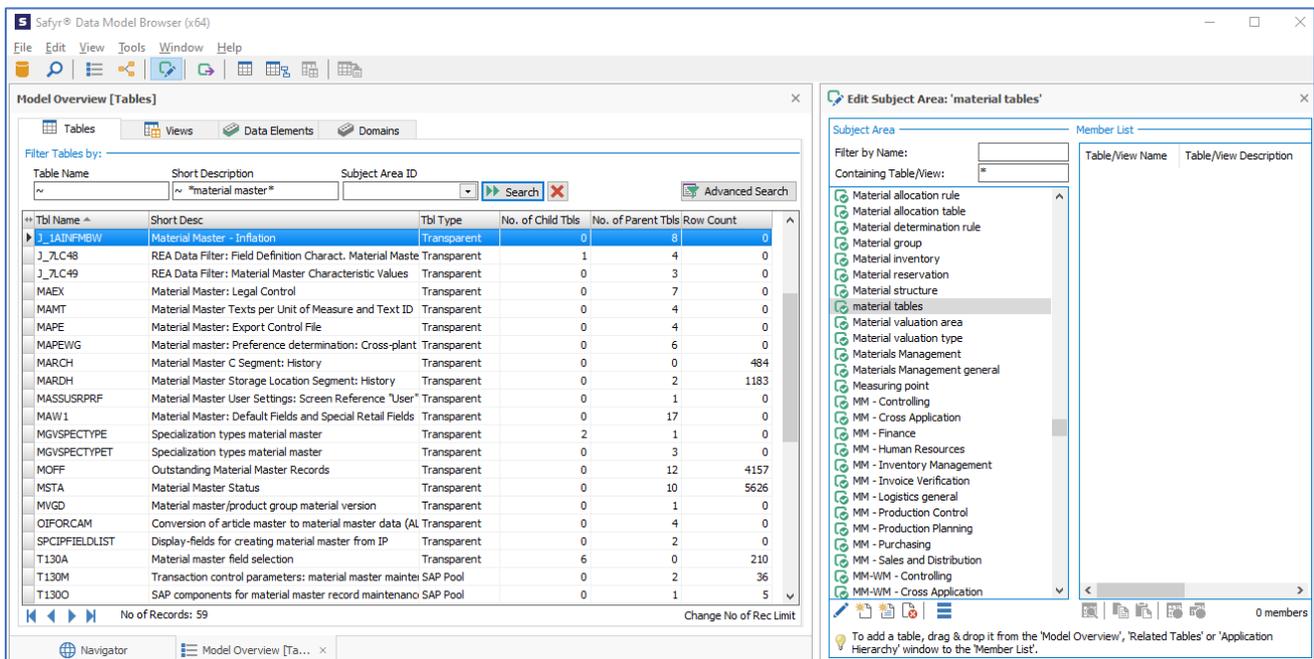
manageable size. Then, Right Mouse Click on the list of tables in the Model Overview and click one of the following:

Add Table <name> to Subject Area <Subject Area name> <field range>
Add the selected <number of tables> to Subject Area <Subject Area name><field range>
Add Table <name> to a 'New Subject Area' <field range>
Add the selected <number of tables> to a 'New Subject Area' <Subject Area name> <field range>

If the Subject Area editor is already open, then one of the first two options in the table will be displayed and the <Subject Area name> will be set to that of the Subject Area currently selected in the Subject Area editor. If the Subject Area editor is not open, then one of the last two options in the table will be displayed and after choosing the 'Add...' option, an additional screen will prompt the user to enter the name of the new Subject Area.

The 'field range' option will be either:

all fields	All fields of each table will be part of the Subject Area
only marked fields	Only those fields explicitly marked will be added to the Subject Area. This option will also prompt the display of an additional screen. See 'Filter Screen for Marked Fields' below.



Populating an existing Subject Area from the Model Overview

## Filter Screen for Marked Fields

Mark Fields for Subject Area 'New Subject Area'

Mark Fields with Filter:

Field Name ~

Short Description ~

Long Description ~

Data Elmnt Name = ...

Domain Name = ...

Only tables with fields matching the filter criteria will be added to the Subject Area.

Clear Filter Ok Cancel

Filter Screen for Marked Fields

When choosing the '...(only marked fields)' option for populating a Subject Area, the Marked Fields with Filter screen is displayed.

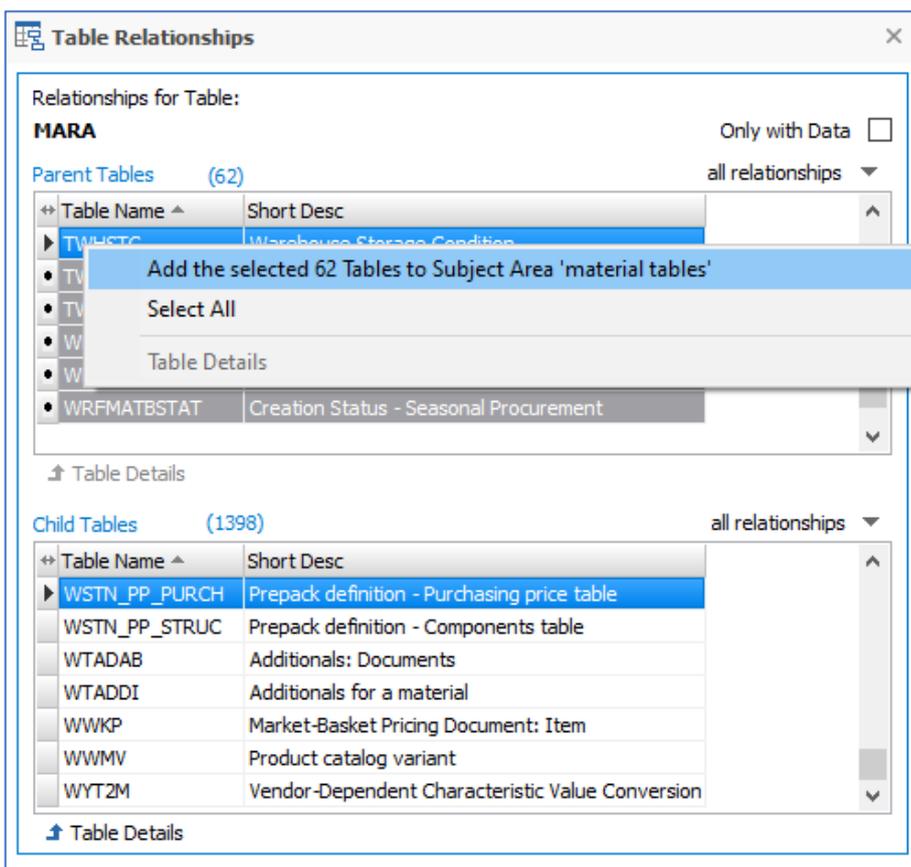
If there are any active Field level search criteria from the Advanced Search screen currently selected, these will be shown. In order to select the Fields for inclusion in the Marked Fields for the Subject Area, it will be necessary to enter suitable search criteria.

Populating a Subject Area from the Related Table form

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).

Similar options for Adding individual or selected tables apply here, as described in the previous section ‘Populating a Subject Area from the Model Overview’, but without the ‘marked fields’ option.

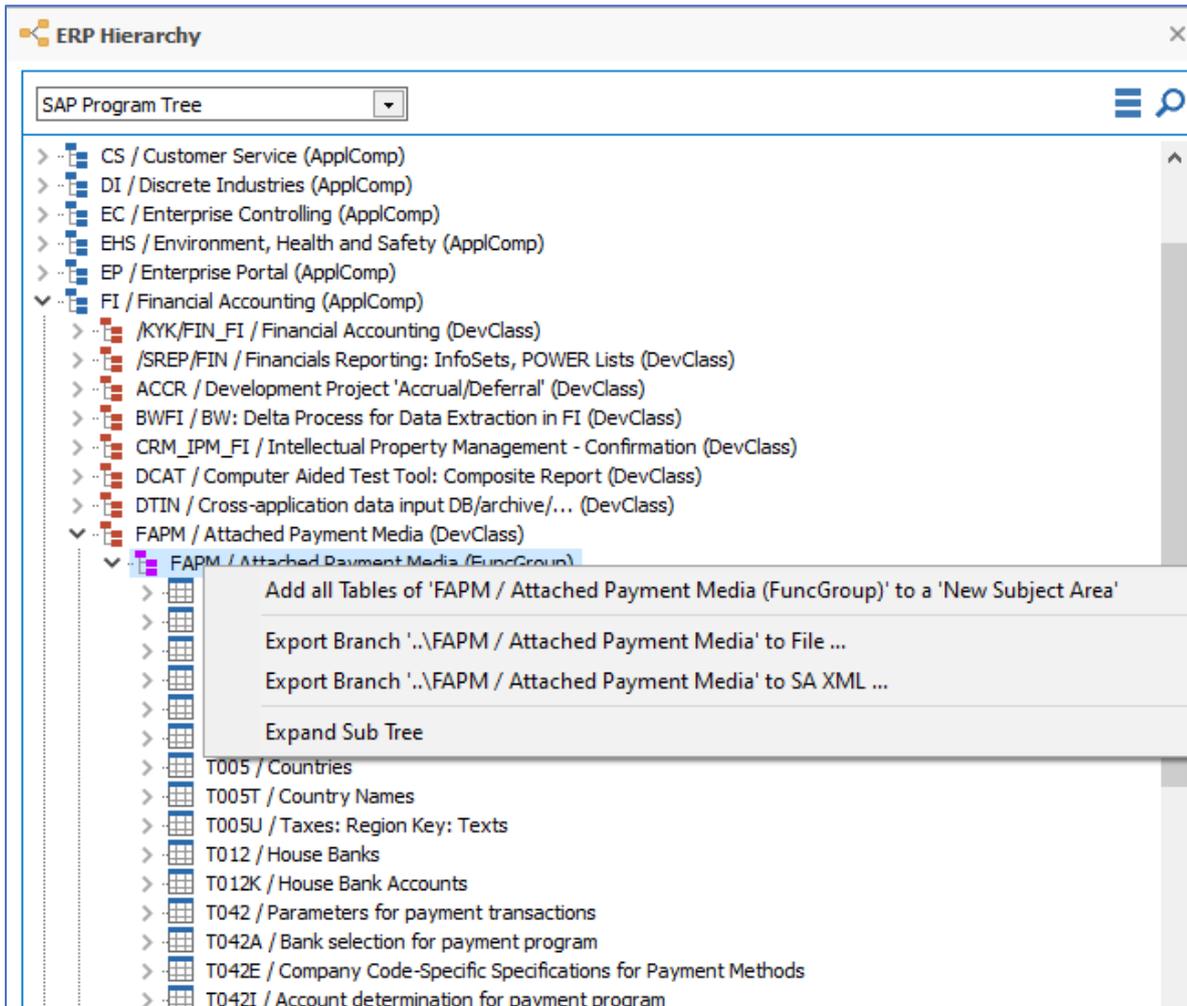


Adding related tables to a new Subject Area

**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. As with the previous two methods, slightly different options are presented, depending on whether or not the Subject Area editor is already open.

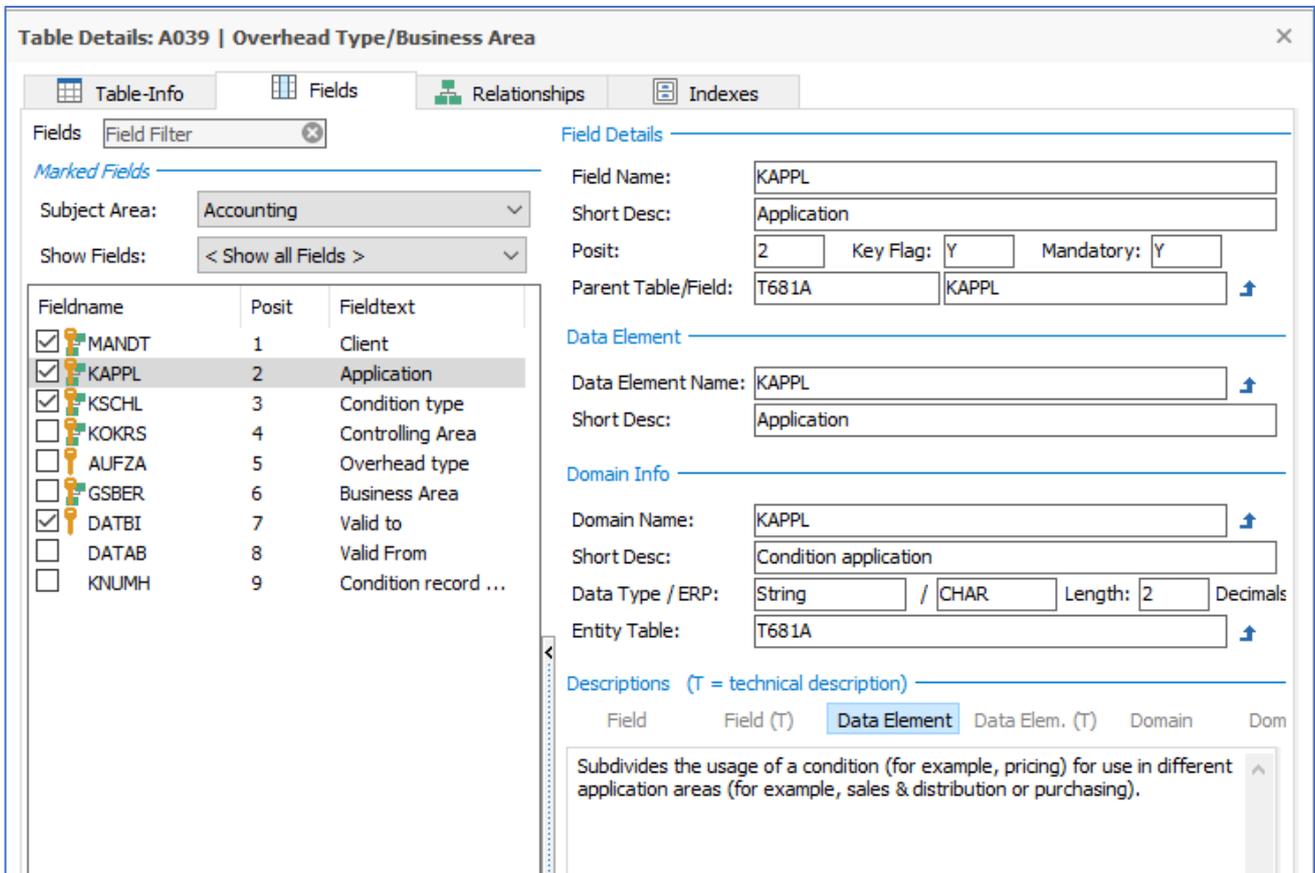


Populating a new Subject Area from the Application Hierarchy

## Marking Fields Manually

Once a table is added to a Subject Area, additional options become available for managing the Marked Fields.

