TELELOGIC

SA/ERP Metadata Explorer

User Guide

User Guide – SA/ERP

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Chapter

1

Introduction

Describes how to use this manual

Welcome to the SA/ERP User Guide. SA/ERP uses technology of the SA/ERP product of Silwood Technology Ltd. This manual describes the various features of SA/ERP in detail and in particular the powerful features for exploring the metadata extracted from your chosen environment.

We recommend that you refer to the SA/ERP 'Getting Started Guide' for details of how to install and configure the product.

Where do I find what I need?

Installing and configuring

For information on installing and configuring SA/ERP, refer to Chapter 2 of the SA/ERP 'Getting Started Guide'. SA/ERP 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 SA/ERP is installed and configured, an extraction of metadata need to be carried out by connecting to the Enterprise Application you require (e.g. SAP, PeopleSoft…). The detailed steps for achieving this are described in Chapter 3 of the SA/ERP 'Getting Started Guide'.

Exploring the contents of the SA/ERP repository

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

Exporting metadata from SA/ERP into other environments

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

SA/ERP manual set

There are four SA/ERP manuals supplied in Adobe Acrobat format (.pdf files) with the SA/ERP software.

- Getting Started Guide: Use this manual for details of product installation and an overview of SA/ERP features

- User Guide (this manual): Describes all of the SA/ERP functions in detail

- SA ERP User Guide for Cube Wizard: Describes the reorganization of previously extracted metadata in the SA/ERP repository from a SAP BW (Business Warehouse) into Info Cubes and ODS (Operational Data Store) data structures.

- SA ERP User Guide For Siebel Extractor: Describes the ability to extract meatadata from a Siebel database for storage in the SA/ERP repository.

Chapter

2

The Repository Manager

Describes the features for creating and managing multiple sets of metadata in SA/ERP

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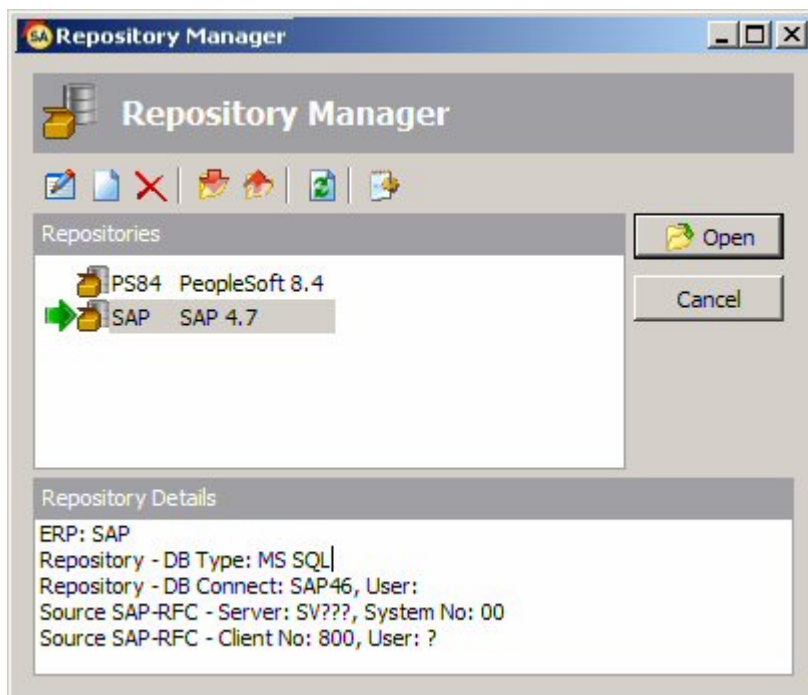
The Repository Manager form

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

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
	Delete selected repository	Deleting a Repository
	Import repository	Import/Export Repository
	Export repository	Import/Export Repository
	Repository Maintenance	Repository Maintenance
	Repository Inifile	The Repository .ini file

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 SA/ERP repository and the connection to the 'source' system. See the SA/ERP 'Getting Started' guide, Chapter 2 – Installation for details on how to complete the required information.

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 SA/ERP repository database and its contents will still exist.

Import/export Repository

The contents of a SA/ERP repository can be moved from one instance of SA/ERP 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 SA/ERP 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. SA/ERP 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 SA/ERP Repository.
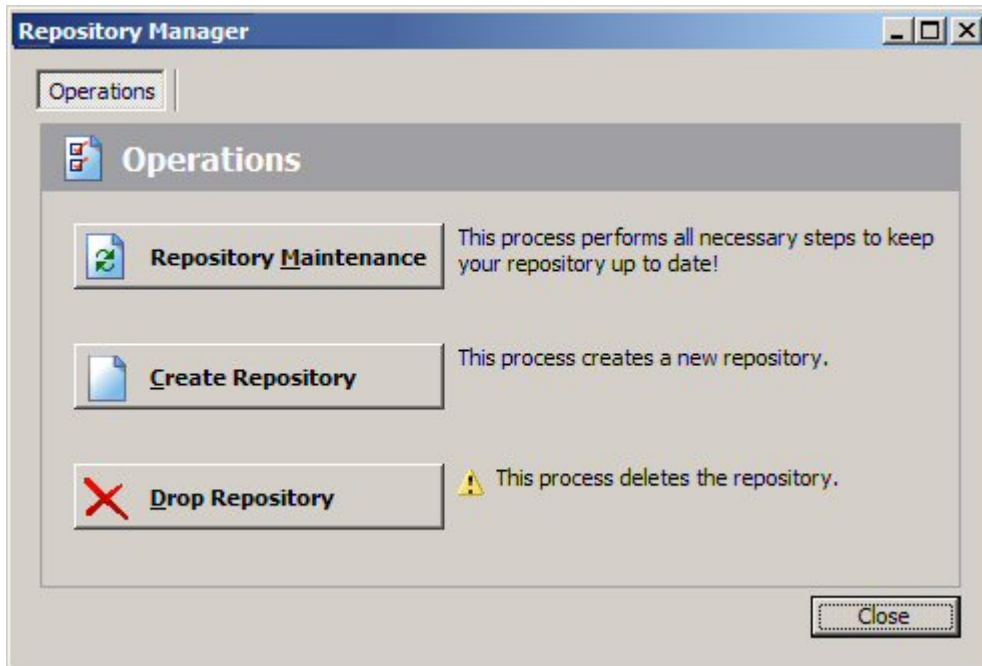
Repository Maintenance form

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

There are three buttons on the form:

- Repository Maintenance: Click this button to check the structure of the SA/ERP repository against the latest standard. This will typically be used when upgrading from an earlier SA/ERP release

- Create Repository: Click this button to create the tables, views and triggers that form the structure of the SA/ERP repository.

- Drop Repository: Click this button to drop all the tables, views and triggers in an existing SA/ERP repository. Please note that this will delete the entire contents of the repository!

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

The Repository .ini file

SA/ERP uses an .ini file to store most of the options used by SA/ERP (database connection parameters, repository names, etc.). Appendix B of the SA/ERP 'Getting Started Guide' gives details on the structure and purpose of this file.

The Repository Infile button on the Repository Manager allows the location and name of the .ini file to be specified. By default the file is called saphir.ini and is located in the SA/ERP root folder (typically <C>:\Program Files/Telelogic/System Architect Suite/System Architect/SAERP/Saphir.ini). On clicking the button, a form is displayed which allows you to specify the name and location of the file.

Chapter

3

Browsing the metadata in SA/ERP

A detailed description of the features for browsing the extracted metadata

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

The SA/ERP workspace

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

Elements of the SA/ERP workspace

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

At the bottom of the window is the status bar.

| Show Information about the product | Repository: SAP47 | Type: SAP | Language: E |

SA/ERP 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 SA/ERP repository

- Repository Type – identifies the type of the SA/ERP repository (e.g. SAP)

- Selected Language – shows the language code that is being used for 'descriptive' fields like field names and table names.

The SA/ERP menus

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

Menu	Menu Item	For more details see...
File	Repository Manager	Chapter 2 – The Repository Manager
	ERP Extract	SA/ERP Getting Started Guide, chapter 3
	Export Data Model as…	Chapter 4 – Exporting metadata from SA/ERP
	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	SA/ERP Options	'SA/ERP Options' in this chapter
	Compare Subject Areas	Chapter 5 – Comparing metadata
	Serial Number	'The SA/ERP Serial Number' in this chapter
Window	Cascade	
	Tile Horizontally	
	Tile Vertically	
	Minimize All	
	Close All	
Help	User Guide	
	About	

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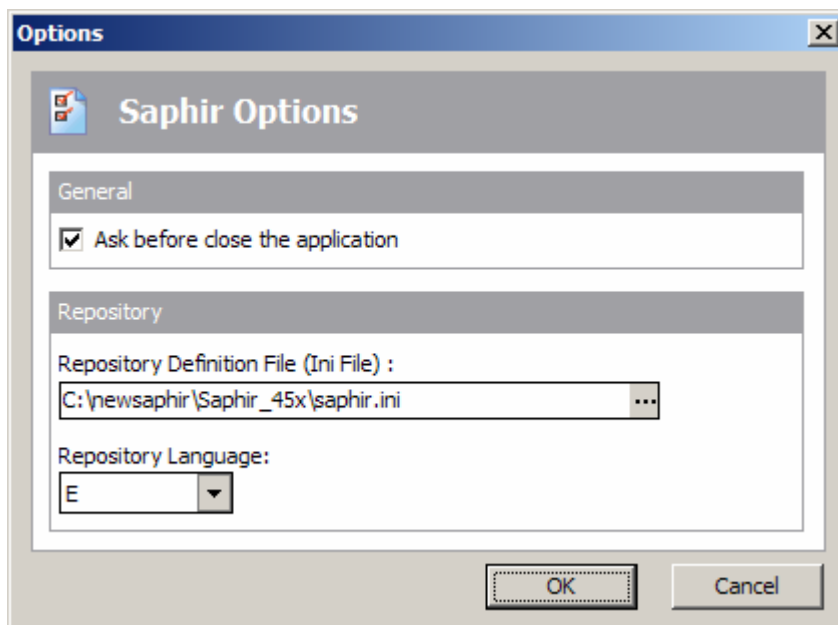
The SA/ERP Toolbar options are summarized in the following table. See the referenced section to find out more on each option.

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

SA/ERP options

The SA/ERP Options form is displayed by selecting 'SA/ERP 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 SA/ERP down. When not checked, SA/ERP will close down without the confirmation form.

- Repository Definition file – Use this to specify the location of the SA/ERP 'ini' file.

- Repository Language – Where the extraction of metadata has been performed in more than language, this option allows the selection of the language for displaying language-dependent data such as attribute and table names.

SA/ERP Option form

Browsing the metadata

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

- The Model Overview – this displays a list of tables, views or domains in the repository. You can use search facilities to refine the list. For more details see 'The Model Overview' below.

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

The Model Overview

The Model Overview form is displayed by clicking on the SA/ERP toolbar or selecting 'Model Overview' from the 'View' menu.

Clicking the button will return a list of all the tables in the SA/ERP repository.
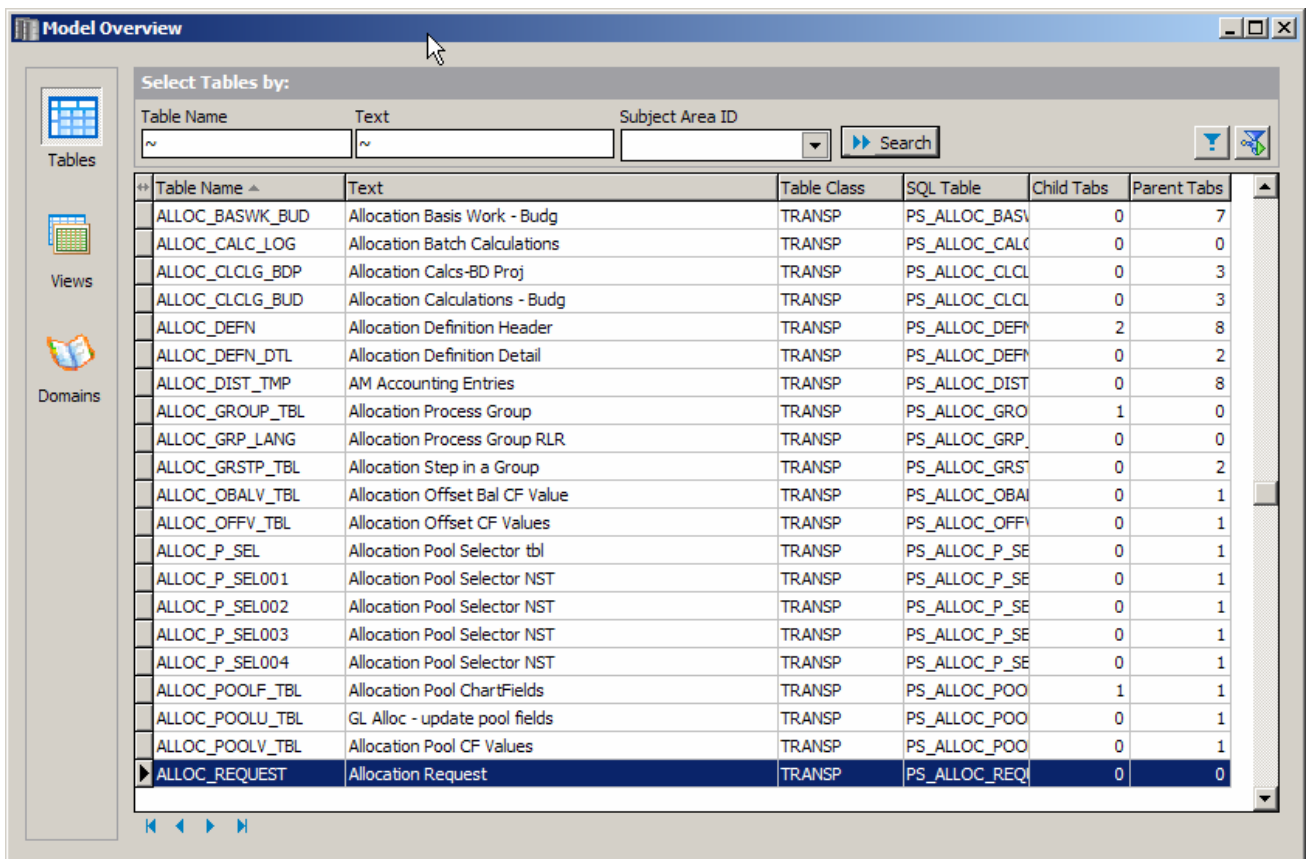
The Model Overview form

For each table, the following fields are displayed:

- **Table Name:**   The 'physical' table name.

- **Text:**   The 'logical' name.

- ■   *Table Class:*   Possible values are TRANSP (Transparent), POOL or CLUSTER. POOL and CLUSTER are only applicable to SAP systems.

- ■   *SQL Table:*   For SAP POOL and CLUSTER tables, the name of the actual SQL table where the data is stored. For PeopleSoft Enterprise systems, this is the actual table name (as opposed to the physical name which is used in the PeopleSoft tools interface).

- ■   *Child Tabs:*   The number of related 'child' tables.

- ■   *Parent Tabs:*   The number of related 'parent' tables.

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 and Domain information

The Model Overview can be switched between Table, View and Domain display using the buttons to the left of the form. See 'Using the Overview to browse views' and "Using the Overview to browse Domains' later in this chapter for more details of Views and Domains respectively.

Selecting tables in the Model Overview

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

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.

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

Button	What Does it Do?
~	Wild Card Search - find rows starting with or containing the specified string
!~	Negated Wild Card Search - find all rows *not* 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
N	Null search - finds all rows containing Null value
!N	Not Null search - finds all rows containing a Not Null value

SA/ERP 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

- **Text:**   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
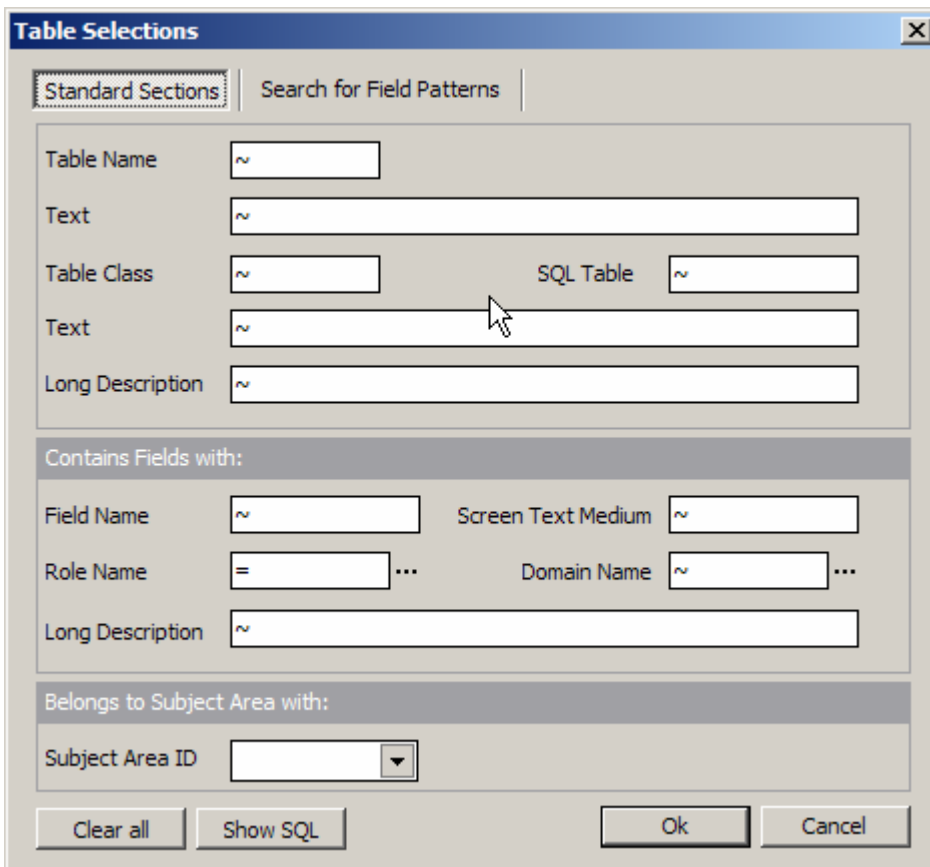
▪   Enter the selection criteria for the desired tables

▪   Click the 'Search' button.