Opening the Table Details screen from the Subject Area editor will reveal a set of check boxes that correspond to each Field. Any previously marked fields will already have the check box set 'on'.



Marked Fields options on Table Display

Two drop down lists are available.

- **Subject Areas:** This shows those Subject Areas of which the Table is a member. Choosing a different Subject Area will show the Marked Fields relevant to that Subject Area.
- **Show Fields:** This allows the visible Fields to be filtered as follows:
  - Show all Fields shows all the fields
  - Show Marked Fields shows marked fields only
  - Show Primarykey Fields shows Primary Key fields only
  - Show Foreignkey Fields shows Foreign Key fields only

These filters can be used in combination to show (for example), Marked Fields AND Primary Key Fields.

## Marking View Fields

The Marked Fields features described above are also available for Views. Whilst the layout of the View screens is slightly different to those for Base tables, the method for marking View Fields is essentially the same and is not described in detail here.

## 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 option is within the Subject Area tools menu - .

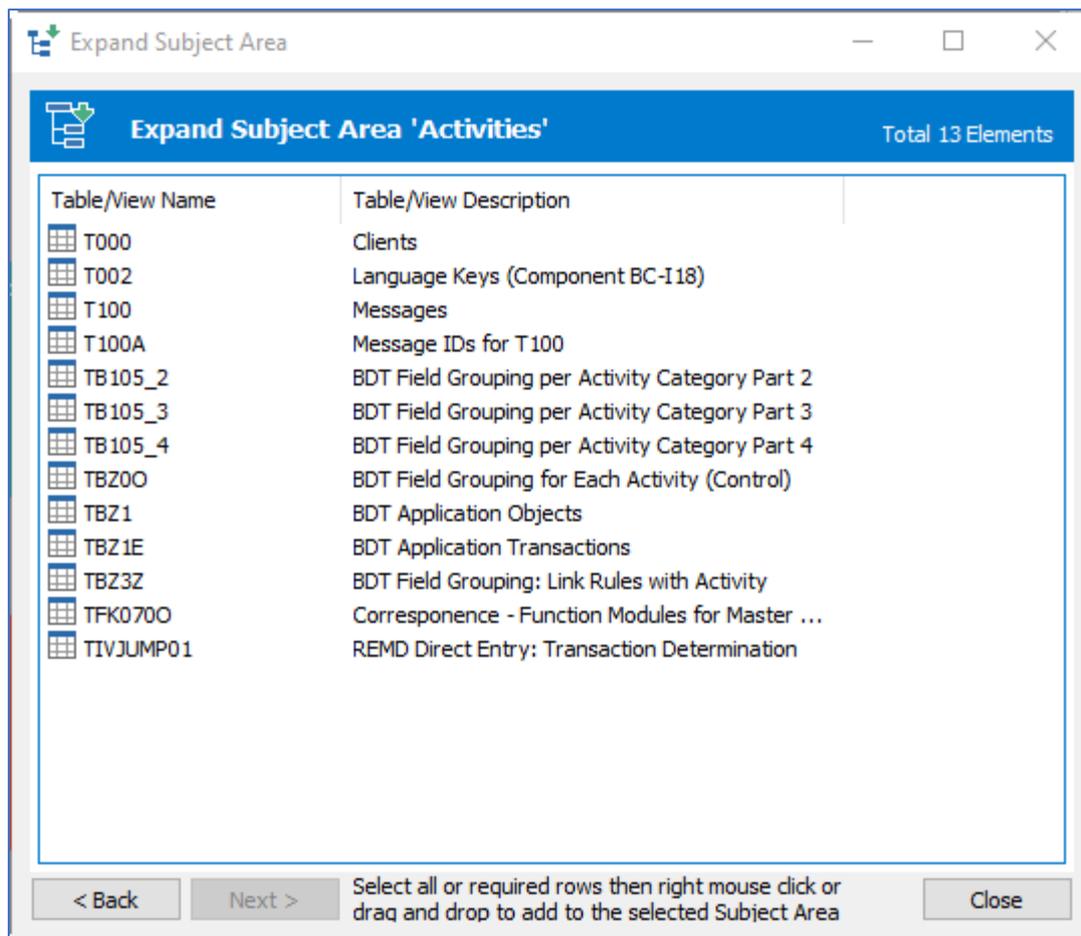
This will display a screen for selecting the levels of related tables to be included.

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
  - Include associated tables: this will include objects that are associated with the members of the Subject Area. This is different to being related by Primary/Foreign key. The main purpose of this option is to include SAP BW objects that are associated with other BW objects, for example an InfoProvider and a Query,
- 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'. 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 if this option is selected.
- Only include tables containing data: The set of tables resulting from the search will be restricted to those that have a Row Count greater than zero.

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.

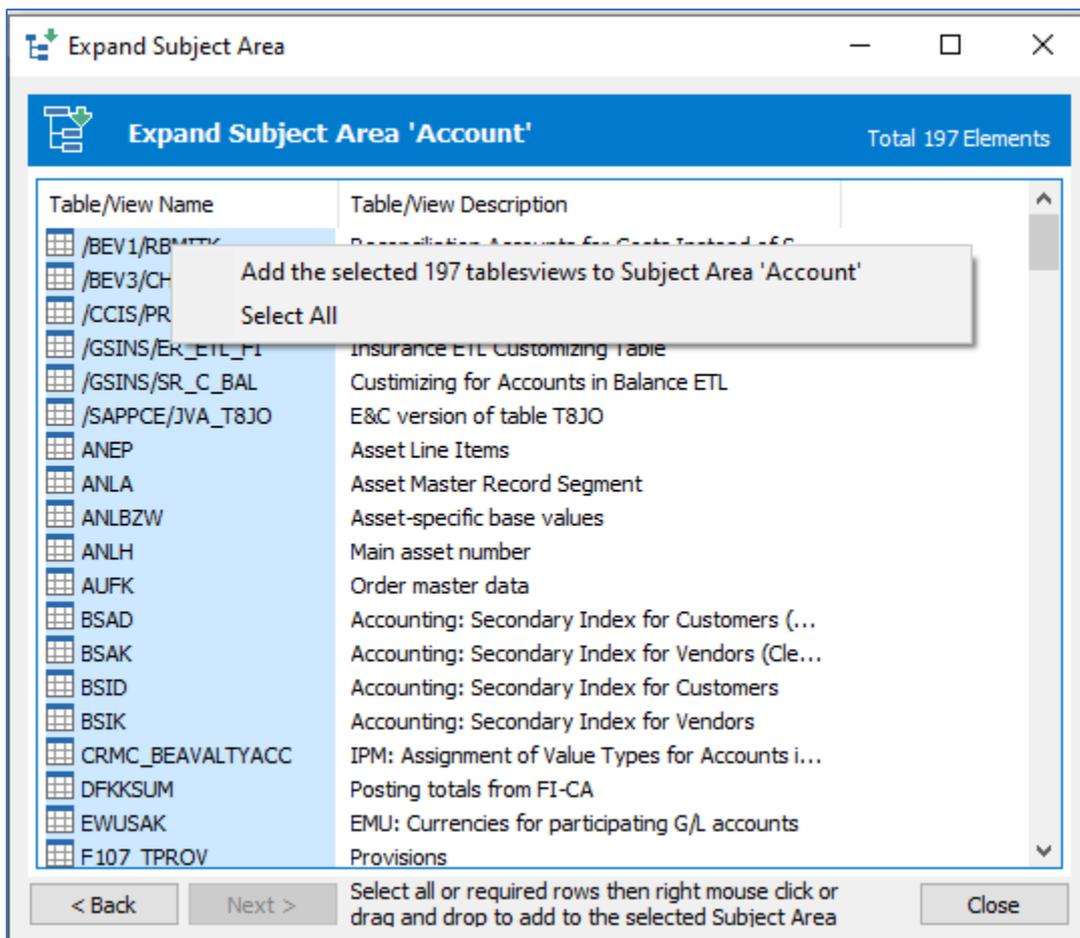


Result set from using the Expand Subject Area feature

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

## Creating additional Relationships not extracted from the source Application

Safyr represents relationships from SAP by extracting the relationship definitions defined within the SAP Repository. This means that the relationships represented by Safyr 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.

Safyr 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:

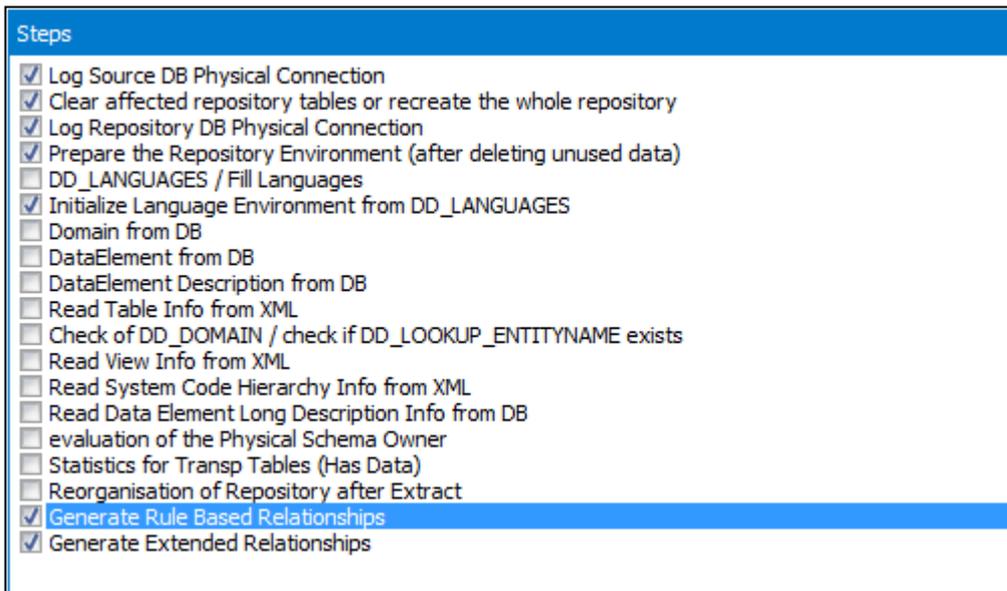
**Creating Rules Based Relationships** This method is available for SAP, PeopleSoft and JDEdwards repositories. Safyr uses a set of spreadsheet-based relationship definitions to build additional relationships.

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

Full details of these methods are described in Appendix B.

### Creating additional Relationships

The creation of additional relationships is normally carried out as part of the application extraction process (see the Safyr 'Getting Started Guide', Chapter : Extracting Metadata for more details.)



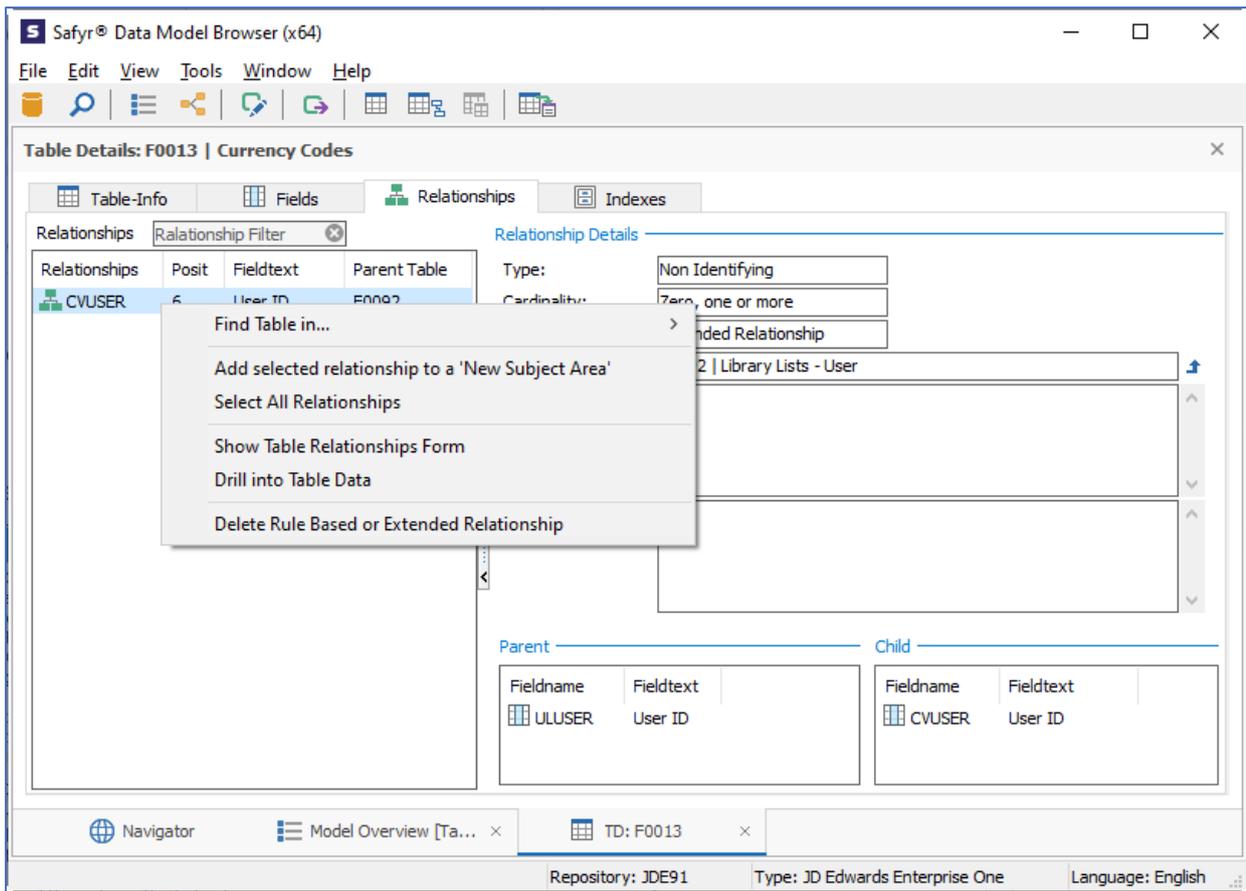
Setting the extraction options to only run the 'Generate Relationships' process

### Reviewing generated Relationships

Safyr 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 Safyr repository.

#### 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 chosen relationship to show a pop-up form.



The Rules based/Extended Relationship Delete Pop-up

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

This ‘Delete’ feature is not enabled for 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.*

## Exporting metadata from Safyr

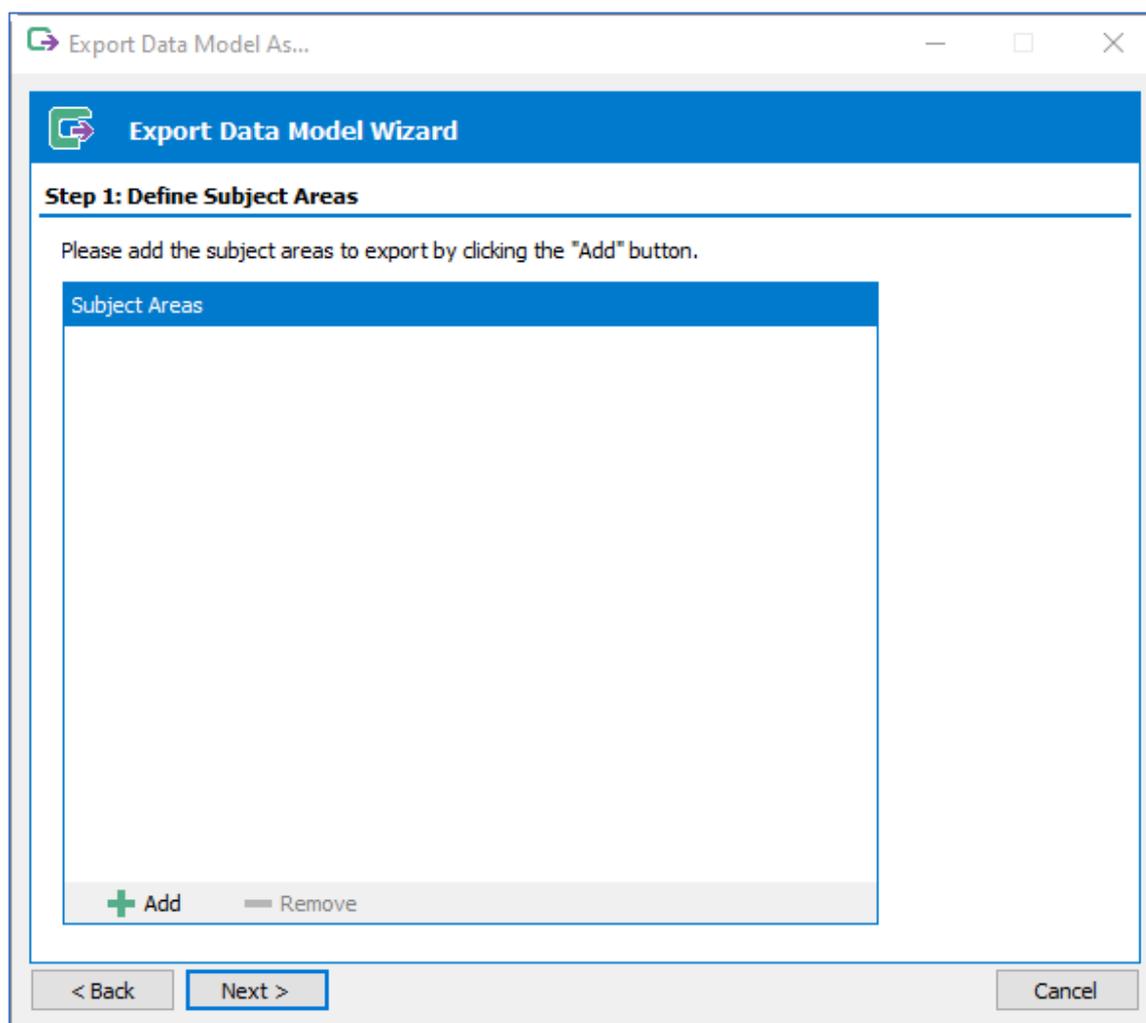
*Describes how to move metadata out of Safyr and into other environments*

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

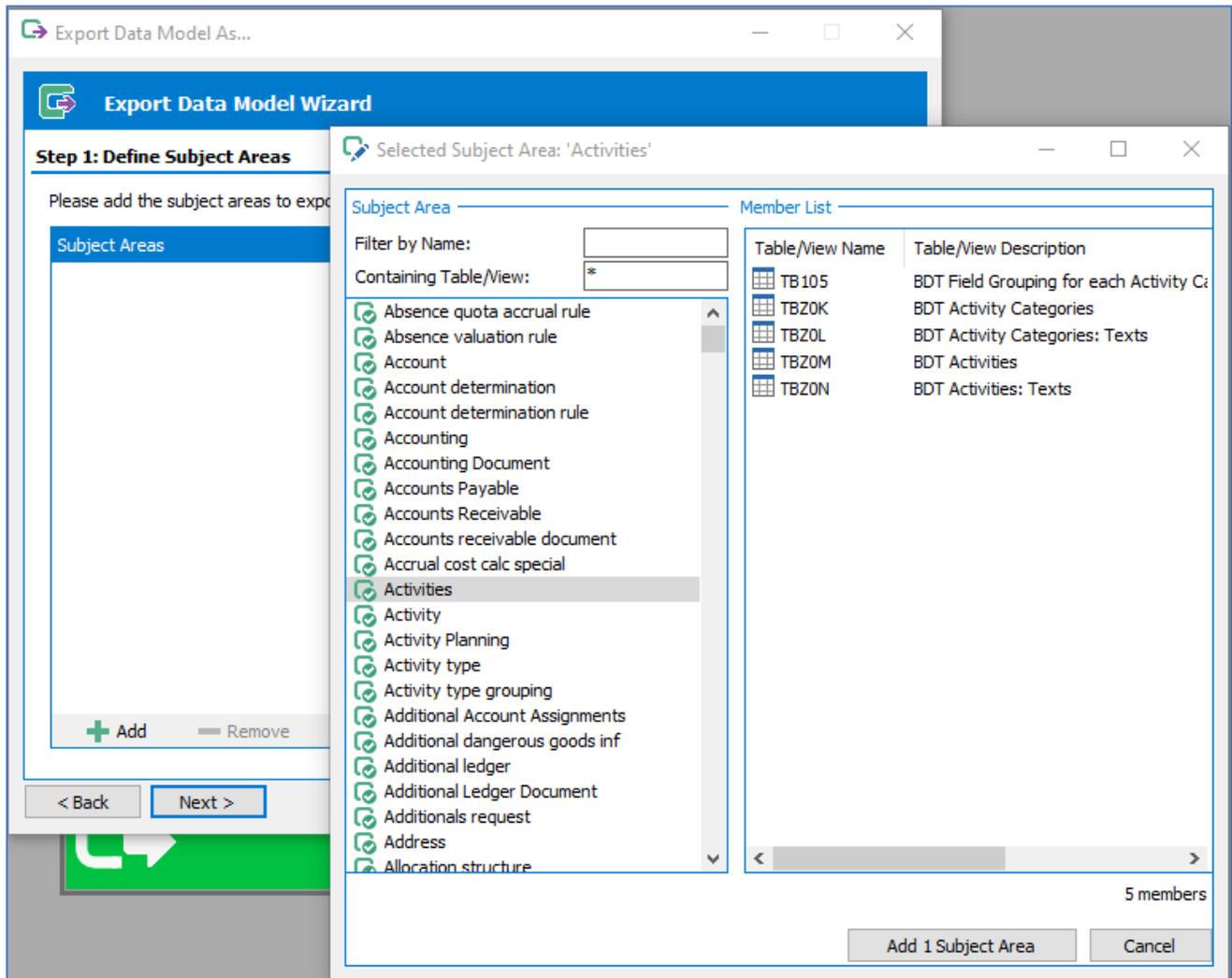
### Getting ready to export

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



The Export Wizard – specifying the subject areas required

The 'Define Subject Areas' form is for selecting one or more subject areas to be exported. Click the 'Add Subject Areas' button to begin the process of choosing the Subject Area or Areas to be exported

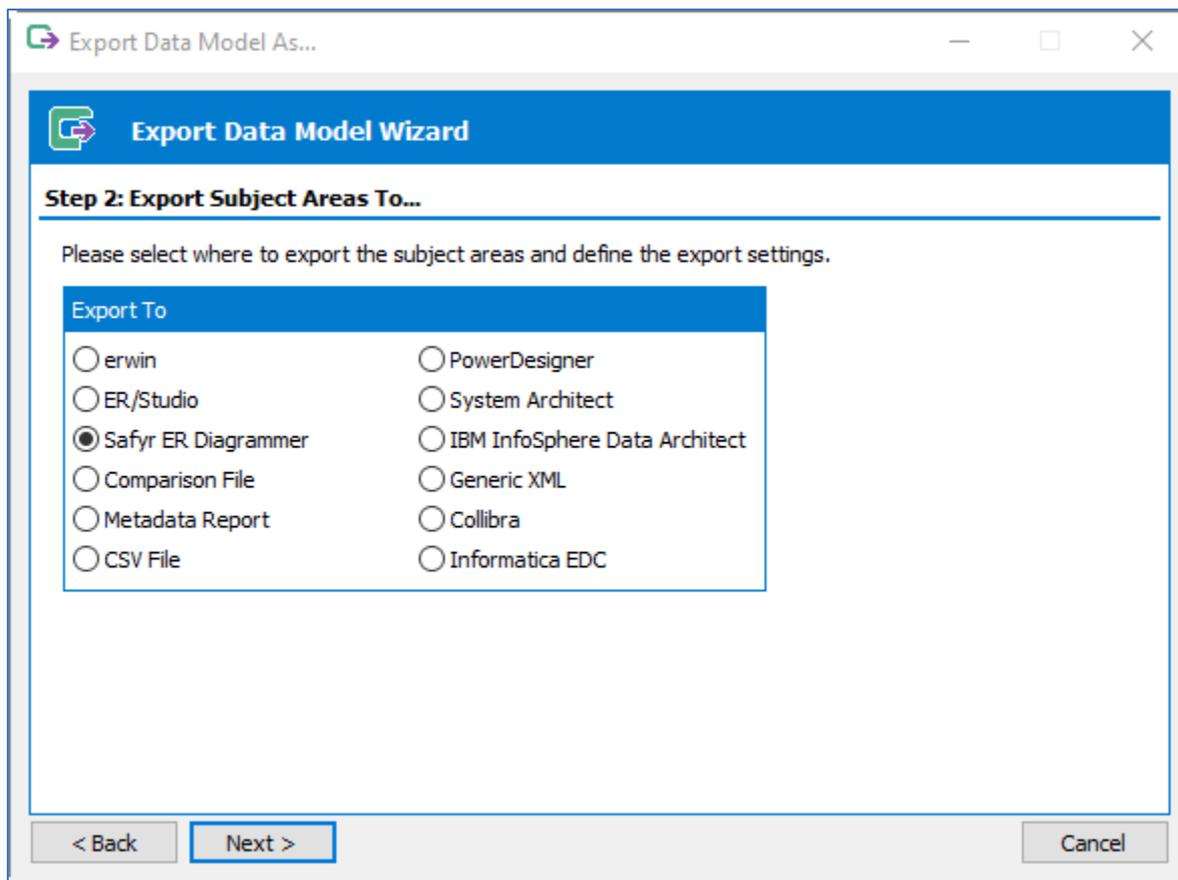


Adding Subject Areas to be exported

Select one or more Subject Areas to be exported and click the 'Add <n> Subject Area' button to add these to the export area.

Click the 'Next' button to progress to the next stage of the export wizard.

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 Safyr installation has been configured to use.