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

Using QBE

The selection criteria described in the previous section cover most of the day-to-to-day queries. The QBE (Query-by   Example) 🔧 button displays the Table Selections form allowing for more flexible search capabilities. This is particularly useful for searching for a given field occurrence.

The QBE form consists of two tabs: 'Standard Sections' and 'Search for Field Patterns'.

QBE – Standard Sections

The Standard Sections tab includes a range of search fields, including Field Name, Table Class and Long Description.

QBE – 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:
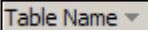
▪ Field Name: Enter a Field Name or Partial Field Name

▪ 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 ('<>X') or Wild Card ('~')

▪ Role Name: Enter a Role Name or Partial Role Name

Having entered the appropriate search conditions, click the 'Show SQL' button to see the query that this will be performed. Click 'OK' to perform the actual search.

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 `Table Name ▲` next to the name of the sorted column.

An inverted sort icon `Table Name ▼` denotes a column sorted in descending order.

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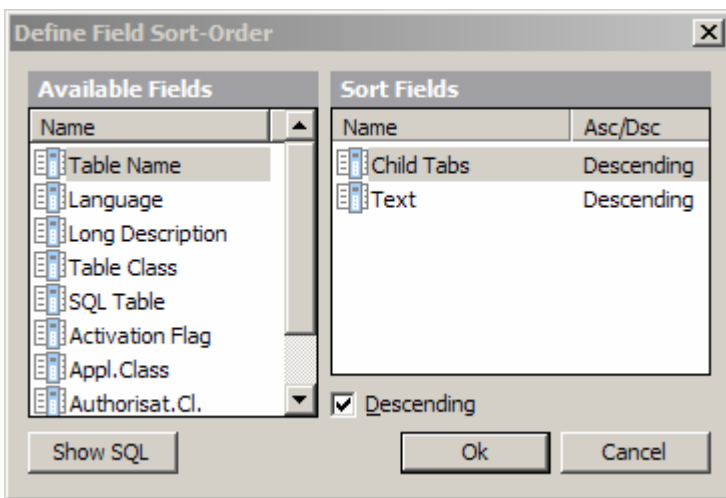
Defining Field Sort Order

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

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

ORDER BY
Number_of_Child_Tables DESC,DD_Text DESC
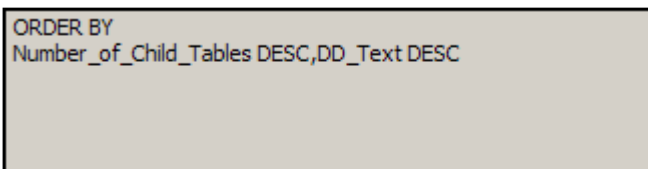
Displaying the Query SQL

Click the OK button to perform the sort.

Re-arranging Columns in Data Mode

The columns visible in the Model Overview can be re-positioned by dragging and dropping the column heading to the desired location.

Table Name ▲	Text	Table Class	SQL Table	Child Tabs	Parent Tabs
/SAPDMC/LISCREEN	General (Screen Fields)	TRANSP		0	0
/SAPDMC/LSCDOCU	Documentation Elements	TRANSP		1	0
/SAPDMC/LSCDOCUT	Documentation Elements: Name	TRANSP		0	2
/SAPDMC/LSCPROGS	Parameter Names of the BI/DI Program	TRANSP		0	0
/SAPDMC/LSCRULE	Rule categories	TRANSP		1	0
/SAPDMC/LSCRULET	Rule categories	TRANSP		0	1
/SAPDMC/LSCSTEPS	Work Steps	TRANSP		1	0
/SAPDMC/LSCSTEPT	Work Step: Name	TRANSP		0	2
/SAPDMC/LSCVERSN	LSMW Version Number	TRANSP		0	0
/SAPDMC/LSGBDC	BI Name: "Code"	TRANSP		0	0
/SAPDMC/LSGBDCA	BI Name: Attributes	TRANSP		0	0
/SAPDMC/LSGBDCS	BI Name: Structures (Name=Prefix+Recording+Hlevel)	TRANSP		0	0
/SAPDMC/LSGBDCT	BI Recording: Name	TRANSP		0	1
/SAPDMC/LSGCUST	Server-Dependent Settings	TRANSP		0	0

Changing the column sequence

Viewing table details

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

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

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

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

       The Field is part of the Table's Primary Key

       Part of the Primary Key and also a Foreign Key

       The Field is a Foreign Key field

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

Displaying Field Details

Table details

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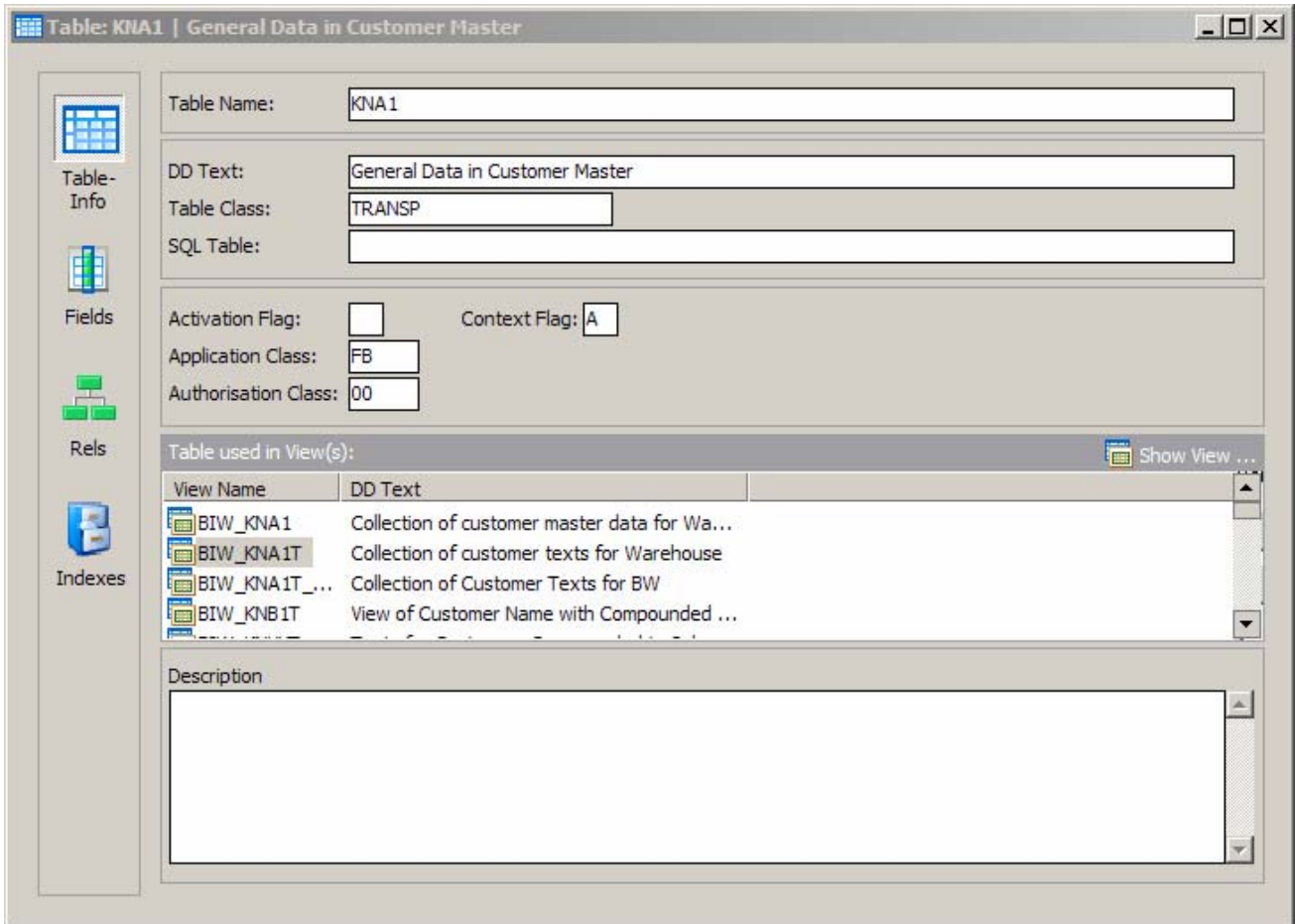
Table Information

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

Index details

Clicking on the index icon ![icon] 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 at the right.

Relationship details

Clicking on the Relations icon 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 icon appears above the join 'Parent' fields. This can be used to navigate to the 'parent' table in the relationship. Clicking on the icon will open a Table Details window for that table.

Viewing parent/child relationships

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

Table Relationships form

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

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

- All parent relationships: All parent relationship are displayed

- Identifying only parent relationships: Only relationships where the migrated primary key is part of the receiving table's primary key are displayed

For 'child' tables the available choices are:

- All child relationships: All child relationship are displayed

- Identifying only child relationships: Only 'child' tables where the primary key fields of the 'parent' table form part of the primary key of the child table are displayed

- Identifying only child…(refined set):   As for 'Identifying only child relationships', but in addition, the Primary Key of the child must be one more field than the Primary Key of the parent.

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

SA/ERP 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 SA/ERP for PeopleSoft Enterprise applications).

To display a list of views in the Model Overview, click on the [icon] icon and then click the Search button.
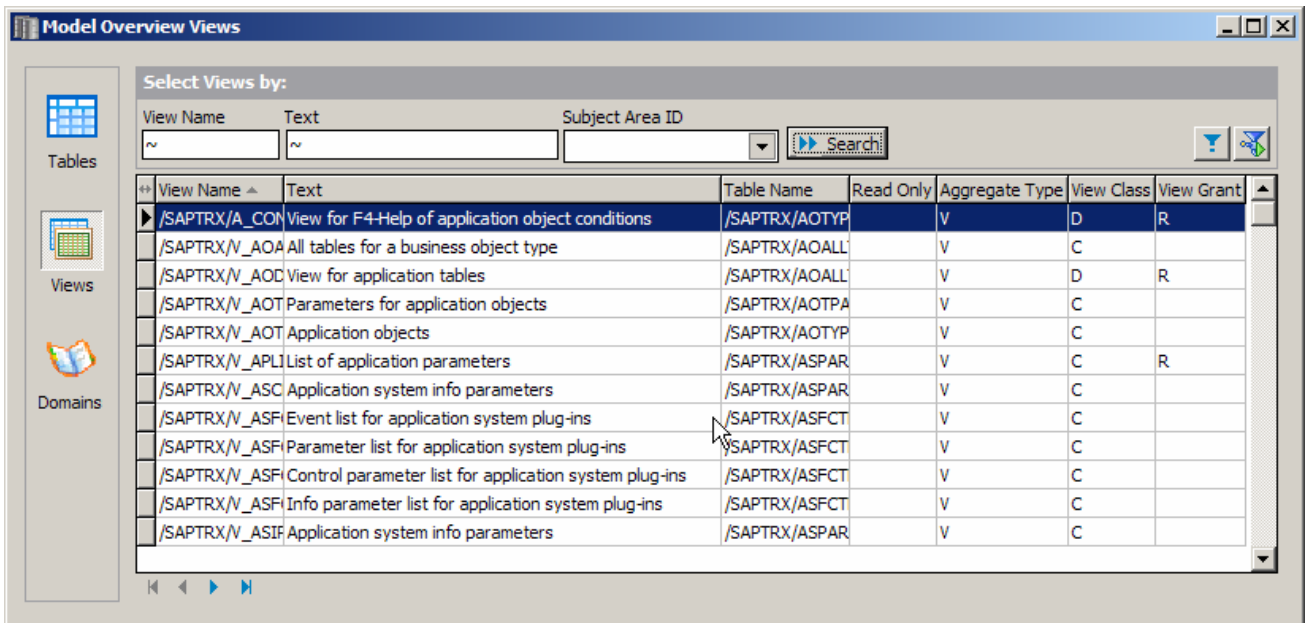
Model Overview: Views

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

Available fields in the View List include: -

- View Name   The internal Name for the View

- Text   The Business Name for the View

- Aggregate Type   The View Type

Showing the View fields

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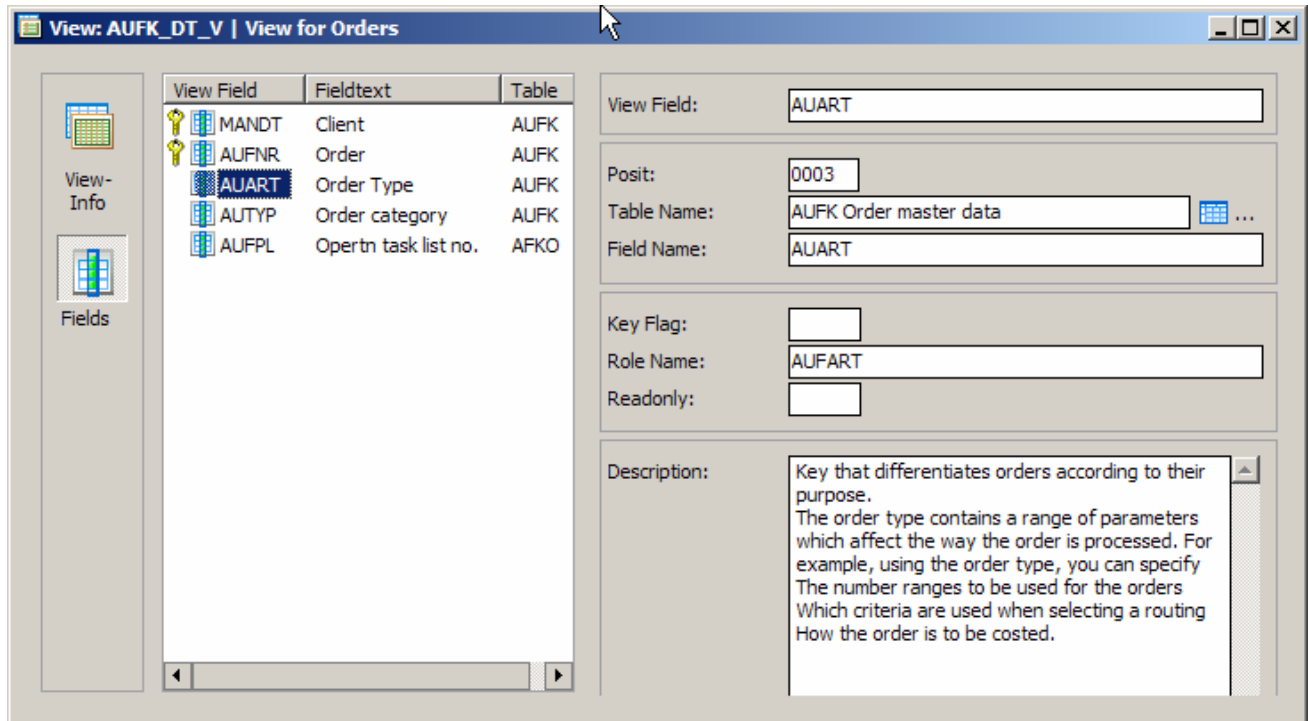
View Details