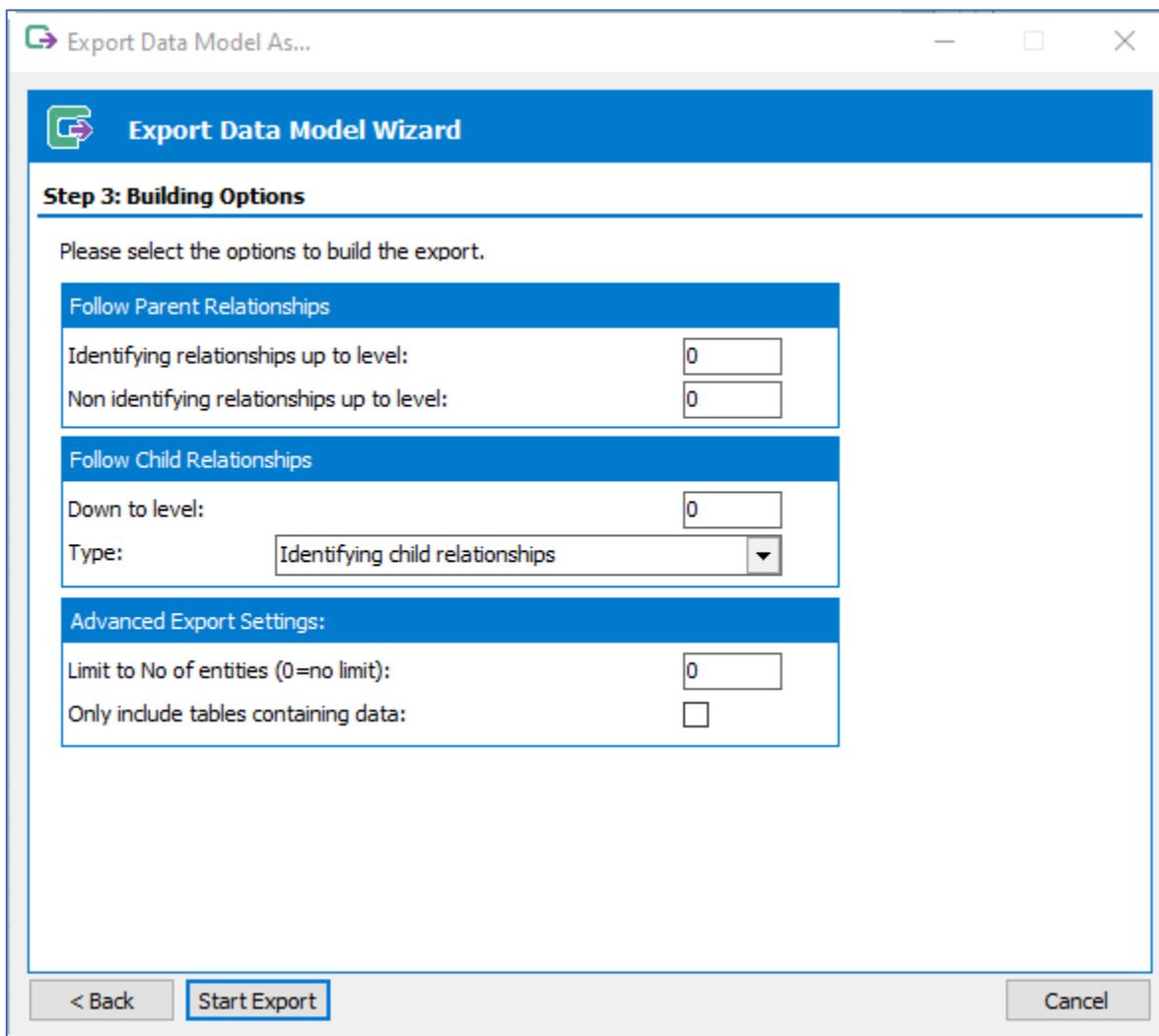


Export Wizard – choosing the export format

- **Export to:** This is for choosing the target for the Export information. The available options will depend upon the Safyr product license.
- **File Name and Location:** Use this control to specify a location and name for the export file, if required.
- **Startup Command...** If there is a program associated with the export file type, a command line string can be specified here so that, after the file has been created, the target tool can be started automatically and the file opened. Note that it is important to append the '%F' parameter to the command string in order for the file name to be passed as a parameter to the program. Check the 'Enable Command' checkbox to start using this feature.

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:

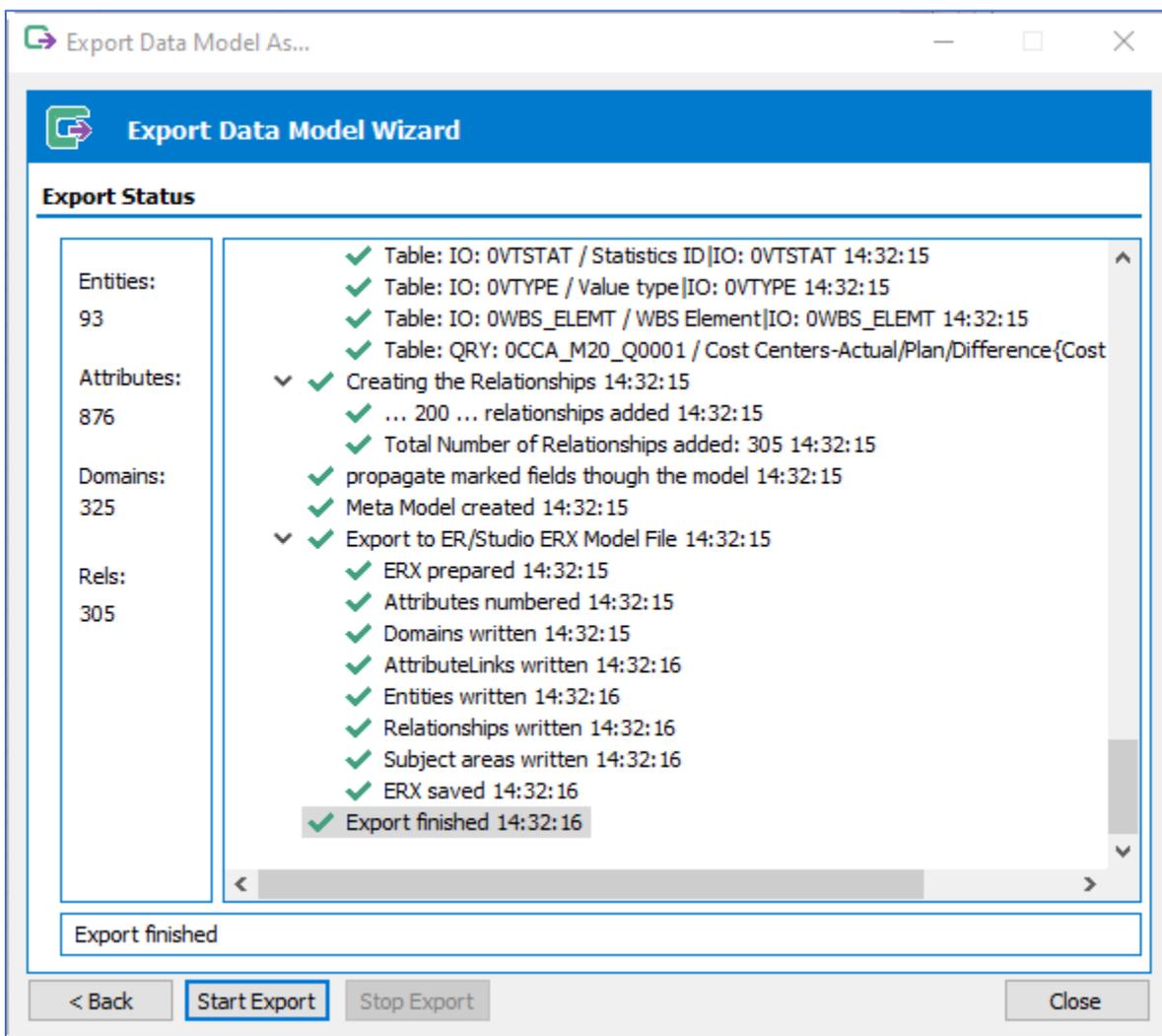
- All child relationships
- Identifying child relationships - only includes ‘child’ tables where the primary key fields of the ‘parent’ table form part of the primary key of the child table.

Limit to No of Entities: - The Maximum Number of Entities to be exported. Zero denotes no limit.

Only include tables containing data: The set of tables assembled will be restricted to those that have a Row Count greater than zero.

Limit the Export to “Marked Fields”: The set of fields assembled for each table will be limited to the Marked Fields if this option is selected, plus the Primary Key fields of the table. If there are no marked Fields for any tables in the Subject Area, this option will not be displayed.