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

There are two icons to the left of the View Details form that present different aspects of the View. Clicking

on the view info button ![view info icon] reveals more details of the view and a list of the Base tables on which the view is based.
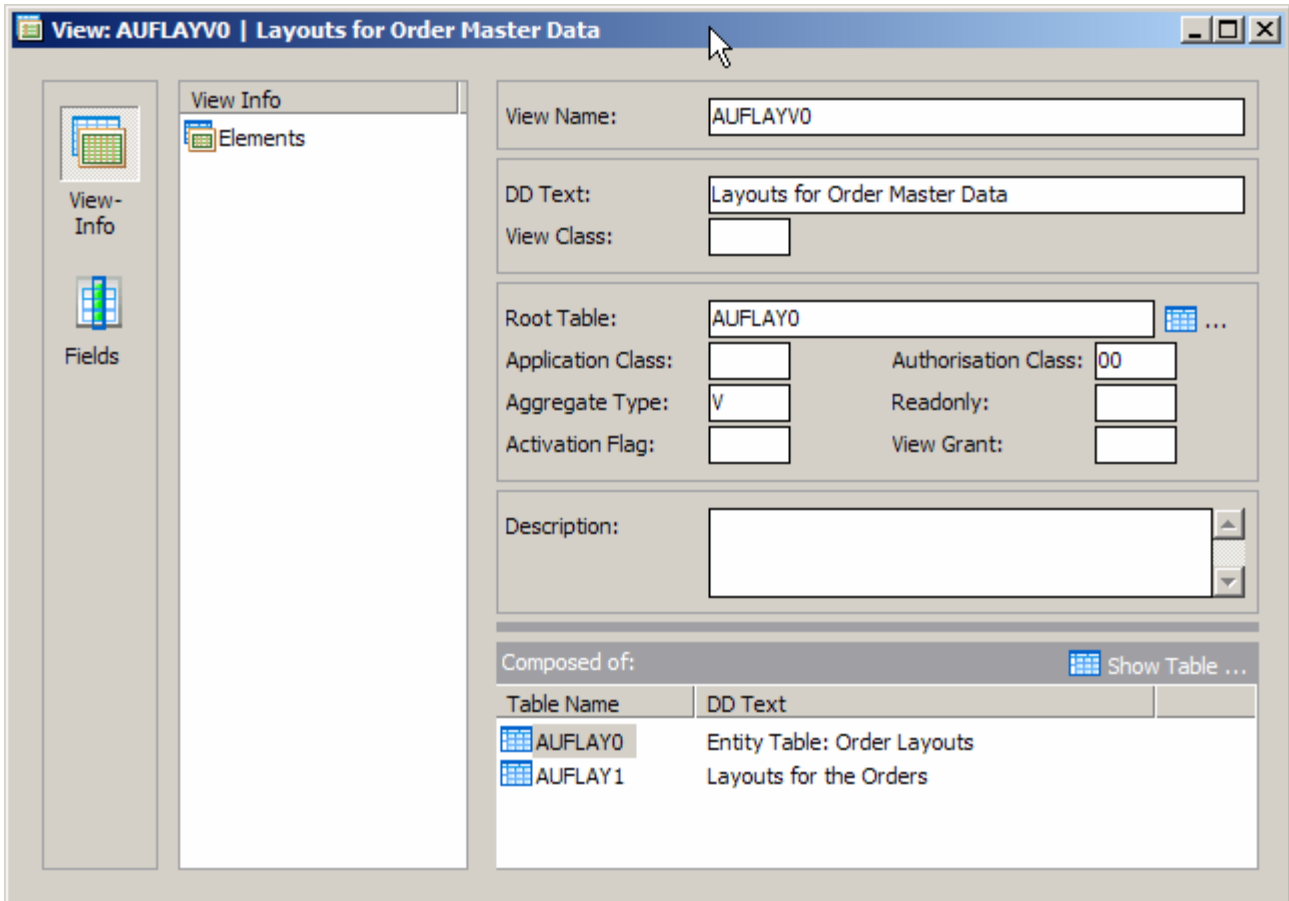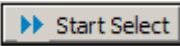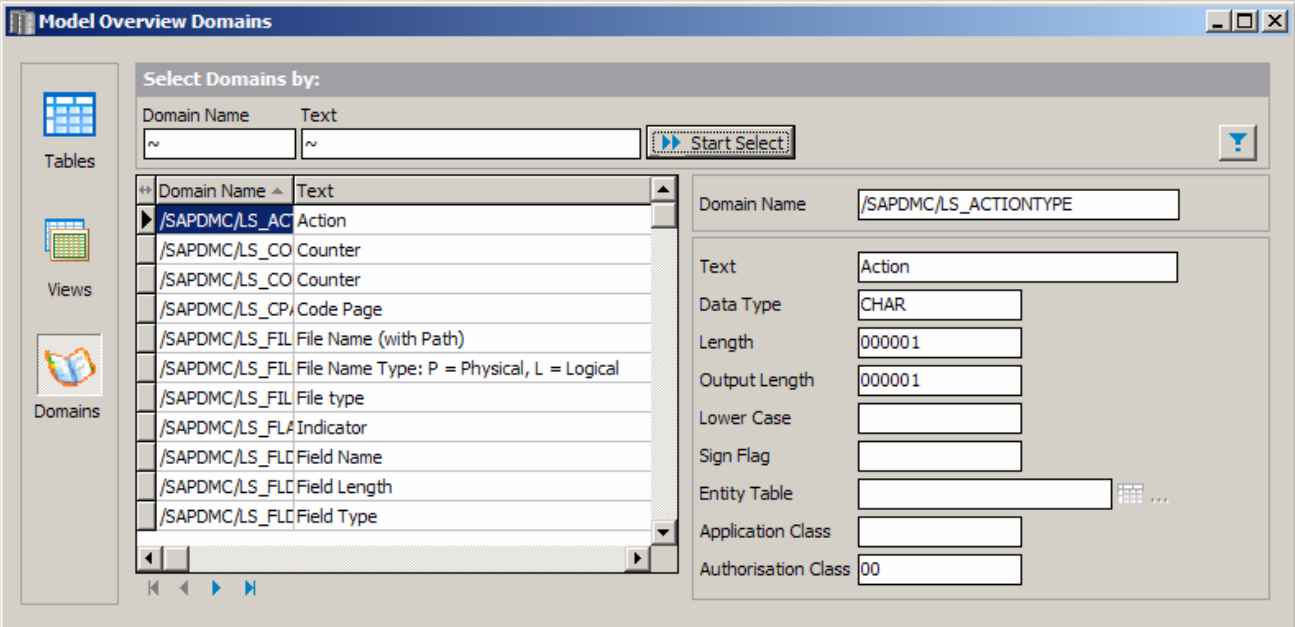
View Info

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

Using the Overview to browse Domains

In addition to Base Tables and Views, SA/ERP allows a third class of object to be browsed, Domains.

Clicking on the [icon] icon on the left of the Model Overview form displays a list of available Domains. Initially the list is empty; pressing the [▶▶ Start Select] button retrieves a full list of Domains.

Model Overview: Domains

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

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

Searching for tables using a Domain

This feature find all the tables using a specified Domain.

From the 'Model Overview Domains' form, right mouse clicking on a Domain reveals a pop-up menu, with the first option being 'Find Tables using Domain'. When selecting this, a search is initiated to find all Tables containing Fields that belong to the chosen Domain type. This feature is also available form the general Search button, and from the Domain tab of the Table Details form.

Note: This feature sets the 'Domain' field in the Search parameters (see 'Using QBE' 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-Clicking on a row in the Model Overview will display the Model Overview context pop-up menu.

Table Details
Table Relationships
Open Subject Areas
Find Table in App. Hierarchy
Drill into Source Data
Export Source Data
Export Source Data (Full Selection)
Export Table Properties
Create SQL Scripts
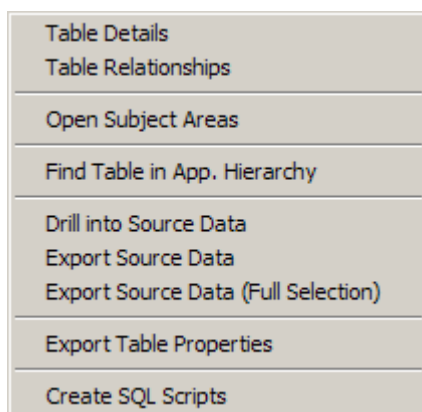
Pop-up menu on right mouse click

The available options are summarized in the following table:

Menu	For more details see...
Table Details	'Viewing Table Details' in this chapter
Table Relationships	'Viewing parent/child relationships' in this chapter
Open Subject Areas	'Subject Areas' in this chapter
Find Table in App. Hierarchy	'Finding a table in the Application Hierarchy' below
Drill into Source Data	'Drilling into data' in this chapter
Export Source Data	'Exporting data from a single table' in this chapter
Export Source Data (Full Selection)	'Export of a number of tables' in this chapter
Export Table Properties	'Creating A report of table attributes' in this chapter
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 open the Application Hierarchy and locate the currently selected table or view. This allows the selected object to be seen in context to its position in the hierarchy.

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

The Application Hierarchy

The Application Hierarchy is an alternative way of looking at the contents of the SA/ERP repository. The same set of tables seen in the Model Overview is organised in a 'tree' structure by application module.

Click the ![icon] icon on the SA/ERP toolbar or click 'Application Hierarchy' from the 'View' menu to display the Application Hierarchy. This presents a list of modules and their associated tables. The actual modules and the level of hierarchy shown will depend on the Enterprise Application being viewed.
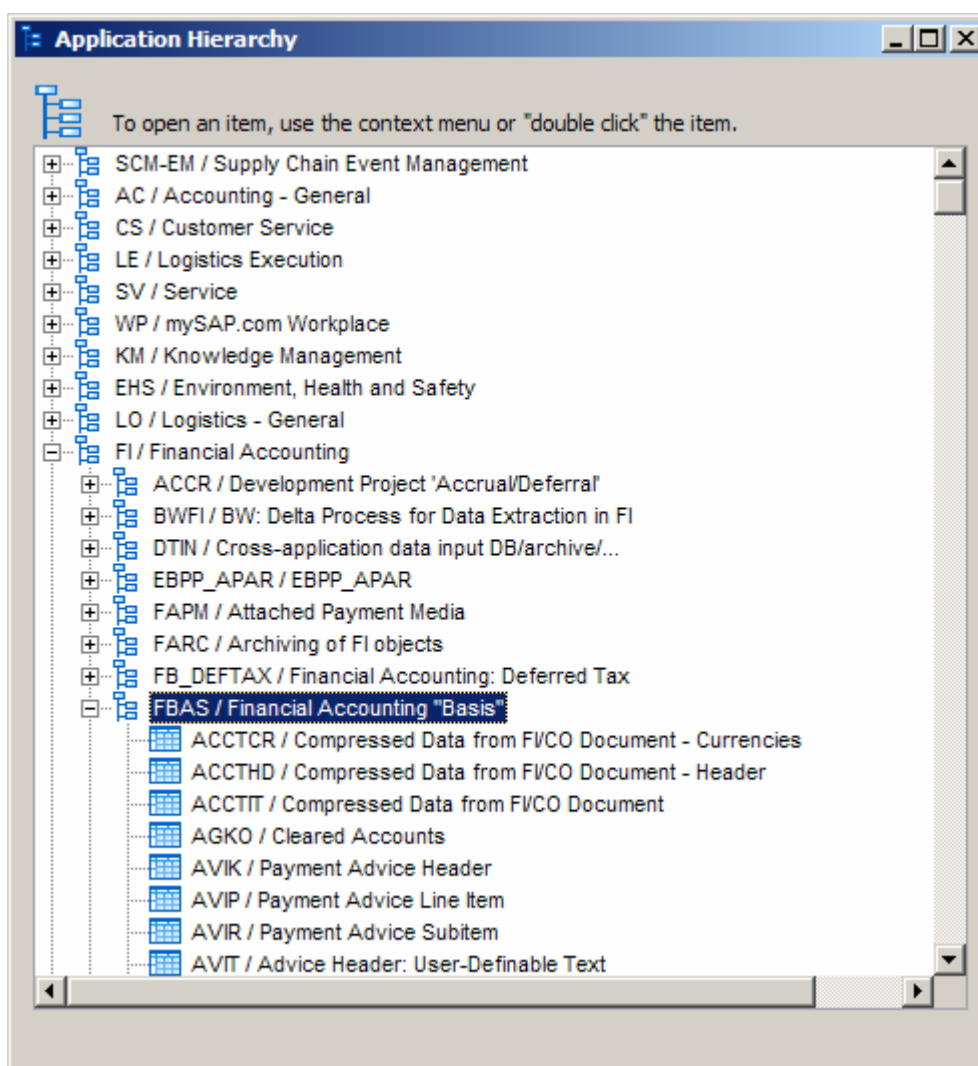
The Application Hierarchy

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

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

Various icons are used in the hierarchy as follows:

indicates a module or a sub-module

indicates a Table

indicates a View

Available actions from the Hierarchy

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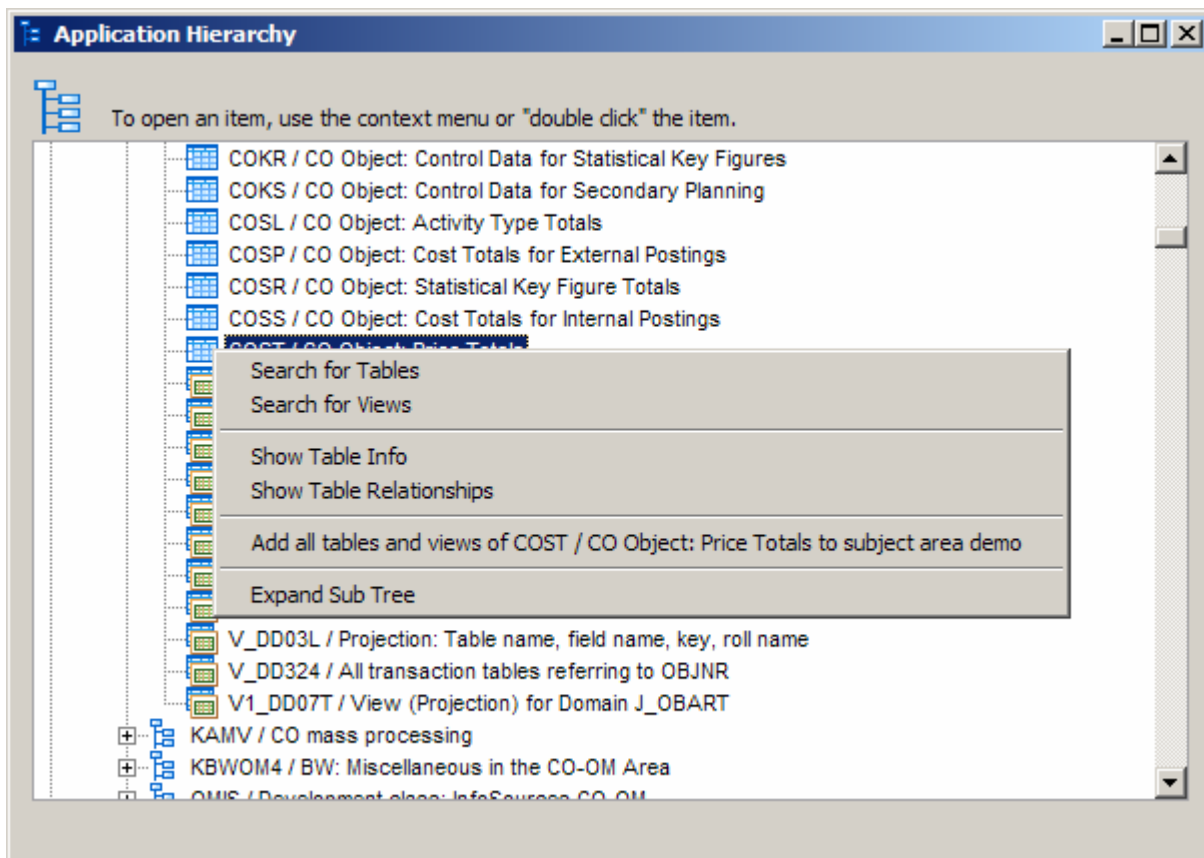
Context menu from Application Hierarchy

The available actions are:

Search for Tables: - This displays a form for searching the hierarchy for a table or tables. See 'Searching for tables and views' below.

Search for Views: - This displays a form for searching the hierarchy for a view or views. See 'Searching for tables and views' below.

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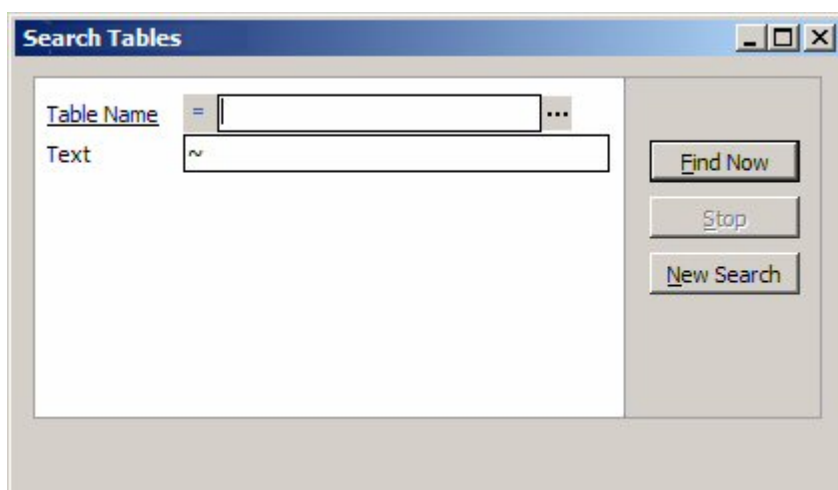
Show Table Relationships – This option is only available if the current selected node is a table. The related 'parent' and 'child' tables form will be displayed. See 'Viewing parent/child relationships' earlier in this chapter for details.

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

Expand Sub Tree – opens the currently selected node.

Searching for tables and views in the Application Hierarchy

Clicking the 'Search for Table' or Search for Views' options in the Application Hierarchy pop-up menu displays the 'Search Tables' or 'Search Views' form. Both forms work in the same way and the 'Search Tables' form will be used here to describe the functionality.