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

## The CSV export format

This is a proprietary, text-based file, aimed at providing a means to export metadata from Safyr 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,VARCHAR,CLNT,,
10002,0,MATNR,Material,1,0,0,VARCHAR(18),18,0,VARCHAR,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,VARCHAR,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,VARCHAR,CHAR,,
10007,0,VPSTA,Compl maint  status,0,0,1,VARCHAR(15),15,0,VARCHAR,CHAR,,
```

Sample CSV file output

## The Generic XML export format

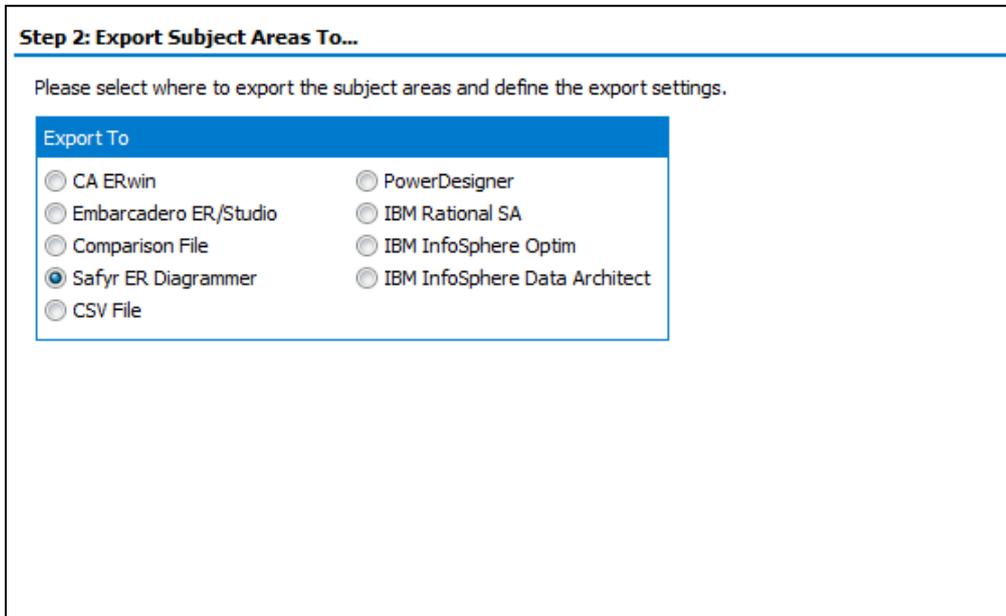
The Generic XML export format is similar in purpose to the CSV export format in that it provides a means for tools that can consume XML to import metadata created from Safyr.

The XML format fully describes the set of Entities, Attributes and Relationships exported from Safyr. An XSD file is provided in the Safyr Documentation folder that describes the XML format used.

## Exporting to the Safyr ER Diagrammer

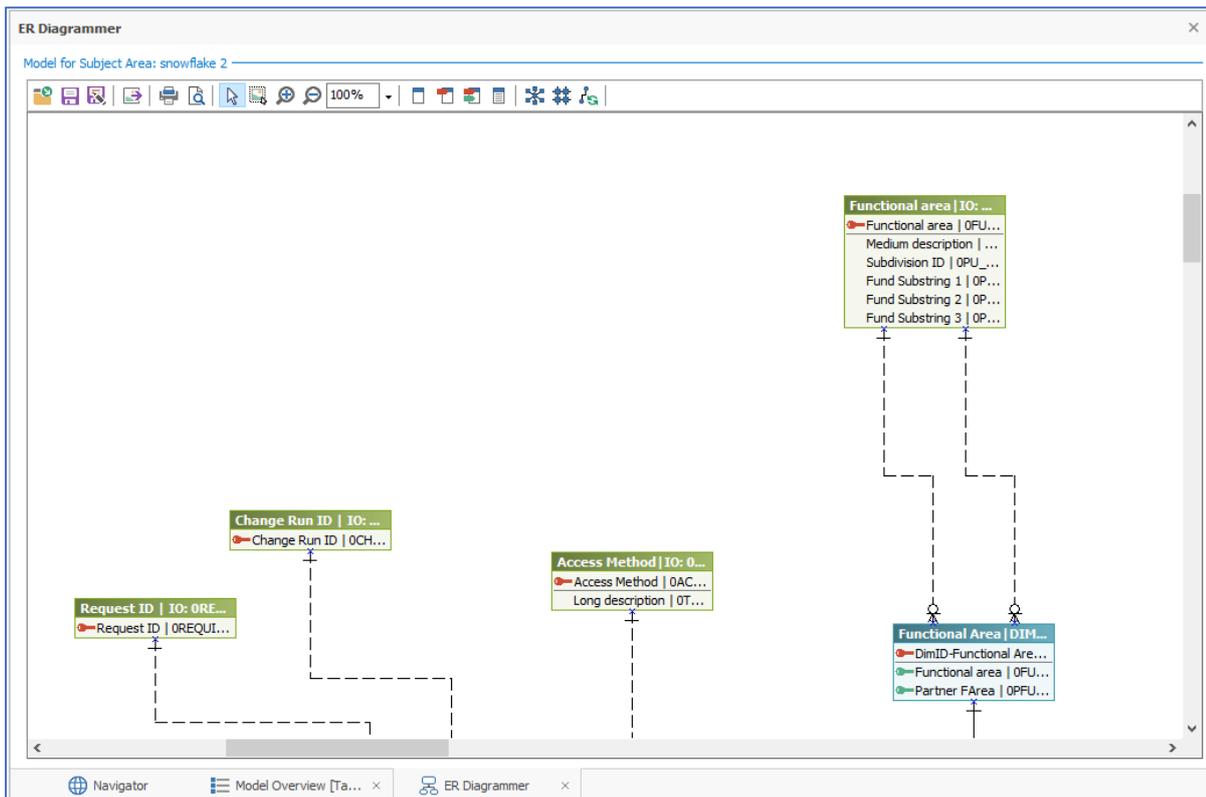
One of the optional export formats available with the product is Safyr’s own diagramming environment, ER Diagrammer. This provides a simple method for representing the chosen tables as a datamodel.

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



Choosing the ER Diagrammer export format

Once the export process is completed, the diagram will appear.



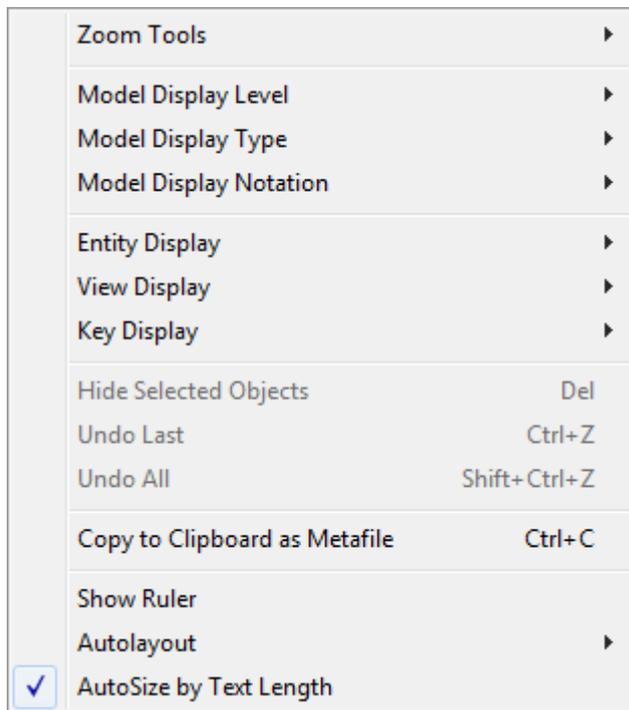
The ER Diagrammer window

Tool Button	Tool Button Name	Details
	Open diagram	Open an existing diagram, saved in ER Diagrammer
	Save diagram	Save the diagram
	Save diagram as	Save the diagram with a different name
	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 pre-set levels using the drop down list.
	Entity Level Display	Changes the diagram to display only Entity names (i.e. no Attributes are displayed)
	Primary Key Level Display	Changes the diagram to display only Primary Key attributes
	Primary and Foreign Key Level Display	Changes the diagram to display only Primary and Foreign Key attributes
	All Attribute Level Display	Changes the diagram to display all Attributes
	Star Layout	Auto-layout the diagram in a Star-schema style
	Orthogonal Layout	Auto-layout the diagram using an Orthogonal approach
	Update Links	Adjust the relationships lines for optimal layout

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

### 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:

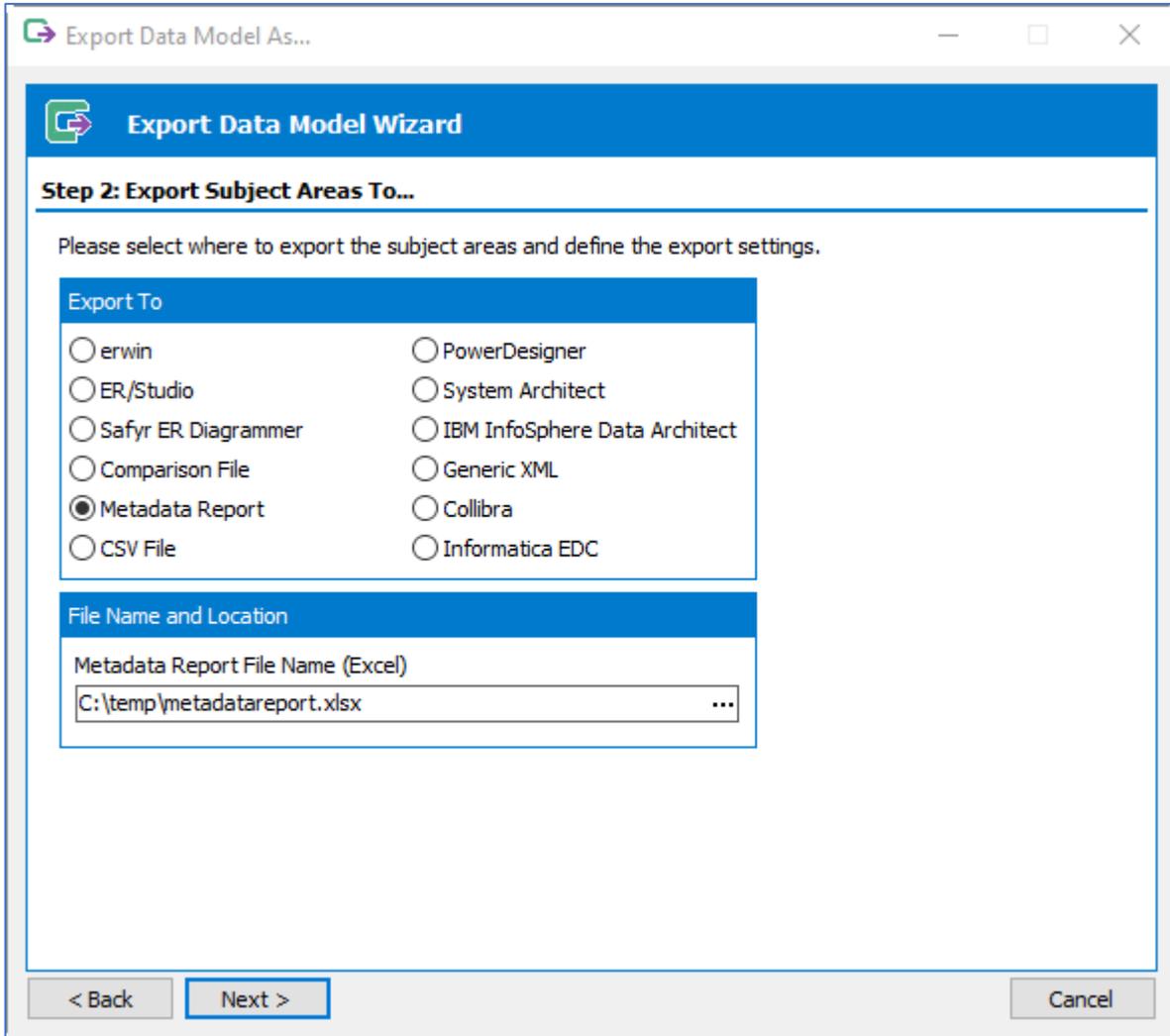
Menu	Sub-menu	Details
Zoom tools	Zoom In	Changes the cursor to the 'Zoom in' tool.
	Zoom Out	Changes the cursor to the 'Zoom out' tool.
	Fit Model	Fits the diagram into the available ER Diagrammer work space
	Fit Selection	Fits the diagram to encompass selected objects. If no objects are selected, the 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	Star	Auto-layout the diagram in a Star-schema style
	Orthogonal	Auto-layout the diagram using an Orthogonal approach
	Update Links only	Adjust the relationships lines for optimal layout
Autosize by Text Length		Resizes the Entity boxes based upon the length of the Entity name.

## Creating Metadata Reports

Another of the optional export formats available with the product enables the production of a metadata report in Microsoft Excel format.

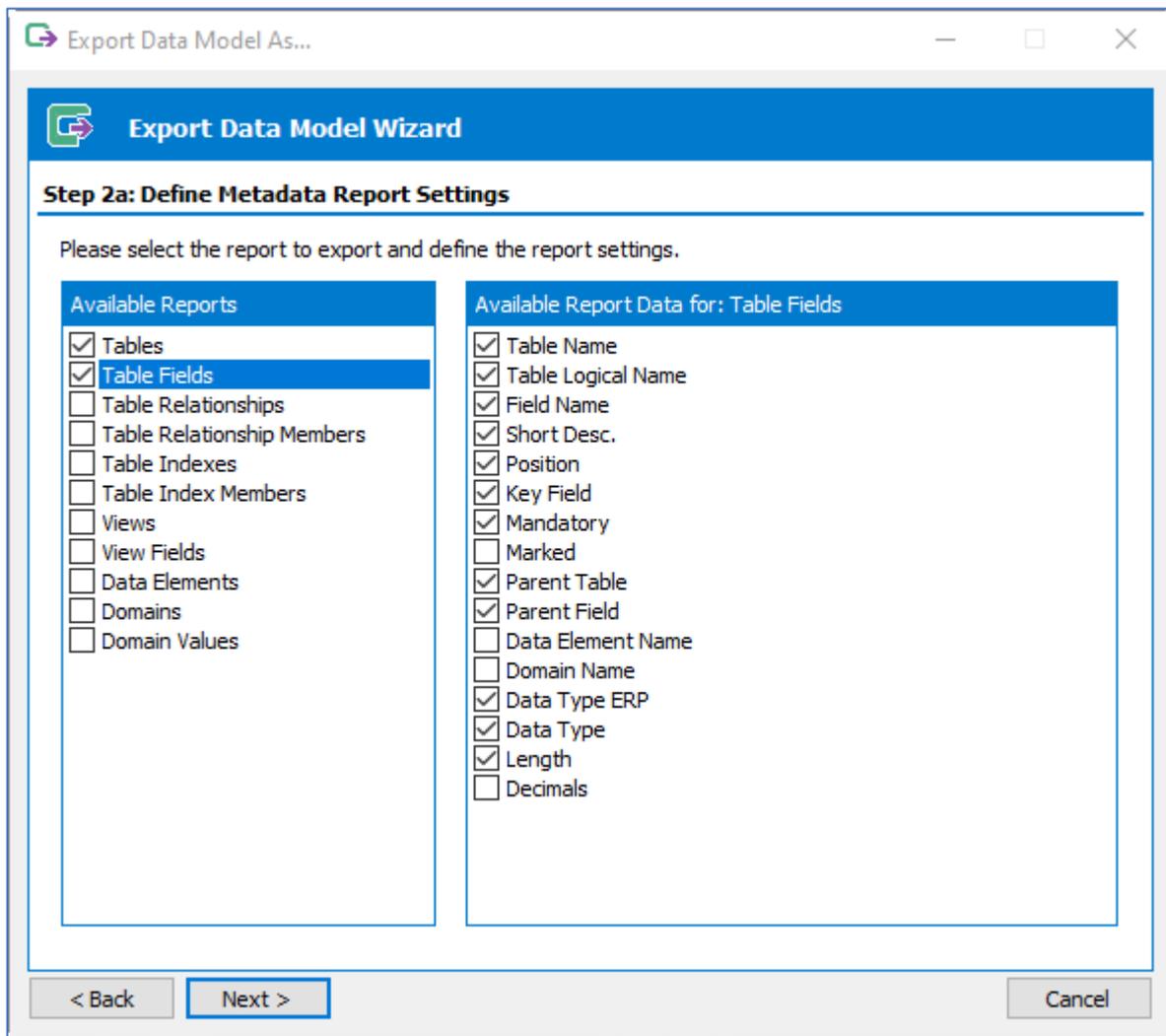
To create the report, use the Export Wizard, as described above, and select the 'Metadata Report' radio button.



Safyr Metadata Report

Then use the file selector to specify the location and name of the Excel spreadsheet to be created.

After clicking the 'Next' button, the Report Settings screen will be shown.



Metadata Report Settings

Select the Reports required using the set of check boxes in the left panel, and for each use the check boxes on the right to choose the attributes required for each type of object.

## EXPORTING METADATA FROM SAFYR

Click Next to proceed with the report creation. An Excel spreadsheet will then be created, with a separate tab for each type of report selected.

The screenshot shows a Microsoft Excel spreadsheet titled 'metadatareport.xlsx'. The spreadsheet contains a table with the following data:

Table Name	Short Desc.	Type	Phys. Name	No. of Parent Tables	No. of Child Tables	Row Count
F0010	Company Constants	Standard	JDEDATA910.F0010	383	0	28
F01161DW	Customer Alternate Address Export	Standard	JDEDATA910.F01161DW	0	0	0
F03012	Customer Master by Line of Business	Standard	JDEDATA910.F03012	4	0	231
F03012T	Customer Master by Line of Business Tag Table	Standard	JDEDATA910.F03012T	0	0	0
F03012Z1	Customer Master LOB-Batch Table	Standard	JDEDATA910.F03012Z1	0	0	628
F03B11	Customer Ledger	Standard	JDEDATA910.F03B11	2	0	969
F03B11P	Customer Ledger Purge File	Standard	JDEDATA910.F03B11P	0	0	0
F03B31	Customer Activity Log	Standard	JDEDATA910.F03B31	0	0	152
F0401	Supplier Master	Standard	JDEDATA910.F0401	5	0	226
F0411	Accounts Payable Ledger	Standard	JDEDATA910.F0411	4	0	573
F0413	Accounts Payable - Matching Document	Standard	JDEDATA910.F0413	13	0	67
F0414	Accounts Payable Matching Document Detail	Standard	JDEDATA910.F0414	0	0	115
F0417	A/P Payments - Default Print and Update	Standard	JDEDATA910.F0417	1	0	27
F04571	A/P Payment Processing - Header	Standard	JDEDATA910.F04571	20	0	16
F04572	A/P Payment Processing - Summary	Standard	JDEDATA910.F04572	0	0	50
F04573	A/P Payment Processing - Detail	Standard	JDEDATA910.F04573	0	0	179

## Comparing metadata

*Describes how to use the Safyr compare feature to identify differences between subject areas*

The Safyr Compare Subject Areas option enables metadata from two different Safyr repositories to be reviewed and analyzed. The two systems might be different release levels, or different installations.

The feature requires the user to export one or more Safyr 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 :The Repository Manager for details of configuring repositories).

### Creating a Comparison File

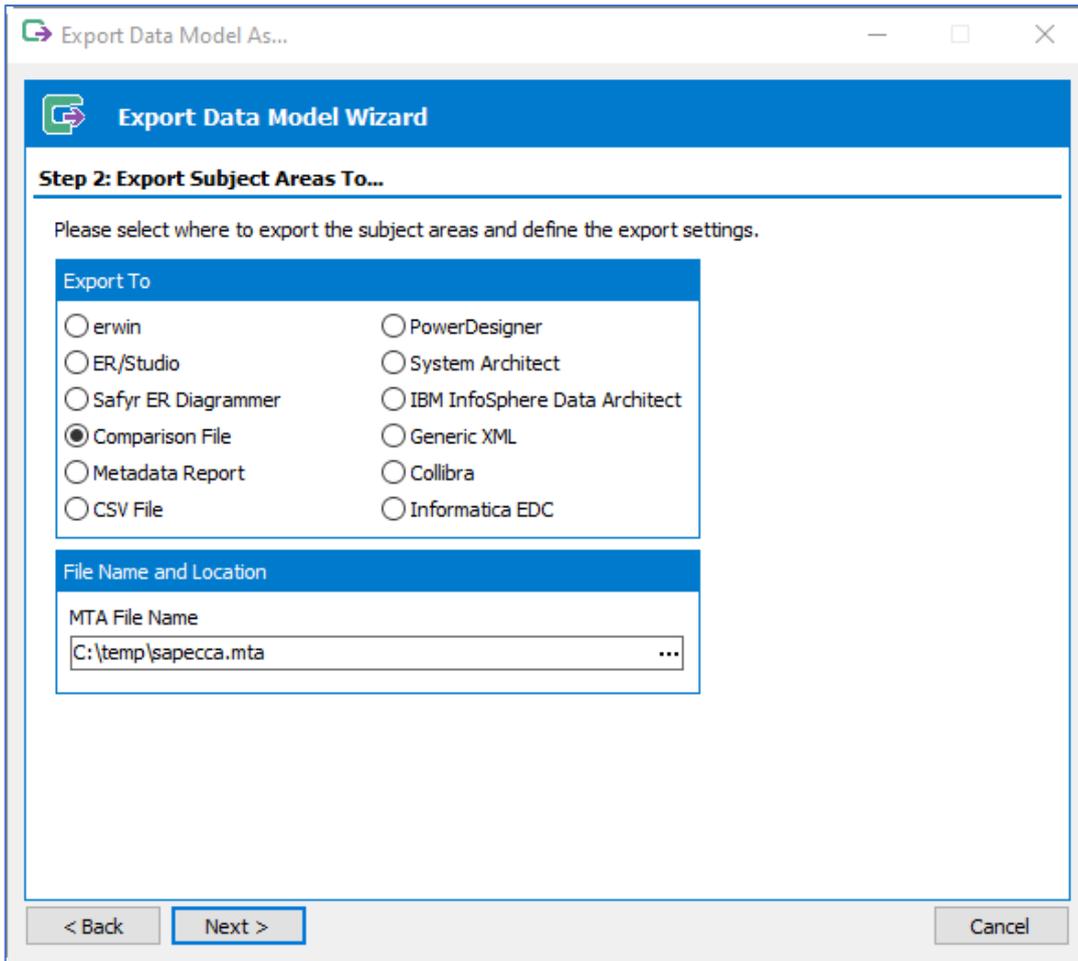
One of the 'Export To' radio buttons on the Export Wizard is 'Comparison File'. Selection of this will create a special comparison file for use by the Compare routines.

To create a comparison file, create and populate one or more Safyr 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.

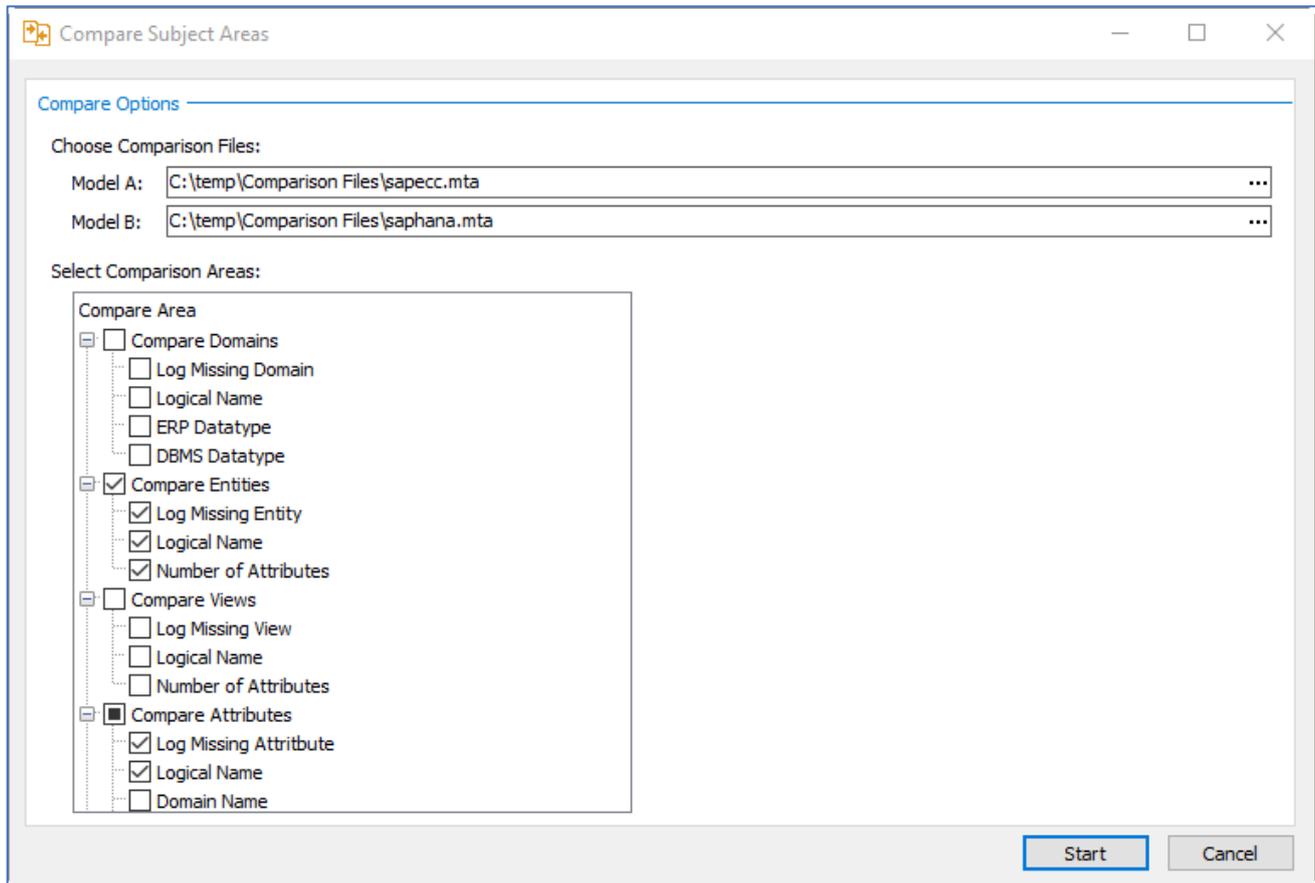
*Note:* The comparison result will show differences between the two systems. Identical objects will not therefore appear in the result.



Choosing the Comparison File format in the Export Wizard

## Performing the Subject Area comparison

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

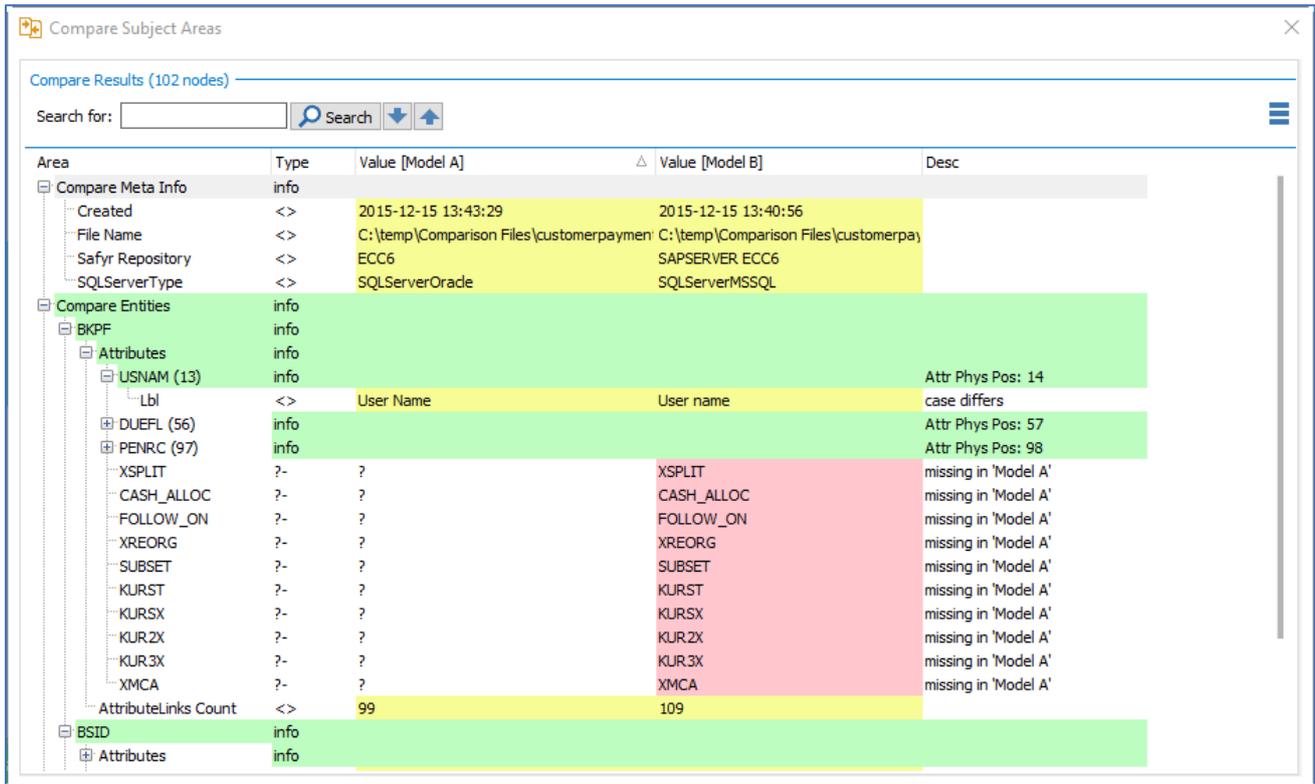


The Compare Subject Areas form

- Specify the two comparison .mta files to be compared using the file selectors at the top of the form.
- Select the relevant checkboxes in the 'Select Comparison Areas' section that reflect the model areas to be compared. These options are grouped by 'object' type (e.g. 'Compare Entities'). It may be necessary to experiment with these options to achieve the desired comparison result.
- Click the 'Start' button to perform the comparison.

## Results of a Comparison

The results of the comparison are displayed in the Compare Results window.



Results of a Comparison

The comparison result is presented as 5 columns:

Area		This column identifies the object being compared
Type		Describes the type of comparison result:
	Info	Indicates an information row. The differences are identified at the next subsidiary level. Highlighted in green.
	<>	Indicates that both comparison objects exist in the 2 models but have differences. Highlighted in yellow.
	?-	Object does not exist in Model A and is present in Model B. Highlighted in red.
	-?	Object does not exist in Model B and is present in Model A. Highlighted in red.
Value [Model A]	Value of Model A object	
Value [Model B]	Value of Model B object	
Desc		A supporting description of the comparison

## COMPARING METADATA

At the top of the window is a 'Search' box for locating items in the 'Area' column. As with other search capabilities in Safyr, the wild card to be used in these searches is the '\*' character.