Search Tables form

To find the location of a table in the application hierarchy, enter the 'physical' Table Name or 'logical' Text string and click the 'Find Now' 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'). Note also that the default search option for 'Table Name' is '='. This means that the search will be performed for an exact match on the entered text. Change the search option to '~' to perform a wild-card search.
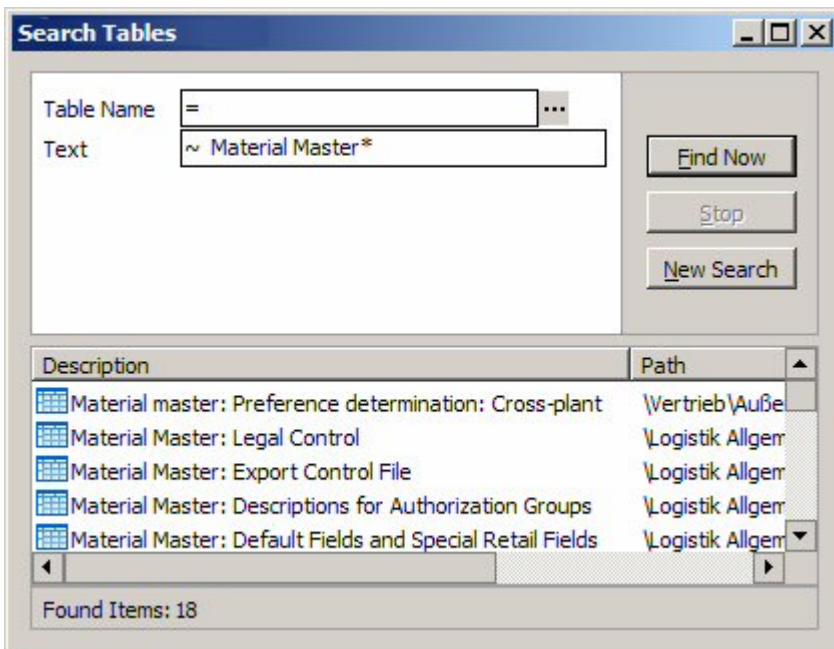
Table Search –result

Once the search is complete, double-clicking on an item in the search results will position the Application Hierarchy at that point.
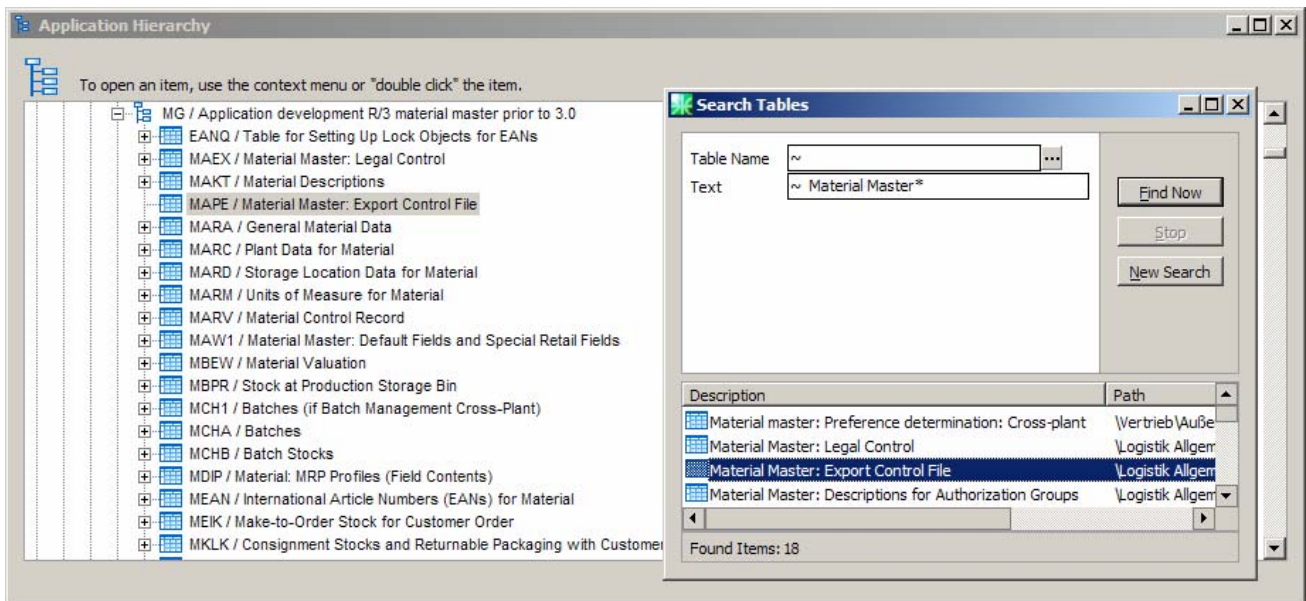
Using the Search Tables result to locate a table in the Hierarchy

Drilling into data

In addition to looking at the metadata for tables, SA/ERP 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 [icon] on the toolbar, , or by Right-Mouse-Clicking on the table in the list and selecting 'Drill into Source Data'. SA/ERP then performs a query to retrieve the data from the table.
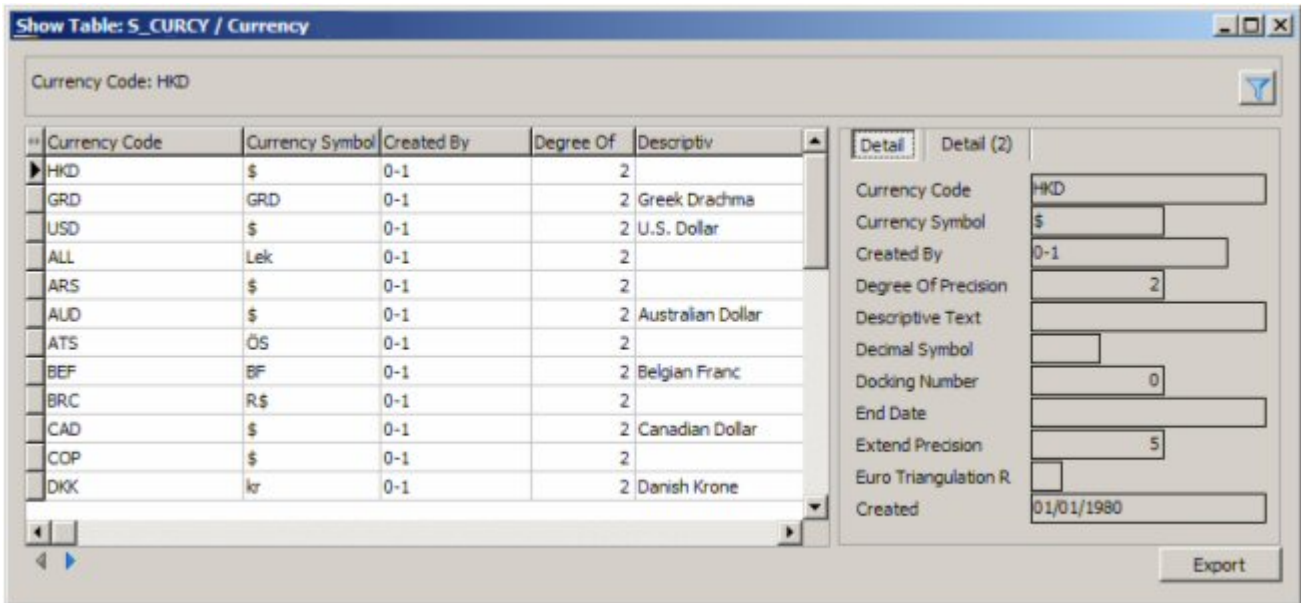
Drilling into Data

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

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

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

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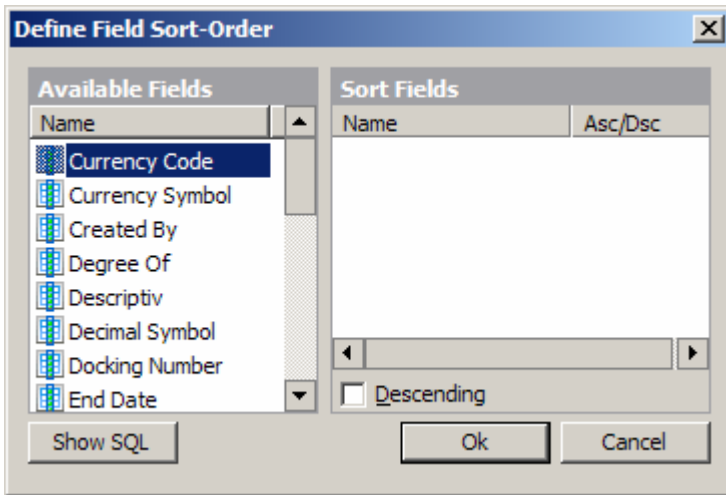
Changing the Sort Order

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

Using QBE to interrogate data

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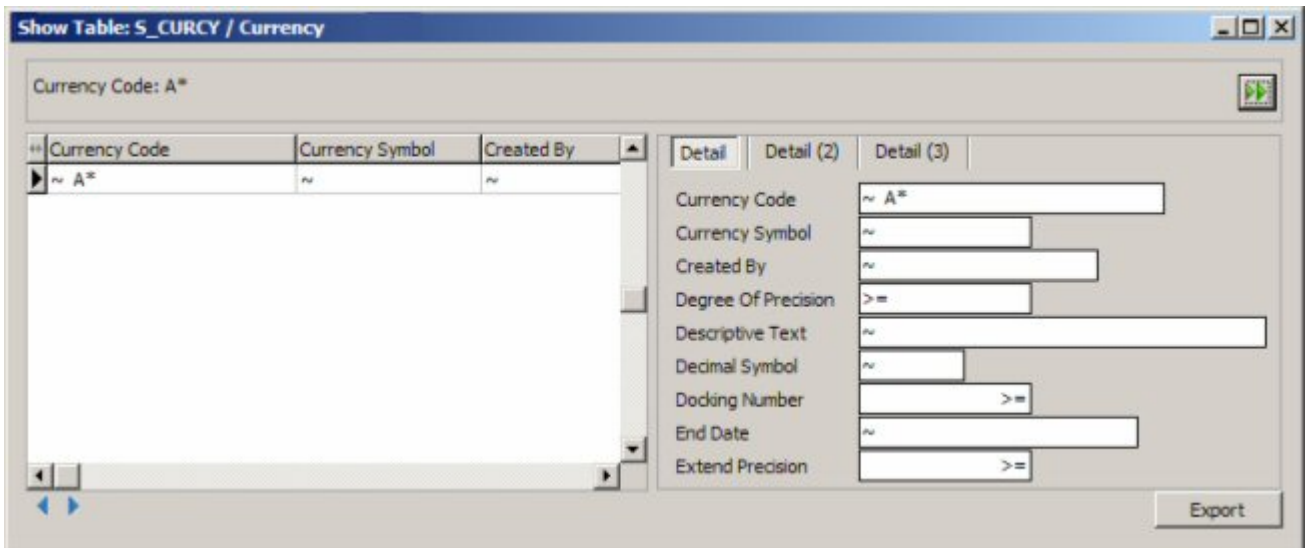
Setting QBE Selection Criteria

Click the Execute Button to run the query.
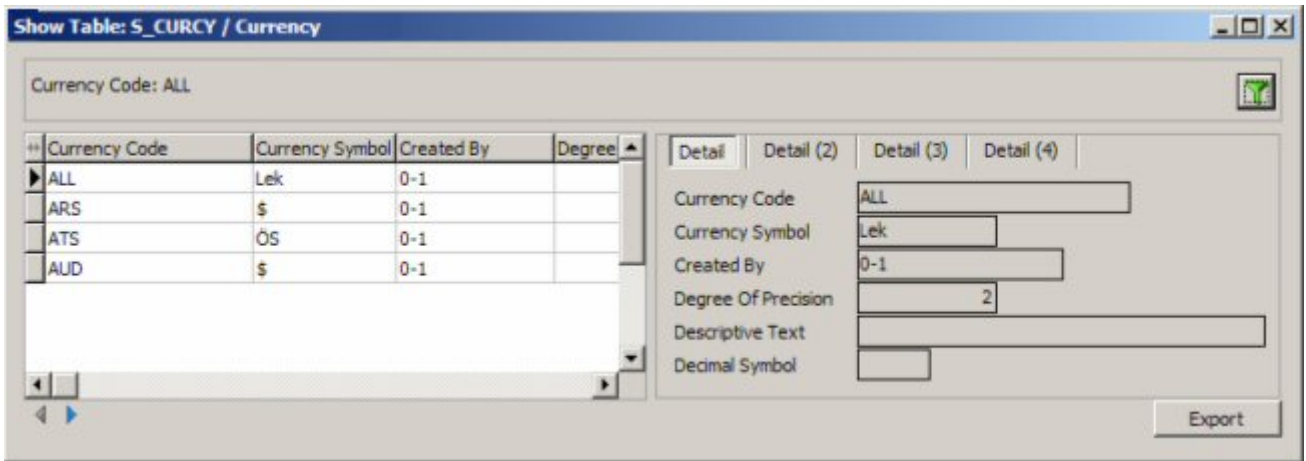
Query Results

Exporting data to flat files

Exporting data from a single table

Having selected the required data, click on the | Export | 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.
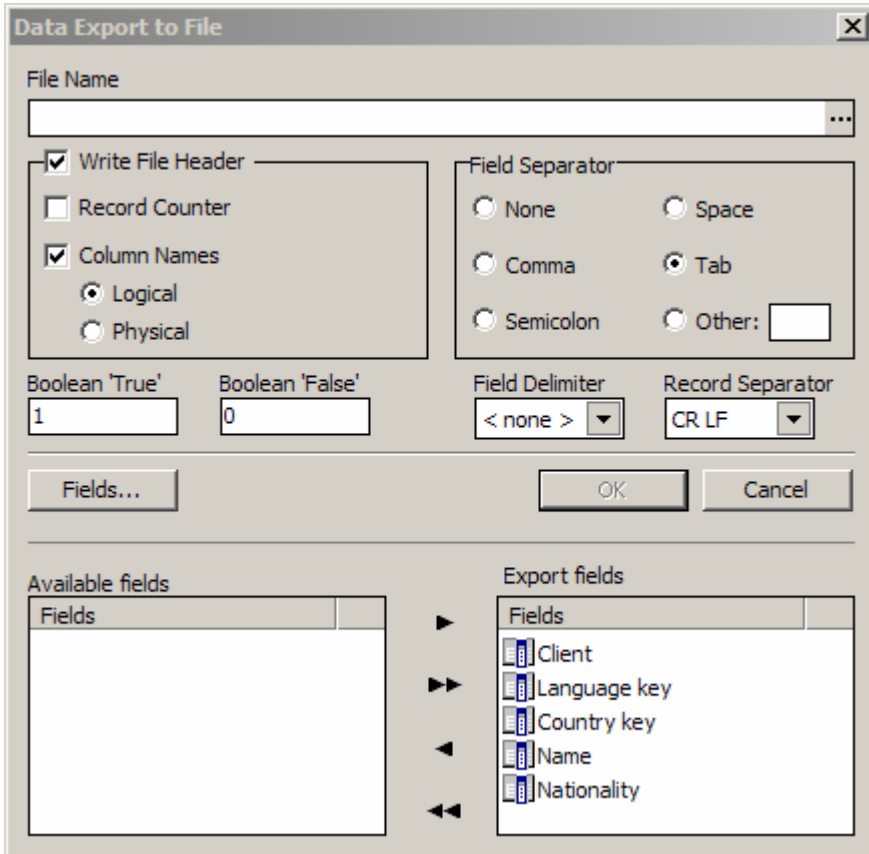
Export Form

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, SA/ERP 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.
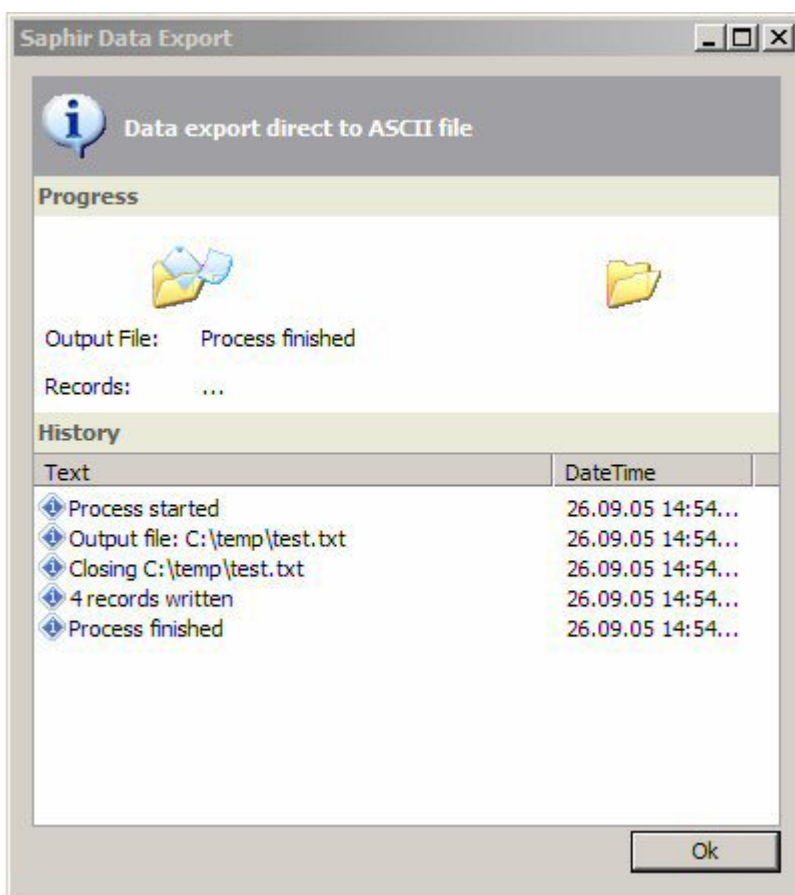
Export Progress Form

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 QBE facilities or by putting selected tables into a subject area and loading the subject area into the model browser.

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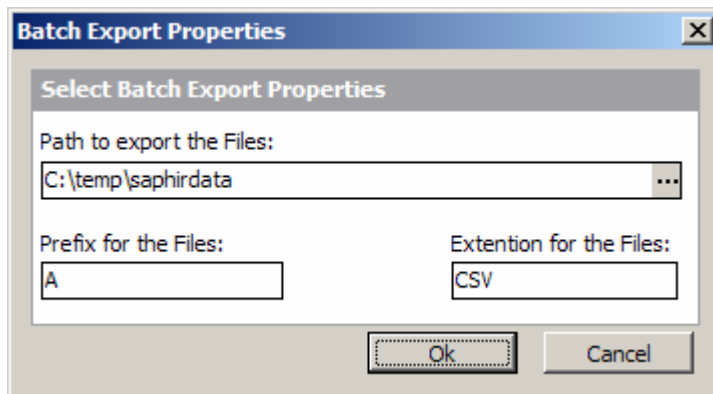
Set export properties

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

Select a prefix and extension for the export files.

On clicking OK SA/ERP 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 SA/ERP is an aid to making direct access to the source application (e.g. PeopleSoft) easier for any tool that uses SQL to interrogate the data.

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

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

Example of generated script

To generate Views or Select Statements

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

Script generation form

- The options on the left of the form dictate how the view or select statement is generated.

- To create a view – check this box to create a view, leave unchecked to create a select statement.

- With readable field names – check this box to use the field name as an alias.