To the right of the Search box are three buttons:



Click this to start the search. This will always take place from the beginning of the Compare Result list



Click to search for the next occurrence of the search term



Click to search backward from the current location

Expanding the  icon gives access to the following options:

Save results to File To export the Comparison Result to a flat file

Collapse Tree To collapse all nodes of the comparison tree

Expand Tree To expand all nodes of the comparison tree

## Special Product Features for SAP BW

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

SAP BW is a particular type of SAP system, largely orientated around the representation of multi-dimensional reporting 'Cubes', known as InfoCubes. The main aim of the Safyr 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 Safyr, there are a number of BW-specific features that make the process of creating a Star Schema easier.

### How Safyr 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)

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

*Note:* BW DSOs may also be represented as Star Schema or Snowflakes and the features described here for InfoCubes apply also to DSOs.

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

### Suppressing the Physical Model for a BW system

The 'physical' representation of metadata for BW objects can be complex and challenging to understand. Many Safyr users will find that the 'logical' representation of the metadata is sufficient for their requirements.

The Extraction options for SAP BW (see 'Extracting metadata from SAP or SAP BW' in the Safyr Getting Started Guide) include an option to retain only the 'logical' representation of the BW metadata and to remove the 'physical' metadata representations during the extraction process. This option is checked 'on' by default.

Uncheck this option at extract time if you wish to retain the physical BW metadata definitions.

**Extraction Steps**

Please define the extraction steps below.

Steps

- Log Source DB Physical Connection
- Clear affected repository tables or recreate the whole repository
- Log Repository DB Physical Connection
- Prepare the Repository Environment (after deleting unused data)
- DD\_LANGUAGES / Fill Languages
- Initialize Language Environment from DD\_LANGUAGES
- Transfer basic information of Tables, Fields, DataElements and Domains
- Transfer Cubes
- Transfer DSO (DataSource Objects)
- Transfer InfoObjects
- Transfer Dimensions of the Cubes
- Dimension and Characteristics (cleanup)
- RSDIPROIOBJT / Overwrite InfoObject Labels for InfoProviders (Cubes and DSOs)
- Transfer Views
- Physical InfoArea Tree
- DD\_STATISTICS / Statistics Transp Tables (Has Data)
- Prefix all missing Table Descriptions
- Prefix all View Descriptions
- ~~Create Logical Facts, Dimension and Characteristics~~
- Reduce to a "Logical Only Model"
- Reorganisation of Repository after Extract

SAP BW Extraction option to retain only the Logical metadata definitions

## The Model Overview and BW

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

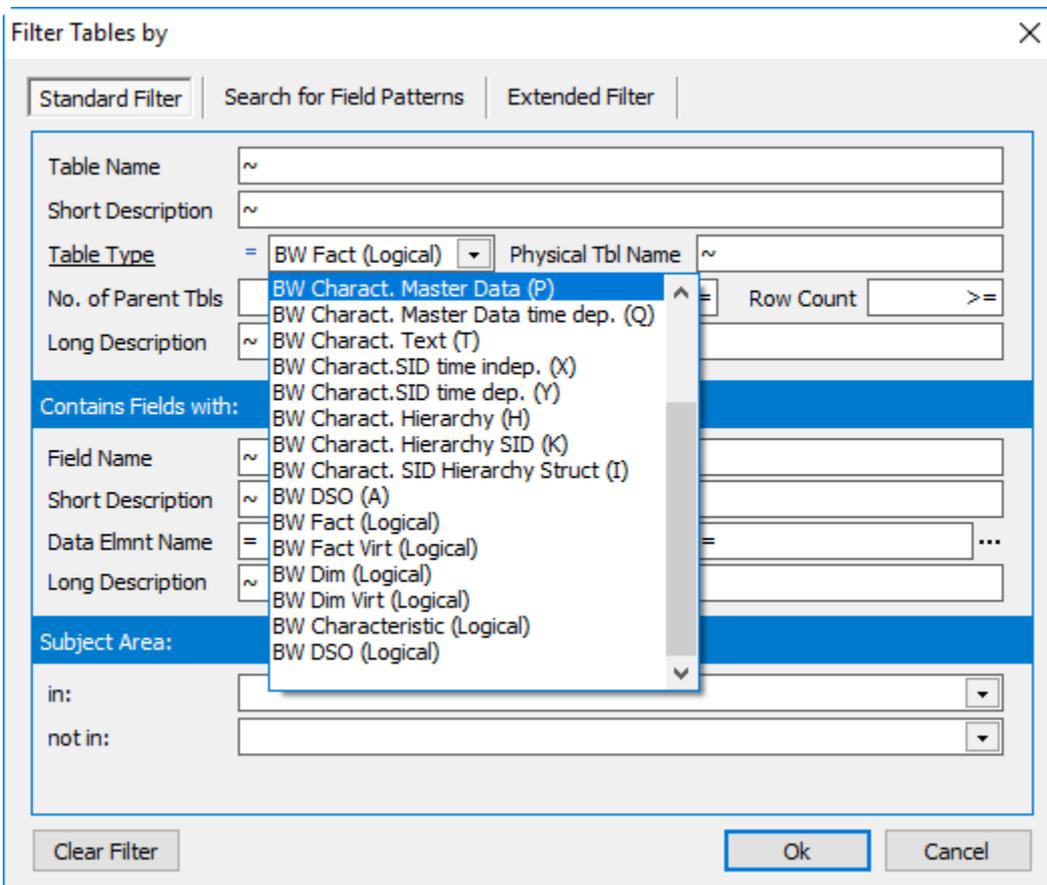
The Table Type in a Safyr BW system describes the purpose of the table. The possible values are shown in the table below.

Table	Description
BW Fact (F)	Fact Table
BW Fact Virt (F)	Fact Table for a Virtual-Provider
BW Dim (D)	Dimension Table
BW DIM Virt (D)	Dimension Table for a Virtual-Provider
BW Charact.SID View (R)	A View table that acts as an intersection between a SID table and a Dimension
BW Charact. SID (S)	Characteristic SID table
BW Charact.Master Data (P)	Table defining the attributes of a Characteristic
BW Charact.Master Data time dep.(Q)	Table defining the attributes of a Time-dependent Characteristic
BW Charact.Text (T)	Table defining the text attributes of a Characteristic
BW Charact.SID time indep (X)r	Table defining a time-independent Characteristic
BW Charact.SID time dep (Y)r	Table defining a time-dependent Characteristic
BW Charact. Hierarchy (H)	Table defining a Characteristic Hierarchy
BW Charact. Hierarchy SID (K)	Table defining a Characteristic Hierarchy SID
BW Charact. SID Hierarchy Struct (I)	Table defining a Characteristic SID Hierarchy Structure
BW DSO (A)	A DSO table (Data Store Object)
BW Fact (Logical)	A 'virtual' table that presents a Logical view of a Fact table
BW Fact Virt (Logical)	A 'virtual' table that presents a Logical view of a Virtual Provider Fact table
BW Dim (Logical)	A 'virtual' table that presents a Logical view of a Dimension table

BW Dim Virt (Logical)	A 'virtual' table that presents a Logical view of a Virtual-Provider Dimension table
BW Characteristic (Logical)	A 'virtual' table that presents a Logical view of a Characteristic table
BW DSO (Logical)	A 'virtual' table that presents a Logical view of a DSO table
BW Query (Logical)	A 'virtual' table that presents a BW Query

Using Advanced Search to select BW Table types

The Advanced Search feature 'Standard filter' tab (see Chapter: Browsing the metadata in Safyr - 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.

The Application Hierarchy and BW

There are two Application Hierarchies created in Safyr 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 InfoArea Tree* This tree shows the hierarchy of InfoAreas with the 'virtual' Fact tables (FV prefix) and ODS tables as the lowest node level.

*Physical InfoArea 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.

*Note:* The Physical InfoArea Tree will not be present if the Extraction option to remove the 'Physical' BW metadata was used (see 'Suppressing the Physical Model for a BW system' above).

### 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.

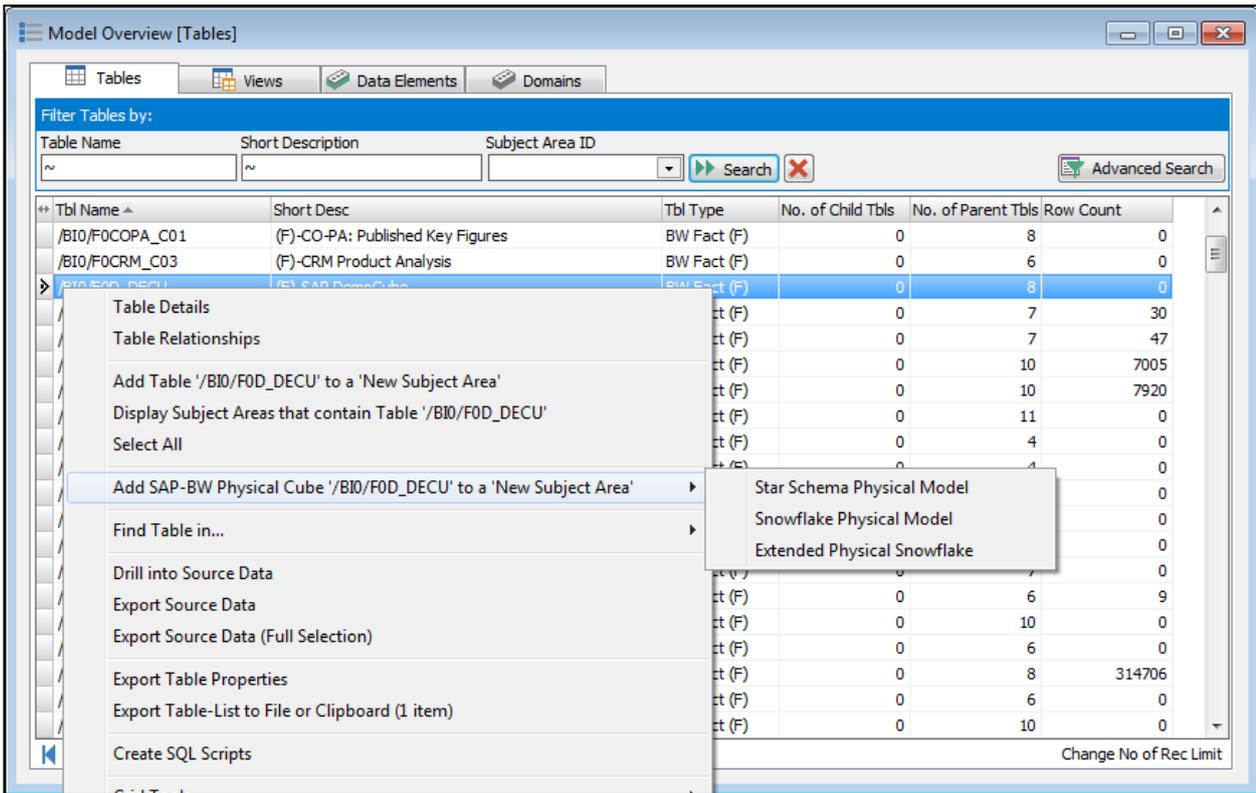
### Right Mouse Click Options for BW Repositories

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

There are two areas where these RMC options are available.

#### 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 Phys.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 Log.Snowflake      As for the Snowflake Model, but in addition, any Characteristic table 'parent' tables (Characteristic tables related to Characteristic tables) are also included

#### 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 Safyr Meta Model

Below are descriptions of the Tables that make up the Safyr 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 Safyr)
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 Safyr)
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_UNIQUE_NAME	
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	
UPDATE_USER	The Windows User that last updated the Subject Area
UPDATE_DATETIME	The Date a& Time the Subject Area was last updated
CREATION_USER	The Windows User that created the Subject Area
CREATION_DATETIME	The Date a& Time the Subject Area was created
REMARK	Free format text to describe the Subject Area

**Table Name:** DD\_SUBJECTAREA\_MK\_FIELD

**Definition:** A Marked Field indicates that a Table Field belongs to the designated Subject Area.

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

**Table Name:** DD\_SUBJECTAREA\_MK\_VFIELD

**Definition:** A Marked Field indicates that a View Field belongs to the designated Subject Area.

Table Column Name	Table Column Comment
DD_SUBJECTAREA_ID	Subject Area Id
DD_VIEWTYPE	Determined by the ERP type
DD_VIEWNAME	View Name
DD_VIEWFIELDNAME	View Field Name

**Table Name:** DD\_SUBJECTAREA\_TABLE

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

Table Column Name	Table Column Comment
-------------------	----------------------

**THE SAFYR META MODEL**

DD_SUBJECTAREA_ID	Subject Area Id
DD_TABLENAME	Table Name

**Table Name:** DD\_SUBJECTAREA\_VIEW

**Definition:** An intersect table between a Subject Area and a View

Table Column Name	Table Column Comment
DD_SUBJECTAREA_ID	Subject Area Id
DD_VIEWTYPE	Determined by the ERP type
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	
HAS_DATA	Row Count, if available
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_UNIQUE_NAME	
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	Determined by the ERP Type
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
DELETEIFHASNOCHILDS	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	Determined by the ERP Type
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	Determined by the ERP Type
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	Determined by the ERP Type
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 Safyr)
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	Determined by the ERP Type
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 Safyr features for creating additional relationships based upon a series of spreadsheet-based rules and inference rules*

Safyr 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, Safyr users can extend the relationships extracted from the ERP by defining relationship creation rules in the SafyrSettings.xlsx spreadsheet. Safyr refers to these relationships as 'Rule Based Relationships'. Whilst SAP has a large complement of defined relationships, in some of the newer SAP modules, some of the expected relationships are absent from the data dictionary, and so Safyr also has the capability to allow 'rule based relationships' to be defined for a SAP system.

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

The following sections describe these features in detail.

### Understanding the PeopleSoft, JDEdwards and SAP rules spreadsheets

The SafyrSettings.xlsx Excel spreadsheet is located in the Safyr installation folder (normally \<Program Files>\Silwood\Safyr 7\). There are three sheets in the spreadsheet for influencing the relationship creation process: PSoftRuleBasedRelationships for PeopleSoft, JDEDRuleBasedRelationships for JDEdwards and SAPRuleBasedRelationships for SAP. The PeopleSoft rules sheet has a layout as shown in the following example. The JDEdwards and SAP sheets have an identical layout.

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 SafyrSettings.xlsx

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, JDEdwards or SAP Extraction process is run (see ‘Extracting metadata from PeopleSoft Enterprise’, ‘Extracting metadata from JDEdwards EnterpriseOne’ or ‘Extracting metadata from SAP’ in the Safyr 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).

## Special Considerations for PeopleSoft Relationships

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

### 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

## 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-Rolenamed

'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

## Adding rules to the spreadsheet

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

There are two options for locating the version of the spreadsheet that is to be changed by adding these relationships:

Copy the SafyrSetting.xlsx and use this to create a copy named SafyrSettings\_Cust.xlsx in the Safyr installation folder. Then add the required rules to this SafyrSettings\_Cust.xlsx spreadsheet.

When the Safyr application is started, if the file SafyrSettings\_Cust.xlsx exists, then this will be used instead of the delivered SafyrSetting.xlsx file.

or

Locate the SafyrSettings.xlsx in the same location as the Safyr .ini file (see 'the repository .ini file location' in the Chapter : The Repository Manager).

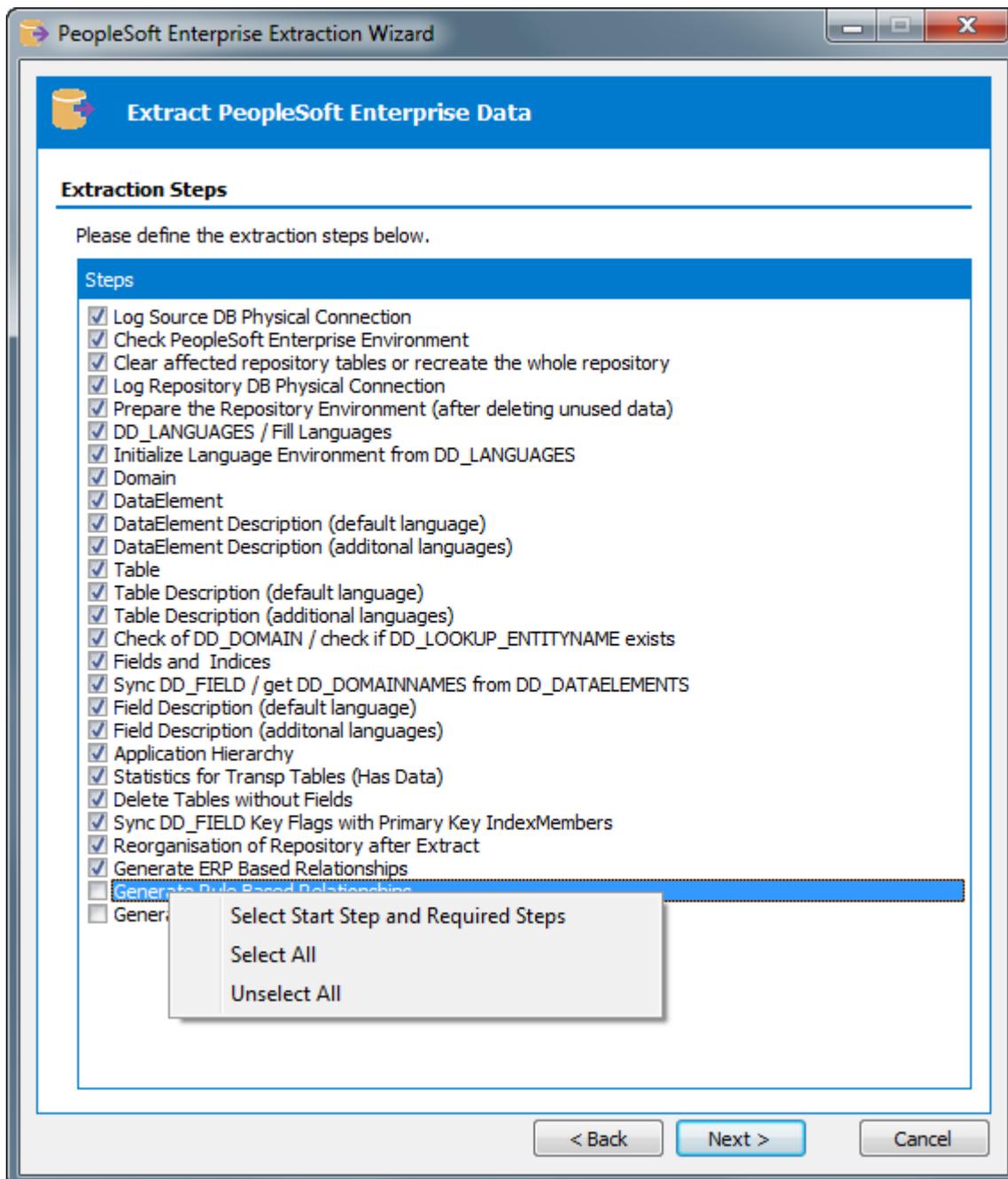
## ADDING ADDITIONAL RELATIONSHIPS

When the Safyr application is started, if SafyrSettings.xlsx exists in the same location as the .ini file, then this will be used instead of the delivered SafyrSetting.xlsx file.

### Running an update to process new rules

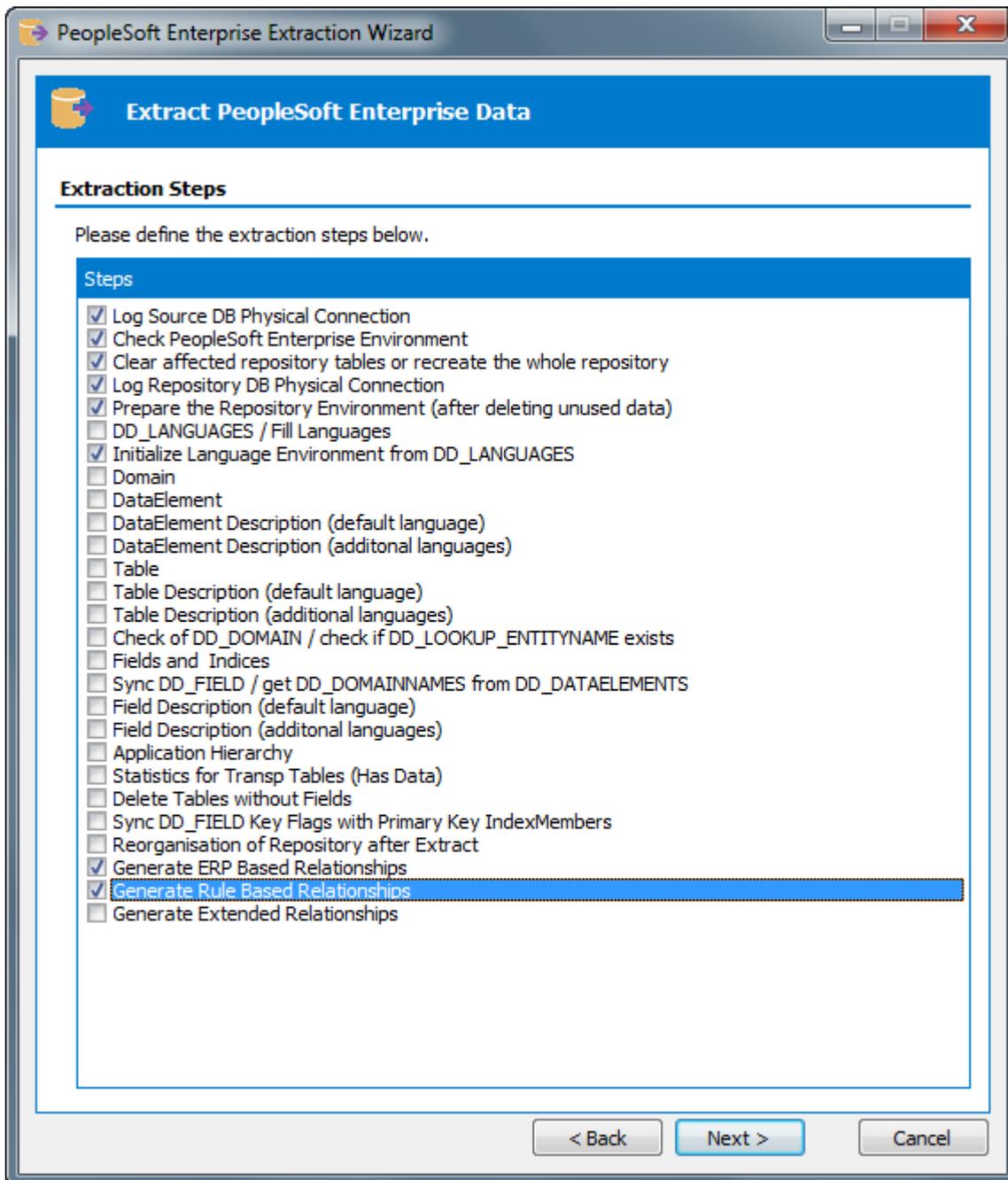
Rules added to the spreadsheet are actioned by running the ERP Extraction process. However, it is not necessary to run the entire extraction of metadata each time, the extraction options can be set to only process the relationship creation elements of the extraction process.

From the Extraction Steps screen of the PeopleSoft, JDEdwards or SAP 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 Fields 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

### 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.

### 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 Safyr 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

### 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 Safyr.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.

## 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.

## 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.

## 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'.

## 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).

## Pass 6: 'Dimension' search (J.D. Edwards EnterpriseOne only)

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.

## 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 SafyrSettings.xlsx file (see Appendix B of the Safyr 'Getting Started Guide' for details of the SafyrSettings.xlsx 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.

## Appendix C. Using an Excel spreadsheet to load Subject Areas

### *Details of an Excel spreadsheet structure that can be used to populate one or more Subject Areas*

Safyr users may have lists of tables that they want to use as the basis for populating Subject Areas. A simple Excel structure is available with Safyr to enable such lists to be imported.

A sample of the Excel file format is provided in the Safyr Documentation folder.

	A	B	C	D	E
1	#SubjectAreaProperties				
2	PropertyName	PropertyValue			
3	Name	Test1			
4	Type	Replace			
5	Remark	Remark Test			
6					
7	#SubjectAreaItems				
8	Table	View	SapBwCube	SapBwDso	SapBwQuery
9	/BIC/FZ*	/BIO/7CM*	OFIAP*	OTCT*	OTCTHP24*
10					
11					
12					
13					

Sample of Excel import format

When the Subject Area is created from the Excel sheet, the Subject Area Name and Description will be based upon the Name and Remark entered at the top of the sheet.

The 'Type' property can have values of 'Replace' or 'Merge'. A value of 'Replace' will mean that any existing Subject Area is replaced using the Excel sheet settings. A value of 'Merge' will result in an existing Subject Area being updated to include the new content from the Excel sheet.

Each Excel sheet will be implemented as a separate Subject Area.

The Table/View/SapBwCube/SapBwDso/SapBwQuery cells can be explicit names or wildcards.

## Appendix D. Task Automation with Safyr

### *How to automate the main Safyr operations without user intervention*

Many of the tasks that are typically required for regular usage of Safyr can be automated. These include:

- Extraction from the source application (SAP, Salesforce....)

- Creation of Subject Areas

- Expansion of Subject Areas

- Export of Subject Areas (only certain formats currently supported)

Full details of the options to achieve automation are described in the ‘Safyr Task Automation Guide’.

### Overview of the Safyr Automation Approach

Safyr uses an Excel file to record the settings required to run the tasks listed above ‘unattended’.

Most of the options that would be entered or selected manually to achieve a task are recorded in the Excel file, and a Command line file is then used to execute Safyr, referencing the Excel sheet containing the options.

An example of an Excel definition is below.

#CommandProperties		
PropertyName	PropertyValue	Description
RepositoryName	SAPBW-1	
CommandType	Extract	Type of the Command (limited to the values describe in this sample sheet)
MinimizeWindow	Yes	
CloseAfterCommand	Yes	
LogFileName	c:\temp\Safyr_SAP1-\$DT\$-Extract.txt	Option / \$DT\$ = current date time as 'yyyymmdd-hhmmss'
LogFileAppend	No	
ExtractSkipTest	Yes	
ExtractDataMode	FromLoadFiles	Full ; To LoadFiles ; FromLoadFiles (support depends on source system type)
ExtractDetailedLog	c:\temp\Safyr_SAP1-\$DT\$-Extract.xml	Option / \$DT\$ = current date time as 'yyyymmdd-hhmmss'

The properties include the name of the Safyr Repository to use for the Extraction (in this case a SAP System), whether Safyr should be shut down after the Extraction completes, and the location of the Log file to be created to record details of the Extract.

An example of a Command file to use this Excel definition is below.