- Uppercase Statement – check to have the generated text in upper case characters.

- Table Owner – specify the database table owner to be used as a prefix to the Table Name in the generated text.

- Prefix for created views –specify a string to be used as a prefix for the View name.

- Add Client where clause – allows specification of a SAP 'Client' (MANDT) for inclusion in the generated text 'where' clause.

- Add ';' at the end – tail the generated statement with an ';'.

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

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

Creating A report of table attributes

This feature of SA/ERP can be used to create simple reports of table attributes.

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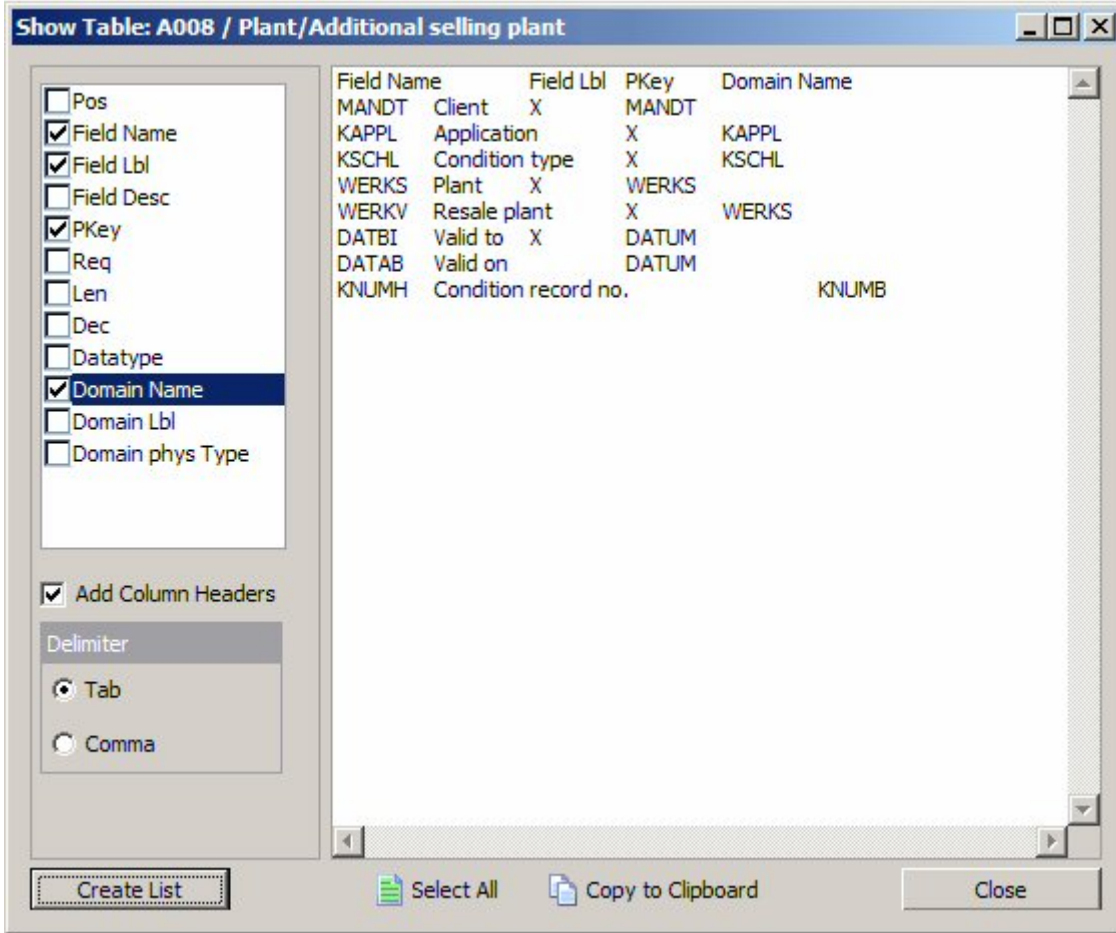
The Export Table Properties form

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

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

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

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

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

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

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Viewing Model Statistics

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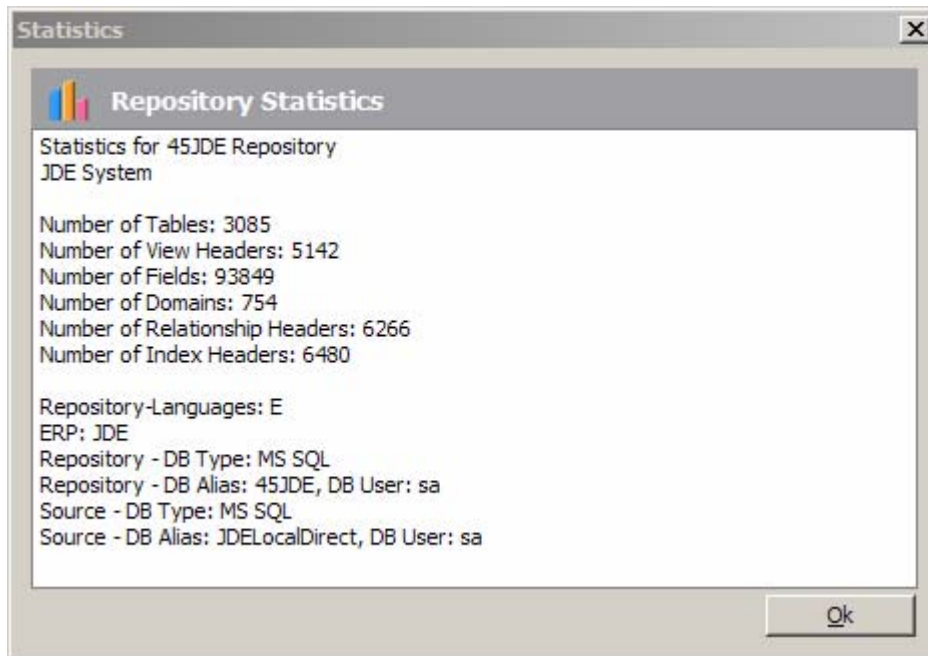
Model Statistics

The top part of the form shows the number of Tables, Views, Fields, Domains, Relationships and Indexes in the repository.

The bottom half of the form summarizes the repository type, characteristics and the 'source' application connection.

Subject Areas

Subject Areas allow tables and views in SA/ERP to be divided into manageable 'chunks'.   Subject Areas allow you to:

- Create subsets of the full set of tables in the SA/ERP repository – a SA/ERP subject area is like a folder where you can group together tables of interest.

- Qualify Searches – A subject area can be used in combination with the other SA/ERP 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 SA/ERP tool interfaces. All the tables of the subject area will be exported to the chosen tool.

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

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

Managing Subject Areas

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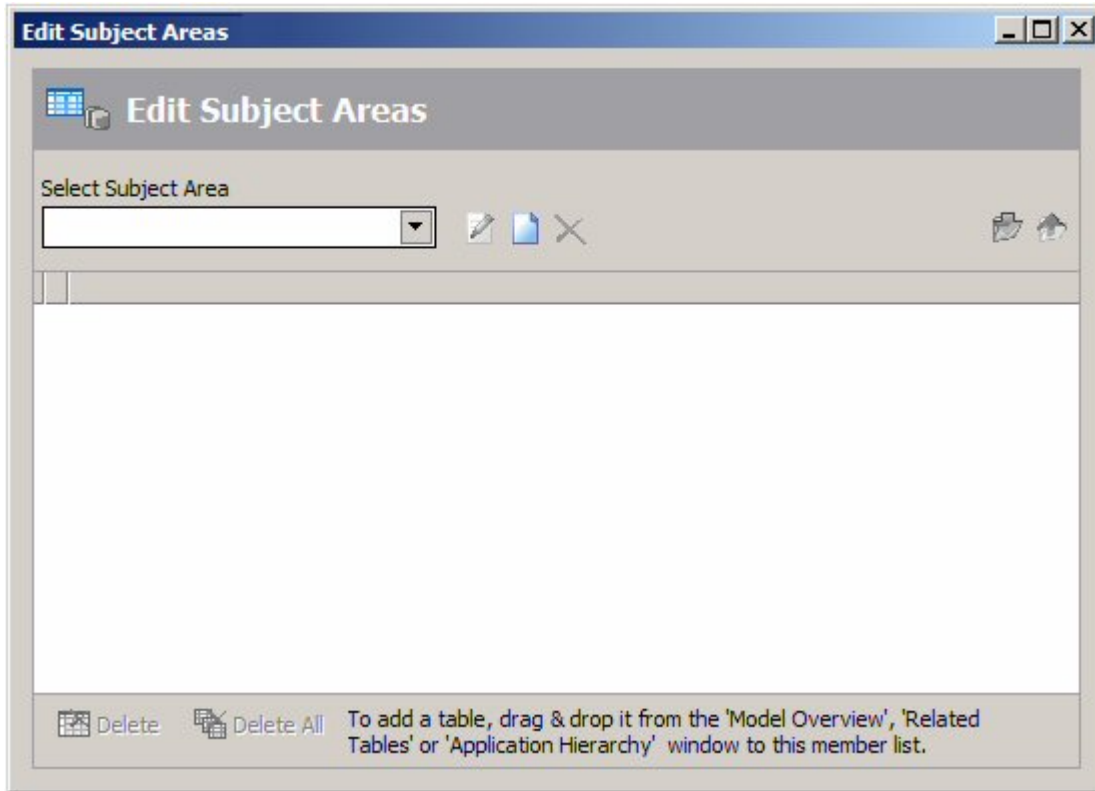
The Subject Area form

The controls on the form are as follows:

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

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

Click to create a new Subject Area.

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

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

Export Subject Area members. This option exports the currently selected subject area into an export file. This file can be used to populate another subject area in the same or a different SA/ERP

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

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

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

Adding tables to a Subject Area

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

- From the Model Overview

- From the Related Tables pop-up menu

- From the Application Hierarchy

Populating a Subject Area from the Model Overview

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

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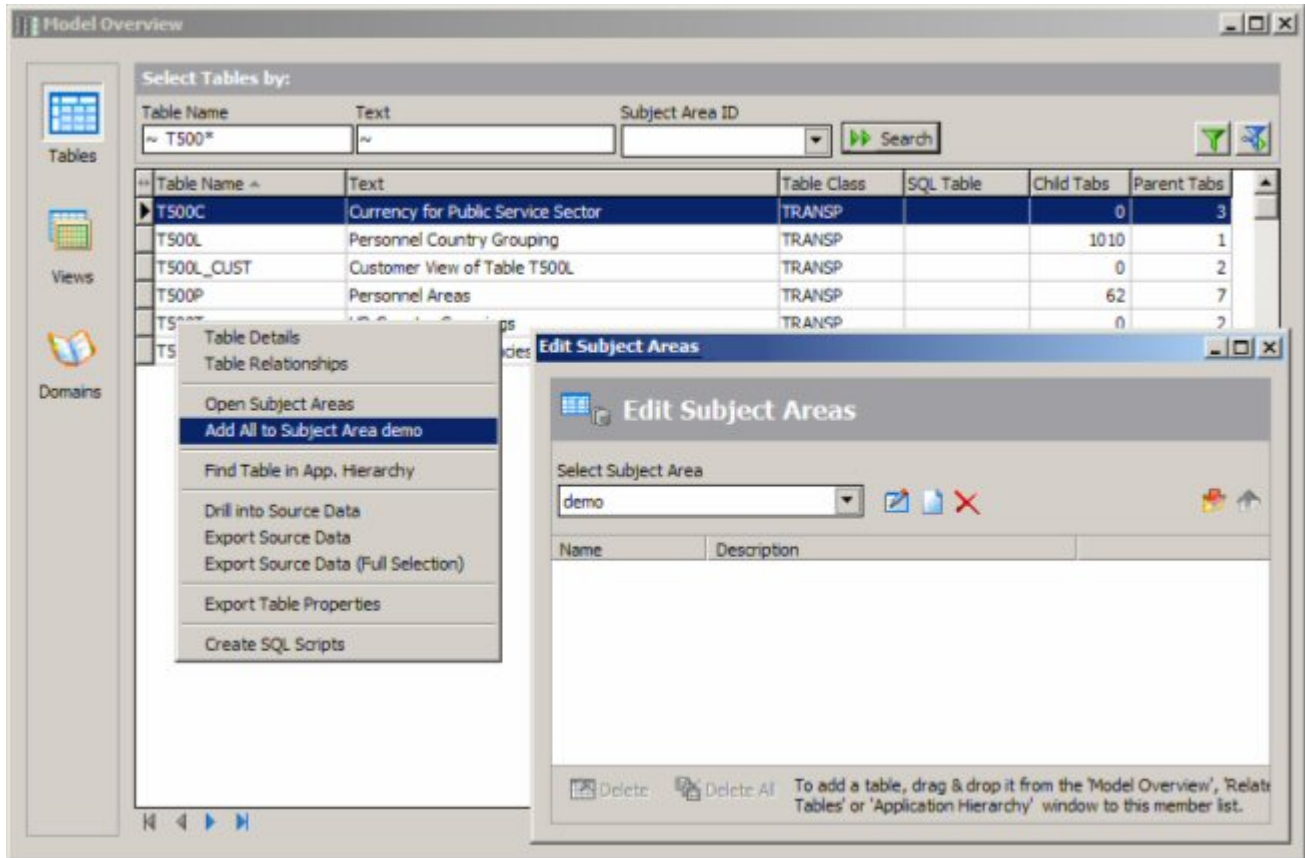
Populating a Subject Area from the Model Overview

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

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

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

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

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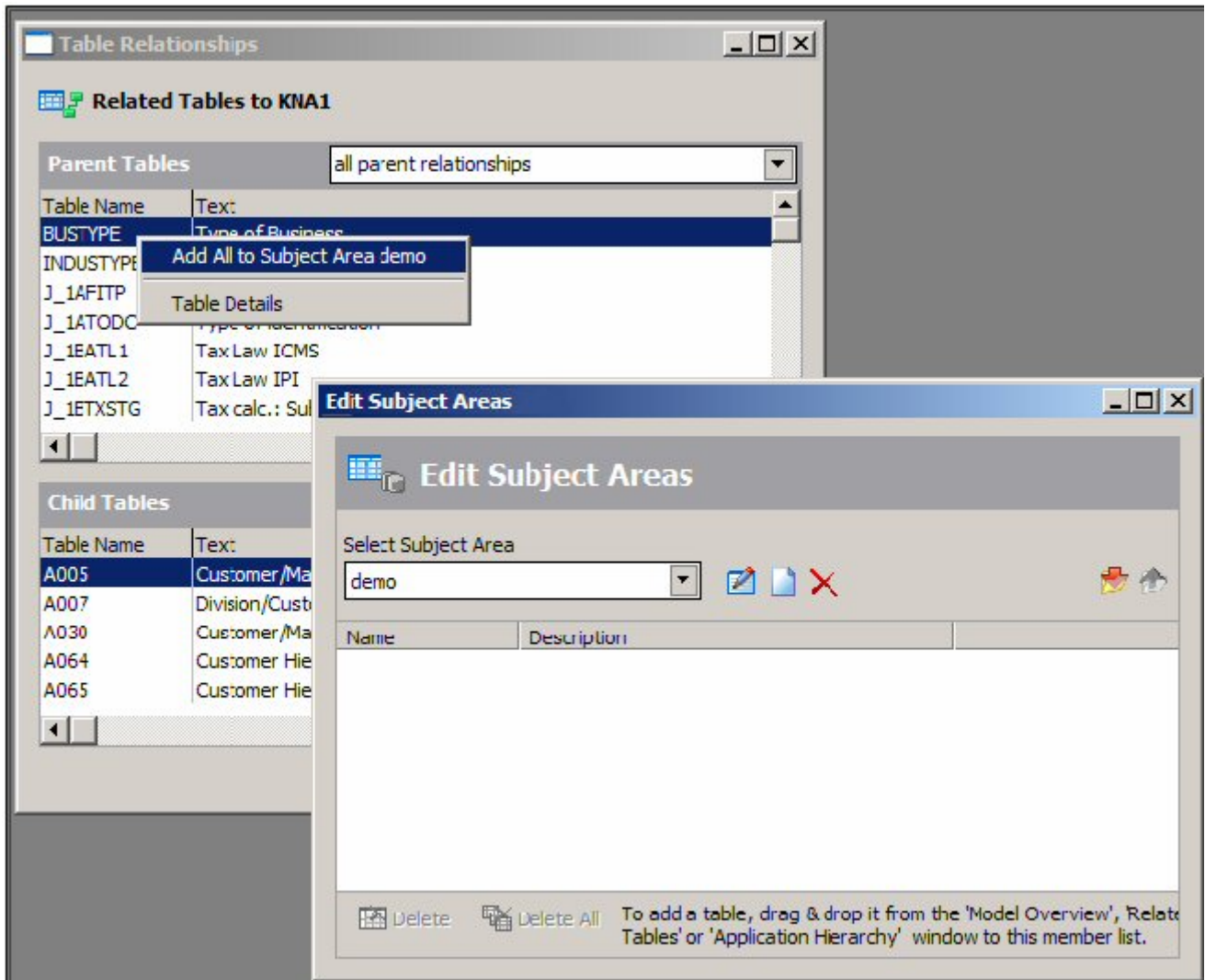
Adding related tables to a subject area

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 'Add all tables and views…' to add all the tables and views belonging to that node to the subject area.
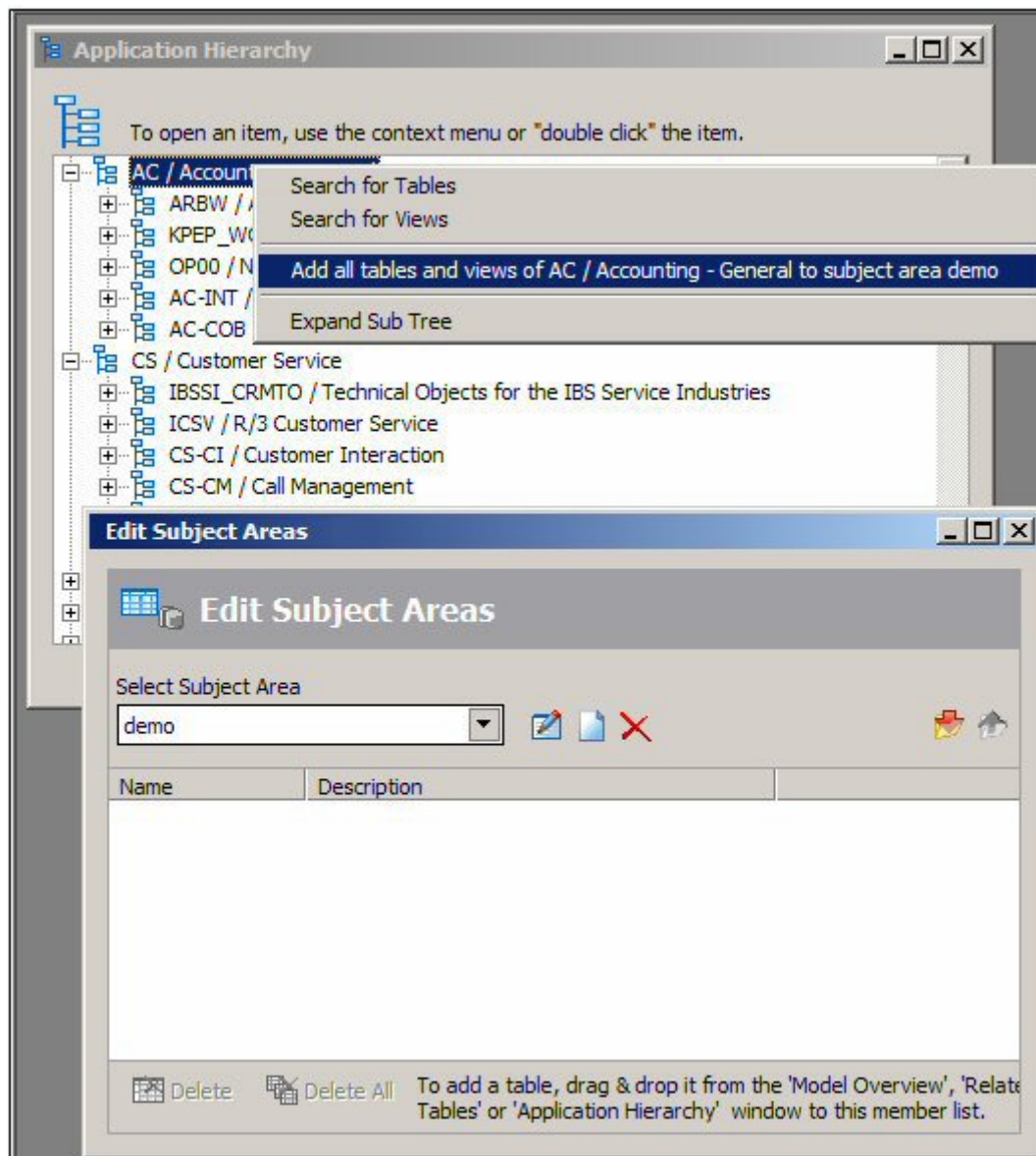
Populating a subject area from the Application Hierarchy

Inferring Relationships not extracted from the source Application

SA/ERP represents relationships from SAP by extracting the relationship definitions defined within the SAP Repository. This means that the relationships represented by SA/ERP 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. A newly-extracted SA/ERP repository, drawn from EnterpriseOne, will have no relationship definitions present whatsoever.

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

The Infer Relationships option in SA/ERP derives additional relationships by examining the metadata extracted for likely relationships. Slightly different approaches have been taken for inferring relationships for SAP, PeopleSoft Enterprise and J.D. Edwards EnterpriseOne, taking into account the characteristics of these three applications. The detail of these methods is described in Appendix B.

To differentiate these inferred relationships from those extracted from the source application, they are referred to as '*Extended Relationships*'.

Provision has been made to allow SA/ERP users to specify additional relationships to be considered for generation in a SA/ERP repository storing J.D. Edwards EnterpriseOne metadata and PeopleSoft Enterprise metadata. Please see Appendix B under the sections entitled 'Generation of Additional EnterpriseOne Relationships' and 'Influencing the generation of Additional PeopleSoft Relationships' to find out how to achieve this.

Creating Extended Relationships

The creation of extended relationships is normally carried out as part of the application extraction process (see the SA/ERP 'Getting Started Guide', Chapter 3 – Extracting Metadata for more details.)

The creation process can be run without performing the full extraction by going though the normal Extraction Wizard stages, but deselecting all of the Extraction Steps except 'Generate Extended Relationships' and the proceeding to run the extraction.
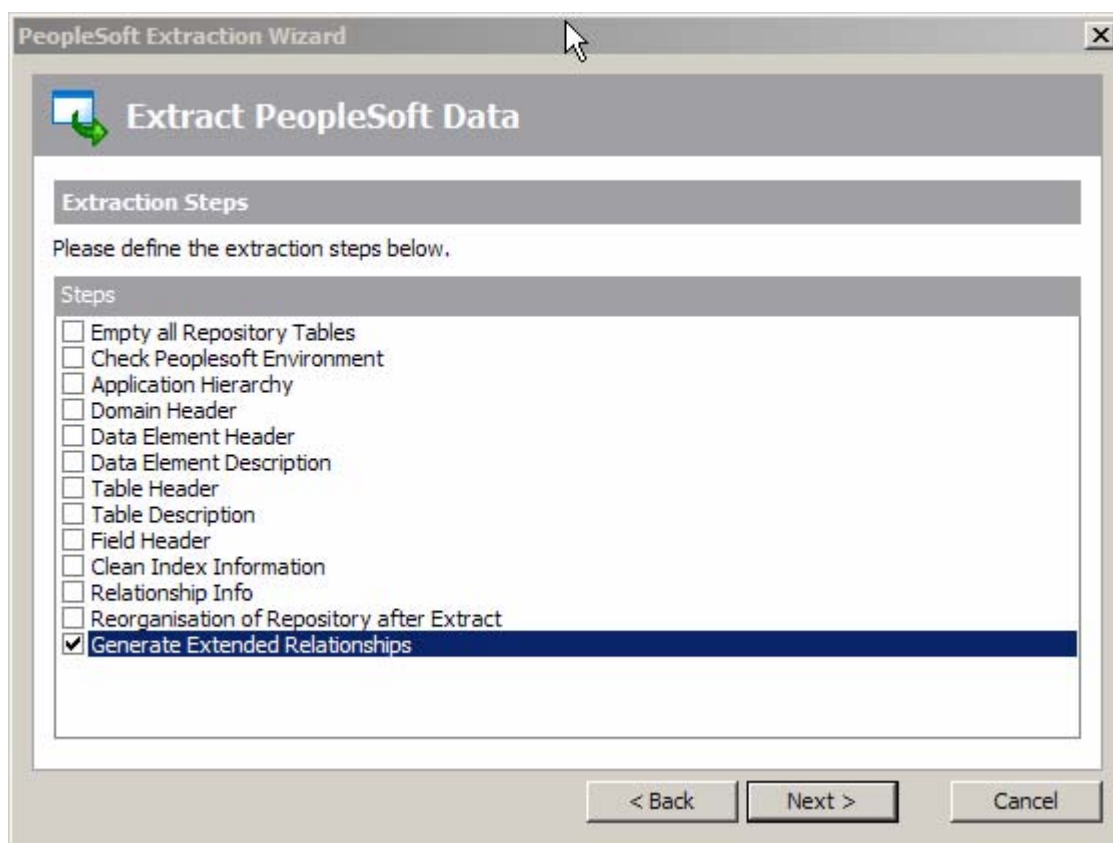
Setting the extraction options to only run the 'Generate Extended Relationships' process

The extended relationship generation process can be quite lengthy. For SAP the relationships are created in one pass, for PeopleSoft Enterprise three passes are involved and for J.D. Edwards EnterpriseOne, a total of 6 passes of the metadata are required.

Reviewing Extended Relationships

SA/ERP infers the 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 SA/ERP repository.

To delete an Extended Relationship

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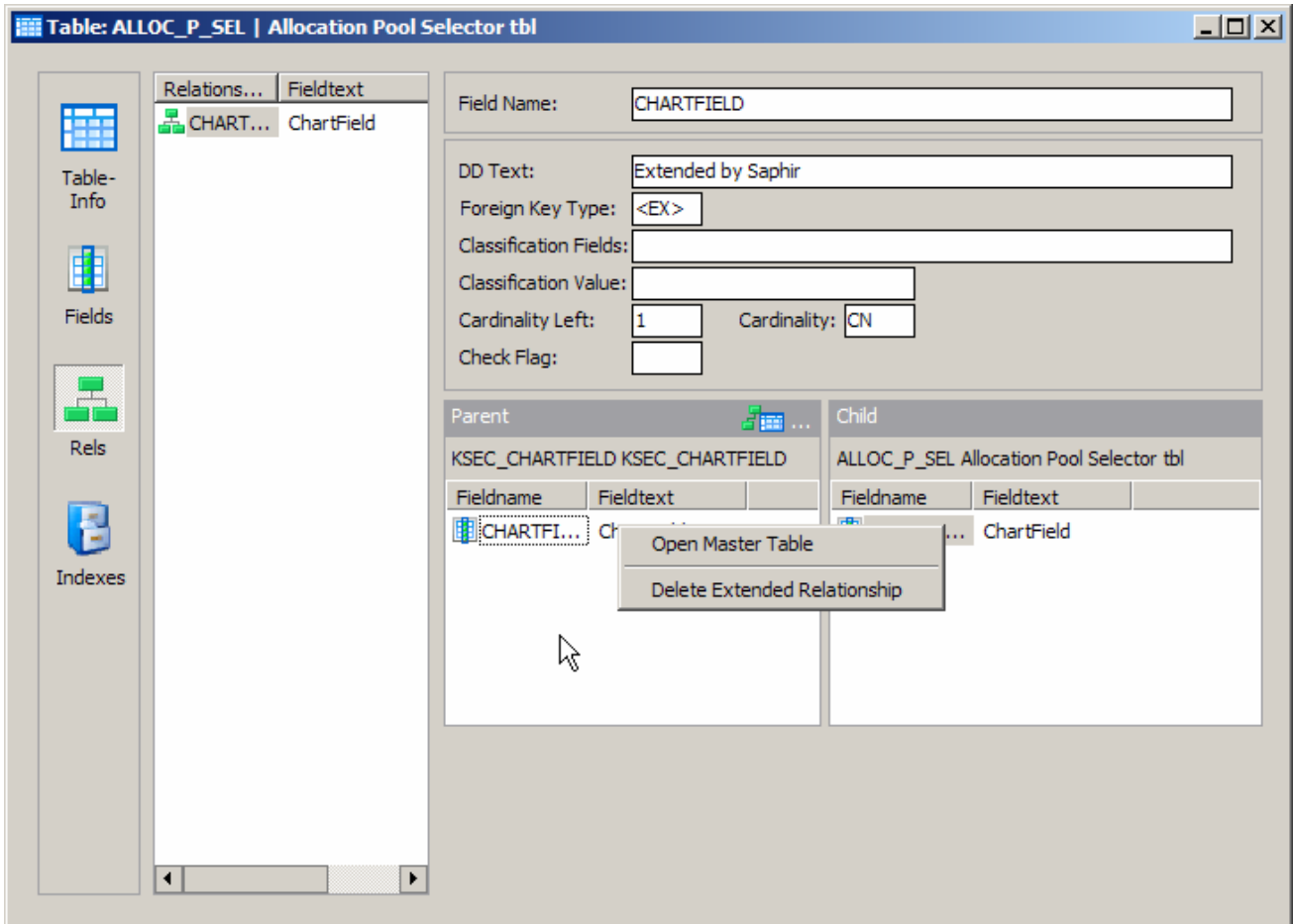
The Extended Relationship Delete Pop-up

From the pop-up choose 'Delete Extended Relationship'. It will be necessary to confirm the deletion to actually remove the relationship from the SA/ERP repository.

This 'Delete' feature is not enabled for non-Extended Relationships.

Note: Once an Extended Relationship has been removed from the repository, the only way to reinstate is to rerun the 'Create Extended Relationships' option.

Chapter

4

Exporting metadata from SA/ERP

Describes how to move metadata out of SA/ERP and into other environments

T he exploration features described in the previous chapter are principally aimed at locating data items of interest from the set of tables available in the SA/ERP 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 SA/ERP is the Subject Area. Whilst the target tool that requires the metadata will differ in how it deals with the information provided by SA/ERP, 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 SA/ERP tool bar, or choose 'Export Data Model as…' from the File menu. This opens the Export Data Model Wizard. Click the 'Next' button to start the export steps.

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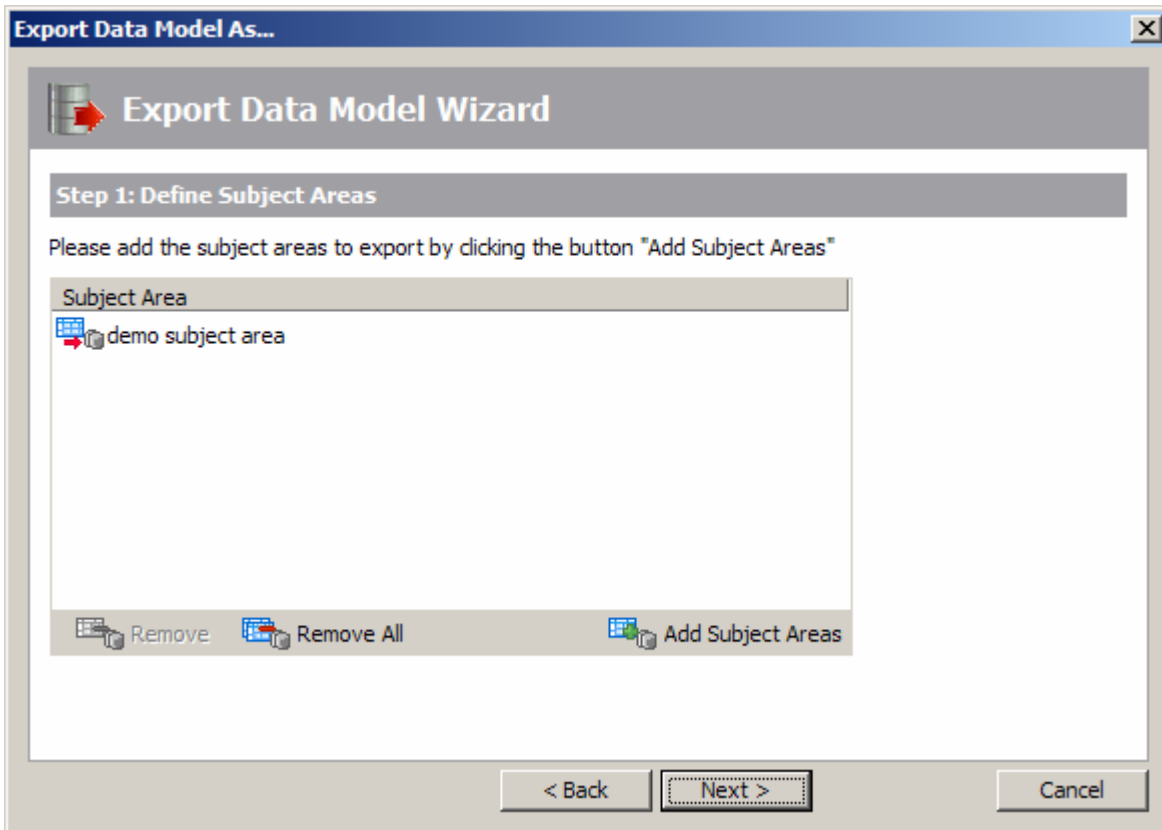
The Export Wizard – specifying the subject areas required

The next form displayed is the place to choose the export format. The actual export formats displayed and the subsequent wizard steps will depend on the formats that your SA/ERP installation has been configured to use.
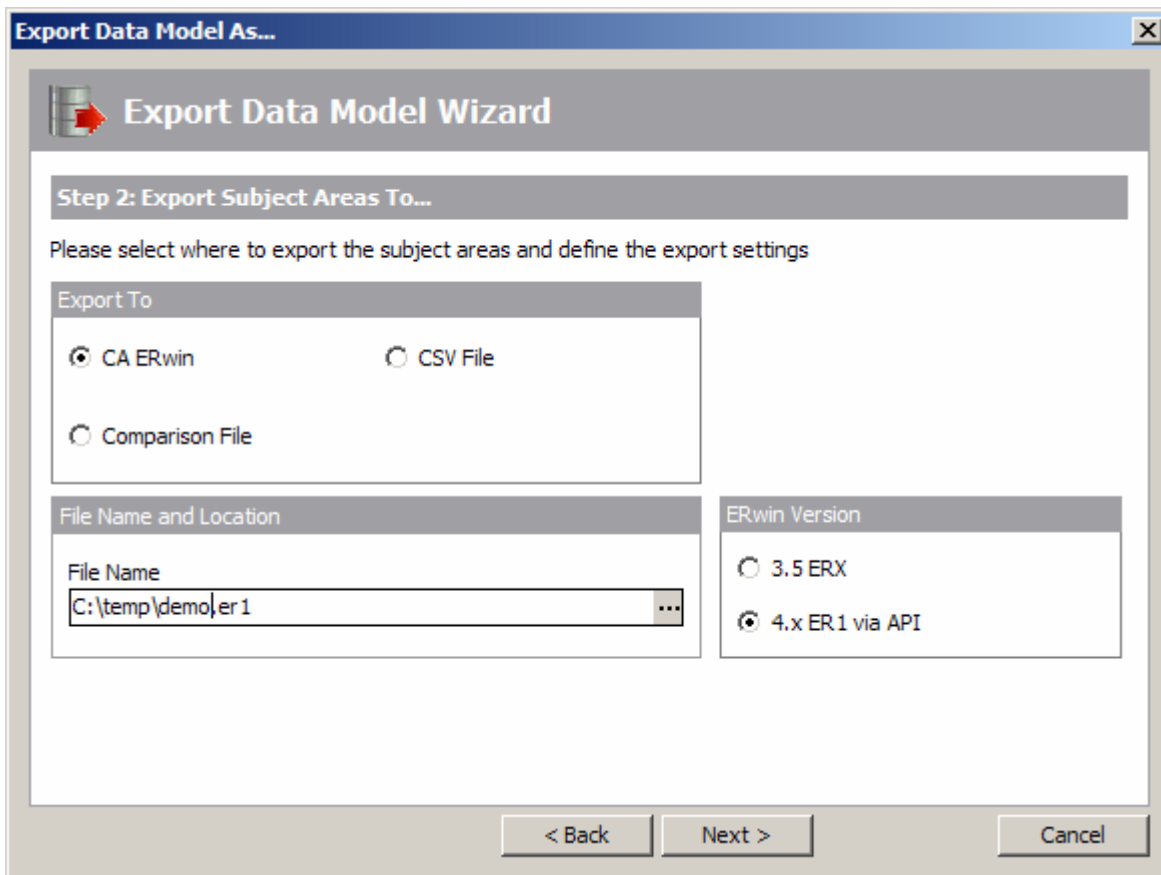
Export Wizard – choosing the export format

- ***Export to:***   This is for choosing the target for the Export information. The available options will depend upon the SA/ERP product license.