```
*SafyrTaskAutomationSample.cmd - Notepad
File Edit Format View Help
echo off
cls
set SafyrExe="X:\DP_PRJ\Safyr\Prog\Safyr.exe"

echo SAP1-Extract is running ...
%SafyrExe% /TaskAutomationFile="X:\DP_PRJ\Safyr\Docu\Manual\User\SafyrTaskAutomationSample.xlsx" /TaskAutomationCommand="SAP1-Extract"
if %ERRORLEVEL% GEQ 1 goto :FinishWithError

echo SAP1-Subject Area Import is running ...
%SafyrExe% /TaskAutomationFile="X:\DP_PRJ\Safyr\Docu\Manual\User\SafyrTaskAutomationSample.xlsx" /TaskAutomationCommand="SAP1-SubjectAreaImport"
if %ERRORLEVEL% GEQ 1 goto :FinishWithError

echo SAP1-Subject Area Expand is running ...
%SafyrExe% /TaskAutomationFile="X:\DP_PRJ\Safyr\Docu\Manual\User\SafyrTaskAutomationSample.xlsx" /TaskAutomationCommand="SAP1-SubjectAreaExpand"
if %ERRORLEVEL% GEQ 1 goto :FinishWithError

echo SAP1-Export-JSON is running ...
%SafyrExe% /TaskAutomationFile="X:\DP_PRJ\Safyr\Docu\Manual\User\SafyrTaskAutomationSample.xlsx" /TaskAutomationCommand="SAP1-Export-JSON"
if %ERRORLEVEL% GEQ 1 goto :FinishWithError

goto FinishSuccessful

:FinishWithError
echo Something failed, please check the result logs
pause
rem force exit of higher level command calls
exit /B 1

:FinishSuccessful
echo everything worked
pause
exit /B 0
```

In this example, an extract from SAP is run, then a Subject Area is populated, followed by Expansion of the Subject Area, and finally an Export to JSON files is performed.

A sample Excel file and a sample Command file are provided with the Safyr and are available in the Safyr Documentation folder.

### Requirements for Safyr Task Automation

When Safyr is run in this mode, it is still being executed as a Windows client application. The Command file can be Scheduled (e.g. using Windows Task Scheduler), providing the necessary resources are available to complete the task successfully. These include:

- The PC on which Safyr is installed must be started
- Any Databases or Systems accessed must be available
- The passwords stored in Safyr or in Registry settings must match those required to access the Source Application, database and/or Target export environment.

Full details of how to configure Safyr Task automation are described in the 'Safyr Task Automation Guide'.

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