- ***File Name and Location:***   Use this control to specify a location and name for the export file.

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

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

Export Wizard Building Options

Possible Settings are: -

▪ Follow Primary Key Relationships up to level: - In addition to the subject area contents, this option will include any tables that have 'Parent' relationships to the tables in the Subject area(s) chosen, where the Foreign Keys are part of the Primary Key. The level number dictates how many generations of 'ancestors' to include. '0' will include only tables from the listed Subject area(s). '1' indicates direct parent ancestors. '2' would indicate parents of the parents and so on.

▪ Follow Non-Primary Key Relationships up to level: - In addition to the Subject area contents, include any tables that have 'Parent' relationships to the tables in the subject area, where the Foreign Keys are not part of the Primary Key.

▪ Follow Child Relationships down to level: - In addition to the Subject area contents, include any tables that have 'Child' relationships to the tables in the subject area. This option is further qualified by the next option of 'Type'.

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

▪ All child relationships

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

- Identifying only child relationships (refined set) - as for 'Identifying only child relationships', but in addition, the Primary Key of the child must be one more field than the Primary Key of the parent.

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

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.
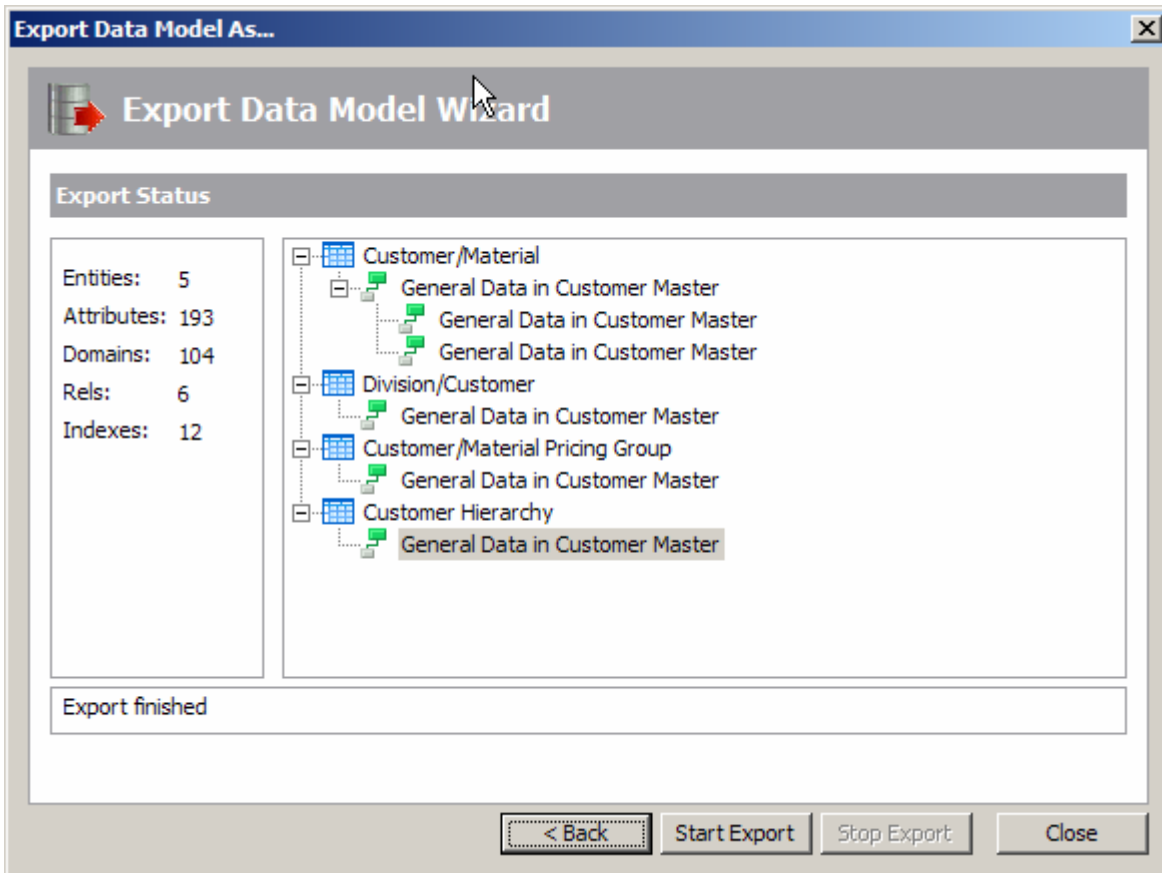
Export Wizard – Export Status

The CSV export format

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

This is a proprietary, text-based file, aimed at providing a means to export metadata from SA/ERP 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

Comparing metadata

*Describes how to use the SA/ERP compare feature to identifies differences between subject
areas from different repositories*

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

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

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

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 SA/ERP subject areas as per normal. Use these subject areas in the Export Wizard and check 'Comparison file' as the export format.

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

Now switch to another repository, define and export a similar subject area set. The two .MTA files will now be ready for comparison.
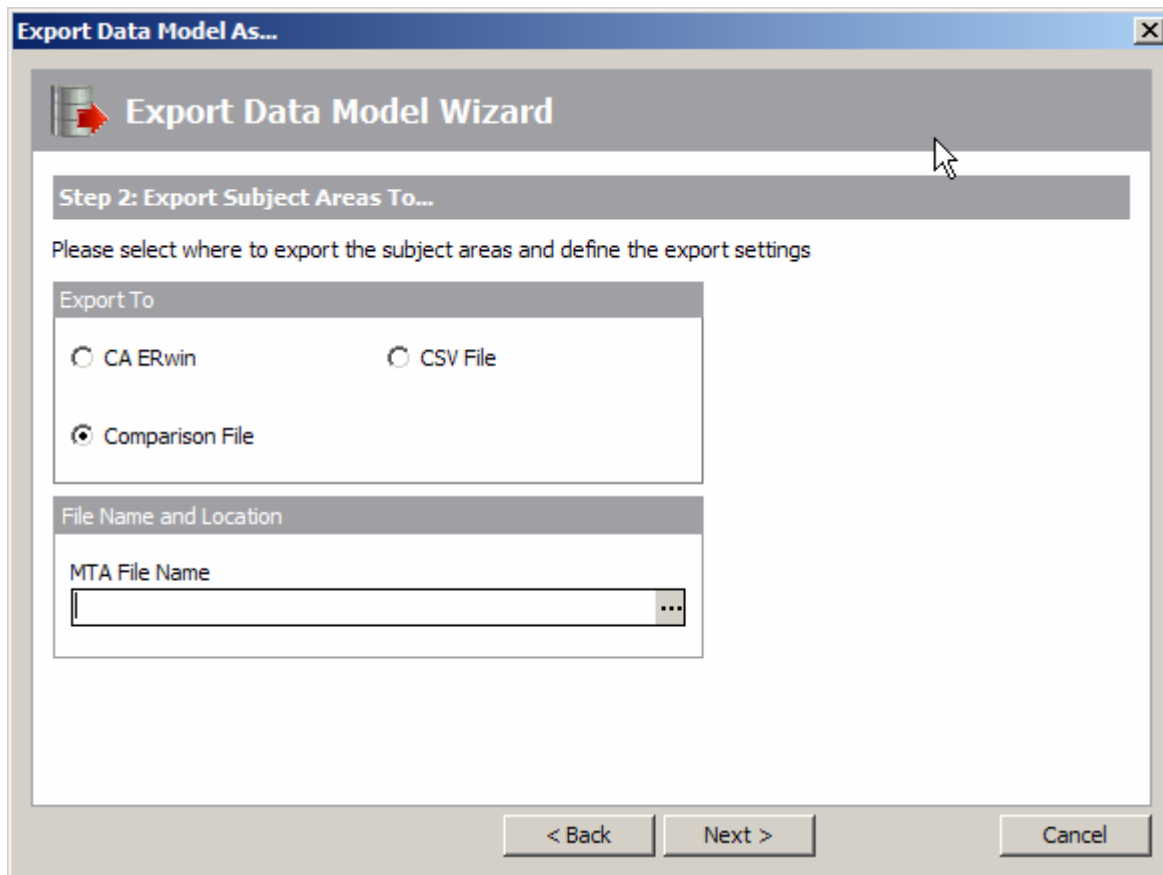
Choosing the Comparison File format in the Export Wizard

Performing the Subject Area comparison

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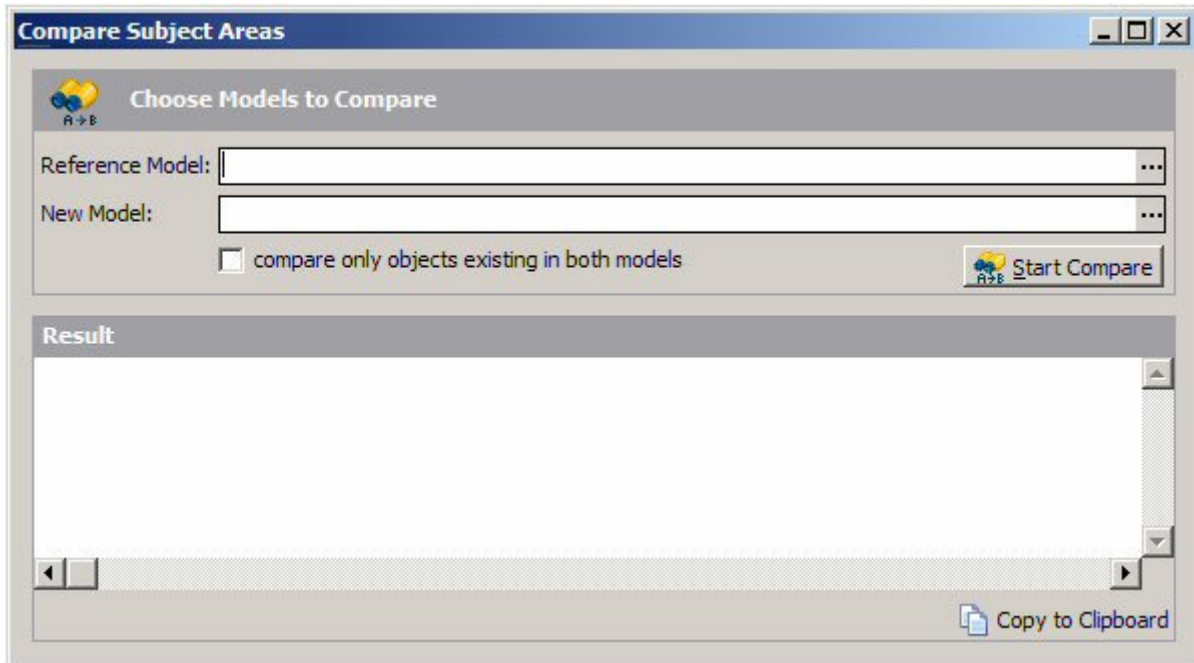
The Compare Subject Areas form

- Specify the two comparison MTA files to be compared using the file selectors at the top of the form.

- Check the 'compare only objects…' box to exclude any objects from the comparison that do not exist in both models.

- Click the 'Start Compare' button to perform the comparison.

Results of a comparison

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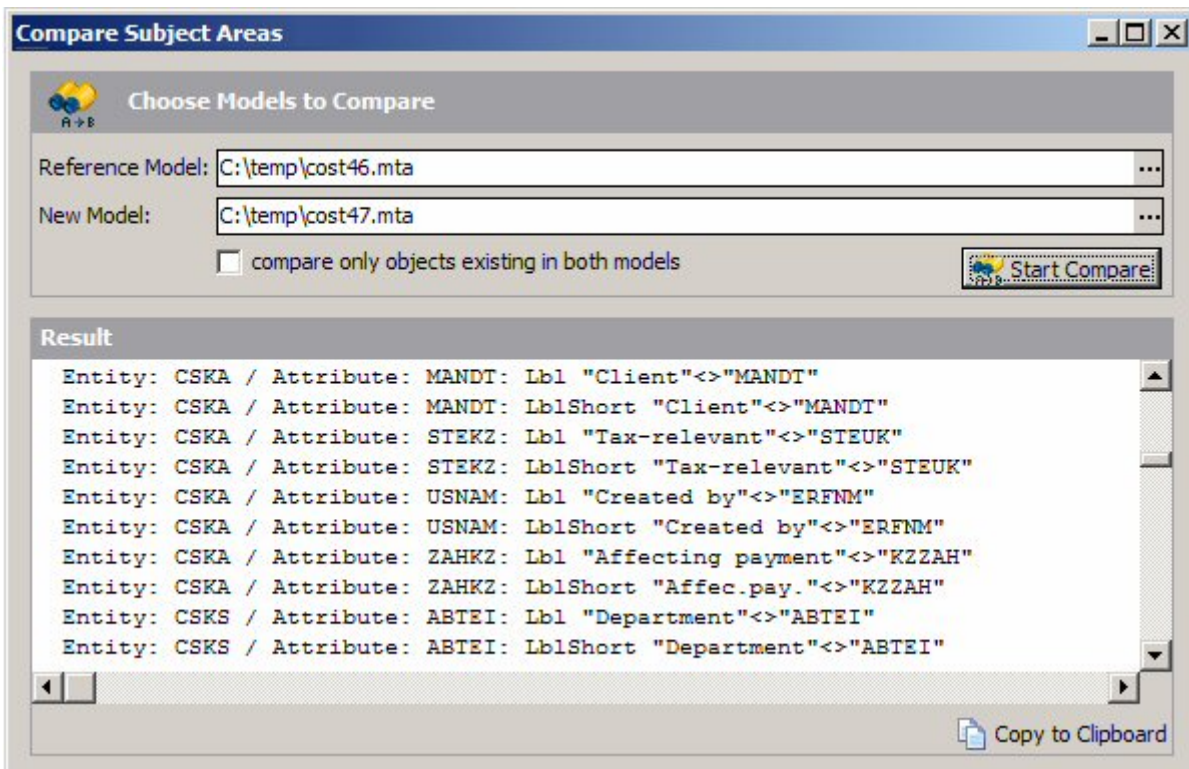
Results of a Comparison

Analyzing the comparison report

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

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

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

Running SA/ERP in Batch Mode

Describes how to run SA/ERP from a command line to export data

This chapter describes how to run SA/ERP in 'batch' mode to enable automated processing of data extraction.

    Running SA/ERP in batch mode allows users to run pre-defined exports of actual data to flat files. This facility can be used to automate large exports of data without the need to work interactively.

The batch mode command starts SA/ERP and uses a parameter file to control the export options.

Running SA/ERP from a command line

When run from a command line, SA/ERP uses a set of parameters to determine which data to export.

SA/ERP can be run from the windows Start Menu using the Run… option, or from a command session by typing 'cmd' in the Run… option.

Typing "C:\Program Files\Telelogic\System Architect Suite\System Architect\SAERP\Saphir.exe" /help
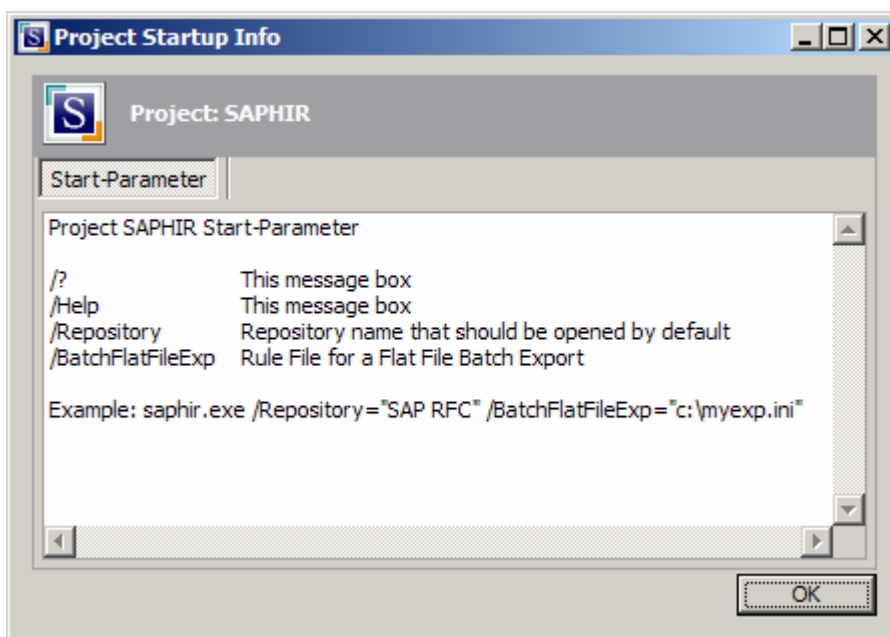
will start SA/ERP and show the available parameters.

SA/ERP start parameters

There are 3 main options when running SA/ERP from the command line. These are:-

- /? Or /Help   Displays a message box describing the command line options for SA/ERP
  e.g. "C:\Program Files\Telelogic\System Architect Suite\System
  Architect\SAERP\Saphir.exe" /?.

- /Repository   Allows the particular SA/ERP repository to be specified. e.g. "C:\Program
  Files\Telelogic\System Architect Suite\System
  Architect\SAERP\Saphir.exe" /Repository=PS1.

- /BatchFlatFileExp   Specifies the location of the export settings file (see below). e.g. "
  C:\Program Files\Telelogic\System Architect Suite\System
  Architect\SAERP\Saphir.exe " /Repository=PS1
  /BatchFlatFileExp=C:\Data\saphir_Batchexport.ini.

The /Repository and /BatchFlatFileExp will always be required when running SA/ERP to export data. The
'BatchFlatFileExp' file contains the details of the data to be exported. The structure of this file is described
below.

The BatchFlatFileExp file structure

An example BatchFlatFileExp file is installed in the SA/ERP folder when the product is installed
(Saphir_BatchExp_Example.ini).

```
[Export]
ExpFlatFileOptions="FS=[TAB],FSOC=[],FD=[NO],RS=[CRLF],BT=[1],BF=[0],EH=[1],LN=[1]"
ExpFlatFileBatchPath="t:\"
ExpFlatFileBatchPref="SaphirExp_"
ExpFlatFileBatchExt="txt"

[ExportTable_0]
TableName=T000
SAPClientID=000
OrderByStmt=
whereStmt=

[ExportTable_1]
TableName=T001
SAPClientID=000
OrderByStmt=
whereStmt=


[ExportTable_2]
TableName=T001R
SAPClientID=001
OrderByStmt=
whereStmt=
```

The Example Batch Export file delivered with SA/ERP

The file is structured in sections, each with a header in square brackets. The easiest way to understand the
structure is to edit the file with a text editor (windows Notepad will be suitable) and examine the settings in
conjunction with the notes below.

The sections are:

[Export]

This section details the options for the format and location of the exported data files. The available options reflect the fields available in the data export forms described in 'Exporting Data to flat files' in Chapter 3 of this manual. The options are:

ExpFlatFileOptions="FS=[TAB],FSOC=[],FD=[NO],RS=[CRLF],BT=[1],BF=[0],EH=[1],LN=[1]"

Where 'FS' describes the Field Separator, 'FD' the Field Delimiter, 'RS' the Record Separator, 'BT' the Boolean True setting, 'BF' the Boolean False setting, 'EH' the Write File Header setting and 'LN' the Record Counter.

ExpFlatFileBatchPath="t:\"

Describes the path where the exported data will be written.

ExpFlatFileBatchPref="SA/ERPExp_"

Specifies the (optional) prefix for each file name.

ExpFlatFileBatchExt="txt"

Specifies the file extension for each file name.

The [Export] section is followed by one or more [Export_Table] sections which describe the table to be exported and are structured as follows:

[ExportTable_0]
TableName=T000
SAPClientID=000
OrderByStmt=
WhereStmt=

The heading of [ExportTable_x] uniquely identifies each section. The 'x' is a number starting at 0 and incremented by 1 for each section.

TableName=T000

Specifies the 'physical' name of the table to be exported.

SAPClientID=000

For SAP systems only, the SAP ClientID (MANDT) for limiting the data exported.

OrderByStmt=
WhereStmt=

These options are not used in this release of SA/ERP.

Running the batch data export

To run the Batch Data Export enter the following command from the windows Start Menu, Run… screen, using the appropriate Repository name and BatchFlatFileExp name:

"C:\Program Files\Telelogic\System Architect Suite\System Architect\SAERP\Saphir.exe "
/Repository=PS1 BatchFlatFileExp=C:\Data\Saphir_BatchExp.ini.

The SA/ERP Meta Model

The tables below represent the Entities that make up the SA/ERP Meta Model. Each Entity is briefly described, the attributes listed and comments provided where applicable.

Entity Name: Application Function Areas
Entity Definition: A function area is a grouping of tables, usually into business function

Attribute Name	Comments
Appl Func Areaid	Application Function Area id
Appl Func Areaname	
Appl Func Areaparentid	The Id of the Parent in the Hierarchy
Appl Func Hierlevel	The Hierarchy Level
Appl Func Areahasdevclasses	'X' if the Application Function Area 'owns' any Development Classes (SAP only)

Entity Name: Application Function Description
Entity Definition: The descriptive text for Application Function Areas

Attribute Name	Comments
Appl Func Areaid	
DD Language	
DD Text	

Entity Name: Data Element
Entity Definition: A data element is a an attribute, independent of an entity

Attribute Name	Comments
Role Name	Data element name
Domain Name	The parent Domain name
Output Length	
Log Flag	
Header Length	
Screen Length 1	
Screen Length 2	
Screen Length 3	
Activation Flag	
Application Class	
Authorisation Class	

Entity Name: Data Element Description
Entity Definition: The descriptive text for Data Elements

Attribute Name	Comments
Role Name	Data element (semantic domain)
DD Language	Language in which the text is held ('E' - English, 'D' - German, etc)
DD Text	The descriptive text
Screen Text Short	
Screen Text Medium	
Screen Text Long	
DD Description	
Long Description	

Entity Name: Develop Class
Entity Definition: Development Class codes

Attribute Name	Comments
Develop ClassID	
Develop Class Appl Func Areaid	The Application Level to which the Development Class belongs (SAP only)
Develop Class Hasviewsortables	'X' Iif there are tables or views belonging to this level

Entity Name: Develop Class Description
Entity Definition: The descriptive text for Development Classes

Attribute Name	Comments
Develop ClassID	
DD Language	
DD Text	

Entity Name: Develop Class Tables
Entity Definition: The names of tables belonging to a development class

Attribute Name	Comments
Develop ClassID	
Table Name	Name of the table belonging to the development class

Entity Name: Develop Class Views
Entity Definition: The names of views belonging to a development class

Attribute Name	Comments
Develop ClassID	
View Name	name of the view belonging to the development class

Entity Name: Dictionary Language
Entity Definition: Holds an entry for each language in which descriptive item texts are stored

Attribute Name	Comments
DD Language	
DD Lang Description	

Entity Name: Dictionary Settings
Entity Definition: Holds Dictionary-specific settings for each Repository

Attribute Name	Comments
Setting Type	
Setting Value	

Entity Name: Domain Headet
Entity Definition: Details of Domains

Attribute Name	Comments
Domain Name	
Data Type	Logical datatype
Length	Internal length
Output Length	
Decimals	
Lower Case	
Sign Flag	
Entity Table	
Application Class	Application class for DD objects
Authorisation Class	

Entity Name: Domain Description
Entity Definition: Descriptive Text for a Domain

Attribute Name	Comments
Domain Name	
DD Language	Language in which the text is held ('E' - English, 'D' - German, etc)
DD Text	

Entity Name: Field Header
Entity Definition: Fields belonging to a Table

Attribute Name	Comments
Table Name	
Field Name	
Position	
Key Flag	KeyFlag (X or blank)
Mandatory	
Role Name	Data element
Check Table	Where the field is a foreign key, the name of the check table
Admin Field	
Internal Type	Internal data type (ABAP/4 type)
Internal Length	
Not Null	
Datatype	
External Length	The field length when represented on forms and reports
Decimals	
Domain Name	

Entity Name: Field Description
Entity Definition: Where the Data Element description is overridden, the override values are stored in this table

Attribute Name	Comments
Table Name	
Field Name	
DD Language	Language in which the text is held ('E' - English, 'D' - German, etc)
DD Text	
Screen Text Short	
Screen Text Medium	
Screen Text Long	
DD Description	
Long Description	

Entity Name: Foreign Key
Entity Definition: Link between 'Parent' table and Foreign Key fields

Attribute Name	Comments
Table Name	
Field Name	
Prime Key Position	Position of foreign key field in Primary Key (of the Parent)
Foreign Key Table	Table of the foreign key field
Foreign Key Field	Names of the foreign key fields
Foreign Key String	Foreign key part in other table

Entity Name: Index Header
Entity Definition: Contains one entry per Index

Attribute Name	Comments
SQL Table	
Index Name	
Authorisation Class	Activation Type
Unique Flag	
Activation Flag	Activation Flag
DB Index	Database index name

Entity Name: Index Item
Entity Definition: Contains one entry per Index element

Attribute Name	Comments
SQL Table	
Index Name	
Position	
Field Name	

Entity Name: Relationship Description
Entity Definition: Descriptive Text for a Relationship

Attribute Name	Comments
Table Name	
Field Name	
DD Language	Language in which the text is held ('E' - English, 'D' - German, etc)
DD Text	

Entity Name: Relationship Header
Entity Definition: Identifies each Relationship

Attribute Name	Comments
Table Name	
Field Name	
Check Table	Parent in the relationship
Foreign Key ART	Dependency Factor - that what it says in the dd, but it may really be Foreign Key something
Classification Field	Internal classification of foreign field (Partial, etc)
Classification Value	Flag, client-specific entries, client chain
Cardinality Left	Source cardinality of a relationship (left-hand side)
Cardinality	Cardinality of a foreign key
Check Flag	

Entity Name: Sub Model
Entity Definition: This table stores the SA/ERP subject areas which is a grouping of tables or views

Attribute Name	Comments
Sub Model Id	
Sub Model Description	

Entity Name: Table Header
Entity Definition: Contains one entry per Base Table in the ERP

Attribute Name	Comments
Table Name	
Table Class	Table Type can be 'TRANSP', 'POOL' or 'CLUSTER'
SQL Table	
Activation Flag	Activation Flag
Application Class	Application class for DD objects
Authorisation Class	Activation Type
Context Flag	
Number of Parent Tables	
Number of Child Tables	

Entity Name: Table Description
Entity Definition: Descriptive text for a Table.

Attribute Name	Comments
Table Name	
DD Language	Language in which the text is held ('E' - English, 'D' - German, etc)
DD Text	
Long Description	

Entity Name: Table Sub Model Involvement
Entity Definition: A link table to show the Base Tables belonging to a Subject Area

Attribute Name	Comments
Sub Model Id	
Table Name	

Entity Name: View Description
Entity Definition: End-user text describing the view, by Language

Attribute Name	Comments
View Name	
DD Language	Language in which the text is held ('E' - English, 'D' - German, etc)
DD Text	
Long Description	

Entity Name: View Element
Entity Definition: The individual elements of a view, one row per attribute

Attribute Name	Comments
View Name	
Object Position	
View Field	
Table Name	
Field Name	
Key Flag	Key Flag (X or blank)
Role Name	Data element (semantic domain)
Read Only	

Entity Name: View Foreign Keys
Entity Definition: Contains Foreign Keys used in a View

Attribute Name	Comments
View Name	
Table Name	
Table Position	
Foreign Table Name	
Foreign Field	
Foreign Direction	Direction of foreign key relationship

Entity Name: View Header
Entity Definition: Stores details of each View

| Attribute Name	Comments
View Name	
Aggregate Type	Type of selection condition
Application Class	Application class for DD objects
Authorisation Class	Activation Type
Read Only	
Root Table	
View Class	View type
Activation Flag	Activation Flag
View Grant	Access authorization for views

Entity Name: View Sub Model Involvement
Entity Definition: A link Table to show the views belonging to a Subject Area

Attribute Name	Comments
Sub Model Id	
View Name	

SA/ERP Logical Meta Model
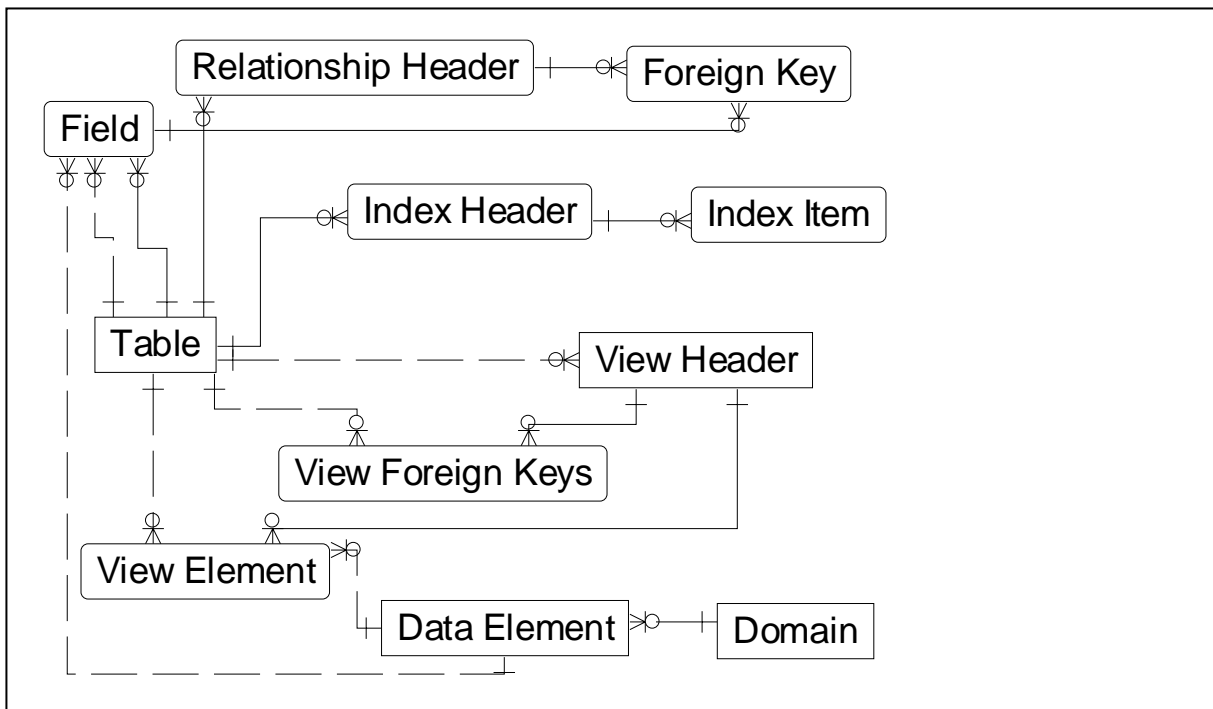
SA/ERP Logical Meta Model

The diagram above shows the main entities making up the SA/ERP Logical Meta Model. SA/ERP is designed to store a sub-set of the meta-data from Enterprise Application like SAP, PeopleSoft Enterprise or J.D. Edwards EnterpriseOne, specifically those items related to Entities, Attributes and Relationships.

Method for Generating Extended Relationships

Describes the way additional relationships between tables are inferred by SA/ERP

The generation of extended relationships occurs in up to 6 passes through the SA/ERP 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 saphir.ini file to see if there is a preferred parent listed (see the section 'Influencing the generation of additional PeopleSoft relationships' below). If no 'parent' is found in the .ini file, then the first of the available potential parents is chosen.

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

- J.D Edwards EnterpriseOne: 1 Field.

- SAP: If Primary Key-Field 1 is MANDT then MANDT plus 1 Field, otherwise 1 Field.

- PeopleSoft: If Primary Key-Field 1 is SETID then SETID plus 1 Field, otherwise 1 Field.

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 EnterpriseOneOnly)

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

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

Generation of additional EnterpriseOne relationships

The 6 phases of relationship generation for J.D. Edwards EnterpriseOne described above may not generate all the relationships the user requires. This will be particularly true if there are no entries in the Business Views for the respective tables.

To allow the generation of additional relationships, users may create entries in the saphir.ini file (see Appendix B of the SA/ERP 'Getting Started Guide' for details of the SA/ERP .ini file). The section JDEHINTS_DIMENSION_TABLES lists additional pairing of tables to be considered for relationship generation.

The format for this is

```
[JDEHINTS_DIMENSION_TABLES]
TABLES01=F0013;F0015;
```

To make an entry in this file, use a text editor such as Notepad or WordPad. Each entry must have the first line with the word 'Tables' immediately followed by a unique integer (e.g. Tables02), then an 'equals' character, then the names of the two tables that participate in the relationship, each followed by a semicolon.

At Extended Relationship generation time, this file is used to create additional relationships in the SA/ERP repository. It is important to get the format of rows in this file correct, and to edit and save the file before running the 'Create Extended Relationships' function.

Influencing the generation of additional PeopleSoft relationships

When inferring relationships for PeopleSoft Enterprise, 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 saphir.ini file (see Appendix B of the SA/ERP 'Getting Started Guide' for details of the SA/ERP .ini file).

The section PSOFTHINTS_PARENT_TABLES lists tables to be considered for relationship generation. The generation rule is that if there is more than one potential Parent for a relationship, the inference process will use the .ini file section to help determine which to use.

The format for this is

    [PSOFTHINTS_PARENT_TABLES]
    TABLES01=VENDOR;

To make an entry in this file, use a text editor such as Notepad or WordPad. Each entry must have the first line with the word 'Tables' immediately followed by a unique integer (e.g. Tables02), then an 'equals' character, then the names of the table, followed by a semicolon.

It is important to get the format of rows in this file correct, and to edit and save the file before running the 'Create Extended Relationships' function.

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